

# The Charles Babbage Institute for the History of Information Processing

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71 Firsthand accounts of the development of a human activity are perhaps the historian's most valuable resource. The quality of the history written depends greatly on the availability of those primary sources. Yet often by the time some aspect of human endeavor is recognized as an object worthy of study, the pioneers of that endeavor are long gone and firsthand information gone with them. Fortunately, this is not true in the field of information processing. The Charles Babbage Institute for the History of Information Processing (CBI), with AFIPS as a major supporter and participant, has undertaken to continue the task of conducting and otherwise promoting historical research in the field of data processing. And many pioneers in this young field are not only still alive, but are participating in the development of the institute and its programs.

CBI was founded in late 1977 by Erwin Tomash, who has been in the mainstream of the industry for many years. Trained as an engineer, in 1946 he joined one of the first firms to be involved in computer work, Engineering Research Associates.<sup>1</sup> In 1962, he founded Data-products Corporation, which has become one of the world's largest manufacturers of printers. Tomash says:

What those of us in the field have seen through the years is not only a rapid succession of inventions and improvements, but also a remarkably rapid rate of adoption of those innovations by society. Moreover, the data processing industry has itself rapidly become a major economic force and the technology has had a profound effect on the way all enterprises function. The impact of the information revolution on the modern organization and the contemporary individual can hardly be understated. It is time that we make a comprehensive study of that revolution.

CBI was incorporated November 28, 1977. Soon thereafter Tomash met with Paul Armer, a well-known pioneer in the field, to ask his advice about the effort. Armer became so intrigued with the idea that in the spring of 1978 he accepted the position of Executive Secretary of CBI. Armer

spent most of his career at the RAND Corporation where he was head of the Computer Sciences Department. He was also involved in the formation of AFIPS and is a past president of that organization. Shortly after becoming Executive Secretary, Armer opened an office at CBI's present location in Palo Alto, California.

As a first step, Armer and Tomash formed an advisory committee of industrial leaders, professionals in the field of information processing, and historians of science and technology. The institute was truly launched on the day in late April 1978 when the advisory committee met for the first time and formally endorsed the idea of CBI. This committee agreed that the two most important tasks facing the institute were to 1) build a rich database and 2) encourage scholars to use that database. Existence of an extensive, accessible database would serve to attract top scholars to this area of study. This scholarly work would in turn tend to expand the database itself, because information, unlike other resources, is enriched as it is diffused and utilized.

Following this meeting, over the next several months, the institute's Board of Trustees was formed and its members continued the task of formulating the objectives and policies of the institute.

## Purpose and Principles

The primary objective of the Charles Babbage Institute for the History of Information Processing is to study the history of the development of information processing—both its technical and socioeconomic aspects—and to promote increased awareness of the impact that development has had on society. The institute also encourages—and at times provides financial support to—other parties engaged in this endeavor and related activities, and promotes interchange among those working in the field.

The program of the institute is designed to be broadly based as a matter of principle. Tomash intended for CBI to help "bring the computing community together." In order to develop a comprehensive, unbiased picture of the history of data processing, all the people who have participated and are interested in that history must be represented.

A rounded study of the history of information processing must include the various viewpoints of the individuals involved and the various perspectives of different sectors, including, for example, both economic and technological factors.

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<sup>1</sup> See "The Birth of an ERA: Engineering Research Associates, Inc., 1946-1955," by Erwin Tomash and Arnold Cohen, *Annals of the History of Computing*, Vol. 1, No. 2, October 1979.

CBI's program embraces individuals and institutions, companies, universities, government agencies and professional societies, engineers, programmers, educators, executives, financiers, and salespeople. In particular the program draws together the perspectives of:

- (1) Business administrators within the computing industry and from industries that have large data processing needs (such as banks).
- (2) Scholars investigating the history of data processing (including its technical origins and the economic and political milieu of the industry) and those studying the impact of the information revolution on society.
- (3) Technical people currently using computers and adapting them to today's needs.
- (4) Computing pioneers, including those who laid the mathematical/logical foundations for computer science, engineers and others who developed hardware, and designers of computer languages.
- (5) Government officials representing agencies that let many of the first contracts for the construction of computers and were otherwise involved in the development of data processing.

The program of the institute is international in scope. Expressions of support have been received from all over the world, and CBI is in contact with members of the information processing communities in Germany, France, Japan, the United Kingdom, and other countries.

In addition to being broadly based, another principle behind the program of CBI is the maintenance of a scholarly standard for the development of the history of information processing. The program aims to probe behind personal reminiscences and the narrow perspective of the specialist to the broader questions that concern the professional historian, such as: how did the economic environment of the times affect the development of the computer? the social environment? the state of the intellectual milieu?

The final principle on which CBI was founded was that it should be enjoyable for those involved. Those who participated in the history of information processing were hardly a sour lot and certainly a compilation of their history should not be an oppressive task. Participants in the development of CBI have shown their enthusiasm and wit at meetings and in correspondence and those associated with CBI are pleased to maintain the mixture of professionalism and good humor that

has characterized the computer community since before "Hail to the Chief" was "programmed" onto JOHNNIAC "in case the President should drop in."<sup>2</sup>

#### AFIPS

Financial support for the institute comes from the community it serves. The largest contribution has come from AFIPS. On June 21, 1979, Tomash and Albert S. Hoagland, president of AFIPS, signed an agreement whereby AFIPS would become a major supporter of the institute, thus bringing the resources of both organizations to bear on the development of the history of information processing. Cooperation between AFIPS and CBI will avoid duplication of effort and will promote cross-fertilization of ideas among all elements of the computer community.

For a complete overview of AFIPS activities in this area, see the note in this issue of the *Annals* by Jean E. Sammet.

#### Other Financial Support

In addition to the substantial contribution made by AFIPS, CBI is supported by a growing number of industrial organizations and individuals. The current budget is \$150,000 per year. As of the beginning of the CBI fiscal year, August 1, those funds were in hand.

A CBI Founders group was also established by the board as another part of their fund-raising activities. Founders are individuals who wish to support the program of the institute by contributing at least \$10,000 over a five-year period. The board has stated that the Founders' contributions will be used to establish an endowment fund that will provide continuity and stability to CBI in future years. The CBI Founders campaign is headed by Gene Amdahl, chairman of Amdahl Corporation. As of last summer, the group already numbered 13 individuals.

In addition to the institutional support program and the Founders group, CBI offers an Associates program. Although CBI has not yet held an Associates' campaign, more than 25 individuals responded with checks to an article in the first CBI *Newsletter* describing associate memberships. In sum, the financial position of the institute is healthy and will enable CBI to carry out a meaningful program in the history of information processing.

<sup>2</sup>F.T. Gruenberger, "The JOHNNIAC," *Annals of the History of Computing*, Vol. 1, No. 1, July 1979, p. 57.

### Board of Trustees

Members of CBI's Board of Trustees have been vitally important to the successful launching of the organization. Through committees, members have actively participated in the development of a sound program and in providing guidelines for the future. The board meets annually. The first meeting was held on January 30, 1979, at the Smithsonian Institution's Museum of History and Technology in Washington, DC. Members of the board include the following:

Gene M. Amdahl (chairman, Amdahl Corporation), Isaac L. Auerbach (president, Auerbach Publishers, Inc.), William O. Baker (chairman, Bell Telephone Laboratories), Walter F. Bauer (president, Informatics, Inc.), Paul W. Berthiaume (president, New York Times Information Bank), James W. Birkenstock (vice president, IBM, retired), Arnold A. Cohen (assistant dean, University of Minnesota), I. Bernard Cohen (professor, Harvard University), William A. Cruikshank, Jr. (partner, Cruikshank and Antin), Willis K. Drake (chairman, Data Card Corporation), Harvey L. Garner (professor, University of Pennsylvania), Albert S. Hoagland (president, AFIPS), Arthur L. G. Humphreys (director, International Computers Limited), Melvin Kranzberg (professor, Georgia Institute of Technology), Joshua Lederberg (president, Rockefeller University), Robert E. McDonald (vice chairman, Sperry Rand Corporation), Robert P. Multhauf (senior historian, Smithsonian Institution), William C. Norris (chairman, Control Data Corporation), Kenneth H. Olsen (chairman, Digital Equipment Corporation), Clarence W. Spangle (president, Honeywell Information Systems), Erwin Tomash (chairman, Dataproducts Corporation).

Board members attend meetings in person—not by proxy—and serve staggered five-year terms.

### Program

CBI's Board of Trustees has established a policy of balancing start-up activities with program activities. A modest historical research program has been implemented while CBI seeks and becomes established at a permanent site (see below). Upon becoming settled in a permanent home, CBI will carry out a full-scale archival program and further expand its other projects.

Since its inception, CBI has begun an active fellowship/internship program, conducted several oral history interviews, and established the beginnings of an archival program. It has also started publication of a newsletter and in other

ways begun disseminating information through the data processing community.

CBI offers an annual fellowship to graduate students working in the field. The first CBI Fellow was William F. Aspray, Jr., a student in the History of Science Department of the University of Wisconsin who is examining the early twentieth-century developments in mathematics and logic that laid the theoretical foundations for what we now call "computer science." CBI's 1979-1980 Fellowship was awarded to Paul Ceruzzi, a graduate student at the University of Kansas, who will be completing his doctoral dissertation, "The Prehistory of the Digital Computer, 1935-1946: A Cross Cultural Study." In addition to its fellowship program, CBI promotes and supports the work of other scholars in the field. For example, in 1978 CBI supported Stephen Lutze, an intern participating in the University of California, Santa Barbara, Public Historical Studies Program. He has completed his master's thesis, "The History of Organizations in the Computer Industry from 1945 to 1960."

The importance of a strong oral history program in the history of information processing has been emphasized by many professionals in the field. CBI has already embarked on a number of activities in this area. In late September 1978 Henry Tropp began an oral history of Gerhard Dirks, a pioneer who holds a number of early computer design patents. Pamela McCorduck is now continuing that project and has also begun a series of oral interviews of people involved with the late George Forsythe in establishing the Stanford University Computer Science Department.

The CBI Program Committee, chaired by Clarence W. Spangle, president of Honeywell Information Systems, met in May 1979. The committee reemphasized the importance of creating a database that is suited for widespread use and the importance of encouraging that use. First priority was given to this matter because CBI was established to be a permanent institution in the field of the history of information processing and as such can provide the greatest service to its constituents by creating an information center that they can and will use.

The Program Committee outlined an interim program to be carried out during fiscal year 1980 while CBI becomes established at its permanent site with an executive director. CBI will continue to build the database. In order to avoid an "ad hoc" program, the committee decided to start a project to define the areas most in need of study.



This project will in effect delineate the historical territory to be explored by constructing a matrix with the dimensions of historically important individuals, their work and the research that has been done on that work, and the sector involved (such as economics or technology). This matrix analysis will help pinpoint those areas and individuals that have been neglected and that, if studied, would help illuminate the history of information processing. The committee recommended that CBI continue its fellowship/internship activities and a modest oral history program, and continue to collect archival materials on an emergency basis. The committee recommended that following the historical matrix study, a study be conducted on the technology available for a full-scale archival program and on alternative approaches.

#### Permanent Site/Archives

The Board of Trustees has appointed a Site Selection Committee, chaired by Walter F. Bauer, president of Informatics. This committee has begun the process of selecting a permanent home by making contact with a large number of major universities. It is expected that the final site selection will be made by May 1980. CBI is looking to become permanently located at a major university with established graduate-level programs in computing and history of science, excellent computer facilities, an outstanding library, and university archives. CBI will maintain its own Board of Trustees and is looking for a flexible relationship with its host in regard to joint appointments and other arrangements.

Archival capabilities are of considerable importance in choosing a host institution. The archival program will be one of CBI's primary functions. While planning this program, a major influence has been two memoranda prepared in 1978 by Arnold Cohen when he chaired the Subcommittee on Archives of the AFIPS History of Computing Committee. In these memoranda, he outlined a comprehensive archival program. The CBI program will be substantially similar to that program and so it will be described very briefly here. Cohen and his committee envisioned a confederation of multiple depositories with one primary location maintaining information about the location of material. It was stressed that as soon as feasible, state-of-the-art microfilm and information processing technology should be used for the storage of materials and for the master catalog of archival materials and their locations. Cohen pointed out that in applying the

latest information processing technology to its archive management problems, the archival center will make an "enormously significant contribution to the technology of archive management, by establishing a new role model in the field." Finally, Cohen outlined the functions of such a program:

- (1) Solicit materials; provide information as to reasonable and available restrictions on donated material; arrive at agreements.
- (2) Participate, together with AFIPS committee people, and jointly with other related organizations, in developing archival and cataloging standards.
- (3) Prepare a standard decision-making package for prospective donors. This relates to "select or deselect," "destroy or keep," "restrict or not."
- (4) Provide training for prospective donors, prospective users, and archivists regarding content-specialized aspects of the project.
- (5) Supervise processing: sorting, cataloging, copying to microform, preparing input to mechanized catalog.
- (6) Serve as a query entry point for users and screen applicants for access, especially to collections located at companies.
- (7) Produce publications such as:
  - (a) Guide to possessors of source materials.
  - (b) Newsletter.
  - (c) Catalog of archives, updated at suitable intervals.
  - (d) A users' manual serving as a guide to the use of the archives, the catalog, etc.

#### Conclusion

While planning for a permanent home, those associated with CBI have been encouraged by widespread expressions of enthusiasm for the program. In thanking CBI for the fellowship awarded to him, William Aspray succinctly expressed his impression of the impact that CBI is having:

[CBI] support . . . has the beneficial effect of shaping the research interests of historians of science. Historians of science lament the meager support of and interest in their research. Yet to a certain degree, they are responsible for this lack of reception through their choice of obscure and insignificant research topics. The computer has already had a profound effect on society, and all indications are that the effect to date will be minuscule compared to the long-range effects of the computer on both science and society. Thus your support, as I am sure you are well aware, stimulates important research and a healthy realignment of the priorities in the history of science.