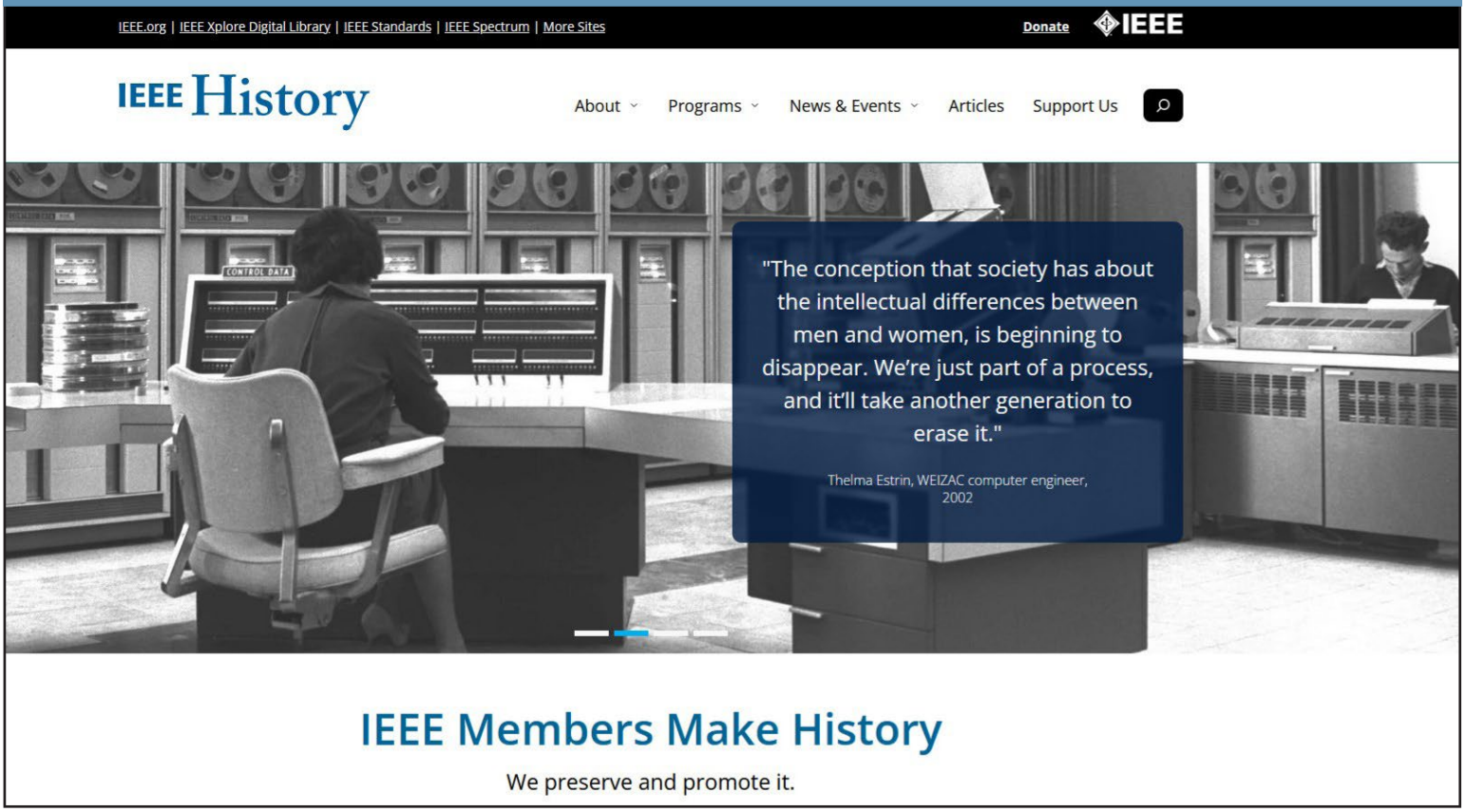
IEEE History Center

ISSUE 128, July 2025

SPECIAL ISSUE: NEW HISTORY CENTER WEBSITE



No content in this issue was generated by AI.

IEEE History Center

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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SIGNALS FROM THE DIRECTOR

Michael N. Geselowitz
Senior Director, IEEE History Center

As you can see, this issue of our newsletter is highlighting the launch of the History Center's new website, **https://history.ieee.org/**. This platform gives us a new tool beyond just this newsletter and our page on the central IEEE website to inform you, our supporters and stakeholders, and the broader community about IEEE's historical activities. And, as you can see from this issue, those activities are going full throttle. I will mention just a few highlights here.

The first major traveling exhibit of the new IEEE Global Museum Program, "Hidden Signals: E Howard Armstrong's Radio Revolution," has relocated from its initial site at the National Museum of Industrial History (Bethlehem, PSA, U.S.A.) to the InfoAge Science & Learning Museums (Wall, NJ, U.S.A). Visit the new website to learn about the next major traveling exhibit in the pipeline, "Microchips that Shook the World." In addition IEEE organ-

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:
https://ieeemilestones.ethw.org/Milestone_Guidelines_and_How_to_Propose_a_Milestone

Milestone proposals in process: **http://ieeemilestones.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://history.ieee.org/news-events/events/**

Support for scholars:

Fellowship in the History of Electrical and Computing Technologies:
https://history.ieee.org/programs/fellowships-prizes/ieee-life-members-fellowship-in-electrical-history/

Pugh Young Scholar in Residence:
https://history.ieee.org/programs/fellowships-prizes/pugh-young-scholar-in-residence/

Middleton History Prize (awarded to a book in the history of technology): **https://history.ieee.org/programs/fellowships-prizes/ieee-william-and-joyce-middleton-electrical-engineering-history-award/**

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 **ieeemilestones.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.

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 **ieee-history@ieee.org**. Articles and letters to the editor may be edited for style or length.

Highlighting the launch of the History Center's new website, https://history.ieee.org/.

izational units are increasingly asking for smaller exhibits for their conferences and meetings.

The IEEE Milestones program continues to thrive, with a record number of both approvals and dedications expected this year. The dedication events increasingly attract local dignitaries and global IEEE leaders. We are working with the IEEE Conferences, Events & Experiences team to give organizational units that host dedications more tools to enhance their events, and to use Milestone dedications to improve public awareness of IEEE.

Owing to the success of the IEEE Program's K-12 workshop at the 2024 IEEE International Symposium on Technology & Society (ISTAS), in partnership with the IEEE Society for the Social Implications of Technology (SSIT) and with the generous support of the IEEE Computer Society (as reported in the November 2024 newsletter), SSIT has decided to try to make this an annual occurrence. We are currently planning a new workshop for ISTAS 2025 in San Diego, CA, U.S.A., in September, and will report on the outcome in November 2025 newsletter.

I also want to report that in partnership with the IEEE History Committee, we are preparing for the 2025 IEEE History Week for 6 – 10 October. Affiliated with Member & Geographic Service's IEEE Day on 7 October, IEEE History Week represents an opportunity for members to learn about the wide range of IEEE historical activities to which they can contribute. We hope to build on last year's inaugural undertaking to get greater participation from organizational units throughout IEEE.

Once more, I hope you will visit this new website to see more, and, as always, thank you for your support.

HISTORY COMMITTEE AND VOLUNTEER ACTIVITIES

MICHELLE SPEKTOR IS 2025 IEEE LIFE MEMBERS' FELLOW IN ELECTRICAL HISTORY

The IEEE History Committee selected Dr. Michelle Spektor as the 2025 IEEE Life Members' Fellow in Electrical History. Spektor's research focuses on Making Biometric Citizens: Technology and Power from the British Empire to the Digital Age. "States around the world are increasingly turning to biometric technologies to identify their citizens. These technologies, which identify individuals through the measurement of fingerprints, faces, and other body parts, have become key components of ID cards, population databases and other identification apparatuses. Governments, in turn, have named these biometric identification systems as definitive remedies for matters ranging from border control to the delivery of services."

Spektor is a post-doctoral scholar at the Massachusetts Institute of Technology, and her major field is the social and ethical responsibilities of computing. Michelle's research has been supported by the Society for the History of Technology, Kranzberg Fellowship, the National Science Foundation, and the Fulbright Program.

The IEEE Life Member History Fellowship supports one year of full-time graduate work or one year of post-doctoral research for a scholar in this field who has received their Ph.D. within the past four years in the history of IEEE's designated fields.

GEORGE BORG IS THE 2025 PUGH VISITING SCHOLAR

Dr. George Borg joins the IEEE History Center from a National Science Foundation post-doctoral fellowship, where he worked on a project on the history and philosophy of geochemistry hosted by the Science History Institute and the University of Pennsylvania in Philadelphia. Dr. Borg completed his Ph.D. in History and Philosophy of Science at the University of Pittsburgh in 2020 after a previous career in chemistry. Since his days in the lab, Dr. Borg has been fascinated by the role of technology in science, an interest that he pursued for his doctoral dissertation and post-doc. As an IEEE Pugh Young Scholar in Residence, he is researching the impact of engineering concepts like feedback loops on the early history of climate science, as well as assisting the History Center's museum work. Dr. Borg looks forward to interacting with IEEE members on all matters relating to the history of science-technology relations.

NEW HISTORY WEBSITE LAUNCHED

In partnership with Tumbleweeds Creative Studio, the IEEE History Center has launched the new IEEE History website. **https://history.ieee.org/** Designed to provide a streamlined, visually engaging experience to the general public, historical professionals, and IEEE volunteers, the website documents not only the professional activities of the IEEE History Committee and the IEEE History Center staff, but also the historical activities taking place across the IEEE as a whole.

In addition to an overview of the IEEE History Center's main programs, the website includes a user-friendly events calendar, where historical related events, such as IEEE Milestone dedications, can be found. The new website will also serve as the official digital platform for the IEEE History Center Newsletter.

The IEEE Global Museum's web presence has been expanded through the new website, encompassing several pages which not only describe the program, but show examples of the exhibit installations from around the world. Another new feature of the website is the Articles section, which houses some of the IEEE History Center staff's most interesting articles and will serve as a space to post future articles and scholarship.

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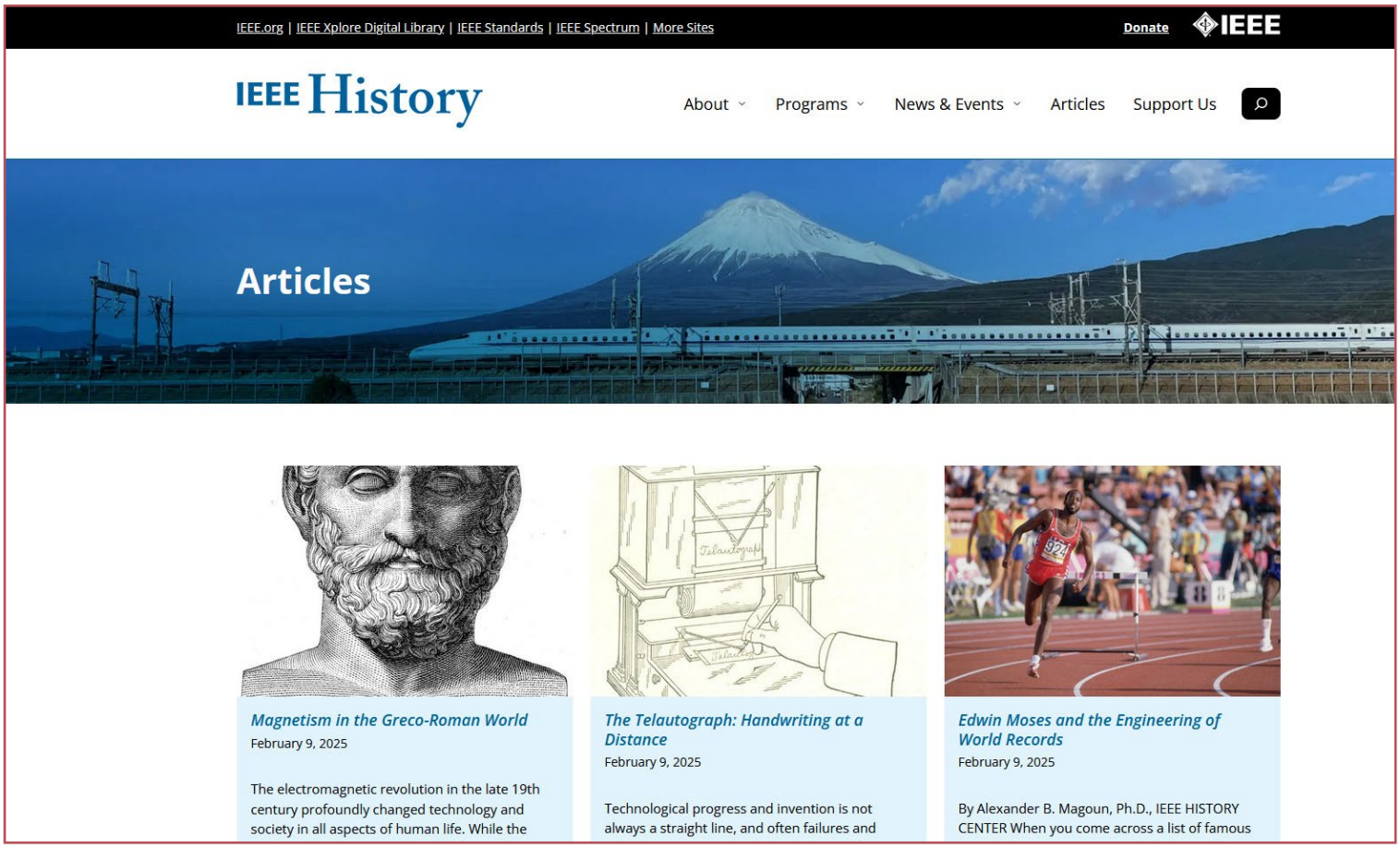
The launch of the new website would not be possible without the hard work from Tumbleweeds and the IEEE Experience and Design team, and the IEEE History Center would like to sincerely thank Caitlin Leshiner, Trevor Robertson, Khanh Luu and Yuen Wai Chow for their efforts on this project.



HISTORY CENTER CONTRIBUTES TO VISUAL ELECTRIC'S VIDEO "STORY OF INFORMATION THEORY"

Quotes from the IEEE History Center's oral history of Claude Shannon were used in the documentary video "The Story of Information Theory: from Morse to Shannon to ENTROPY" **https://www.youtube.com/watch?v=rmBFaNgg4wk** by Visual Electric. The video is free on YouTube, and presents a high-quality history of information theory and an inspiring view of how brilliant and influential Shannon's work was.

In fulfilling reference requests such as these, the IEEE History Center serves IEEE, its members, and the profession by serving as a clearinghouse connecting many varied aspects of technological history. It also amplifies public appreciation.

The part to do with Shannon begins at about 17.10 with the oral history quotes showing up around 18.00.

In fulfilling reference requests such as these, the IEEE History Center serves IEEE, its members, and the profession by serving as a conversion point, or clearinghouse connecting many varied aspects of technological history. It also amplifies public appreciation of the contributions made by IEEE members to society in ways that reach a wide public. Since its debut at the end of April 2025, the video has been viewed more than 283,000 times and garnered many favorable comments. The Visual Electric channel, by IEEE member Professor Stephen Robson of the Advanced High Voltage Engineering Research Centre at Cardiff University, Cardiff, Wales, has many high-quality videos on aspects of electrical engineering. History Center staff recommend in particular "The Story of the Telegrapher's Equations: From Diffusion to a Wave."

IEEE GLOBAL MUSEUM PROJECT EXPANSIONS

The launch of the new IEEE History website earlier this year has added a new dimension to the Global Museum. Now we can share exhibit materials and visuals with all our supporters—including yourself—not just those who are able to visit a Global Museum exhibit in person. For example, you can now download interpretive panels that featured in exhibits curated for IEEE Society conferences, or play our two timeline games created in partnership with IEEE Strategic Marketing (go to **https://history.ieee.org/programs/ieee-global-museum/timeline-games/** to test your knowledge of key events in the history of electrotechnology). Over time, we will develop virtual exhibits and additional interactive features, both to complement our in-person exhibits and to offer standalone engaging educational experiences.

In January we played a significant role in the refresh of the historical exhibits at the 2025 Consumer Electronics Show. We aimed to provide a more engaging experience by increasing the possibilities for interaction. With that goal in mind, we liberated the "Converging on Smart" artifacts from their plexiglass cases and brought them down off the wall for people to handle, and in some cases, even play with. Remember *Tetris*? In our exhibit, you could play that on an original Nintendo Gameboy from 1989. IEEE Past President Tom Coughlin conveyed the point of presenting "examples of historical technologies which used to be discrete devices" in a LinkedIn video advertising IEEE's CES displays: to manifest the power of today's "integrating products," like smartphones, which can "do the things that maybe ten or fifteen separate devices would have done in the old days."

"Converging on Smart" showcased the versatility of modern smartphones through the groundbreaking single-purpose devices they replaced. Artifacts on each arm of the cross-shaped table fulfilled a different set of functions, like "Capture and Record" or "Connect and Communicate."

IEEE Outreach Historian Alexander B. Magoun drew a successful run at the National Museum of Industrial History (NMIH) to a close at the end of April with a fabulously detailed, insightful, and entertaining curator's tour of our *Unseen Signals* exhibit. We look forward to a fresh group of visitors at Infoage Museums, 2201 Marconi Rd., Wall, NJ, U.S.A. (**https://www.infoage.org/**) where *Unseen Signals* has now reopened to the public. Museum entry is free for IEEE members and their guests until *Unseen Signals* closes on 28 December 2025.

Dr. Magoun (right) shares the story of the superheterodyne circuit's commercialization during his curator's tour at the National Museum of Industrial History.

ETHW UPDATE – NEW ORAL HISTORIES

During a ten-year period (2009–2018), IEEE Life Fellow, Richard J. (Dick) Gowen (1935–2021), the 1984 IEEE President and Eminent Member of Eta Kappa Nu (2002) recorded four lengthy and detailed oral histories with staff of the IEEE History Center. In these life story oral histories, Gowen discussed his early life, education, military service, and his career as an engineer, inventor, professor, administrator, and President of South Dakota School of Mines. His successful career included decades of service to professional organizations, especially IEEE. In addition to service as the 1984 IEEE President, and the President of the IEEE Foundation (1984 and 2005–2011), he also served as president of the American Association of Engineering Societies in 1986. And, he and his wife Nancy had been extremely active volunteers and philanthropists in South Dakota and in many educational, community, and church organizations especially in Rapid City and the surrounding area.

As an IEEE Past-President, Gowen remained a tremendously active IEEE volunteer who appreciated history, and while Chair of the IEEE History Committee in 2007–2008, Gowen guided the development of the IEEE Global History Network (GHN), which evolved into the Engineering and Technology History Wiki (ETHW). Indeed, his desire to help preserve the history of IEEE and its related technologies, led him to write a First-Hand History about GHN and another about leading a research team to develop the capability for the National Aeronautics and Space Agency (NASA) to evaluate physiological changes in astronauts that occurred during the weightlessness of zero gravity spaceflight.

Gowen's oral histories include:

- Richard Gowen, #522, an oral history conducted on 14 November 2009 by John Vardalas, IEEE History Center, Piscataway, NJ, USA.
- Richard Gowen, #533, an oral history conducted on 6 March 2010 by John Vardalas, IEEE History Center, Piscataway, NJ, USA.
- Richard Gowen, #568, an oral history conducted on 23 September 2011 by Michael Geselowitz, IEEE History Center, Piscataway, NJ, USA.
- Richard Gowen, #818, an oral history conducted 7 June 2018 by Mary Ann Hellrigel, IEEE History Center, Piscataway, NJ, USA.

To read these, and other oral histories, visit:
http://ethw.org/oh

THINGS TO SEE AND DO

A VISIT TO HISTORIC SPEEDWELL – BIRTHPLACE OF THE MORSE TELEGRAPH

By David Bart, IEEE History Committee Member

As historians, we dig into papers; collect, preserve, and examine artifacts; and write. Sometimes it is fun to be a tourist. That was my role when visiting Historic Speedwell, called locally the "Birthplace of the Telegraph," in Morristown, New Jersey. In short, like Villa Griffone, what a find! The site is located about 30 minutes drive west of Newark and about 45 minutes drive north of Princeton.

Historic Speedwell features five buildings belonging to the Vail family, including a small part of Stephen Vail's Speedwell Iron Works, and three early Morristown homes relocated here. The works made early railroad wheels and the engine for the S.S. *Savannah*, the first steamship to cross the Atlantic. Now, Speedwell is an IEEE Milestone site (**https://ethw.org/Milestones:Demonstration_of_Practical_Telegraphy,_1838**) and a National Historic Landmark.

Vail's son Alfred, and Samuel Morse developed their electro-magnetic telegraph in the Factory Building. On entering, look behind the door for the plaques of the IEEE Milestone and the National Register of Historic Places. The second floor hosted their public demonstration, sending the message, "A patient waiter is no loser," across the room over three kilometers of wire in January 1838. The exhibit includes sections of that wire. The two floors of exhibits are perhaps the best I have seen about Morse and the telegraph. Speedwell has the only exhibit I have seen that distinguishes between inventive claims of priority and the rights of a patent holder. Others address the key players' lives; the influences inspiring the invention; telegraphy's patents and innovation, the Washington-Baltimore demonstrations; and telegraphy's legacies.

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Reproductions of the port rule, key, sounder, and other devices are displayed for operation. Extensive content is provided on well-designed panels with question-and-answer interactives in many areas. I really liked the interactives that explored the nature of innovation, how science evolves, and who ultimately receives credit. Visitors are left to draw their own conclusions.

The family home tour was informative about the Vails and the site's history. For a telegraph historian, Speedwell was an inspiring and exhilarating experience. For anyone interested in important sites in telecommunications history, a visit is well worth your time.

Telegraph Exhibit in the Factory Building at Speedwell

TECH HISTORY ON THE WEB: STAFF FAVORITES

Eric Schlaepfer's **https://tubetime.us/** compiles and organizes the best of his Twitter/X account's threads, or extended discussions of a given subject. These cover—with a mix of amusement, bemusement, passion, and rage—vintage computers, electron tubes and passive electronic components, his MOnSter6502 circuit board, and PG&E's oversight of its power lines in California. Schlaepfer is coauthor of *Open Circuits: The Inner Beauty of Electronic Components*, which was featured last year in IEEE Spectrum (**https://spectrum.ieee.org/open-circuits**).

Electronic Engineering Journal's Steven Leibson interviewed Chas Gilmore in six parts about his career at Heathkit, from design engineer to vice president of product development, marketing and sales, as the iconic company rose and fell in the last third of the 20th century. They discuss Heathkit's evolution amid Moore's Law, automated manufacturing, and the associated collapses in prices and component sizes for electronic products: **www.eejournal.com/article/the-rise-and-fall-of-heathkit-part-1-early-days/** (linked to other parts)

Purdue University Archives catalogued its collection of Benjamin Miessner's notebooks, photos, and papers and posted a 3-part article on the contents. These highlight Miessner, a Fellow of the IEEE's predecessor Institute of Radio Engineers, as an independent inventor, explaining how he patented and profited from his electronic inventions; his long-running conflict with millionaire John Hays Hammond over priorities for some of the basic wireless communications technologies; and his formative time as a wireless telegraph operator in the United States Navy before World War I: **https://blogs.lib.purdue.edu/asc/2024/10/14/inventing-from-idea-to-patent-and-beyond/**.

Transistor radios: Collector Robert Davidson's *Transistor Radios Around the World*, **www.abetterpage.com/wt/index.html**, includes more than 300 pages on transistor radios of North America, Asia, Europe, and the Soviet Union, as well as some compact vacuum tube or crystal-based predecessors. Linked to other collectors' sites.

The Watch Library, **https://watchlibrary.org/**, recently marked its first anniversary of documenting the history of the production and marketing of pocket and wrist watches since the 17th century.

Luis E. Pacheco began developing *StratoCat*, **https://stratocat.com.ar/indexe.html**, in 2005 "an independent source of historical data and current news on the development of stratospheric balloons for scientific research, aerospace and military applications" as a way of exploring the topic of high-altitude balloons in order to understand better their relationship with UFO sightings, including his formative one in Buenos Aires in 1989. Nearly twenty years later, thanks to the contributions of people around the world, he has posted more than12,000 balloon launch records, more than 2,000 photos, and more than twenty informative articles on the technology, sciences, and purposes of stratospheric balloons.

Honeysuckle Creek Tracking Station, **https://honeysucklecreek.net/index.html,** is "A Tribute to the men and women" at the NASA-led space vehicle tracking station in "Canberra, Australia, the wider Australian involvement in manned and unmanned space exploration, and more!" Many hands, largely in Australia, have made light and steady work of documenting the development and operation of the communications networks, Honeysuckle and "Other Stations," and equipment down under and increasingly across the southern oceans. Included are many cogent first-person accounts of the workplaces and societies of the high-tech nodes in locations geographically remote from the places traditionally associated with telecommunications and related fields.

AN ELECTRIFYING READ

Dr. Marc Landry's IEEE Life Member History Fellowship led to the publication of his new book "Mountain Battery: The Alps, Water, and Power in the Fossil Fuel Age."

During the late 1800s, the water found in the Alps – a more than 700-mile-long mountain range that stretches across the European countries of Monaco, France, Switzerland, Italy, Liechtenstein, Germany, Austria, and Slovenia -- became sought after for its ability to generate electricity and replace coal as the region's predominant energy source. Dams built to generate hydroelectricity transformed the Alps in ways that would come to impact the region's economy, military position for the impending World Wars, and environmental future.

In a fascinating new book titled *"Mountain Battery: The Alps, Water, and Power in the Fossil Fuel Age"* (published in January 2025 by Stanford University Press), author Marc Landry, PhD discusses how dam building in the 19th and 20th centuries transformed the Alps into Europe's "battery" -- an energy landscape designed to store and produce electricity for use throughout the Continent – and created other far-reaching implications related to fossil fuels and climate change.

The recipient of an IEEE Life Member History Fellowship in 2011, Dr. Landry completed his dissertation, which became the basis for the book, with support from the IEEE Life Members Fund and through extensive historical research conducted in archives across Europe, especially in Germany, Austria, France, Switzerland, and Italy.

A native of Colchester, Vermont, U.S.A., Dr. Landry earned his PhD in History at Georgetown University in Washington, D.C., U.S.A. in 2013 and currently serves as Associate Professor of History, Marshall Plan Endowed Professor in Austrian Studies, and Director of the Austrian Marshall Plan Center for European Studies at the University of New Orleans, LA, U.S.A. Previously, Dr. Landry was the Fulbright-Botstiber Visiting Professor in Austrian-American Studies at the University of Innsbruck, Austria.

The IEEE Life Member History Fellowship supports one year of full-time graduate work or one year of post-doctoral research for a scholar who has received their PhD within the previous four years in the history of any of IEEE's designated fields. Providing a stipend of US$25,000 and a research budget of up to US$3,000, Fellows are selected based on their potential for pursuing research in and contributing to the history of IEEE's designated fields (which include Engineering, Computer Sciences and Information Technology, Physical Sciences, Biological and Medical Sciences, Mathematics, Technical Communications, Education, Management, and Law and Policy).

According to Dr. Landry, who was recently interviewed about *Mountain Battery* (**www.youtube.com/watch?v=SYVkQS0Gf7k**) by the Botstiber Institute for Austrian-American Studies in Media, PA, U.S.A., researching and writing his book was an extremely positive experience, and one that wouldn't have been possible without the strong support and extensive resources provided by IEEE.

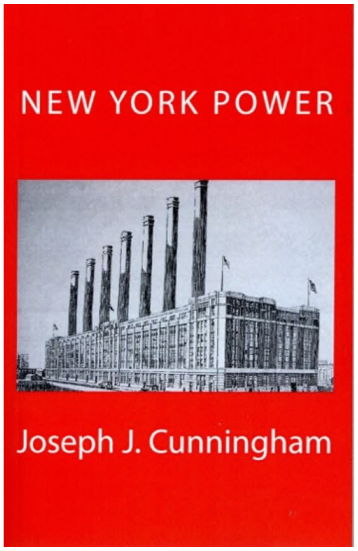
"Having the IEEE's encouragement as a junior scholar allowed me to continue with a project that offered new perspectives on the history of electrification – one in which I could emphasize the underappreciated centrality of electrification in modern energy history while shedding light on the inextricable connections between landscape, environment, and electrification," a grateful Dr. Landry shared. "Receiving the IEEE Life Member History Fellowship provided the crucial financial support that enabled me to access important sources in distant archives as well as have the necessary time to write up my conclusions."

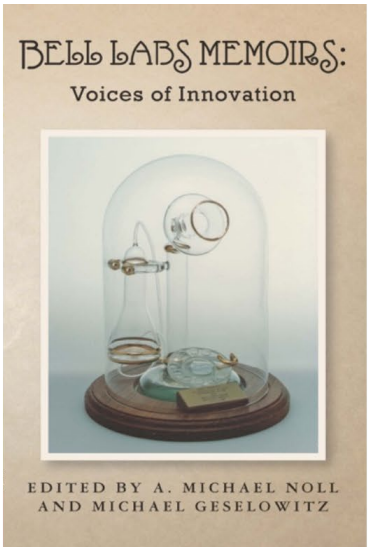
For more information on Dr. Marc Landry's book, visit **www.sup.org/books/history/mountain-battery**. For more information on the IEEE Life Member History Fellowship, visit **www.ieee.org/about/history-center/fellowship.html**.

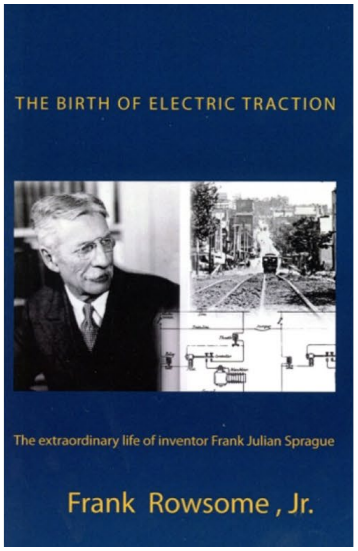
Your contributions to the **IEEE History Center Fund** preserve the heritage of the profession and its contributions to humanity.

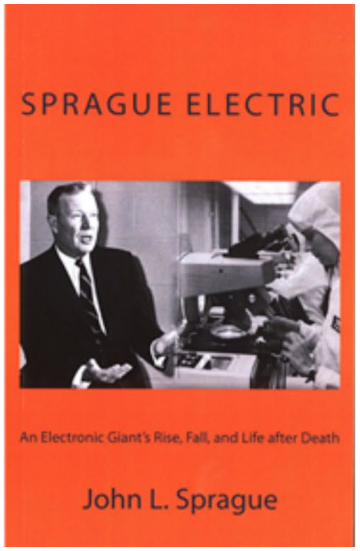
We invite you to find out more about the Center and its programs at **https://history.ieee.org** and more about the Engineering & Technology History Wiki (**www.ethw.org**)

BOOKS FROM THE IEEE HISTORY CENTER PRESS









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

IEEE History Center Press books are available from Amazon.com in hard copy and on Kindle

GIVING AND SUPPORT FOR IEEE HISTORY CENTER PROGRAMS

WAYS TO SUPPORT HISTORY BY GIVING TO THE IEEE FOUNDATION

By Jessica Arkel, IEEE Foundation

Have you ever pondered how IEEE makes such a large impact? One of the main reasons is the generosity of individuals, IEEE Members, and friends and their donations to the IEEE Foundation. Contrary to popular belief, in the United States, individual giving is the most significant portion of contributions to nonprofits.

Giving USA attributes 67.2% of all nonprofit contributions in 2023 to individual persons, resulting in US$374 Billion – which is 3.3% more than individual giving in 2022. The collective impact of individual donations is astounding.

Because of individual support in 2023, the IEEE Foundation was able to educate 789,000 people, raise $8M, and add seventeen new funds supporting IEEE Women in Engineering Family Cares Grant Program, scholarships, and the IEEE Global Museum, among many other accomplishments.As a trusted resource for IEEE Members and friends, the IEEE Foundation shares the following information to ensure you can maximize impact through your philanthropy. As a US 501(c)3 organization, the IEEE Foundation offers many ways to give, including: Donor Advised Funds, IRA Charitable Rollover, Monthly Giving, Appreciated Marketable Securities, Cryptocurrency, and Planned Giving. Below are brief descriptions of each giving method and what other IEEE Members have to say about why they chose that method. While we hope you use these methods to make an impact at IEEE, these can generally be used with any organization close to your heart that accepts philanthropic gifts.

Donor Advised Funds

A Donor Advised Fund (DAF) is a centralized charitable account that enables charitably-inclined individuals, families, and businesses to make tax-deductible charitable donations (in the United States) of cash, publicly traded stock, and in some cases, certain illiquid assets to a public charity that sponsors a DAF program.

To donate via a DAF, a donor makes an irrevocable contribution to the Donor Advised Fund (DAF) associated with their financial institute of choice and can take an immediate tax deduction. The donor can name their DAF anything the donor would like; appoint friends and family members to help the donor manage the responsibilities of a DAF and design a Legacy Plan to determine what will be done with the DAF assets beyond their lifetime, which may include appointing successors or charitable beneficiaries (Tip – nominating the IEEE Foundation as a successor for your DAF also qualifies you for entry into the IEEE Goldsmith Legacy League). The donor can then invest assets in the DAF according to their designated investment strategy, giving the donor the potential to generate even more philanthropic capital. As soon as the DAF is set up, the donor can recommend organizations for grants to be approved by their financial services provider. The financial services provider can approve grants to most organizations that are tax-exempt under Internal Revenue Code (Code) Section 501(c)(3) and classified as public charities under Code Section 509(a), as well as certain private operating foundations. For a comprehensive list, check with your financial services provider.

Dr. Bhagawandas Pannalal "B.P." Lathi and his wife, Rajani, generously gave to the IEEE Foundation in late 2022 when they established the Bhagawandas and Rajani Lathi Fund. This initiative supports authors of outstanding electrical engineering textbooks awarded through the IEEE Education Society. They chose IEEE as the home of this fund because "IEEE is one of the most respected and widely circulated scholarly platforms for electrical engineers and technologists." The Lathis encourage potential donors to consider the aspects of electrical engineering they value and improve the excellence of those areas by giving to the IEEE Foundation. They provided their generous gift using their Donor Advised Fund (DAF).

IRA Charitable Rollover

The IRA Charitable Rollover allows individual retirement account (IRA) holders age 70 ½ and older to make qualified charitable distributions (QCD) up to US$105,000 per year (and up to US$210,000 per year for married couples) from their IRA to the IEEE Foundation––without having to count the transfers as income for federal tax purposes. Since no tax is incurred on the withdrawal, gifts do not qualify for an income tax charitable deduction but are eligible to be counted toward an individual's minimum required distribution beginning at age 73. For more information about the specifics of IRA Charitable Rollovers, we invite you to visit our website. Levy Gerzberg loves a challenge, especially one that, when completed, can have a "return on impact" and make the world a better place. His desire to have a "return on impact" was one of the driving factors around his initiation of and contribution to support the IEEE SSCS-James D. Meindl Memorial Educational Fund. The other driving force was his respect for his mentor, Professor, and colleague, James D. Meindl. "Jim Meindl deserves to be remembered for many generations to come," explains Levy. "I learned from Jim that innovation can be both proactive and mentored. By supporting the IEEE Foundation and Meindl Fund, we are keeping Jim's memory alive – encouraging future leaders and educators to adopt Jim's collaborative, interdisciplinary model for education and invention of new ideas." Utilizing his Family Foundation and IRA funds to give to the IEEE Foundation was an excellent way to honor his mentor and keep his goals alive.

Monthly Giving

Monthly donors make automatic donations every month, which makes it easier for IEEE programs to plan long-term and budget more efficiently. Monthly donors sustain our programs. Monthly gifts can be changed in amount or canceled at any time. A commitment to a recurring gift demonstrates an ongoing dedication to improving access to technology, enhancing technological literacy, and supporting technical education. By spreading giving out monthly,

gifts can be tailored to any budget while ensuring a lasting impact on IEEE programs.

Noel N. Schulz, Ph.D., is no stranger to the act of philanthropy within her field. According to Noel and her husband, Kirk, who became Honored Philanthropists in the IEEE Heritage Circle in 2020 in recognition of their spirit of cumulative giving, "the process of donating monthly and/or steadily to IEEE over time can accomplish the same level of impact on an initiative as a larger donation without being an excessive burden on one's personal finances."

"We encourage others to adopt this cumulative method of providing support," confirmed Dr. Schulz, "as it has and continues to have a major impact on the livelihood of IEEE programs."

Appreciated Marketable Securities

A gift of appreciated marketable securities, such as stocks, bonds, and mutual funds, may provide a significant benefit to the donor as well as support the mission of the IEEE Foundation. By donating appreciated securities that are held for at least one year, the donor:

- can avoid the capital gains taxes on the "paper profits"
- is entitled to a charitable income tax deduction on the full fair value of the asset
- may use the deduction, up to 30%, of the adjusted gross income in the year of the gift
- can carry forward any unused deductions for the next five years; supports a charitable activity that advances technology and education.

IEEE Life Member John Derrick and his wife Linda made a five-year commitment to support the IEEE Power and Energy Society Scholarship Plus Initiative. Due to their careful planning, their financial advisor encouraged them to use a gift of appreciated stock to pay off the five-year pledge early, and they said they were so glad they did. The Derricks recognized that annual cash giving is still essential at retirement and adds another important dimension to their estate planning. John added, "I'm 83, so there's little time to lose! I never thought I'd be in this position in my life. I am enjoying being able to really help others." John and Linda Derrick are Alexander Graham Bell level members of the IEEE Heritage Circle.

Cryptocurrency

Crypto philanthropy is an emerging and often tax-wise way for crypto users to support the IEEE Foundation. As of 2023, we accept donations in Bitcoin, Ethereum, and more than 100 other leading cryptocurrencies. Donating crypto is safe, easy, and fast. Making a cryptocurrency charitable donation to the IEEE Foundation is a quick three-step process detailed here on our website.

If the cryptocurrency one wishes to donate has decreased in value, it may be better to sell the asset, take the capital loss, and make the gift with the cash proceeds. As with any tax-related questions, be sure to consult with a qualified, professional tax advisor.

Planned Giving

There are many ways to show support through Planned Giving, and it is never too early to start! As you create or update your estate plan, consider the role IEEE has played in your life and the #IEEELegacy you want to leave. The IEEE Foundation team is honored to assist you in finding the right way to include IEEE in your estate plan. Here are some of the many options:

- Wills and Trusts: Leaving a bequest by including language in wills and trusts is the most common way to leave an estate gift to the IEEE Foundation. To make a gift from your estate, you must sign a new will or living trust instrument, add a codicil to your present will, or amend your present trust instrument.
- Charitable Remainder Trust: Life income gifts, such as a Charitable Remainder Trust (CRT), may be the answer to assuring the future of both your loved ones and the IEEE Foundation. CRTs are tax-free trusts that pay you – as well as other possible designated beneficiaries – an annual distribution, often in quarterly installments.
- Life Insurance: Some people have life insurance to ensure the financial security of their loved ones. Yet, life insurance can be used for other purposes, including leaving a philanthropic gift to the IEEE Foundation. There are two different ways you can structure a gift of life insurance to the IEEE Foundation: Name the IEEE Foundation as Beneficiary or Transfer ownership to the IEEE Foundation.
- Retirement Plan: If left to a non-spouse beneficiary, the assets from 401(k), 403 (b), IRA, Keogh, or other such accounts are not only subject to estate tax, but the heir(s) may have to pay income tax as they withdraw the funds. To avoid this 'double taxation', you can name the IEEE Foundation as the beneficiary of your retirement plan and use other assets not subject to income tax to make gifts to your heirs.

IEEE Foundation Director Dr. Karen A. Panetta, along with Jamie A. Heller, updated their estate plans and became **IEEE Goldsmith Legacy League** members in 2023. To her, Legacy means sustainability and long-term impact. "Knowing that my lifelong dedication to developing programs and technology to benefit humanity will continue through my support of IEEE Foundation, I'm confident that my efforts had an impact and people recognize it. Helping others follow in our footsteps to make a better world for everyone is the most aspirational goal a person can have in life. Being a member of a community that embraces this at its core ensures that we as individuals can really achieve this goal."

From supporting education and scholarships and other initiatives that strengthen IEEE's mission, the *IEEE Goldsmith Legacy League* members are truly *Forever Generous*. You can honor that generosity by joining them and creating a meaningful legacy of your own. The IEEE Foundation invites you to cement your legacy by considering a gift via the various methods of giving – Donor Advised Funds, IRA Charitable Rollover, Monthly Giving, Appreciated Marketable Securities, Cryptocurrency, and Planned Giving – and joining other like-minded IEEE members in supporting the impactful programs of IEEE. To stay up to date on Foundation news and impacts, we invite you to follow us on LinkedIn, Twitter, and Facebook or sign up to receive our newsletter. To learn more about the innovative programming that the IEEE Foundation supports, explore our website.

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