NEWSLETTER NO. 44 SPRING 1997

Center for the History of ELECTRICAL ENGINEERING

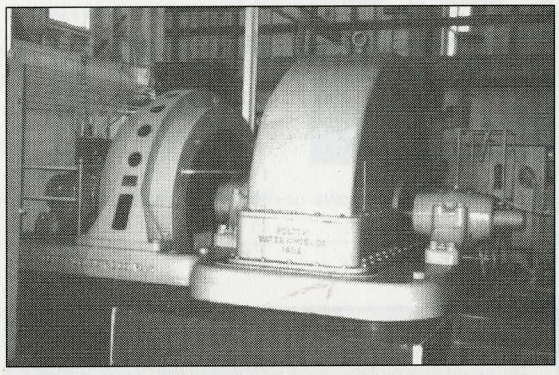
IEEE

MILL CREEK IS MILESTONE

When Edison began providing electric power to lower Manhattan with his Pearl Street Station in 1882, the transmission lines carried direct current. It was soon recognized that transmission efficiency could be increased by providing alternating current instead, since it was easy to change the voltage of such current, stepping it up for transmission at very high voltage and stepping it down for use. George Westinghouse, champion of AC power, equipped a commercial AC power transmission system in 1891: the Ames, Colorado Hydroelectric Generating Plant. (The Ames Plant was named an IEEE Electrical Engineering Milestone in 1988.)

The self-starting alternating-current motors of the type invented by Nikola Tesla required polyphase current, that is, current consisting of two or more alternating currents having the same frequency but different phases. Westinghouse recognized this and, though the Ames plant had produced one-phase AC, he began advocating two-phase AC. Three-phase AC, which gave smoother motor operation and required less copper for transmission, was first demonstrated on a large scale for the International Electrical Exhibition at Lauffen, Germany in 1891. In the United States the first commercial three-phase AC system was that built by General Electric in Southern California for the Redlands Electric Light and Power Company.

The pioneering system generated its power at Mill Creek, seven and a half miles from the town of Redlands. There Pelton waterwheels turned two 250 kW generators, and power was transmitted at 2400 volts to Redlands, where it provided lighting and ran an ice plant. The system operated extremely well, its success was widely noted in the technical press, and the Mill Creek station thus became quite influential in the adoption of three-phase AC in power systems nationwide.



A Pelton waterwheel (bearing the date 1902) and a General Electric generator currently in use at the Mill Creek hydroelectric station.

The IEEE Foothill Section scheduled the dedication ceremony of the new Milestone, held on Thursday 20 February 1997, to occur during National Engineers' Week. The plaque citation reads as follows:

MILL CREEK N0. 1 HYDROELECTRIC PLANT

Built by the Redlands Electric Light and Power Company, the Mill Creek hydroelectric generating plant began operating on 7 September 1893. This powerhouse was foremost in the use of three-phase alternating current power for commercial application and was influential in the widespread adoption of three-phase power throughout the United States.

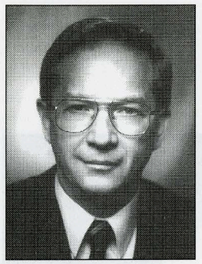
The Mill Creek Plant was at the same time honored by the American Society of Civil Engineers as a California Historic Civil Engineering Landmark. Among the many volunteers who worked to bring about this Milestone and Landmark ceremony are Ray Aker, the Junior Past Chair of the IEEE Foothill Section, Chen-Ching Liu, Chair of the IEEE Power Engineering Society History Committee, and two volunteers from the American Society of Civil Engineers, Bob Burke and Fred Meier. The Southern California Edison Company, owner of the site, provided generous support in numerous ways.

CENTER FOR THE HISTORY OF ELECTRICAL ENGINEERING

Issue 44 Spring 1997

Staff Notes

A Message from the Chairman of the IEEE History Committee



As chairman of the IEEE History Committee, I am pleased to welcome new readers of this newsletter to our history community. Long-time readers of this newsletter will already have grasped its purpose and scope. But especially for the new readers, I would like to clarify the relationship between the IEEE Center for the History of Electrical Engineering and the History Committee, describe the mission of these two entities, and explain the role the newsletter plays in the services we provide.

The History Committee reports into the IEEE Executive Committee and has responsibility for the study, preservation, and promulgation of the history of the IEEE organization and all of its technologies—including electrical, electronic, magnetic, communication, and computer technologies. The History Committee has two types of members: (1) IEEE members with an interest in history, who work to assure that the program responds to the needs and desires of our members, and (2) professional historians, who generously volunteer their time to help assure that our program meets the highest professional standards.

Most of the work of the History Committee is carried out by the History Center's staff of professional historians. They conduct the historical research, preserve our records, help other organizations and individuals preserve their important historical records in our technologies, provide an historical reference service, and manage our outreach programs. They also play an important role in defining the program, but ultimate responsibility for the Center's program lies with the History Committee.

This newsletter is the principal means by which the History Center communicates that program and news of its results. You can look in the newsletter to find information on new projects and progress reports on projects already underway at the Center. The newsletter is also a clearinghouse for information that is related to the Center's mission, bringing cohesion and focus to the field. In these pages, we announce places to look for historical information and new opportunities for historical research, and we attempt to keep those working in the history of IEEE technologies apprised of each other's activities to facilitate greater cooperation and synergism. Finally, the newsletter provides a place for us to express our appreciation to those organizations and individuals who make the IEEE's historical work possible through their generous contributions.

The IEEE History Center is your history center. We encourage you to get in touch with its staff members to let them know what interests you and how they can help you with your own historical projects. One of the IEEE's greatest assets is the collective memory of its members. The History Center is committed to putting that asset to work.

Emerson Pugh
February 1997

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

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Plotnick Joins Center

The History Center is pleased to introduce the newest addition to its staff: Sheila Plotnick. Sheila received her B.A, Classics in Latin from Loyola University—Chicago in 1993. She then worked as a reference library assistant and program archivist at National Public Radio in Washington D.C. and, later, as assistant operations manager for KEDM Public Radio 90.3 in Monroe, Louisiana. She is currently studying for her Master's degree in Library Science from Rutgers University. Sheila's work at the History Center includes assisting the professional staff in all manner of reference, research, and administravia.

Nebeker Writes Column

At the invitation of the editor, Jean Eason, Center Research Historian Rik Nebeker now writes a monthly column for *Perspectives*, the publication of IEEE United States Activities. Entitled "This Month in EE History" and first appearing in the December issue, the column describes several events whose anniversaries occur in that month and reproduces a historical photograph. Perspectives is published electronically (at http://www.ieee.org/usab) every month, and eight times a year it appears as a four-page insert in *The Institute*, the news supplement to *IEEE Spectrum*.

Center Activities

COMPUTER HISTORY CONFERENCE IN WILLIAMSBURG

The IEEE Center for the History of Electrical Engineering is presenting a conference on the history of computing to be held at William & Mary College from Friday 13 June to Sunday 15 June 1997. The conference is directed especially to those new to the field of computer history and will provide an overview of the development of hardware and software (through eight invited talks), an introduction to researching and writing the history of computing (through five invited talks and a panel discussion), and reports on some current work in the field (through participants' papers).

The Center is very pleased that so many of the leading historians of computing have agreed to present talks at the conference. We are inviting attendees already engaged in historical research to present some of their findings. If you would like to present a paper, please send a title, one-paragraph abstract, and one-paragraph biography. A tentative schedule follows.

Friday 13 June
Morning session: Invited lectures

Before the Computer - Technology	Michael Williams
Before the Computer - Business	James Cortada
The Emerging Computer Industry - Technology	Brian Randell

Afternoon session: Invited lectures and participants' papers

The Emerging Computer Industry - Business	Arthur Norberg
The Emerging Computer Industry - Government	Robert Seidel
Participants' papers	

Saturday 14 June
Morning session: Invited lectures:

Computer Science	William Aspray
System Software	Michael Mahoney
Software for the Personal Computer	Paul Ceruzzi

Afternoon session: Invited lecture and participants' papers

Computer Networks	Janet Abbate
Participants' papers	

Sunday 15 June
Workshop in Writing Computer-History
Morning session:

Archives	Henry Lowood
Oral History	Frederik Nebeker
On-Line Sources	Janet Abbate

Afternoon session:

Contextualizing History - Sociology	Eda Kranakis
Contextualizing History - Economics	Martin Campbell-Kelly
Panel Discussion: Making History Interesting	

The conference will be held on the attractive and historic campus of William & Mary College. Adjacent to the college is Colonial Williamsburg, and the local area boasts such attractions as Busch Gardens (a large amusement park), the James River plantations, and historic Yorktown. The College has dorm rooms available, and we're asking the College to allow us to use the rooms from Wednesday 11 June to Monday 16 June so that people will be able to take some time before and after the conference to see the sights.

If you are interested, please contact us as soon as possible as registration is limited because of the college facilities available. The conference fee is $50 for employed individuals, $25 for students and retired and unemployed individuals. The conference fee includes access to meeting rooms and light refreshments. If you would like college accommodation (a single room costs $28 a night, a room with two beds $40; bathrooms are shared; on-campus parking is included), please indicate that on the registration form.

History of Computing Conference
The College of William & Mary
Williamsburg, Virginia
13 - 15 June 1997
Registration Form

Please provide the following information if you wish to attend the conference:

Name: _____

Address: _____

City/State/Zip: _____

Phone: _____ Best hours to call: _____

Fax: _____ E-mail: _____

If you wish to present a paper, please remember to attach to this form a page containing the title of your paper, a one-paragraph abstract, and one paragraph of biographical information. Please also list any audio/visual equipment you will need for your presentation.

Please check one of the following:

_____ I will make my own arrangements for accommodations.

_____ I would like the History Center to reserve a room on campus for me.

Date of Arrival _____ Date of Departure _____

Please indicate the number of each type of room you will need for your party:

_____ single room(s) (one bed - $28.00)

_____ double room(s) (two beds - $40.00)

Please list the names of the people in your party.

_____

If you are traveling with children, please provide their ages.

_____

If you have made arrangements with another attendee to share a double room, please provide that person's name.

_____

Please provide your credit card information in order to reserve a room.

You will not be charged until the conference.

Card Type (circle one) Visa AmEx Master Card

Card Number_____ Expiration Date _____

Name as it appears on card _____

Please provide payment for Conference Registration. Remember, room fees will be charged later.

_____ I have enclosed a check for my conference registration fee.

_____ Please bill the above listed credit card for (check one)

_____ $50.00 - employed

_____ $25.00 - student/retired/unemployed

Please mail or fax your registration materials to:

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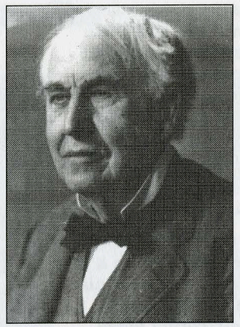
CELEBRATING EDISONS' 150TH



Thomas Edison, from Thomas Edison and Electric Power Engineering

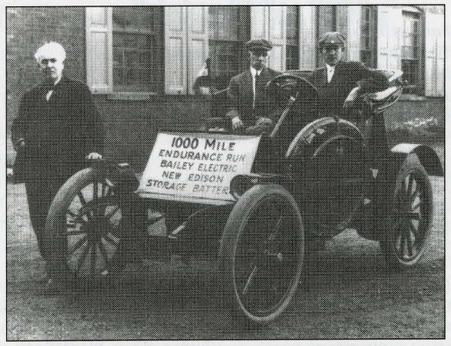
This year is a special milestone in electrical history, the 150th anniversary of the birth of Thomas Alva Edison. Edison, who is certainly the most celebrated inventor of all time, was born on February 11, 1847, in Milan, Ohio. In his lifetime, he would gain fame and fortune for his many inventions, some of which are keystones to our modern electrical world. Connected with Edison's name are the incandescent light, the central electrical power distribution system and many of its numerous components, important improvements in telegraph, telephone and storage battery technologies, a precursor to the vacuum tube, electrical processing of mineral ore, the phonograph, motion pictures, and other important technologies. The personal holder of 1,093 patents, he built a laboratory at West Orange, New Jersey, and challenged the staff there with the responsibility to produce inventions on a regular schedule—a forerunner to today's industrial research laboratory.

Edison's achievements are so well-known that they may truly be described as legendary—a situation that is both satisfying and troubling. On the one hand, it can be beneficial whenever a technologist becomes a popular hero. The Edison legend continues to inspire children to pursue technical and scientific education, and his fame provides a platform from which adults may begin to consider issues such as the creative process and the role of engineers and technology in society. At the same time, however, the focus on Edison can result in a distorted understanding of the process of technological innovation and change. The very magnitude of his presence tends to obscure the other factors that played a crucial role in those successes that we too easily attribute to "Edison's genius." Recent historical work on Edison has had to confront the Edison legend and make choices about where to sustain it and where to look beyond.

Issues of this sort will be one of the topics under discussion at the "Interpreting Edison" conference to be held June 25-27 at Rutgers University in Newark, New Jersey and the Edison National Historic Site in West Orange, New Jersey. As announced earlier in this newsletter (see issue #41), the conference will convene educators, museum curators, interpreters, and scholars from a variety of disciplines, as well as the general public, for a critical examination of Edison's impact on innovation, manufacturing, business, and popular culture. The conference also will explore Edison's role as inventor, entrepreneur, and cultural figure; the role of Edison's laboratories in Newark, Menlo Park, West Orange, and Fort Myers in the development of technology and science; and the role of the National Park Service and other agencies in preserving and interpreting the Edison story. The basic registration fee of $30 covers the cost of all lunches, and coffee breaks. For more information about the Edison conference, contact Leonard DeGraaf, Edison National Historic Site, Main Street and Lakeside Avenue, West Orange, New Jersey 07052; telephone 1-201-736-0550, extension 22; e-mail: edis_curatorial@ nps.gov.

But just as scholars debate the directions in which to take future Edison scholarship, there remains great value in disseminating the findings of research that has already been done. The IEEE History Center has contributed to the Edison celebration in this manner with the preparation of a small booklet on Edison and his influence on electrical power technologies. Developed at the request of the IEEE Power Engineering Society (PES) for their 1997 Winter Power Meeting and coordinated by PES History Committee Chairman Chen-Ching Liu, the booklet is a richly illustrated, 24-page survey of Edison's uniquely productive personality and his special contributions to the technologies of electric power. Entitled "Thomas Edison and Electric Power Engineering," the booklet summarizes familiar interpretations of central issues concerning Thomas Edison's personal inventive style and the technology he helped to bring forth. With articles entitled "Creativity," "Hard Work," "Entrepreneurship," "Theory and Practice," ""System," "Lighting," "Dynamo," Metering," and "Battle of the Systems," the booklet encapsulates many of the outstanding themes in contemporary Edison studies, including recognition of the role of other figures—such as Francis Upton, Nikola Tesla, Elihu Thomson, and Charles Brush—in the technological developments where Edison achieved his renown.

Plans call for the text and images from the booklet to appear on the Power Engineering Society's Web site at http://www.ieee.org/power/power.html.

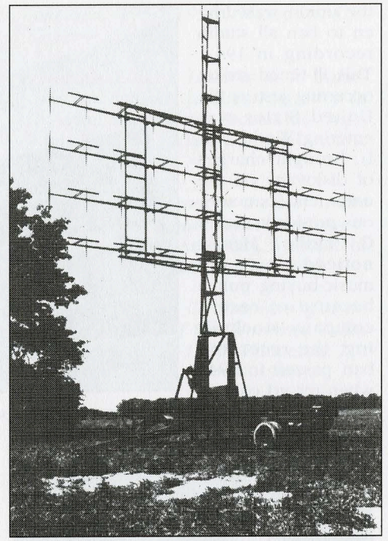


From Thomas Edison and Electric Power Engineering, *Thomas Edison in the West Orange Laboratory Courtyard*

Bibliography

BUDERI, ROBERT. *The Invention That Changed the World: How a Small Group of Radar Pioneers Won the Second World War and Launched a Technological Revolution*. New York: Simon & Schuster, 1996. 575 pp.

A narrative account written for a wide audience, this book explains how radar was developed in Britain and the United States during World War II and describes some important postwar work based on the new technology. Half of the book tells the story up to August 1945, with almost all of the attention on British and U.S. efforts, though there is some discussion of German work. The exploitation of the new technology in the decade or two after the war is described in ten chapters dealing with radio and radar astronomy, nuclear magnetic resonance, the invention of the transistor, the invention of the maser, and early-warning radar systems. The sources of information are indicated in endnotes; the author made use of a wide range of published and unpublished sources and more than a hundred interviews that he conducted with people who figured in the story.



SCR-270 radar ("D" configuration)– the U.S. radar that detected incoming Japanese aircraft on the morning of December 7, 1941

CAMPBELL-KELLY, MARTIN, ed. *Charles Babbage: Passages from the Life of a Philosopher*. New Brunswick and Piscataway, NJ: Rutgers University Press and IEEE Press, 1994. 383 pp.

Charles Babbage, who lived from 1791 to 1871, is remembered today mainly for his design of automatic digital calculating machines. In the 1820s he developed plans for two Difference Engines, to be used to compute mathematical tables using the method of finite differences, and in the following decade he began to work on an Analytical Engine, intended as a general-purpose calculating device. Babbage succeeded in building neither machine, though he oversaw construction of a working portion of Difference Engine No. 1 and the Science Museum in London completed a working version of Difference Engine No. 2 in 1991. Babbage, however, was much more than a computer pioneer. He was also a mathematician, a scientist, an inventor, a social reformer, a political economist, and, as his autobiography proclaims, a philosopher. Originally published in 1864, *Passages from the Life of a Philosopher* gives Babbage's own account of his multifarious activities. This new edition includes a substantial and insightful introduction by Martin Campbell-Kelly, computer historian and editor of the eleven-volume *Works of Charles Babbage.*

COWAN, RUTH SCHWARTZ. *A Social History of American Technology*. New York: Oxford, 1997.

PURSELL, CARROLL. T*he Machine in America.* Baltimore: Johns Hopkins University Press, 1995. 358 pp.

In recent years academic historians have made an effort to integrate the history of technology into the general historical curriculum. Two recent survey histories contribute to this aim by presenting well-researched and readable overviews of the development and role of technology in America. Although not primarily focused on electrical technologies, both books devote significant space to them.

Ruth Schwartz Cowan's *Social History of American Technology* surveys American technology from colonial times to the present. Each of her chapters, which are arranged chronologically, focuses on a particular type of technology or technological activity. Of particular interest to readers interested in electrical technologies are the chapters on inventors, which discusses the contributions of Edison, Tesla, and Bell, among others (chapter 6); technological systems, including telegraph, telephone, and electrical systems (chapter 7); and communications and computing technologies (chapter 12). While the coverage of specific topics is necessarily brief in such a comprehensive survey, each chapter is followed by suggestions for further reading that provide a useful pointer to more in-depth studies. Since Cowan is aiming to appeal to a student audience, the tone of the book is somewhat unsophisticated, but her analysis is never superficial.

Carroll Pursell takes a somewhat more thematic approach in *The Machine in America.* Although also roughly chronological, his chapters do not tend to focus on particular technologies but instead explore topics such as "creating an urban environment" or "export, exploitation, and empire." This makes it slightly trickier to locate information on a specific topic; electrical technologies, for instance, are discussed in chapters on "science and systems," the Depression, and war. However, his approach succeeds in placing technology in a cultural context, and he manages to provide a wealth of information in a lively format. Suggested readings on each topic are provided in the back of the book.

Both books are well-written, avoid unnecessary technical or academic jargon, and contain many evocative illustrations. They will be valuable both as teaching texts and as handy historical references.

KRAFT, JAMES P. *Stage to Studio: Musicians and the Sound Revolution.* Baltimore, MD: Johns Hopkins University Press, 1996. 255 pp.

Few people, when asked about the basic character of a phonograph disk or a sound motion picture, would answer, "a labor saving invention." Most of us think about these technologies in terms of our own uses of them; as pleasant diversions. University of Hawaii historian James Kraft looks at them from an entirely different perspective, showing how sound technologies had important and controversial implications for organized labor, particularly American musicians.

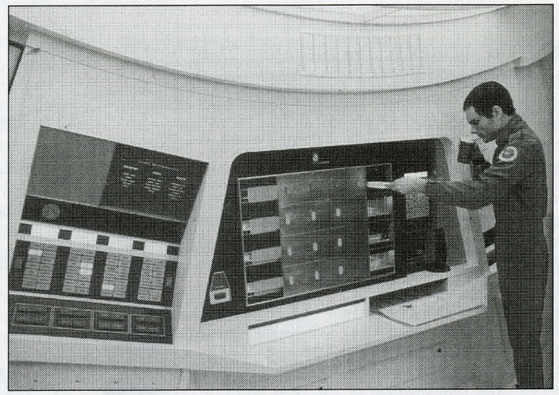
Bibliography

The introduction of silent films was a boon to musicians, who found work in large and small theaters across the country providing background music for films. But musicians were expensive, and often less-talented local musicians had trouble keeping to the "cue sheets" provided by the film makers. Thus the trend-setting Warner Brothers' decision in 1926-27 to throw in their lot with synchronized sound movies not only provided a higher quality of music than was available in many theaters, but eliminated a significant cost associated with exhibiting films. Audiences loved "talkies," and despite the significant cost of the new equipment, theaters across the country purchased it and enjoyed its benefits.

The American Federation of Musicians (AFM) did not share that enthusiasm. Over the course of half a century, the AFM fought to get the same rights for the performers of music that members of the American Society of Composers and Producers were (albeit with many later setbacks) able to gain for the writers of music. The widely distributed performances of a few would produce fees to support the many by providing funds for public concerts and other "make work." The proposals produced bitter battles between the union and Hollywood, the radio networks, and the record manufacturers.

Meanwhile, technology continued to encroach upon the local musician's trade. Musicians put out of work by the coming of sound motion pictures could find little to celebrate in the coming of the phonograph. Edison's invention became wildly popular in the 1920s, bringing music into the homes of many Americans. But it also became the basis of a wholesale move away from live performances in public places, such as the lobbies of finer hotels, small parties, and restaurants. In competition with the phonograph by the late 1920s was the new technology of radio, which could distribute a single performance over a huge geographic area, and had the effect of displacing local musicians. By the time the jukebox entered the scene in the 1930s, the practice of substituting "mechanical" music for live musicians was already well entrenched.

The timing could not have been worse for musicians, who suffered greatly during the Great Depression, or for the AFM, which faced strong pressures from the rank and file not to strike for fear of the disappearance of the few remaining jobs. Eventually, the union was driven to ban all studio recording in 1942. This ill-timed strike, occurring just as the United States was entering World War II, brought charges of disloyalty on the union and its notorious president, James C. Petrillo. Hardly noticed by the music-buying public because of record company stockpiling, the recording ban passed in 1945 when record companies finally caved in to union demands.



A scene from 2001: A Space Odyssey

The rewards to the union were short lived. Certain concessions were reversed in the courts, leaving musicians with less power over their recordings than before. But perhaps more serious was the attrition of the profession due to two decades of hard times. A small fraction of musicians had risen to great heights. Those who were lucky enough to find work in radio or in motion picture studios found steady work and good pay. A few bandleaders like Fred Waring, who challenged the right of broadcasters to use his recordings for free, used the new media to achieve lasting fame. The rest faded away.

Kraft's careful study of the labor aspects of American music in an era of rapid technological change is appealing on several levels. It clearly shows relationships between electrical inventions conceived with narrow technical goals in mind and their broad social implications. Moreover, it demonstrates the shifting relationships that musicians have had with recording technology. Even while they supported the efforts of their union to "turn back the clock" and ignore the new technologies, musicians began to redefine the ideals of professional success to incorporate the kind of achievement associated with the phonograph disk, the Hollywood film, and the radio.

STORK, DAVID G., ed. *HAL's Legacy: 2001's Computer as Dream and Reality.* Cambridge, MA: The MIT Press, 1997. 384 pp.

At a time when many are wondering if our national electronic infrastructure will hold up under the computational strain of dealing with a year that ends in two zeros, the prospects of a master computer with the intelligence and will to carry out homicidal plots seems comfortingly remote. But there was a time, not long ago, when such a vision struck fear into the hearts of filmgoers everywhere. HAL 9000, the smooth-talking, chess-playing, lip-reading, astronaut-killing computer featured in Stanley Kubrick's monumental film, *2001: A Space Odyssey* raised anxious questions at the close of the 1960s about where computer technology was going. Now that the date when HAL was imagined to have been born is upon us, it is time to look back and re-examine those same questions. Could we build HAL? ask the contributors to HAL's Legacy, edited by David Stork, and what have we learned about artificial intelligence (AI) since he first burst into the popular imagination.

Each chapter in Stork's engaging book takes a close look at one of HAL's abilities and demystifies the technology behind it. With this unique approach, the film's history serves as a springboard for a discussion of the history, present state, and future directions of critical computer technologies. At what stage was the technology when the film was made in 1968? At that time, where did we think we would be in the year 2001? Where are we now in relation to those predictions? These questions are tackled by some of computing's heaviest hitters; Marvin Minsky, David Kuck, Douglas Lenat, Azriel Rosenfeld, and Rosalind Picard are just a few of the luminaries lending their technical expertise and well-informed opinions as authors of chapters in the book. Also interesting is the material that considers the philosophical implications of an artificial intelligence system such as HAL. Renowned theorist on the nature of consciousness Daniel Dennett asks if HAL kills, who is to blame?

A foreword by Academy Award nominated author Arthur C. Clarke, color photos from the film and various research labs, and a thoroughly detailed index all enhance this book's appeal to AI enthusiasts and film buffs alike.

The Newsletter's ***"Bibliography" section was prepared with the assistance of Prof. Thomas J. Higgins of the University of Wisconsin-Madison.***

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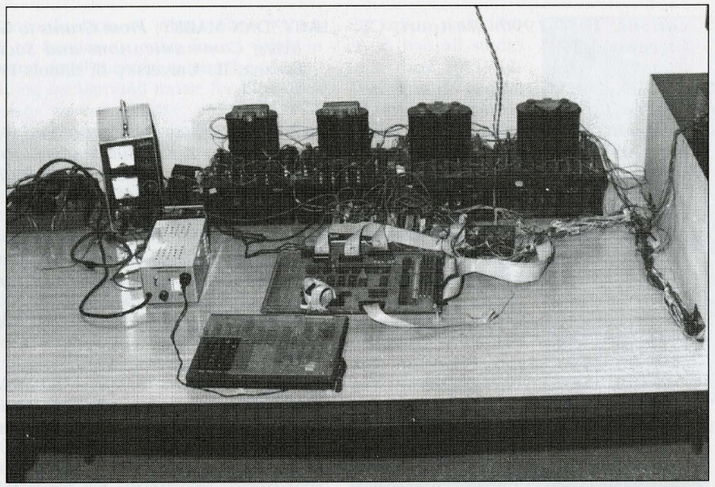

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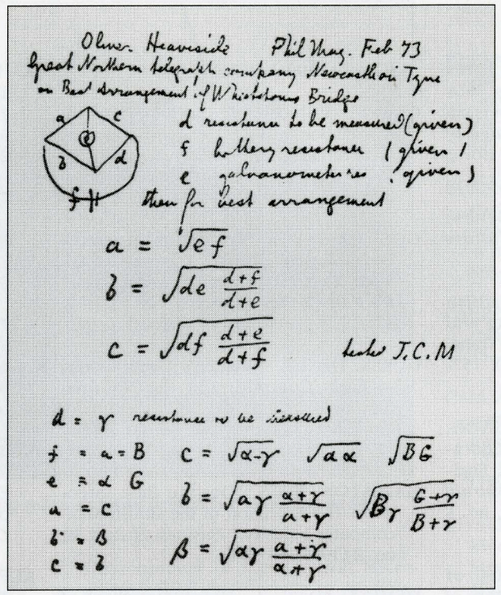

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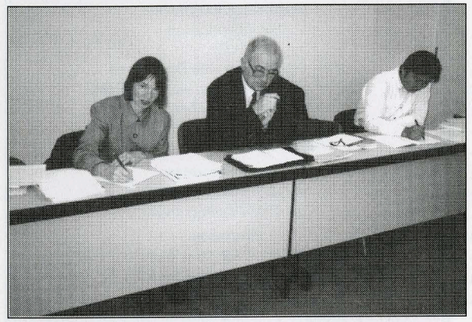
JAPANESE SEMINAR LOOKS AT ENGINEER-HISTORIAN COOPERATION

On November 7 and 9, 1996, at the Chiba Museum of Science and Industry in Japan, a seminar was held to consider how electrical engineers can study their history in cooperation with historians. Eight Japanese electrical engineers, museum curators, and historians joined with two western historians and several observers to discuss their work and trade ideas.



Susan Douglas, Brian Bowers, and unidentified participant at Seminar in Japan

The seminar participants agreed that the engineers' training often predisposes him or her to write history that is prone to evaluate the past from the perspective of the present day (whiggish), focused on strict technical issues (internalist), and colored by a particular ideology of progress. They discussed how professional historians and social scientists can communicate with engineers to make them aware of these tendencies, so that their work might gain higher prestige in the community of professional academics. Other topics discussed include the use of oral history, education for archivists, C.P. Snow's "two cultures" issue, anti-technological sentiment, technological determinism, technology and the environment, and technology and gender. Participants also attended lectures on telecommunications and the present society and an exhibit on the past, present and future of telecommunications.

The seminar's organizer, Yuzo Takahashi, graciously acknowledged his admiration for the advanced work in this area that has already been done outside his country, and issued an open invitation for other overseas scholars to participate in Japan's growing involvement with the history of science and technology. For more information, contact Yuzo Takahashi, Tokyo University of Agriculture & Technology, Department of Electrical Engineering 2-24-16, Nakamachi, Koganei, Tokyo 184, Japan, email: yuzotkha@cc.tuat.ac.jp

Briefs

New Journal on Electrification

Joseph Sullivan, a historian of electrical technology, announces that he is leading the effort to create an electronic journal dedicated to the history of electrification. The working title for the journal is *Electrical History Review*. It will publish announcements, letters, book reviews, descriptions of ongoing research, and reports on manuscript collections. The format for the book reviews will be similar to that of *The New York Review of Books*, where writers use book reviews to express their own opinions and theories. Sullivan does not expect that the journal will publish scholarly articles. The journal will be freely distributed electronically and by printed copy, however, it will, as a whole, be copyrighted, and authors will retain all rights to their own material

Sullivan invites submissions, particularly relating to the themes of the rise of the modern corporation, the birth of government regulation, the ideological battle between private and public ownership, and the social impact of technology. For more information, contact Joseph Sullivan, 244-25 88th Drive, Bellerose, NY 11426, email: jpsullvn@dorsai.org.

Fiber Optic History

Information on the history of fiber optics is available on two web pages created by author Jeff Hecht. A chronology of fiber optic development can be found at http://www.sff.net/people/Jeff.Hecht/Chron.html, and a brief narrative history of fiber optics is at http://www.sff.net/people/Jeff.Hecht/history.html. The material on these pages was collected for an upcoming book by Hecht on the history of fiber optics

City Lights

The National Museum of Science and Technology in Ottawa, Ontario, has mounted an exhibit on exterior public electric lighting. Called City Lights: Public Electric Lighting, 1880-1960, the exhibit uses items selected from the museum's vast collection. It considers both the technological evolution that has taken place between the 1880s and the 1960s—passing from arc to incandescent, mercury vapor, sodium and fluorescent lamps—and the impact the extended "light of day" has had on our society and the way we live our lives. For more information, contact Jean-Guy Monette, Sr., tel. (613) 991-3044, http://www.science-tech.nmstc.ca.

Radar Reunions

Two separate reunions are planned for personnel involved with radar equipment during World War II. The first is scheduled for October 6-8, 1997 in Ottawa, Canada. For more information about it, please contact Vernon McDonald, 359 Knox Cres, Ottawa, ON K1G 0L1. The other reunion will be held in Ashford, Kent, UK, October 30-November 2, 1997. This is a follow-up meeting to the radar reunion held in Blackpool in 1996. For more information about this event, contact the sales advisor, tel. 0800 300 666, or, if calling from outside England, 01303 711221/71155.

New Oral Histories on Web Site

The latest update to the History Center's Web page include seven new oral history transcripts: interviews with Lionel Barthold, Jack Casazza, Ivan Getting, Norman Ramsey, Ray Sears, Irving Stokes, and Joseph Vogelman. As with many of the other interviews on the Web site, these interviews are of general interest, covering the details of the subjects' education and career, with insights regarding people and events with which the subject was familiar. Along with the transcript, there are also abstracts of the interviews and a table of contents. The preparation of these oral histories was made possible by a grant from the IEEE Foundation.

These seven transcripts bring the total number of interviews on the Center's Web site to 119. They can be found on the site by clicking "Oral Histories" on the home page. The URL is http://www.ieee.org/history_center. Paper copies are also available for a charge for people who do not have access to the World Wide Web.

Ferraris Conference

Torino Italy will be the site of an international symposium on Galileo Ferraris and the Conversion of Energy: Developments of Electrical Engineering Over a Century. The symposium, scheduled for October 27-29, 1997, is being held in recognition of the 100th anniversary of the death of Ferraris, the noted Italian inventor whose claim to the invention of the polyphase induction motor rivals Nikola Tesla's. The symposium will offer presentations in five plenary sessions on the old and recent history of those subjects that occupied Ferraris, including conversion and transmission of energy and electrical engineering education. There will also be a historical presentation on the scientific context in which Ferraris did his work. Proceedings from the seminar will be made available. For more information, please contact Sigfrido Leschiutta, email: pres@saturn.ien.it. Also, more information on Ferraris and his place in the history of the induction motor is available in an article by Anthony J. Pansini, 1916 Trinity Drive, Waco TX 76710.

Tesla Honored

On December 29, 1996, at the site of the former Hotel Pennsylvania, 401 Seventh Avenue, Manhattan, a cultural medallion honoring Nikola Tesla was installed. The cultural Medallion program was created, and is currently being implemented, by New York's Historical Landmarks Preservation Center. Its "Buildings that Made New York New York" program highlights celebrated New Yorkers, notable occurrences, and other important aspects of New York City's cultural, economic, political, and social history. Throughout most of his life, Tesla took residence in the hotels of New York City. He died at the Hotel New Yorker on January 7, 1943.

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