

# IEEE History Center

ISSUE 125, July 2024



*Internet Pioneer and 2024 Medal of Honor winner Robert Kahn and IEEE President Thomas Coughlin (left) view the Medal of Honor Wall created by the IEEE History Center in partnership with IEEE Awards*

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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.

IEEE History Center  
445 Hoes Lane  
Piscataway, NJ 08854

Telephone +1 732 562 5450  
E-mail: [ieee-history@ieee.org](mailto:ieee-history@ieee.org)  
[www.ieee.org/about/history-center/index.html](http://www.ieee.org/about/history-center/index.html)

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Brian Berg, Vice Chair  
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Mathini Sellathurai  
Stefano Selleri  
Celia Shahnaz  
Lav Varshney  
Ahmed Zobaa

#### IEEE History Center Staff

Michael Geselowitz, Senior Director  
[m.geselowitz@ieee.org](mailto:m.geselowitz@ieee.org)

Nathan Brewer, Archival and Digital Content Specialist  
[n.w.brewer@ieee.org](mailto:n.w.brewer@ieee.org)

Mary Ann Hellrigel, Archivist/  
Institutional Historian  
[m.c.hellrigel@ieee.org](mailto:m.c.hellrigel@ieee.org)

Alexander Magoun, Outreach  
Historian  
[a.b.magoun@ieee.org](mailto:a.b.magoun@ieee.org)

Kelly McKenna, Senior REACH  
Program Manager  
[k.mckenna@ieee.org](mailto:k.mckenna@ieee.org)

Daniel Jon Mitchell, Senior Historian  
[daniel.mitchell@ieee.org](mailto:daniel.mitchell@ieee.org)

Robert Colburn, Research Coordinator  
[r.colburn@ieee.org](mailto:r.colburn@ieee.org)

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Michael N. Geselowitz  
Senior Director, IEEE History Center

As you will see looking through this newsletter, the various programs carried out by the staff of IEEE History Center—IEEE REACH, the IEEE Global Museum, the IEEE Oral History Program, the IEEE Archives, the Pugh Visiting Scholar Program, the Engineering & Technology History Wiki, Public Outreach—are alive and going strong. Regular readers will know that in carrying out these programs, we are given guidance and oversight by the volun-

teers of the IEEE History Committee.

You are also probably very aware of the IEEE Milestones Program, in which, with the support of History Center staff, the History Committee recommends to the IEEE Board of Directors events in technological history that should be recognized by the placement of a bronze plaque. The History Committee is involved in three other recognition programs, with the support of the History Center. One is the IEEE William and Joyce Middleton Electrical Engineering History Book Award, funded by a bequest to IEEE held by the IEEE Founda-

### 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](http://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](http://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](https://ethw.org/Main_Page)

List of dedicated IEEE Milestones: [https://ethw.org/Milestones:List\\_of\\_Milestones](https://ethw.org/Milestones:List_of_Milestones)

How to Propose an IEEE Milestone: [http://ieeemilestones.ethw.org/Milestone\\_Guidelines\\_and\\_How\\_to\\_Propose\\_a\\_Milestone](http://ieeemilestones.ethw.org/Milestone_Guidelines_and_How_to_Propose_a_Milestone)

Milestone proposals in process: [http://ieeemilestones.ethw.org/Milestones\\_Status\\_Report](http://ieeemilestones.ethw.org/Milestones_Status_Report)

Oral History Collection: [https://ethw.org/Oral-History:List\\_of\\_all\\_Oral\\_Histories](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 [ieee-history@ieee.org](mailto:ieee-history@ieee.org). Articles and letters to the editor may be edited for style or length.

*The other role of the IEEE History Committee is to encourage the IEEE Board of Directors and all IEEE Organizational Units to participate in preserving and promote the history of IEEE.*

tion, which you will hear more about in the next issue. The second recognition is the Bernard S. Finn IEEE History Article Prize of the Society for the History of Technology (SHOT). The prize is funded by the IEEE Life Member Fund of the IEEE Foundation, and is chosen annually by SHOT, in consultation with the IEEE History Committee. The third recognition, also supported by the IEEE Life Member Fund, is the IEEE Life Member History Fellowship which perhaps more than any program enables IEEE,

the leading association representing practitioners of technology, to build relationships with the museum professionals and scholars who are working to preserve, study, and disseminate the history of engineering and technology. In recognition of its importance, we are highlighting the fellowship in this issue of the newsletter (see page 7).

The other role of the IEEE History Committee, besides overseeing the History Center and designating recognitions, is to encourage the IEEE Board of Directors and all IEEE Organizational Units to participate in its mission to preserve and promote the history of IEEE, its members, their professions and industries, and the related fields of interest, and to give expert advice and guidance for any resulting activities. To that end, the History Committee, as always in full partnership with the History Center, is working toward developing an IEEE History Week to take place around IEEE Day in October. Look for future communications on this exciting new project.

## CENTER ACTIVITIES

### IEEE GLOBAL MUSEUM: PLANS AND EXHIBITS

While the Global Museum prepared for the upcoming August launch of its flagship travelling exhibit project, *Unseen Signals: E. Howard Armstrong's Radio Revolution*, back in April,



Selection of artifacts and graphics from the full *Unseen Signals* travelling exhibit. Courtesy of Ashutosh Dutta.

Outreach Historian Alexander Magoun took the opportunity to guide delegates through a small prototype display unit produced specially for the IEEE Life Members' Conference in

Austin, TX, U.S.A. The freestanding unit featured diagrams and descriptions of the overall exhibit plan, as well as a selection of interpretive panels and graphics from the upcoming exhibit itself. These were complemented by an early 1920s radio set based upon Armstrong's regenerative circuit and a horn loudspeaker, which, during the broadcast revolution, helped to create a culture of communal and family listening. After the conference Magoun travelled to San Antonio, TX, where he installed the prototype at *Unseen Signals'* first location, the San Antonio Museum of Science and Technology (SAMSAT).

Two other Global Museum projects organized by Senior Historian Daniel Jon Mitchell have come to fruition. The first of these, an exhibit called *Clear Signals: Battling Radio Noise*, is described in a special report in this issue written by one of our collaborators, Victoria Fisher, Assistant Curator of the University of Toronto Scientific Instruments Collection (UTSIC) (see page 6). As a means of sharing exhibits more widely, the Global Museum has been exploring ways of pairing interpretive content developed by IEEE History Center staff with locally-held artifacts. A spinoff of our work on Armstrong, the collaboration with the UTSIC provides us with a model that

*As a means of sharing exhibits more widely, the Global Museum has been exploring ways of pairing interpretive content developed by IEEE History Center staff with locally-held artifacts*

could be replicated elsewhere, especially as we begin to take steps towards creating an online experience to complement our physical exhibits.

At the IEEE VICs Summit and Awards Ceremony in May, in partnership with IEEE Awards, we unveiled the IEEE Medal of Honor Wall of Fame (see cover photo). As we had hoped, the ribbon-cutting ceremony with IEEE President Tom Coughlin, IEEE President-Elect Kathleen Kramer, and John McDonald, IEEE Foundation Vice President for Development, provided an ideal opportunity to showcase the prestige of the Medal. It was hugely gratifying to watch this year's winner, Robert E. Kahn, study the names of the previous winners going back

to Armstrong in 1917. Loosely based on the permanent installation at the IEEE Operations Center in Piscataway, NJ, U.S.A., the Wall of Fame incorporates an attractive interactive touchscreen display offering biographies of the winners from the ETHW and videos of past award ceremonies. It will become a permanent component of the IEEE Awards ceremony and travel to other IEEE meetings and events.

Finally, in partnership with *IEEE Spectrum* and the IEEE Foundation, we continue to approach potential donors and articulate our plans for the Chip Hall of Fame travelling exhibit. Look in the next newsletter for a full report, which will include sample renderings of the exhibit concept.



*The traveling Medal of Honor Wall features an interactive touchscreen and replica medal*

## ETHW UPDATE: FIFTEEN 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. They include:

**Alex Acero**, IEEE Fellow, President of IEEE Signal Processing Society (2014-2015), member of the Board of Directors of the IEEE Foundation. Leads the speech team in Siri, Apple's personal assistant for iPhone, iPad, Apple Watch, Apple



*2014 President Robert B. de Marca's oral history is one of those recently added to the ETHW*

TV, and Carplay; and he is an Affiliate Professor in the Department of Electrical and Computing Engineering at the University of Washington

**Edward Altshuler**, IEEE Life Fellow "for contributions to the understanding of tropospheric effects on millimeter wave propagation", Chair of the IEEE Boston Section of the IEEE Antennas and Propagation Society, 1965-1966

**Joyce Bedi**, Senior Historian Emerita, at the Lemelson Center, National Museum of American History. In this oral history, Bedi discusses her education and career, especially her employment, during the 1980s, as Curator and later, Acting Director (two years) of the IEEE History Center (at that time it was the Center for the History of

Electrical Engineering).

**John Clarke**, after a postdoctoral fellowship at UC Berkeley (1968-1969), he joined the Physics faculty, and has been a member of the Physics Department since 1969. He received the Distinguished Teaching Award in 1983 and he was the UC Berkeley Faculty Research Lecturer in 2005. Clarke's research fields are condensed matter physical and materials science. His principal area of research is the development, noise limitations, and applications of Superconducting Quantum Interference Devices (SQUIDs)

**Fiona M. Doyle**, joined the faculty at U.C. Berkeley in 1983 and was appointed to the Donald H. McLaughlin Chair in Mineral Engineering in 1998. She served as Chair of the Department of Materials Science and Engineering from 2002 to 2005 and Executive Associate Dean of the College of Engineering at Berkeley from 2005 to 2009, from 2011 to 2014, and in 2022.

**Ruth Engel**, active in the steel industry since 1979, when she began as an engineer at Armco (now AK Steel). She became a research engineer there in 1983 and was then named a senior process engineer in 1990. In 2004, she joined ANH Refractories (today HarbisonWalker International) as a senior applications specialist focused on the brick market for the production of stainless steels. Since 2006, she has been a consultant to the industry

**Anthony Gascoigne**, founding member of the IEEE Victorian Section, has more than fifty years professional experience in the design, development, evaluation and proving of electrical and electronics equipment for a range of defense, automotive and Industrial applications

**Dale Hatfield**, awarded an Honorary Doctor of Science degree by the University of Colorado for, inter alia, his commitment to the development of interdisciplinary telecommunications studies. Hatfield has nearly fifty years of experience in telecommunications policy and regulation, spectrum management and related areas

**Egbert U. Imomoh**, Joined Shell in 1968 as a petroleum engineer in Nigeria. He then embarked on a thirty-seven-year career with the company, eventually transitioning from technical positions to management. Imomoh joined SPE in 1973 and was a founding member of the section in Nigeria. He was chairman of the SPE Nigeria Council in 1986 and was named a Distinguished Member of the society in 1999.

**Ravindra Joshi**, earned an undergraduate degree in electrical engineering from IIT and an MBA from Lancaster University, UK. He has more than forty years of large corporate experience. He is with Tata Power Delhi Distribution Limited as Head of Department of Special Consumer Group. He has served as Treasurer & Chair-Human Technology Challenge Standing Committee of IEEE-Delhi Section Executive Committee, IEEE Delhi Section Execom Chair, and on the IEEE Delhi Section SIGHT Standing Committee. He has also been an active member of the IEEE Power and Energy Society

**Linda Katehi**, IEEE Life Fellow "for contributions to phased

array packaging and high-frequency characterization of novel feeding networks for printed antennas and arrays.". She taught electrical engineering and computer science at the University of Michigan, Ann Arbor, rising from Assistant Professor to Professor and later an Associate Dean (1984-2002). She then spent four years as Dean of Engineering and professor of electrical engineering and computer science at Purdue University (2002-2006); three years as Provost and Vice Chancellor for Academic Affairs at the University of Illinois, Urbana-Champaign (2006-2009); and seven years as Chancellor and Professor of Electrical and Computer Engineering, University of California, Davis, 2009-2016. In 2016, Katehi resigned as Chancellor, but remained on faculty at the University of California, Davis, and since 2019, she has been Professor of Electrical Engineering and Computer Engineering and Materials Science and Engineering at Texas A&M University

**Joyce Little**, during her academic career, Little created courses, published, and lectured on metrics and assurance for quality in software engineering, the impact, cyber-ethics for workforce education, and the role of women in computing. Little was a member of the Association for Computing Machinery (ACM), the Data Processing Management Association (now AITP), and the IEEE Computer Society

**J. Roberto B. de Marca**, 2014 IEEE President, IEEE Life Fellow "for leadership and contributions to international communications", Associate Academic Vice President for Sponsored Research at the Pontifical Catholic University in Rio de Janeiro

**Fernando Samaniego-Verduzco**, Emeritus Professor of Petroleum Engineering at the School of Engineering, National University of Mexico (UNAM), 1991 President of the Society of Petroleum Engineers (SPE) Mexico Section

**William Tinney**, widely regarded as the father of modern computer solutions for electric power networks, Tinney was elevated to IEEE Fellow in 1976, "for contributions to the application of digital computers to solve large power network problems."

To view these and other oral histories, visit: <http://ethw.org/oh>

### New First-Hand Histories:

In addition to a repository for oral histories, the ETHW also allows the submission and posting of first-hand memoirs. Two new First-Hand histories include:

"My Information Technology Career: Swim or Sink", by Chetan Sankar, which provides a fascinating account of Sankar's forty-year experience in industry and academics in use of information technologies. He concludes by stating how the technology has progressed exponentially leaving him bewildered in his senior years

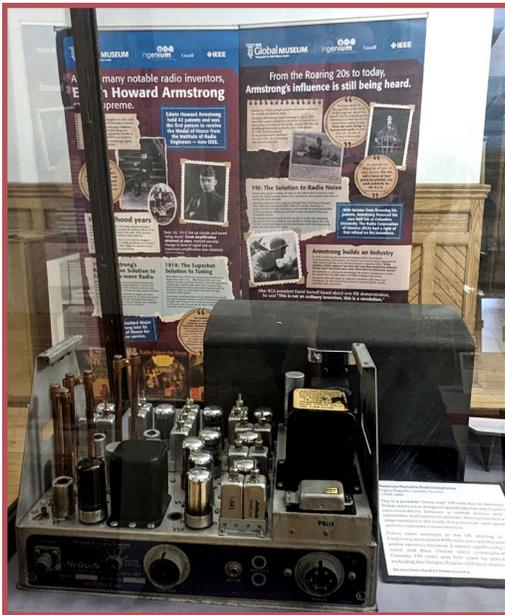
"Computer Security", by A. Michael Noll, an account of Noll's experiences working with people from the National Security Agency (NSA)

To read these and other First-Hand histories, or to submit your own, visit <http://ethw.org/fhh>

## CLEAR SIGNALS: BATTLING RADIO NOISE

By Victoria Fisher, Assistant Curator  
University of Toronto Scientific Instruments Collection,  
University of Toronto

In partnership with the IEEE Global Museum, the Institute for the History and Philosophy of Science and Technology (IHPST) at the University of Toronto recently opened a collaborative exhibit to celebrate the launch of IHPST professor Chen-Pang Yeang's new book, *Transforming Noise*. Entitled, *Clear Signals: Battling Radio Noise*, the exhibit in part addresses FM radio, invented by Edwin Howard Armstrong — the subject of the IEEE Global Museum's flagship travelling exhibit project. The exhibit also provided an opportunity to explore and share the history of radio in Canada.



*The Motorola Portable Radiotelephone (c.1946–60) provided by the IEEE Global Museum with the lid removed. FM was taken up rapidly by the police following the adoption of police radio in the US from 1940.*

*Clear Signals* combines two interpretative banners on Armstrong's life and achievements, previously displayed for IEEE audiences, with radio-related artifacts belonging to the University of Toronto Scientific Instruments Collection (UTSIC), which is stewarded by the IHPST. The oldest is an early German commercial wireless transmitter used by the University of Toronto professor Clarence Chant to demonstrate the principles and possibilities of wireless telegraphy to an awed public at a university open day in 1903. A horn speaker and a shortwave radio, both from the University of Toronto Department of Astronomy and Astrophysics, provide evidence of the importance of wireless time signals to astronomy.

Also on display is an oversized WL-787 'demonstration'



*UTSIC radio noise-related artifacts, showcased alongside IEEE Global Museum interpretive banners on the radio pioneer Edwin Howard Armstrong, for the Clear Signals exhibit.*

triode manufactured by Westinghouse in order to make visible the design and function of triode vacuum tubes. The exhibit links advancements in these tubes with the development of a general theory of noise among scientists.

FM is represented through a Rogers-Majestic-manufactured Motorola police FM radio dating from the 1950s, which was kindly purchased and loaned to the IHPST by the IEEE History Center. This Toronto-made radio is an example of how FM radio first emerged in North America in the 1940s primarily in the form of police radio communications—an application where a clear signal would be especially valuable.

The exhibit, curated by Chen-Pang Yeang and myself, Victoria Fisher, has been on display since February 28th 2024 at the IHPST in Victoria College. The artifacts and interpretive banners attract visitors' attention and will continue to provide a focal point for our central foyer space until the end of June.



*Reverse side of Clear Signals artifact display, accompanied by a brief interpretive poster on the history of wireless communication in Canada.*

## 2024 IEEE LIFE MEMBERS' FELLOW IN HISTORY ALEX REISS-SOROKIN



Alex Reiss-Sorokin is a lawyer and a sociolegal historian of information technology. Her research focuses on trust in information technology and the implications of technological developments for work, law, and expertise. Currently, she is a Ph.D. candidate at MIT's Program in History, Anthropology, Science, Technology, and Society.

In 2024-2025, she will be a Postdoctoral Research Associate at Princeton University's Davis Center and the Institute for Advanced Study. As a lawyer, she trained at Tel Aviv University and NYU School of Law and specialized in criminal and international law.

## IEEE LIFE MEMBERS FELLOWS IN ELECTRICAL HISTORY DELIVER HUGE IMPACT TO THE PROFESSION

The IEEE Life Member History Fellowship has an enormous influence on the field of technology history, especially in developing scholars who will go on to enhance the profession by teaching and doing research in the history of IEEE's fields of interest. First awarded in 1978, and since then to forty-six recipients, the Fellowship is the seed of what has grown to become a very impressive tree indeed. Twenty-nine of the Fellows have gone on to become professors, teaching future engineers as well as historians about the history and implications of technology. The Fellows have authored, edited, or contributed to at least sixty-nine books, and hundreds of scholarly journal articles. Of the Fellows who have not become professors, one became a documentary film maker while others went on to become directors of environmental and conservation organizations, and researchers/writers on sustainability and policy matters. At least two became research scholars at the Max-Planck-Institut

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*Twenty-nine of the Fellows have become professors, teaching future engineers as well as historians about the history and implications of technology. The Fellows have authored, edited, or contributed to at least sixty-nine books and hundreds of scholarly articles.*

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für Wissenschaftsgeschichte. The Fellows' fields of study range from programming and computing (the most frequent areas), electrification and its effects on reducing poverty, energy use and conservation, technology for hearing loss, entrepreneurship, military electronics, magnetic recording, radio, laboratory-based culture, nuclear power, microscopy, technology and democracy, and surveillance and security.

The full list of previous Fellows and their research topics can be found at: <https://www.ieee.org/about/history-center/history-fellowship-winners.html>

IEEE Life Member History Fellowship <https://www.ieee.org/about/history-center/fellowship.html> sponsored by the IEEE Life Members' Fund, supports one year of full-time graduate work or one year of post-doctoral research for a scholar in the history of IEEE's fields of interest.

## IEEE FOUNDATION DONOR PROFILE: JOHN PASERBA

During his nearly twenty years of being an IEEE Foundation donor, John Paserba has enjoyed allocating his contributions across ten different programs he is passionate about within IEEE.

“Recently,” shares John, “I have concentrated my donations to the IEEE PES Scholarship Plus Initiative and Eta Kappa Nu (IEEE-HKN), as well as the IEEE History Center. These are IEEE activities that I appreciate and want to see sustained over time.”

John has been a steady force for good for decades. In addition to his role as a donor for two decades, he has been a very active volunteer for more than thirty years. His passion and commitment to supporting young engineers have nurtured programs benefiting thousands of students and early career professionals.

This desire to give back stems from John’s own student experiences. John earned his Bachelor of Electrical Engineering in 1987 from Gannon University in Erie, PA, U.S.A. He went on to get his Master of Engineering in Electric Power Engineering in 1988 from Rensselaer Polytechnic Institute in Troy, NY, USA. He began his career with General Electric before joining Mitsubishi Electric Power Products Inc. in 1998 as a Principal Engineer. He currently serves as the Vice President of their Power Systems Group.

Once John was in the workforce, he wanted to get involved and give back to IEEE, because the organization had given him so much during his student experience. John started giving back by

volunteering. “My passion for volunteering and seeing the progress in early career activities has led me, over time, to increase my donations to the IEEE Foundation concentrating, but not exclusively, on early career activities such as the PES Scholarship Fund and the HKN Fund,” explains John.

John’s aspirations with his ongoing IEEE Foundation donations are to benefit students and early career activities consistently. He hopes to have the same impact on the present generation of young IEEE members that he experienced during his early career engagement with IEEE. He deeply wishes to pay forward to the next generation of IEEE leaders the support he received while starting his career.

“I encourage all IEEE members to strive to make a difference in our ever-evolving world through technology,” urges John. “The IEEE Foundation, through its various funds, can be a catalyst for making a difference.”



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](http://www.ethw.org))

## EKATERINA RYBKINA DISCUSSES HER RESEARCH EXPERIENCE AS THE 2023 ELIZABETH & EMERSON PUGH YOUNG SCHOLAR IN RESIDENCE

By IEEE Foundation

Established by IEEE Heritage Circle Members Elizabeth and Emerson Pugh, the Pugh Young Scholar in Residence program provides research experience for scholars studying the history of technology and engineering. Awarded a stipend of \$5,000, Pugh Young Scholars in Residence spend two months working at the IEEE History Center in Piscataway, NJ, U.S.A. on a project connected to their area of interest. Scholars gain access to experts in their field as well as History Center personnel and support staff who can assist them in meeting their research goals.

For young historians, the ability to research a field of interest is thrilling, but the opportunity to do that while visiting geographic sites of importance in a particular field as well as meet professional heroes takes things to another level entirely. Such was the experience for Dr. Ekaterina Rybkina, 2023 Elizabeth & Emerson Pugh Young Scholar in Residence at the IEEE History Center. And for Dr. Rybkina, who earned her PhD on the history of radio enthusiasts and communications in the early Soviet Union from the European University Institute in Florence, Italy in 2020 and is currently a lecturer at Friedrich–Alexander–Universität Erlangen–Nürnberg in Germany, the chance to stay there was of particular importance.

As part of her Young Scholar in Residence experience, “I explored aspects of the development of radio technologies that I hadn’t touched upon in my dissertation, such as international contacts of Soviet engineers in the 1920s and 1930s, and also collected interesting sources and traced the fates of some of the engineers who emigrated to the U.S. before or immediately after the Russian Revolution in 1917–1923,” she said.

Dr. Rybkina was also excited to visit several historic sites she learned about from her sources. For example, “I would never have believed that I’d be staying in a house not far from Edison’s research laboratory or taking pictures inside the former RCA Victor building in Camden, NJ, U.S.A., which is one of the most important locations for a topic I’m currently writing about,” she said. “Finding yourself in the places you read and write about gives you much inspiration.”

At the same time, she said, “it was an honor for me to meet Dr. Emerson Pugh in person and thank him for

sponsoring this in-residence fellowship. We had lunch with his family members and close friends and discussed current developments in communication technologies and AI.”

The experience supported her future goals as well. “At the History Center’s library and archive, I found materials for my next research project on the history of telegraph communications in the Caucasus,” she noted, “and I also prepared the syllabus for the History of Technology course I’m currently teaching in Germany.”

### An Invaluable Opportunity

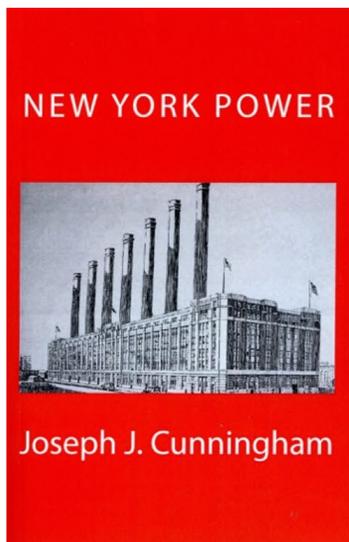
Based on the IEEE History Center’s proximity to and connection with Rutgers University, “Ekaterina was able to interact with historians of Russia and of technology, both at Rutgers as well as at our History Center, and she was also able to access relevant documents at the nearby Hagley Museum & Library in New Castle, DE,” said Michael Geselowitz, senior director of the IEEE History Center. “Ekaterina’s subsequent sharing of her knowledge of telecommunication history in eastern Europe — often not well-known in the West — helped to stimulate ideas for public outreach among our History Center staff, making for a very successful year all around.”

“I very much appreciate the efforts of the entire IEEE History Center team — including Michael Geselowitz, Robert Colburn, Daniel Mitchell, Nathan Brewer, Alexander Magoun, and Mary Ann Hellrigel — to make my stay as comfortable and productive as possible,” shared a grateful Dr. Rybkina. “The IEEE History Center’s location made it especially convenient to travel in the area to explore archival collections and libraries, and the new professional connections I made, which cannot always be established at conferences, were invaluable.”

“My stay at IEEE—short yet rich in content— was a great impetus for my further research activities,” Dr. Rybkina confirmed. Thanks to the opportunity to be an Elizabeth & Emerson Pugh Young Scholar in Residence at the IEEE History Center, she concluded, “I had a positive experience doing archival research in the U.S. and would like to repeat it in the future.”

For more information on The Elizabeth & Emerson Pugh Young Scholar in Residence at the IEEE History Center, visit [www.ieee.org/about/history-center/internship.html](http://www.ieee.org/about/history-center/internship.html).

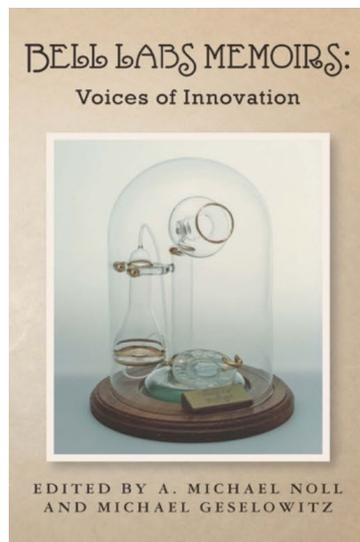
# BOOKS FROM THE IEEE HISTORY CENTER PRESS



## 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.

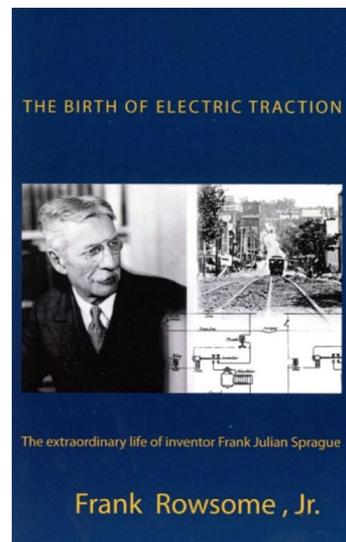
<https://www.amazon.com/New-York-Power-Joseph-Cunningham/dp/1484826515>



## 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

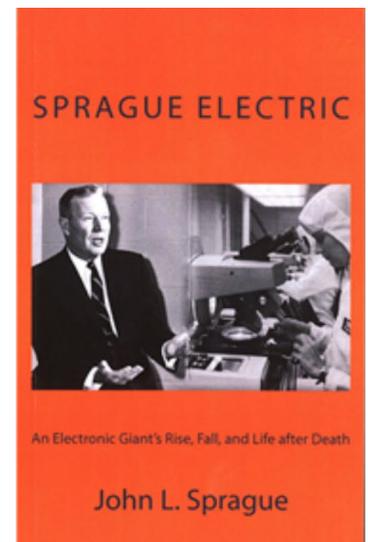
Sprague made enormous contributions in the areas of electric traction, control and safety, especially automatic signaling and brake control for railroads. He was active in the planning and construction of New York City's subway system, and in the electrification of Grand Central Terminal.

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

## SPRAGUE ELECTRIC

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