

IEEE History Center

ISSUE 71, July 2006

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STATIC FROM THE DIRECTOR

As I write this, I have just emerged from a two-day workshop commissioned by the IEEE Board of Directors to undertake a strategic review of the IEEE History Center and its programs. The results of this workshop will come out over the next several months. I can say as a first impression that the distinguished group of engineers, educators, historians, and museum professionals agreed that the Center fills a number of important niches, not the least of which is serving as a bridge between engineers and historians. The IEEE Life Member Fellowship in Electrical History (see page 2) is one way that IEEE, uniquely among technical associations, serves the historical community, and in turn assures that the story of its technologies is well told. The IEEE Life Member Paper prize in the Society for the History of Technology is another. The Milestones Program (p 11), which continues to grow at a record pace, encourages IEEE Organizational Units to get involved with local historians to preserve and publicize local engineering achievement. Our oral histories (p. 3) give pride to the engineers whose memories are sought, while preserving important primary material for future historians. Our conferences (the next IEEE History Center-sponsored conference is just beginning to be planned for next year—more information will be in the next newsletter) are unusual in the way they bring together engineers and historians to discuss issues of common interest.

As the review process unfolds, I will definitely be turning to you—the readers of our newsletter and our greatest advocates—for feedback on our programs, past, present, and proposed for the future. In the meanwhile, thank you, as always, for your continued interest, and for your support in our effort to preserve, research and promote the heritage of engineering.



July 2006 Marks the 150th Birthday of Inventor Nikola Tesla (See pg. 11)

CENTER ACTIVITIES

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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WEB SITE UPGRADE

On 27 June 2006 the new History Center Web site premiered. It is now in the standard IEEE template, utilizing a new content management system. That template can be changed universally, ensuring a consistent look and feel across all IEEE web sites.

The initial updates, which are based on both user comments and Web site best practices, include:

- Additional search capabilities; Users can search the IEEE Web site, the entire Web (using Google) and the IEEE Xplore® digital library database
- Refreshed design, more reflective of the Center's diverse activities and audiences
- Shorter, more user-friendly URLs

In the near future additional content will be added, including new oral histories and biographies. Future enhancements will include access to the History Center database, allowing researchers to see the archival holdings of the Center, including publications, biographies, and oral histories.

HYUNGSUB CHOI IS 2006-2007 IEEE LIFE MEMBER FELLOW IN ELECTRICAL HISTORY

The IEEE History Committee has awarded Hyungsub Choi the 2006-2007 IEEE Life Members' Fellowship in Electrical History. Choi, a Ph.D. candidate in the history of science and technology at Johns Hopkins University, is researching the creation and circulation of manufacturing knowledge in high-technology industry. His proposal, "Manufacturing Knowledge in Transit: Making Transistors in the United States and Japan, 1948-1960," will examine how the scientific knowledge created in one industrial research

laboratory in New Jersey, U.S.A. metamorphosed into the technical know-how necessary for mass production, and spread to other locations around the world.



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.

	Cost Per Issue
Quarter Page	\$150
Half Page	\$200
Full Page	\$250

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

MOORE & NOYCE ORAL HISTORIES *By Mary Ann Hoffman, Archivist*

Back in 1975 a journalist was doing work for *IEEE Spectrum* on the invention of the integrated circuit. Mike Wolff was conducting oral histories with luminaries in the field, such as Gordon Moore, Robert Noyce and Jack Kilby, just to name a few.



Robert Noyce



Gordon Moore

Fast forward thirty years and the journalist finds himself retiring and moving to Florida. As he is cleaning out his Manhattan apartment, he discovers the original audio tapes. Because it's such an important part of technology history the Center decided to get the tapes transcribed. The one with Moore is exceptional. As we know, Moore is still alive, but the Center could not do anything with such an oral history because the Center doesn't have a signed permission form from him stating it can make the oral history available to scholars. However I knew that Moore is involved with the Chemical Heritage Foundation, so I sent an email to one of

their directors. A couple of weeks later, I received a phone call from someone by the name of "Arnold" from this Foundation. He told me that he is going to be meeting with Moore in a couple of weeks and would be glad to "put it under his nose" and get him to sign it. So I emailed Arnold the permission form, along with the oral history transcript. Lo and behold, I came into the office one morning and found an envelope from Arnold with the signed permission form from Moore. Arnold turned out to be Arnold Thackray, the President of that Foundation. I emailed him to acknowledge receipt of the form, and to thank him again.

The Center also has an oral history with Robert Noyce. It was transcribed and is an outstanding oral history. But there were some gaps in the oral history that needed to be filled in. Through the assistance of Bill van der Vort, Executive Director of the IEEE Electron Devices Society, I was put in contact with Craig Casey at Duke University. Craig was able to proof the transcript, and he returned it within 24 hours.

I explained the situation to him that we did not have a signed permission form. He in turn put me in contact with Leslie Berlin, who published a 2005 biography on Noyce. She had contact with the Noyce Estate and offered to get a signed permission form. Two weeks later, the signed form arrived at the Center.

The next permission form I will pursue is for the oral history with Jack Kilby.

SURF CITY

www.antiquewireless.org/

The Antique Wireless Association is an organization of some 4,000 members linked by a common interest in the history of electrical and electronic communications. Its Web site contains information on antique radios and is a good forum to exchange information.

www.pdpplanet.com/

PDP Planet is a portal into the Paul Allen collection of Digital Equipment Corporation mainframes and minicomputers, where pride of place is given to two PDP-10 systems (a 2065 running the Tops-10 operating system, and a 1090 scheduled to be brought up later this year). In addition to these, the collection houses a number of PDP-11 and PDP-8 minicomputers and a PDP-10 clone, the XKL Toad-1 System running the TOPS-20 operating system.

www.tubecollectors.org/

Tube Collector Association, Inc. Web site is a nice site to communicate information on old tubes. It also includes the table of contents for its magazine, a useful resource.

INFOAGE: THIS WAS NO APRIL FOOLS JOKE

On 1 April 2006 an event took place that was a long time in the making. Twenty acres that comprise InfoAge were turned over to the Township of Wall, New Jersey, U.S.A. The ceremonial “turning over of the key” took place; now this up and coming science center can move forward with building a place that will help foster the understanding of science and technology by the general public.

This process began in 1993, but the history of Camp Evans is a rich one. In 1914 it was the Marconi Belmar Wireless Station and played an important role in world-wide wireless communications. It was also been a key site for the development of radar during World War II. Camp Evans was a pre-NASA space research site, the location of the Diana Dish, and will be a living memorial to the veterans of World War II.



InfoAge is a collection of non-profit organizations. Among some of the fine organizations associated with it are the New Jersey Antique Radio Club, Ocean Monmouth Antique Radio Club, Mid-Atlantic Retro Computer Hobbyists, and the Military Technology Museum of New Jersey. All of the participating organizations will have museums at InfoAge. To learn more, visit www.infoage.org.

PRESERVATIONISTS ATTEMPTING TO SAVE NCR BUILDING 26, SITE OF WORLD WAR II CODEBREAKING LABORATORY

Preservationists and National Park Service personnel are attempting to save NCR Building 26 from the wrecker’s ball. Building 26, in Dayton, Ohio, U.S.A., was the site of the U.S. Naval Computing Machine Laboratory during World War II. The Laboratory developed and built the codebreaking machines (“bombes”) which were used by the U.S. Navy for breaking the German naval Enigma cipher. This work was honored in October of 2001 as an IEEE Milestone in Electrical Engineering and Computing.

The current owner of the building – the University of Dayton – has slated the building for demolition. Anyone interested in finding out more about the efforts to preserve it can contact Daniel R. Hill: hill.germantown@worldnet.att.net



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THINGS TO SEE AND DO – FRANKLIN EXHIBITS

In recognition of the 300th anniversary of the birth of Benjamin Franklin, a two-part exhibition is simultaneously on display in two Harvard University venues, Cambridge, MA, U.S.A. At Houghton Library, the exhibition examines the Circulation of Knowledge, focusing on how information was made public. At the Collection of Historical Scientific Instruments, the focus is on Science and Sociability, exploring how science was part of a social context that prized human interaction and collaboration.

The exhibition features rare books, broadsides, manuscripts, scientific instruments, natural history specimens, art, and music. Some of the books and pamphlets were written, printed, owned, or used by Franklin. These include Franklin’s “Plain Truth”, *Poor Richard* almanac, and works on electricity, swimming, and numerous topics. Other items influ-

enced his life and work. Among them is the manuscript in which John Hancock appoints and instructs Franklin and Thomas Jefferson to make a treaty with France in 1776. Another is one of only 25 surviving copies of the first edition of the Declaration of Independence. Personal letters between Franklin and Jefferson, David Hume, and various men and women round out the image of the man.

Notable scientific instruments include electrical apparatus that Franklin purchased for Harvard College in the 1760s, Franklin’s maps of the Gulf Stream, and early bifocal spectacles of his design. Also on display are scientific instruments owned by friends of Franklin, including Joseph Priestley and Antoine Lavoisier, John Jeffries, and Charles Willson Peale. For more information on the exhibits visit: www.fas.harvard.edu/~hsdept/chsi/chsi_bf_intro.html

GENERAL ELECTRIC COMPANY TO MATCH GIFTS TO THE IEEE HISTORY CENTER

The IEEE Foundation is pleased to announce that the GE Foundation has agreed to extend the charitable giving of General Electric employees and retirees by matching their gifts to the IEEE History Center Funds held by the IEEE Foundation. The process is simple! All a GE employee or retiree needs to do to designate the IEEE History Center as a matching gift recipient, is to register with the GE Foundation Matching Gift website at www.gefoundation.com/matchinggifts.

Other companies who match gifts to the IEEE History Center Funds held by the IEEE Foundation include:

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If you have questions or would like to learn more about matching gifts contact the IEEE Development Office at +1 732 562 5550 or visit us at www.ieeefoundation.org.

ELECTRIFYING READING



The "L"

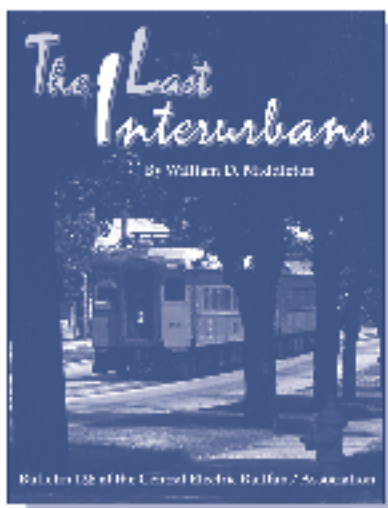
The Development of Chicago's Rapid Transit System, 1888-1932

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 "A" map and the 1933 Chicago Rapid Transit Company system map.

Order B-131 ... \$55

IL residents add \$4.81 tax per book.

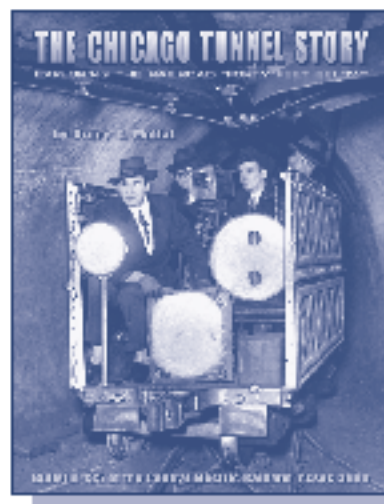


The Last Interurbans

by William D. Middleton

The electric interurban railways were one of the technological marvels of the early 20th 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 80 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 Hood" 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

ELECTRIC TOYS

The most successful electric toy of the 20th century was the electric train, and one company, Lionel, dominated the market in the United States. Joshua Lionel Cowen founded the Lionel Manufacturing Company in 1900, and the following year the company began producing electric trains. The business boomed in the 1920s, survived the 1930s, and enjoyed its highest sales ever in the 1950s. From the beginning, the electric train was a toy that appealed to adults as much as to children. In the Alfred Hitchcock movie “The Man Who Knew Too Much” (1934), we get a close-up of a man playing with a large electric-train set-up. He comments that the daughter doesn’t play much with it, and the wife says “You never give her a chance.”

The economic prosperity of the 1950s and 1960s allowed many more people to buy electric trains, sometimes for their children, sometimes for themselves. For example, in the 1996 movie “The Rat Pack”, which takes place in the 1960s, we see Frank Sinatra’s large train set. Taking place in the same period is “The Addams Family” (1991); it shows an elaborate electric-train set, with dramatic close-ups of trains running, and there is a collision. Though sales of electric trains have fallen off since the 1950s, they continue to appeal to children and hobbyists. The recent movie “Station Agent” (2003) shows a store that sells and repairs model trains; the store had survived into the new millennium, but closed when its long-time owner died.

Electric trains get some undeserved credit in “A Mighty Wind” (2003). A model-train enthusiast proudly shows his set-up. Later, at a party, a woman comments “Thank God for the model trains, because if it wasn’t for those they wouldn’t have got the idea for the big trains.”

From early in the 20th century there were toys that included electric lights or electric motors. Erector Sets were introduced in 1913, and the larger sets contained an electric motor. In the 1939 movie “Rules of the Game” (“La règle du jeu”) we meet a well-off Frenchman who has a passion for mechanical toys, and one of them contains many electric lights. In “Close Encounters of the Third Kind” (1977) a variety of electric toys spring into action, triggered by an alien presence. And toy guns that make firing noises and send sparks out the barrel are unfavorably presented in the 1955 movie “Rebel Without a Cause” and

in the 1985 movie “The Official Story” (“La historia oficial”).

An important type of toy today is the radio-controlled vehicle. In the 1940s there were some toy cars that were controlled through a tether, but they generally moved in a circle only. In the 1950s tethered model-airplanes became popular. In that same decade, Japanese toy manufacturers introduced the first radio-controlled vehicles, but the electronics were bulky and the toys expensive. The introduction of integrated circuits in a wide range of consumer products in the 1970s led to affordable radio-controlled toys, and in the early 1980s they became quite popular.

We see children playing with radio-controlled toy cars in the 1982 movie “Poltergeist”; they show how skillful they are in controlling the cars by having them chase a man on a bicycle, causing him to crash. “Terminator 2: Judgment Day” (1991) shows a radio-controlled model truck, and in “Ocean’s Eleven” (2001) a radio-controlled toy gets driven over by a pickup truck. Radio-controlled toys do useful work in “Assassins” (1995) and in “Blue Streak” (1999); in both cases the vehicles move through ventilation ducts, in the one case to carry cash, in the other to carry a videocamera. “Rushmore” (1998) shows the hobby of flying radio-controlled model airplanes. In “Stuart Little” (1999) the eponymous mouse commandeers a radio-controlled model boat; this must have pleased audiences, as “Stuart Little 2” (2002) has the mouse commandeering a radio-controlled model airplane.



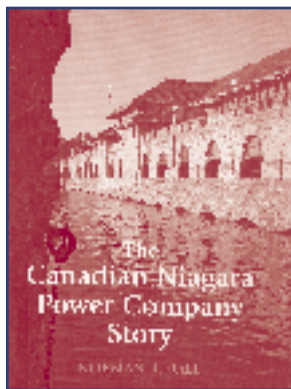
Electric toy trains were the most successful electric toys of the 20th Century

Recently new types of electronic toys have become popular. In “Happiness” (1998) a boy is unhappy because his tamagotchi died. “Phonebooth” (2002) shows a street vendor in New York City selling foot-high toy robots; one walks over to a phone booth being watched by the sniper and gets shot. And “People I Know” (2002) shows a toy that takes digital pictures, which can then be uploaded to the Internet; it becomes the object of a hunt because it is thought to hold incriminating pictures.

As always, we would be grateful for reports from readers of other interesting movie scenes that involve electric toys. You may contact us at iee-history@iee.org.

BALL, NORMAN R, *The Canadian Niagara Power Company Story*, Boston Mills Press, 2005.

(Guest reviewed by Wallace Read, IEEE History Center Trustee)



Those of you interested in the history of hydroelectric power generation in North America will find this book well worthy of your attention and a welcome

addition to the shelves of your personal library. Above all, I know you will be very impressed, as I was, with Norman Ball's style of writing as he presents the story of this pioneer company, Canadian Niagara Power. His book is a beautifully illustrated and captivating presentation of the facts surrounding the vision early entrants had for this new energy technology called electricity. In 18 chapters and on 300 pages, his tremendous writing skills capture the trying times those entrants faced in bringing that vision to reality and sustaining it all through the 20th century.

The story he weaves begins by describing the Niagara Falls region itself, the area that was soon to become home to many major hydroelectric plants. It goes on to describe the incredible delays in the latter part of the 1800s to making substantive progress in building a power station on the Canadian side of the Niagara River. These were the heady days of Thomas Edison, Nickola Tesla, George Westinghouse and others, all caught up in this wonderful new application of electricity for the good of mankind. At long last, by the turn of the century, the Canadian Niagara Power Company was granted per-

mission to construct its first generating station on the Niagara River, now known as the Rankine Generating Station. It produced its first power in 1905.

In subsequent chapters the author details the Company's roller coaster ride through the 20th century as it adapted to the various changing conditions to which they were exposed – the ups and downs in the economy of the nation, rapid technological improvements in the fields of generation and distribution of electricity, the competition from government-owned power utilities, and the impact of the effects of two major world wars. And what a story it is.

Norman puts it very well in the introduction to his book – “The Canadian Niagara Power Company Story is partly a history of technology, partly a corporate and social history, and partly the story of adapting to change.”

This is so true, not only for this company, but for any pursuit of a new undertaking including all of life's personal challenges. I highly recommend this book for your attention. I found it fantastic reading.

Isn't that so true of any undertaking, isn't that what life is all about?

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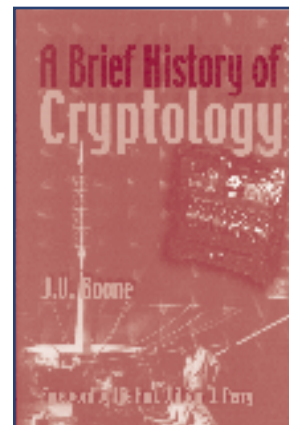
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Available in the United States from: Firefly Books (U.S.) Inc., PO Box 1338, Ellicott Station, Buffalo, New York, 14205.

BOONE, JAMES V., *A Brief History of Cryptology*, Naval Institute Press, 2005.



This modestly-sized book provides an overview of the long history of cryptology, the encryption and decryption of information. The book opens by introducing impor-

tant concepts and terms and explaining the role of cryptology in modern life. There follows, in six chapters, a chronological treatment -- beginning in the Middle Ages -- of the increasing role of cryptology. Most of the book deals with developments over the last seventy-five years, a period when advances in cryptology, communications, and computers have been closely related, a point that is emphasized throughout the book. A final chapter gives an overview, discussing how new technologies, new ideas in mathematics and engineering, and changed social contexts have affected the development of cryptology. Two appendices increase the value of the book: the first appendix supplements Chapter 1 by giving a fuller introduction to cryptology, including some technical aspects; the second gives a short history of the National Security Agency, the principal U.S. government agency concerned with cryptology.

This book is aimed at the general public. There are illustrations of the machines involved, and the book includes a glossary of technical terms and a bibliography. James Boone is a former deputy director for research and engineering of the National Security Agency. In researching and writing this book, he was assisted by six others who have been involved

professionally with cryptology, and they have drawn on personal knowledge as well as a large body of technical and historical literature.

Available from Naval Institute Press, U.S. Naval Institute, 291 Wood Road, Annapolis MD 21402, tel. 800 233-8764, www.navalinstitute.org, \$26.95 cloth, ISBN 1-59114-084-6, xi + 195 pp., index.

DUNNE, ANTHONY, *Hertzian Tales: Electronic Products, Aesthetic Experience, and Critical Design*, MIT Press, 2005.



Electronic products make up a large and growing part of our work and leisure environments, and our business, social, and cultural activities are increasingly mediated by them. While the development and adoption of electronic products have generally been guided by functional considerations, the aesthetics of electronic devices deserves much attention. This, at least, is the belief of Anthony Dunne, professor at the Royal College of Art in London and author of *s*.

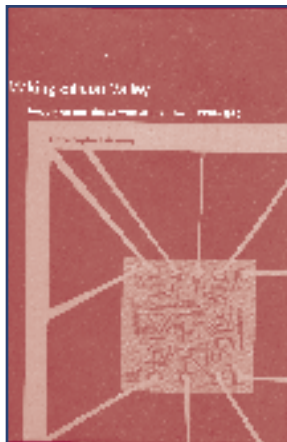
The author is concerned as much with what he calls “aesthetics of use” as with the aesthetics of appearance. He argues that the design of electronic products might go beyond functionality and appearance to consider how these objects might enhance everyday experience and how design might influence the social, cultural, and ethical implications of electronic products. Industrial design is often regarded as a tool for businesses to increase sales, but Dunne explores alternative approaches, whereby, for example, “user-unfriendliness” might be a

gentle provocation to consider alternative value systems.

Six chapters deal with such alternative approaches, and a final chapter presents five conceptual design proposals, such as an “electroclimate” pillow, which turns features of the ambient Hertzian fields into flickering patterns of light and distorted sounds. This book was first published in 1999 through the Royal College of Art. It is abundantly and handsomely illustrated, and it includes a bibliography and index.

Available from the MIT Press, mitpress.mit.edu, \$29.95 cloth, ISBN 0-262-05232-0, xviii + 174 pp., index.

LECUYER, CHRISTOPHE, *Making Silicon Valley*, MIT Press, Cambridge, MA, 2006



The economic powerhouse known as Silicon Valley had its foundations in the electronics industries which were active in the San Francisco, California, U.S.A. area from the

1910s onwards. Radio being useful to seaborne commerce, San Francisco was a center of radio manufacturing as well as of a thriving ham radio culture. Lecuyer’s book shows how the innovative ham culture stimulated the formation of electronics firms such as Heinz and Kaufmann, Litton, and Eitel-McCullough. Although – for a while – the San Francisco Peninsula may have been “off the beaten paths of commerce” (in William Eitel’s words), there were already in place many of the foundations of an entrepreneurial culture. Beginning in the 1930s, and lasting through World War II and in some cases

into the Cold War, military contracts for vacuum tubes and other electronics created enormous growth in the electronics industries in northern California. Having grown, many of these companies sought to free themselves from dependence on military contracts, and developed civilian applications for their technology in order to survive. The chapter on Varian Associates details the importance of military spending in the growth of the west coast electronics industry, of interest to business historians as well as historians of technology.

Forced by distance and economics to develop their own solutions to manufacturing problems, the Bay-area companies acquired technical competencies available nowhere else. The yields achieved by these firms allowed them to increase their market share and undercut the prices of older firms which previously had dominated areas of electronics manufacture. Lecuyer includes an excellent chapter on the quality-control practices at Litton, for example, and later a very clear and understandable explanation of how silicon transistors are made.

Lecuyer recounts the story of Robert Noyce and the other founders of Fairchild Semiconductor, and how the founding of that company brought venture capitalists into the San Francisco peninsula. The effect of stock options as a tool for forming new corporations and the entrepreneurial culture which arose are examined and analyzed. Anyone who is interested in how high-tech enclaves arise and behave will find Lecuyer’s book fascinating and full of insights.

Available from The MIT Press, Massachusetts Institute of Technology, Cambridge, MA 02142 USA, +1 800 405 1619, mitpress.mit.edu, \$40.00, cloth, 393 pages, 32 illus. ISBN 0-262-12281-2

MEYER, RALPH O., *Old-Time Telephones! Design, History, and Restoration*, 2nd edition, Schiffer Publishing, 2005.



The telephone provides a wonderful example of technological evolution, as a device that has been part of everyday life for more than

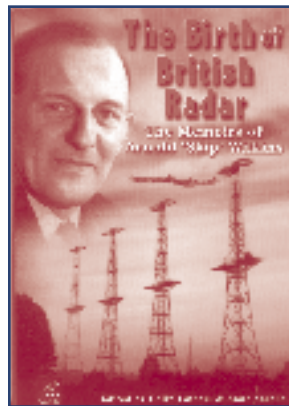
one whose technical advances exemplify important changes taking place in many technologies over that period. This book, which is a new edition of a book that appeared in 1995, tells that story, through text, photographs, and diagrams, in an interesting and detailed way.

Part I examines, in seven chapters, the historical development of components: transmitters, receivers, induction coils, magnetos, ringers, and switches and dials. It begins with the work of Alexander Graham Bell and other pioneers and takes the story through the introduction of touchtone dialing in the 1960s. Part II deals with the telephone instruments themselves. Again, in seven chapters, the reader follows the evolution from the first commercial telephones to touchtone telephones. Part III concerns electrical circuits, with a chapter on local-battery circuits, a chapter on common-battery circuits, two chapters on anti-sidetone circuits, and one on network circuits. Part IV covers restoration and repair in three chapters: mechanical restoration, tests and measurements, and electrical repair and modification. There are also an appendix, clarifying various technical matters, a price guide, a bibliography, and an index.

The book provides excellent photographs of the telephones and components. What makes it quite special are all of the circuit diagrams, which give not only circuitry but also measurements of the electrical properties of the components. These diagrams Meyer produced by reverse engineering components and telephones in his own collection. Anyone interested in the history of technology will enjoy this book, but it will be prized by collectors and restorers of old telephones.

Available from Schiffer Publishing, 4880 Lower Valley Road, Atglen PA 19310, tel. 610 593-1777, www.schifferbooks.com, \$29.95, paper, ISBN 0-7643-2282-6, 264 pp., index.

WILKINS, ARNOLD, *The Birth of British Radar: The Memoirs of Arnold 'Skip' Wilkins*, edited by Colin Latham and Anne Stobbs, Speedwell, 2006.



The development of radar in the late 1930s in Britain was one of history's most consequential technological projects, as radar played several vital roles in World War

II, most notably in helping win the Battle of Britain and the Battle of the Atlantic. A central figure in the British radar effort was Arnold Wilkins.

When, in 1935, Robert Watson-Watt undertook the development of radar for the Air Ministry, the first person he asked to join his staff was Arnold Wilkins, an authority on antennas and radio waves. Wilkins played a large role in developing

the Chain Home system of air defense and in developing the IFF (Interrogate Friend or Foe) system to identify aircraft or ships detected by radar, and he was involved in many other military applications of radar. These memoirs, which were written by Wilkins in 1976, cover his work on radar from 1935 through 1938. The narrative account is accompanied by sixteen or so illustrations, most of them photographs.

Wilkins placed these memoirs in the Churchill College Library at Cambridge University, where they have been available to researchers. The Defence Electronics History Society, believing that these memoirs deserve a wide readership, arranged for their publication. Colin Latham and Anne Stobbs, who did the editing, also collected a good deal of material to supplement the Wilkins manuscript: a preface, a list of abbreviations and definitions, explanatory notes after each chapter, and three appendices, one of which is a transcript of an interview given by Wilkins in 1983.

Available from Speedwell, 4 Mapledene, Caversham, Reading, RG4 7DQ England, tel. (0) 118 9474813, £10, paper, ISBN 0-9537166-2-7, 98 + xi pp.

Milestone Update: VHS, Remote-Control, and Edison's Menlo Park Laboratory

Since the previous issue of the newsletter, the IEEE Executive Committee has approved three new Milestones in electrical and computing history, as well as a special citation honoring Nikola Tesla. The milestones are: The Development of the VHS Standard for Home Video Recording (Tokyo Section), Early Experiments in Wireless Remote Control (Spain Section), and the Edison Historic Site at Menlo Park, Edison, New Jersey (Princeton/Central Jersey Section).

In addition to regular milestones, the IEEE awarded a special citation for the Tesla Museum in Beograd, Serbia (where Tesla's ashes repose). The citation recognizes Tesla's pioneering work, as well as the Museum for its preservation of a significant part of the world's electrical legacy. The History Center is pleased to note that IEEE Fellow Ninoslav Stojadinovic, who – as the IEEE Serbia and Montenegro Section Chair – has been extremely supportive of historical activities, has recently been appointed Serbia's ambassador to Sweden.

The citations for the plaques are shown below. Meanwhile, more Milestone proposals and nominations are in progress, and we will keep our readers apprised of their outcome.

DEVELOPMENT OF VHS, A WORLD STANDARD FOR HOME VIDEO RECORDING, 1976

At the Yokohama Plant of Victor Company of Japan, Limited, a team of engineers headed by Shizuo Takano and Yuma Shiraishi developed VHS (Video Home System) format. They looked ahead to the need for home video tape recorders and embodied their idea in unique inventions. The first

model JVC HR-3300 was announced on 9 September 1976. Their basic design with subsequent improvement gained wide customer acceptance. VHS became the world standard for home video tape recorders

EARLY DEVELOPMENTS IN REMOTE-CONTROL, 1901

In 1901, the Spanish engineer, Leonardo Torres-Quevedo began the development of a system, which he called Telekine, which was able to do "mechanical movements at a distance." The system was a way of testing dirigible balloons of his

own creation without risking human lives. In 1902 and 1903 he requested some patents for the system. With the Telekine, Torres-Quevedo laid down modern wireless remote-control operation principles.

THOMAS ALVA EDISON HISTORIC SITE AT MENLO PARK, 1876

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.

NIKOLA TESLA 1856-1943, ELECTRICAL PIONEER

On the 150th anniversary of his birth, the IEEE is pleased to recognize the seminal work of Nikola Tesla in the field of electrical engineering. Among his many accomplishments, those that stand out are his innovative contributions to the applications of polyphase current to electric power systems,

his pioneering work with electromagnetic waves, and his experiments with very high voltages. The Tesla Museum in Beograd is to be commended for its successful efforts to preserve artifacts and documents related to Tesla and to make them accessible to scholars throughout the world.

Readers who would like more information on the Milestone program, as well as on the Milestones which IEEE has already dedicated, are invited to click on the Milestones portion of the Center's Web site at: www.ieee.org/organizations/history_center/milestones_program.html

IEEE INDUSTRY APPLICATIONS SOCIETY INVESTS IN IEEE HISTORY AND HERITAGE

The IEEE Industry Applications Society (IAS) is the latest IEEE Society to invest in the preservation of IEEE's history and heritage by participating in the US \$1 Million Society History Challenge. In 1998, the IEEE Foundation created the Challenge and agreed to match dollar-for-dollar, up to US \$1 Million, gifts to the IEEE History Center's endowment from IEEE Technical Societies. The proceeds from the endowment are used to support the IEEE History Center's mission to preserve, research, and promote the legacy of electrical engineering and computing.

With the addition of this US \$25,000 gift from IAS, a total of US \$595,000 has been given by IEEE Societies and matched by the IEEE Foundation! The IEEE Societies whose generous gifts have already been matched are:

Society Name	Amount Donated & Matched
IEEE Circuits and Systems Society	\$5,000
IEEE Communications Society	\$130,000
IEEE Electromagnetic Compatibility Society	\$15,000
IEEE Electron Devices Society	\$40,000
IEEE Industry Applications Society	\$25,000
IEEE Lasers and Electro-Optics Society	\$30,000
IEEE Magnetics Society	\$20,000
IEEE Microwave Theory & Techniques Society	\$100,000
IEEE Power Engineering Society	\$100,000
IEEE Signal Processing Society	\$80,000
IEEE Solid-State Circuits Society	\$50,000
Total Given and Matched	\$595,000

To learn how your IEEE Society can help preserve history and participate in this US\$1 Million Society History Challenge, contact Michael Geselowitz, Director of the IEEE History Center by telephone: +1 732 932 1066 or by electronic mail at m.geselowitz@ieee.org.



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