

# CHARLES BABBAGE INSTITUTE

CENTER FOR THE HISTORY OF INFORMATION TECHNOLOGY

NEWSLETTER

Fall 2002

Vol. 25

No. 1

## *In This Issue:*

<b>Current Research at CBI</b>	<b>2</b>
<b>SHOT 2002</b>	<b>6</b>
<b>Norris Collection to be Processed</b>	<b>7</b>
<b>News from the Archives</b>	<b>8</b>
<b>MCHS's NCR Archive</b>	<b>10</b>
<b>Stretch/Harvest</b>	<b>12</b>
<b>Recent Publications</b>	<b>13</b>
<b>Keith Uncapher</b>	<b>14</b>
<b>Featured Photos: Computer Crime</b>	<b>16</b>

*CBI Newsletter* Editor: Jeffrey R. Yost

**Charles Babbage Institute  
211 Andersen Library  
University of Minnesota  
222 21<sup>st</sup> Avenue South  
Minneapolis, Minnesota 55455**

**Email: [cbi@tc.umn.edu](mailto:cbi@tc.umn.edu)**

**Ph. (612) 624-5050**

**Fax: (612) 625 8054**

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

*Charles Babbage Institute Newsletter* is a publication of the University of Minnesota.

The *CBI Newsletter* reports on Institute activities and other developments in the history of information technology. Permission to copy all or part of this material is granted provided that the source is cited and a copy of the publication containing the copied material is sent to CBI.

© Charles Babbage Institute

# Current Research at CBI

Research has been a fundamental component of CBI's mission since the founding of the Institute nearly a quarter century ago. CBI historians have conducted major historical research projects on: the early computer industry; the origin of computer science; DARPA's Information Processing Techniques Office and this organization's support of research on the ARPANET/Internet, graphics, time-sharing, and artificial intelligence; the computer as a scientific instrument; and software development and the software industry. These have all benefited from CBI's receipt of competitive grant funding from federal agencies, such as the National Science Foundation (NSF) and the National Endowment for the Humanities (NEH), and have led to a number of scholarly books and articles. Additionally, CBI historians and archivists have published important research on the historiography of information technology, archival theory, and reference works in the field. These include projects on documenting high technology companies, the CBI oral history collection, archival collections on the history of computing at North American repositories, scientific computing, and archival appraisal. Such projects received funding from the National Historical Publications and Records Commission (NHPRC), the NSF, the Mellon Foundation, and a number of corporate foundations. CBI has also supported research on a wide range of topics on the technical, business, social, and cultural history of computing, software, and networking conducted by CBI/Tomash Fellows.

Research at CBI has not only been critical to advancing scholarship and knowledge in many areas of the history of information technology, but also as an activity that works synergistically with CBI's other fundamental mission of maintaining and extending its world-class collection of archival materials and serving as a clearinghouse for information on resources worldwide on the history of computing. All of the major historical research projects listed above contain an oral history component. The interviews conducted by CBI historians on these projects have helped build our unparalleled collection of research-grade oral histories in this field. Historical research has also informed and led to contacts aiding the acquisition of new collections, and has provided resources to make existing collections more accessible.

CBI historians and the CBI Archivist are currently engaged in a wide range of research projects. These projects explore new topics and themes, and continue to provide many similar benefits as past research by the Institute in advancing the field of the history of information technology and facilitating future research both within and outside of CBI. A brief description of ongoing and recently completed CBI research projects follows.

## **Eckert-Mauchly Computer Company Software Development**

Historians have paid substantial attention to hardware developments at Eckert-Mauchly (EMCC) because of the path-breaking activity at the firm, but little attention has been given to software development. Yet software history at EMCC is every bit as rich as the hardware history. As part of the Engineering Research Associates (ERA) Project at the

Institute, CBI Director Arthur Norberg is investigating EMCC's software history. Brief highlights of this research are discussed below.

Very early in the history of EMCC, John Mauchly assumed responsibility for programming, coding, and applications for the planned computer systems. His early interaction with representatives of the Census Bureau in 1944 and 1945, and discussion with people interested in statistics, weather prediction, and various business problems in 1945 and 1946 focused his attention on the need to provide new users with the software to accomplish their objectives. He knew it would be difficult to sell computers without application materials, and without training in how to use the systems. And so, EMCC began to assemble a staff of mathematicians interested in coding in early 1947.

Although there was no organized department during 1947, Frances Elizabeth Snyder (later Holberton) (1917-2001) and a few others joined EMCC in that year. Many conversations occurred between Mauchly and Snyder, on the one hand, and prospective customers on the other.

The applications group grew slowly between 1947 and 1950. During that time, M. Jacoby, Dr. Arthur Katz, and Jean Bartik became employees. Grace Hopper joined in 1949. While the other members of the Applications Department continued their work on programs and routines, including diagnostic routines for Univac I, Hopper assumed an interest in automatic programming. The process of translating a subroutine into a program received the name "compiler."

From 1947 forward, coders at EMCC developed a number of subroutines for both mathematical and business use. By 1951, this number had increased to the point where they needed to put some order into them to increase efficiency. Hopper took on this task in October 1951, and between then and May 1952 wrote the first Remington Rand compiler, A-0. Dupont was the first company to use A-0.

The Mauchly group determinedly tried to convince the community to use these techniques. Mauchly repeatedly addressed groups in various professional settings. He participated in the Symposium on Large-scale Digital Calculating Machinery at Harvard in 1947, where he spoke about "Preparation of Problems for Edvac-type Machines." In September 1949, he presented details about the UNIVAC system to the American Chemical Society. Hopper was on the lecture circuit at least as much as Mauchly. In May 1952, she spoke to the Association for Computing Machinery (ACM) on "The Education of a Computer," a title she used often but with slightly revised text each time to keep up with developments in EMCC. For example, one talk was to the Symposium on Industrial Application for Automatic Computing Equipment held in Kansas City, Missouri, by the Midwest Research Institute in January 1953. Richard Ridgeway delivered a paper on "Compiling Routines" to a meeting of the ACM in September 1952 in which he did a detailed analysis of EMCC compilers.

### **Medical Informatics and Privacy, and Historical Surveys of the Business, Cultural and Intellectual History of Computing**

Recent advances in genetics, the accelerating possibilities of securing and processing medical data, and the near ubiquity of computer medical databases and networked connections have combined to heighten the focus on privacy as one of the most fundamental ethical issues in medicine. While new possibilities for securing and processing medical information abound, the application of digital computers to the medical field is more than forty years old. Over the past decade, there has been considerable attention paid to medical databases and privacy by journalists, policy-makers, and others, yet very little is known of the origin and structuring of the privacy issue in early medical computing.

CBI Associate Director Jeffrey Yost recently conducted a research project surveying privacy and medical informatics (computer applications in medical treatment, research, and administration) during the issue's formative decade—the late 1960s to the late 1970s. His research discussed such topics as: public opinion and trust of medical care providers and institutions, the background and work of the leaders and early apologists of the medical computing privacy issue, and the influence of the broader dialogue on data banks and privacy. Yost's study showed how, despite the greater public and legislative focus on other areas of privacy (such as that of financial records), the early medical informatics and privacy debate, led by the RAND Corporation's Willis Ware and others in the early to mid 1970s, was quite substantive and balanced. In contrast, much of the more recent dialogue has tended to be at the extremes (privacy advocates on one side and insurance and medical records firms on the other). Despite considerable recent attention, very little meaningful legislation has been enacted. Yost presented his findings at the Chemical Heritage Foundation's Second Conference on the History and Heritage of Scientific and Technological Information Systems last month in Philadelphia.

Yost also has been working on a couple of historical and historiographical research projects surveying aspects of the history of information technology. He recently completed a book chapter "Computers and the Internet: Braiding Irony, Paradox, and Possibility," that will be published in Carroll Pursell's forthcoming volume *American Technology: Readings in Social and Cultural History* (Oxford: Blackwell, 2003). In this essay, he indicates some of the limitations of standard progressive histories of computers, and argues that by identifying and reflecting on the history of computing's many ironies and paradoxes, lesser-studied themes of politics, gender, and cultural meanings shift to the forefront. Attentiveness to irony and paradox can sometimes redirect our focus to ask different types of questions of developments, circumstances, and issues concerning computing, software, and networking, and more broadly, of our technological past

Yost recently signed a book contract with Greenwood Press to do a survey of the computer industry. After briefly outlining the significance of organizational capabilities from the pre-computing era, this study will focus on the evolution of strategy within the industry from the advent of electronic digital computing to the present. It will also provide brief overviews of complementary industries to computing such as transistors and semiconductors, and software. The book will place greater emphasis than previous examinations of the industry on the consumption side of computing technology, the evolution of applications, and societal impacts. Also with Greenwood Press, as part of a

past NSF-sponsored CBI project, "The Computer as a Scientific Instrument," Yost recently completed a reference book on computer applications in the biological, physical, cognitive, and medical sciences that was published last month. (*A Bibliographic Guide to Scientific Computing, 1945-1975*).

### **Automated Critiquing Systems in Medicine and the History of Internet Gopher**

CBI Software History Project Manager Philip Frana is currently studying the application and impact of automated critiquing systems in medicine. Computer scientists working with physicians and nurses embedded evaluation routines into medical applications in the 1970s, reinventing many traditional types of medical devices as online critiquing systems. Critiquing systems became available first for anesthetic management, the pharmacological management of hypertension, mechanical respiratory support, and the diagnostics of radiology. The advantage of such systems was to make the computer an ally rather than an adversary or rigid mentor in medical practice.

The critiquing approach in part relieved the machine of responsibility for faulty medical planning because it required the continuing careful attention of human operators. This is an important feature in an age where strict liability applies in cases of defective medical technology, including complex software. Frana presented the preliminary results of his research at the Centennial Meeting of the American Anthropological Association last month in a session entitled "Informatic Bodies and Posthuman Medicine: The Future is Now."

Frana also completed a study on the history of Internet Gopher. This research, discussed in a past *CBI Newsletter* (Volume 23 Number 4), will be published in a forthcoming issue of *IEEE Annals of the History of Computing*.

### **The Role of Computers in Shaping the Archival Profession**

CBI archivist Beth Kaplan continues her inquiry into the role of computer technology in shaping the fundamental character and direction of the American archival profession in the 1940s through 1970s. Through an analysis of archival writings in this period, Kaplan suggests that archivists' complex relationship with technology is inextricably tied to archivists' attempts to distinguish themselves professionally from librarians and historians, the two disciplines from which the profession emerged in the early part of the twentieth century. Her work on this project is supported by a professional development leave from the University of Minnesota Libraries and a research fellowship from the National Historical Publications and Records Commission. She will report on her findings at the annual meeting of the Society of American Archivists in August 2003, and will submit an article based on her findings to a peer-reviewed journal.

Kaplan's article "Many Paths to Partial Truths: Archives, Anthropology, and the Power of Representation," will appear in *Archival Science: International Journal of Recorded Information* in January 2003. The essay compares thinking about anthropology and archives, in light of recent postmodern analysis. While many in the social sciences and

humanities have been considering issues of representation, objectivity, and power, archival thinking has remained largely isolated from this broader intellectual landscape, and archival practice has remained curiously bound up in modes of thought and practice distinctly rooted in nineteenth-century positivism. Archivists have even resisted the efforts of those within their own ranks to challenge this isolation and re-situate the premises of archival identity in this newer and larger intellectual context. This essay suggests that archivists can draw meaningful comparisons by reading outside their field in disciplines, such as anthropology, with which archives shares key features, such as concern with issues of representation, description, and culture. In this essay, select anthropological writings throughout the last century are examined against a backdrop of trends in archival thinking, contrasting the tumultuous epistemological debate within anthropology with the relative calm in the archival profession. This contrast is strikingly embodied by the coincidence of the publication--both in 1922, both in London--of works by leading theorists from both fields: Bronislaw Malinowski and Hilary Jenkinson. The essay suggests that, in order to remain relevant and conversant with their partners and stakeholders, archivists must take the matter of their isolation seriously, exercise more comparative self-reflection, and devise practical ways to do archival work without the positivist blinders of the past.

*Jeffrey Yost; contributions by Arthur Norberg, Philip Frana, and Elisabeth Kaplan.*

## **SHOT 2002 Meets in Toronto**

The annual meeting of the Society for the History of Technology (SHOT) convened October 17-20, 2002, at the Delta Chelsea Hotel in Toronto, Canada.

Several papers given at the SHOT meeting had as their subject the history of computing. One particularly stimulating session, entitled "The Social Architectures of Cold War Electronics" included talks on electronics and human reliability, electronics and leisure pursuits, product design at Olivetti, and the culture(s) of total information systems.

Past Tomash fellow Thomas Haigh delivered a paper entitled, "Lost in Translation: Total Systems from War Room to Boardroom, 1954-1968" at this session. Haigh compared so-called "Cold War total systems"--like SAGE--with "totally integrated management information systems" (MIS). Total systems in either case were all-encompassing systems for the processing of information. Haigh used as case studies the Cold Warriors working on SAGE and the MIS people working at System Development Corporation (SDC). He concluded that the Cold Warriors and MIS SDC people represented "two cultures divided by a common language," where the fuzziness of systems concepts actually helps explain their success in the 1950s and 1960s.

In the same session, Massimo Mazzotti of the University of Toronto delivered the paper "Olivetti for the People: Electronics and Social Planning in Post-War Italy." Mazotti demonstrated how the Olivetti Company inspired IBM to improve the design of its

products by bringing the mainframe down to a human scale. Mazzotti also showed how Olivetti worked to create organic, futuristic communities for workers by assembling machines in "non-artificial" ways, and attempted to avoid the alienating aspects of industrial life while exposing a rural ideal for computer manufacturing.

Other past Tomash fellows, Janet Abbate and Atsushi Akera, also presented strong papers at the conference. Abbate gave a talk based on her research on women and computing, a multi-year project that has been funded by the National Science Foundation and is currently sponsored by the Smithsonian Institution where she is a fellow. She presented data on the long term demographics of women in computer science education and computing professions, as well as an analysis of qualitative factors of women's changing experiences in these environments. Akera, of Rensselaer Polytechnic Institute (RPI), presented a paper entitled, "'Revealing the Institutional Pluralism of Cold War Research Through the Lens of Computing History.'" He used case studies, including Jay Forester's Project Whirlwind at MIT and early computing work at the University of Michigan, to demonstrate this institutional pluralism.

At the Annual Banquet, CBI Associate Director Jeffrey Yost presented SHOT's IEEE Life Members' Prize in Electrical History to Stuart Leslie for his article "Blue Collar Science: Bringing the Transistor to Life in the Lehigh Valley" [in HSPS, v.32:1 (2001) 71-113]. The prize is awarded annually for the best scholarly article on the history of electricity and electronics published during the preceding year. Yost chaired this year's IEEE Prize Committee.

Yost and CBI's Software History Project Manager Philip Frana also represented the Institute at the annual special interest group meeting on Computers, Information, and Society, hosted by Paul Ceruzzi of the National Air & Space Museum. They discussed continuing CBI activities, their current research plans, and gave an overview of the new CBI journal *Iterations: An Interdisciplinary Journal of Software History*. The journal may be found online at [www.cbi.umn.edu/iterations/](http://www.cbi.umn.edu/iterations/)

*Philip L. Frana and Jeffrey R. Yost*

## **William C. Norris and Control Data Corporation Records to be Processed**

Maria Plonski has joined the CBI staff on an eighteen-month specially-funded appointment to process the personal papers of William C. Norris and the business records of the Control Data Corporation (CDC). During the period of her appointment, Maria will organize both collections and conduct background research to prepare a detailed guide to assist researchers' use of the collections. The guides will be made available on the CBI

Web site, and the availability of the collections will be publicized in a variety of online and print bulletins. In addition, Maria will prepare an exhibit using materials from the collections.

Maria is a Minnesota native who has returned to the Twin Cities after receiving her Master's Degree in Library and Information Science, with a specialization in Archives Management, at Simmons College in Boston. While at Simmons, Maria worked in Special Collections at the Countway Library of the Harvard Medical School. In addition to working at CBI, Maria will continue work on a thesis for her graduate history degree.

CBI received the William Norris Papers in 2001. The CDC corporate archives were donated to CBI in the 1990s and have been awaiting funding for processing.

*Elisabeth Kaplan*

## News from the Archives

Collections received

### **Computer Security Materials**

Documenting the history of information technology is always challenging, and certain aspects of that history are more elusive than others. In October, RedSiren, Inc. of Pittsburgh donated 65 cubic feet of files that shed light on two such topics: computer crime and information security.

The donation includes extensively indexed case files from over 4000 computer crimes spanning the years 1955-1979 and over 300 books, reports, and serials, among them rare materials related to the growth of hacking. The case files and most of the publications materials were collected and analyzed by leading computer security expert **Donn Parker** in the course of a series of grant-funded projects he oversaw while at SRI. While the collection traces the trajectory of computer crime as a phenomenon, it also documents the development of the computer security business, including the consulting market and the evolution of computer security products. Also represented is the growth of computer security theory and methodology. This donation complements--and is complemented by--currently held collections including the personal papers of Donn Parker and Willis Ware, as well as materials in the Carl Hammer Papers and the records of the Data Processing Management Association (DPMA). The materials will be available for research after they undergo processing by archives staff.

### **Diebold Group, Inc. Records**

In October, the archives received the first installment of files from the **Diebold Group, Inc.** Donated by **John Diebold**, the records consist of over 1500 reports and accompanying research files, totaling over 100 cubic feet and spanning the years 1954-1991. The Diebold Group began its work in 1954, the same year that the first computer was installed for business use in the United States. The Diebold Group 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. This rich resource 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.

Published materials in the collection will be available to researchers as soon as the collection is processed. Access to unpublished materials will require written permission during a period of restriction, imposed to protect any proprietary interests of the companies represented. Please contact CBI archivist Elisabeth Kaplan for more information.

### **ADAPSO Records**

Twenty-four cubic feet of organizational records of the **Association of Data Processing Services Organizations** (ADAPSO) were donated this fall by ADAPSO's successor organization, the **Information Technology Association of America** (ITAA). ADAPSO, founded in 1961, was a non-profit trade association representing computer software and services companies. Among the records are board meeting minutes, newsletters, conference materials, position papers, annual reports, and files documenting ADAPSO's participation in legislation on software licensing, patents and other issues. This donation greatly expands the ADAPSO materials already in CBI's archives, and provides important context for personal papers of ADAPSO members such as Martin A. Goetz. Many thanks to ITAA officers and staff for their interest and assistance in facilitating transfer of these materials to their new home at CBI, where they will be available to an international community of researchers. Thanks also to Luanne Johnson and Burt Grad of the **Software History Center**, who spearheaded the effort with their ADAPSO Reunion last spring. [See article on the ADAPSO Reunion in the Spring 2002, Volume 24:3 issue of the *CBI Newsletter* and an ADAPSO Reunion note on our News page at [www.cbi.umn.edu/news/index.html#shc](http://www.cbi.umn.edu/news/index.html#shc) ]

### **Archival collections processed and opened for research**

H.R. Oldfield Collection of General Electric Corporation Records, 1948-1996 (CBI 175)  
[www.cbi.umn.edu/collections/inv/cbi00175.html](http://www.cbi.umn.edu/collections/inv/cbi00175.html)

### **Updated Finding Aids (several of our existing collections were updated to reflect recent accretions):**

USE, Inc. Records, 1955-1987 (CBI 20)  
[www.cbi.umn.edu/collections/inv/use20.htm](http://www.cbi.umn.edu/collections/inv/use20.htm)

SHARE, Inc. Records, 1955-1994 (CBI 21)  
[www.cbi.umn.edu/collections/inv/cbi00021.html](http://www.cbi.umn.edu/collections/inv/cbi00021.html)

Data Processing Management Association Records, 1950-1993 (CBI 88)  
[www.cbi.umn.edu/collections/inv/dpma.htm](http://www.cbi.umn.edu/collections/inv/dpma.htm)

Data Processing Management Association, Northwest Chapter Records, 1963-1997 (CBI 167)  
[www.cbi.umn.edu/collections/inv/cbi00167.html](http://www.cbi.umn.edu/collections/inv/cbi00167.html)

*Elisabeth Kaplan*

*In this issue, we begin a series of profiles of other archival institutions whose holdings will be of interest to readers of the CBI Newsletter. In this first profile, NCR Archivist Jeff Opt provides some background on NCR and describes the archives and artifact holdings now at the Montgomery County Historical Society.*

## **An Introduction to the NCR Archive at the Montgomery County Historical Society Dayton, Ohio**

On August 1, 1998, the NCR Corporation (formerly National Cash Register) and the Montgomery County Historical Society joined in an innovative partnership committed to preserving the NCR Archive. In September 1999, the move of the NCR Archive began to the Historical Society's Research Center located at 224 North St. Clair Street. For over three months, trucks traveled between NCR's Building 28 and the Research Center, bringing the three million pieces of this extraordinary collection to its new home.

Perhaps first and foremost in everyone's minds are the beautiful wood and brass cash registers (over 350 of them) which represent turn of the century precision technology at its finest. There are also artifacts such as machinery from the first factory; founder John H. Patterson's desk and chair; financial transaction machines; hundreds of thousands of engineering, invention and production drawings, including early drawings of Charles F. Kettering and Edward Deeds; Joe Desch's "Lost Lab" which helped break the German

Enigma code during World War II; early computers; ATMs; scanning devices; the list goes on and on.

Interest in computing started early at NCR as evidenced by the mechanical calculators that were part of the model collection, and were studied to determine how NCR's products could be improved. In the 1920's, NCR developed the Class 2000 Accounting Machine which was so successful that it stayed in production for more than 50 years! In 1938, NCR joined forces with Dr. Vannevar Bush and MIT to help develop his Rapid Arithmetical Computing Machine - this in addition to the vacuum tube research that was being carried out by Joe Desch at NCR in Dayton. It is this research that caused the U.S. Navy to contract with NCR to develop a machine, "the Bombe," to break the German Enigma code during WWII. Until recently, much of the information about this project has been classified. As a result, the important role these machines played in shortening the war is only now coming to light. In 2001, the IEEE designated NCR's "Bombe" a Milestone in the History of Electrical Engineering and Computing.

After the war, NCR continued their research and entered the computer business in 1953 by purchasing the Computer Research Corporation (CRC), one of the first West Coast computer companies. CRC was founded in 1950 by a group of engineers who left Northrop where they had developed the machine MADDIDA (Magnetic Drum Digital Differential Analyzer). By the time of the purchase, CRC was manufacturing the 102A general purpose computer, which then became NCR's first computer product. This was followed in 1959 by the NCR 304. The 304 was the first solid state business computer offered for sale in the world. This was followed in the 1960's by other innovative products such as Card Random Access Memory (CRAM), the NCR 315 computer that featured Rod Core Memory, the Century and the Critereon series of computers. In the 1970's, NCR helped pioneer silicon chip design with their own state of the art manufacturing plant. NCR also increased the use of these chips by employing them not only in computers, but cash registers and other equipment. NCR continues today to be involved with electronics, and manufactures ATMs, Point of Sale systems, and mass storage.

Within the archive, there is a wealth of material documenting the early and middle period of computers at NCR. This includes items such as invention drawings, operating manuals, development files, and other business records one would associate with the process of design and manufacturing. Currently, we estimate that there are more than 200 cubic feet of documents relating to computer development in the collection, with more than 40 of that specifically relating to CRC. Along with the documents, there are machines, including a complete 102-D computer, a complete 304 computer, and many peripherals such as a CRAM deck. One of the most interesting aspects of this collection is the view it provides of NCR's transition from manufacturing mechanical business equipment to manufacturing electronic business equipment. This was a process that took more than 20 years, and required not only many internal changes but also the education of the customers about how this change would benefit them.

Currently, the NCR Archive is not open for research; our time is consumed with cataloging and processing the massive collection. However, we would encourage those with an interest to contact us, so that we can gain an understanding of how the collection could be used and focus our attention accordingly.

*Jeff Opt, NCR Archivist*

For more information, please contact  
Claudia Watson, Director of the NCR Archive  
Jeffrey Opt, NCR Archivist, [JeffOpt@daytonhistory.org](mailto:JeffOpt@daytonhistory.org)

NCR Archive  
c/o The Montgomery County Historical Society  
224 N. St. Clair St.  
Dayton, OH 45402

(937) 228-6271

[www.daytonhistory.org](http://www.daytonhistory.org)

## **Stretch/Harvest Reunion**

More than 100 of the nearly 400 individuals who worked on IBM's Stretch/Harvest attended a reunion in Poughkeepsie, New York, on September 28-29, 2002, to discuss the history of Stretch/Harvest, reflect upon and celebrate its significance to subsequent computing and software at IBM, and socialize. Stretch alumni Eric Knutsen and Bill Collier organized the event.

The reunion included a talk on the afternoon of September 28th by Fredrick Brooks, Stretch Alum and current Kenan Professor of Computer Science at the University of North Carolina. The well-received talk was followed by a panel discussion that included other key individuals on both the hardware and software side of the Stretch project: Erich Bloch, George Grover, and Harwood Kolsky. The audience actively participated in the discussion that followed, with many involved in software development for Stretch and Harvest speaking on aspects of the understudied topic of programming for the projects.

In conjunction with the event, Eric Knutsen took the lead in organizing the production of a volume on the history of Stretch/Harvest that is dedicated to the memories of Stretch Project Manager Stephen W. Dunwell and Stretch and Harvest Software Manager Sullivan G. Campbell. The book contains a brief history of the project, biographies of Dunwell, Campbell and John Cocke, Software recollections on Fortran, STRAP, and MCP, and short autobiographical information from 125 individuals responding to the questionnaire. Copies of the spiral bound book were distributed to attendees and

additional copies may still be available for purchase from Eric Knutsen (eknutsen@aol.com).

Charles Babbage Foundation Board Member and Treasurer Ann Hardy (a programmer on the Stretch project), CBF Trustee and noted IBM historian Emerson Pugh, CBI Associate Director Jeffrey Yost, and Computer History Museum Curator Dag Spicer also attended the event.

## Recent Publications

Augier, Mie and James G. March. "A Model Scholar: Herbert A. Simon (1916-2001)" *Journal of Economic Behavior and Organization* 49:1 (September 2002) 1-17.

Bassett, Ross. *To the Digital Age: Research Labs, Start-Up Companies, and the Rise of Mos Technology* (Baltimore: Johns Hopkins University Press, 2002).

Broy, M. *Software Pioneers: Contributions to Software Engineering* (Berlin: Springer, 2002).

Burba, Juliet and Philip L. Frana. "Researching the History of Software: Mining Internet Resources in the 'Old World,' 'New World,' and the 'Wild West.'" *Iterations: An Interdisciplinary Journal of Software History* (2002).

Ceruzzi, Paul. "Datamation, Annals, Slashdot, and Tomorrow's History" *IEEE Annals of the History of Computing* 24:4 (October-December 2002): 71-72.

Ceruzzi, Paul. "A War on Two Fronts: The U.S. Justice Department, Open Source and Microsoft, 1995-2000." *Iterations: An Interdisciplinary Journal of Software History* (2002).

Cortada, James W. "Studying the Increased Use of Software Applications: Insights from the Case of the American Petroleum Industry, 1950-2000." *Iterations: An Interdisciplinary Journal of Software History* (2002).

De Wit, Onno, et al. "Innovation Junctions: Office Technologies in the Netherlands, 1880-1980" *Technology and Culture* 43:1 (January 2002): 50-72.

Estrin, Gerald. "Reconfigurable Computer Origins: The UCLA Fixed-Plus-Variable (F+V) Structure Computer" *IEEE Annals of the History of Computing* 24:4 (October-December 2002): 3-9.

Gerstner, Louis. *Who Says Elephants Can't Dance* (New York: HarperCollins, 2002).

Goetz, Martin. "Memoirs of a Software Pioneer: Part 2" *IEEE Annals of the History of Computing* 24:4 (October-December 2002): 14-31.

Head, Robert V. " Getting Sabre off the Ground" *IEEE Annals of the History of Computing* 24:4 (October-December 2002): 32-39.

Henry, Shannon. *The Dinner Club: How the Masters of the Internet Universe Rode the Rise and Fall of the Greatest Boom in History* (New York: Free Press, 2002).

Hook, Diana H. and Jeremy M. Norman with contributions by Michael R. Williams. *Origins of Cyberspace: A Library on the History of Computing, Networking, and Telecommunications* (Novato, CA: Historyofscience.com, 2002).

Katz, James. *The Social Consequences of Internet Use* (Cambridge: MIT Press, 2002).

Kilker, Julian. "Social and Technical Interoperability, the Construction of Users, and 'Arrested Closure': A Case Study of Networked Electronic Mail Development." *Iterations: An Interdisciplinary Journal of Software History* (2002).

Maney, Kevin. *Thomas Watson, Sr., IBM, and the Building of an American Dynasty* (New York: Wiley, 2002).

Pogue, David. *Piloting Palm* (New York: Wiley, 2002).

Reid-Green, Keith S. " Three Early Algorithms" *IEEE Annals of the History of Computing* 24:4 (October-December 2002): 10-13.

Roland, Alex and Philip Shiman. *Strategic Computing: DARPA and the Quest for Machine Intelligence, 1983-1993* (Cambridge: MIT Press, 2002).

Schneiderman, Ben. *Leonardo's Laptop: Human Needs and the New Computing Technologies* (Cambridge: MIT Press, 2002).

Schonfeld, Roger. *JSTOR: A History* (Princeton: Princeton University Press, 2003).

Yost, Jeffrey R. *A Bibliographic Guide to Resources in Scientific Computing, 1945-1975* (Westport, CT: Greenwood Press, 2002).

*Compiled by Jeffrey R. Yost*

## **Keith Uncapher, 1922-2002**

Charles Babbage Foundation Trustee Keith Uncapher died quietly of a heart attack on October 10, 2002. Born in Denver, Colorado, on April 1, 1922, he attended Glendale College and earned his BS degree from Cal-State Poly in San Luis Obispo. Uncapher went on to become a highly influential computer scientist and science administrator who was instrumental in the development of a number of fundamental networking technologies. In 1998 he was elected to the National Academy of Engineering, and for

his entire professional life he was an advisor to the United States Military on technology issues.

Uncapher joined the Rand Corporation in 1950 and took charge of operating Johnniac, the organization's first digital computer. He soon managed the development of the Johnniac's Open-Shop System (Joss), facilitating time-shared use of the computer by several scientists. Joss proved influential to the creation of a number of commercial and scientific computing systems later that decade.

In 1960, Uncapher was named the first Director of RAND's computer science department. In this capacity he oversaw and contributed to CBF Trustee and highly distinguished communications engineer Paul Baran's work in inventing packet switching technology (breaking data into small discrete bundles or packets that could be transmitted over phone lines for reliable reassembly at their destination computer terminal), the most critical technology underlying the ARPANET/Internet.

Uncapher served as the President of the American Federation of Information Processing Societies (AFIPS) from to 1971-1972.

After a dozen years of leadership in managing computer science work at Rand, in 1972 Uncapher went on to found the Information Sciences Institute at the University of Southern California (USC). Under his leadership scientists at the Institute invented the system of Internet domain names (".com," ".edu," and ".net"). During Uncapher's tenure at the helm, the Institute grew from a staff of three to more than two hundred.

In 1987, Uncapher, believing academic computer science was becoming increasingly concentrated on theory, left the Information Sciences Institute to co-found the nonprofit Corporation for National Research Initiatives (CNRI). This nonprofit organization was, and continues to be, dedicated to developing and refining new practical applications of computing technology and information infrastructure. One of Uncapher's primary endeavors at CNRI was fostering the development of Micro-Electronic Mechanical Systems (MEMS).

In addition to his wife, Doris Finks, Uncapher is survived by his sons, William and Jeffrey. The Charles Babbage Institute is grateful for Uncapher's service to the Charles Babbage Foundation and his very helpful support of CBI's mission. We extend our condolences to Keith's family.

*Jeffrey R. Yost*

# Computer Crime and Information Security Serials

A recent donation to the CBI archives included serial publications relating to computer crime and information security (see *Computer Security Materials in News from the Archives*). The publications cover a wide range of points of view, from professional organizations for the security practitioner to hackers and phreaks.

## ***TAP***

In 1971, Al Bell and Abbie Hoffman began producing a newsletter called the *YouthInternational Party Line (YIPL)*. In 1973, *YIPL* became known as *TAP*, the *Technological American Party*. In 1979 it was changed to the Technological Assistance Program. *TAP*, the "newsletter for the exchange of anti-Big Brother technical information," ceased publication in 1984. CBI received scattered issues (1978-1984) of the publication and its associated classified ads sheet. Pictured here is the cover of the March-April 1979 issue.

## ***Software Protection***

Law & Technology Press published *Software Protection: A Journal on the Legal, Technical and Practical Aspects of Protecting Computer Software* from 1982 until 1992, when the publication was merged with *Computer Lawyer* to form *The Computer & Internet Lawyer*. CBI received scattered issues from 1985 to 1988. Pictured here is the cover of the April 1988 issue.

## **Information Systems Security Association (ISSA)**

ISSA, a not-for-profit international organization of information security professionals and practitioners, has published several serial publications since its founding in 1982. CBI received scattered issues (1988-1993) of several of these publications, including *ISSA Access*, *ISSA Journal*, and the *ISSA Newsletter*. Pictured here is the cover of a 1988 issue of *ISSA Access*, a publication once available as part of an ISSA membership or by subscription.

## ***2600: The Hacker Quarterly***

*2600: The Hacker Quarterly* was founded in 1984 for technological enthusiasts who "truly appreciate the concept of communication." CBI received scattered issues from 1984-1994. Pictured here is the cover of the first issue, January 1984.

## **Security Insider Report**

The *Security Insider Report* was founded by Winn Schwartau and published out of Seminole, Florida, from 1992-1997. Contributors included "the good folks everywhere who care about privacy and security." CBI received scattered issues from 1992-1993. Pictured here is the cover of the July 1992 issue.

### **Creative Computing**

CBI also received an early issue (Nov.-Dec. 1975) of *Creative Computing*, the "non-profit magazine of educational and recreational computing," which first appeared in November 1974 and ceased publication in 1985. *Creative Computing* was the creation of David Ahl, who perceived a need for a computer periodical that emphasized reader involvement. This issue includes articles on the computer's impact on society. Pictured here are the front and back covers from the issue, featuring art by Craig Johnson of Ravenna, Ohio.

*Carrie Seib*