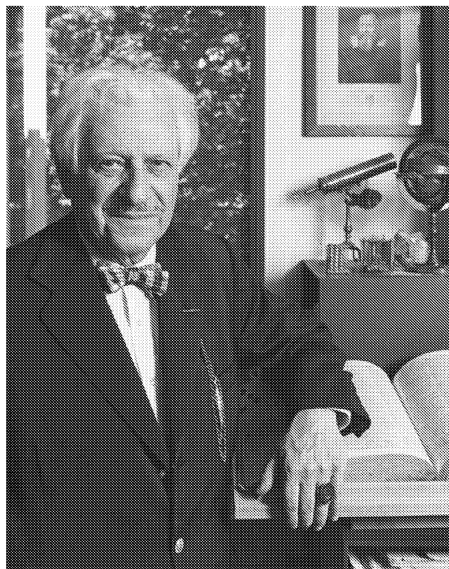


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### I. BERNARD COHEN (1914–2003)



Bernard Cohen, one of the pioneering generation who established the study of the history of science in America, died at his home in Waltham, Massachusetts on 20 June 2003 at the age of 89. Cohen had entered Harvard University as an undergraduate in 1933, concentrating in mathematics. He joined Harvard's graduate program in the History of Science and Learning in 1937, a year after it was initiated, becoming in 1947 the first American to receive a Ph.D. expressly in the history of science. During his graduate student years he served as an assistant to George Sarton, joining the Executive Council of the History of Science Society in 1945. In 1947 he became Managing Editor of *Isis*, the journal Sarton had edited since he founded it in 1912; in 1953 Cohen replaced Sarton as Editor of this journal, introducing a new policy of five-year terms. As his colleague Erwin Hiebert noted in 1974 when Cohen received the Sarton Medal, the History of Science Society's lifetime achievement award, Cohen shepherded *Isis* "through a gentle metamorphosis that gave it a structure that it still essentially maintains in its current form".

Cohen's research in the history of science covered a wide range of topics over the course of his more than sixty years of publications. Nevertheless, he was best known, especially to readers of this journal, for his work on Isaac Newton. Starting in the late 1970s, working together with the Latinist Anne Whitman (who died in 1984), he prepared the first complete English translation of Newton's *Principia mathematica* since the Motte translation of 1729. This new translation, published in 1999 together with his nearly 400-page "Guide to Newton's *Principia*", will surely remain the standard indefinitely into the future.

Earlier, in 1957, Cohen had joined with Alexandre Koyré on the monumental

project of preparing a variorum edition of Newton's *Principia*, covering not only its three published editions, but also the original manuscript and the voluminous corrections and annotations that Newton had made in his personal copies. After Koyré fell ill in 1962 and died two years later, the burden of this effort fell on Cohen, with the able assistance of Anne Whitman. The 900-page variorum edition was published in 1972, a year after Cohen's 380-page *Introduction to Newton's 'Principia'*, which provides a history of the composition of Newton's masterpiece and its subsequent editions. The variorum edition represents an extraordinary contribution to Newtonian scholarship, as lasting as any contribution can be, for it will remain indispensable so long as Newton continues to receive any attention at all among scholars.

Cohen's teaching career at Harvard began in 1942 when he taught physics and mathematics during the Second World War to Navy personnel brought to campus for intensive learning. He taught undergraduate and graduate courses in the history of science from 1946 until his mandatory retirement in 1984, and even then he continued to teach undergraduate seminars and courses in Harvard's Extension School for adult education until 2001. At the time of his retirement in 1984, a group of former students and colleagues published a volume in his honour, *Transformations and transitions in science*, edited by his long-time colleague and former Ph.D. student, Everett Mendelsohn.

Working with Harvard's President, James B. Conant, in the 1940s, Cohen helped to establish the General Education program, in which he taught a popular course for undergraduates on the "Nature and growth of the physical sciences". He subsequently taught an equally popular course, on the "Scientific Revolution", in Harvard's so-called "Core" program, which replaced General Education in the 1970s. Generations of Harvard undergraduates were introduced to the sciences through Cohen's use of the history of scientific ideas and practices. Physical demonstrations, audio-visual materials, and a high degree of lecturing drama made his courses memorable. Among the many teaching fellows he trained was Owen Gingerich, associate editor of this journal, who later joined Cohen as a lecturer in the course. A byproduct of his early undergraduate teaching of science to non-scientists was his book, *The birth of a new physics*, which was originally published in 1959 and has been translated into many languages.

Cohen's first book, a new, fully annotated edition of Benjamin Franklin's *Experiments and observations in electricity*, published in 1941, became his Ph.D. dissertation. The outline Cohen had presented as the original proposal for his dissertation grew into his 600-page study, *Franklin and Newton: An inquiry into speculative Newtonian experimental science and Franklin's work in electricity as an example thereof*, published in 1956. He wrote several popular works on Franklin and other figures in early American science, including *Science and American society in the first century of the Republic*, published in 1961, and most notably his *Science and the founding fathers: Science in the political thought of Jefferson, Franklin, Adams, and Madison*, published in 1995.

Cohen's course on the "Scientific Revolution" was accompanied by a seminar on revolutions in science generally. The research he carried out on the concept of

revolution in science led to the publication in 1980 of *The Newtonian revolution* (originally delivered as the Wiles Lectures at Belfast University) and in 1985 of his Pfizer Award-winning comprehensive study, *Revolution in science*, which reaches from Copernicus through Einstein. During the 1990s alone Cohen co-edited three books on Newton, and over five decades he provided introductions to a large number of facsimile editions and chapters to numerous other books on seventeenth- and eighteenth-century science. In addition to his more than twenty books, he published over 150 articles during his sixty-year career, ranging from learned to popular journals. His thirteen articles in *Scientific American* from 1948 to 1992 covered such diverse topics as Franklin, Newton, Charles Darwin, Stephen Hales, Christopher Columbus, Florence Nightingale, and an interview with Albert Einstein shortly before Einstein died.

Although Cohen's primary focus was on Newton and science in the early United States, several other areas benefited from his attention. During the 1960s and '70s he participated in Harvard's Seminar on Science and Public Policy. This led to interest in the ways in which the natural sciences came to furnish models and concepts for the social and behavioural sciences, which culminated in his book of 1994, *Interactions: Some contacts between the natural sciences and the social sciences*. He developed an interest in the early 1950s in computers, consulting as a historian for IBM for many years and serving as co-editor of the MIT Press series, *History of computing*, in which his own book, *Howard Aiken: Portrait of a computing pioneer* appeared in 1999. The manuscript of Cohen's last book, *The triumph of numbers*, a history of numbers and their impact on society and culture, was mailed to the publisher one week before he died.

Other than Anne Whitman, no colleague was closer to Cohen from the time they first met in 1959 than D. T. Whiteside, the editor of *The mathematical papers of Isaac Newton*; though they never formally collaborated, their correspondence on substantive matters was immense. Whiteside dedicated vol. vi of *The mathematical papers*, centred on the *Principia*, to Cohen, "our learned guide to the by-ways of the 'Principia'", and Cohen dedicated the new translation to him "with respect and affection" — words that express the essence of Cohen's attitude toward the colleagues with whom he was close.

As I can attest personally, Cohen was remarkably generous in the effort he put into supporting and encouraging younger, unknown scholars trying to say something new about Newton, or for that matter about any of the other topics on which he was an authority. His file cabinets are filled with drafts of papers sent to him with a request for comments and his often pages of comments in reply. Time and again he expressed satisfaction about how much he had learned from new scholars approaching the material on which he had spent a lifetime as a consequence of their different background or perspective.

For all his erudition, Bernard constantly fell back on a single exclamatory word when he encountered anything that he found remarkable. This word is an apt summary for his life, both as a scholar and as a person: "Wow."

GEORGE E. SMITH