



The Charles Babbage Institute
For the History of Information Processing
Sponsored by AFIPS and the information
processing community.
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Minneapolis, Minnesota 55455
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Linda B. Merims, Editor

The Charles Babbage Institute Newsletter

Volume 3, Number 2

1 September 1981

PERMANENT DIRECTOR SELECTED

Dr. Arthur L. Norberg has accepted the position as Director of the Charles Babbage Institute. Norberg was the unanimous first choice of a search committee composed of members of the Charles Babbage Foundation Board of Trustees, and of faculty members of the University of Minnesota.

Norberg brings with him an outstanding background in the administration of projects in the history of science and technology. Prior to joining CBI, he was Program Manager for the National Science Foundation's program in Ethics and Values in Science and Technology. During the preceding year he was an analyst at NSF studying science and technology policy.

From 1973 to 1979, Norberg was Research Historian in the Bancroft Library at the University of California, Berkeley, heading their history of science and technology project. As part of his duties he conducted original research, including oral histories, into the development of the electronics industry, with an emphasis on the high-technology community in the San Francisco Bay area. The project considered both technical and business developments. While at the Bancroft Library, he pursued a vigorous acquisitions program for rare books and archival materials, and saw that the collection was brought to the attention of the research community. Through his efforts, the Berkeley program is recognized as a leader in the country. Norberg has also taught courses in the history of science, physics and astronomy, and worked as a research scientist in industry.

Norberg received his Ph.D. in the history of science from the University of Wisconsin in 1974. His M.S. and B.S. degrees are in physics and mathematics. He has been active in many professional societies including the History of Science Society and the Society for the History of Technology.

Norberg will hold a tenured appointment as Associate Professor in the University of Minnesota's De-



Arthur L. Norberg, CBI's New Director

partment of Computer Science, with his teaching responsibilities being in the Program in the History of Science and Technology. He assumed his duties on September 1, replacing Acting Director Roger H. Stuewer.

NEW FOUNDER

The Charles Babbage Foundation's newest Founding Member is Mr. William N. Mozena. Mr. Mozena is Vice President, Chief Financial Officer, and a director of BTI Computer Systems. BTI, based in California, specializes in the development, manufacturing, and sales of interactive business computer systems. Mr. Mozena has an extensive background in the financial management of computer corporations going back to 1951 when he served as controller for the Telecomputing Corporation. Over the years he has held senior management positions with Telemeter Magnetics, Dataproducts, Amdahl, and Qantel.

NEW TRUSTEES NAMED

The CBF Board of Trustees has recently been expanded to include five new members. The individuals named by the Executive Committee are Stephen G. Jerritts, Roger G. Kennedy, Chester I. Lappen, and Robert H. Sorensen.

Stephen Jerritts is president of Honeywell Information Systems. He has served in this position, and as a member of the Honeywell Board of Directors since 1980. In 1970, Mr. Jerritts was with Bull General Electric in France, which was acquired by Honeywell. Since then he has held several international assignments and from 1977-80 was group vice president and general manager of Honeywell's U.S. Information Systems headquartered in Waltham, Massachusetts.

Roger Kennedy has been director of the National Museum of History and Technology at the Smithsonian Institution since 1979. Previously, Mr. Kennedy held positions as Vice President for Arts, and Vice President for Finance at the Ford Foundation; and Special Assistant to the U.S. Secretary of Labor, and to the Secretary of Health, Education and Welfare. Mr. Kennedy's interest in historical architecture has led to the publication of two books on this topic. He has also authored several articles on endowment management and corporate investment policies.

Chester Lappen joined the law firm of Mitchell, Silberberg and Knupp in 1947 and is currently a senior partner and head of the Corporate Department of that firm. He has served on the board of directors of City National Bank, Arden Group, Inc., and Dataproducts Corporation.

Robert Sorensen is Chairman and Chief Executive Officer of the Perkin-Elmer Corporation. Mr. Sorensen joined Engineering Research Associates at St. Paul in 1947, where he held various positions in technical and divisional management. He continued in management with Sperry Rand after that firm acquired ERA until 1959, when he joined Perkin-Elmer. He has been a Director of Perkin-Elmer since 1969.

ASPRAY AT CBI FOR THE SUMMER

Dr. William Aspray spent the summer in Minneapolis as CBI's Acting Associate Director. Dr. Aspray held the first CBI graduate student fellowship, and is now assistant professor of mathematics at Williams College in Massachusetts.

NEW STAFF

LaVonne Molde has joined the CBI staff as our executive secretary. She brings to this position extensive experience in the University of Minnesota administrative environment. She holds a B.S. degree in education.

Ms. Molde will maintain records, provide office support, serve as an information source for inquiries about the Institute, help coordinate conferences sponsored by CBI, assist with the newsletter, and deal with the many unique and unanticipated situations likely to arise in a new and growing organization.

FROM THE EDITOR

The history of computing is a new field. Almost any research project breaks new ground, and exciting discoveries of valuable artifacts and resource materials await anyone who takes the trouble to look for them. We present reports of two such finds in this *Newsletter*: from Garry J. Tee who has been combing New Zealand; and Michael Lindgren at the Royal Institute of Technology in Stockholm, Sweden.

As noted elsewhere, Paul Armer has returned to California with his family. Paul's 35 years of experience in computing, his astonishing knowledge of people, events, and trends in the field, and his frank, open manner made him a delight to work with and a great asset to CBI.

Linda B. Merims
Editor

The Charles Babbage Institute *Newsletter* is a quarterly publication of the Charles Babbage Institute for the History of Information Processing, University of Minnesota, 104 Walter Library, 117 Pleasant Street, S.E., Minneapolis, Minnesota, 55455, telephone (612)376-9336. The *Newsletter* reports on Institute activities and on 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.

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CBI SURVEY OF SOURCES IN THE HISTORY OF INFORMATION PROCESSING—UPDATE

In late May, CBI sent approximately 14,000 questionnaires to academic, government, and business institutions across the nation seeking data on records and artifacts that document the technical and socio-economic development of information processing. The purpose of this preliminary survey is to determine which archives hold historical source materials related to information processing, which repositories would be willing to collect such materials, and to determine the general nature of the records created and maintained by individual companies and research organizations in the computing field.

The mailing list was not exhaustive. There was a significant problem determining, for example, which division of a company or department within a university should receive the questionnaire. If your immediate organization did not receive a questionnaire and you believe that it holds materials that document some aspect of the history of computing, please write or phone us and we will send you a questionnaire.

At present, the formal CBI survey is restricted to organizations potentially holding archival materials. We are aware that much of the material that documents the development of computing is probably sitting about in cardboard boxes—stored in the attics, garages, and basements of the people who made that history. As noted above, a major goal of this project is to find operating archival repositories that would be willing to accept materials from individuals, since CBI cannot possibly take them all.

PAUL ARMER RETURNS TO CALIFORNIA

Paul Armer has resigned as CBI's Associate Director and returned to California.

Paul became CBI's first Executive Secretary in February, 1978, and opened the Institute's first office in Palo Alto the following month. Since then he has worked to make CBI into a functioning organization that occupies a central position within the network of people and organizations interested in the history of information processing.

In October, 1980, Paul moved to Minneapolis to help Acting Director Roger H. Stuewer effect CBI's transition from Palo Alto to its permanent home.

Armer described his association with CBI by saying, "The last three years have been one of the most rewarding periods in my lifetime. I have thoroughly enjoyed seeing Erwin Tomash's vision of CBI become a

reality and working with the many individuals who have played a role in bringing that dream to life."

We offer a special thanks to Paul for donating to CBI a large collection of books from his personal library, and a Selectron memory tube from his days with the Rand JOHNNIAC.

Those of our readers who are friends or professional associates of Paul can contact him at his home: 105 Hillside Avenue, Menlo Park, CA 94025, (415)854-3063.

CBI HISTORY COUNCIL MEETS

The Charles Babbage Institute has formed a History Council. The project stems from discussions among Trustee Jim Birkenstock, Roger Stuewer, and Erwin Tomash. The purposes of the Council are to foster historical programs within information processing companies, to use the historical research expertise of the CBI staff to improve the quality and scope of each firm's efforts, and to provide a forum where individuals charged with conducting their company's historical work can meet to discuss their activities.

The History Council held its first workshop on Friday and Saturday, May 1-2, at CBI in Minneapolis. Attending the workshop were representatives from Burroughs, Control Data, Data Card, Honeywell, IBM, Memorex, the New York Times Information Service, AFIPS, the Digital Computer Museum, the Science Museum of Minnesota, the Bakken Library of Electricity in Life, CBI, and professional historians from the academic community.

We will report on this History Council workshop in more detail in the next issue of this *Newsletter*.

ISIS PUBLISHES ARTICLE ON CBI

ISIS, the official journal of the History of Science Society, has published an article on the Charles Babbage Institute in the "News of the Profession" section of its June, 1981 issue. The article was written by Pam Gullard, former editor of the *CBI Newsletter*. It outlines CBI's formation, goals, and activities to support research in the history of information processing.

ISIS is the oldest international journal in the history of science field. It is to historians of science much as the *Journal of the ACM* or the various *IEEE Transactions* are to computer professionals. The article will improve CBI's visibility in the history profession.

continued on back page . . .

RELICS OF CHARLES BABBAGE IN NEW ZEALAND

by Garry J. Tee

Editor's Note: At the Second Australasian Mathematics Convention, held at the University of Sydney from the 11th to the 15th of May 1981, Garry J. Tee of the University of Auckland announced the discovery of many relics of Charles Babbage in New Zealand. These include a fragment of Babbage's Difference Engine and two letters to him from Ada Augusta. Mr. Tee had informed us of his discoveries earlier this year. At the request of CBI, he has supplied the following account of his searches for Babbage materials in this unexpected corner of the world.

For many years I had known that some descendants of Charles Babbage lived in New Zealand, and in view of the recent enormous growth of interest in him I began searching for any relics of him which might exist in New Zealand.

Benjamin Herschel Babbage (1815-1878), eldest son of Charles Babbage, assisted his father in some of his researches. Benjamin H. Babbage's eldest son, Charles Whitmore Babbage, was born in Somerset, England, on 4 November 1841. In 1851, Benjamin H. Babbage immigrated with his family to South Australia, and in 1856 he explored the desolate northwest corner of that state. He named a mountain there Mount Hopeful, but in the following year it was renamed Mt. Babbage in his honour.

I telephoned (and wrote to) several people named Babbage without getting any information about relics of Charles Babbage; but then I telephoned a Mr. Babbage (in Auckland) who told me that he is indeed a great-great-grandson of Charles Babbage. When I asked him about any relics of Charles Babbage he told me that, many years ago, he had seen some of Charles Babbage's notebooks of engineering drawings, together with parts of the calculating engines and tools for making them, at his grandfather's farm near Wanganui! However, he had never heard anything about those relics since his grandfather died (in 1923).

That report interested me greatly, particularly since Wanganui is my hometown—I had left there at the age of five and had never had any occasion to revisit the town. I wrote enquiries to the Wanganui Regional Museum and to the Wanganui Public Library.

By return post, Mr. A.S. Parker (the Museum Archivist) told me that the Wanganui Regional Museum holds a large collection of Babbage manuscripts, and invited me to inspect them. To whet my appetite he enclosed a photocopy of a very strange note in Charles Babbage's handwriting: the text of an adver-

tisement in *The Times* (3 March 1835), advertising difference engines for sale at £ 40 each! (I have since investigated this note. The advertisement appears to have been placed by a Mr. Deacon, who built a small fragment of a difference engine. Charles Babbage learnt of Mr. Deacon's attempted construction much later and evidently went back and copied the 1835 advertisement in longhand.)

On 9 March 1981 I flew 350km south from Auckland and arrived at my hometown after many years' absence. Wanganui is a town of about 30,000 people, near the mouth of the Wanganui River on the west coast, with a museum which is regarded as the best outside the four main cities in New Zealand. The Museum Director (Don Cimino) told me that Charles Whitmore Babbage (son of Benjamin Herschel) came to New Zealand from Australia in 1880 and farmed near Wanganui. ~~When he died at the age of 82, the~~ obituary article in *The Wanganui Herald* (20 August 1923) reported that he "was proud to be the eldest son of the eldest son of Charles Babbage, inventor of the Calculating Engines." One of his sons promptly donated a large collection of manuscripts by Charles Babbage (and his youngest son Henry Prevost Babbage) to the Wanganui Regional Museum.

The Museum's carton of Babbage material consists primarily of the manuscript of Charles Babbage's very strange memoir, *Passages from the Life of a Philosopher*, which was published by Longmans Green, London, in 1864. The hundreds of large sheets were folded and posted to the printer without any envelope being used, and some readable postmarks give dates in 1862 and 1863. The printers can hardly have been delighted with the manuscript: the handwriting is legible but is very extensively crossed and altered, and many sheets contain amendments or additions for parts already set up in type. Many names which were prudently published as initials-only are written fully in the manuscript, and some passages occur in several versions. In particular, Charles Babbage's published denunciations of the Commissioners of the 1862 Exhibition, and of Disraeli (who had finally destroyed his hope of completing the Difference Engine) are quite mild in the published book in comparison with the ferocity of some of the earlier drafts in the manuscript.

Other items in the Museum's collection include many cards of Charles Babbage for meetings of the British Association and other scientific societies, some newspaper clippings about him, a few letters to him, and some legal documents (including the Royal Charter of the Borough of Totnes in Devonshire, sealed by Queen Elizabeth in 1596). There is also a bundle of papers of Charles Babbage's youngest son Henry Prevost, mostly concerned with his acrimonious public campaign (in the 1890's) to get official recogni-

tion for Charles Babbage for his invention of occulting lights, used for lighthouses and signalling.

Mr. Cimino was extremely helpful, inviting me to take the manuscripts to study in my hotel over the weekend, and arranging for a photocopier to be made available to me. I photocopied many hundreds of pages of manuscripts, and have sent copies of them to the Charles Babbage Institute and to the Science Museum in London (which has many of Charles Babbage's scientific manuscripts, and some fragments of his Difference Engine and Analytical Engine).¹

Mr. Babbage, who had given me the initial clue to Wanganui, told me some further details about the relics which he had now recalled to mind. In particular, after his grandfather had died in 1923, engine parts and tools were stored in barns on the farms of two of Charles Whitmore Babbage's sons, farming in the Hauturu Valley east of Kawhia Harbour. From that further lead I followed a long and intricate trail of clues, and as a consequence of a sequence of improbable (but fortunate) coincidences I eventually telephoned the widow of a son of one of those farmers, on 28 March 1981. I explained to her my quest for relics of Charles Babbage, and when I told her that Mr. Babbage recalled the engine parts in the farm barns near Kawhia she remarked blandly, "Oh yes—I've got them here!" Elated by Mrs. Babbage's casual remark, I arranged to visit and inspect her relics.

Mrs. Babbage has preserved a fragment of the Difference Engine, occupying a cubical case about 30cm on each side.² The fragment is somewhat rusty, dusty, and dented, after having lain for several decades in barns near Wanganui and Kawhia, but Mrs. Babbage has enclosed it in a glass case.

There are hundreds of letters and other documents, including two brief notes from Ada Augusta! There are letters from the Scheutzes, Dionysius Lardner, the poet Samuel Rogers, and many letters from Charles Babbage's sons. Benjamin Herschel Babbage's original drawing of the Difference Engine fragment is included. There are diplomas presented to Charles Babbage by many scientific societies, and gold medals presented to him by the Royal Astronomical Society and by the Paris Academy of Sciences. There is a packet of papers, newspaper clippings, invitation cards, photographs and other documents relating to Charles

Babbage and his family. A packet of legal documents of the Babbage family (from the early 17th century onwards) includes Charles Babbage's receipt for the vast fortune of £ 100,000, which he inherited from his father in 1827. There are inscribed copies of several books by Charles Babbage, and an inscribed copy of Henry Prevost Babbage's memoirs, published privately in 1911 (with an enclosed letter dated 1915, when Henry was aged 91.) There are several fine surveying instruments and a large portable telescope, used by Henry Prevost (and some probably were used by Benjamin Herschel).

Mrs. Babbage has generously authorised me to photograph her entire collection and to publish material from it. I hope to publish fuller accounts later of this extremely rich and varied collection of relics of Charles Babbage, his ancestors and descendants.

I was particularly pleased to discover the letters from Ada Augusta, since I had spoken about her in my address to the First Australasian Mathematics Convention at the University of Canterbury in 1978.³

All future investigators of the life and work of Charles Babbage will need to take into account the large amount of material about him preserved in these several collections in New Zealand.

26 April, 1981

Garry John Tee is a Senior Lecturer in the Department of Computer Science at the University of Auckland, New Zealand. He was born in 1932 at Wanganui, New Zealand, and educated mostly at Auckland, graduating M.Sc. (Honours in Mathematics) from Auckland University College of the University of New Zealand. He has been a mathematician in industry, Lecturer in Mathematics at the University of Lancaster, and Senior Lecturer in Mathematics at the University of Auckland, with periods at Stanford and USC. He has published many papers on numerical analysis and on the history of science, and has translated five books and many papers on numerical analysis from Russian into English. He is a member of numerous international computing, mathematical, and historical societies, including the International Commission on the History of Mathematics.

Currently Mr. Tee is editing the complete works of Alexander Craig Aitken for publication by the New Zealand Mathematical Society; and he intends later to edit a selection of the works of Leslie John Comrie, who graduated from the University College of Auckland in 1916 (M.A., with Honours in Chemistry). He now hopes also to write a book about the Babbage materials which he has discovered in New Zealand. His address is: Department of Computer Science, University of Auckland, Private Bag, Auckland, New Zealand.

¹Editor's Note: Archival materials concerning Charles Babbage may be found in many places, including the British Museum, the Bodleian Library at Oxford, the Royal Library in Sweden, and in private collections such as that of Alfred van Sinderen.

²Editor's Note: Babbage worked on his Difference Engine from about 1821 to 1833. He never completed the full-sized version originally planned. A model Difference Engine, constructed in 1833, is on exhibit at the Science Museum in London. The fragment Mr. Tee has discovered is probably one of the many trial pieces that Babbage made of sections of the mechanism, trying out new designs and materials.

³G. J. Tee, "The Pioneering Women Mathematicians," *Mathematical Chronicle*, v.10, April, 1981, pp. 31-56.

INVISIBLE COLLEGE DEPARTMENT

"Invisible College" is a term which refers to a set of individuals working in a specialized field of knowledge who, despite varied geographical locations, slowly get to know one another and begin exchanging ideas and information about their field. As a clearinghouse, the Charles Babbage Institute has catalyzed the growth of the invisible college of individuals interested in the history of computing. This department of the Newsletter is designed to introduce our readers to the work of other individuals in the field. We hope that you will get in touch with each other directly, or by writing to the Institute about a particular item.

This past spring, the CBI staff and the faculty and students of the University of Minnesota had a chance to discover what a few members of the history of computing's "Invisible College" look like.



Martin Campbell-Kelly

Dr. Martin Campbell-Kelly of the University of Warwick in Coventry, England, visited CBI in late April. Dr. Campbell-Kelly is one of the rare historians of computing who focuses his research upon early computer programming activities, rather than upon the hardware design that has so far captured most historical attention. He received his computer science Ph.D. in 1980 from Sunderland Polytechnic for his thesis on "Foundations of Computer Programming in Britain," (CBI Newsletter, March 1, 1981). During his stay in the Twin Cities, Campbell-Kelly gave a talk on "Programming the EDSAC" wherein he described some of the automatic coding innovations developed by the group (Maurice Wilkes, David Wheeler, Stanley Gill and others) surrounding EDSAC at Cambridge University in 1949.

Now a professor in the Computer Science Department at Warwick, Campbell-Kelly is teaching a course on the history of computing. He livens the lectures with a number of old computer films that he has discovered, but reports that the most popular part of the course comes at the end, when the undergraduate CS majors get to try their hand at "programming the EDSAC" via a simulator. In this era of higher level languages, for many the EDSAC order code is their first exposure to an assembly language!

Dr. Campbell-Kelly is currently preparing a biographical memoir on British computer scientist Christopher Strachey (1916-1975). The memoir will be submitted for publication in the *Annals of the History of Computing*.

His address is:

University of Warwick
Dept. of Computer Science
Coventry, England
CV4 7AL

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Late last year we received a rather puzzling letter from Prof. Svante Lindqvist at the Royal Institute of Technology in Stockholm, Sweden. Mr. Lindqvist wrote to tell us that one of his students, Mr. Michael Lindgren, had "rediscovered the first Scheutz difference engine." (George Scheutz was a 19th century Swedish publisher and promoter of machine technology who read a description of Babbage's difference engine in the July, 1834, *Edinburgh Review*. He and his son Edvard, with Babbage's encouragement, eventually constructed and sold two difference engines; one to the Dudley Observatory in Albany, N.Y.; the other to the British government.)

The letter was puzzling because "everybody knows" that the first Scheutz engine is on display at the Smithsonian, where its rediscovery would not be exceptionally noteworthy. Therefore, when Mr. Lindgren announced that he would visit CBI in late May and present a paper on his discovery, we awaited his appearance with considerable curiosity.

Michael H. Lindgren presented us with a very pleasant surprise. In the final year of his studies in mechanical engineering at the Royal Institute, he chose to make his masters thesis an historical study of the Scheutzes' work. While searching through the wealth of primary source material on the Scheutzes preserved in Swedish archives, he became familiar with the existence of a third Scheutz engine—a model constructed by Edvard Scheutz to test the machine's feasibility, pre-dating the other two by some fifteen years.¹ At Edvard's death in 1881, the model was listed in his estate as being in the possession of one Artur Hazelius, and had been presumed lost. Lindgren realized that Hazelius was the founder of the Nordic Museum in Stockholm. On the off chance that the model might have survived, in December 1979 he examined the Nordic Museum's catalog. Indeed, Edvard Scheutz's difference engine was still in the museum's basement in its original wooden case, untouched and forgotten for nearly a century.

Lindgren and the Museum's furniture restorer, Per Westberg, took the machine apart and refurbished it. Except for a few broken teeth on one gear, the machine is intact and in working order. It is now on display at the Nordic Museum.

Mr. Lindgren gave an excellent slide-illustrated talk on the Scheutzes' work with difference engines, including "before, during, and after" pictures of the restored model.

¹We have since learned that Scheutz researchers have been aware for some time that Edvard Scheutz constructed a model difference engine first. Its existence was noted briefly in a pamphlet the Scheutzes published to promote their engines in 1857. The standard work on Scheutz is Dr. Uta Merzbach's *George Scheutz and the First Printing Calculator* (Smithsonian Studies in History and Technology, No. 36, Smithsonian Institution Press, Washington, D.C., 1977). Dr. Merzbach's book focuses primarily upon Scheutz's first full-size calculator (15 digits, 4 orders of difference) completed in 1853 and sold to the Dudley Observatory; but it also mentions the model (5 digits, 3 orders of difference) in passing.

Just 27, Mr. Lindgren will enter the doctoral program in Technology and Social Change at the University of Linköping this fall. He is writing a book about the Scheutzes which will consider their motivation for constructing the devices, the reasons why the Scheutzes were able to finish their engines while Babbage never made more than a model, and why the machines failed to meet with commercial success.

His address is:

Dept. for History of Technology
Royal Inst. of Technology Library
S-100 44
Stockholm, Sweden

In April we had a visit from Dr. Allan Bromley of the University of Sydney. Dr. Bromley spent the first half of this year at the Science Museum in London as a Visiting Research Fellow. He is going through the piles of Babbage's engineering drawings for the Analytical Engine to develop a detailed, annotated catalog for the Museum. His work is supported by the Australian Research Grants Committee.

While in Minneapolis, and at several other stops on his tour of the U.S., Bromley gave a lecture on what he has discovered about Babbage's plans for the Analytical Engine. Although the general layout of the Analytical Engine has been well known since the 19th century, it is surprising to realize that, prior to Bromley, no one had actually studied Babbage's designs for the machine to decipher exactly how it was supposed to work. Bromley has discovered flow charts and timing diagrams in the notations, and embryonic examples of pipelining and microprogram control in the mechanism. He is developing a paper on his findings for the *Annals of the History of Computing*.

An avid collector of both digital and analog mechanical computers, Bromley kept us enthralled for hours during his visit with stories of early military computers, the ins and outs of shopping the London antique markets, and the pleasures of finding every firm's "Old Joe," the old-timer tucked off in some corner who never throws *anything* away. His address is:

University of Sydney
Basser Dept. of Computer Science
Madsen Building F09
NSW, Australia

The History Project Committee of the Mathematical Association of America is planning a history of mathematics during World War II and its immediate aftermath, until roughly the year 1953.

The Committee sees World War II as a watershed for the mathematical sciences and their application in business, industry, and government. The project seeks to document the important role that mathematics played in the war effort, and to trace the dissemination of war-spawned mathematical techniques such as those found in computer science and operations research throughout industry, business, and government in the post-war period.

The Committee's initial objective is to assemble information about archival sources such as biographies, reports, official histories, letters, and government documents relevant to the development of the mathematical sciences during and soon after World War II. Personal memoirs and oral histories of World War II participants will also be collected to fill the inevitable gaps in documentary history. All new materials of historical value and information on documentary sources will be deposited in the Archive for American Mathematics in the Humanities Research Center at the University of Texas at Austin.

The long-term goal of the Committee is to write a history based on the archival materials that have been identified or collected: (a) covering the effects of mathematical science on the war effort in such areas as ballistics, fire control, cryptography, electronic computing machines, and the development of the atomic bomb; and (b) documenting the effects of the war on mathematics.

Individuals with documents or personal accounts which they believe may be useful to the Committee are invited to write to:

Professor J. Barkley Rosser
 Mathematics Research Center
 University of Wisconsin-Madison
 610 Walnut Street
 Madison, WI 53706

The work of the Committee is supported during the initial planning stages by a National Science Foundation grant. Four of the members of the Committee are mathematicians who participated in the war: J. Barkley Rosser, G. Baley Price, Mina Rees, and Churchill Eisenhart. Two are professional archivists: Albert C. Lewis, Curator of the History of Science Archives at the University of Texas and Maynard J. Brichford, Archivist at the University of Illinois. The seventh is Nathan Reingold, an historian of science at the Smithsonian Institution.



The *Annals of the History of Computing* will soon be for sale alongside *Byte*, *Creative Computing*, and *IEEE Computer* at a chain of computer stores run by Dennis K. Anderson of Huntsville, Alabama. The store, Anderson Computers, has shops in Huntsville and Florence, Alabama; and in Tullahoma, Tennessee. *Annals*, beginning with Vol. 3, No. 1, will cost \$7 an issue. Mr. Anderson anticipates selling about 20 copies per month.

This is the first request that AFIPS and the *Annals* editorial board has received for retail sale of the *Annals*. It was accepted as an experiment to get the *Annals* wider distribution. For the time-being, AFIPS is "playing it by ear," but will consider inquiries from other computer store managers who think that their customers would be interested in a journal devoted to computer history. Contact Chris Hoelzel at (703)558-3631.



Readers are reminded that the Charles Babbage Foundation is supported solely through private financing. If you would like to contribute to the promotion of the history of computing, join our Associates program. Associates receive at no charge a subscription to the AFIPS *Annals of the History of Computing*. The schedule for contributions is as follows:

Associate Member Category	Minimum Annual Tax-Deductible Contribution	Membership at the Category Level (one time payment)
Regular	\$ 40	\$ 650
Participating	\$ 100	\$1,000
Sustaining	\$ 500	\$3,000
Patron	\$1,000	\$5,000

Please make your check payable to the Charles Babbage Foundation and mail to: CBI, University of Minnesota, 104 Walter Library, 117 Pleasant Street, S.E., Minneapolis, MN 55455.



PUBLICATIONS

- AFIPS, *The Annals of the History of Computing*. The Table of Contents for the January, 1981 issue is:

Eloge: Harold L. Hazen, 1901-1980—Gordon S. Brown

The Development of Theoretical Computer Science:

Foreword—Ronald V. Book

Formal Languages: Origins and Directions—S.A. Greibach

Observations About the Development of Theoretical Computer Science—Juris Hartmanis

Origins of Recursive Function Theory—Stephen C. Kleene

Meetings in Retrospect: Commemoration of 1940 Remote Computing Demonstration by Stibitz: Science and Technology Studies Conference, Toronto, 1980

Anecdotes: Origin of the Word Byte

Reviews: H. Goldstine on Redmond and Smith's *Project Whirlwind*; J.A.N. Lee on Lavington's *Early British Computers*

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This January issue (Volume 3, Number 1) was published in May.

- AFIPS, *Taxonomy of Computer Science and Engineering* (AFIPS Press, Arlington, Virginia, 1980).

An attempt to map the disciplines of computer science and engineering as of the late 1970s through a hierarchical, tree-structured classification scheme similar in approach to that used in *Computing Reviews*, but far more detailed. (The annotated version of the taxonomy for all computer science and engineering is 265 pages long.)

Included under classification 9: "Computing Milieux," is a section 9.3: "History of Computing." This is the first published attempt to structure the research areas in computer history. People interested in the history of computing should examine this section of the taxonomy to evaluate its utility as a classification scheme, particularly since it could become a de facto standard used by archivists, librarians, *Computing Reviews*, the *Annals*, and perhaps by people reviewing research grant applications.

The AFIPS Taxonomy Committee invites comment on the taxonomy. Should you wish to comment in a public forum, it would be appropriate to write to

Bernard Galler, Editor in Chief of the *Annals*. The

book (471 pages, \$17.25 to members of AFIPS constituent societies, \$40.25 otherwise) can be ordered from:

AFIPS Press

1815 North Lynn Street

Arlington, Virginia 22209

(703) 243-4100

- Margaret Price, "Corporate Historians: A Rare but Growing Breed," *Industry Week*, March 31, 1981 (3 pages).

Short feature article discussing the growing number of corporate history efforts in firms such as Wells Fargo, Texaco, and Boeing. Provides a nice summary of the special concerns that surround internal corporate history programs, from the perspective of both the firm and the historian.

- Nancy Stern, *From ENIAC to UNIVAC: A Case Study of Evolving Technology* (Digital Press, Bedford, Massachusetts, 1981).

This book is based upon the author's 1978 PhD thesis, but has been substantially rewritten and augmented by several years of additional research, particularly on the story of the BINAC and the difficult question of John von Neumann's role in computer development at the Moore School.

Based on reports, correspondence, personal interviews, and the transcript from the Honeywell vs. Sperry Rand patent trial, the book considers:

The ENIAC patent controversies and the issue of priority.

The interaction of the engineers, government funding agencies, and the scientific establishment.

The conflicting claims regarding John von Neumann and the EDVAC stored-program concept. The BINAC's performance record.

The financial difficulties encountered by the Eckert-Mauchly Computer Company in the construction of UNIVAC.

The book includes many previously-unpublished photographs, and the complete text of von Neumann's "First Draft of a Report on the EDVAC" (1945). Only short extracts from this pivotal, controversial paper have appeared in print before.

(ISBN 0932376-14-2, 272 pages, photographs, diagrams, \$21.00.) You can order the book (order number EY-AX013-DP) directly by sending a check for \$21.00 (includes shipping and handling) to:

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MAGNETIC RECORDING CONFERENCE POSTPONED

In July, people on the CBI mailing list received a brochure announcing that there would be a conference on the history of magnetic recording held at the University of Santa Clara in October, 1981.

This conference has been indefinitely postponed.

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CBI has been receiving welcome attention in a variety of publications recently, including *EDUNET News* (Spring, 1981), *New Scientist* (January 15, 1981), *Vopros'i Istorii Estestvoznaniia i Tekhniki* ("Problems in the History of Natural Science and Technology," a Russian journal), and the "Tools and Toys" section of the February '81 *IEEE Spectrum*. This latter produced a small flood of inquiries from *Spectrum* readers who had not heard of CBI before and wished to know more about its programs.

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