

IEEE History Center

ISSUE 123, November 2023



IEEE HISTELCON, the Region 8 History Conference provides practitioners and veterans of IEEE technologies on the one hand, and historians of technology on the other, an opportunity to share their experiences, expertise, and research.

| | |
|---|----|
| Signals from the Director | 2 |
| History Committee Activities | 3 |
| IEEE History Committee: 60 Years of Continued Activity Promoting History | |
| Center Activities | 4 |
| Important Changes to Milestones Submission Process: Proposers to Include Abstracts, and Suggest Four Expert Reviewers | |
| History Center Had Strong Presence and Exhibit at 2023 Sections Congress | |
| Memories of a Florentine HISTELCON | |
| ETHW Update: More Than Twenty New Oral Histories Added | |
| IEEE REACH Expanding Its Presence in Africa | |
| Relic Hunting. | 8 |
| Retro Paint Schemes Pay Tribute to Historic Locomotives | |
| Interesting Reads. | 8 |
| Three Recent Library Donations | |
| Books from the IEEE History Center Press | |
| Giving and Support for IEEE History Center Programs | 11 |
| Fellowship and Visiting Scholar Support from the IEEE History Center | |



No content in this issue was generated by AI.

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—once in hard copy (July) and twice electronically (March and November) by the IEEE History Center.

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Dr. Michael Geselowitz
Senior Director, IEEE History Center

In his column this issue (page 3), IEEE History Committee Chair Antonio Savini notes that the Committee is sixty years old. As Antonio points out, the charter of the Committee is to advise the IEEE Board of Directors, and IEEE organizational units, on matters relating to the history of technology and the history of IEEE itself. Over the years, the Committee has taken on a number of direct activities, most notably in the area of recognitions—IEEE

Milestones, Life Member History Fellowship, visiting scholarship, Middleton Book Award, Special History Citations.

Therefore, some forty-three years ago, a professional history staff was added to IEEE to support the Committee in its expanded efforts, and the IEEE History Center was born. In return, with fundraising support from the IEEE Foundation, the Center was encouraged to develop its own programs in historical preservation and dissemination which the History Committee would then oversee with advice and consent. From the beginning, it has been

WAYS YOU CAN HELP HISTORY

As you read this newsletter, you will see the many success stories of the IEEE History Center and the ways it nurtures the heritage of the profession. As successful as the Center is, it relies on the support and contributions—financial, intellectual, and time and effort—of many people. We ask you to help further our work by:

Proposing an IEEE Milestone—Milestones recognize significant achievements in technology
ieemilestones.org

Contributing a First-Hand History—Written and oral histories help us chronicle important innovators and innovations <http://ethw.org/create>

Authoring an article for the ETHW—The Engineering and Technology History Wiki (ETHW) is an authoritative collection of historical information about technology's contributions to society
ethw.org/create

Supporting the History Center's mission with a donation.

However you can help, it is always deeply appreciated.

HOW CAN THE HISTORY CENTER HELP YOU?

A Handy Guide to Some of Our Programs and Contacts

Engineering & Technology History Wiki: https://ethw.org/Main_Page

List of dedicated IEEE Milestones: https://ethw.org/Milestones:List_of_Milestones

How to Propose an IEEE Milestone: http://ieemilestones.ethw.org/Milestone_Guidelines_and_How_to_Propose_a_Milestone

Milestone proposals in process: http://ieemilestones.ethw.org/Milestones_Status_Report

Oral History Collection: https://ethw.org/Oral-History:List_of_all_Oral_Histories

REACH Program (free online materials for teaching the history of technology): <https://reach.ieee.org/>

History Events Calendar: <https://www.ieee.org/about/history-center/events.html>

Support for scholars:

Fellowship in the History of Electrical and Computing Technologies:
<https://www.ieee.org/about/history-center/fellowship.html>

Pugh Young Scholar in Residence:
<https://www.ieee.org/about/history-center/internship.html>

Middleton History Prize (awarded to a book in the history of technology):
<https://www.ieee.org/about/history-center/middleton-award.html>

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 did. 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: 500-1210 words. Submit to iee-history@ieee.org. Articles and letters to the editor may be edited for style or length.

a superb partnership. I think regular readers of this newsletter would agree that IEEE is a leader among technical associations in historical programming, and this collaboration is the key.

One particularly successful example happened just two weeks before my writing of my column. IEEE Region 8 sponsored IEEE HISTELCON 2023, its every-other-year history conference, in Florence, Italy (see page 5). The History Committee served as a technical co-sponsor (as it has from the first HISTELCON in Paris in 2008), History Committee member Stefano Selleri served as conference chair, and Antonio served on the conference's general committee. The IEEE History Committee met in Florence the day before the conference began (in hybrid fashion as is now the custom), and was supported by members of the History Center staff. Members of the Committee and of the staff who were present in-person then stayed on and participated in HISTELCON. Volunteers and staff gave papers and chaired sessions. The conference was a huge suc-

cess, and we learned there that Region 8 is in discussion with other regions to expand HISTELCON further. This is an example of grassroots IEEE volunteer action that can be encouraged by a central IEEE unit and supported by corporate staff. I am sure that the IEEE History Committee and the IEEE History Center will continue to be involved with, help support, and benefit from IEEE HISTELCON.

Next, let me take this opportunity to thank you, the History Center donors, for your support. As mentioned above, much of the programming presented in this newsletter is supported by philanthropic donations channeled through the IEEE Foundation. I hope we have continued to earn your appreciation of these activities, and that you will again conder us for your end-of-year giving or when you renew your IEEE membership or complete your IEEE Life Member Profile.

Finally, let me wish you and yours a joyful holiday season and a healthy and contented new year.

HISTORY COMMITTEE ACTIVITIES

IEEE HISTORY COMMITTEE: 60 YEARS OF CONTINUED ACTIVITY PROMOTING HISTORY

By Antonio Savini

IEEE History Committee 2022-2023 Chair

IEEE established the History Committee in 1963, sixty years ago, when IEEE was founded from the merger of AIEE, founded in 1884, and IRE, founded in 1912. A handover of IRE, the History Committee became one of the twelve standing Committees of the IEEE Board of Directors.

By this initiative IEEE recognized the importance of the preservation and promotion of the history of IEEE fields of interest as well as of IEEE itself.

Initially the History Committee—the mission of which is to advise and support the IEEE Board of Directors and other Organizational Units for the promotion of the knowledge of the history of technology—was composed of six voting members, including the Chair, appointed from volunteers coming from the worlds of historians and distinguished professionals of long-lasting experience. The first chair was Haraden Pratt, a noted American electrical engineer and radio pioneer. Two years later, the number of members increased to eight, and in 1971 to fifteen, which is the current number.

The History Committee also has non-voting corresponding members who are past History Committee members, history activities coordinators of various IEEE organizational units, historians of sister societies and organizations, museum curators and archivists, and proposers of IEEE Milestones.

To support the work of the History Committee, in 1980 the Center for the History of Electrical Technology was established, later called History Center. The Center is composed by professional staff and funds are allocated to it.

This year, being the sixtieth anniversary of the History Committee, is an occasion to rethink the history of the Committee and to prepare the future. The History Committee's activity has grown over the years at an increasing rate. In the past the Committee used to have two in-person meetings per year. In recent years tele-meetings have been held every second month. In order to offer the possibility of personal contact once per year one meeting was hold in hybrid form.

The main activity of the History Committee, particularly in recent times, has been the development of the Milestones Program, its flagship program started in 1984, almost forty years ago https://ieeemilestones.ethw.org/Milestone_Guidelines_and_How_to_Propose_a_Milestone. More and more Milestone proposals are submitted every year, and the Committee takes care of their careful evaluation. In 2022 as many as ten Milestones were dedicated. Since the very first Milestone, the Vulcan Street Plant, 1882, the number of dedicated Milestones amounts to 236 (as of August 2023).

In addition to the processing of Milestones proposals, the History Committee has the task of examining books submitted for the J&W Middleton Electrical Engineering History Award, as well as applications for the IEEE Life Members' Fellowship in History <https://www.ieee.org/about/history-center/fellowship.html> (for more information, see page 11). Recently, the Committee decided to pay increasing attention to the coordination of history activities of the various organizational units of IEEE (Societies, Regions, etc).

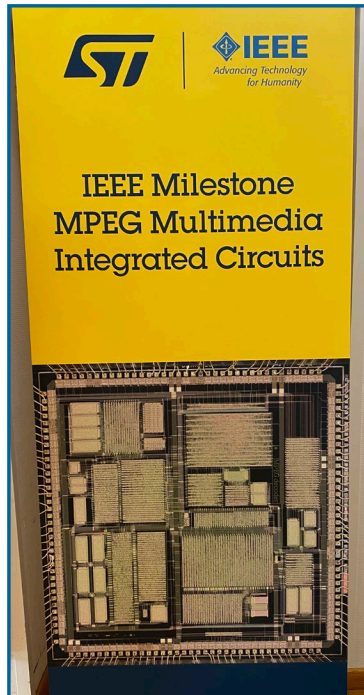
In conclusion, while celebrating its sixty years of intensive activity, the History Committee is prepared to face the demanding requests of the future, in the fulfilment of its mission.

IMPORTANT CHANGES TO MILESTONES SUBMISSION PROCESS: PROPOSERS TO INCLUDE ABSTRACTS, AND SUGGEST FOUR EXPERT REVIEWERS

At its September meeting, the History Committee voted that milestone proposer(s) shall be required to suggest four objective possible outside expert reviewers prior to submission of a milestone proposal. The proposer(s) shall submit the names of the proposed expert reviewers to the IEEE History Center staff Milestones Administrator as part of the milestone proposal. The reviewers need not be current or past members of the History Committee. The proposers shall not contact the suggested reviewers.

The IEEE advocate shall contact the suggested expert reviewers and confirm that the suggested expert reviewers have no conflicts of interest (as defined in section 5.1.4.1 of *History Committee Information*), and also evaluate their qualifications to the best extent possible. The IEEE advocate would always have the option of choosing different reviewer(s).

The proposer(s) shall also recommend



the IEEE technical societies and technical councils within whose fields of interest the Milestone proposal resides.

The History Committee also voted that milestone proposer(s) shall be required to provide a 200-250 word abstract of their proposal. The abstract shall describe the significance of the technical achievement being proposed, the person(s) involved, historical context, humanitarian and social impact, as well as any possible controversies the advocate might need to review. The abstract must be included in the proposal prior to the proposal being submitted. It is strongly recommended that the abstract be created as early as possible in the proposal process.

The History Committee approved these changes as a way to speed the review process for milestone proposals.

HISTORY CENTER PRESENCE AND EXHIBIT AT 2023 SECTIONS CONGRESS

The IEEE History Center had a strong presence at IEEE Sections Congress 2023 on 11–13 August 2023 in Ottawa, Canada. As part of the increasing IEEE Global Museum activity, staff partnered with Ingenium, <https://ingeniumcanada.org/> the Canadian National Museum of Science and Technology, both to arrange a visit and tour of the museum for IEEE Section Congress attendees, as well as for the staff of the Science and Technology Museum to bring some of their special artifacts to Sections Congress and to display them at the History Center booth. Among the most significant of these artifacts was the 8-cavity magnetron that Edward Bowen brought from England to the U.S. in the summer of 1940 as a member of the British Scientific and Technical Mission led by Henry Tizard.

Staff gave four breakout sessions on IEEE Historical programs (Milestones, ETHW, Oral History, and IEEE REACH), and Center staff participated in the IEEE Foundation 50th Anniversary pavilion as well as the IEEE Climate Change Pavilion.



The Tizard Mission Magnetron Displayed at Sections Congress



History Center Armstrong Exhibit at Ingenium

MEMORIES OF A FLORENTINE HISTELCON

By Alexander B. Magoun, Ph.D., Outreach Historian

Every two years, volunteers in Region 8 organize IEEE's only regular history conference. This gathering provides practitioners and veterans of IEEE technologies on the one hand, and historians of technology on the other, an opportunity to share their experiences, expertise, and research in the causes and consequences of change in IEEE fields, technologies, and techniques. The latest edition was held in Florence, Italy, over three blazingly sunny days, 7-9 September, and administered by many dedicated volunteers of the Italy Section, led by general co-chairs Massimo Guarneri and Giuseppe Pelosi and technical program chair (and IEEE History Committee member) Stefano Selleri. Through their good relations with the University of Florence and peer institutions in the city, we met for the plenary talks in the Aula Rossa of the Villino Ruspoli; and for the three tracks of sessions in the rooms of the 15th century Opera di San Giovanni. As it faces the Campanile di Giotto on the Piazza del Duomo, the Opera is perhaps the most distinguished, if not oldest, conference setting ever enjoyed by HISTELCON participants. In all, thirty six abstracts and forty eight papers, by one hundred and fifty two authors from twenty three countries, were accepted; a selection of the papers will be submitted to IEEExplore.

Centering on the question of "Science and Technology, or Technology and Science," the plenaries and sessions offered responses across a variety of subjects. Prevented from attending in person, IEEE History Committee chair Antonio Savini gave his plenary remotely on information technology (IT) museums and IT as a tool for museums. It prepared listeners for the next morning's sessions on museums—including the new IEEE Global Museum, their collections, and their expanding set of tools for cataloging, storytelling, and exhibiting the immaterial, like electricity grids. Anna Giatti gave a warm remembrance of Paola Brenni and his dedication to both the preservation of scientific and technical instruments, and the re-enactment of classic experiments. One of these was yet another test of Hertz's generation of electromagnetic waves, which were also referred to in my survey of the growing field of electronic archaeology. Nonetheless, the talk was a poor substitute for actually visiting the incredible Gabinetto di Fisica, <https://www.fstfirenze.it/gabinetto-di-fisica/>, a restored, 19th century time capsule of 2,000 marvelously preserved and organized instruments, which Giatti cares for at Florence's Fondazione Scienza e Tecnica.

Over the next two days, speakers offered historical and more recent perspectives on events, technologies, and the people involved, which sometimes meant the speaker. Mitsuaki Oshima, for example, and his long-time colleague at Panasonic gave an account of their commercialization of the image stabilizer in cameras that we now take for granted in our phones. Ursula Keller, first female physicist at ETH Zurich and Marcel Benoist Prize winner, reviewed her career in pioneering ultrafast lasers.



Among papers on women in engineering, Amy Bix of the IEEE History Committee presented a provocative comparison of the quite different patterns for women entering scientific or engineering professions; gender balance in the latter remains more imbalanced than in the former. Peter Kurz, having helped revise the European origins of patents in his plenary talk, joined with Hugo Wyss to discuss conflicting patents in long-wave wireless communications during World War I.

The array of topics revealed new gaps in one's knowledge of IEEE fields. Marco Frego, speaking on behalf of four co-authors at three universities, unpacked the surprising history of calculating clothoids for technological applications. It seemed to this listener to complement Selleri's discussion of the Smith chart. Other members of the substantial Italian contingent contributed usefully to the Marconi literature, early computing at Italian universities, radar history, and the Italian reception of James Clerk Maxwell's theory. Radio astronomy was exhaustively covered in two sessions, and the final session on Russian/Soviet contributions to electromagnetic research and the nature of measurement nicely capped HISTELCON 2023's theme of the intertwined roles of scientific and technological development.

If there was one disappointment about HISTELCON 2023, <https://2023.ieee-histelcon.org/>, it was not the content, the meals, or the hosts. No, one only wishes that we had more time together to follow up on the intellectual sparks and resonances elicited from listening to our fellow scholars. HISTELCON is due for some significant changes in the future, and perhaps they will include the sort of social gatherings that the scholarly organizations, the Society for the History of Technology and ICOHTEC, do so well. Until then, to the organizers, sponsors, and hosts, *mille grazie!*

ETHW UPDATE: MORE THAN TWENTY NEW ORAL HISTORIES ADDED

The Engineering and Technology History Wiki (ETHW) is determined to preserve as source material for the future historians of technology the personal memories of pioneers in the electrical, electronics, and computer fields, the technologists who transformed the world in the 20th and 21st centuries. One of our major programs for the preservation of these memories is our oral history program. More than twenty new oral histories have been posted to the ETHW, which include:

Bishnu S. Atal, a Life Fellow of IEEE and an Affiliate Professor in the Electrical Engineering Department at the University of Washington, Seattle, WA.

Bruce Barrow, an IEEE Life Fellow and a founding member of the IRE Benelux Section and a founder of the Benelux Section in Region 8.

Gary Bradski, co-founder of Industrial Perception, the founder of OpenCV, one of the largest computer vision libraries in the world, and is a consulting professor with Stanford University.

Rüdiger Dillmann, Professor of the Department of Computer Science and is Director of the Research Lab Humanoids and Intelligence Systems at University of Karlsruhe.

Tariq Durrani, IEEE Life Fellow, Research Professor with the University of Strathclyde, Glasgow, U.K.

Maria Gini, professor in the Department of Computer Science and Engineering at the University of Minnesota.

Andrea Goldsmith, co-founded and served as CTO of Plume (formerly Accelera, Inc.) and of Quantenna Communications, Inc. and held industry positions at Maxim Technologies, Memorylink Corporation, and AT&T Bell Laboratories.

John Impagliazzo, IEEE Life Fellow, Professor Emeritus of Computer Science, Hofstra University, CSAB Fellow, a member of Eta Kappa Nu, and a Distinguished Educator of Association for Computing Machinery.

Sadao Kawamura, director of Ritsumeikan University's Robotics Research Center since 2011. He served as president of the Robotics Society of Japan from 2011 to 2013.

Daniel Koditschek, IEEE Life Fellow, Chair of Electrical and Systems Engineering at the University of Pennsylvania, Philadelphia, PA, USA, the Alfred Fidler Moore Professor, with secondary appointments in the Departments of Computer and Information Science as well as Mechanical Engineering and Applied Mechanics.

Vijay Kumar, IEEE Fellow, Founder of Exyn Technologies, a company that develops solutions for autonomous flight, and Assistant Director of Robotics and Cyber-Physical Systems with the White House Office of Science and Technology Policy from 2012 to 2014.

Ming Lin, IEEE Fellow, was the John R. & Louise S. Parker Distinguished Professor of Computer Science at UNC Chapel Hill and the Elizabeth Stevinson Iribe Chair of Computer Science at Department of Computer Science at the University of Maryland, College Park.

Maja Mataric, IEEE Fellow, is the Chan Soon-Shiong Distinguished Professor of Computer Science, Neuroscience, and Pediatrics at the University of Southern California, and is a pioneer in human-robot interaction for socially assistive robotics.

James Meindl, IEEE Life Fellow and recipient of the 2006 IEEE Medal of Honor for "For pioneering contributions to microelectronics, including low power, biomedical, physical limits and on-chip interconnect networks".

José M. F. Moura, 2019 IEEE President, the 2008-2009 president of the IEEE Signal Processing Society, a former vice president for IEEE Technical Activities.

Robin Murphy, well known for her work on disaster robots that date back to 1995, which were motivated by the Oklahoma City Bombing.

Yash Pal, worked at the Tata Institute of Fundamental Research, where he was a member of the Cosmic Rays group.

Noel Sharkey, advisor to the National Health Service think tank Health 2020, a director for the European Branch of the Centre for the Policy of Emerging Technologies, a co-founder of the International Committee for Robot Arms Control, and is a member of the Nuffield Foundation, a group on ethics of emerging biotechnologies.

Robert D. Shull, IEEE Fellow, NIST Fellow, part of the collaboration that prepared the first thin films of a high TC superconductor by the laser ablation process.

John G. Speer, Professor of Metallurgical and Materials Engineering, Colorado School of Mines and involved with the Advanced Steel Processing and Products Research Center.

Lewis Terman, IEEE Life Fellow and served as IEEE president in 2008, and worked for IBM for forty-five years, retiring from the company's research division in 2006.

Richard Volz, IEEE Fellow, president of the IEEE Robotics and Automation Society from 2006-2007, part of a NASA panel appointed to review everything related to the Challenger disaster.

Shinichi Yuta, worked in several positions at the University of Tsukuba, including dean of the College of Engineering Systems, the chairman of the Institute of Engineering Mechanics and Systems, vice president for research, international affairs, and industrial incorporation, director of the Industry Relations a Technology Transfer Office.

To view these and other oral histories, visit: https://ethw.org/Oral-History:List_of_all_Oral_Histories

COMPUTING IN RUSSIA

December 4th, 2023 will mark the seventy-fifth anniversary of the beginning of work on Computer Science in Russia and other former Soviet states. To commemorate the event, Sergei Prokhorov of the Institute for History of Science and Technolo-

gy RAS has submitted an article on the origins of computing in the Soviet Union, which can be read at: https://ethw.org/75_Years_of_Information_Technology_in_Russia

If you are an expert on a particular subject and would like to contribute your knowledge to the ETHW's vast repository, visit <https://ethw.org/Create> or email Nathan Brewer at n.w.brewer@ieee.org

IEEE REACH EXPANDING ITS PRESENCE IN AFRICA

By: Kelly McKenna, REACH Sr. Program Manager

An IEEE REACH exhibit booth was hosted by Kelly McKenna, REACH Sr. Program Manager, at the 16th biennial IEEE AFRICON conference, held 21-22 September 2023 in Nairobi, Kenya. She attended the conference with Kathleen Weeks, IEEE Senior Corporate Development Manager, who supports IEEE partnerships in Africa.

IEEE AFRICON is an IEEE Region 8 flagship conference. This year's theme was Advancing Technology in Africa Towards Presence on the Global Stage. REACH's work with UNESCO, through the IEEE/UNESCO memorandum of understanding, has opened the door for expanded interest in the program on the continent. The goal of the REACH exhibit was to expose the program in Kenya and to increase awareness in other African countries.

Highlights included an in-person meeting with key stakeholders in the field of education in Kenya, sharing the REACH program with IEEE volunteers, and engagement with members of the IEEE Africa Council including 2024 Chair-Elect, Isaac Adeyemi Adekanye. The IEEE Africa Council is the umbrella organization which provides a centralized coordinating body of all IEEE sections and subsections on the continent. The IEEE REACH team is looking forward to continuing its efforts in Africa by working with the IEEE Africa Council. Kelly McKenna also had a productive meeting with Lwanga Herbert, Chair of the IEEE Humanitarian Technologies Board in regard to the

humanitarian efforts associated with the REACH program. In addition, many IEEE Young Professionals visited the booth and upon learning about the REACH resources they expressed support, as they recognize the program's value to get the next generation interested in STEM.

It was a privilege to attend AFRICON, to have the opportunity to share the IEEE REACH program with so many wonderful IEEE volunteers, including the always enthusiastic Young Professionals, and to experience the gracious hospitality of the IEEE Kenya Section.



Kathleen Weeks (left) and Kelly McKenna (right) with Isaac Adeyemi Adekanye, Chair-Elect, IEEE Africa Council

Your contributions to the **IEEE History Center Fund** preserve the heritage of the profession and its contributions to humanity.

We invite you to find out more about the Center and its programs at <https://www.ieee.org/about/history-center/index.html> and more about the Engineering & Technology History Wiki (www.ethw.org)

RETRO PAINT SCHEMES PAY TRIBUTE TO HISTORIC LOCOMOTIVES



In an elegant tribute to its ancestor railroads (Eire & Lackwanna, Pennsylvania Central, and ConRail), New Jersey Transit painted some of its current Bombardier ALP-46 locomotives in the historic liveries of those lines. IEEE History Center Research Coordinator Colburn recently spotted the “Pennsy” GG1



heritage version at Metuchen station (shown above). The GG1 locomotives (shown black and white RIGHT) were in service from 1934 to 1983 between Washington, DC and New York City U.S.A., and were famous for their streamlined silhouette and the “cats whiskers” pinstriping.

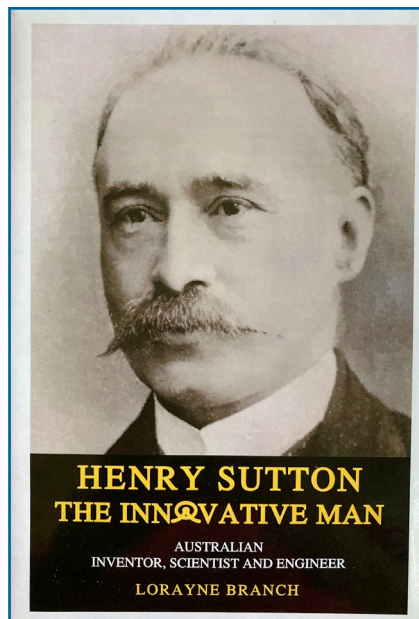
INTERESTING READS

THREE RECENT LIBRARY DONATIONS

By Alexander B. Magoun, Ph.D.,
Outreach Historian

The role of libraries, as sources of useful information, evolves with respect to the format, expense, and value of that information to the library's community and users. The proliferation of digitized and born-digital information has led librarians to steadily shrink their holdings in paper-based formats in favor of the internet's free and fee-based sources. Nonetheless, for special libraries in particular, there are publications available only in book form. The IEEE History Center's library has been fortunate to acquire several volumes of this description, courtesy of the authors.

Five years ago, the center received notice of a biography of Henry Sutton, the extraordinary and self-taught Australian inventor and entrepreneur. After some complications and with the assistance of former IEEE History Committee chair David Burger, we received a hardback copy of Lorayne Branch's self-published biography of her great-grandfather, *Henry Sutton*



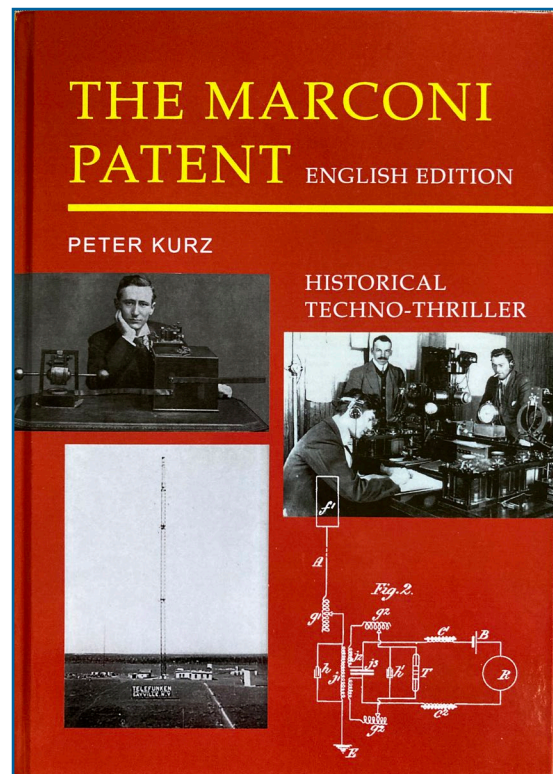
the Innovative Man. Branch burrowed through family, government, and institutional archives; museum and society collections; and contemporary publications to document her ancestor's Edisonian forays into the technologies of the late 19th and early 20th centuries. Like today, things were changing faster than ever 140 years ago, and Sutton contributed informed speculation, articles, patents, or commercial products in electric lighting, aeronautics, photography, half-tone printing, internal combustion vehicles, batteries, telephony, facsimile, television, and wireless telegraphy. Branch's research and writing contributes to the literature of lone inventors and offers many opportunities for further research on their efforts and the challenges of innovation in Australia.

When outreach historian Alex Magoun was trying to learn who outside the United States was making triode vacuum tubes before World War I, he found Barry Vyse and George Jessop's deeply researched and profusely illustrated *The Saga of Marconi Osram Valve: A History of*

Valve-Making. Vyse privately published the book in hardback in 2000 and generously shipped a copy to the History Center from England earlier this year. *The Saga* and its authors—both veterans of the company—outline the evolution of the company from its roots in electric lamps, to its formation as a merger of two firms in 1919, to its inevitable decline in the face of the transistorization of electronics in the late 1950s. Most of the book comprises chapters, however, on the huge variety of valves (the British term for “tube”) that M-OV manufactured: for broadcast power generation, transmission, and reception, microwave power and applications, and other uses that the authors explain and illustrate. Vyse and Jessop argue that M-OV was influential beyond its physical size, given the range and influence of its valves as components of many more products of the electronic age. While providing unique insight on the material and manufacturing intricacies of the valves, they also interject some useful additions to other histories. For example, the importation of London-quality toilets and canteens to the firm’s new factory in Lancashire during World War II forced local textile mill owners to improve their workers’ conditions.

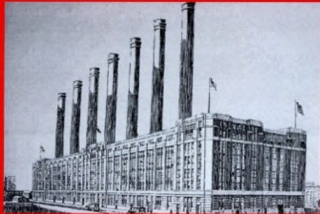
During HISTELCON, Peter Kurz mentioned his historical novel, a spy thriller, on the patent dispute between Telefunken and the Marconi Wireless Telegraph Company. Dr. Kurz, an electrical engineer turned patent attorney who has published on the history and practice of patent law, published *Das Marconi-Patent* in 2021 and then translated and published it in English as *The Marconi Patent* last year. Kurz graciously donated a copy that Magoun read on his trip home. In it, Albert Hanssen, a young engineer turned patent attorney, accompanies Jonathan Zenneck and Ferdinand Braun on their 1914 trip from Germany to New York City to testify in court over the validity of Guglielmo Marconi’s U.S. patent for resonant tuning of coupled transmitter circuits. By the last page five years later, we have experienced with Hanssen romance, stolen documents, murders and attempted murders, wireless station tours, courtroom arguments, encounters with real radio engineers, diplomatic plots, lawyerly machinations, internment, the Spanish Flu, and the prospect of more romance: to be continued, presumably, in a sequel.

Nonetheless, the special appeal of Kurz’s *Bildungsroman* is his painstaking historical documentation, as befits one trained in law, of places and people through copious research online, in libraries, and visits to many of the sites. Besides a bibliography, he displays archival documents, newspaper and journal clippings, photographs, and other illustrations in 167 figures. Kurz estimates that 80 percent of the book that reconstructs the reasoning behind events—outside the murder plots, conversations, and love interest—is historically based. Thus it is not only entertaining but invaluable to readers seeking understanding of the technical, legal, and political details underlying the great-power struggle for control of global wireless communications.



BOOKS FROM THE IEEE HISTORY CENTER PRESS

NEW YORK POWER



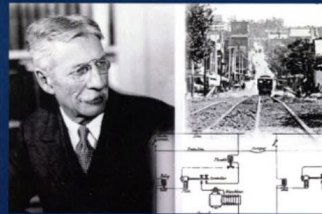
Joseph J. Cunningham

BELL LABS MEMOIRS: Voices of Innovation



EDITED BY A. MICHAEL NOLL
AND MICHAEL GESELOWITZ

THE BIRTH OF ELECTRIC TRACTION



The extraordinary life of inventor Frank Julian Sprague

Frank Rowsome, Jr.

SPRAGUE ELECTRIC



An Electronic Giant's Rise, Fall, and Life after Death

John L. Sprague

NEW YORK POWER

by Joseph J. Cunningham

tells the story of the electrification of one of the densest electrical load areas in the world. Electrification began during the 1880s, but many innovations were required to supply urban service at a cost that would make possible large-scale consumption.

<https://www.amazon.com/New-York-Power-Joseph-Cunningham/dp/1484826515>

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 their eyes and words, the culture of Bell Labs comes alive.

<https://www.amazon.com/Bell-Labs-Memoirs-Voices-Innovation/dp/1463677979>

THE BIRTH OF ELECTRIC TRACTION: THE EXTRAORDINARY LIFE OF INVENTOR FRANK J. SPRAGUE

Sprague made enormous contributions in the areas of electric traction, control and safety, especially automatic signaling and brake control for railroads. He was active in the planning and construction of New York City's subway system, and in the electrification of Grand Central Terminal.

<https://www.amazon.com/Birth-Electric-Traction-extraordinary-inventor/dp/1490955348>

SPRAGUE ELECTRIC

Sprague Electric Company's rise from a high-tech kitchen-table startup is representative of much of the U.S. electronics industry. Begun in 1926, it became a thriving manufacturer of components. More than 50,000 Sprague components rode aboard every *Apollo* mission, and more than 25,000 aboard every Space Shuttle. *Sprague Electric* provides a valuable business and technological history, a story of corporate success... and a cautionary tale of what to avoid.

<https://www.amazon.com/Sprague-Electric-Electronics-Giants-after/dp/150338781X>

FELLOWSHIP AND VISITING SCHOLAR 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 IEEE Life Member Fellowship in the History of Electrical and Computing Technology

The IEEE Life Members Fellowship in the History of Electrical and Computing Technology 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 \$25,000 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 \$1,000 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 Fellowship 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/about/history_center/fellowship.html. For the 2024-

2025 Fellowship year, the deadline for completed applications is 1 February 2024. This completed application packet should be emailed to ieee-history@ieee.org or mailed to the Chair, IEEE Fellowship in the History of Electrical and Computing Technology Committee, IEEE History Center, 445 Hoes Lane, Piscataway NJ 08854. Applicants will be notified of the results by 1 June 2024.

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

Elizabeth & Emerson Pugh Young Scholar in Residence

Scholars at the beginning of their career studying the history of electrical technology and computing are invited to contact the Center to be considered for the Elizabeth & Emerson Pugh Young Scholar in Residence at the Center's offices at the IEEE Operations Center, Piscataway, New Jersey, USA.

The residency 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 Young Scholar 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. Pugh Scholars are also encouraged to consult with the Center's staff and its associates, and guided to research resources in the area. The residency 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 the United States.

The stipend is US\$5,000.

There is no formal application form. To apply for 2024, please email to m.geselowitz@ieee.org a curriculum vitae showing your studies in electrical history, a three- to five-page page (single or double spaced) writing sample, 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 2024.

The Pugh Visiting Scholarship is funded by an endowment from Emerson and Elizabeth Pugh.

IEEE is an AA/EO employer. 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. 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, 445 Hoes Lane, Piscataway, NJ 08854, +1 732 562 5450, ieee-history@ieee.org, http://www.ieee.org/about/history_center/index.html.

THE HISTORY CENTER ASKS YOU TO THINK OF US ON GIVING TUESDAY

28 November is 2023 Giving Tuesday. The History Center hopes that you will support the Center's work via the Center's Giving Tuesday donation page at: https://secure.ieeefoundation.org/site/TR/Events/General?team_id=1080&pg=team&fr_id=1040



IEEE History Center
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