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IEEE HISTORY CENTER



Preserving, Researching, and Promoting the Legacy of Electrical Engineering and Computing

STATIC FROM THE DIRECTOR

As you will see from this issue, the IEEE Milestones program continues to thrive. The Mt. Fuji and Opana Radar Systems both held their dedications (see page 3) and the Cable Stations of County Kerry, Ireland, will be dedicated just about as this issue mails. In addition, a new Milestone, the Japanese Tokaido Shinkansen (Bullet Train) has been approved by the IEEE Executive Committee and will also be dedicated soon; the Cable Station and Bullet Train ceremonies will be reported on in our November issue. Interesting proposals continue to flow in from an increasing geographical area, including ones from South America and India. More information

can be found on our Web site at http://www.ieee.org/organizations/history_center/milestones_program.html.

We've also had a lot of action on the internal IEEE front. Besides our continued work with IEEE Technical Societies, we have a front-page presence in the newly refurbished *Spectrum On-Line* (see page 3) and a one-time article by Senior Research Historian Rik Nebeker, "The Electric Century," in the special June awards issue of *IEEE Spectrum*, which we hope that this may become a regular feature. See pages 68-74, or check out the *IEEE Spectrum* Web site at <http://www.spectrum.ieee.org/index.html>. We also supplied images and support for a video produced by IEEE on "the legacy of discovery" and screened at the annual awards ceremony, and for new artwork on the walls of the IEEE Operations Center in Piscataway.

In the area of external outreach, as mentioned last time, our major initiative for the remainder of this year will be the IEEE Virtual Museum. Many of the pieces, such as staffing and resources, are falling into place. The IEEE Life Members Committee has joined the IEEE Foundation in



Coming in 2001: The IEEE Virtual Museum.

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UPDATE ON THE TIME CAPSULE OF WESTINGHOUSE MATERIALS: THE FILMS, PHOTOGRAPHS, AND TEXTS FROM THE EARLY 1900S

As reported in previous issues, Dr. Julian Reitman of the University of Connecticut-Stamford, supported by the IEEE Life Members Committee, has been working on a CD-ROM, "Time Capsule of 1904: Films, Photos and Texts." He has now produced the January 2000 version. The CD-ROM contains about 55 minutes industrial films made in 1904 in and around the Westinghouse factories near Pittsburgh. The CD-ROM, by combining the films with photos and texts of the period, helps to provide an understanding of the workings of a 1904 industrial system. The CD-ROM "Time Capsule" approach was indicated as the only practical method to present these archival film clips, which are up to three minutes duration. These 31 megabyte files were and are still beyond the internet state-of-the-art. However, it is clear that times are changing and some CD-ROM materials, documentation and the non film materials, should be transferred to a format suitable for the future. It is hoped that eventually this material will find its way into the IEEE Virtual Museum (see *Static from the Director*). The IEEE Life Member Committee is now supporting, and the IEEE History Center cooperating in, this effort at the University of Connecticut, along with an effort to appropriately document the program.

One of the more interesting problems that continues to be time consuming is the scanning of printed materials from that period. The OCR software routinely misreads type fonts, for example, the year 1901 would frequently appear as "igoi" or a variant thereof. A more diffi-

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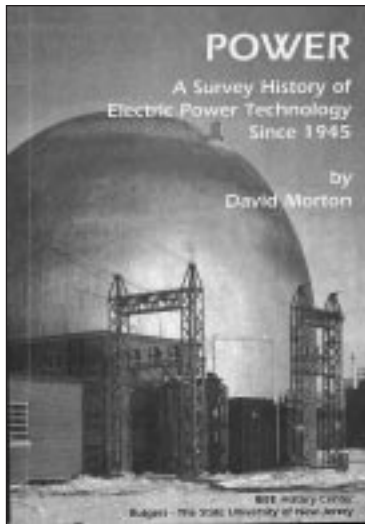
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Power: A survey History of Electric Power Technology Since 1945

Power, the third of the IEEE History Center's occasional monograph series, explores the recent history of electric power engineering in its global context. In addition to being the oldest branch of the EE profession, power engineering is also the underpinning of virtually every other electrical tech-



nology. Research Historian Morton builds his narrative on the foundations built before World War II in the United States and Europe, where wartime destruction in some countries and an energy shortage after the war spurred dramatic postwar projects and the introduction of nuclear power. It was not until after 1945 that most developing countries built their first national grids, but many of them faced severe challenges or failed in their first attempts. With the coming of the energy and environmental crises of the 1970s, electrical engineers faced a new set of challenges, and met them by making radical alterations to the existing system, such as the development of solar and wind energy, and the computerization of power production. As the century drew to a close, power generation, transmission, and distribution technologies were again in a period of flux, while many of the engineering marvels prophesied a half-century earlier, such as fusion power, remained elusively "just around the corner." Power is available from the IEEE online store at <http://shop.ieee.org/store/>

tern, which is then used to drive the turbine. Unfortunately, the Batopilas River is feeling the effects of seven years of drought, and with water resources having to be divided among agriculture, drinking water, and power generation, the aqueduct cannot keep the tank filled at its present rate of flow. Every forty-five minutes, the power for the entire town must be shut off for approximately thirty minutes while the tank refills for the next period of power.

Course in electrical history again offered

Most history courses in U.S. universities give little attention to technological change. Yet it is apparent, certainly to readers of this newsletter, that in the past one hundred years electrical, electronic, and computer technologies have transformed politics, the economy, science, and daily life. This transformation is the subject of a course, regularly offered at Rutgers University, called "The Electric Century". Introduced by Rik Nebeker in 1992, the course surveys the full range of electrical technologies in the 20th century—electric power, the telephone, radio and television, home appliances, scientific instruments, entertainment technologies, computers, and so on. It gives most attention to how society has shaped, and been shaped by, the new technologies. When offered this spring, "The Electric Century" attracted more than 50 students. A major part of the course is a research paper: each student selects a technology and investigates some aspect of its interaction with society. Topics this past semester included antilock braking systems, electric furnaces in ceramics, the coffee maker, night-vision devices, the electrification of amusement parks, and radar guns for enforcement of speed limits. ♦

Batopilas Stored Hydro Generation

History Center Research Coordinator Rob Colburn was recently on a hiking trip in Mexico's rugged and beautiful Copper Canyon region. While there, he visited the Batopilas Stored Hydro Generation facility. Built between 1878 and 1880 to provide electricity for a silver mine, Batopilas was the second power generation station in Mexico, and the station still supplies the village of Batopilas with all of its electricity. An aqueduct diverts water from the Batopilas River upstream of the village and fills a cis-



The Batopilas Stored Hydro Generating Facility seen from the wall of the aqueduct, Batopilas, Mexico.

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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Center Activities

Life Member Fellowship in Electrical History

The IEEE History Committee has awarded **Thomas Haigh** the Life Member Fellowship in Electrical History for 2000-2001. Haigh is studying the development of the information processing profession, and the creation of high-status professions of information processing within the social world of the corporation. Haigh holds Bachelor and Masters of Science degrees in Systems Integration from the University of Manchester, and a Masters in the History and Sociology of Science from the University of Pennsylvania. Haigh is also a Fulbright scholar, and a Tomash Fellow at the Charles Babbage Institute.

The Fellowship allows recipients to study the history of electrical science and technology full-time for an academic year. Full-time PhD candidates enrolled at a college or university of recognized standing, and candidates who have received the PhD within three years of the application deadline may apply. Application deadline is February 1. http://www.ieee.org/organizations/history_center/fellowship.html

And The Winner Is!

On 31 January 2000, the IEEE History Center's Web Site received its first Award from Britannica. They wrote: "...our editors have selected your site as one of the best on the Internet when reviewed for quality, accuracy of content, presentation and usability.. We know quality is always difficult to accomplish and maintain. Congratulations on being a selected member of the Britannica Internet Guide."

On its web site, Britannica describes the History Center web site as: "Research center

whose mission is to use historical analysis to gain understanding of the place of electrical technologies in the development of the modern world and to disseminate that knowledge as widely as possible." Presents a large collection of transcripts of oral-history interviews of engineers, articles and exhibits on the history of electrical technology, a guide to electrical-history archives and manuscript collections in the U.S., recent issues of the center's newsletter, and a list of related Web sites—all from the Institute of Electrical and Electronics Engineers.

Sloan Update

Going Digital is a year and a half old already. We have received 1,000+ hits on the sites. To raise the awareness of this work, we placed advertisements in some of IEEE's premier publications, In April and May, an advertisement for *Going Digital* appeared in each of the following premier IEEE publications:

- IEEE Computer Magazine
- IEEE Signal Processing Magazine

In the Summer of 2000, each Consortium member is scheduled to meet with its evaluation committee to review progress and problems. In addition, a Consortium staff meeting will be scheduled to evaluate early experiences, problems and bring feedback from its own evaluation process to the whole group.

Opana Radar Site Milestone Dedicated

On February 23, 2000, the Opana Radar Site was designated as an IEEE Historical Milestone. The IEEE Historical Milestone Plaque was installed in a small park on the grounds of the Turtle Bay Hilton, Kuhuku, Hawaii. The marker was

placed on the grounds of the Turtle Bay Hilton because the actual site is being used for a Regional Relay Facility for Diplomatic Communications and is off limits to the public.

The Westinghouse-built SCR-270B RADAR was set up on the Opana Peak on the North Shore of Oahu. It was being operated by two US Army Privates: Joe Lockhart and George Elliott on the morning of 7 December, 1941. The citation reads: "On December 7, 1941, an SCR-270B RADAR located at this site tracked incoming Japanese aircraft for over 30 minutes until they were obscured by the island ground clutter. This was the first wartime use by the United States Military, and led to its successful application throughout the theater."

Mount Fuji Weather Radar Milestone Dedicated

On March 6, the ceremony dedicating the Mount Fuji Weather Radar site was held at the head office of the Japan Meteorological Agency in Tokyo, Japan. Dr. Takashi Sugiyama, Trustee of the IEEE History Center, made an opening address, and Dr. Yuzo Takahashi read a message of congratulation from IEEE History Committee Chair Dr. Martha Sloan. The text of the plaque reads: "Completed in 1964 as the highest weather radar in the world in the pre-satellite era, the Mount Fuji Radar System almost immediately warned of a major storm over 800 km away. In addition to advancing the technology of weather radar, it pioneered aspects of remote-control and low-maintenance of complex electronic systems. The radar

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The Japanese Shinkansen "Bullet Train."



Left to right: Akira Takahashi, Michiyuki Uenohara, Akihiko Morino, Eiichi Ohno, and Takashi Suguyana at Mt. Fuji Radar dedication.

Center Activities

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was planned by the Japan Meteorological Agency and constructed by Mitsubishi Electric Corporation.”

Designed Just for You

The IEEE History Center administers the IEEE Milestones Program to honor at the Section level significant achievements in electrical, electronic, and computer engineering. If you attended SC'99, you saw an exhibit which highlighted the Program. Details on the program and how to propose a Milestone can be found on the History Center web site at: http://www.ieee.org/organizations/history_center/milestones_program.html.

After approval by the IEEE History Committee and IEEE Executive Committee, a

bronze plaque is cast with a cost of \$500, and a dedication ceremony is held by the Section to honor the achievement. Ordinarily, the Section is responsible for the cost of the plaque. However, through a gift from the IEEE Life Members Committee (LMC), Sections are now eligible for special funding to cover the cost of the plaque: The LMC will be sponsoring up to four plaques in the year 2000. Therefore, if you are interested in having a Milestone within your Section, please visit our web site referenced above. It contains the information you will need to get the ball rolling. Please note that the nomination process, from beginning to end, can take up to 6 months. So you will want to act quickly to be eligible for this generous offer from LMC. (Note that other costs may be incurred by the Section in conjunction with the Dedication Ceremony, but that in the past corporate sponsorship has frequently been obtained for some/all of these costs.)

IEEE AES Commemoration

The work for the IEEE Aerospace and Electronic Systems Society was completed with the production of a six-panel text-and-photo exhibit which was shown at the IEEE Position, Location, and Navigation Symposium and at the Radar Conference. A reduced version of the exhibit is also on display at the IEEE Operations Center in Piscataway. In the course of researching the exhibit, seven new oral histories were collected: Warren Cooper, Saj Durrani, Myron Kayton, Henry Oman, Brad Parkinson, Merrill Skolnik, and Cary Spitzer. These will soon be added to our Web site. For a complete list of oral histories currently available on the site, see http://www.ieee.org/organizations/history_center/AESS/aes_anniversary.html. ♦

Things to See and Do

This Week in Electrical History

IEEE's flagship publication, *IEEE Spectrum*, has upgraded its Web version, *Spectrum Online*. As part of the facelift, starting May 1st the IEEE History Center has been supplying a feature for the front page, "This Week in Electrical History." It features day by day facts and vignettes, updated weekly, along with an interesting link where the reader can learn more. Check us out at: <http://www.spectrum.ieee.org/history/index.html>.

New Oral Histories on the Web!

The Center actively gathers Oral Histories from the leading electrical engineers of the 20th Century. To date, the Center has conducted more than 400 Oral Histories, more than 200 of which are available on our web site. During the first quarter of 2000, the IEEE History Center added more than 25 new Oral Histories to its web site. We have found that a great many researchers find these Histories useful tools in their research. Here is a small sampling of the new Histories: Thelma Estrin, Robert Galvin, Edwin Harder, Simon Ramo and Konrad Zuse. http://www.ieee.org/organizations/history_center/oral_histories/new_oh.htm

Surf City

Lighting the Way: In this issue we will feature web sties exclusively from the *Smithsonian Institution*. The first is entitled "Lighting the Way: An Experiment in Participatory

History" and is funded by the Alfred P. Sloan Foundation. On this web site, they hope to use the Internet to gather — as well as present — history. With your help, they want to explore changes in the science and technology of electric lighting over the past 30 years, especially the effects of energy issues on lighting. <http://americanhistory.si.edu/csr/lightproject/>

Lighting a Revolution: A second web, also by SI National Museum of American History is "Lighting a Revolution: This site explores the history of inventing electric light. Its is well laid out and contains a great deal of history. <http://americanhistory.si.edu/lighting/>

The Science Service Historical Image: The National Museum of American History recently published a site entitled "The Science Service Historical Image Collection" which represents twentieth-century scientific research consisting of more than 600 black-and-white images and their original captions as they appeared in period publications. This web site is just outstanding! <http://americanhistory.si.edu/science-service/index.htm>

Powering a Generation of Change

This project documents the restructuring of electrical power in North America from 1996 to present (it is a work in progress). Electricity is the principal force that powers modern society. It lights buildings and streets, runs computers and telephones,

drives trains and subways, and operates all variety of motors and machines. Yet most people, despite their great dependence on electrical power, hardly give it a thought. They flip a switch, turn a key, or pick up a phone and expect the power to be there without fail. <http://americanhistory.si.edu/csr/powering/>

Donation of Historic Artifacts and Publications

Because of space limitations, the IEEE History Center regrets that it is unable to accept donations of artifacts or of old journals. However, there are museums and archives which are *very interested*, and it is part of the Center's mission to bring donors and appropriate museums and archives together. Our ECHOES bulletin board (http://www.ieee.org/organizations/history_center/board/board.html) is a great way to let curators and archivists who may be interested in your material know what you have.

The IEEE History Center is always interested in IEEE Society newsletters as well as programs from such events such as IEEE awards ceremonies.

First Flight Centennial Call for Papers

The International Symposium on the History of Flight invites the submission of

proposals for sessions and individual papers for its 22-25 October, 2000 session. The five major themes are 1) "North Carolina and the Outer Banks" 2) "Innovation in Flight" from the Wrights to present, 3) "Civil Aviation and Policy" from 1903 forward, 4) "Warfare and Flight" and 5) "Flight in Human Imagination." Session and individual proposals (including speakers, affiliations, session titles, and one or two sentence description should be directed to Dr. Larry E. Tise (ltise@ibm.net), phone inquiries +1 919 733 2003

International Research Seminar on The Social Sustainability of Technological Networks

(New York City, 18-20 April, 2001)

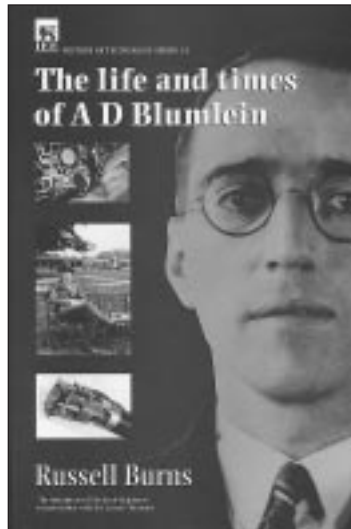
The Institute for Civil Infrastructure Systems and the Laboratoire Techniques Territoires Societes are organizing a seminar whose aims are: to analyse the diffusion of network technologies as a complex and contingent process; to provide an interdis-

iplinary approach for studying the economic development, social equity, and environmental sustainability of these technologies, and to combine historical and contemporary case studies. Interested scholars should send a 500-700 word abstract to: O. Coutard, LATTES ENPC, 6 avenue Blais Pascal, F-77455 Marne-la-Vallee cedex 2, France, coutard@enpc.fr before 11 August, 2000. ♦

Bibliography

BURNS, RUSSELL W., *The Life and Times of A D Blumlein*, Institution of Electrical Engineers, London, 2000.

Alan Blumlein, one of the most influential electronics engineers of the 20th century, contributed to many technologies, including telephony, electrical measurement, monophonic and stereo recording, radar, antennas and cables, and television. This is the first biography of Blumlein. The author, an IEE Fellow and author of books on the history of radar and television, had the assistance of members of Blumlein's family and the staff of the EMI archives.



Blumlein played a large role in the development of an all-electronic television system by the Marconi-EMI Television Company. In 1931 he patented a single-groove method of stereophonic recording, which included cutting the two tracks at +45° and -45° (the system used when stereo records were introduced in the 1950s). Independently of Harold Black's work on negative feedback, Blumlein and H.A.M. Clark patented a negative feedback power amplifier in September 1933. Blumlein played a large role in the development of radar, which was crucial for Britain in WWII both in the Battle of Britain and in the Battle of the Atlantic. A large part of the book deals with the development of radar systems and the electron tubes used in radar. The author not only presents Blumlein's contributions, but also makes clear the enormous contributions of EMI's Central Research Laboratory and GEC's Research Laboratories, which have often been slighted in historical accounts of British radar. Blumlein died on

7 June 1942 on a test flight of the H₂S radar. This radar system, for which Blumlein was the person most responsible, was a vital aid to the Allies in winning the Battle of the Atlantic.

Though the book contains a great deal of technical information—some of it in the text, some in circuit diagrams and other illustrations, and some in technical notes appended to certain chapters—it is quite readable even for those who are not engineers. There is also much information on the personality of Blumlein and on the historical context of Blumlein's work. The illustrations include dozens of photographs, many of them showing equipment designed by Blumlein.

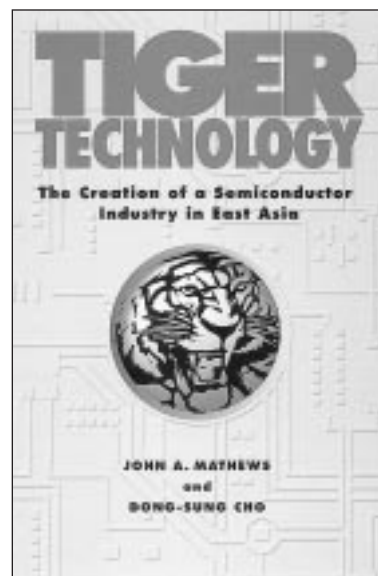
Sources of information are given in endnotes, and there are two useful appendices—an account by J.L. Lodge of "A D Blumlein and stereo sound recording" and a listing of Blumlein's patents.

Available from Institution of Electrical Engineers, P.O. Box 96, Stevenage, Herts. SG1 2SD, United Kingdom; 44 1438 313311, fax 44 1438 742792; email sales@iee.org.uk. From the Americas orders may be placed at Institution of Electrical Engineers, c/o Whitehurst & Clark, 100 Newfield Avenue,

Edison NJ 08837; 732 417-9575, toll free 888 438-2517, fax 732 225-1562; email wobook-see@aol.com. \$95, cloth, ISBN 0-85296-773-X, xxvi + 534 pp., index.

MATHEWS, JOHN A, and CHO, DONG-SUNG, *Tiger Technology: The Creation of a Semiconductor Industry in East Asia*, Cambridge University Press, Cambridge, 2000

In their introduction, the authors state "This book results from our curiosity to discover how latecomer firms could establish themselves in the most technologically demanding industries." Few periods in technological history have seen as much change and affected as many people's lives as the one covered in *Tiger Technology*, and the authors set out to explore the different forms and styles of innovation which made — and continue to make — it possible. "...these countries' 'innovativeness' was not of the conventional kind where a firm conducts R&D and develops new technological products," the authors point out, and understanding this new 'innovativeness' is the key to understanding Asian technological prowess. The chapters on different countries are case studies, and *Tiger Technology* emphasizes the economic models which underlie the development of these 'latecomer' companies, as well as the sometimes huge financial gambles many of these companies took. With its many charts and graphs, the book is by no means light reading, but readers



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IEEE History Center Publications

available via IEEE on-line catalog: <http://shop.ieee.org/store/> or by phone 1+ 800 678 4333; or fax 1+ 732 981 9667

Product Code	Author	Title	Price/IEEE Member Price
HH001	Nebeker	<i>Signal Processing: The Emergence of a Discipline</i> History of the creation of a new branch of engineering. Signal processing, which concerns the changes made to signals so as to improve transmission, storage, or use, is vital to a wide range of modern technologies. This extensively referenced account draws upon the published literature and oral-history interviews of dozens of pioneers of the new discipline.	\$12.95/\$10.95
HH002	Nebeker	<i>IEEE Signal Processing Society: 50 Years of Service</i> A short narrative history of the IEEE Signal Processing Society. Formed in 1948 as the Professional Group on Audio of the Institute of Radio Engineers, the Society has evolved into the leading professional organization for signal processing, helping through its many activities to establish that rapidly growing branch of engineering.	\$18.95/\$14.95
HH003	Goldstein	<i>Facets</i> (Six papers on history of semiconductors) The invention of the transistor; silicon replaces germanium; Advances in purification, photoresists, and other key technologies; Circuit engineers move from discrete to integrated design; Development of the first microprocessor; Military-industry relations in Britain	\$24.95/18.95
HH004		<i>Sources in Electrical History; Vol II Oral History Collections</i> Guide to primary sources in electrical history. Volume 2 summarizes the contents of over 1,000 taped interviews concerning electrical technologies and the social systems in which they function.	\$17.50/15.75
HH005	Morton	<i>History of Electronic Entertainment Since 1945</i> Not simply a history of inventions, A History of Electronic Entertainment delves into the political controversies and social upheavals surrounding such technologies as television, sound recording, and video games.	\$11.95/9.95
HH006	Morton	<i>Power: A Survey History of Electric Power Technology Since 1945</i> Topics include: the creation of giant, interconnected "grids"; the Great Blackout of 1965; postwar generating technologies including nuclear reactors; advances in transmission technology; the application of computing in the power industry; exporting Western technologies to the Third World; the Energy Crisis; and alternative energy sources (including wind, solar, tidal, and geothermal power, fuel cells, and others)	\$11.95/9.95
EV5537	(videotape)	"Fuzzy vs. Conventional Control", Michael Athans and Lofti Zadeh	\$39.00/\$35.00

Bibliography

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who wish to examine in detail the rise of high technology in Asia will find it full of carefully-researched and thoroughly analyzed information and insight.

Available from Cambridge University Press, 110 Midland Avenue, Port Chester, NY 10573-4930, 1+800-872-7423, www.cup.org, \$54.95, hardbound, ISBN 0 521 66269 9, xxiii + 389, index.

CUTCLIFFE, STEPHAN H. and TERRY REYNOLD, eds., *Technology and American History: A Historical Anthology from Technology and Culture*. Chicago, IL: University of Chicago, 1997.

CUTCLIFFE, STEPHAN H. and TERRY REYNOLD, eds., *Technology and the*

West: A Historical Anthology from Technology and Culture. Chicago, IL: University of Chicago Press, 1997.

Glass, Robert, *In The Beginning: Recollections of Software Pioneers*. New York: IEEE Press, 1998.

ISRAEL, PAUL B., KEITH A. NIER, and LOUIS CARLAT, *The Papers of Thomas A. Edison, Volume 4: The Wizard of Menlo Park, 1878*. Baltimore, MD: The John Hopkins University Press, 1998.

O'RAIFEARTAIGH, LOCHLAINN, *The Dawning of Gauge Theory*. Princeton, NJ: Princeton University Press, 1998.

RUSSO, ARTURO, *The Third Phase of the Telecommunications Programme ECS,*

Marecs and Olympus. Noorrdwijk, The Netherlands: ESA Publications, 1998.

STANDAGE, TOM, *The Victorian Internet: The Remarkable Story of the Telegraph and the 19th Century's On-line Pioneers*. New York: Walker, 1998.

THULESIUS, OLAY, *Edison in Florida: The Green Laboratory*. Gainesville: University of Florida Press, 1997.

ZACHARY, G. PASCAL, *Endless Frontier*. New York: The Free Press, 1997. ♦

ELECTRICAL TECHNOLOGIES IN THE MOVIES: ELECTRIC FANS AND AIR CONDITIONING

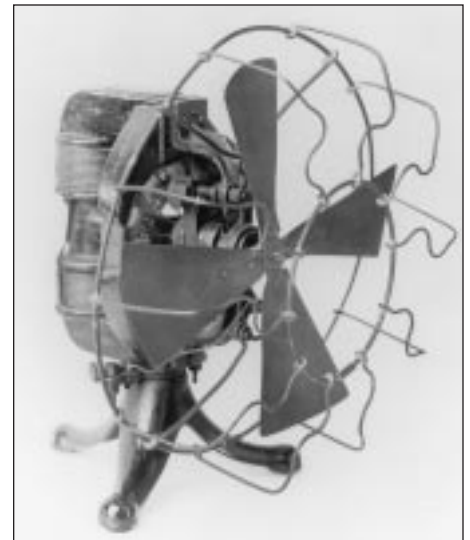
One can learn a great deal from movies about the history of technology in the 20th century: they show the technologies themselves, which frequently changed decade by decade, and they show people using the technologies and commenting on them. Consider electric fans and air conditioning.

Early in the century one of the most popular appliances, for home and office, was the electric fan. In "Bridge on the River Kwai" (1957), which depicts events during World War II, we see both a human-powered ceiling fan and an electric fan on a stand (and one that moves automatically in a complicated pattern). Another World War II movie, "Mrs. Miniver" (1942), shows a ceiling fan in a bomb shelter. The use of large electric fans in movie making is shown in "Singin' in the Rain" (1952), and a hand-held battery-powered fan is shown in "Little Big League" (1994).

It was in the first decade of the 20th century that factories began to be equipped with air conditioning. In the interwar years, air conditioning came to many cinemas and stores. But air conditioning in the home

was not at all common until the 1950s. In the 1954 movie "Sabrina" (starring Humphrey Bogart and Audrey Hepburn) we see a room being cooled by means of a fan blowing across a container of ice cubes. The next year, in "The Seven Year Itch" (starring Marilyn Monroe), we see window air-conditioners, and it is said that air conditioning is essential in New York City in the summer.

In the 1991 movie "Bugsy" (starring Warren Beatty), it is just after World War II that Bugsy Siegel conceives a plan to develop Las Vegas as a resort; it will be made possible, he says, because of the Hoover Dam (the source of the electricity) and air conditioning ("the wave of the future"). In the 1960 Alfred Hitchcock movie "Psycho" there are comments on air-conditioning, and in a Phoenix real-estate business, only the boss's office has it. Here, and generally, air conditioning is presented as unquestionably a good thing. Not so in the 1997 Woody Allen movie "Deconstructing Harry"; when the main character asks the devil, "What? You have air-conditioning in Hell?", he receives the answer "Sure! F***s up the ozone layer!"



Early climate control: The Edison Electric Fan (photo by permission of Smithsonian Institution).

We would be grateful for reports from readers of this newsletter who know of interesting depictions of electric fans and air conditioning in movies. You may contact us at history@ieee.org. ♦

PAUL BUNGE PRIZE

The German Chemical Society extends an international invitation for applications for the Paul Bunge Prize 2001. The award

honors outstanding publications in German, English, or French in all fields of the history of scientific instruments. The dead-

line for applications is 30 Sept., 2000. More information at: German Chemical Society, Public Relations Dept., PO Box 900440, D-60444 Frankfurt am Main, email: pr@gdch.de. ♦

LAWRENCE, ROBERT F., SR.

On Thurs., March 16, 2000, age 78, of Forest Hills; beloved husband of Grace LAWRENCE; dear father of Robert F. LAWRENCE Jr. of Ridgefield CT and John J. LAWRENCE of Forest Hills; brother of Helen White of Atlantic Beach FL; grandfather of Scott McKenna and Kelly Ann LAWRENCE. Mr. LAWRENCE, an Executive with Westinghouse Electric retired after working there for 42 years.

Robert Lawrence was an active IEEE volunteer, serving on the Life Members Committee, as well as being a contributor to the IEEE History Center. ♦

Static from the Director:

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supporting the project, and the Trustees of the IEEE History Center have also decided to commit a specific portion of the funds that YOU donate to them to this worthy project. The result is that we have stable funding for as long as is needed to get the program up and running, and the target for the opening is November 2001. The other implication of the new funding is that you have a particular vested interest in the IEEE Virtual Museum. So please, keep abreast of our progress at http://www.ieee.org/virtual_museum. ♦

Time Capsule Update

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cult case of was to resolve when “are” and “arc” were appropriate in the era of arc lighting. Sometimes the compression of the words of a line appeared as one long word requiring manual intervention to isolate individual words. These idiosyncrasies

forced the careful comparison of the text of each item scanned along with the original to verify the process, very time consuming. Some of the comments received from test users of the latest version indicate that the CD-ROM format for the films may run into conflict with the anti-virus and security systems being used. Much less frequent was the total inability to read the CD-ROM,

although this happened, too. As the content errors are received, they are being corrected, so a new version will be ready this summer for distribution to those wishing to help with their comments. Those wishing a copy of the CD or further information should contact Julian Reitman, Instructional Media, University of Connecticut-Stamford, jreitman@markymat.stam.uconn.edu. ♦



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