

Taskforce Tackles Software History

Trustees of the Charles Babbage Foundation meeting in Minneapolis on September 15 created a Software Task Force to initiate an effort in the history of software by CBI.

CBF Chair James W. Cortada appointed Trustee George Glaser to head the task force. A former executive of both the American Federation of Information Processing Societies and the International Federation for Information Processing (IFIP), Mr. Glaser has also served in leadership positions in the Data Processing Management Association and the Association for Computing Machinery.

The Software Task Force is charged with identifying and structuring opportunities for further research and analysis in the history of software. Its first meeting was held on January 28 at Stanford University.

A distinguished group of individuals have agreed to serve on the Task Force. They include Henry Lowood, Stanford University Library's Curator in the History of Science and Technology and Director of the "Stanford and the Silicon Valley Project;" Professor Paul Edwards, Senior Research Scholar and Lecturer in the Program in Science, Technology, and Society, and Director, Information Technology & Society Project at Stanford University; William Coleman III, Chairman and CEO of BEA Systems, Inc.; and Keith Uncapher, Senior Vice President of the Corporation for National Research Initiatives. CBF Chair Jim Cortada, Senior Consultant with IBM Consulting Services, North America, and CBI Director Bob Seidel are *ex-officio* members of the task force.

The task force was conceived in response to Trustee concerns that the history of

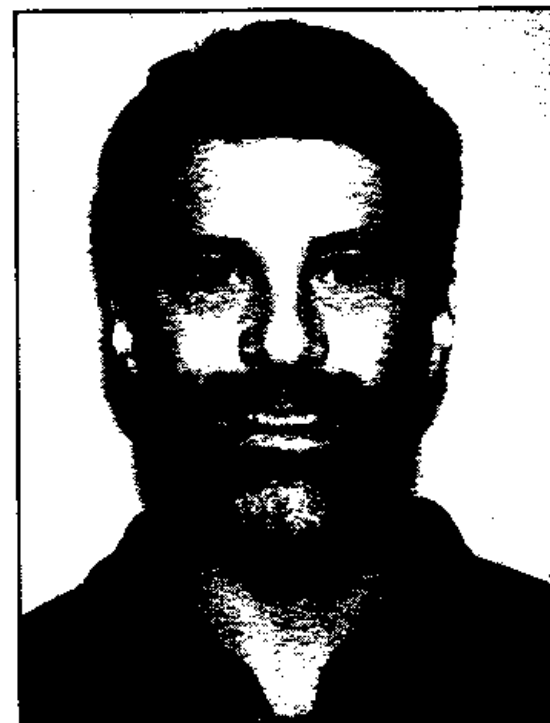
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Computing in the Biological Sciences

Joel Hagen, a professor of biology at Radford University, is spending the 1997-1998 academic year on sabbatical at CBI. Joel is studying the reception and use of computers by scientists in various biological disciplines during the 1950s and 60s, as part of CBI's project, "The Computer as a Scientific Instrument." His research builds on earlier work sponsored by the NSF in history of ecology, taxonomy, evolutionary biology, and his book, *An Entangled Bank* (Rutgers University Press, 1992).

Currently, Joel is investigating how taxonomists used computers for classification and phylogenetic reconstruction, biochemists used computers for sequencing and 3-D structural analysis of proteins, and ecologists used them for ecosystem modeling. These case studies will provide a basis for drawing comparisons among quite different communities of scientists as well as interesting areas of overlap: For example, some biochemists who were interested primarily in analysis of protein structure also had a secondary interest in using the results of their research to construct phylogenetic trees. Their research programs and uses of computers to generate hypothetical phylogenetic trees overlapped with those of more traditional taxonomists who were also interested in phylogeny.

Joel benefited from access to documentary resources at CBI, and frequent interaction with members of the history and philosophy of science program at the University of Minnesota.



Joel Hagen

CBI and Los Alamos Examine Nonlinear Computing

CBI Associate Director Anne Fitzpatrick is working with the Center for Nonlinear Studies at Los Alamos National Laboratory (LANL) to investigate the history of nonlinear computing.

Well known as one of the birthplaces of nonlinear science, Los Alamos has awarded Fitzpatrick a research contract to examine the roots and growth of nonlinear computing beginning with the work of Enrico Fermi, Stanislaw Ulam, and John Pasta, up through the more recent accomplishments of Mitchell Feigenbaum, David Campbell, and others associated with LANL. The project will begin in summer 1998 and continue for two years.



HSS and SHOT Offer Mixed Fare

The History of Science Society (HSS) and the Society for History of Technology (SHOT) held their annual meetings in Southern California. The SHOT meeting, held in Pasadena in October, featured a session entitled "Controlling the Computer," chaired by CBI Director Bob Seidel. Walter Kaiser, of the Lehrstuhl für Geschichte der Technik in Aachen, Germany, provided a stimulating comment on papers by three young scholars in the history of computing.

Eric S. Boyles, a graduate student at the University of Minnesota, described "The Recasting of Electronic Data Processing Through Time Sharing, 1960-1975." Eric examined the response of the

corporate community to the promise of complete command and control through management information systems and the failure of Time Sharing mainframe systems to fulfill that promise. His talk was part of a Ph.D. thesis which is being written under the direction of Arthur Norberg, CBI's former director.

Amy Ione, an independent scholar from Berkeley, presented "Imaginative, Applied, and Virtual Technologies" associated with the introduction of computing into such fields as art, medical imaging. Her talk was profusely illustrated with computer images.

Ted Friedman of Duke University gave an illustrated lecture on "Apples 1984: The Introduction of the Macintosh in the Cultural History of PCs," in which he described and analyzed the famous Super Bowl Commercial that launched the Macintosh.

Aristotle Tympanos of Georgia Tech presented his analysis of "Essentialist Ideology and Technological Demarcation; Analog Computing as the Invention of Digital Computing."

In addition to chairing a session, Bob Seidel hosted the Society's annual Computer History and Information Processing Special Interest (CHIPS) Group lunch, where a number of upcoming meeting announcements were made. Many of these are listed in this issue of the CBI Newsletter.

The History of Science Society's annual meeting offered Lillian Hoddeson's intriguing account of "The Invention of the Transistor and the Reality of the Hole" based upon her new book on the transistor, *Crystal Fire* (1997), and Paul Edwards's "Nerd Worlds: Computer Hackers, Unofficial Culture, and Masculine Identities."

CHARLES BABBAGE INSTITUTE NEWSLETTER

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CBI Session at 1998 AAAS Meeting

CBI is sponsoring a symposium titled, "Government, Academia, and Industry in the History of Computing in the Sciences" at the upcoming American Association for the Advancement of Science (AAAS) Meeting, to be held February 12-17 at the Philadelphia Convention Center.

Bob Seidel will chair and several Charles Babbage Foundation Trustees and CBI Associates will present papers. Saul Amarel will discuss "DARPA and the HPCC: A Case in Government Sponsored Technological Innovation." Gerald Estrin will talk about the "Academic Roots of the Information Revolution: 1950-2000." CBI Chairman Jim Cortada will present, "How Computing Became Available: The Role of the Information Industry as Supplier," and former CBI Associate Director Bill Aspray will explore the "History of Academic Computer Science in the United States."

Software . . . Continued from page 1

software has been insufficiently cultivated. Readers may recall the National Software Archives Initiative (see CBI Newsletters for Winter 1993 and Winter 1994). CBI has significant collections in the history of software, including the records of the Conference on Data Systems Languages, the History of Programming Languages Conference, the International Summer School on Structured Programming and Program Structures, Calvin N. Mooers, USE, Inc., as well as many other collections.

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Tibor Fabian

Tibor Fabian Dies at Age 74

CBI Trustee and co-founder Tibor Fabian, died at age 74 on December 11, 1997, after a long illness.

Born in Hungary, Fabian came to the United States in 1949 to UCLA on a fellowship. He became a Research Assistant at UCLA's Institute of Industrial Relations in 1950. Between 1952 and 1958, he was associated with UCLA's Management Sciences Research Project. He also taught at the university's Graduate School of Management and received his second Doctorate in Economics at UCLA as well. Fabian was a visiting faculty member of Case Western Reserve University (1957-1958); Consultant, The Rand Corporation (1957-1966); and Director of Operations Research, Coopers and Lybrand (1958-1961).

In 1961 Fabian founded Mathematica, Inc., with several other Princeton mathematicians and economists. The company performed the first economic analysis of the performing arts and used game theory to analyze disarmament negotiations with the Soviet Union.

He is survived by his wife, Dorothy, and two sons, Timothy, of Pittsburgh, and Jonathan, of New York. □

Meetings Around the World Focus on the History of Computing

A series of meetings in the history of computing are scheduled for this year. The Tomash Fellows Conference will be held on September 10-12, 1998 at the Seven Pines Inn in Lewis, Wisconsin, which has a place on the National Register of Historic Sites. Charles Babbage Institute and Tomash Fellows will join CBI staff for a three-day retreat to discuss the history of scientific computing. (See Newsletter 19:3 (Spring 1997) page 1).

The fifth history of computing conference at Toulouse, France, 28-30 April 1998, will focus on: 1. computers and aerospace; 2. communication between people and machines/systems; 3. history of computers and software houses; 4. norms, normalization, and patents.

To obtain registration forms, contact: Joelle Courbieres, ENSEEIHT, Formation Continue-2 rue Camichel BP7122-F-31071 Toulouse Cedex 7; Tel. +33 (0)5 61 58 83 49 (info. available in English); Fax. +33 (0)5 61 58 83 93 e-mail: courbieres@enseeiht.fr or fc@enseeiht.fr

On 16-17 June 1998, Manchester is celebrating the 50th anniversary of EDSAC, the first electronic stored-program computer by examining the history of computing, including such subjects as diverse as mechanical practices of calculation, the construction of mathematical tables, the historiography of computing, the application of computers by British scientists, and the history of computer games. The British Society for History of Science is co-sponsoring the conference.

On the 16th and the morning of the 17th of June, there will be a series of papers by historians offering new perspectives on the history of computing. Provisional speakers include Martin Campbell-Kelly and Mary Croarken, Stephen Johnston, Doron Swade, Rhodri Hayward, Ross Hamilton, Jon Agar, B. Jack Copeland, Chris Burton, and Bob Seidel.

On June 17th, the rebuilt Small-Scale Experimental Machine, a replica of the first electronic stored-program computer will be switched on at Bridgewater Hall. Other events are also being planned: see [\[manatee.cs.man.ac.uk/computer50/\]\(http://manatee.cs.man.ac.uk/computer50/\) or, for more information on the BSHS conference please contact Dr Jon Agar, CHSTM, Mathematics Tower, Manchester University, Oxford Road, Manchester M13 9PL. Tel: 0161 275 5845. Fax: 0161 275 5699. Email: \[agar@fs4.ma.man.ac.uk\]\(mailto:agar@fs4.ma.man.ac.uk\).](http://</p></div><div data-bbox=)

An International Conference on the History of Computing is planned for August 14-16, 1998, at the Heinz Nixdorf Museums Forum, Paderborn Germany to discuss not only the cultural and scientific environment which lead to the construction of early computing machines, their actual design and inner workings. The papers for this Conference will be published in a book with the tentative title "The First Computers -- Structure and Programming" (Springer-Verlag).

The main talks will be given by members of early computers' reconstruction teams (ABC, Mark I) or by members of simulation teams (Z1, ENIAC). A call for papers was issued in the fall of 1997 requesting contributions on the architecture and programming of early computers, the lives and work of the pioneers of computing, the reconstruction of computing instruments, the first commercial computers, and the origins of abstract models of computation. For further information contact the organizers: Paul Rojas (e-mail: rojas@inf.fu-berlin.de, Tel: ++49/30/83875130), Ulf Hashagen, HNF, Paderborn (e-mail: uhashagen@hnf.de, or Goetz Widiger, Berlin (e-mail: widiger@inf.fu-berlin.de).

Finally, Paul Ceruzzi reports that The annual meeting of the Society for the History of Technology (SHOT) will be held in Baltimore in mid-October. If there is enough interest in a session on the history of computing, it could be sponsored by the CHIPS (Computer History & Information Processing Special Interest Group) and thereby have a better chance of being accepted. If readers have suggestions for a paper, send them to Paul Ceruzzi, Space Science & Exploration, National Air and Space Museum, Washington, DC. Email: NASEM001@SIVM.SLEDU. □

Recent Publications

Aspray, William. "The Intel Microprocessor: What Constituted Invention?" *IEEE Annals of the History of Computing*. 19:3(1997),4-15.

Baber, Robert L. "Comparison of Electrical 'Engineering' of Heaviside's Times and Software 'Engineering' of our Times." *IEEE Annals of the History of Computing*. 19:4(1997),5-17.

Barnes, Susan B. "Douglas Carl Engelbart: Developing the Underlying Concepts for Contemporary Computing." *IEEE Annals of the History of Computing*. 19:3(1997),16-26.

Cortada, James W. "Economic Preconditions that made Possible Application of Commercial Computing in the United States." *IEEE Annals of the History of Computing*. 19:3(1997),27-40.

Eulenhofner, Peter. *Informatics as Cultural Development: Case Studies from the Social History of Information Technology*. Berlin: Technische Universitat Berlin, Fachbereich 13, Informatik, 1997.

Grenia, Mark W. *History of Computing: An Encyclopedia of the People and Machines that Made Computer History*. (Software). Lexicon Services, 1997.

Grier, David Alan. "Gertrude Blanch of the Mathematical Tables Project." *IEEE Annals of the History of Computing*. 19:4(1997),18-27.

Grossman, Wendy, ed. *Remembering the Future: Interviews from Personal Computer World*. Springer Verlag, 1997.

Heide, Lars. "Shaping a Technology: American Punched Card Systems, 1880-1914." *IEEE Annals of the History of Computing*. 19:4(1997),28-41.

Johnson, Luanne (James). "A View from the 1960's: How the Software Industry Began." *IEEE Annals of the History of Computing*. 20:1(1998),36-42.

Jortberg, Charles A. *The First Computers* Minneapolis: Abdo and Daughters, 1997.

Kidder, Tracy. *The Soul of a New Machine*. New York: Modern Library, 1997.

King, Jane, and William A. Shelley. "A Family History of Honeywell's Large-Scale

Computer Systems." *IEEE Annals of the History of Computing*. 19:4(1997),42-46.

MacKenzie, Donald, and Garrel Pottinger. "Mathematics, Technology, and Trust: Formal Verification, Computer Security, and the U.S. Military." *IEEE Annals of the History of Computing*. 19:3(1997),41-59.

Mainzer, Klaus. *Computer, neue Flugel des Geistes?: die Evolution Computergestutzter Technik, Wissenschaft, Kultur und Philosophie*. Berlin: W. de Gruyter, 1995.

Malinkovskii, Boris Nikolaevich. *Istoriia Vychislitelnoi Teckhniki v Litsakh*. Kiev: KIT, 1995.

Northrup, Mary. *American Computer Pioneers*. Springfield, NJ: Enslow Publishers, 1998.

Postley, John A. "Mark IV: Evolution of the Software Product." *IEEE Annals of the History of Computing*. 20:1(1998),43-50.

Rawlins, Gregory J.E. *Slaves of the Machine: The Quickening of Computer Technology*. Cambridge, MA: MIT Press, 1997.

Reid, Robert. *Architects of the Web: 1000 Days that Built the Future of Business*. New York: John Wiley and Sons, c1997.

Rojas, Paul. *Sixty Years of Computation: The Machines of Konrad Zuse*. Berlin: Konrad-Zuse-Zentrum fur Informationstechnik Berlin, 1996.

Rowland, Wade D. *Spirit of the Web: The Age of Information from Telegraph to Internetformation*. Somerville House Books, 1997.

Speiser, Ambros P. "IBM Research Laboratory Zurich: The Early Years." *IEEE Annals of the History of Computing*. 20:1(1998),15-28.

Spencer, Donald D. *Great Men and Women of Computing*. Ormond Beach, FL: Camelot Pub. Co., 1996.

Spencer, Donald D. *The Timetable of Computers: A Chronology of the Most Important People and Events in the History of Computers*. Ormond Beach, FL: Camelot Pub. Co., 1997.

Stierhoff, George C., and Alfred G. Davis. "A History of the IBM Systems Journal."

Computing and the Hydrogen Bomb

Associate Director Anne Fitzpatrick attended the Society for Philosophy and Technology (SPT) annual meeting in Dusseldorf, Germany in September 1997. SPT was founded to encourage philosophical and historical studies of the impact of technology on science and society.

In her paper, "Teller's Technical Nemeses: The American Hydrogen Bomb and its Development Within a Technological Infrastructure," Fitzpatrick analyzed the various technological bottlenecks encountered by Los Alamos scientists to the postwar thermonuclear weapons research program.

Computing, Fitzpatrick argued, was among the most prominent of obstacles to thermonuclear weapons development through the early 1950's. □

IEEE Annals of the History of Computing. 20:1(1998),29-35.

Tympas, Aristotelis. "Between the Mechanical Calculator and the Electronic Computer: The History of the Electrical Analyzer and the Historiography of Computing." M.S. Thesis. Georgia Institute of Technology, 1995.

Wallace, James. *Overdrive: Bill Gates and the Race to Control Cyberspace*. New York: James Wiley, c1997.

Williams, Michael R. *A History of Computing Technology* (Rev ed.). Los Alamitos, CA: IEEE Computer Society Press, 1997.

Wolcott, Peter, and Mikhail N. Dorojevets. "The Institute of Precision Mechanics and Computer Technology and the El'brus Family of High-Speed Computers." *IEEE Annals of the History of Computing*. 20:1(1998),4-14.

Yates, JoAnne. "Early Interactions Between the Life Insurance and Computer Industries." *IEEE Annals of the History of Computing*. 19:3(1997),60-73. □

Join the Friends of the Charles Babbage Institute

The Charles Babbage Institute (CBI) is the only academic research center dedicated to the history of information processing. In addition to publishing the *CBI Newsletter*, it conducts historical research to identify and interpret significant episodes in the history of information processing and its impact on society. CBI also seeks important collections of documents relating to the history of computing, and interviews with key individuals in the development of computers and information processing.

Support Collections

CBI's large collection of historical materials provides the raw material of future history. It is used by historians around the world. In addition to the records of computer scientists, industrial organizations, and professional associations, it includes more than 100,000 images and interviews with 300 computer pioneers of the information processing field.

CBI has led the development of archival

methods in the field, encouraging its documentation in industry and academe and publishing the results of national surveys and methodological research in the study of large high-technology firms. It is also investigating methods of capturing electronic archives, such as e-mail and data files.

Your donation will help us preserve the records of the field, an ever-growing repository of information of interest to business historians, historians of science and technology, and other students of the information age.

Support Training

CBI awards the Adelle and Erwin Tomash Fellowship in the History of Information Processing to scholars interested in the field. Its recipients have become leading contributors to the history of computing. Your donation will help sustain this program of support in graduate education.

Support Publication

CBI has published a collection of rare

monographs, conference proceedings, manuals, government reports and books that help document the history of information processing and are of considerable interest to scholars.

CBI's Newsletter provides information about current activities in the field, bibliographies, and finding aids, many of which are available on the Internet as well as in hard copy.

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Your support can make an important contribution to the understanding of a dynamic field whose history needs to be captured before it is lost. Please fill out the attached form and join our Friends today.

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Stanford Libraries Receive Apple Computer Collections

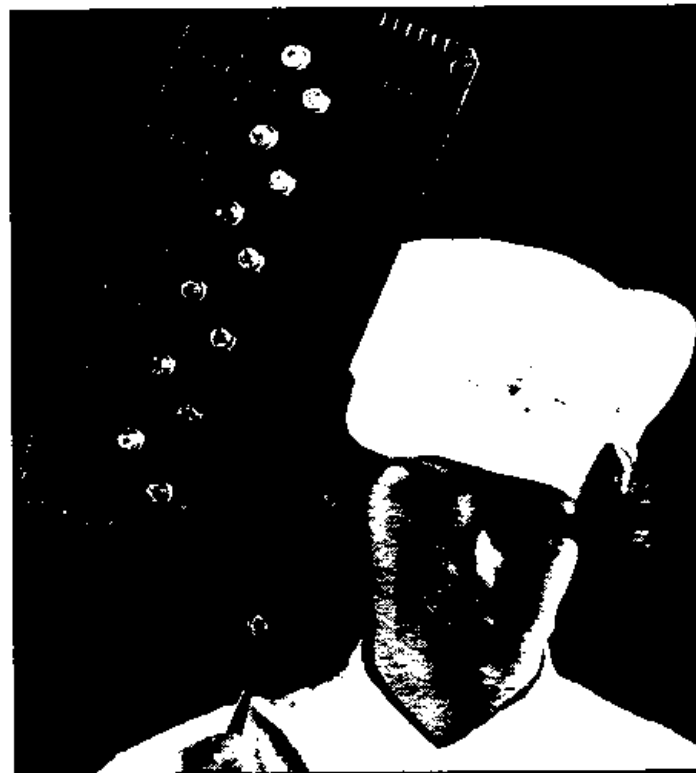
In November the Stanford University Libraries acquired the museum and historical collections of Apple Computer, Inc. The collection, which includes documents, hardware, software, videotapes, memorabilia, and artifacts, was originally intended for an Apple museum which was never built.

At Stanford the collection will be housed in the special collections department of Green Library. Inventories and finding aids for researchers will be prepared during 1998.

Along with the museum collection, Apple is giving Stanford historical materials from the now closed Apple corporate library in Cupertino.

These historical materials include book and periodical collections about Apple computers and software, user group newsletters, artifacts, press releases, and speeches, and records from the Apple Library Users Group and the Apple Library of Tomorrow program.

50 Years Ago: The Transistor



The point contact transistor, a fundamental technology in the development of modern computers, was announced at Bell Laboratories in December, 1947. The inventors, John Bardeen, Walter Brattain, and William Shockley, received the Nobel Prize in physics for their accomplishment, which ultimately enabled computer designers to replace the tens of thousands of vacuum tubes used in early machines with transistors. Like the integrated circuits which it preceded, transistors reduced the size of computers, but they did not come into common use until the late 1950s, when IBM made use of them in its Stretch supercomputer.

Pictured here is an RCA technician comparing a circuit board containing transistors and resistors to its successor, the silicon chip.

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