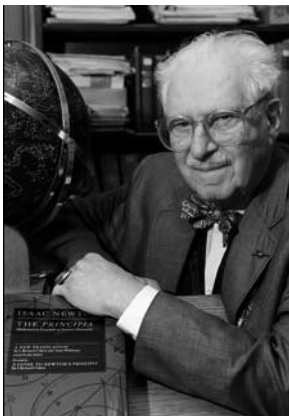


Biographies

Thomas Haigh, Editor
Indiana University

Obituary

I. Bernard Cohen



Courtesy of Harvard University Gazette

I. Bernard Cohen was born on 1 March 1914 and died 20 June 2003 in his home in Waltham, Massachusetts. He played a central role in the establishment of the history of computing as a topic of serious academic study. Even so, his contributions to the history of the physical sciences were so broad and fundamental that his obituary in the *New York Times* made no reference to computing.¹ Cohen

is best known as the author of classic works on Isaac Newton and Ben Franklin; as a rigorous yet readable popularizer of the history of science in *The Birth of a New Physics* (1960) and *Revolution in Science* (1985); as a lifelong teacher who brought his gifts to continuing education classes, cruise-ship passengers, and undergraduates; and as a mentor to generations of now eminent historians. He wrote more than 20 books, and 150 articles. He spent his adult life at Harvard, entering in 1933 as a freshman, staying for his graduate education and teaching there long after his official retirement.

Significant work

Within the history of science community, Cohen holds a special place as the first American to receive a PhD in the subject, in 1947. By this time he had already been teaching for several years, initially to give intensive instruction to Navy personnel in physics and mathematics during World War II. This shaped his interest in communicating science to a broad audience, later pursued in his popular books and through the development of courses in Harvard's "core" undergraduate program. From 1946 onward he taught the history of science, leading the evolution of Harvard's initially tiny history of science program (he was at one point the only regular faculty member) into one of the leading departments of its kind in the US.² During much of this period, he ran *Isis*, the major journal in the history of science, serving from 1947 to 1952 as managing editor and then until 1958 as edi-

tor. Under his stewardship the journal began to formalize its activities and intellectual scope beyond the rather idiosyncratic character given to it in its first four decades by founder George Sarton, who as Cohen later recalled tended to print articles without reading them fully or sending them for review, and "peppered *Isis* with personal editorials, many of which were like the newspaper columns of political pundits." Cohen's efforts as editor, including the encouragement of articles on the history of biology and on American science, played an important part in advancing the discipline as a whole.³

Cohen won all the major honors within the history of science, and many of those extended to scientists. His colleagues see his work as a Newton scholar as his most important contributions to their field. In particular, he led a 15-year project to publish a 900-page "variorum" edition of Newton's *Principia Mathematica*, perhaps the most important book in the history of physics. This integrated material from three different editions, the original manuscript, and Newton's later corrections and marginal jottings. The result—the first new translation in several hundred years—will remain an essential tool for as long as historians study Newton.

Cohen's interest in the history of computing blossomed in the 1970s, making him as much of an academic pioneer in this new subfield as he had earlier been in the history of science as a whole. His initial involvement came in the 1960s with what was to prove a long and rewarding relationship as a historical consultant to IBM. This began with the IBM History Wall, a project for IBM's New York headquarters building undertaken by celebrated industrial and graphic designers Charles and Ray Eames. The exhibition went on display around 1971 and was used to produce the early and beautifully illustrated *A Computer Perspective*.⁴ In later years, Cohen often mentioned how much he valued the chance to work with the Eameses, whose many accomplishments included the Eames chairs, films, exhibitions, toys, architecture, photography, and educational projects. For the Eames team this was one of a series of promotional projects for IBM, but for Cohen it became a new intellectual interest. He advised IBM on the organization of its technical archives and its technical history series, which produced a series of internal histories of the firm's computer projects marked by their thoroughness, thoughtfulness, and access to key participants and records.⁵

As the history of computing began to establish itself as an academic field during the late 1970s and early 1980s,

Personal Tribute

Shortly after I had retired from Cambridge University and joined the Digital Equipment Corporation in Maynard, Massachusetts, in September 1980, Bernard Cohen wrote and invited me to talk about the early days of computing to a student seminar he ran at Harvard. I accepted, and this was our first meeting. Bernard and I took to each other and a friendship developed.

During the time that I lived in the Boston area, we met fairly frequently and I would always enjoy his conversation. Bernard was a man of great charm, with old world manners and unfailing courtesy. During the course of his career, Bernard spent some time in the UK, and it was characteristic of him that he should have joined a London club and remained a member for the rest of his life. It was the famous Athenaeum, of which Michael Faraday was the first secretary. I was and still am a member myself, and I felt that it was a further bond between us that we were both members of the same London club.

I found him well informed on modern computer history, with a firm grasp of the technical issues. Bernard took a kindly interest in my own book, *Memoirs of a Computer Pioneer*, and it finally appeared in the series, published by the MIT Press, that he edited. His book on Howard Aiken, to which I contributed a chapter, was long in gestation. I admired Aiken for the great pioneer that he undoubtedly was, but could not go along with everything that was being claimed for him by Harvard alumni. I was a little unhappy in being the only outsider in what I felt was essentially a Harvard tribute. However, Bernard allowed me full freedom to say what I felt, and the friendly discussions we had about my chapter brought us closer together.

Bernard was widely acclaimed as a pioneer of the history of science as an academic discipline. He once remarked to me that, when he set out as a young man to make a career, the profession that he came to adorn—he did not himself use that word—was nonexistent.

I shall miss him very much.

—Maurice Wilkes

Cohen was involved in some way or another with almost every important initiative. He was actively involved in several projects sponsored by AFIPS, the American Federation of Information Processing Societies. Cohen assisted AFIPS with its Smithsonian Computer History Project, the first major coordinated effort in the history of computing. He also advised the Smithsonian on the development of its computing exhibits from the 1960s until the 1980s, donating some of his personal collection of mathematical instruments to the institution. He played an active role in the AFIPS “Pioneer Days” held during the 1980s to reunite participants in important computing projects. Cohen was particularly involved with one such event devoted to Howard Aiken and his early electromechanical computers such as the seminal Harvard Mark I. Another AFIPS project was the establishment of

Annals of the History of Computing, as this journal was then called. Other founders do not recall Cohen having played a hands-on role, but did appreciate his ability as the only professional historian on its first editorial board to give what Eric Weiss called an “appearance of legitimacy” to the undertaking.

Cohen played an important role in mentoring young scholars in the history of computing. The first was Martin Campbell-Kelly, who had written a dissertation under the direction of the famous computer scientist and amateur historian Brian Randell. Cohen served on the advisory panel for the Charles Babbage Institute Reprint Series in the History of Computing, edited by Campbell-Kelly. This series, sponsored by the Tomash family, reprinted many crucial but rare documents concerning the early history of computing that would otherwise have remained largely inaccessible to scholars.

The second scholar was William Aspray, who had written a dissertation under the direction of one of Cohen’s own PhD students, Victor Hilts. Cohen brought Aspray to Harvard for a while as an instructor while the two collaborated on the MIT Press History of Computing series. The series was founded in 1981, and Cohen remained editor until his death, during which time it established itself as the crucial venue for scholarly monographs and memoirs in the field. Cohen was invaluable to the fledgling series as a source of academic legitimacy and procurer of manuscripts. His personal involvement with the IBM technical history project allowed Cohen to steer these valuable and financially successful books into the new series, demonstrating that a viable market existed. Cohen’s personal interest in computing was primarily in the early, pioneering days of invention and he had a great ability to win the trust and respect of scientists, which he used in getting Maurice Wilkes’s memoirs for the series (see the “Personal Tribute” sidebar).

Cohen was among the more involved and collegial board members of the Charles Babbage Foundation, then the fund-raising arm of the Charles Babbage Institute, and of the institute’s own Program Committee. Cohen also played an active and influential role on the advisory board of the Defense Advanced Research Projects Agency (DARPA) sponsored project to document the contribution of the Information Processing Technologies Office to the development of computer science in the US. This project, which involved sometimes difficult negotiations with its sponsors, produced Arthur Norberg and Judy O’Neil’s

Transforming Computer Technology and Alex Roland's *Strategic Computing*.⁶

Cohen himself wrote only one book on the history of computing, the recent *Howard Aiken: Portrait of an American Pioneer* (1999). He was also coeditor of a companion volume of essays and reminiscences, *Makin' Numbers: Howard Aiken and the Computer* (1999). As Cohen explained in his book, he had known Aiken for some time, having first met the computer pioneer when as a young professor he hit on the idea of enlisting a computer to automate the many comparisons between multiple texts required in the production of his variorum edition of Newton. Aiken was enthusiastic, showing what Cohen recalled as a deeply moving interest in the history of science, and an equally welcome willingness to treat a junior colleague as intellectual equal. Cohen soon abandoned what would have been one of the first applications of a computer to textual analysis in the face of limited funds and the advice of Warren Weaver that a manual approach would give him a deeper understanding of Newton.⁷ However, the two had further dealings, including an oral history interview shortly before Aiken's death. While this relationship gave Cohen a certain parochial interest in seeking broader recognition for his Harvard colleague as the creator of the first functioning automatic and general-purpose programmable computer, his book acknowledged Aiken's sometimes abrasive personality and increasing detachment from the mainstream of computing research. As the book's subtitle indicated, Cohen found in Aiken a modern figure worthy of the same kind of treatment he had previously given Ben Franklin—as a distinctively American inventor with strong experimental focus, a love for tinkering, and motivations that extended far beyond the laboratory.

Cohen was renowned as a charismatic speaker and charming raconteur. Many of those who worked with Cohen express great fondness for him as a mentor and colleague. Campbell-Kelly remembers him as being an unusually likable and supportive collaborator with a touch of Anglophilia, who would go out of his way to maintain professional contact and arrange dinner meetings. Aspray notes that Cohen's love for things English extended to regular delivery of consignments of hand-tailored plaid clothing. Distinguished as the patterns were in isolation, their combination sometimes produced striking results. Cohen was left a widower in 1982 on the death of Frances Davis, a journalist and author of a highly regarded memoir of the Spanish Civil War, *A Fearful Innocence* (Kent State Univ., 1981). Although deeply distraught, Cohen later remar-

Background of I. Bernard Cohen

Education: BS in mathematics, Harvard University, 1937; PhD in history of science, Harvard University, 1947. **Professional experience:** Harvard University: 1942–1947, instructor in physics and mathematics; 1946–1977, faculty member in the History of Science Program, 1977–1984, Victor S. Thomas Professor of the History of Science, 1984–2003, emeritus. **Offices held:** President of the History of Science Society; President of the International Union of the History and Philosophy of Science; Guggenheim Fellow; National Science Foundation Senior Postdoctoral Fellow; Vice President of the American Academy of Arts and Sciences; Vice President of the American Association for the Advancement of Science. **Honors:** Honorary Life Member of New York Academy of Science; Benjamin Franklin Fellow of the Royal Society of Arts; Corresponding Fellow of the British Academy; Member of the International Academy of the History of Science. Fellow of University College, London; the Royal Astronomical Society; and the American Philosophical Society. Honorary degrees from Brooklyn Polytechnic Institute; George Washington University; University of Bologna. **Awards:** George Sarton Medal of the History of Science Society, 1974; Pfizer Prize of the History of Science Society (for *Revolution in Science*), 1986; Centennial Medal of Harvard Graduate School of Arts and Sciences, 1998.¹

References and notes

1. The listing of awards and honors, and many of the details on Cohen's career at Harvard, are adapted from an unpublished online obituary originally circulated via email and attributed to Cohen's colleagues George Smith and Everett Mendelsohn. As of 24 October 2003 this may be found at <http://mathforum.org/epigone/historia/krunwhoxplum>.

ried, perhaps surprising himself with his renewed happiness. Campbell-Kelly saw in Cohen's second wife, Susan Johnson, a "wonderful complement," who "pricked his occasional pomposity." He continued to work until the very end of his life, completing the manuscript of his final book and discussing historical matters with colleagues.

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2. Cohen's role in the development of history of science in the Harvard undergraduate curriculum is discussed in J. Harvey, "History of Science, History and Science, and Natural Science: Undergraduate Teaching of the History of Science at Harvard, 1938–1970," *Isis*, vol. 90, Supplement: Catching up with the Vision, 1999, pp. S270-S294.
3. Cohen discussed his involvement in the editing of *Isis*, a job he claims to have undertaken unwillingly after its publication ground to a halt amid institutional strife, in "The Isis Crises and the Coming of Age of the History of Science Society" *Isis*, vol. 90, Supplement: Catching up with the Vision, 1999, pp. S28-S42. The quotation is from p. S29.
4. C. Eames, R. Eames, and International Business Machines Corp., *A Computer Perspective*, Harvard Univ. Press, 1973.
5. The IBM technology history project produced E.W. Pugh, *Memories That Shaped an Industry: Decision Leading to IBM System/360*, MIT Press, 1984; C.J. Bashe et al. *IBM's Early Computers*, MIT Press, 1986; and E.W. Pugh, L.R. Johnson, and J.H. Palmer, *IBM's 360 and Early 370 Systems*, MIT Press, 1991.
6. A.L. Norberg and J.E. O'Neill, *Transforming Computer Technology: Information Processing for the Pentagon, 1962–1986*, Johns Hopkins Univ. Press, 1996, and A. Roland and P. Shiman, *Strategic Computing: DARPA and the Quest for Machine Intelligence*, MIT Press, 2002.
7. Cohen tells this story on pp. 209-211 in B. Cohen et al., *Makin' Numbers: Howard Aiken and the Computer*, MIT Press, 1999.

Thomas Haigh
 Indiana University
 thaigh@acm.org

Editor's Note

Jack Minker of the University of Maryland wrote to *Annals* with an addendum to the biography of Harry Polachek published in the July–September 2003 issue. Minker notes that in the fall of 1948, as a part-time assistant professor while continuing to direct electronic computer use at the Naval Ordnance Laboratory, Polachek devised and taught the first two courses ever offered at the University of Maryland to address the use of computers for scientific calculation and numerical analysis work. Their topics included the principles of automatic computers, methods for the evaluation of errors, and implementation issues around rounding and truncation in electronic computing. Questions in one final exam included reference to the work of Goldstein and von Neumann published the previous year in the *Bulletin of the American Mathematical Society*.