

## Control Data Corporation Records Donated

CBI officially added to its collection the records of the Control Data Corporation (CDC) with the signing of an agreement between the University of Minnesota and Ceridian Corporation, one of the two companies created from Control Data in 1992. The collection is the second major acquisition by CBI to document the early U.S. computer industry. Unisys donated the records of the Burroughs Corporation in 1991. Both company collections represent an invaluable resource for understanding the growth and development of the computer industry. CBI is grateful to Ceridian Corporation for making this important collection available for historical research.

The Control Data Corporation was established in Minneapolis in 1957,

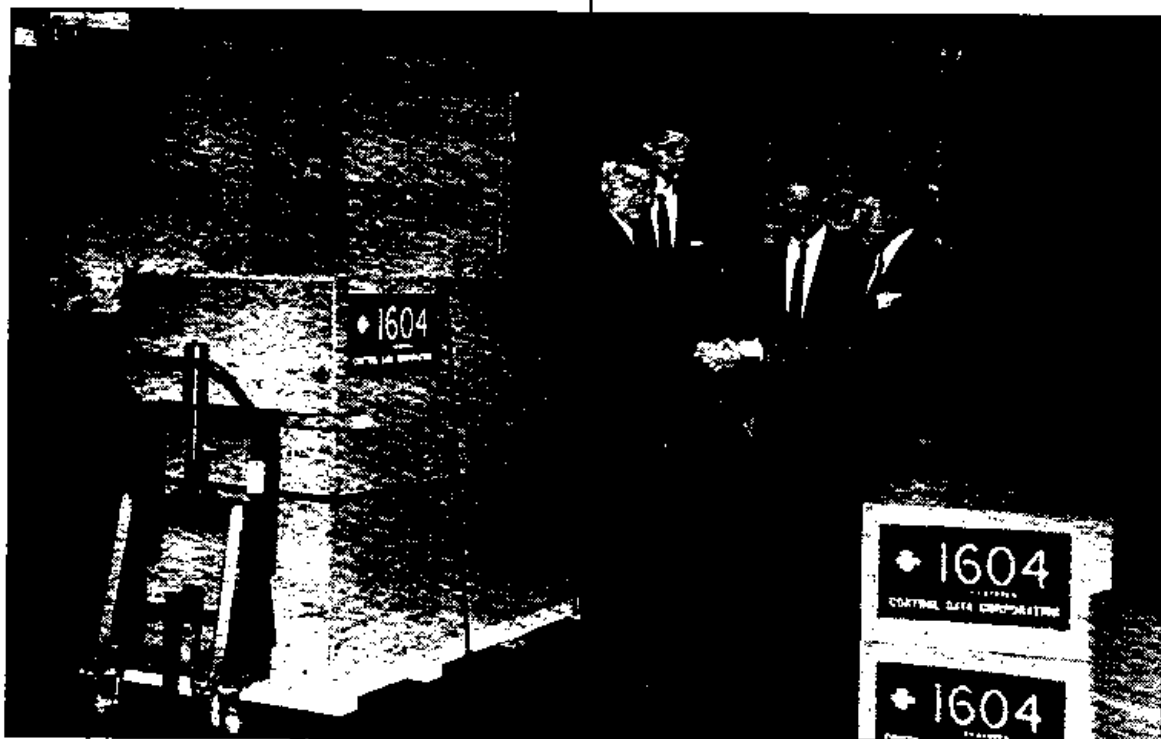
formed by a group led by William C. Norris. Norris was a founding vice president of Engineering Research Associates who later headed the Univac Division of Sperry Rand. Among the engineering talent at the new company was Seymour Cray, who began work on a prototype computer that was to lead to the delivery of the transistorized 1604 computer. The 1604 was a success with large-scale scientific and engineering customers, and established the company as one of the archetypes of an entrepreneurial computer company.

Within a relatively short time CDC ranked among the top ten U.S. firms in revenues from data processing equipment. Its reputation grew as a provider of fast computers, quality plug-compatible peripherals, original equipment

manufacturer products, an international network of data centers, and computer technical education through Control Data Institutes. The company also established a reputation for aggressively acquiring other business, including Cedar Engineering, the computer operations of Bendix, C-E-I-R, Daystrom, Rabinow Engineering, Holley Computer Products, and Commercial Credit, which was significantly larger than the parent computer company and markedly changed the character of CDC.

Most of the donated records originated from CDC's "Historical Archives," which was formed in 1980. The archives identified historically valuable records stored in CDC's records storage facilities. It began to retrieve files for permanent retention and to document the company's history through interviews of company executives. Material continued to be added to the archives until the operation was closed in 1991.

CBI maintained a close relationship with the CDC archives from its inception, culminating in a CBI research project conducted at CDC that generated data used in *The High-Technology Company: A Historical Research and Archival Guide* (1989). A group of historically valuable records stored outside of the corporate archives were examined and identified by the project staff. This process proved fortunate because it helped to identify records beyond those held by the corporate archives, particularly the records relating to the 1604 computer, the PLATO computer-based education system, and C-E-I-R. These records were also donated to CBI.



*Shipment of the first 1604 computer to the U.S. Navy. On the loading dock of the original Control Data headquarters are (left to right) William C. Norris, Frank Mullaney, George Hanson, and a representative of North American Van Lines, January 1960 (P290).*

## Recent Publications

Peter John Bird, *LEO: The First Business Computer*. Wokingham, England: Hasler Publishing Ltd., 1994.

Colin Burke, *Information and Secrecy: Vannevar Bush, Ultra, and the Other Memex*. Metuchen, New Jersey: Scarecrow Press, 1994.

James W. Cortada, *Before the Computer: IBM, NCR, Burroughs, and Remington Rand and the Industry they Created, 1865-1956*. Princeton, New Jersey: Princeton University Press, 1992.

Bernard S. Finn, *History of Electrical Technology: An Annotated Bibliography*. New York: Garland Publishing, 1991.

F.H. Hinsley and Alan Stripp, eds. *Codebreakers: The Inside Story of Bletchley Park*. New York: Oxford University Press, 1993.

Richard Hull, *In Praise of WIMPS: A Social History of Computer Programming*. Hebden Bridge, West Yorkshire: Alice Publications, 1992.

Daniel Ichbiah and Susan L. Knepper, *The Making of Microsoft, How Bill Gates and his Team Created the World's*

## CHARLES BABBAGE INSTITUTE NEWSLETTER

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### E-Mail Addresses for CBI Staff

Judy E. O'Neill, Acting Director  
jeo@maroon.tc.umn.edu  
Bruce Bruemmer, Archivist  
B-Brue@vm1.spcs.umn.edu  
Kevin D. Corbitt, Assistant Archivist  
K-Corb@vm1.spcs.umn.edu  
Susan A. Stepka, Project Archivist  
S-Step@vm1.spcs.umn.edu  
General e-mail address for CBI staff  
cbi@vx.cis.umn.edu  
Telephone: 612 624-5050  
Fax: 612 625-8054

*Most Successful Software Company*. Rocklin, CA: Prima Pub, 1991.

Michele Horner Jackson, "Application of an Integrated Definition of 'Artifact' through an Historical Analysis of Computer-Based Technologies to Support Group Communication." Ph.D. Dissertation. University of Minnesota, 1994.

Peggy A. Kidwell and Paul E. Ceruzzi, *Landmarks in Digital Computing: A Smithsonian Pictorial History*, Washington, D.C.: Smithsonian Institution Press, 1994.

Steve Lubar, *Infoculture: the Smithsonian Book of Information Age Inventions*. Boston, MA: Houghton Mifflin, 1993.

Stephen Manes and Paul Andrews, *Gates: How Microsoft's Mogul Reinvented an Industry — and Made Himself the Richest Man in America*. New York: Doubleday, 1993.

### Articles of Interest

Martin Campbell-Kelly, "ICL: Taming the R&D Beast," *Business and Economic History*, 22:1(1993): 169-180.

Gregory D. Crowe and Seymour E. Goodman, "S.A. Lebedev and the Birth of Soviet Computing," *Annals of the History of Computing*, 16:1(1994):4-24.

Alan Dornian, "ReserVec: Trans-Canada Air-Lines' Computerized Reservation System," *Annals of the History of Computing*, 16:2(1994):31-42.

Jon Eklund, "The Reservisor Automated Airline Reservation System: Combining Communications and Computing," *Annals of the History of Computing*, 16:1(1994):62-69.

Boelie Elzen and Donald MacKenzie, "The Social Limits of Speed: The Development and Use of Supercomputers," *Annals of the History of Computing*, 16:1(1994):46-61.

M. Fortun and S.S. Schweber, "Scientists and the Legacy of World War II - the Case of Operations-Research," *Social Studies of Science*, 23:4 (1993): 595-642.

Ole Immanuel Franksen, "Babbage and Cryptography. Or, the Mystery of Admiral Beaufort's Cipher," *Mathematics and Computers in Simulation*, 35(1993):327-367.

W. Barkley Fritz, "ENIAC — A Problem Solver," *Annals of the History*

*of Computing*, 16:1(1994):25-45.

J.N. Patterson Hume, "Development of Systems Software for the Ferut Computer at the University of Toronto, 1952 to 1955," *Annals of the History of Computing*, 16:2(1994):13-19.

Frederik Nebeker, "Thelma Estrin, Biomedical Engineer: A Pioneer of Applied Computing," *Proceedings of the IEEE*, 81:10(1993):1370-1382.

Arthur L. Norberg, "New Engineering Companies and the Evolution of the United States Computer Industry," *Business and Economic History*, 22:1 (1993):181-193.

Linda Petiot, "Dirty Gertie: The DRTE Computer," *Annals of the History of Computing*, 16:2(1994):43-52.

John Seabrook, "A Reporter at Large: E-Mail from Bill," *The New Yorker*, January 10, 1994.

Steve W. Usselman, "IBM and Its Imitators: Organizational Capabilities and Emergence of the International Computer Industry," *Business and Economic History*, 22:2(1993):1-35.

John Vardalas, "From DATAR to the FP-6000: Technological Change in a Canadian Industrial Context," *Annals of the History of Computing*, 16:2(1994): 20-30.

Michael R. Williams, "UTEC and Ferut: The University of Toronto's Computation Centre," *Annals of the History of Computing*, 16:2(1994):4-12. □

## 1994 Friends of CBI

The Charles Babbage Institute gratefully acknowledges the individuals and organizations listed below for their recent renewals or new membership in the 1994 Friends of CBI program. Information about the Friends Program can be found in the Fall Newsletter or by contacting CBI.

**Colleague Members:** Jeffrey Chuan Chu, Chester I. Lappen

**Participating Associate Members:** Forum fur Informationstechnik GmbH, Joshua Lederberg, Erez Kaplan

**Associate Members:** Rebecca E. Skinner, Earl Swartzlander, Norman E. Wright □

*Production of this newsletter is supported by Analysts International.*

## Hemmis Chosen as 1994-95 Tomash Fellowship Recipient

The Charles Babbage Institute awarded the sixth Adelle and Erwin Tomash Fellowship in the History of Information Processing to Patricia A. Hemmis. Ms. Hemmis is a Ph.D. candidate in the Department of Design, Housing and Apparel at the University of Minnesota. She received a B.F.A. in Graphic Design from the University of Illinois at Urbana-Champaign in 1976.

Ms. Hemmis's research project investigates the symbols and metaphors associated with the first generation of computers in the United States. Her research will attempt to discover how the physical appearance and abilities of the machine, the way it was presented and discussed, the problems it solved, the problems it could not solve, its similarity to other artifacts as well as its uniqueness



*Patricia A. Hemmis*

all contributed to collective notions about the computer. She is particularly interested in exploring the visual and spatial organization of artifacts and how the

people who use artifacts are not just passive receivers of cultural messages but are active participants in the development of cultural symbols.

Hemmis will focus on the presentation of early machines to the public to illustrate the complex manner in which the machine and its presentation reflected social and cultural notions of science, technology, and the relationship between humans and machines. Her project will draw on her cross-disciplinary background; she will use a variety of research methods from cultural, intellectual and social history, history of technology, material and popular culture and art history.

Ms. Hemmis will spend much of her time during the 1994-95 academic year at CBI as she continues her extensive use of CBI's collections. □

## New FAX Number for CBI

Thanks to the generosity of Francis A. Kulacki, Dean of the Institute of Technology at the University of Minnesota, the Charles Babbage Institute now has its own fax machine. CBI's new fax number is 612 625-8054. □

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The entire collection at CBI consists of over 375 linear feet of correspondence, reports, minutes, internal publications, product literature, photographs, and other audio visual materials documenting the company from its formation until 1992, when it split into Ceridian Corporation and Control Data Systems, Inc. Some of the files found in the collection include William C. Norris's speeches, Frank Mullaney's correspondence, plans for the computer systems division (1960-1966), Research and Development project reports, executive history narratives, product manuals, news releases from 1958-1987, and sound and video recordings of interviews with Control Data representatives.

The collection is particularly rich in audio-visual materials. The main photographic file contains over 1,650 prints depicting the company's visual



*Fabrication, assembly and test of disk drive heads and modules at the components division of Magnetic Peripherals, Inc., ca. 1980.*

history of products, individuals, facilities, and events, all of which are indexed. CBI has converted the card catalog to a computerized database and hopes to produce a CD-ROM of photographs if resources can be located. Many more prints, negatives, and slides that were donated with the collection require further organizing and processing. Also present are news media and oral history interviews of Control Data executives, all recorded on audio cassette tape (present-

ing a preservation dilemma because cassette tape is not archival). Films and video tapes are represented as well, including everything from Control Data Institute commercials to a seven-minute 16mm film made in 1960 on the proper pronunciation of "data" in Control Data.

While the collection at CBI represents the best source of documentation about CDC, it is not yet as complete as it could be. Most of the records collected by the

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# Control Data Corporation Chronology

**1957** Company incorporated (July 8) with headquarters at 501 Park, Minneapolis; acquired Cedar Engineering.  
**1958** Received first order for 1604 computer; "Little Character," 1/10-scale prototype of 1604, is operational; Sperry Rand sues CDC.  
**1959** Delivered air traffic control display.  
**1960** Delivered 1604 and 160 computers; acquired Control Corp.; established first CDC data center (Minneapolis).  
**1961** Delivered 160A and 924; established new computing center in San Francisco; awarded \$5 million contract for fire control computer for Polaris Submarines; net sales = \$19,783,745.  
**1962** Delivered Polaris computer, 606 tape transport, and 166 line printer; opened European office in Lucerne, Switzerland; moved to new headquarters building in Bloomington, MN; Sperry Rand lawsuit settled out of court.  
**1963** Delivered 3600 computer, 603 tape drive, 405 card reader; acquired Beck's, Inc., Computer Division of Bendix Corporation, Control Systems Division of Daystrom, Digigraphic Systems of Itek.  
**1964** Delivered 501 Line printer, 3200 computer; acquired Rabinow Engineering, Transactor business (General Time), Holley Computer Products, Bridge, Inc., Computer Laboratories, Inc., Adcomp Corp., TRG Inc;  
**1965** Delivered 3100, 6600; acquired



*A trade show display of Control Data Canada, Ltd. Probably in Toronto, ca. 1979.*

Data Display, Datatrol, Computech, Glenn W. Preston Associates; ceases production of 160-A and 1604A; established Control Data Institutes; net sales (annual report) = \$16,473,162.  
**1966** Delivered 1700, 3800, 6400; awarded \$22.7 million contract from U.S. Post Office for Postal Source Data System.  
**1967** Delivered 6500 computer; acquired Autocon Industries, Automatic Control Company, C-E-I-R, Inc.; established first non-U.S. Control Data Institute in Frankfurt.  
**1968** Delivered 449-2 Special Miniature Computer, 200 Remote User Terminal, SCOPE operating system; acquired

Commercial Credit Corporation; filed antitrust lawsuit against IBM; established Cybernet communication network.  
**1969** Delivered 3500, 7600 computers; acquired Computing Devices of Canada, Precision Data Card, Marshall Communications, Printed Circuits, Inc., American Business Systems, Inc., partial interest in Ticketron; net sales/revenue (annual report) = \$570,766,145  
**1970** Delivered 3170, 6200, 6700 computers; unbundled hardware, software, and service prices; offered KRONOS 1.0 operating system; announced Star 100.  
**1971** Delivered 921 Optical Character Reading machine, Cyber 70.  
**1972** Delivered Cyber 72, 73, 74; acquired Syntonic Technology; established Computer Peripherals, Inc. with NCR; established Committee for Social Responsibility.  
**1973** Acquired data services operation from ITT, System Resources, remaining interest in Ticketron; Service Bureau Corporation (as part of the IBM settlement); Peripheral Products offered low-cost disk drives; signed 10-year cooperation agreement with Soviet Union; Seymour Cray left to form Cray Research; net sales/revenue (annual report) = \$948,191,000.  
**1974** Delivered Star 100 (to Lawrence Livermore), System 17 microcomputer; acquired Credit Francaise, First Holding, Ltd., Davidsohn Computer Services; retired old CDC logo; introduced 33302



*William C. Norris at the console of the 3600 computer, 1964 (P1229).*



*Seymour R. Cray holding a component of the 7600 computer, ca. 1968 (P447).*

multiple disk system.

**1975** Delivered Cyber 172, 175; acquired Medlab Computer Services, Compu-Net, Inc.; established Technotec data service and Magnetic Peripherals, Inc. (with Honeywell).

**1976** Delivered 38500 Mass Storage System; announced PLATO computer-based education system; established Control Dataset, Ltd. with JCI. and Computer Terminals of Iran with Iranian Government.

**1977** Declared first dividend on common stock; published statement on Social Justice; implemented PLATO Systems at all domestic Control Data Institutes; net sales/revenue = \$2,301,046,000.

**1978** Delivered Cyber 175; sixty-nine Control Data Institutes and learning centers worldwide; formed City Venture Corporation; *Corporate Report* named William C. Norris "Upper Midwest Executive of the Year."

**1980** Delivered Cyber 203, 205; formed Control Data Properties.

**1981** Announced 110 microcomputer; net sales (annual report)=\$3,101,300,000

**1982** Acquired Computer Industries Corp.; announced 5-1/4" Wren drive, Cyber 180; established (with 14 other companies) the Microelectronics and Computer Technology Corporation in Austin, Texas.

**1983** Acquired Medix Schools; announced 14" OEM Winchester Drive; established ETA Systems, Inc.; CAD center (a joint project between CDC and

NCR) opens in Santa Clara, California.

**1984** Acquired Communications Solutions, Inc.; introduced Cyber 180; announced phase out of plug compatible-peripheral equipment business.

**1985** Sold Syntonic, Electronic Realty Associates, Commtrak, Landmark Graphics; net sales (annual report) = \$3,679,700,000.

**1986** Sold Communications Solutions, Inc., Trinet, floppy disk drive business, Burke Marketing, Multi-Arc, majority portion of Commercial Credit, stock in Centronics; announced ETA10G; William C. Norris retired; Robert Price named CEO.

**1987** Sold remaining interest in Commercial Credit Corp.; acquired SAMI/Burke, remaining interest in VTC, Inc.

**1988** Acquired 20% interest in Silicon Graphics; announced Cyber 960; reorganized Data Storage Products group under Imprimis Technology, Inc.

**1989** Sold VTC, Imprimis, PLATO and Control Data Institutes in the United States; closed ETA Systems with a \$490 million write-off; Robert Price retired; Lawrence Perlman named CEO; net sales from annual report = \$2,934,000,000.

**1991** Acquired MiniData Services, Hazelden Employee Assistance Services, Barrios Technology; announced InfoServer 4680; donated portion of archives to CBI.

**1992** Divided Control Data Corporation into Ceridian Corporation and Control Data Systems, Inc. □

## NEH Grants

The National Endowment for the Humanities announces the availability of grants under the program of Humanities, Science and Technology for the support of research that brings to bear the knowledge, methods, and perspectives of the humanities in the subjects of science, technology, or medicine. Historical studies and studies of current topics are eligible. However, studies of current science, technology, or medicine must deal with fundamental issues in the humanities. Individuals and institutions are eligible to apply. Applicants may request support for full or part-time salaries, travel, and other costs of conducting research for periods of from one to three years. This category of support is for projects that, because of their intellectual scope and consequent size, duration, or complexity, cannot be accomplished through individual one-year fellowships.

Application materials are available from *Daniel Jones, Program Officer for Humanities, Science and Technology, Room 318, National Endowment for the Humanities, Washington, DC 20506 Telephone: 202 606-8210.* Deadline for receipt of applications is October 15, 1994. □

## Interface Conference

Interface '94, the Nineteenth Annual Humanities and Technology Conference, will be held in Atlanta, Georgia on October 27-28, 1994. Interface has in the past brought together professionals from such diverse fields as engineering, technology, computer science, history, literature, and physics to discuss issues that cut across traditional disciplinary boundaries. For further information, contact: *Dr. Julie Newell Social and International Studies Southern College of Technology 1100 South Marietta Parkway Marietta, Ga. 30060-2896 Telephone: 404 528-7481.* □

### When You Move...

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corporate archives focused on the activities of executives and major announcements of the company, and as such are less detailed about production, manufacturing, and product research. Also, Control Data held the extant records of many of its corporate acquisitions, many of which were important forces in the computer industry. CBI continues to work with representatives of Ceridian to locate other historically valuable records, and CBI has approached Control Data Systems about material that they may hold. Former employees may also become an important source of records. Two years ago Jay Kershaw donated a large group of records relating to two Control Data projects, Technotec and WorldTech. Another individual has agreed to donate records relating to PLATO dating from its purchase from the University of Illinois.

As more material is acquired, CBI



*The PLATO computer-based education terminal, 1976.*

plans to organize and catalog the collection to make it more accessible for research. Most of the material is available without restriction, and a number of researchers from Ceridian,

Control Data Systems, and academic institutions have used the collection at CBI. Individuals interested in further information about the CDC records should contact the CBI archivist. □

## CHARLES BABBAGE INSTITUTE NEWSLETTER

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University of Minnesota  
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117 Pleasant Street S.E.  
Minneapolis, MN 55455, U.S.A.

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