

Rachel Yould Named 2001-2002 Tomash Fellow

The Charles Babbage Institute is pleased to announce that Rachel Yould has been named the 2001-2002 Adelle and Erwin Tomash Fellow. Yould, a doctoral candidate at the University of Oxford, will be writing a dissertation that compares the development and applications of Internet technologies in the United States and Japan from the inception of the World Wide Web to the present.

Her study will examine the types, content, and intended function of Web pages over time, the changing demographics of Internet users, and frequency and types of Internet use. This research will help test the largely unsubstantiated, but frequently asserted, claims that the Internet is the embodiment of globalization.

Yould, a Rhodes Scholar, Truman Scholar, and winner of the United States Congressional Gold Award, worked as a consultant to the United States Department of Defense immediately following the completion of her undergraduate degree in East Asian Studies at Stanford University.

At the Department of Defense, Yould served as the Acting Japan Desk Officer for the United States Pentagon, coordinated diplomatic meetings on behalf of U.S. Secretary of Defense Perry, and conducted research and prepared briefings in support of the development of U.S. defense policy on dual use technology and international data transfer and exchange.

Influenced by her Defense Department work on Japanese technology, culture, and policy, Yould began graduate study at Oxford in Oriental Studies. She com-

Continued on page 3

A Celebration of IBM Support for CBI and University of Minnesota Libraries



John Overbeck, Paul Lasewicz, James Cortada, and Thomas Shaughnessy (left to right)

On Wednesday February 21st, the University of Minnesota Libraries hosted a reception at the Elmer L. Andersen Library to celebrate two generous technology donations made by the IBM Corporation. The first, an IBM Computer Kiosk, is a digital representation of Michelangelo's Florentine Pieta, created using hundreds of images of the sculpture from different angles and with different lighting. The second consists of IBM computing equipment, including three desktop computers, a laptop computer, and a laser printer, donated to the Charles Babbage Institute for research and administrative purposes.

Speakers at the event included: Thomas Shaughnessy, University

Librarian, University of Minnesota; John Overbeck, IBM Vice President and Senior Executive for IBM in the Twin Cities; Paul Lasewicz, IBM Archivist; and James Cortada, IBM Global Services Executive in Madison, Wisconsin and Chair of the Charles Babbage Foundation.

Shaughnessy began the program by describing the collaboration between computer scientists at IBM's Watson Research Center and Temple University Professor Emeritus of Art History Jack Wasserman to create a three-dimensional computer representation of the Florentine Pieta. Shaughnessy emphasized what a wonderful resource the Pieta Kiosk

Continued on page 7

Recent Publications

Barney, Darin. *Prometheus Wired: The Hope for Democracy in the Age of Network Technology* (Chicago: University of Chicago Press, 2000).

Black, Edwin. *IBM and the Holocaust: The Strategic Alliance Between Nazi Germany and America's Most Powerful Corporation* (New York: Crown Publishers, 2001).

Brynjolfsson, Erik and Lorin M. Hitt. "Beyond Computation: Information Technology, Organizational Transformation and Business Performance" *Journal of Economic Perspectives* 14:4 (Fall 2000) 23-48.

"A Career Interview with Bernie Galler" *IEEE Annals of the History of Computing* 23:1 (Jan.-Mar. 2001) 22-33.

Castells, Manuel. *The Rise of the Network Society*, 2nd Edition (Oxford: Blackwell Publishers, 2000).

Cortada, James W. "Using Textual Demographics to Understand Computer Use: 1950-1990" *IEEE Annals of the History of Computing* 23:1 (Jan.-Mar. 2001) 34-56.

Darringer, John A. *EDA in IBM: Past, Present and Future* (Yorktown Heights,

New York: IBM T. J. Watson Research Center, 2000).

Dertouzos, Michael L. *The Unfinished Revolution: Human-Centered Computers and What They Can Do For Us* (New York: Harperbusiness, 2001).

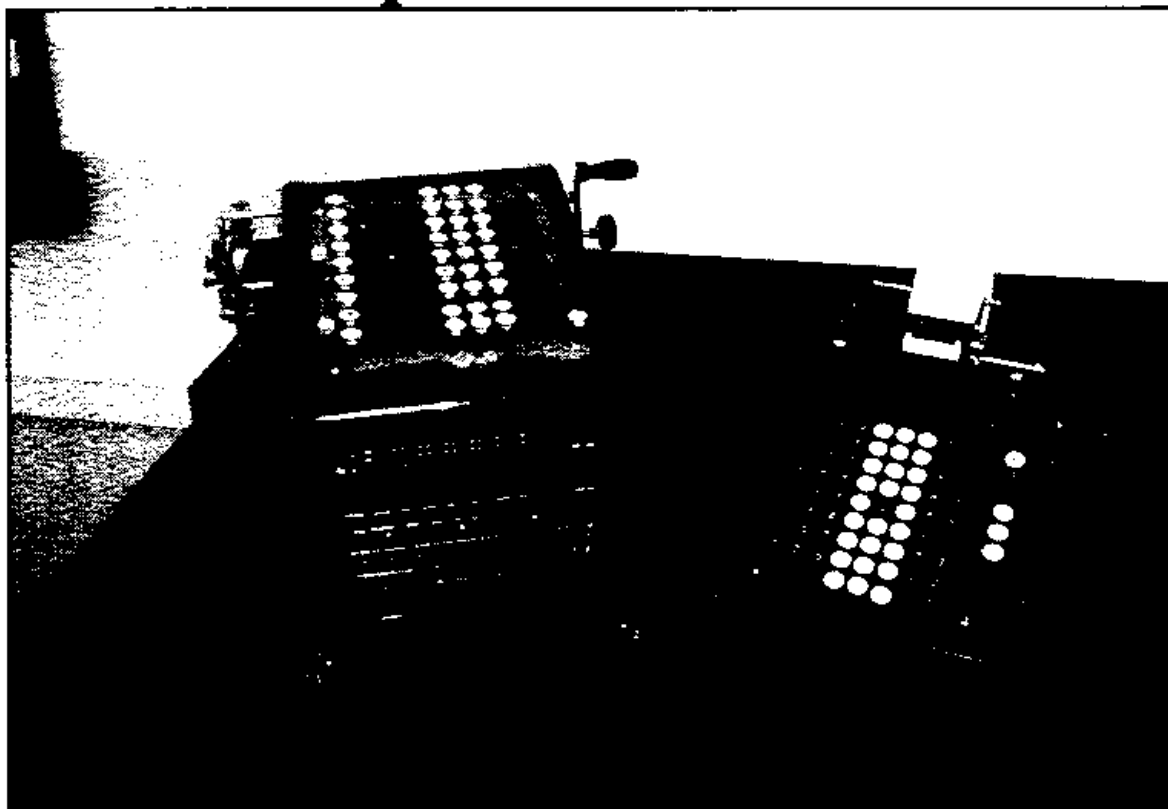
Dizard, Wilson P. *Digital Diplomacy:*

U.S. Foreign Policy in the Information Age (Westport, Connecticut: Praeger, 2001).

Doyle, Robert. "The US Navy's First Online Crypto System" *IEEE Annals of the History of Computing* 23:1 (Jan.-Mar. 2001) 17-21.

Continued on page 6

Recent Acquisitions



Two Burroughs adding machines recently donated to CBI

CHARLES BABBAGE INSTITUTE NEWSLETTER

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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This past winter was a bountiful one for the CBI Archives. An addition to our small artifact collection has added a new dimension to our exhibit potential, and several new acquisitions have strengthened our research collections and brought us into new collecting territory.

Two Burroughs Machines

With the move to the new Andersen Library in February 2000, CBI gained two small but attractive and well-positioned exhibit cases, as well as the potential for larger exhibits in the building's atrium. While the CBI Archives has traditionally referred offers of hardware donations to our colleagues at the Computer History Center, the Smithsonian, and other institutions that specialize in the preservations and exhibition of artifacts, there are a few objects that are appropriate for the CBI collection. Thus we were delighted to accept CBI trustee James Cortada's

donation of two machines manufactured by the Burroughs Corporation, whose records are in the CBI Archives. One of the machines, a Burroughs Portable Adding Machine dating from 1926, complements a current exhibit that features advertising and manuals for the Burroughs Portable series introduced in 1925. (It is worth noting that a "portable" calculating machine in 1926 weighed approximately nineteen pounds!) Archives staff has yet to discover the exact date of the second machine, from the Burroughs "Visible" adding machine series, manufactured between 1911-1913. At present the machine graces the CBI office suite where it generates a great deal of interest from our visitors.

Applied Data Research Records and Martin A. Goetz Papers

CBI is pleased to announce a major donation of archival records from Martin

2001-2002 Tomash Fellow

Continued from page 1

pleted her Master's thesis on a proposal for a framework for computer simulation of cross-cultural responses to global technological trends, using the development of the Internet as a case study. This research laid some of the groundwork for her dissertation project.

During her tenure as the Tomash Fellow Yould plans to spend six months conducting research in Japan and make an extended visit to the Charles Babbage Institute. In Japan, she will be a scholar in residence at Kyoto University's Ishida Laboratory, a unique facility focused on researching the implications of Japanese Internet usage.

At CBI she will conduct research on software history to examine what aspects of the development of the Internet are unique by comparing them to the context of the development of software technology. In March, she began this research in a week-long preliminary trip to CBI, meeting with research and archives staff.

The Adelle and Erwin Tomash Fellowship is named in honor of the founders of



Rachel Yould

the Charles Babbage Foundation and the Charles Babbage Institute.

Jeffrey R. Yost

New Software History Bibliography on CBI Web Site

A new collection of references to monographs, journal articles, reports, oral histories, and archival collections documenting the history of software is now available online on the CBI Web site. The software history bibliography, found at <http://www.cbi.umn.edu/shp/bibintro.html>, includes over 1,600 entries. The primary and secondary source bibliography, a product of the ongoing research of CBI Associate Director Jeffrey Yost and CBI Postdoctoral Fellow Philip Frana, Principal Investigator and Project Manager respectively of CBI's NSF-sponsored Software History Project, also draws significantly from an earlier bibliography of secondary sources compiled by former CBI Associate Director and current Executive Director

Continued on page 5



APPLIED DATA RESEARCH, INC.

A. Goetz. Goetz was a founder of Applied Data Research, which in 1965 became the first company to sell a software product commercially, thereby jumpstarting the software products industry. Goetz received the first software patent in 1968, and made ADR a leader in its field.

In accordance with archival convention that separates corporate records from the papers of an individual, the Goetz donation will be divided into two complementary collections in the CBI Archives. The ADR Corporate Records document the company's history, from its founding in 1959 through its acquisition by Computer Associates in 1989. The collection includes product planning files, marketing materials, product literature, strategic planning documents, records of acquisitions, press releases, and materials from internal presentations.

Researchers at CBI will find in it a wealth of unique, detailed information on the development of the software industry, software marketing, early software product development, mergers and acquisitions, three decades of corporate culture, and a host of other topics of interest to current and future scholars.

The Martin A. Goetz Papers document Goetz's professional life outside of his company. Goetz's leading role in intellectual property protection for software, the battle against unfair competitive practices by hardware manufacturers, his service to professional organizations including ADAPSO, ACM, and ITAA, and his role as an expert witness in *US v IBM*, in 1978, are among the topics documented. The Goetz Papers include his writings and talks, correspondence, court records, and

materials relating to his activity in professional organizations.

International Y2K Cooperation Center Records and Center for Y2K and Society Records

The preparation for Y2K has been called the largest technical project in human history, the largest management challenge since World War II, and the first major problem of a knowledge society. It led to unprecedented collaborations on all levels from families to the United Nations, and to equally unprecedented cooperative efforts between businesses and governments worldwide. Associations were used to build awareness, distribute technical information, and gather data. Estimates are that \$500 billion was spent worldwide, over \$100 billion by the U.S. government alone.

And yet there has been, to date, no substantial scholarly analysis of the origins of the problem, the preparations

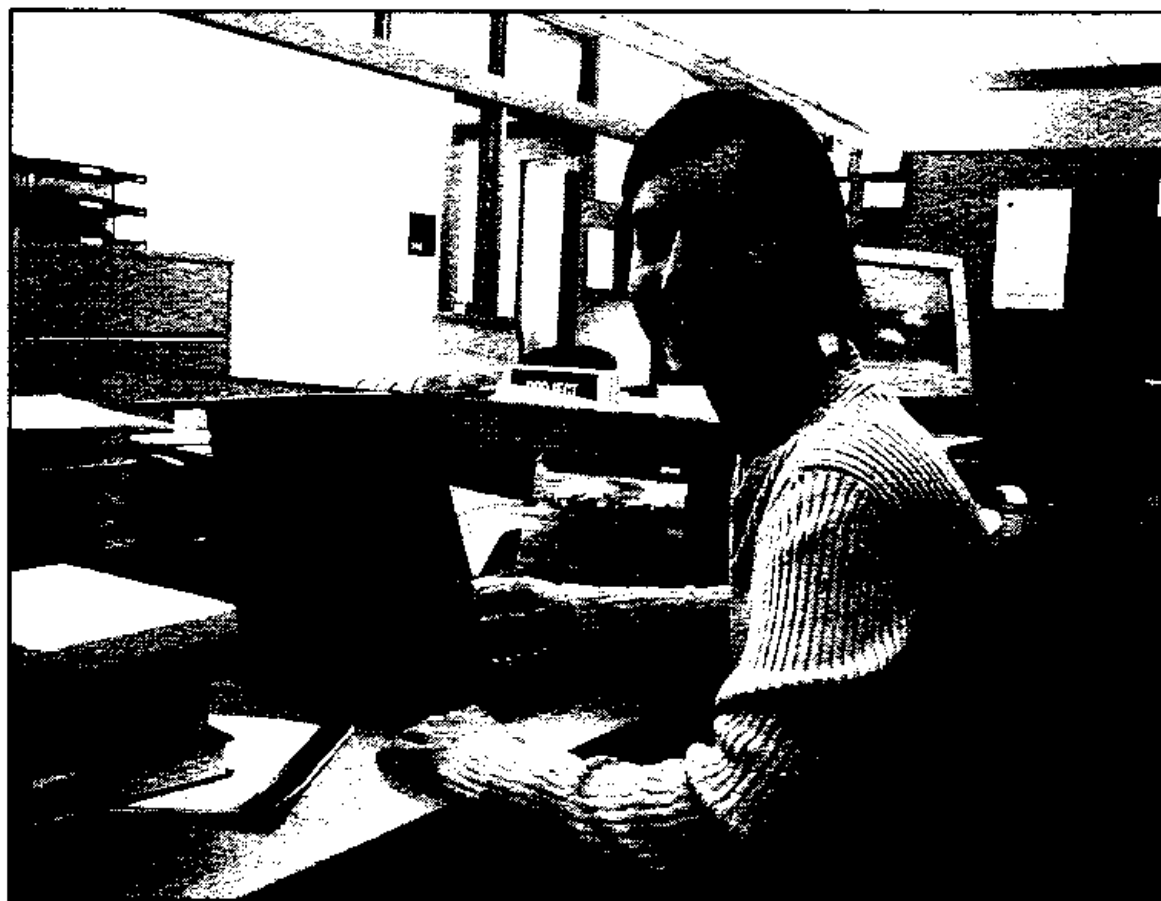
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International Scholar in Residence Researches the History of Artificial Intelligence at CBI

Continuing a long tradition of extended visits to the Charles Babbage Institute by overseas researchers, Corinna Schlombs from the Institute of Science and Technology Studies at the University of Bielefeld, Germany, recently concluded seven months as a scholar in residence at CBI. During her stay she participated in the University of Minnesota Program in the History of Science and Technology, auditing a graduate research seminar on the history of computing taught by CBI Director Arthur L. Norberg that focused on scientific and engineering computer applications. At Arthur's encouragement, she also audited a course of University of Minnesota Philosophy Professor Keith Gunderson, "Minds, Bodies and Machines." Gunderson, author of the influential book *Mentality and Machines*, has long distinguished himself as a leading scholar on the philosophy of mind.

Schlombs, who has a Master's degree in sociology, is member of the Graduate School on "Genese, Strukturen und Folgen von Wissenschaft und Technik" at Bielefeld, an interdisciplinary program combining history, philosophy and sociology of science and technology. Her doctoral research is focused on the history and sociology of artificial intelligence and examines how the concept of intelligence has changed over the last five decades in relation to computing technology.

As part of Norberg's course, Schlombs researched and wrote a paper on the development of the first artificial intelligence computer program, the Logic Theorist, a program developed by Allen Newell, J. Clifford Shaw and Herbert A. Simon. She analyzed how Simon and Newell's presentation of the Logic Theorist reconstructed these developments within the traditional origins of the field in the work of Alan Turing, John von Neumann and others. She argues that this reconstruction promoted unity within the field of AI at a time when the discipline of artificial intelligence faced a



Corinna Schlombs

number of challenges.

While at CBI Schlombs made extensive use of the Institute's oral history interviews with artificial intelligence pioneers, including Allen Newell, John McCarthy,

Marvin Minsky, and Edward Feigenbaum, as well several manuscript collections including the Edmund C. Berkeley Papers

Continued on page 6

British Society for the History of Mathematics: BSHM 2001 Annual Meeting

The British Society for the History of Mathematics: BSHM 2001 Annual Meeting, entitled, "From Sumer to Spreadsheets: The History of Mathematical Table Making," will be held at the Department for Continuing Education, University of Oxford on September 22-23, 2000.

Tables of one sort or another have been an important feature of mathematical, scientific, religious and business activity for some 4500 years. Sumerian scribes created coefficient tables for solving problems; Islamic scholars needed astronomical tables for religious observance; European navigators used logarithmic tables for expanding trade and conquest; Victorian insurers developed life tables to manage

the risks of life assurance; today business people use dynamic tables (spreadsheets) on their personal computers. This weekend conference, organised by the British Society for the History of Mathematics and sponsored by the London Mathematical Society, will address the technical, institutional, intellectual and social history of tables, from earliest times until the late twentieth century. Speakers include Eleanor Robson, Benno van Dalen, Graham Jagger, Ivor Grattan-Guinness, Michael R. Williams, Stephen Johnston, Doron Swade, Arthur Norberg, George Wilkins, Mary Croarken, David Grier, Eddy Higgs, Chris Lewin, and Martin Campbell-Kelly. Further details and booking information

Continued on page 5

Mathematical Tables History Conference

Continued from page 4

can be obtained from the conference Web site <http://www.dcs.warwick.ac.uk/~hoc/BSHM2001/> or the conference organisers via Martin Campbell-Kelly, University of Warwick, UK, e-mail mck@dcs.warwick.ac.uk. Booking inquiries should be addressed to Hazel Richards, OUDCE, 1 Wellington Square, Oxford, OX1 2JA, Tel. +44 1865 270 380, e-mail ppdayweek@conted.ox.ac.uk.

CBI Software History Bibliography

Continued from page 3

of Computing Research Association
William Aspray.

The broad range of secondary works in the new bibliography testifies to the diversity in disciplinary approaches to software history. Recent software-related scholarly articles by historians include Martin Campbell-Kelly's "The Development and Structure of the International Software Industry," *Business and Economic History* (1995); Paul Edwards' "Hyper Text and Hypertension," *Social Studies of Science* (1994); Jennifer Light's "When Computers Were Women," *Technology and Culture* (1999); and Michael Mahoney's "The Roots of Software Engineering," *CWI Quarterly* (1990).

Not surprisingly, many software histories come from informaticians themselves: Bruce Blum's *History of Medical Informatics* (1990), Rodney Brooks' *Cambrian Intelligence* (1999), Peter Eulenhöfer's *Informatics as Cultural Development* (1997), and Raymond Kurzweil's *Age of Spiritual Machines* (2000). Also prominent are historically-informed works from business and management professors, economists, and analysts: Michael

American Association for History and Computing 2001

The American Association for History and Computing (AAHC) held its annual meeting in Indianapolis at the beginning of February. The AAHC, an interdisciplinary organization of historians, archivists, information scientists, and scholars from a range of other fields promotes the study and application of computing technology to advance history education and scholarship.

This year's conference, "Moving Clio into the New Millennium: Interaction, Visualization, Digitization, and Collaboration," addressed topics related to the digitization of historical records, methodologies to enhance the effectiveness of Web resources in education, digital publishing, and a number of related issues.

CBI Associate Director Jeffrey Yost presented a paper entitled, "Overcoming the Discipline Divide: Knowledge Networking and the Advancement of the History of Software," in a session on methods and the history of information processing. Yost argued that despite opportunities opened by networking technology, Web resources and Web-based research projects remain tightly

focused on traditional discipline boundaries. In contrast, he presented the structure and ongoing work of the NSF-sponsored CBI project, "Building a Future for Software History," as a case study of using networking technology to bring together historians and members of the software community from academe and industry to conduct research and develop new resources in an understudied area of the history of science and technology.

A revised version of Yost's paper will be published in the *Journal of the Association for History and Computing*.

Also in this session, Charles Yood, a doctoral candidate in history at Penn State University, gave a talk on the changing roles of computer specialists in American corporations from the 1960s through the 1980s. Much of the research for this paper was conducted by Yood last year at the Charles Babbage Institute, where he analyzed materials from Data Processing Managers Association Records, Auerbach Associates Records, and other collections.

Jeffrey R. Yost

Cusumano's *Microsoft Secrets* (1995), Peter Cunningham's *The Electronic Business Revolution* (1999), Detlev Hoch's *Secrets of Software Success* (1999), Ted Lewis' *Microsoft Rising* (1999), and David Mowery's *The International Computer Software Industry* (1996).

Included in the compilation are a growing number of historical and history-oriented dissertations. Among these are Richard Briotta's examination of the adoption of computer-aided software engineering, Kristine Burns' history of algorithms for music composition, Edmund Egan's research on locational changes in the U.S. software industry,

Martha Garcia-Murillo's overview of intellectual property protection for software, Stuart Shapiro's discourse on computer software as an intangible technology, Kulwant Singh's evaluation of the hospital software systems industry, and Maria Valdez's exploration of the seemingly permanent "software crisis."

Primary literature found in the bibliography includes landmark papers and perceptive analyses by computer scientists, engineers, programmers, and business leaders published in the pages of such journals as the AFIPS Conference Proceedings, *Communications of*

Continued on page 7

Herbert A. Simon, 1916-2001

On February 9, 2001 Herbert A. Simon died at the age of 84. He had served as a CBF Trustee since September 1986. Simon was Richard King Mellon University Professor of Computer Science and Psychology at Carnegie Mellon University, having joined the faculty (of Carnegie Institute of Technology) in 1949. His pioneering work in artificial intelligence, cognitive science, psychology and economics had a deep impact on each these fields and won him numerous awards, including the Nobel Prize in Economics (1984), the Association of Computing Machinery A. M. Turing Award (1975), the National Medal of Science (1986), and the American Psychological Association's Award for Outstanding Lifetime Contributions to Psychology (1993).

In economics, Simon challenged the dominant classical economic principle of rational behavior dictating economic decision-making. He argued that individuals are incapable of obtaining and processing all the information needed to make rational decisions, and instead, make "satisficing" decisions based on limited information and understanding, or rather, they operate under a "bounded rationality." He introduced these ideas with two classic papers in the early 1950s, "A Behavioral Theory of Rational Choice," and "Rational Choice and the Structure of the Environment."

In the early 1950s Simon also began his longtime collaboration with Allen Newell of the Rand Corporation. Simon and Newell soon utilized computers to model and study human decision-making, and at the end of 1955 successfully completed a computer program that could prove mathematical theorems. The work of Simon and Newell became central to the early development of the field of artificial intelligence and defined Carnegie Institute of Technology, and later Carnegie Mellon University, as one of the world's leading centers of research in this area (along with MIT and Stanford University). Simon and Newell trained a number of the discipline's future leaders. Most notably, Simon's early student and collaborator on the influential EPAM program, CBF Trustee and Stanford



Herbert A. Simon

University Kumagai Professor of Computer Science Edward A. Feigenbaum developed and became the leading spokesperson for expert systems.

Simon published 27 books and dozens of articles, demonstrating great breadth, originality and interdisciplinary understanding. In 1991 he completed his autobiography, *Models of My Life*. The papers of both Simon and Newell are housed at Carnegie Mellon University Library and contain some of the most significant primary source material available on the history of artificial intelligence.

Simon is survived by his wife Dorothea, three children, Katherine Simon Frank, Peter Simon, and Barbara M. Simon, six grandchildren, three step-grandchildren, and five great-grandchildren.

Jeffrey R. Yost

Schlombs

Continued from page 4

and the Honeywell-Sperry Rand Litigation Records. Equally important to her research was CBI's reference collection of secondary publications, which includes works that Schlombs was unable to access in Germany.

In addition to her work with Norberg and Gunderson, Schlombs also interacted

Recent Publications

Continued from page 2

Edwards, Paul N. "Making History: New Directions in Computer Historiography" *IEEE Annals of the History of Computing* 23:1 (Jan.-Mar. 2001) 86-88.

Freeman, Christopher and Francisco Louca. *As Time Goes By: The Information Revolution and the Industrial Revolutions in Historical Perspective* (Oxford: Oxford University Press, 2001).

Gray, George T. "Sperry Rand's Third-Generation Computers 1964-1980" *IEEE Annals of the History of Computing* 23:1 (Jan.-Mar. 2001) 3-16.

Kerr, K. Austin. "Revisiting Business Historians and the Internet" *Enterprise and Society* 1:1 (March 2000) 179-181.

Levy, Stephen. *Crypto: How Code Rebels Beat the Government—Saving Privacy in the Digital Age* (New York: Viking, 2001).

Santangelo, Grazia D. "Corporate Strategic Technological Partnerships in the European Information and Communications Technology Industry" *Research Policy* 29:9 (December 2000) 1015-31.

Shenk, David. *The End of Patience: Cautionary Notes on the Information Revolution* (Bloomington, Indiana: Indiana University Press, 1999).

Siegfried, Tom. *The Bit and the Pendulum: Computing to M Theory—The New Physics of Information* (New York: John Wiley & Sons, 2000).

Yates, Joanne and John Van Maanen, eds. *Information Technology and Organizational Transformation: History, Rhetoric, and Practice* (Thousand Oaks, California: Sage Publications, 2001).

Comp. by Jeffrey R. Yost

extensively with CBI Associate Director Jeffrey Yost and Software History Project Manager Philip Frana, both of whom recently have conducted research on artificial intelligence as part of the Software History Project. This exchange of knowledge, ideas, and research proved beneficial to all.

Jeffrey R. Yost

IBM Celebration

Continued from page 1

would be and how honored University Libraries is for being one of a small number of organizations in the United States to receive this gift. The Pieta Kiosk is currently on display in the atrium of the Elmer L. Andersen Library.

Following Shaughnessy, Overbeck discussed the long partnership between the University of Minnesota and IBM, a partnership that has supported many educational initiatives at the University of Minnesota. In turn, the University of Minnesota has educated many future employees of IBM Rochester and the corporation's other facilities around the nation and the world.

Paul Lasewicz then spoke on the partnership between the IBM Archives and the Charles Babbage Institute in preserving and making use of the history of information technology. He described how he was immediately welcomed to CBI after signing on as the IBM archivist, and was pleased to help host the 1999 Meeting of the Charles Babbage Foundation at the IBM Corporate Archives in Somers, New York.

After Lasewicz, Jim Cortada provided a brief history of the Charles Babbage Institute and description of some of its current research and archives programs. He emphasized that every serious scholar of the history of computing draws upon the many resources of CBI and the assistance of its staff.

The Charles Babbage Institute is grateful to the IBM Corporation for its gift of equipment and would especially like to thank IBM's Jim Cortada, John Overbeck, and Valerie Pace (IBM State Manager for Corporate Community Relations) for their assistance with and support of this donation. CBI would also like to extend thanks to Tom Shaughnessy, Peggy Johnson, Judy Ham and Lanaya Stangret of University Libraries for organizing and hosting this event.

Jeffrey R. Yost

Recent Acquisitions

Continued from page 3

for Y2K, or the aftermath of the change. Most of the organizations established to address the Y2K problem have disbanded and their records dispersed or destroyed. CBI is very pleased to have acquired the records of two such organizations, and in doing so, to preserve data that will make future scholarly analysis possible.

The International Y2K Cooperation Center (IY2KCC), an organization funded by the World Bank's infoDev program and the World Information Technology Services Alliance, was created at the behest of national Y2K coordinators from over 120 countries. These representatives attended an organizing meeting at the United Nations in 1998, and the IY2KCC opened offices in Washington D.C. in March 1999. Virtual offices in Seoul, London, and Tokyo, and regional offices in Santiago, Mexico City, and Sofia followed. Representatives from 170 countries attended the Second Global meeting at the UN, making it the largest attended single-issue event in the history of the UN, and forty-five conferences in eight regions followed.

The IY2KCC's mission was to promote increased strategic cooperation and action among governments, citizens, and the private sector to minimize adverse Y2K effects on the global society and economy. Its strategy in doing so was to develop a comprehensive communications plan, which included, among other things, designing and distributing a Y2K readiness questionnaire to all participating countries. The response data from that questionnaire provides a picture – not captured elsewhere — of each country's assessment of its own Y2K readiness and information technology infrastructure. In addition to the questionnaires, the IY2KCC Records includes organizational correspondence, meeting minutes, glitch reports and descriptions of the aftermath of the changeover.

The Center for Y2K and Society is a second organization whose records were recently acquired by CBI. The center

was affiliated with the Center for Strategic and International Studies, the Center for Policy Alternatives, and a number of other non-profit and public policy organizations. In addition to committee materials and records of periodic "community conversations" sponsored by the group, materials in this collection include a broad sampling of materials generated by the Y2K problem, including advertising, readiness kits, consultants reports, and various secondary publications.

Scattered throughout other CBI collections are some – but not all – of the now hard to find records of working groups that in the late 1960s and early 1970s were involved in creating the specifications for calendar dates, that eventually manifested in the Y2K problem. These include partial documentation relating to FIPS 4, which in 1968 issued the first national computer date standard, and the records of the committee that developed ANSI standard X3.30, the voluntary standard for date expression issued in 1970. We hope to gather a more comprehensive set of materials in this area, and readers of the *CBI Newsletter* who have files relating to either the date standard or to the Y2K problem are urged to contact the CBI archivist.

Elisabeth Kaplan

Software Bibliography

Continued from page 5

the ACM, Computing Surveys, Datamation, IBM Journal of Research and Development, IBM Systems Journal, IEEE Computer, and Journal of the ACM. Numerous CBI oral histories and archival collections of interest are also listed.

Philip L. Frana

25 Years Ago

During the 1970s and 1980s, computing communities of all stripes began to print and distribute informal serial publications concerning software, mini- and microcomputing. Many of these publications were short lived – some survived for only an issue or two – and most were produced in small quantities. These materials, with their unusual artwork and printing techniques have become interesting artifacts themselves, while providing today’s researchers with an “alternative” perspective on developments in computing and software during those decades.

Creative Computing was one such publication. It first appeared in November 1974 and was published bi-monthly, and then less frequently, through 1985. The “non-profit magazine of educational and recreational computing” was the creation of David Ahl, who perceived a need for a computer periodical that emphasized reader involvement. *Creative Computing* was geared toward an audience of hobbyists and students from the elementary school level up. Pictured here is the cover from a 1976 issue of *Creative Computing*, featuring an illustration by famed underground cartoonist R. Crumb.

Elisabeth Kaplan

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