

# IEEE History Center

## ISSUE 72, November 2006

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## STATIC FROM THE DIRECTOR

Even a quick glance at this issue (page 6) will reveal that the Milestones program—formally, IEEE Milestones in Electrical Engineering and Computing—continues to thrive. The record eight dedications this year will bring the total to more than 75. Milestones can be found in every IEEE Region, around the globe from east to west and north (the Poulsen-Arc Radio Transmitter, 1902, in Lyngby, Denmark) to south (the Chivilingo Hydroelectric Plant, 1897, near Lota, Chile), from the bottom of the ocean (transatlantic telegraph and telephone cables) to the top of Mt. Fuji (weather radar system). Milestones cover the full range of IEEE technologies from the beginnings of electrical science (Volta’s Electrical Battery Invention, 1799, in Como, Italy) to the information age (the Lempel-Ziv Data Compression Algorithm, 1977, in Haifa, Israel).

As the program grows, it is better able to fulfill its mission – which is to publicize engineering achievement in local communities, to foster pride in and ownership of technological advances within local IEEE Sections, and to aid in the preservation and recording of materials related to those achievements and advances. Refining the program to deal with its explosive growth will be a main topic of discussion at the next IEEE History Committee meeting. The IEEE Life

Members Committee—a long-time supporter of all of our activities—at a recent meeting discussed getting Life Member Affiliate Groups more involved in the process. As the 125th anniversary of the IEEE in 2009 approaches, the History Center will become more proactive in seeking out Milestones to fill some “holes” in the roster. Look for more information on these exciting developments in the March 2007 newsletter, and, in the meanwhile, track the progress of the Milestones and all of our programs to preserve, research and promote the legacy of electrical engineering and computing. Our web site, [http://www.ieee.org/web/aboutus/history\\_center/](http://www.ieee.org/web/aboutus/history_center/) will keep you up to date on all of our initiatives.

I would like to take this opportunity to wish you and yours a healthy and happy holiday season.



TAT-1 Milestone Dedication, Clarenville, Newfoundland

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

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## STAFF NOTES

### “Communication across the Atlantic”

On the 15th and 16th of September, Center Research Historian Frederik Nebeker attended a meeting in Schenectady, New York sponsored by the IEEE, the IET (formerly the IEE), and the Schenectady Museum. Brian Bowers, formerly Senior Curator of the Science Museum, London, gave a talk on “Early Anglo-American connections.” Donard de Cogan, Reader at the University of East Anglia, UK, gave a talk on “The interaction between business and technology in early transatlantic cables.” And Ed Owen, formerly GE engineer, gave a talk on “Transatlantic radiotelephone communications--the early days.” There were several shorter talks, exhibits, a reception, and



*Schenectady Museum, which has 1.5 Million photographs from 1850 to the present*

a dinner. Also taking part in the meeting was the archivist of the Schenectady Museum, Chris Hunter. The archives there contain the fifth largest photograph collection in the United States outside the Federal government, some 1.5 million photographs from the 1850s to the present. Because the majority of these are from the GE Photograph Collection, the Schenectady Museum is one of the richest resources anywhere for illustrating the story of the impact of electricity on modern life.

### 2006 - 2007 Graduate Assistants

#### Nichola Harris

Nichola Harris was born in Nashville, Tennessee, and raised in Washington State. After earning a B.A. in history at Gonzaga University, in Spokane, Washington, she moved to Europe where she spent several years buying and selling antiques. Upon returning to the U.S., Nichola entered into the graduate program at Washington State University and received an M.A. in Early European history. She is currently in her third year in the doctoral program at Rutgers where her focus is medieval history, primarily the cultural history of England and France in

### THE IEEE HISTORY CENTER NEWSLETTER ADVERTISING RATES

The newsletter of the IEEE History Center is published three times per annum with a circulation of 10,700 of whom approximately 7,100 reside in the United States. The newsletter reaches engineers, retired engineers, researchers, archivists, and curators interested specifically in the history of electrical, electronics, and computing engineering, and the history of related technologies.

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

Please submit camera-ready copy via mail or email attachment to

[ieee-history@ieee.org](mailto:ieee-history@ieee.org). Deadlines for receipt of ad copy are 2 February, 2 June, 2 October.

For more information, contact Robert Colburn at [r.colburn@ieee.org](mailto:r.colburn@ieee.org).

the later Middle Ages. Her dissertation research focuses on the practice of using jewelry as a form of medicine, specifically how elements of science, religion, and magic blended together in medieval society to form a universally accepted form of healing.

She contends that this practice has been traditionally overlooked by historians of medieval medicine and that it was based in the medieval concept of natural science and learning inherited from the classical world.

#### **Damian Miller**

Damian Miller returns to the History Center; he was GA in 2004. He is in the midst of research and writing his dissertation, "Producing Working Bodies: Gender, Domestic Life, and Industrial Strategy in the Extractive Labor Camps of California and the Pacific Northwest, 1890-1930." He enjoys the opportunity to apply his digital audio/video and instructional technology skills in his work for the IEEE History Center.

#### **Rochisha Narayan**

Rochisha Narayan completed her B.A, M.A and M.Phil in History from the University of Delhi, India. Her M.Phil thesis studied women's journals in the Hindi public sphere from the 1920s -1940s. At Rutgers, she has Women and Gender history as her major field and Global and Comparative history as her minor. Her dissertation will examine how the consolidation of a Sanskritized Hindi language and Hindi literature was crucial

to the formation of a middle-class in north India during the late 19th and early 20th centuries.

#### **Meagan Schenkelberg**

Meagan Schenkelberg received her bachelors degrees in English and History at Mount Mercy College in Iowa, moving east to Villanova University for her masters in European history. Starting her second year as a history doctoral student at Rutgers, she is majoring in Early Modern Europe – with a focus on England – and minoring in Women's and Gender history. She is particularly interested in 17th-century England, and is currently working on a project about the introduction of actresses to the English public stage in the 1660s and its social and political implications. Meagan has presented conference papers on the use of politics in Aphra Behn's *The Rover*, but also on the American woman's suffrage movement by examining the alumnae newsletters of Bryn Mawr College.

#### **Ji-Hye Shin**

Ji-Hye Shin was born in the Republic of Korea and attended Yonsei University in Seoul, Korea, as an undergraduate and graduate student. She received her MA in international studies with a concentration on American Studies. At Rutgers, she studies U.S. immigration history. Her dissertation will examine the processes of racial and ethnic formation in the nineteenth and twentieth century United States with particular interests in immigrant communities.

## **NEW ORAL HISTORIES**

With the premier of the new IEEE History Center web site, new content has been added. Specifically seventy-five new oral histories are now available on line. Such luminaries as Gordon Moore, Robert Noyce and Wilson Greatbatch, just to name a few, are now online. All oral histories are in PDF format, and include an abstract and index. We at the Center endeavor to provide quality information on engineering on our web site. It is part of our mission to preserve, research and promote the history of information and electrical technologies.

One additional enhancement has been added, you may now search the web site using Google or Ultraseek. This will allow visitors to access more quickly the information they are looking for.

## SURF CITY

In this issue we are tooting our own horn. This past summer we premiered the new IEEE History Center web site. This 1,000 page/1,800 file web site is now in the standard IEEE template. A great deal of new content has been added, including biographies and oral histories (see related story.)

It's will soon be holiday time and for more than fifty years NORAD has tracked the whereabouts of Santa on Christmas Eve. So for all the young folks and the young at heart, visit <http://www.noradsanta.org/index.php>. The site offers English, Spanish, French, Italian, German and Japanese versions. There are also activities and coloring books that can

be downloaded.

IEEE recently launched a new site, [tryengineering.org](http://tryengineering.org), to help students and educators understand the world of engineering. Visitors to the site will find here descriptions of the lifestyles and experiences of engineers, and on the different disciplines within engineering. Visitors can also find accredited engineering programs, and free classroom activities that demonstrate engineering principles and more. The site receives an average of 11,000 hits per week, and is co-sponsored by IBM and the New York Hall of Science.

## 2007 IEEE CONFERENCE ON THE HISTORY OF ELECTRIC POWER

The 2007 IEEE Conference on the History of Electronics is the sixth in a series of conferences sponsored by the IEEE History Committee and the IEEE History Center at Rutgers University. The profound role electric power has had in shaping the modern world, from Edison's first central station in 1882 to the present, makes this a vital topic of historical study. The conference will be held from Friday 3 August 2007 through Sunday 5 August on the campus of Montclair State University, in Montclair, New Jersey. This is close to the Edison National Historic Site, which is undergoing major renovation and is soon to reopen. A number of important

Edison anniversaries will be occurring around that time, notably the 125th anniversary of the Pearl Street Station in lower Manhattan, which is often regarded as the beginning of the electric power industry. Conference papers will deal with all aspects of electric power and its applications from the 19th century to the present. Please mark your calendars and look for the call for papers, which will be coming out shortly, posted on our Website and on other Websites and in newsletters of history of technology organizations. The March 2007 History Center newsletter will have registration information for everyone, whether presenting a paper or not.

## MYSTERY PHOTOGRAPH

For this Mystery Photograph, we deviate from the norm. This time it's not electrical equipment, but artwork. During the 1920s many artists, including Maxfield Parrish and Norman Rockwell, painted images for use in General Electric advertising. Artwork contracted by the company adorned calendars, matchbooks and the backs of playing cards and ink blotters. Unfortunately, we do not know who painted this colorful Flamenco dancer. Experts who have seen this image doubt it is the work of either Parrish or Rockwell.

This blotter has no text other than the brief title-no sales pitch, no description of product, just images. The dancer catches the eye, while two light bulb silhouettes and the unusual winged GE logo reinforce the title. The space at the bottom (as seen on many of the blotters) is left for the local lamp seller's imprint.





# ELECTRIFYING READING



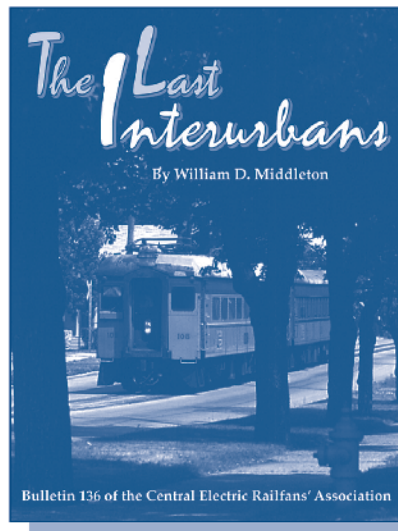
## The "L"

*The Development of Chicago's Rapid Transit System, 1888-1932*  
by Bruce G. Moffat

The formative years of Chicago's most enduring traction property is the subject of this well-researched book. Now in its second century of operation, the "L" serves as a key component of the Chicago area's transportation network. Early steam operations are examined, followed by the conversion to electric traction, suburban expansion, and the boom times of the 1920's. Illustrated with more than 400 photos, maps and vintage advertisements, this 306-page book is a must for any person interested in Chicago history. As a special bonus, each copy includes an unbound reproduction of the 1898 Metropolitan West Side "L" map and the 1933 Chicago Rapid Transit Company system map.

**Order B-131 ... \$55**

IL residents add \$4.81 tax per book.

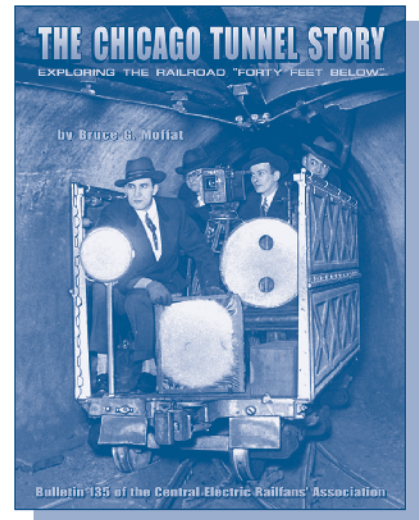


## The Last Interurbans

by William D. Middleton

The electric interurban railways were one of the technological marvels of the early 20<sup>th</sup> century, providing swift, clean and frequent service at low fares to much of small town and rural America, where travel had been hampered by unpaved roads and horse-drawn transport. Author William Middleton's newest 234-page work takes a look at those properties that managed to outlast the depression years and the arrival of the more versatile automobile, even if only briefly. From the huge Pacific Electric Railway to the comparatively small Youngstown & Southern, to the famous Hershey Cuban, they are all here in *The Last Interurbans*.

**Order B-136 ... \$55**



## The Chicago Tunnel Story

*Exploring the Railroad "Forty Feet Below"*  
by Bruce G. Moffat

This two-foot gauge railroad operated almost entirely underground on 60 miles of track. 149 electric locomotives moved freight, mail, coal and other commodities between railroad terminals, department stores, warehouses and major buildings until 1959. Not overlooked in this 244-page book are the company's post-abandonment years including the infamous "Loop Flood" of 1992 that disrupted Chicago's downtown for weeks.

**Order B-135 ... \$55**

*Central Electric Railfans' Association*



P.O. Box 503, Chicago, IL 60690. Dealer inquiries invited. For a free book catalog, or to inquire about membership information, write us or visit our web site at [CERA-Chicago.org](http://CERA-Chicago.org)

## TAT-1 MILESTONE DEDICATION

On Sunday, September 24 the IEEE Newfoundland and Labrador Section in partnership with the Town of Clarenville and the Clarenville Heritage Society celebrated an IEEE Milestone dedication ceremony commemorating the site of the first transatlantic cable (TAT-1) near the site of the former cable station in Clarenville.

There are more than seventy-five of these milestone sites in the world, six of which are in Canada. In recognition of Newfoundland's pivotal role in the development of worldwide communications, half of the Canadian sites are in Newfoundland. The first successful transatlantic telegraph cable, in 1866, is commemorated by a Milestone at Heart's Content. There is also a Milestone at Signal Hill in St. John's honouring the reception of the first wireless signal across the Atlantic by Marconi in 1901. The latest Milestone recognises Clarenville as the eastern terminal of the first transatlantic telephone cable, TAT-1 which entered service on September 26, 1956.

The TAT-1 inaugurated the modern era of global communications. Before TAT-1, voice was carried on unreliable radio channels and text messaging was carried on submarine telegraph cables (the technology of the previous 90 years), which was reliable, but slow and expensive. TAT-1 operated with exemplary reliability until 1978, when advances in technology made it obsolete.

The dedication ceremony, blessed with fine weather, drew about one hundred spectators. Gerard Dunphy, from the Newfoundland and Labrador Section, was the Master of Ceremonies. The roster of speakers began with greetings and best wishes from the political leaders at the municipal, provincial, and federal levels - Mayor Fred Best, Ross Wiseman, MHA, Trinity North and Bill Matthews, MP, Random-Burin-St. George. Dr. Camilla O'Shea from the Clarenville Heritage Society eloquently explained the role of Clarenville in the transatlantic project. The Heritage Society and the Town of Clarenville were instrumental in establishing the Milestone. The role of the people of New-

foundland in telecommunications was celebrated by Dr. Wallace Read, a resident of Newfoundland and a past President of IEEE. Dr. Ferial El-Hawary, President Elect of IEEE Canada conveyed the best wishes of IEEE Canada. Dr. Jerry Hayes, a former worker on TAT-1 and who has written extensively on TAT-1, called for a moment of silence remembering the men and women who contributed to the advances of global telecommunications. The plaque was unveiled by Lloyd Currie and Kathleen Chafe. Mr. Currie worked at the Clarenville cable station and is a member of the Clarenville Heritage Society. Ms. Chafe is the Chair of the Newfoundland and Labrador Section of IEEE and was the Chair of the TAT-1 Milestone Organizing Committee.

The dedication ceremony was followed by a reception at the Clarenville Inn. All enjoyed refreshments and hors d'oeuvres during this excellent social networking opportunity. The Clarenville Heritage Society prepared a very interesting display of TAT-1 artifacts and photographs. Dr. Jerry Hayes presented an informal slideshow highlighting key events in telecommunications history before, during, and after TAT-1. Commemorative Booklets and Clarenville pins were provided to all attendees. The members of the Organizing Committee were very pleased with the event. The IEEE Newfoundland and Labrador Section would like to acknowledge the enormous contribution of the Town of Clarenville and the Clarenville Heritage Society who were crucial to the success of the celebration.

The Milestone citation reads:

*This site is the western terminal of the first transatlantic telephone cable system, TAT-1, that stretched east to Oban, Scotland. Westward, it ran from here to Sydney Mines, Nova Scotia. Service began on 25 September 1956. TAT-1 was a great technological achievement providing unparalleled reliability with fragile components in hostile environments. It was made possible through the efforts of engineers at AT&T Bell Laboratories and BPO. The system operated until 1978.*

## MENLO PARK MILESTONE: "TODAY WAS INVENTED HERE"

The IEEE has established the Edison's accomplishments at his Menlo Park laboratory in Edison, New Jersey as an IEEE Milestone. The Dedication Ceremony was held on Saturday, 9 September 2006 at the Edison Tower and Menlo Park Museum. It was a grand event befitting the Edison Laboratory. Thomas Alva Edison occupied this site from 1876 to 1882. During that time he received nearly 400 patents, and it established him as the "Wizard of Menlo Park."

The dedication ceremony was attended by a number of dignitaries, including a New Jersey Senator and two Congressmen. The brilliant and entertaining keynote address was delivered by Dr. Paul Israel, Director of the Edison Papers Project at Rutgers University, and also a member of the IEEE History Committee. Paul detailed the major work accomplished by Edison at this site. Also on hand



Left to right, Dr. Paul Israel, John Zenkoski and W. Cleon Anderson.

at the Ceremony was W. Cleon Anderson, Past President, IEEE. Cleon provided an overview of the Milestone program, and a brief history of the IEEE. He noted that Edison was a founding member of the IEEE (the American Institute of Electrical Engineers, AIEE, as it was known in 1884.)

The Nomination Packet was shepherded by John Zemkoski, who is an IEEE Life Member and also a Trustee of the Edison Memorial Tower Corporation. In the nomination packet, John noted that it was at Menlo Park that Edison achieved the following:

- Established the world's first organized research and development laboratory
- Invented the phonograph, it was the birth place of recorded sound
- Demonstration of the first practical incandescent light bulb
- Development of the first DC electric distribution system
- Invention of the carbon button transmitter for the telephone
- Construction of the first electric railroad in the United States

The Milestone citation reads:

*Between 1876 and 1882 at Menlo Park, New Jersey, Thomas Edison developed the world's first industrial research and development laboratory devoted to developing new technology. At this laboratory Edison and his staff developed the first system of incandescent electric lighting and electric power generation, and invented recorded sound and a commercially successful telephone transmitter.*

## LCD MILESTONE DEDICATION

Where would we be today without liquid crystal displays (LCD)? They are in a majority of electronics we use on a daily basis, including laptop computers, digital clocks and watches, microwave ovens, CD players and many other electronic devices. On Saturday, 30 September 2006 a Milestone Dedication was held at the Sarnoff Library in Princeton, NJ to honor the LCD. The IEEE Princeton/Central New Jersey Section and the David Sarnoff Library hosted the event, attended by more than seventy-five members of the Section, as well as other dignitaries. Louis Zanoni, Bernard Lechner, IEEE Life Fellow, and Ashok Pradhu, vice president, Sarnoff Corporation, provided comments and insights on the invention of this technology. Dr. Michael R. Lightner, 2006 IEEE President and CEO offered inspiring comments on the ecological benefits offered by LCDs.



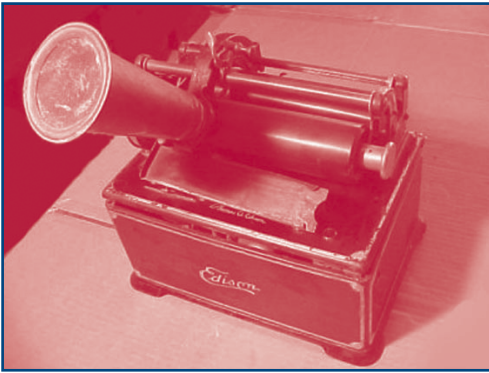
*Left to right: Louis Zanoni, Ashok Pradhu, Elena Barton Day, Julian Bussgang, Bernard Lechner, Iwan Santoso, Michael Lightner, Alex Magoun (kneeling)*

The Milestone citation reads:

*Between 1964 and 1968, at the RCA David Sarnoff Research Center in Princeton, New Jersey, an interdisciplinary team of engineers and scientists led by George H. Heilneier with Louis A. Zanoni and Lucian A. Barton devised a method for electronic control of light reflected from liquid crystals and demonstrated one of the first liquid crystal displays. Their work launched a global industry that now produces millions of LCDs annually for watches, calculators, flat-screen televisions, computers and instruments.*



## DICTATING MACHINE



1910 Edison dictating machine

When he invented the phonograph in 1877, Thomas Edison thought that the most important use for the new device would be “Letter writing and all kinds of dictation without the aid of a stenographer.” In fact, it

was Edison’s work on a machine to transcribe telegraphic messages through indentations on paper tape that got him thinking about a similar way to record telephone messages. He experimented with a diaphragm that had an embossing point and was held against rapidly-moving paraffin paper. Speech caused the diaphragm to vibrate, which then made indentations in the paper. Edison later changed the paper to a metal cylinder with tin foil wrapped around it, and the phonograph was born.

Although providing music became the most important use of Edison’s invention, it was applied to office dictation. At the beginning of the 20th century two companies, Ediphone and Dictaphone, manufactured large numbers of wax-cylinder dictating machines. Such machines can be seen in “Annie” (1982), where Oliver Warbucks uses one, and in “Frida” (2002), where Leon Trotsky uses one.

In 1898 Valdemar Poulsen in Denmark invented magnetic recording, using steel wire as the recording medium. This technology was soon applied to dictating machines. A wire recorder can be seen in the 1994 Academy-Award-winning film “Il Postino” (“The Postman”), which takes place in Italy shortly after World War II; the recorder belonged to the writer Pablo Neruda. In the 1954 Humphrey Bogart movie “Sabrina” we see a business executive using a wire-recorder to dictate a letter as he is being driven in his car.

Record-type dictating machines were also manufac-

ured. One can be seen in “My Favorite Brunette” (1947). More modern devices can be seen in “Avanti!” (1972), where an executive uses a portable tape-recorder the size of a large book, in “Sixth Sense” (1999), where a psychologist uses a hand-held recorder in taking notes about a patient, and in “Someone Like You” (2001), where Jane Goodall makes notes to herself on a microcassette recorder.

In some movies a dictating machine is present as a cinematic device for getting a character to express his or her thoughts. In “Auntie Mame” (1958) the title character uses one in writing a book. The film noir classic “Double Indemnity” (1944) begins with a man, who is dying from a gunshot wound, telling his story into a dictating machine, and this narration provides the voiceover after the movie jumps back in time to show the events in the order they occurred. In “Manhunter” (1986) a detective uses a handheld tape recorder in making notes. In “Flatliners” (1990) we are privy to a medical student’s thoughts because he has dictated them, and a similar thing happens in “Innocence” (2000).

In some movies, the director uses a dictating machine to emphasize the importance of a business executive, as in “Miracle on 34th Street” (1947) and in “Love in the Afternoon” (1957), where the dictaphone has a light that flashes according to the volume of sound being recorded. In the Woody Allen film “Crimes and Misdemeanors” (1989), a self-important film producer uses a pocket tape recorder to make notes to himself.

A dictating machine can have an important role in the plot, most often for obtaining evidence. In the 1934 Howard Hawks movie “Twentieth Century” a private detective attaches a “dictograph” to Lily Garland’s (Carole Lombard’s) telephone line. A similar thing happens in “The Women” (1939). And in “Carefree” (1938) a phonograph-type dictating machine starts accidentally, allowing Amanda Cooper (Ginger Rogers) to hear what Dr. Flagg (Fred Astaire) had said about her.

As always, we would be grateful for reports from readers of other interesting movie scenes that involve dictating machines. You may contact us at [ieee-history@ieee.org](mailto:ieee-history@ieee.org).

## BIBLIOGRAPHY

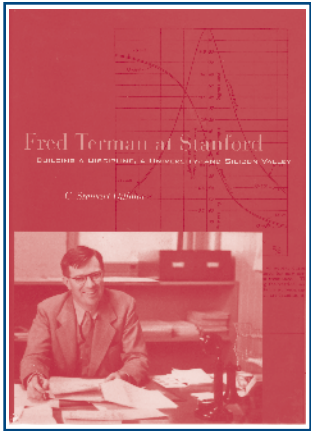
IEEE *Aerospace and Electronic Systems Magazine* has published John B. McKinney’s previously unpublished manuscript, *Radar: A Case History of an Invention* (written in 1961) as part II of its August 2006 issue (Vol. 21, No. 8). This is the full version of the abridged *Radar: A Reluctant Miracle*. “Reluctant has appeared as a reference in several Systems magazine contributions as an

‘Unpublished manuscript,’ Editor David Dobson writes in the Foreword, ...we decided to publish the entire manuscript for wide availability and to get it entered in index databases.”

By making the full version of McKinney’s history of radar available, the IEEE AES Society has greatly assisted the history of electrical technology.



**GILLMOR, STEWARDT**, *Fred Terman at Stanford: Building a Discipline, a University, and Silicon Valley*, Stanford University Press, 2004



Stewart Gillmor, an electrical engineer himself, took on the seven-year task of thoroughly researching the life of Frederick Emmons

Terman. The detail with which he writes is excellent and enjoyable. He begins with the life of Terman's father, Lewis. Lewis was also an educator at Stanford and best known as the co-author of the Stanford-Binet IQ Test. Gillmor chronicles Terman's life as he grew up on the campus of Stanford University, his school years and his subsequent entrance to Stanford, as a chemistry major.

Gillmor recounts all of the "greats" whom Terman studied under, including Harris Ryan, who was awarded the AIEE Edison Medal in 1925 in recognition of his contributions to the art and science of high voltage power transmission. Terman pursued his doctorate at MIT, studying under Kennelly, Weiner and Bush. Gillmor proceeds with Terman's return to Stanford and the building of the EE Department into a world class entity. He would spend forty years teaching at the University, and established several new departments, including the Stanford Electronics Research Lab. The book reviews his talents not only as a professor, but also as a manager, administrator and entrepreneur.

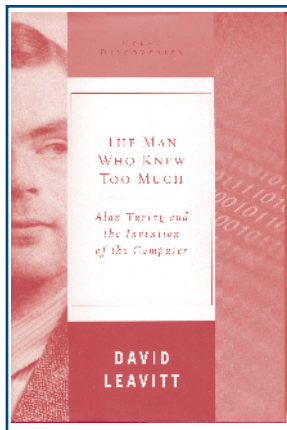
Gillmour interviewed many peo-

ple to obtain a clear picture of Terman's life, including family members, colleagues and friends. He obtained funding for his research from both Hewlett and Packard Foundations. This is not just a history of Terman but also of Stanford.

It is very special for us at the History Center to be able to provide a review of this book, as Terman was so intimately involved in the history of IEEE. Gillmor writes about the Center, staff member Reed Crone and their activities to document the history of IEEE.

Available from Stanford University Press, Palo Alto, California, [www.sup.org](http://www.sup.org), \$75.00, Cloth, ISBN 0804749140, 672 pp, 2 tables, 20 illus.

**LEAVITT, DAVID**, *The Man Who Knew Too Much: Alan Turing and the Invention of the Computer*, W. W. Norton, 2006



ple to obtain a clear picture of Terman's life, including family members, colleagues and friends. He obtained funding for his research from both Hewlett and Packard Foundations. This is not just a history of Terman but also of Stanford. It is very special for us at the History Center to be able to provide a review of this book, as Terman was so intimately involved in the history of IEEE. Gillmor writes about the Center, staff member Reed Crone and their activities to document the history of IEEE. Available from Stanford University Press, Palo Alto, California, [www.sup.org](http://www.sup.org), \$75.00, Cloth, ISBN 0804749140, 672 pp, 2 tables, 20 illus. **LEAVITT, DAVID**, *The Man Who Knew Too Much: Alan Turing and the Invention of the Computer*, W. W. Norton, 2006

Novelist David Leavitt's biography of Alan Turing begins with a comparison between a character in the movie "The Man in the White Suit", who is persecuted for his invention, and Alan Turing. Behind every mathematical paper or invention of Turing, biographer Leavitt finds effects of the hounding and persecution of Turing for his homosexuality. Leavitt compares the prejudice against machines which think to the prejudice against homosexuals in England. Not only is this a bit of a jump

in literary terms, but Leavitt does not shy away from speculating as to what was in Turing's mind. In sentences such as, "Does he [Turing] feel some sense of identification with Helen Keller,...?" and "Perhaps what appealed to him was..." are examples of the speculative quality of biography.

The problem with trying to derive intellectual achievements of a third person from sexual impulses is that it doesn't really help us understand the invention, nor does it really help us understand the person. Leavitt does give the reader a good overview of some of the mathematical problems Turing was attempting to solve, as well as a revealing portrait of Turing's 1936-1938 years at Princeton. However, the examination of Turing's intellect and achievements constantly returns to Turing qua unwitting martyr, and Leavitt somewhat hammers away at the reader (quoting Turing's syllogism "Turning says machines think..." at three different places in the book).

Available from W. W. Norton & Co., New York, New York, 212-354-5500, fax: 212-869-0856, [www.wwnorton.com](http://www.wwnorton.com), \$22.95, ISBN 0-393-05236-2, 317 pp, index

**PUTT, ARCHIBALD**, *Putt's Law & The Successful Technocrat: How to Win in the Information Age*, illustrated by Dennis H. Driscoll, Wiley-IEEE Press, 2006.

In 1981, a publishing sensation swept the high-tech world (or what passed for high-tech in those days). A pseudonymous author calling himself Archibald Putt took a look at the so-called Peter Principle from the business world that "in a hierarchy, every employee tends to rise to the level of his incompetence" and decided that it did not apply to technocrats. Rather, reasoned Putt, employees

of technology-based hierarchical companies over time divide into two types of people: “those who understand what they do not manage and those who manage what they do not understand.” From this, “Putt’s Law”, flows a range of corollaries, subsidiary laws, rules and so forth. Putt, like Peter before him, outlined these in a way that was humorous yet also insightful for those involved in the industry, so that the book was simultaneously a satire and a self-help manual. The book became a hit.

Over the years, many have speculated on the true identity of Putt, who is described on the book jacket as having “managed basic and applied research, and held executive positions in a large multinational corporation. He received his Ph.D. from a leading institute of technology and has served as president of an international technical society.” Of course, as new business fads came and went, Putt’s book slowly sank toward obscurity. For one thing, Putt was dealing with high-tech, but the cutting edge had moved considerably. In 1981 there was no Internet (only its predecessor the ARPAnet), let alone a World Wide Web; there were no hand-held mobile telephones; personal computers had not taken off commercially; fiber-optic cable was not widely deployed. It made Putt’s book seem dated. Yet, ironically, this new technology kept the concept of Putt’s Law alive: used copies of the book sold on on-line while quotations from the book were widely posted on the Web. Clearly many users of the latest technology thought that Putt still spoke to them.

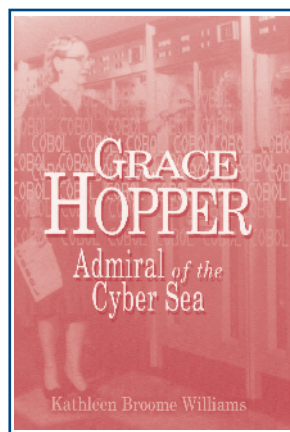
Readers will be happy to learn that these past 25 years, Archibald Putt has not been resting on his laurels. Rather, he has been observing the “Information Age” revolution, noting with satisfaction where his laws proved truer than ever, and also recognizing that changes in the way business is done had introduced new corollaries. Now, IEEE Press has persuaded Putt to revise his book, and has published a new edition, including updated drawings by the original illustrator. The book remains an enjoyable and worthwhile read for anyone affiliated directly or indirectly with high-tech industry.

Interestingly, Putt has chosen to continue to remain anonymous. One understands why he had to remain anonymous initially, as it gave him the freedom to write what must be written. Since one estimates that he is retired by now, it is not clear why his identity still needs to be kept secret. The matter is, of course, between him and his publisher, but one is a bit

regretful imagining how much fun an Archibald Putt book tour would be!

Available from IEEE Press, 445 Hoes lane, Piscataway, NJ 08854, [www.wiley.com/WileyCDA/Section/id-106487.html](http://www.wiley.com/WileyCDA/Section/id-106487.html), \$24.95, ISBN: 0-471-71422-4, Hardcover, 184 pages, table of contents, preface, illustrations.

**WILLIAMS, KATHLEEN BROOME**, *Grace Hopper: Admiral of the Cyber Sea*, Naval Institute Press, 2004.



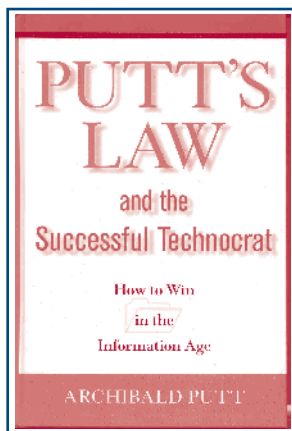
This handsomely produced, carefully researched, and graciously written biography is a welcome addition to the history of computing. It tells the story of one of the most important figures in 20th-century computing, Grace Hopper.

Born Grace Murray in New York City in 1909, she graduated from Vassar in 1928, having majored in both math and physics. Two years later she earned an M.A. in mathematics at Yale and married Vincent Hopper. In 1931 she began teaching at Vassar, while still working on her Ph.D., which she received in 1934. She left her position as associate professor at Vassar to join the WAVES in 1943, and she was assigned to the Mark I computer project at Harvard, where she became one of the first computer programmers in the world.

After the war she became one of the leaders of computer programming in the business world and played a large part in the establishment of COBOL as the standard language for commercial computing. In 1967 the Navy recalled her to active duty to standardize programming languages for the military. When she retired as rear admiral in 1989 at the age of 79, she was the oldest serving officer in the armed forces.

The book is provided with photographs, a bibliography, and a guide to further reading. Sources of information are given in endnotes. Two other books by Kathleen Broome Williams will also be of interest to newsletter readers: *Secret Weapon: U.S. High-Frequency Direction Finding in the Battle of the Atlantic* (1996) and *Improbably Warriors: Women Scientists and the U.S. Navy in World War II* (2001).

Available from Naval Institute Press, U.S. Naval Institute, 291 Wood Road, Annapolis MD 21402, tel. 800 233-8764, [www.navalinstitute.org](http://www.navalinstitute.org), \$32.95 cloth, ISBN 1-55750-952-2, xvii + 241 pp., index.



## IEEE FELLOWSHIP AND INTERNSHIP AVAILABLE

### IEEE Fellowship In Electrical History—Academic Year 2007/2008

The IEEE Fellowship in Electrical History supports either one year of full-time graduate work in the history of electrical science and technology at a college or university of recognized standing, or up to one year of post-doctoral research for a scholar in this field who has received his Ph.D. within the past three years. This award is supported by the IEEE Life Members Committee. The stipend is \$17,000, with a research budget of \$3,000.

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/organizations/history\\_center/fin\\_support.html](http://www.ieee.org/organizations/history_center/fin_support.html). The deadline for completed applications is 15 February 2007. This completed application packet should be sent to the Chairman, IEEE Fellowship in Electrical History Committee, IEEE History Center, Rutgers, The State University of New Jersey, 39 Union Street, New Brunswick, NJ 08901-8538. Applicants will be notified of the results by 1 June 2007.

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

### IEEE History Center Internship—2007

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 a paid Internship at the Center's offices on the Rutgers University campus in New Brunswick, New Jersey.

The intern program seeks to provide research experience for graduate students in the history of electrical and computer technologies, while enlisting the help of promising young scholars for the Center's projects. The Intern generally works full-time for two months at the History Center on a Center project that is connected to his or her own area of in-

terest. This time is usually during the summer, but other arrangements will be considered. Interns are also encouraged to consult with the Center's staff and its associates, and guided to research resources in the area. The internship is designed for those near the beginning or middle of their graduate careers, but advanced undergraduates, advanced graduates, and -- on rare occasions -- recent Ph.D.s, will also be considered. Special consideration is often given to scholars from outside the United States who might not otherwise have an opportunity to visit historical resources in this country.

The stipend paid to the intern is US\$3,500, but additional funds might be available to defray travel costs, depending on the intern's circumstances. This internship is supported by the IEEE Life Members Committee.

There is no formal application form. To apply, please mail a curriculum vitae showing your studies in electrical history along with a cover letter describing the sort of project you would be interested in doing (see contact information below). The deadline for contacting the IEEE History Center is 1 March 2007.

Send information: to Internship, IEEE History Center, Rutgers, The State University of New Jersey, 39 Union Street, New Brunswick, NJ 08901-8538, [ieee-history@ieee.org](mailto:ieee-history@ieee.org). Electronic submissions welcome.

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## WOLFF'S RETIREMENT IS GREATLY EXAGGERATED

In our last issue we reported the Michael Wolff, who had conducted oral histories for IEEE Spectrum, had retired and moved to Florida. We received a delightful email from him stating "to paraphrase Mark Twain, the news of my retirement has been greatly exaggerated. I have no plans either to retire or move to Florida; rather, I continue to operate my editorial services business here in NYC." In the mid-1970s Michael had prepared a report on the IEEE History Committee, and it's future activities. This report shaped the future activities of the Center and the preservation of engineering history. We are grateful for his continued dedication to history.



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