

IEEE HISTORY CENTER

 THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS
Preserving, Researching, and Promoting the Legacy of Electrical Engineering and Computing

EDISON EXHIBIT ON IEEE VIRTUAL MUSEUM

The IEEE Virtual Museum (VM) has launched its newest exhibit — *Thomas Edison: A Lifetime of Invention*. As the title suggests, this exhibit focuses solely on the life and works of Thomas Edison. Funded by the Charles Edison Fund, *Lifetime* explores the different stages of Edison's career, from his entrepreneurial youth to the disappointments of his later years.


Edison in his 80s.

Most of us are familiar with the works that mark the apex of Edison's career—a successful incandescent bulb, a lighting system, and the phonograph. These achievements earned Edison the moniker “The Wizard of Menlo Park” and made him famous and wealthy. Lesser known, but also compelling, are the research and inventions that bracket his most prolific years.


Edison as the Wizard of Menlo Park.

Edison's first patented device was an automatic vote-recording machine (1856). The machine worked well, but did not meet with commercial success. From it, Edison learned a lesson that shaped the rest of his career: Create things people will buy. For the next 50 years he followed that dictum and, in addition to his most famous works, introduced such things as the Universal stock ticker, the carbon button transmitter, and the storage battery. Along the way he helped launch the modern electric utility industry,

continued on page 5

STATIC FROM THE DIRECTOR

As I hope you will see from this newsletter, our historical activities continue to flourish. A new exhibit on Edison has opened on the IEEE Virtual Museum (see box). The Virtual Museum continues to draw an astounding 10,000 visits per week, and two more exhibits will be opening shortly. Please continue to visit it on a regular basis, and especially encourage any young (i.e., pre-college) friends and relatives to do so.

Our own Web pages continue to be popular. We have added a new feature, *Legacies*, which provides biographies of 150 of those who have been honored with the IEEE Medal of Honor or IEEE Edison Medal (see page 2).

From Zero to One: An Authoritative History of Modern Computing, co-edited by Senior Research Historian Frederik Nebeker, was just published by Oxford University Press (see back page). It is an outgrowth of our 1997 conference in Williamsburg. We are already beginning to plan a conference for 2004 which we hope to hold in England in conjunction with international celebrations of the centennial of the Fleming valve, which for many marks the beginning of electronics.

The IEEE UKRI Section has also proposed the Fleming valve (1904) as an IEEE Milestone in Electrical Engineering and Computing, and will shortly be turning in a full application.

continued on page 3
IEEE HISTORY CENTER
Issue 59 July 2002

<i>Center Activities</i>	2
<i>IEEE History Committee Chair Wally Read Wins Award</i>	4
<i>Mystery Photo Challenge</i>	4
<i>Things to See and Do</i>	4
<i>Surf City</i>	6
<i>Bibliography</i>	6
<i>People and Places</i>	10

Legacies

The History Center Web Site recently added *Legacies*, which features 150 short biographies of the leading electrical engineers of the past century. How did we come up with the idea? Easy. Annually the IEEE hosts the IEEE Honors Ceremony. It is typically held in June and is attended by luminaries in the field of electrical engineering. The Awards Department produces an Honors Brochure that is distributed to each attendee of the Honors Ceremony. The Brochure contains short biographies and photographs of the winners

of that year. Recently the History Center acquired copies of a large majority of the brochures. We decided to begin *Legacies* with all of the IEEE Medal of Honor and Edison Medal winners. It was a year in the making, but we feel that it is a valuable addition to the Web site. We wish to acknowledge the hard work of two GAs, who took the time to scan in all of the biographies. http://www.ieee.org/organizations/history_center/legacies/legaciestoc.html



Frank J. Sprague, whose biography is one of the 150 biographies now available on-line

In the future we plan to add the Alexander Graham Bell winners, and possibly other Major Medal winners.

Nebeker Delivers Annual History of Technology Lecture at Loyola College

IEEE History Center Senior Research Historian Rik Nebeker delivered the annual History of Technology Lecture at Loyola College on 8 April. "Digital Signal Processing and the Rise of Consumer Electronics" explored how the techniques of signal processing have led to products such as camcorders, televisions, video and DVD players, video games, audio equipment, "smart toys," fax machines, cell phones, answering machines, GPS systems, PDAs, and desktop and laptop computers. Although signal processing is a branch of engineering unknown to much of the general public, many of its tasks such as, analog-to-digital conversion, error-correction coding, speech synthesis, and image compression have become familiar.

Life Member Summer Intern

We are very happy to welcome Justin Cohen as the 2002 Life Member Summer Intern. Justin is pursuing a degree in Evolutionary Anthropology with a minor in History at Rutgers University. His goal is to research how and why humans make the food choices they do, and how technology affects those choices. While taking Senior Research Historian Rik Nebeker's course "The Electric Century," Justin researched the impact refrigeration technology had on American eating behavior during the 1950s.

The Life Member Summer Internship is designed for scholars at the beginning of their career studying the history of electrical technology and computing to provide research experience, while enlisting the help of promising young scholars for the Center's projects.

Namiko Suga is Summer Research Intern

Namiko Suga is our new Summer Intern. A Douglass College senior majoring in English, Namiko plans to attend graduate school and obtain her Masters of Library Science. Among other

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.

Mailing address:
Rutgers University
39 Union Street
New Brunswick, NJ USA 08901-8538
Telephone: +1 732 932 1066
Fax: +1 732 932 1193
e-mail: history@ieee.org
http://www.ieee.org/history_center

IEEE History Committee 2002

Wallace S. Reed, *Chair*

Bernard S. Finn	Martha Sloan
Ramiro Garcia-Sosa	Earl E. Swartzlander
John Impagliazzo	Robert B. Voller
Paul B. Israel	Slawomir B. Wesolkowski
Peter Lewis	Thomas W. Williams
David A. Mindell	Charles R. Wright (Emeritus)
Moon-Hyon Nam	Gerard A. Alphonse, Ex-Officio
Kurt R. Richter	Kenneth Laker, Ex-Officio
Carlos E. Rodriguez	Richard Nichols, Ex-Officio
Chanan Singh	

Trustees of the IEEE History Center 2002

Kenneth Laker, *Chair*

William Baker	Joseph Saloom (Vice Chair)
Paul Baran	Winslow L. Sargeant
Frank A. Brand	Peter Staecker
Walt Ciciora	Takashi Sugiyama (Emeritus)
John E. Meggitt	Sidney Topol (Emeritus)
Michael Noll	Charles Townes (Emeritus)
Eiichi Ohno	Michiyuki Uenohara (Emeritus)
Emerson Pugh (Sect./Treas.)	Wallace S. Read (Ex-Officio)
Ted Saad	

IEEE History Center

Michael Geselowitz, *Staff Director*
m.geselowitz@ieee.org
Frederik Nebeker, *Senior Research Historian*
f.nebeker@ieee.org
David Morton, *Research Historian*
d.morton@ieee.org
Mary Ann Hoffman, *Manager, Archival and Web Services*
m.a.hoffman@ieee.org
Kim Breitfelder, *Manager, Virtual Museum Project*
k.breitfelder@ieee.org
Robert Colburn, *Research Coordinator*
r.colburn@ieee.org

©IEEE Information contained in this newsletter may be copied without permission provided that copies for direct commercial advantage are not made or distributed, and the title of the publication and its date appear on each copy.

Static from the Director

continued from page 1

Milestones nominations in fact continue to pour in from around the globe. Right around the time you receive this newsletter there will be the first three-way Milestone dedication, marking the 40th anniversary of the first transatlantic television signal via TELSTAR. It will be held simultaneously by satellite link in Maine, the UK, and France, at the three original ground stations. We hope to have pictures next issue, and keep your eye on our Web pages. The Shannon Hydroelectric Scheme in Ireland has also been approved as a Milestone, the 47th. I fully expect to hit 50 Milestones by the end of the year — a milestone of Milestones!

Finally, we continue to work with IEEE Societies on commemorating their history. For example, at the



*The Fleming Valve
(photo courtesy of the Smithsonian)*

International Communications Conference 2002 held 28 April – 2 May 2002 at the New York Marriott Marquis in New York City, with more than 1,600 people in attendance, we supplied for the IEEE Communications Society a text-and-photo exhibit in the exhibitions area and a continually playing slide presentation at the banquet.

Speaking of IEEE Societies, of course all these activities take resources. As you know, we rely a great deal on the support of you, our readers. We also seek institutional support, both for operations and also to build up an endowment fund. The downturn in the world economy has affected all areas of fundraising, but one bright spot has been our Society Challenge. Issued in 1998 by the IEEE Foundation, the challenge offers a one-to-one match of all IEEE Society gifts to the Endowment of the IEEE History Center through

2005. The IEEE Lasers and Electro-Optics Society (LEOS) and the IEEE Circuits and Systems Society (CASS) have just become the latest IEEE Societies to participate in the US\$1 Million Society Challenge. The US\$30,000 gift from LEOS and the US\$5,000 gift from CASS bring the total to US\$550,000, well over the halfway point. This includes earlier matched gifts from IEEE Communications Society, IEEE Electromagnetic Compatibility Society, IEEE Electron Devices Society, IEEE Magnetics Society, IEEE Microwave Theory and Techniques Society, IEEE Power Engineering Society, IEEE Signal Processing Society, and IEEE Solid-State Circuits Society. The full list of IEEE Society donations can be found at http://www.ieee.org/history_center. We are doing well, but it is extremely important that we reach the remaining societies. So, if any of you are active members of an IEEE Society, we urge you to contact your leadership and let them know how they can support IEEE's effort to preserve, research, and promote our important engineering heritage. Thank you all again for your loyalty over the years. ♦

Center Activities

continued from page 2

projects, she is currently assisting Rik Nebeker with his *IEEE Spectrum* article on classic electrical engineering textbooks. Namiko enjoys reading, roller-skating, and the company of her cats.

Science Technology and Society seminar

Staff Director Geselowitz continues to teach in the Science, Technology and Society Program at Rutgers, a small but growing minor in the Faculty of Arts & Sciences. This past

Spring he taught the senior seminar to three students, the most ever to complete the minor in the same semester. Many more students have expressed an interest in the program.

Sections Congress 2002

The 2002 IEEE Sections Congress will be held 18-21 October in Washington, DC. The theme of Congress is "Creating a Global Community". The IEEE History Center will again have a presence at this Conference, hosting an exhibit booth. We will feature the IEEE Virtual Museum, the Milestones program, and an overview of the activities of the History Center. In the past three

years we have seen an increase in the number of Milestones and attribute that directly to our presence at Sections Congress 1999.

Sections Congress is a triennial event that brings together Section leaders from around the globe. It provides a fantastic opportunity to network, share knowledge, and to impact the future of the IEEE. If you are attending, we hope you will stop by the History Center exhibit and let us show you some of the many activities the History Center is engaged in to preserve the history of IEEE technologies. ♦

Award

IEEE HISTORY COMMITTEE CHAIR WALLY READ WINS CANADIAN ENGINEERING AWARD

IEEE History Committee Chair Wally Read has been awarded the Canadian Council of Professional Engineers' Gold Medal Award. The Awards are presented annually by CCPE to recognize outstanding Canadian engineers, teams of engineers, and engineering projects. Established in 1972, the Awards highlight engineering excellence, as

well as the contributions of Canadian engineers to their profession, their community, and to the safety and well-being of Canadians. Key factors considered by the Committee include engineering significance, service to the engineering profession, service to the community, and contribution to engineering education. In its citation, the CCPE

stated "Dr. Wallace Read's provincial, national and international contributions in the field of electricity span a lifetime. Today, thanks to his leadership skills and engineering ability, Newfoundland and Labrador Hydro proudly stands as the fourth largest electric utility in Canada in terms of generating capacity." Congratulations Wally! ♦

Mystery Photo Challenge

The IEEE History Center maintains a photographic archive of more than 3,300 images. From time to time images are donated without any identification. Can you help identify this photograph? We are interested in details such as: type of airplane, approximate dates, notes on the avionics (e.g. Collins Radio Company?), and anything else of historical interest you would like to tell us.

You may email us your answer at history@ieee.org, or you can fill out an on-line form. http://www.ieee.org/organizations/history_center/mystery_photo.html ♦



Mystery Photo #9

Things to See and Do

Society for Industrial Archeology Study Tour of Sweden

The SIA will be leading a tour of Sweden from 3-17 September 2002. Sweden is known historically for its iron and steel production, and many of the blast furnaces, mines, rolling mills, bruks (iron making villages), and other elements of

earlier industry survive in an astonishing degree of preservation. In addition, the tour will explore canals, narrow-gauge railroads, industrial museums, bridges, and several of Sweden's early hydro-electric stations. The tour has been

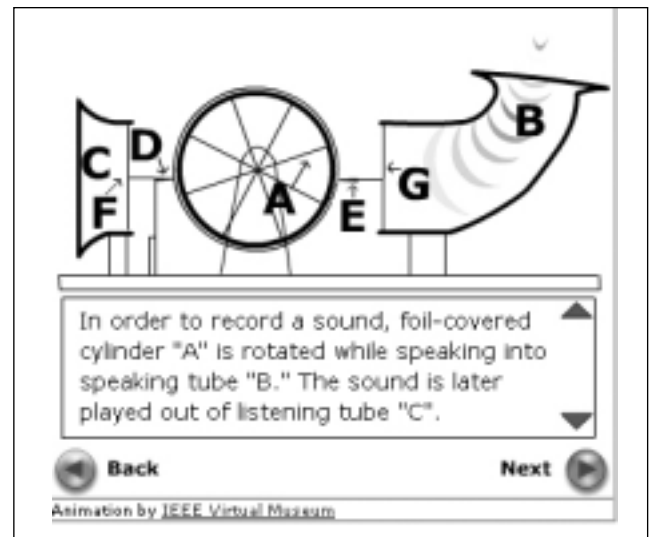
planned by and will be led by Kersti Morger, one of Sweden's leading industrial archeologists. For more information, contact Christopher Marston +1 202.343.1018, cmarston@toad.net ♦

Edison Exhibit

continued from page 1

founded many companies (one of which became General Electric), and created the precursor to the modern research laboratory. Unfortunately, as he grew older, Edison's ability to identify potentially commercial products declined. His later years were marked by ephemeral success in the concrete and movie businesses and complete failure in iron ore production. Nonetheless, by the time of his death in 1931, he had close to 1100 patents, a number which remains unsurpassed by any inventor.

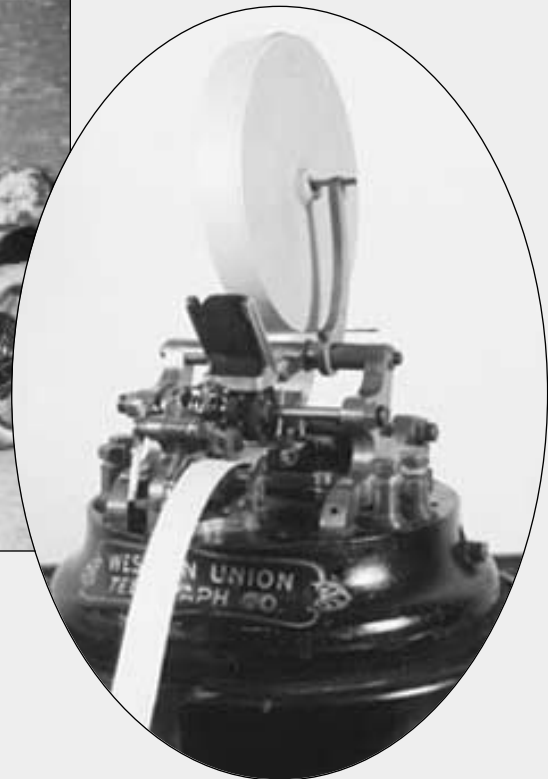
Lifetime explores the complexities of Edison and his time. Like all VM exhibits it explains to a pre-college audience how different technologies worked, how they were developed, and the impact they had on the people who used them. To find out more about Edison, his inventions, and his era visit <http://www.ieee.org/museum>. ♦



The VM uses interactive animation to enhance learning. Here, Edison's 1878 patent drawing was recreated and animated to show how the phonograph recorded and played back sound waves.



Edison inspecting an electric car.



In the 1870s Edison used his knowledge of the telegraph to create the Universal stock ticker shown here. Courtesy: Thomas A. Edison Papers, Rutgers, The State University of New Jersey

Surf City

The Bakken Library and Museum

The Bakken Library and Museum, located in Minneapolis, MN, USA, hosts a Web site that contains information of interest to young and old alike. Mr. Earl Bakken, who developed the first transistorized pacemaker, started the Bakken Library in 1975. The IEEE honored the pacemaker achievement in 1999 by naming it an IEEE Milestone.

The Web site offers extensive information for researchers, including bibliographies and artifacts. And if you are lucky enough to live in or to be visiting the Minneapolis area, a visit to the Library and Museum is a real treat! Located next to Lake Calhoun, the Tudor-style building contains exhibits that are well done and educational (not to mention fun!)

Don't forget to take a stroll through The Bakken Medicinal Garden.
www.thebakken.org

IEEE Communications Society celebrates 50th Anniversary

IEEE Communications Society is celebrating its 50th Anniversary in 2002. As part of an agreement with the History Center, a Web site was constructed by History Center staff, which contains history of the technology as well as the Society. It also contains oral histories and a timeline of communications. It features "The Communicators", short biographies of leading communications engineers. http://www.ieee.org/organizations/history_center/comsoc.html

Thomas A. Edison Papers

Thomas A. Edison Papers, located

at Rutgers University, maintains the most comprehensive collection of information about the Wizard of Menlo Park. This project was initiated in 1978 to index the 5.5 million pages of documents located at the Edison National Historic Site in West Orange, New Jersey. The Web site currently contains images of Edison documents from the nineteenth century with a searchable database, Edison U.S. patents, the first set of documents from outside repositories, chronologies, bibliographies, and a collection of essays, images, and patents concerning Lewis Howard Latimer. Paul Israel, newly appointed Director of the Edison Papers, and a member of the IEEE History Committee, is also an editor of the four volumes of "*The Papers of Thomas A. Edison*". <http://edison.rutgers.edu> ♦

Bibliography

ALEXANDER, ROBERT CHARLES, *The Life and Works of Alan Dower Blumlein: The Inventor of Stereo*, Focal Press, 2000

Alan Dower Blumlein was the inventor of numerous electrical and electronic innovations and whose career was cut short by an accident. Born in 1903, Blumlein demonstrated an early excellence in academics and attended Imperial College in London. In 1924 he joined International Western Electric in England, launching his career as a professional engineer. Over the course of the next several years, he would work on various projects related to telephony and telegraphy at IWE and other firms before joining the Gramophone Company in 1924. There, he helped devise one of his key inventions, a method of recording two-channel audio in a single phonograph groove. Although not exploited at the time, many of its features would later be used



records introduced in the late 1950s. By the early 1930s, Blumlein was working with the British firm EMI toward establishing electronic television standards, and he helped in the creation

of a new high definition (for the time) TV system. With the coming of World War II, however, Blumlein and his colleagues at EMI were drawn toward war work. In 1942 during airborne experiments on a new type of radar set, Blumlein was killed along with several others when their airplane crashed. Alexander carefully documents the life of this significant inventor, placing his numerous contributions into the broader context of research and development in the British communications industry.

Available from The Focal Press, 225 Wildwood Ave., Woburn, Massachusetts 01801, (800) 366-2665, fax 781-904-2620, www.focalpress.com, \$29.99 (soft cover) 0240516281, 398pp. +references, tables.

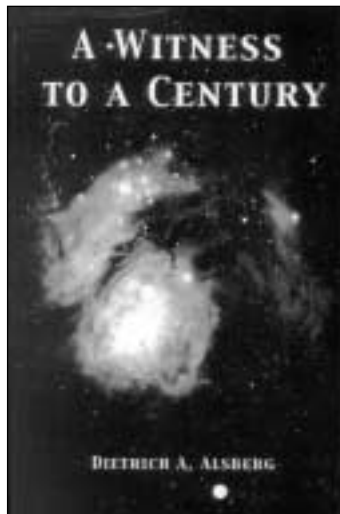
ALSBERG, DIETRICH A., *A Witness to a Century*, Authors Choice Press (an imprint of iUniverse, Inc.), San Jose, 2002

One of the reasons engineers do not perhaps get the credit they deserve for shaping society is that they do not often write their own stories. There are of course exceptions: The important pioneer electrical engineer Michael I. Pupin (IRE Medal of Honor 1924) actually won a Pulitzer Prize for his autobiography. Now there is a new generation of pioneers growing old—those engineers who have retired in the past 20 years and represent the generation that built the technology-based society of the late 20th century—and their story needs to be told and preserved. The IEEE History Center's Oral History program (http://www.ieee.org/organizations/history_center/oral_histories.html) exists as one route to preserve the important personal stories of the practitioners of this critical profession, but some still choose to write about themselves.

IEEE Life Fellow Dietrich A. Alsberg, retired Bell Labs Department Head, holder of 18 U.S. patents, and, like Pupin, a European immigrant to the United States, has just self-published his autobiography. The book suffers from the mechanical and stylistic limitations of such a project, but the story is nonetheless fascinating and important. His story is, in fact, the story of the 20th century, but told by an individual who participated first-hand in key social, political, and, most importantly, technological events of his era.

In the book, Alsberg weaves together his personal story with his professional and technical career; he witnessed many of the high and low points of the last century first hand. Here is an individual whose physician father studied under Konrad Röntgen at the time that x-rays were discovered in the late 19th century. The author himself was born in Germany in 1917 during the height of World War I. As a small child in the Weimar Republic, he experimented with electric circuits. Although his parents had both converted before his birth and he was raised Christian, because of his Jewish ancestry he and his family were persecuted when the Nazis came to power. Yet he still managed to complete his technical education, gaining a diploma in electrical engineering from Stuttgart Technical University in 1938. But the situation quickly worsened, and after a long and miraculous escape from Europe, he reached the United States in 1939.

Soon Pearl Harbor drew the U.S. into World War II, and he was considered an enemy alien. Gaining his U.S. citi-



zenship (the process was hastened because he had married an American wife), he was inducted into the U.S. Army. He served in Europe in the 301st Ordinance Company, attached to the 15th Army, where he used his skills as an engineer, as well as his linguistic and cultural knowledge of Germany. The war stories are vivid, and they quote liberally from letters written by himself and his family. They range from the ridiculous—a lingerie salesman turned incompetent commanding officer—to the tragic—a letter from a cousin who had escaped Germany to England and joined the British army recounting his participation in the libera-

tion of a concentration camp.

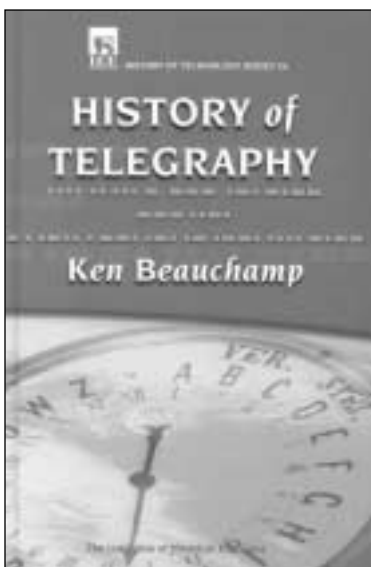
Discharged in late 1945, Alsberg swiftly found employment at Bell Labs in New York. Moving through a series of projects, positions, and locations, he worked for that organization until his retirement in 1982. Important programs on which he worked included missiles (ICBMs and satellite launchers), missile defense, electromagnetic nuclear weapons effects, and high-speed communications through millimeter waveguides. After retirement, he and his wife traveled widely, but his interest in technology did not wane. In fact, he participated in that important history of technology work, the *History of Science and Engineering in the Bell System*. But the successes in his story are tempered by the tragic loss of the youngest of his four sons to a senseless murder. Throughout all the periods of his life, Alsberg ties together the technological, the political, and the social with the personal, and makes refreshingly open and honest comments on them all. Anyone interested in technological progress of the past 50 years, or just in the life of a fascinating individual, would do well to read this book.

Available from iUniverse, Inc., 5220 S. 16th St., Suite 200, Lincoln, NE 68512, <http://www.iuniverse.com/>, \$20.95, paper, ISBN 0-595-20442-2, 382 + xiv pp.

BEAUCHAMP, KEN, *History of Telegraphy*, London: The Institution of Electrical Engineers, 2001.

Beauchamp's book is the twenty-sixth volume of the "History of Technology Series," edited by Drs. B. Bowers and C. Hempstead. The study focuses on the international developments of a key means of communication—telegraphy—from the beginning of the nineteenth century until the end of World War II. The author depicts "the

continued on page 8



discoveries and ingenuity of the experimenters, engineers, and scientists involved and equipment they designed and built” as well as “the organization, applications and effects of [telegraphy’s] use on society.” Each of the two parts of the *History of Telegraphy* describes a major stage of the history of electric communications: “terrestrial telegraphy” and “aerial telegraphy.” In a brief epilogue, Beauchamp discusses the replacement of Morse code with “Baudot” and other systems, as well as new techniques and equipment used in communication transmissions which emerged during the post-World War II digital revolution.

The study begins with the survey of mechanical communications in Europe since the 1600s. The author then discusses the invention and functioning of the needle and the dial telegraphs, codes and ciphers. Beauchamp describes various aspects of the nineteenth-century terrestrial telegraphy, including transmission, reception, recording, printing, and the growth of telegraph networks and companies around the world. The use of telegraphy in military operations during the second half of the century also receives careful coverage. A chapter on submarine cables is particularly fascinating. Its centerpiece, “Atlantic crossing,” reveals the triumph of human technical ingenuity and determination over numerous obstacles.

Part Two of the book explores the advances in wireless telegraphy. Wireless telegraphy began with experiments at the end of the nineteenth century. A few decades later the world witnessed a rapid spread of the Marconi Company’s international web of manufacturing facilities to produce “standardized series of transmitting and receiving equipment.” German companies of wireless telegraphy, “Telefunken” and “Siemens” soon joined the market. In a chapter devoted to the “telegraphy for peace,” the author surveys the use of the new technologies for political, commercial, and emergency purposes as well as the major international agreements regulating telegraphic communications. Beauchamp traces the development of wireless communication (on land, at sea, and in the air) during the two global conflicts in the last section of his book.

History of Telegraphy is a valuable reference resource on a variety of topics, directly and indirectly related to telegraphic communications. Beauchamp tells a story of how the telegraph linked diverse continents and peoples over time. His study follows the developments of telegraphy in the Americas, Asia, Africa, Australia, and Europe, with a particular attention to the latter. The author also reveals major contributions to the field of telegraphy by such scholars and inventors as Guglielmo Marconi, Sir Oliver Joseph Lodge, Georg von Arco, and Nikola Tesla. The text is supplemented with numerous photographs, pictures, and maps. Beauchamp has skillfully organized and presented technical information in many tables, figures, and schemes. Endnotes with primary and secondary sources from such countries as Singapore, Great Britain, the United States, Germany, and the Netherlands are conveniently published at the end of each chapter. Regrettably, however, there is no combined bibliography.

Available from: The Institution of Electrical Engineers, PO Box 96, Stevenage, Herts., SG1 2SD, +44 1438 313311, sales@iee.org.uk, \$95.00, ISBN 0-85296-792-6, 413 +xxxi pp,

STEARNS, BEN W., *Arthur Collins: Radio Wizard*, Ben W. Stearns, Marion, Iowa, 2002

Former Collins Radio Company employee Ben Stearns’ uncritical biography of radio manufacturer Arthur Collins and the company he built takes the reader from Arthur Collins’ boyhood and early ham radio triumphs (such as the relaying of messages from Admiral Byrd’s Antarctic expeditions), through the Collins Radio Company’s rise as one of the world’s premier radio and avionics manufacturers, to Arthur Collins’ eventual loss of control of the company he built. The book is structured thematically, with chapters documenting the Collins Company’s expansion into the fields of amateur radio, single sideband, commercial airline communications, cyclotrons, weather radar, and broadcasting. There is also a chapter on Arthur Collins’ management style. Although the



continued on page 10

From the Stone Age...

Stone Age Culture

Babylonian Clay Tablets

Antikythera Reconstruction

Abacus/Soroban/Astrolabe

History of Numerals & Mathematics

History of Writing/Printing/Gutenberg

The Enlightenment/Bacon/Locke

Newton's *Principia* & *Opticks*

History of Electricity

Franklin/Volta/Faraday/Edison

Telegraph & Pony Express

Arithmometers & Comptometers

Antique Office Appliances

Cash Registers/NCRs/...

Burroughs/Monroe/Marchant/...

Telephones & Phonographs

History of Wireless & Electronics

Maxwell/Hertz/Marconi/Einstein

Fleming/De Forest/Farnsworth

Pocket/Portable Adding Machines

Jacquard/Babbage/Lovelace/Hollerith

Stibitz/Zuse/Turing/Atanasoff/Hopper

Norden & Mark Series Bombsights

ENIAC/UNIVAC/IBM Mainframes

Bell Labs/Transistors/TRADIC

Analog Computers & Slide Rules

Kilby/Noyce/ICs/Fairchild/Micron/...

Apollo Moon Spacecraft Computer

Minicomputers/DEC PDP-8/HPs/...

Microprocessors/Intel/Zilog/Motorola/1st 4004 Wafers/4040/8008/Z-80/8080/80286...PCs/Altair/Apple I/Osborne...

Calculators/Cal Tech/HP-35/SR-10/Software History/Internet/Games/Toys/Computer Space/Pong...and much more!



to the Information Age

Visit this award winning museum and experience the fabulous journey of humankind from the caves of the Cro-Magnon to the Internet!

American Computer Museum - Compuseum

234 East Babcock Street - Downtown Bozeman, Montana

Call (406) 587-7545 for hours & admission charge or visit our web page at:

www.compuseum.org

Located just north of Yellowstone National Park

author tries to soften the many anecdotes which show Arthur Collins' intolerance of dissenting opinion with sentences such as "He was born with genius in his makeup" or "Anyone who had the opportunity to be a close observer of Arthur Collins had to be in awe of the man," the reader can follow the errors of judgment which eventually contributed to the alienation of customers and to the near-bankruptcy of Collins Radio and its eventual takeover by North American Rockwell.

The *Radio Wizard* contains a wealth of detail, and takes the reader inside the company. It shows how a major US company becomes part of the US military-industrial complex. The role of Collins electronics, their reliability ("[Collins radios] worked when they were supposed to, as they were supposed to, and often under the most extreme conditions.") It is a story of corporate excellence, ultimately brought low by corporate hubris, and has valuable lessons to teach across all fields of engineering.

Available from Ben Stearns, Marion, Iowa, USA, paper, ISBN 0-971-6416-0-9, illus., 394 + iii pp. index.

UFFC-S Digital Archive, IEEE Society on Ultrasonics, Ferroelectrics, and Frequency Control, 2000.

The IEEE Society on Ultrasonics, Ferroelectrics, and Frequency Control is one of the oldest technical societies of the IEEE, dating to 1953 in the pre-IRE-AIEE merger period. Beginning life as the IRE Professional Group on Ultrasonic Engineering, the group published its first Transactions that same year. Since that time, the group has grown, changed names, and added new publications and conferences. To celebrate the new millennium, the UFFC-S has released on CD-ROM reprints of all its publications since the formation of the Society. Included are all pre-2001 issues of the *Transactions*, ultrasonics symposia programs, *Annual Symposia on Frequency Control Proceedings*, relevant articles from the *IRE Convention Record*, the *UFFC-S Newsletter*, various special issues of the *Proceedings of the IEEE*, special issues of other Societies' publications, and the full text of nine books sponsored by the UFFC. The collection is only available to UFFC-S members; however, IEEE members may join the society for \$15.00.

Members may order from UFFC Orders, FASS, 1111 N. Dunlap, Savoy, IL 61874, or by calling Eric Trusner, (217) 356-2426, extension 57, Fax (217) 398-4119, <http://www.ieee-uffc.org/archive2/cdorder.asp>, \$30.00, 24 CD-ROM collection with case, 0-7803-9812-2. ♦

People and Places

2002-2003 Life Members Fellowship in the History of Electrical Technology Awarded to Timothy Wolters

The 2002-2003 Life Members Fellowship in the History of Electrical Technology has been awarded to Timothy Wolters. Wolters is a Ph.D. candidate at the Massachusetts Institute of Technology, where he is working on his dissertation *Enabling Victory at Sea: The Origins and Development of United States Navy Combat Information Centers (CICs) During World War II*. Wolters was a double major in Computer Applications and History from the University of Notre Dame, and took his masters in American History at the University of Maryland.

Camp Evans Entered on National Register of Historic Places

Entering Camp Evans on the National Register honors the work and vision of Marconi, pioneers who advanced radio technology at the site, U.S. Navy offi-

cers who helped shorten World War I (they later designed World War II Navy radar at the NRL), and the thousands of men and woman of the U.S. Army Signal Corps of all races who, by developing and applying advanced electronics, helped defeat the powerful armed forces of the Nazi regime and the Imperial Japanese Empire. Following in their footsteps were the Project Diana radar team, who bounced the first radar signal off the moon, and 55 years of Signal Corps personnel during the Cold-War, and those who contributed key radar and communications systems to the victory in Operation Desert Storm. <http://www.infoage.org>.



Project Diana Equipment (courtesy of US Army Communications Electronics Museum)

Paul Bunge Prize Awarded to Paolo Brenni

Dr. Paolo Brenni of the University of Florence has been awarded the Paul Bunge Prize of the Hans R. Jenemann Foundation. The prize is for exceptional research in the history of scientific

instruments. Dr. Brenni is active in the preservation and restoration of antique scientific instruments.

Mercurians Invite Article Contributions

The Mercurians is a special interest group of the Society for the History of Technology (SHOT) for people who share work and interests in the history of communications technology (defined broadly). The Mercurians welcome contributions including feature articles on the history of communications technologies, notices and queries about Mercurians' projects. The work of new scholars, and the projects being undertaken out-

side academia are especially welcomed. For more information, please

contact: Pamela W. Laird, PO Box 6972, Denver, CO 80206. ♦

History Center Web Site Now Contains More Than 200 Oral Histories

One of the principal programs conducted by the History Center is its Oral History program. The Center maintains a collection of 400+ Oral Histories (and more are added every year). In June, we added new oral histories to our Web site, bringing the total number of online interviews to more than 200. This Web feature is well

received by historians, researchers, and students interested in the history of technology. The recent additions include interviews with electrical engineers who worked for NCR on the Bombe Project, as well as engineers specializing in solid-state electronics, digital signal processing and biomedical engineering.

The oral histories can be found on the Web Site under "Online Resources."

Visit our website http://www.ieee.org/history_center

IEEE FOUNDATION FRIENDS FUND

Donation Form

NAME _____

ADDRESS _____

I have enclosed a check for \$ _____

I pledge \$ _____ per year for _____ years.

I would like my donation to go to the History Center endowment

Please mail to: **IEEE Development Center**
445 Hoes Lane
PO Box 1331
Piscataway, NJ USA 08855-1331

IEEE Membership No. (if applicable - one need not be a member to become a Friend) _____

- Please add my name to the list to receive the Center's newsletter (published 3 times a year at no charge)
- I would like to receive further information about the Partnership Program
- I would like to receive further information about the Friends Program.

*Please make checks payable to:
IEEE Foundation Friends Fund*

Partnership Program

Founding Partners	\$ 500,000 or more
Keystone Partners	100,000 - 499,999
Distinguished Partners	50,000 - 99,999
Senior Partners	25,000 - 49,999
Partners	10,000 - 24,999
Associates	2,500 - 9,999

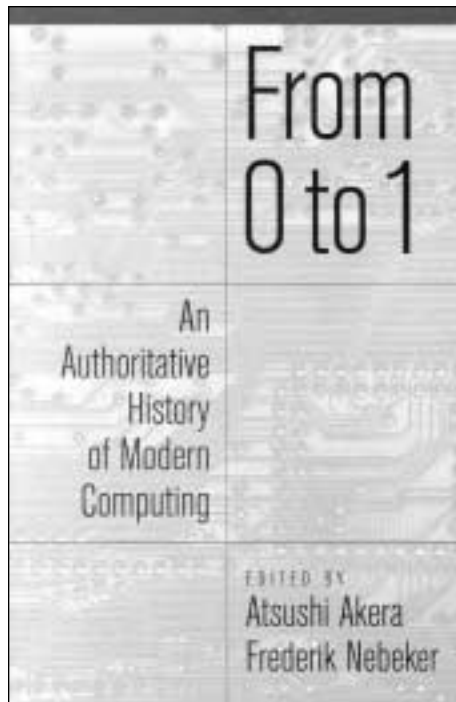
Friends Program

Patrons	\$1000 - 2499
Senior Friends	250 - 999
Sustaining Friends	100 - 249
Friends	25 - 99

NEW BOOK IS OUTGROWTH OF HISTORY CENTER COMPUTER CONFERENCE

Few technologies have had the impact of the electronic digital computer. Even more than the steam engine, the computer has transformed all aspects of work and leisure. As the industrial revolution did two centuries ago, the information revolution has brought civilization to a new stage. The IEEE History Center arranged for the writing and publication of a book that would, in a few hundred pages, provide an authoritative overview of this transformation. *From 0 to 1: An Authoritative History of Modern Computing*, edited by Atsushi Akera and Frederik Nebeker, has just been published by Oxford University Press. Akera was earlier a recipient of the IEEE Fellowship in Electrical History and summer intern at the IEEE History Center; he currently teaches history of technology at Rensselaer Polytechnic Institute. Nebeker is Senior Research Historian at the IEEE History Center.

In 15 chapters the book reviews the



history of information processing, including topics such as personal-computer software, user interfaces, and the Internet. The book, which is

well illustrated, is written in a clear and accessible manner, and the chapter authors are experts in their fields. Technical history is integrated with social and economic history, and the authors explain how and why computers were created and how they were shaped both by their creators' intentions and by their users' needs. Among the chapters are "Information processing before the computer" by James Cortada, "Software: the self-programming machine" by Michael Mahoney, "Computers in the marketplace" by Arthur Norberg, and "Government and the emerging computer industry" by Robert Seidel. There are also four appendices, providing guides to, respectively, the history-of-computing literature, archives and online sources, oral history, and artifact collections.

Available from Oxford University Press, ISBN 01951-4025-7; +1 800.445.9714, Fax: +1 919.677.1303; <http://www.oup.com>, \$40.00, hardbound, 221 pp., index, illus.



IEEE History Center
Institute of Electrical and Electronics Engineers
445 Hoes Lane, P.O. Box 1331
Piscataway, NJ USA 08855-1331

Non Profit Org.
U.S. Postage
PAID
Easton, PA
Permit No. 7