

Charles Babbage Institute Annual Report for 1985-86

NEW INITIATIVES

Understanding Corporate Records for Historical Research

CBI has long recognized the need to preserve resources that adequately reflect the contributions of the industrial sector to the development and application of the computer. Unfortunately, standard archival theory is ill-equipped to handle such business records in an effective and efficient manner. In our continuing efforts to develop information about records generated by significant industrial computer projects, we designed three new case studies to be conducted in cooperation with Control Data Corporation.

This one-year project, part of our program to formulate a national collecting strategy, has the immediate objectives of:

- developing effective appraisal criteria for computer industry records, and
- comparing the value of other sources, such as government records, published literature, and oral histories, as alternatives to industry records.

Building Historical Foundations

With the increased interest in the history of computing in recent years, the number of archivists, historians, and curators participating in the field has grown rapidly. This larger community provides the opportunity to address the critical issues in the field in a systematic way, but also introduces the problem of how to keep a larger community informed about what is going on. These two areas were the subject of a meeting of historians, archivists, and curators called by CBI to transfer information about interests in the field, to describe the program and approach of CBI, and to gain further appreciation of the important historical issues and the records needed to support historical research. The group generated a list of some of the greatest immediate needs for

the history of computing. Over the coming year, some of these will receive attention by the persons attending the meeting, especially by CBI. Such meetings help CBI fulfill its commitment to broad participation in archival and historical research.

Symposium on "Computing in the 21st Century"

This year, 1986, culminates four decades of computer technology development and application. In these decades many people contributed to innovation in the technology, expansion of a new industry, and application of computing to all walks of life. Now, with the maturation of computer science techniques and new approaches on the horizon, we may be on the threshold of another series of major events similar to those of the earlier years. To celebrate these past developments and to identify the links

between past and future, CBI organized a two day symposium to occur in September 1986. Major addresses were offered on the maturation of computing and the impact of computing on society—technical, social, educational, and economic. A series of presentations on rapidly changing technical areas—software engineering, artificial intelligence, VLSI, and super-computing—offered a perspective on computing in the 21st Century. All planning for this symposium took place in the present year.

Historical Research

With support from the National Science Foundation, William Aspray will review archival resources and published literature, collect additional archival material including oral histories, and write a history of John von Neumann's development of the computer as a scientific in-

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From the Director

Each year since its founding, The Charles Babbage Institute has focused on two major objectives:

- engaging in historical research to foster greater understanding of significant events in information processing,
- identifying and preserving the significant records associated with this field.

These two objectives are intimately related, because good history requires records of various kinds and proper preservation requires knowledgeable appraisers. New initiatives to achieve these objectives begin each year as earlier initiatives come to an end. In the past year, several new initiatives were developed, and continuing programs reached new levels of accomplishment. And three projects were essentially complete at the end of the year. All of these developments are described in this report.

A special note of thanks is due to our sponsors. Building archives and writing the history of an activity is a long-term enterprise, and sometimes results are difficult to appreciate in the short term. Our sponsors have demonstrated their faith in us and their belief in the task at hand by offering yearly financial support and the aid of their personnel. This support makes it possible for CBI to pursue these objectives in a scholarly environment and to engage many people in the international community in the work. Our results are their results as well.

Arthur L. Norberg

CBI Announces Predoctoral Fellowship and Professional Internship for 1987-88

The Charles Babbage Institute was founded in 1978 with the goal of conducting and promoting historical research in the technical and socio-economic aspects of information processing. Located on the University of Minnesota campus, the Institute maintains an archival center, serves as a clearinghouse for historical information, and sponsors other scholarly activities. In an effort to increase the number of qualified scholars in the field, the Institute is sponsoring a Predoctoral Fellowship and a Professional Internship.

Predoctoral Fellowship

The Charles Babbage Institute is accepting applications for a Graduate Fellowship to be awarded for the 1987-88 academic year to a graduate student whose dissertation will address some aspect of the history of computers and information processing. Topics may be chosen from the technical history of hardware or software, economic or business aspects of the information processing industry, or other topics in the social, institutional, or legal history of computing. Theses which consider technical issues in their socio-economic context are especially encouraged.

There are no restrictions on the venue of the fellowship. It may be held at the home academic institution, the Babbage Institute, or any other location where there are appropriate research facilities. The stipend will be \$6,000 plus an amount up to \$2,500 for tuition, fees, travel, and other approved research expenses. Priority will be given to students who have completed all requirements for the doctoral degree except the research and writing of the dissertation, though less advanced and incoming graduate students will also be considered. Fellows may reapply for up to two one-year continuations of the Fellowships.

Applicants should send biographical data and a research plan. The plan should contain a statement and justification of the research problem, a plan of procedure for research and writing, and information on availability of research materials and faculty support for the project. Applicants should arrange for three letters of reference, certified transcripts of college credits, and GRE scores to be sent directly to the Institute.

Professional Internship

The Charles Babbage Institute is accepting applications for a Professional Internship to be awarded for a period of three to nine months between June 1, 1987 and May 31, 1988. The Internship is available to professional staff interested in an introduction to the history of information processing. Appropriate applicants might include, but are not limited to, historians and social scientists interested in the history of information processing and its infrastructure, academics interested in preparing new courses in this history, or records managers and archivists interested in related archival problems.

Residence is required at the Babbage Institute, on the University of Minnesota campus. Interns are required to conduct a research project under the direction of the Institute staff. Routine office and clerical support services are provided.

The stipend for the Internship is \$1,000 per month. Interns may receive additional outside support, but must devote their full time to the history of information processing while the internship is in effect.

Applications should send biographical data, a statement of interests, a proposal of dates during which the Internship would be held, and the names (with telephone numbers and addresses) of three references.

Complete application materials should be received by January 15, 1987 by The Charles Babbage Institute, University of Minnesota, 103 Walter Library, 117 Pleasant Street S.E., Minneapolis, MN 55455, U.S.A. Telephone 612/624-5050. The number of awards is dependent upon funding. □

Recent CBI Fellow Completes Dissertation

Clifford I. Nass, one of two holders of the Charles Babbage Institute fellowship this year, has completed his doctoral dissertation in the Department of Sociology at Princeton University. The dissertation, entitled "Society as Computer: The Structure and Skill of Information Work in the United States, 1900-1980," is described in our Spring 1986 newsletter.

Copies are available from University Microfilms International (N. Zeeb Road, Ann Arbor, MI) or by contacting the author at the Department of Communications, Stanford University. A copy is available for examination at the Babbage Institute. □

Visiting Scholar in Residence at CBI



Marek Rostocki

CBI is pleased to have Marek Rostocki in residence for the academic year 1986-87 as a Visiting Senior Fulbright Scholar. He is on leave from his position as Science Editor in Warsaw, Poland for the major weekly magazine *Polityka* (circulation 400,000). Rostocki is researching the interaction of experts and politicians in establishing scientific and political policy, especially in the U.S. Congress. He is focusing on three issues: nuclear energy, computer-based record-keeping and the right to privacy, and the impacts of the SDI program on the development of computer and other civilian technologies.

Rostocki was born in Gdansk, Poland in 1949. He graduated from the Technical University of Warsaw in 1973 and then managed a computer-aided design program in a Polish research institute for three years. From 1981 to 1983 he was Deputy Editor-in-Chief of the weekly *Technical Review* (100,000 circulation). He cofounded two magazines investigating impacts of science and technology on contemporary society. He has published numerous articles on scientific, technological, and economic issues. In 1983 he

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co-founded the Polish Association for the Club of Rome and was its first Secretary. He is the editor of the Polish translation of the Club of Rome report, *Microelectronics and Society*. He has also served on the Committee for Fuels and Energy for the Commission for Economic Reform. He is joined in the United States by his wife and two children. □

Calculon Donates Auerbach Corporation Records

Auerbach Associates, Inc., founded by Isaac L. Auerbach in 1957, was one of the earliest systems design and software companies formed in the United States. It grew to become a major consulting firm in the computer industry and is famous for a series of subscriber publications relating to industry overviews, market analyses, computers, peripherals, and software. Through the efforts of Isaac Auerbach and the Calculon Corporation (which acquired Auerbach in 1979), records dating from 1958 have been donated to the Charles Babbage Institute.

Most of the collection's 97 cubic feet of records relate to consultant reports prepared by Auerbach for a wide range of businesses and government agencies. They involve technical and market analyses of computer products, EDP system requirements, market projections for computer equipment, software descriptions, planning studies and other reports. Indexes to the reports will be developed



by CBI as the reports are opened to research use. Because of the nature of the reports, they will not be available for use until they are fully processed. Also included in the collection are a

number of Auerbach publications, largely covering the period from 1974 to 1981. These include the *Auerbach Information Management Series*, *Auerbach Computer Technology Reports*, *Auerbach Subscriber Newsletter*, and the *Auerbach Reporter*. They provide computer hardware and software reviews, management reports, and market forecasts. All of the publications are immediately available at CBI for research use. □

Records of United States vs. IBM donated to CBI

In 1969 the United States Department of Justice filed suit against International Business Machines Corporation for violating the Sherman Antitrust Act. From the perspective of the government, U.S.



vs. IBM was a futile effort which lasted for thirteen years and concluded with the dismissal of the case. From the perspective of historians, however, the case generated volumes of documents and testimony that opened new sources of historical information about the computer industry and IBM.

During the lawsuit the Computer and Communications Industry Association (CCIA) maintained copies of the transcript and exhibits for use by its members. Last January the Association decided to dispose of the copies and offered them to any interested historical repositories. CBI was one of two repositories chosen to be given a set of the records, and the records arrived at CBI in August.

The CCIA collection is one of the larger archival collections available to researchers at CBI. It includes a nearly complete set of trial transcripts, plaintiff's and defendant's exhibits, depositions, as well as records from related lawsuits between IBM and Telex, CalComp, Memorex, and ILC Peripherals. A few indexes

are available to help locate exhibits relating to specific subjects. Most of the records are photocopies of originals except for a small set of microfiche that was produced by the CCIA. CBI is currently organizing the collection in preparation for its research use.

Historians of computing will find valuable information contained in the lawsuit collection; it is one of the finest sources of information about the computer industry currently available to historians, economists, and other researchers. Among the individuals who testified in the trial are computer scientists, corporate executives, engineers, economists, government agency officials, and most of the prominent names in the computer industry during the decades of the 1960s and 1970s. The exhibits include correspondence, memos, planning documents and other literature, much of which would have been lost to historians had the trial not made the documents public. A sample of exhibits revealed a chronology of important events at Control Data, a Honeywell peripherals strategy guide, a computer equipment proposal to Lawrence Radiation Laboratory, list of Univac Athena customers, and many IBM internal memos.

Researchers interested in using the CCIA collection are welcome to contact CBI. □

Collection Information Sought

At this time there is no comprehensive listing of archival records relating to the history of computing. The closest substitute has been CBI's file of inventories and finding aids from other repositories, but this file is not convenient to use unless it is used at CBI. While database utilities show the greatest promise of providing a union list of archival collections, adequate listing of sources for the history of computing is years away.

As part of its National Collecting Strategy, CBI intends to produce a guide to collections in the history of computing. It will list and describe records primarily held by repositories in the United States. In an effort to gather further information, CBI has surveyed over 100 repositories likely to have collected

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records relating to computing. Among the entries to be included in this guide are collections relating to computer science and education, computer businesses and industry, technical aspects of hardware and software development, academic and government computer centers, computer user groups and networks, professional associations and their chapters, computer installations, computer project planning and development, and computer applications in science, technology, business and the humanities. CBI welcomes any information about archival collections that may have been missed by the survey. Please contact Bruce Bruemmer if you have information that would be relevant to this guide, or would like further details. □

Computer History at the Hagley Museum and Library

The Hagley Museum and Library, located in Wilmington, Delaware, has, during the past quarter of a century, become one of the nation's important centers for the study of the history of business and technology. Its manuscripts and archives department houses the records of more than 1,000 corporations which have had a significant impact on the economic development of the mid-Atlantic region. The archives include the records of E. I. du Pont de Nemours, Sun, Sperry, Westmoreland Coal, First Pennsylvania Bank, The Pennsylvania and Reading Railroads as well as those of the National Association of Manufacturers and the Conference Board.

In recent years Hagley has begun to actively collect in order to document the history of the computer industry. This was a logical area for the library to enter since modern American business and technological history cannot be separated from the post-World War II computer revolution. The Sperry-UNIVAC archives (1935-1960, 500 linear feet) was Hagley's first major computer history acquisition. These records, particularly those which were generated by the Sperry-Honeywell suit, describe the early years of the computer industry in exquisite detail. The collection documents the development of the ENIAC by John Mauchly and J. Presper Eckert at the University of Pennsylvania's Moore

School of Electrical Engineering. It also describes the founding of the Eckert-Mauchly Computer Corporation after World War II and the construction of the BINAC and UNIVAC. These records trace both the technological problems that had to be solved by Eckert and Mauchly as well as the commercial forces which led their small company into bankruptcy and left it no choice but to merge with Remington-Rand.

Hagley's Sperry-UNIVAC archives includes the complete records of the Sperry-Honeywell suit (1971-73) including 50,000 pages of trial transcript and the 36,000 documents that were entered in evidence. These include files of correspondence and memoranda generated by Eckert, Mauchly and other engineers who worked on the ENIAC, BINAC, and UNIVAC projects. The collection also contains progress reports, laboratory notebooks, engineering drawings, patent files, sales and marketing records which is the history of Sperry's UNIVAC division from the mid 1950s through the early 70s.

Early this year Hagley acquired another important computer history archives when a New York patent attorney gave the library the records which were generated by the Technitrol Suit (1962-75). In August of 1947, Technitrol Engineering Corporation, which had been organized by T. K. Sharpless, one of the engineers from the ENIAC project, began working on a computerized flight reservations system. The company soon developed what it thought was the first magnetic storage drum. However, during this period Engineering Research Associates, Inc. (ERA), under contract to the Navy's top secret cryptographic program, had built a similar system. Thus, when Technitrol tried to license its drum, a bitter patent infringement suit resulted. The records, which have recently surfaced, provide a fascinating picture of the early history of ERA. The collection contains laboratory notebooks, progress reports, and internal memoranda which trace the early history of ERA and document its work on the Atlas computer. The court record (transcripts, exhibits, depositions and briefs) puts this material into historical perspective.

This past summer, Hagley and the Charles Babbage Institute each acquired a collection of the IBM antitrust suit records (1969-1982, 100 linear feet).

These records document the history of the computer industry from the perspective of IBM, the dominant manufacturer during the past quarter of a century. Exhibits, depositions and trial transcripts trace IBM's business strategy, managerial structure, and research and development efforts. The collection also documents the IBM relationships with other computer companies particularly Sperry, Honeywell, and Digital.

Hagley welcomes research in its collections and offers fellowship and grant-in-aid assistance to qualified scholars. Its new center for the study of the history of business, technology, and society provides a stimulating environment in which to work. □

Recent Publications

- William Aspray and Bruce Bruemmer, editors, *Guide to the Oral History Collection of the Charles Babbage Institute*, (Minneapolis, MN: Charles Babbage Institute, 1986). \$5.00.

This guide contains abstracts and a combined index to over 150 transcripts of oral histories available at the Institute.

- Rosamond W. Dana and Henry S. Tropp, editors, *Special Issue on the 25th Anniversary of AFIPS, Annals of the History of Computing*, 8(July 1986).

Much useful information on the founding and subsequent activities of AFIPS.

- Peggy A. Kidwell and Juanita Y. Morris, editors, (Smithsonian Computer History Project) *A Combined Index to Oral Histories Open to Readers*, (Washington, DC: Smithsonian Institution, 1986).

A very detailed subject and name index of the contents of 73 interview transcripts in the archives of the National Museum of American History.

- Sperry Corporation, Engineering Research Associates: *The wellspring of Minnesota's computer industry*, (St. Paul, MN: Sperry Corporation, 1986).

This booklet was produced by Sperry as part of its celebration of the 40th anniversary of the founding of Engineering Research Associates, Inc., in St. Paul. Handsomely produced with many photographs.

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■ Recent Articles of Interest in the History of Computing:

W. Aspray and D. deB. Beaver, "Marketing the Monster: Advertising Computer Technology," *Annals of the History of Computing*, 8(April 1986):127-143.

I. L. Auerbach, "The Start of IFIP—Personal Recollections," *Annals of the History of Computing*, 8(April 1986):180-192.

M. Campbell-Kelly, "ICL Company Research and Development, Part I 1904-1959," *ICL Technical Journal*, 5(May 1986):2-17.

P. Ceruzzi, "An Unforeseen Revolution: Computers and Expectations, 1935-1985," in Joseph J. Corn, editor, *Imagining Tomorrow: History, Technology, and the American Future*, (Cambridge, MA: MIT, 1986), pp. 188-201.

B. O. Evans, "System/360: A Retrospective View," *Annals of the History of Computing*, 8(April 1986):155-179.

S. Takahashi, "Early Transistor Computers in Japan," *Annals of the History of Computing*, 8(April 1986):144-154. □

CBI Staff Participate in SAA Meeting

In an effort to inform and involve the archival community in CBI's activities, Director Arthur Norberg and Archivist Bruce Bruemmer spoke at the 1986 annual meeting in Chicago of the Society of American Archivists (SAA).

Norberg participated in a session entitled "Forward from JCAST (Joint Committee on Archives of Science and Technology): Recent Accomplishments and Future Challenges," and offered remarks from a perspective of the archival situation in corporations. Focusing on the post-1940 technological world, he began with an elaboration of the principal features of this world and a review of the model of this technological process as presented in the JCAST report. The bulk of Norberg's remarks were on the attempts at CBI to apply this model to corporate records and the conclusions reached at CBI about the need to modify

the model. In effect, he said this model is too general to apply to all corporations. Modifications are needed to develop various models that will be applicable to corporations with structured R & D laboratory arrangements, to large businesses, and to small business, especially startups.

Bruemmer participated in a session entitled "Developments in Science Archives," where he commented on CBI's current program to develop a National Collecting Strategy (NCS) for the history of computing. He described how CBI is undertaking a series of related projects, such as writing historical narratives and preparing catalogs of archival materials in an effort to better understand the documentation of computer history, to transmit this understanding to other historians and archivists, and to craft a strategy for developing a national collection of computer records through a network of cooperating archives distributed across the nation. (For more information on the National Collecting Strategy, see the Winter 1986 *CBI Newsletter*, Vol. 8, No. 2.) □

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strument. Among the historical issues to be investigated will be the change that arose in numerical methods in the period 1945 to 1957 to accommodate the computer; the changing role of computation in the sciences as the punched card tabulator, the differential analyzer, and the desk calculator were replaced by the stored program computer; the changes in the scientific and the technological disciplines to which the computer was applied; the importance of the Institute for Advanced Study as an international center of scientific computation; the role of von Neumann in scientific research on the IAS and other early computer; and the establishment of computing as a mathematical science. The project will take two years.

CONTINUING PROGRAMS

Understanding and Appraising Records: A Progress Report

Work began on this three-year project, known in CBI as the National Collecting Strategy Program, in January 1986. Two of four objectives were to be emphasized

in the early months of the project. These are:

(1) providing sufficient historical analysis to facilitate the identification of appropriate records that adequately describe the development and applications of the digital computer; and

(2) assessing the universe of records, both already available in repositories and those still in private hands.

Several tasks are in progress to accomplish these objectives. The work is basically an historical research effort. Visits to examine collections in repositories in the United States and an assessment of CBI's collections, including data bases and literature collections, have yielded a wealth of information on the nature of these materials and their relevance to research and writing in the history of computing. This information will be employed in writing short and long histories of aspects of the field. Simultaneously, needed materials will be described and then sought for preservation.

Expanding Institute Archives

The quantity and quality of CBI's archival collection increases each year. Several examples must suffice in this brief report. A major collection of technical materials (184 cu ft.) was donated by the National Bureau of Standards. The material in this collection, assembled by NBS to keep informed about developments in computing, spans the period 1960 to 1979. A number of collections deposited this year relate to the activities of the CODASYL committee. Manuscript collecting and oral history recording for the

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CHARLES BABBAGE INSTITUTE NEWSLETTER

The Charles Babbage Institute, The Center for the History of Information Processing, is sponsored by AFIPS and the information processing community. Arthur L. Norberg, Director.

The Charles Babbage Institute Newsletter is a publication of the Charles Babbage Institute, University of Minnesota, 103 Walter Library, 117 Pleasant Street S.E., Minneapolis, Minnesota 55455, telephone (612) 624-5052. The Newsletter reports on Institute activities and other developments in the history of information processing. Permission to copy without fee 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 the Institute. © The Charles Babbage Institute for the History of Information Processing.

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history of Engineering Research Associates was a major effort this year, and the results were rewarding. Another 8 interviews and 12 collections of records associated with ERA were acquired. This essentially completes the archival portion of the ERA project.

Processing Collections

The range of processed collections available for research at CBI continues to widen. Among the collections processed this year are the papers of Carl Hammer, Frank Wagner, Marvin Stein, and Robert Kalb, and the records of the Twin Cities Chapter of American Women in Computing, C-E-I-R, and the University of Minnesota's MicroElectronics and Information Sciences Center (MEIS). As noted above, substantial additions to the CBI near-print collection of industry publications were received and a substantial portion of these additions was interfiled with earlier acquisitions of this type.

Informing the Public

One of CBI's most important functions is to increase awareness of new materials

available for use and new conclusions drawn from study of the materials. For the past five years, the CBI Newsletter served this purpose. This year four issues were mailed to over 3,000 people. Now CBI adds a new series of publications about resources. In 1985-86, CBI produced a guide to its oral histories collection. Each interview is fully abstracted and the GUIDE contains an index and a list of subjects. Two new volumes of the CBI Reprint Series appeared and editorial assistance was provided to the *Annals of the History of Computing* and the MIT Press Series in the History of Computing. Graduate courses were taught at the University of Minnesota and the Institute Reading Room was again widely used by students and corporate representatives from local, national and international organizations.

Fellowship Program

CBI awarded two fellowships this year. Clifford I. Nass of Princeton University received an award for his dissertation on the shift in the United States from an industrial to a post-industrial society by examining changes over the period 1870-1980 in the distribution of workers

across those tasks that produce or distribute information. The second award went to Stuart S. Shapiro of Carnegie-Mellon University. Shapiro, the 1985-86 Babbage Fellow, will continue his dissertation research on the historical development of computer software.

Objectives for 1987

Short-range objectives for CBI are consistent with the long-range objectives noted at the beginning of this report. In FY1986-87 CBI will:

- continue its activities in archival collection and processing, collect oral histories, disseminate information, and provide background historical research,
- pursue the von Neumann project to conduct related oral histories and review archival materials,
- complete the survey of repositories, continue our assessment of computing from an historical perspective, and begin the series of probes needed for meeting the objectives of the National Collecting Strategy program. □

CHARLES BABBAGE INSTITUTE NEWSLETTER

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