HISTORY OF COMPUTING CONFERENCE

A technology that is as important as the computer instantly raises questions in the minds of the curious: Where did it come from? What can it do? How have people interacted with it over the years? Historians and computer professionals have tackled some of these questions, but the impact of the computer on society has been so multifaceted that it has been hard for any single author to address all of the issues in any one place. The history of computing is being told in pieces.

In an effort to put those pieces together, the IEEE History Center, with project support from the IEEE Foundation, recently organized a conference on the history of computing. Attended by about 40 people, it was held at William and Mary College in Williamsburg, Virginia from Friday 13 June through Sunday 15 June. A series of 14 invited lectures provided an overview of the development of computing and an introduction to the literature and methodologies of computer history. In addition, there were nine papers presenting current research and a panel discussion on making history interesting.

The first day of the conference featured five invited lectures. Michael Williams, professor at the University of Calgary, surveyed the development of computing technologies up to World War II. James Cortada, historian and IBM manager, told how an information-processing industry, producing adding machines, cash registers, and punched-card equipment, grew in importance in the first half of the 20th century. Brian Randell, professor at the University of Newcastle, recounted some of his experiences in writing computer history and told something about the development of computer technology after World War II. The emerging computer industry was described in two lectures: Arthur Norberg, professor at the University of Minnesota, analyzed the business of computing, focusing on three companies (Eckert-Mauchly, Engineering Research Associates, and IBM), and Robert Seidel, director of the Charles Babbage Institute, explained the important roles government had in promoting the computer industry.

Also on the first day was a session of participants’ papers. Sue Barnes, assistant professor at Fordham University, explained how many of the things Web users in the late 1990s take for granted were pioneered by Doug Engelbart in the 1960s when he worked to develop what he called “interactive computing,” which included windowed screen design, hypertext linking of documents, the mouse, collaborative computing, and multimedia. Colin Burke, associate professor at the University of Maryland, Baltimore County, discussed postwar government policies for generating and distributing scientific information, which involved automated bibliographic retrieval and other library systems. Martha Sloan, professor at Michigan Technological University, gave an overview of computer engineering education as it evolved in the 1960s, 1970s, and 1980s. The emergence of the software industry in the 1960s was the subject of the talk by Luann Johnson, a software entrepreneur herself. Andrew Goldstein, Center manager and curator, reported on his study of a cyber start-up company.

The second day of the conference also featured five invited lectures. William Aspray, executive director of the Computer Research Association, gave an account of the emergence of academic computer science in the United States. He pointed out that in 1946 five major research universities (MIT, Harvard, Columbia, Pennsylvania, and Princeton) had direct involvement with advanced computing, but that only one of them (MIT) took advantage of this early entry to establish a strong position in computer science. He reviewed how in the 1950s and 1960s colleges acquired computing facilities and how a curriculum for computer science emerged. Mike Mahoney, professor at Princeton University, outlined the history of efforts to get computers to program themselves, giving most attention to programming languages and compilers. Paul Ceruzzi, historian at the National Air & Space Museum, provided a historical overview of software
The session of participants' papers on the second day began with a talk by David Grier, Director, the honor professor at George Washington University, on the Mathematical Tables Project of the Wren Library—on the evolution of mechanization, an account of the 1950s to use large numbers of human computers to carry out large-scale mathematical computations. The Western numerical era, the National Cash Register had established a computing position in the larger market, yet its transition to the electronic era was the subject of a paper by Richard Rosen- leish. The paper discussed the development of the Harvard Business School. David Morton, research historian at the Center, talked about the automation in processing and manufacturing industries, and Antipole Tympani, Ph.D. candi- date at the Georgia Institute of Technology, examined the analog-digital demarcation in the history of computing.

The final day of the conference was a workshop in writing computer history. Henry Lowood, an assistant professor at Stanford University, provided an overview of both archival and on-line sources for the history of computing. An invited session on the future of the Center was moderated by Richard Nebeker, research historian at the Center, with talks on the future of computer networks, the World Wide Web.

On May 20, IEEE History Center director Michael Geselowitz and continuing education manager Peter Lewis continued their educational programs at the History Center in IEEE educational activities. The Educational Activities Department, whose activities have mainly focused on supporting the efforts of the IEEE Educa- tional Activities Board in the accreditation of college-level engineering programs, and in assisting in continuing education for IEEE members beyond the college-level, has developed several new educational and outreach programs. Among these, the video tutorial titled "History of Land, Mobile, and Personal Communications" has been a major contribution. The Educational Activities Department has plans to develop a program in K-12 education in the United States, and to work with other organizations to involve precollege engineering-related education; an initiative that was kicked off at the IEEE Vision 21 Precollege Education Workshop in San Antonio last February. The goals of the precollege pro- grams include: increasing public awareness of the importance of IEEE technologies and their applications; informing precollege students about the opportunities in the field of electrical and computer engineering and other technology-related careers; exposing top students to the educational environments of the best universities; and enhancing the technical education at the precollege level. With their new mandate, Educational Activi- ties Department staff are already working on integrating IEEE technologies—the purview of the IEEE His- tory Center—will have to figure in their pro-

Karl Ferdinand Braun (1850-1919) is credited with inventing the modern CRT in 1897 while he was a professor of physics at the University of Heidelberg. Braun patented all of the basic functions of today's CRT in 1889. However, notably those built by Sir William Crookes and William Roentgen—Braun's tube had a tube that was attached to a printing device. With the rise of alternating-current power, and vacuum tubes, the need for the miniaturization of electronics led to the work of many others, including the invention of the microchip by William Shockley and John Bardeen, the triode, and the invention of the magnetic readout and drum device used in this era. Education is an expensive form of employment in the United States; the first commercial oscilloscope in the U.S. was a vacuum tube oscilloscope that cost $1,000. It was used in the educational community, and an impressive variety of additional landmark items.

One item on display, the Aiken Tube (c. 1904) was an analog CRT—was supplied to the Aiken tube by the IBM Corporation. The tube was a gift of its inventor William.
things to see and do

spunak anniversary

This year marks the fourteenth anniversary of the Spunik 1, the world’s first artificial satellites, which was launched on 4 Oct 1957. The NASA History Office is planning a special talk on the history of Spunik at the Smithsonian’s Bevery Center on 30 September 1 October 1997. It will explore the preparations, immediate ramifications, and long-term consequences of Spunik’s launch. The presentation will cover the history of Spunik, including its impact on technology and society.

computer history in Prague

The year 1997 marks two significant anniversaries for the history of computing in the Czech Republic. The 40th anniversary of the SAPO, the first electronic computer in the Czech Republic, and the 50th anniversary of the Tschechov Institute for Telecommunications, the precursor to the Czech Institute for Telecommunications.

A conference, "Computer History in Prague: Past, Present, and Future," will be held at the Institute in Prague in November. The conference will include speakers from the Czech Republic, Germany, and other countries.

Telecommunications History in Czechoslovakia

The history of telecommunications in Czechoslovakia is rich and complex. The Association for the History of Telecommunications is planning a special event to commemorate the 50th anniversary of the Tschechov Institute for Telecommunications.

Proposals for television systems emerged in the US and Europe at almost the same time in the late 1920s. While the "high definition" systems remained a distant prospect for many years, television began to be used in the early 1930s. Today, television is an integral part of our daily lives.

Radio History Web Site

The earliest history of radio is largely unknown to the general public, and even, perhaps, to many educated engineers. Even if people recognize the role of early radio pioneers, such as Marconi or Lodge, few can tell us how radio works. Do you understand the nature of the technology? Do you understand how a signal travels through the air? Do you understand the basic principles of radio?

A web site authored by John Belfiore at the University of California, Berkeley, includes extensive details about the development of radio technology. The site features technical articles, interviews with radio engineers, and links to other radio-related resources.

Books


HUGHES, THOMAS P., TIMLAM BUDDEN AND JURGEN JOKCA, Elio Mau

THOMPSON, EMILY, "Is it Real or is it a Machine? American Heritage of Invention and Technology 12, no. 5 (Winter 1997): 51-56.


The conference then broke into a series of concurrent sessions and other Edison-related events in all media imaginable, such as showing of films and performances by Edison impersonators. Highlights included a new virtual reality recreation at the Henry Ford Museum in Michigan, and a real tour of the Edison's historic West Orange, New Jersey, home.

The conference ended with a summery keynote by former Edison staff member Jay Pershing. Overall, it was a great success in bringing together a wide range of Edison enthusiasts and making a number of important points—the most interesting of which is the way in which Edison has moved from an American icon in a way usual reserved for the Founding Fathers and major political figures such as J. Edgar Hoover, and in the field of science and technology it is important to be informed on social, political and educational debates into the 21st century.

OTHER IEEE HISTORICAL EVENTS

The Greens has done an admirable job in compiling their own history. This will be a valuable resource for students of the computer industry in the United States. There are also the invaluable "History of Computing Education" and "History of Computing in Education," both of which are freely available on the Web at www.ece. cornell.edu/IEEE_History.

THE IEEE HISTORICAL COMMITTEE

The IEEE History Committee is dedicated to preserving the history of IEEE and its members. The committee is responsible for curating and archiving materials related to the history of IEEE, including publications, documents, and other materials relevant to the history of IEEE. The committee is also responsible for organizing and facilitating historical events and activities, including conferences, seminars, and publications. The committee is made up of volunteers from around the world who are dedicated to preserving the history of IEEE and ensuring that it is accessible to all IEEE members and the public.

The committee is also responsible for producing the IEEE History Notebook, a biannual publication that highlights recent developments in the history of IEEE. The committee is also responsible for organizing and facilitating historical events and activities, including conferences, seminars, and publications. The committee is made up of volunteers from around the world who are dedicated to preserving the history of IEEE and ensuring that it is accessible to all IEEE members and the public.

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John Bryant, 77
The IEEE History Center is saddened to announce the death of one of its most valued supporters, John H. Bryant, on June 10, 1997. Bryant, who was a pioneer in the miniaturization of microwave systems, had an active interest in the history of radar and other electrical technologies.

Bryant was born in Baird, Texas on April 15, 1920, and received a Bachelor of Science degree from A&M University of Texas in 1942. He did graduate work at the University of Illinois, receiving a Master’s degree in 1947 and a Ph.D. in 1949. He worked for IT&T and the Bendix Corporation until 1962 when he cofounded Omni Spectra, Inc. (now part of AMP, Inc.) In 1978 he joined the University of Michigan’s Department of Electrical Engineering and Computer Science. Bryant was a fellow of the IEEE, winner of the 1996 Microwave Theory and Techniques Society’s Career Award, the Aerospace and Electronics Systems Society’s 1997 Pioneer Award, and holder of 14 U.S. patents.

Bryant, a long-time member of the IEEE History Committee, was one of the Institute’s most active volunteers in history. He was the driving force behind the History Center’s 1993 publication Rad Lab: Oral Histories Documenting World War II Activities at the MIT Radiation Laboratory, and was instrumental in executing the project through his efforts at planning, interviewing, and editing. He published a book on Heinrich Hertz and was also heavily involved with the Historical Electronics Museum in Baltimore, Maryland.

Bryant was an inspiration for the staff at the IEEE History Center and we will miss him dearly.

Tympas Wins 97-98 Fellowship
The 1997-98 IEEE Fellowship in the History of Electrical Technology has been awarded to Aristotle Tympas, a graduate student writing his Ph.D. dissertation at Georgia Institute of Technology’s School of History, Technology, and Society.

Tympas’s research concerns the transition from analog to digital computing. Noting the long standing goal of computing historians to explain the success of IBM over business firms that were early leaders in computing technology in the period immediately following World War II, Tympas questions what he describes as “the standard assumption that considers tabulators and desk calculators as representative of the whole of computing technologies during the first half of the twentieth century.” He focuses instead on computing technologies used in the context of telegraphy, telephony, electrification, and gunnery. His analysis of these devices, and the technical writing about them, has stimulated another theme in his research: the evolution of the analog/digital demarcation in computing, which Tympas argues is a recent development not predicted by pre-war ideologies of computing.

Tympas has published portions of his research in the IEEE Annals of the History of Computing and was a participant at the History Center’s recent conference on the history of computing held in Williamsburg, Virginia (see pg. 1).

The IEEE Fellowship in the History of Electrical Technology is made possible by a grant from the IEEE Life Member Fund.

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

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