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CENTER FOR THE HISTORY OF INFORMATION TECHNOLOGY

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The Charles Babbage Institute for the History of Information Technology is sponsored by the University of Minnesota and the information technology community.

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CBI Annual Report

July 1, 2003 to June 30, 2004

For CBI, fiscal year 2004 was a year of completing long-term projects and beginning new ones. CBI Associate Director Jeffrey Yost and Software History Project Manager Philip Frana successfully closed the National Science Foundation-sponsored Software History Project with products that set a new standard in the history of software. MIT Press accepted CBI Director Arthur Norberg's study of Engineering Research Associates, Eckert-Mauchly Computer Corporation, and Remington Rand Corporation, and scheduled publication of the book for June 2005. Processing of the William Norris Papers and the Control Data Corporation Collection came to completion under the able direction of CBI Project Archivist Maria Plonski. A number of other collections became available during the year because of the work by CBI Assistant Archivist Carrie Seib and the efforts of several student employees.

CBI has a number of projects underway. Yost is completing a book surveying the computer industry from the origin of digital computing to the present to be published early next year. He is also engaged in writing a book chapter on the history of computer security, as well as an article-length study of computer science at the RAND Corporation. CBI Archivist Elisabeth Kaplan and Seib are collaborating with a team from the University of Michigan School of Information (Margaret Hedstrom and Dharma Fowler) on an NHPRC-sponsored born digital records study, an attempt to develop a model for developing electronic records capacities in the small archival repository.

CBI stands as a tribute to the institutions, organizations, and individuals who have supported it over the last quarter century. In that time, CBI has assembled an unparalleled archival collection for research on the history of information technology and its impact. Research using this collection, by CBI staff, CBI/Tomash Fellows, and many others outside the Institute, has increased our understanding of this history.

Historical Research

Software History Project Completed

In November 2003, the Charles Babbage Institute completed its National Science Foundation (NSF)-sponsored project "Building a Future for Software History" (NSF 9979981). Some elements of this Web-based project will continue in the future in order to further enhance the infrastructure for the development of the history of software through disseminating scholarship in the field in the peer-reviewed scholarly software history journal, *Iterations: An Interdisciplinary Journal of Software History* and updating reference resources (such as the CBI software history online bibliographic resource).

The project consisted of three primary components: working with the software community to create an online dictionary of software history, initiating an electronic scholarly journal on software history, and conducting 32 research-grade oral histories with pioneers of software history. On top of completing these objectives, CBI developed a major online software history bibliography.

Software History Dictionary

Most of the dictionary entries were researched and written at CBI. The end result is an online reference resource that contains more than 200 one to three page entries that provide not only an explanation of software terminology and technology, but also an historical analysis explicating continuity and change over time. The areas of focus within the software field were carefully chosen to supplement existing reference sources. Thus only a small number of entries were produced on programming languages, while many more focus on software technologies and techniques in graphics, scientific applications, business applications, and databases. Committees made up of experts (five to nine individuals) were assembled in nine fundamental areas of software, and these individuals were utilized for expert advice and vetting of the entries. The dictionary is available online at <http://www.cbi.umn.edu/shp/entries/dictionaryindex.html>

Iterations: An Interdisciplinary Journal of Software History Volume 2, 2003

Volume 2 contains Arthur L. Norberg's study of early software development at the Eckert-Mauchly Computer Corporation, Jeffrey R. Kuester and Ann K. Moceyuna's article on the history of software patents, and Elisabeth van Meer's exploration of PLATO and the commitment to social responsibility demonstrated at the Control Data Corporation. As originally planned, CBI is continuing the publication of *Iterations* now that the NSF-funded portion of the project has ended. Volume 3 (2004) is underway. *Iterations* is available at <http://www.cbi.umn.edu/iterations/index.html>

Oral Histories

As part of the software history project, 35 oral histories (about 10 percent more than planned in the project proposal) were conducted, transcribed, and cataloged. Most are already available on the Institute's Web site; the remainder soon will be, as they make their way through the final editing process and are loaded onto the oral history database.

During the last year, CBI added to the list the names of:

Charles W. Bachman
Henry N. Camp
Dick Coupe
John Cullinane
Roger Dahlen
Raymond Lorie
Vladimir Slamecka

H. Kenneth Walker
Willis Ware
Stan Williams
Kenneth W. Kolence
Laszlo A. Belady
Jim Gray
Scott Gaff
Carl Machover
Gary Durbin
John Maguire
Frank Lautenberg

CBI's Oral Histories are available at <http://www.cbi.umn.edu/oh/>

Software History Bibliography

The software history bibliography contains more than 2,500 resources on software history. Citations include books, articles, reports, and archival collections. Some resources predate available online indexes, and others are not searchable or difficult to search in indexes for a variety of reasons. The bibliography is available at: <http://www.cbi.umn.edu/shp/bibliography.html>

The Software History Project represented an intensified effort to develop new resources (software oral histories, a historical software dictionary, and software bibliography) to advance understanding and research in the history of software, as well as build a continuing source for dissemination of scholarship in the field: *Iterations*. The project fits within and adds to a long existing commitment at CBI in the history of software technology and the software industry, both in terms of research and efforts to advance our collections in this area.

CBI/Tomash Fellows

Eden Miller, 2003-2004 Fellow

MIT's Eden Miller has had a highly distinguished year as the Adelle and Erwin Tomash Fellow. She currently is completing her dissertation on information technology and state ideological projects in the developing world—using the history of Chile's Cybersyn project as a primary case study. Miller has accepted an assistant faculty position at the School of Informatics at Indiana University that she will begin in 2005. The Tomash funding largely supported her research in Chile, which included examination of the holdings at the national library and the Chilean Engineering Institute. She also had the opportunity to conduct a number of oral histories that ranged from the CEO and founder of Chile's largest computer company SONDA, to IBM Chile employees who worked for the company during the 1960s and 1970s. In addition to presenting papers on her research at many prestigious events, she also published several articles, including "Freedom in Code: The Birth of the Chilean Free Software Movement," *ReVista Harvard Review of Latin America* (Spring 2004). She is working with exhibit curators Bruno

Latour and Peter Weibel in the design of an exhibit that will reconstruct the operations room from the Chilean Cybersyn Project at the ZKM Center for Digital Art and Media in Karlsruhe, Germany.

Ronald Frazzini, 2004-2005 Fellow

Ronald Frazzini, a doctoral candidate in the Program in the History of Science and Technology at the University of Minnesota, is the latest recipient of the Adelle and Erwin Tomash Fellowship. Mr. Frazzini is researching and writing a dissertation examining the technical and managerial history of the Italian informatics firm Olivetti S.P.A. in the decade and a half following the end of World War II. With this analysis Frazzini is seeking to elucidate on the origins of, but move beyond, the common "black box" approach to understanding early digital computer technology. In addition to his technical analysis he will study social, public, and economic elements of Olivetti's technology and place this within the context of the more extensive existing secondary literature on U.S. computer firms, particularly IBM. Mr. Frazzini plans two extended stays in Italy during the coming academic year. He has gained access to the Olivetti archives and will interview a number of major figures from the firm.

Archives

New Archival Collections

Redactron Corporation Records
ETA Corporation Records
Control Data Corporation Photographic Society Records

Collections Newly Processed and Available for Research

Norris Papers

The William C. Norris Papers provide a complement to the CDC records by documenting Norris' professional life and interests before and after his tenure as President and CEO of Control Data Corporation (1957-1986).

CDC Records

Donated in 1991, the Control Data Corporation records were not fully processed until this year, when an anonymous donor provided the resources to hire an 18-month project archivist to work on this very large collection. Significant integration of the information in the Norris Papers and the CDC Collection is now available, improving the research value of both collections

ERA Records

These materials were collected from various sources, which were collected/created during the course of daily work by employees of the company. The bulk of the collection is project files and technical information—Technical Reports (formal), Technical Memoranda (less formal information sharing). Primarily, they were collected by Warren

P. Burrell, who was involved in such projects as the ERA 1101, ERA 1103, the UNIVAC File Computer, and NIKE-X; Jay A. Kershaw, who contributed his day files and memoranda related to his work as peripherals manager on the Naval Tactical Data System at Sperry Univac as well as documentation of his work on other projects at Sperry Univac in the late 1950s and early 1960s; and by John Lindsay Hill, who gave his records containing reports, articles, correspondence, memoranda, presentations, engineering diagrams, photographs, and seminar notes and outlines related to Hill's work with Engineering Research Associates (ERA).

ADAPSO Records

The ADAPSO records were donated by the ITAA (Information Technology Association of America) in 2002. The materials provide documentation of the organization and its activities, beginning with its founding in 1961.

Milton Wessel Papers

CBI received a significant addition to this collection in 2003. These materials have been processed and the finding aid has been updated.

Diebold Associates Client Reports

John Diebold donated almost one thousand of Diebold & Associates' client reports to the CBI archives in 2002-2003. The company provided consulting services to dozens of large U.S. corporations representing a wide variety of industries, assessing whether these companies could make use of computers at all -- and if so, how to decide what to buy. The reports, dating from 1957 to 1990, will provide scholars with a detailed and panoramic view of the issues and solutions that industries and individual companies faced as computing grew to become an established part of the corporate landscape.

Reference Service

Patrons Served

During the year, CBI staff responded to inquiries from 254 individuals, representing a broad spectrum of national and international researchers. These responses resulted in 960 transactions that range from what we characterize as “quick reference” to time-intensive, complex research. Interestingly, this year has witnessed a slight dip in the number of unique users, compared to last year; at the same time, the number of transactions has increased. Using our Web site, visitors downloaded 3824 oral histories, topping last year's record download numbers. Also interesting to note is that the number of inquiries about CBI's audiovisual collections and requests for permission to publish images from the collections increased markedly this year.

Research highlights

Of the many reference and research inquiries this year, there are a few that stand out -- either because they bring new perspective, from disciplines such as rhetoric and critical theory, or refer to older collections. Others are of special interest because we begin to see what interest exists in some newer collecting areas. Just a few examples:

Professor David Hart, Kennedy School of Government, Harvard University, visited CBI in January to conduct research for a book on the influence of the high tech industry on shaping of public policy.

Professor Bernadette Longo, from the University of Minnesota's Department of Rhetoric, spent a considerable amount of time at CBI in the last year doing research for a biography of Edmund Berkeley.

Professor Lisa Gitelman, head of the Program in Media Studies at Catholic University, visited to conduct exploratory research on a project involving analysis of use of digital texts as historical records and changing notions of documents.

Professor Matt Kirschenbaum, who specializes in digital media at the University of Maryland, visited to use the Blake Archives collection, among others, for his research on perceptions about computer storage media in the 1950s-1960s, in preparation for a book on electronic textuality.

Professor Osamu Uda, Nihon University, Tokyo, Japan, visited CBI in March to conduct research on the history of the General Electric Computer Department, specifically regarding its relationship with the Stanford Research Institute and the development of ERMA.

CBI staff provided image research for several books, including in Arthur L. Norberg, *Computers and Commerce: A Study of Technology and Management at Eckert-Mauchly Computer Corporation, Engineering Research Associates, and Remington Rand, 1946-1957* (Cambridge: MIT Press, forthcoming) and the second volume of James W. Cortada's *The Digital Hand* (New York: Oxford University Press, forthcoming). CBI staff also provided assistance and materials for a major exhibit at Science Museum of Minnesota called, "Robots and Us: Where Humans Meet Machines."

Internet2 Research Project

In January 2004, CBI was awarded an 18 month grant from the National Historical Publications and Records Commission, the funding arm of the National Archives, to address the problem of selection, indexing, and preservation of historically valuable born digital records. Project partners are Internet2, the University of Minnesota Libraries IT Division, and graduate School of Information at the University of Michigan. Full documentation of the project is available on the CBI web site at <http://www.cbi.umn.edu/documentingi2/index.html>

Complementing CBI's experience in archival appraisal of records of information technology, the Institute is fortunate that each partner brings critical expertise and perspective: the University Libraries' expertise in digital libraries initiatives; and the School of Information's experience with research in electronic records appraisal, capture, and transfer.

Internet2 serves as an ideal case for the study of these issues. As a collaborative IT organization whose history is captured in a documentary materials most of which are born digital and dispersed, it provides the content for the project. Results of the project will include a blueprint for the development of an electronic records component of CBI's collecting scope and a set of principles for appraisal and acquisition of electronic records, designed to support other small scale repositories seeking to initiate an electronic records program in their own institutional settings.

The issue of born digital records is undoubtedly the most pressing concern facing the CBI archives, if we are to carry into the future our mission of collecting and preserving the historical record in this subject area. It is perhaps not an exaggeration to say that CBI's identity as a collecting institution will be profoundly affected by the outcome of this project.

Teaching

This year CBI staff taught two courses at the University of Minnesota within the Program in History of Science and Technology.

A graduate Seminar in History of Technology on Information Technology Issues
(Norberg)

An undergraduate/graduate lecture course on Technology and American Culture (Yost)

Publications

Three *CBI Newsletters*

Iterations, Volume 2 (2003)

Frana, Philip L., "Before the Web There Was Gopher" *IEEE Annals of the History of Computing* 26:1 (Jan.-March 2004): 20-41.

Norberg, Arthur L., "Table Making in Astronomy," in Martin Campbell-Kelly, et al, editors, *The History of Mathematical Tables from Sumer to Spreadsheets*, (Oxford University Press, 2003).

Norberg, Arthur L., "Software Development at the Eckert-Mauchly Computer Company Between 1947 and 1955," *Iterations*, Volume 2 (2003).

Yost, Jeffrey R., "The Computer Industry," in the *Encyclopedia of Business History* (New York: Facts on File, 2004).

Yost, Jeffrey R., "IBM," in the *Encyclopedia of Business History* (New York: Facts on File, 2004).

Participation in/with Conferences, Meetings, Advisory Committees, and Journals

Association for Computing Machinery History Advisory Committee (Kaplan)
American Archivist, Reviews Editor (Kaplan)
Bakken Museum, History of Science Advisory Panel (Yost)
Charles Babbage Foundation Annual Meeting (Norberg and Yost)
Chemical Heritage Foundation, Strategic Planning Advisory Committee (Yost)
Computer Science Colloquium Series (Norberg)
History and Philosophy of Science and Technology Colloquium Series (Yost)
IEEE Annals of the History of Computing, Editorial Board (Norberg)
IFIPS Working Group on the History of Computers (Yost)
Iterations: An Interdisciplinary Journal of Software History, Editor (Yost)
Iterations: An Interdisciplinary Journal of Software History, Associate Editor (Frana)
Lemelson Center for the History of Invention and Innovation Advisory Board (Kaplan)
Midwest Archives Conference (Kaplan and Seib)
Society for the History of Technology Annual Meeting (Yost and Frana)
Society of American Archivists Annual Meeting (Kaplan—Serving as Co-Chair of SAA Annual Meeting Program Committee, 2005; and Committee Member, 2004)
Software History Center's Personal Computing Software Conference (Yost)
University Libraries, First Fridays Lecture Series (Kaplan, Seib, and Plonski)
University Libraries, Libraries Issues Seminar on EAD (Seib)

Challenges for the Future

For CBI to maintain its edge, it needs to address several challenges. The continuing rapid growth of information technology and the information technology industries requires the institute to continue its aggressive collecting. CBI must do this in order to maintain broad representative documentation of all major areas of the field. CBI needs to augment its staff to handle the increased collections and expand historical research and interpretation of these and other materials. At the same time, CBI has to continue to be attentive to and build upon existing strengths, such as producing research grade oral histories, publishing scholarship, collaborating with other organizations in the field of history and information technology (both nationally and internationally), broadening our outreach to enhance our service as an information clearinghouse, and integrating CBI's resources and expertise to develop new courses to further understanding and education of IT history and related issues at the University of Minnesota. To achieve these new and continuing goals, annual fundraising is a necessity and levels need to be increased.

“Documenting Internet2” Update

In the Winter 2004 issue of the *CBI Newsletter* CBI announced the launch of a new project, “Documenting Internet2: A Collaborative Model for Developing Electronic Records Capacities in the Small Archival Repository,” supported by the National Historical Publications and Records Commission, the funding arm of the National Archives. This 18-month project, is now in its sixth month.

In February, University of Michigan School of Information (SI) graduate student Dharma Fowler began intensive secondary research on Internet2 from its founding to the present. From this research she prepared a setting description: a detailed examination of the organization that addresses standard factors such as mission, governance, and administrative framework. This setting description serves as the basis for our documentation strategy.

Carrie Seib developed and launched a project web site at CBI. Beth Kaplan prepared an announcement of the project for the *Midwest Archives Newsletter* and an article for the *CBI Newsletter*. Fowler used the University of Michigan’s “Coursetools” system to develop a web-based space for sharing and archiving project communications.

In March, Kaplan, Fowler, and SI faculty member Margaret Hedstrom met in Ann Arbor with advisory board member Barbara Nanzig and toured I2. The main goal of this meeting was to get acquainted and to make explicit expectations on the part of project staff and I2. The meeting was a great success: Nanzig noted that I2 has saved documentation of its activities over the years, and pledged to provide Fowler with access to all paper and electronic materials at Internet2, as well as the opportunity to interview key staff. This face to face meeting confirmed that our project goals meshed well with Nanzig’s expectation that I2 would receive an assessment of what documentation is of enduring value and how best to make it accessible for internal purposes. Nanzig worked with I2 staff to pave the way for an onsite project researcher by distributing a project summary and making sure staff on all levels were informed of the organization’s commitment to the project.

Fowler began full-time onsite work at I2 in May, conducting interviews on record keeping practices, surveying paper and electronic records, and posting regular reports on findings to the internal project web site. Throughout the spring, Hedstrom, Fowler, and Kaplan evaluated progress via email and conference calls.

The first Advisory Board meeting was held in Minneapolis on July 15 and July 16, 2004. Its purpose was to articulate and examine thoroughly the theoretical and intellectual underpinnings of the grant, and to evaluate the practical components of the project work plan. The meeting was tremendously productive. The board brings expertise and perspectives from a variety of stakeholders: a historian and potential user of such a collection, a digital libraries expert, a representative of the organization being documenting (the records creator), an electronic records archivist, a specialist in

documenting science and technology, and an institutional archivist with electronic records experience. In brief, Fowler reported on activities and progress and barriers encountered so far. Hedstrom and Kaplan presented assessments of findings so far and posed questions for the advisory board about next steps. Board members shared their insights. A shift in emphasis on project goals was discussed, placing more emphasis on appraisal and retrieval issues and less on issues relating to research on descriptive standards and authenticity. Opportunities to present project findings at a variety of professional conferences were discussed. It was agreed that project staff would prepare a presentation for I2 staff to solicit their perspectives. The next board meeting will be scheduled for January 2005.

While we are far from alone in our concerns about archiving born digital records, these issues have a special significance, and a special urgency, for CBI, relative to our more traditional collecting activities. As we seek to carry into the future our mission of collecting and preserving the historical record of our subject area, CBI's identity as a collecting institution will depend upon the outcome of this project.

Full documentation of the project is available on the CBI web site at <http://www.cbi.umn.edu/documentingi2/index.html>

Elisabeth Kaplan

Frana Accepts Faculty Position at University of Central Arkansas

Dr. Philip Frana has recently joined the faculty of the Honors College of University of Central Arkansas as an assistant professor of science studies. He will teach courses related to information technology as well as other areas of the history and social study of science and technology.

Frana came to the Charles Babbage Institute in May 2000 as a post-doctoral fellow and Software History Project Manager on CBI's NSF-sponsored project, "Building A Future for Software History." Frana served on the project for three and half years, and was critical to its success. He was instrumental in all of the components of the project: an online historical dictionary of software history terminology, an oral history initiative to interview pioneering figures in software history, and *Iterations: An Interdisciplinary Journal of Software History*, and the creation of a major online bibliographic resource on software history.

In addition to Frana excellent work on “Building a Future for Software History,” a project geared to produce online resources, he produced significant scholarship on the history of computing, including an article on the development and use of Internet Gopher published in the *IEEE Annals of the History of Computing* (V.26 No. 1, Jan.-Mar. 2004). Additionally, Frana contributed to the development of the broader field through participating in a number of conferences, which included presenting at the American Historical Association.

CBI’s Software History Project officially concluded in November 2003, and was highlighted by the National Science Foundation for its accomplishments. Over the past semester Frana has served as a research fellow of the Institute, and has worked on completing his book on the history of medical informatics.

Prior to coming to CBI, Frana was a visiting assistant professor at Iowa State University, where he completed his Ph.D. in the history of technology and science in 1999.

All of us at CBI are grateful to Frana for his quality work and dedicated service to the Institute. We wish him and his family all the best in his new position and their new home.

Jeffrey R. Yost

News from the Archives

NHPRC Grant Advisory Board Meeting Held

We have now completed the first third of the “Documenting Internet2” project, culminating in a meeting of all project staff and the advisory board in Minneapolis in July. (Please see article “ ‘Documenting Internet2 Update’ ” in this issue)

Gift to CBI

Mrs. Helen F. McRoberts of Ames Iowa has donated a third edition of Charles Babbage’s *On the Economy of Machinery and Manufacture* (London: Knight, 1832). The book is inscribed by the author. The gift honors Iowa State University faculty members Ben and Elisabeth Willis and Keith L. McRoberts and will be added to the Babbage materials already at CBI. These include a set of microfilm of Babbages’s papers, donated by Erwin Tomash, and reprints of several publications. Babbage’s manuscripts are owned by the Science Museum of London.

Staff News

University Libraries' Residency Program Comes to CBI -- CBI welcomes Kate Flanagan, a participant in the University of Minnesota Libraries' resident librarian program, to a six-

month rotation in the Special Collection and Archives. After spending her first rotation in the Veterinary Medical Library, Kate's home base is now in the Charles Babbage Institute. Here she will work on several projects, including processing collections and preparing finding aids. Kate will also get an introduction to reference in the archives setting.

In June, Maria Plonski completed her 18-month project to process the CDC and William Norris papers. The finding aids for those collections will be mounted on the CBI website in the next few weeks. Maria is now working for the Minnesota Historical Society in its state archives program.

Assistant archivist Carrie Seib chaired a session at the Midwest Archives Conference in April on the 18-month EAD implementation project at the University of Minnesota Libraries. CBI finding aids marked up in EAD will be available on the CBI website very soon.

New resources available

Oral history interviews with Donn Parker and John Cullinane, conducted during the course of the NSF-sponsored software history project by CBI associate director Jeffrey Yost, are now accessible in full text on the CBI web site at: <http://www.cbi.umn.edu/oh/>

Elisabeth Kaplan

PC Software: The First Decade

In early May 2004 the Software History Center sponsored a conference entitled “PC Software: The First Decade” in Needham, Massachusetts. The event was co-sponsored by the Charles Babbage Institute, the Charles Babbage Foundation, *IEEE Annals of the History of Computing*, the Computer History Museum, Massachusetts Software Council, and the Software Information Industry Association. CBI Associate Director Jeffrey Yost represented the Charles Babbage Institute at the conference.

The original concept for the event was conceived of by leading computer historian Martin Campbell-Kelly to coincide with the twentieth-fifth anniversary of VisiCalc, the first personal computer spreadsheet program, and a software product that is often cited as the first “killer app” or killer application (software so compelling as to usher in the personal computer software industry sector and provide individuals and organizations a reason to purchase personal computers). Software History Center President Burton Grad organized and provided the leadership for the conference, which included workshops, panel discussions, and oral histories.

In addition to addressing VisiCalc and other spreadsheet programs, the conference examined word processing, database management systems, accounting systems, business graphics, operating systems, utilities, and other areas of personal computer software. Top software developers and corporate leaders of some early software firms, along with a number of computer/software historians participated in a series of workshops on these areas of software, as well as panel discussions on business, legal, and technical issues surrounding these developments—including piracy, development testing and maintenance, marketing, and other topics.

Historians at the event conducted roughly fifteen oral history interviews with personal computing software business and technical pioneers. The transcribed oral histories are being donated by the Software History Center to the Charles Babbage Institute, and will become part of the CBI collection and available on the CBI oral history database. [<http://www.cbi.umn.edu/collections/oralhistories.html>]

Recent Publications

Cortada, James W. *The Digital Hand: How Computers Changed the Work of American Manufacturing, Transportation, and Retail Industries*. (New York: Oxford University Press, 2004).

Graham, Stuart J. H. and David C. Mowery. "Intellectual Property Protection in the U.S. Software Industry." In Wesley Marc Cohen and Stephen A. Merrill. *Patents in the Knowledge-Based Economy* (Washington D.C.: National Academies Press, 2003).

Head, Robert V. "Datamation's Glory Days." *IEEE Annals of the History of Computing* 26:2 (April-June 2004): 16-21.

Heide, Lars. "Monitoring People." Dynamics and Hazards of Record Management in France, 1935-1944." *Technology and Culture* 45:1 (January 2004): 80-101.

Henry, Albert J. and Gleen E. Bugos. "Sydis and the Voice/Data Terminal Craze of 1984." *IEEE Annals of the History of Computing* 26:2 (April-June 2004):22-33.

Jones, Allan. "Five 1915 BBC Broadcasts on Automatic Calculating Machines." *IEEE Annals of the History of Computing* 26:2 (April-June 2004): 3-15.

Kuester, Jeffrey R. and Ann K. Moceyunas. "Patents for Software-Related Inventions." *Iterations: An Interdisciplinary Journal of Software History*. (April 4, 2003). <<http://www.cbi.umn.edu/iterations>>

Maney, Kevin. *The Maverick and His Machine: Thomas Watson, Sr. and the Making of IBM*. (New York: J. Wiley & Sons, 2003).

Norberg, Arthur L. "Software Development at the Eckert-Mauchly Computer Company Between 1947 and 1955." *Iterations: An Interdisciplinary Journal of Software History*. (December 31, 2003). <<http://www.cbi.umn.edu/iterations>>

Parthasarathy, Balaji. "Globalizing Information Technology: The Domestic Policy Context for India's Software Production and Exports." *Iterations: An Interdisciplinary Journal of Software History*. (May 3, 2004). <<http://www.cbi.umn.edu/iterations>>

Rosen, Saul. "Recollections of the Philco Transac S-2000." *IEEE Annals of the History of Computing* 26:2 (April-June 2004): 34-47.

Smillie, Keith. "People Languages, and Computers: A Short Memoir." *IEEE Annals of the History of Computing* 26:2 (April-June 2004): 62-74.

Van Meer, Elisabeth. "PLATO: From Computer-Based Education to Corporate Social Responsibility." *Iterations: An Interdisciplinary Journal of Software History*. (November 5, 2003). <<http://www.cbi.umn.edu/iterations>>

Weber, Steve. *The Success of Open Source*. (Cambridge, MA: Harvard University Press, 2004).

Zygmunt, Jeffrey. *Microchip: An Idea, Its Genesis, and the Revolution It Created*. (Cambridge, MA: Perseus, 2003).

Compiled by Jeffrey R. Yost

Job Announcement: CBI Director

Director

Charles Babbage Institute
A Center for the History of
Information Technology
University of Minnesota

The University of Minnesota seeks a Director for its Charles Babbage Institute (CBI) who will also serve as a tenured faculty member in the Program in History of Science and Technology of the Institute of Technology. The Director will hold the Engineering Research Associates, Inc., Land-Grant Chair in History of Technology. CBI is a contemporary history and archives center, which focuses on the history of information technology since 1935. The CBI mission is to conduct historical research and to preserve and make accessible records for use in research.

The role of the director includes leadership in CBI, scholarship and publication, and fund raising. Qualifications include a record of research, teaching, and publication suitable to be appointed as either an Associate or Full Professor in the Program in History of Science and Technology with a joint appointment in an engineering, mathematics, or physical science department of the Institute of Technology; administrative experience suitable to direct an institute of the size, quality, and orientation of CBI; ability to work with the community of interest to CBI; and a record of fund raising.

Applicants should submit a curriculum vitae, sample publications, a review of administrative and fund raising experience, and arrange to have at least three letters of recommendation sent to:

Chair, Search Committee for the Director of CBI
Program in History of Science and Technology
Tate Laboratory of Physics, Del. Code 0331
University of Minnesota
116 Church Street SE
Minneapolis, MN 55455 USA

Review of applications will begin on 29 November 2004 and continue until the position is filled.

The University of Minnesota is an equal opportunity educator and employer.