

## IN REMEMBRANCE OF I. BERNARD COHEN

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I. Bernard Cohen (1914-2003) was one of the towering figures in history of science in the 20<sup>th</sup> century by any measure. His best-known scholarship was on 17<sup>th</sup>- and 18<sup>th</sup>-century physics, especially on Isaac Newton and Benjamin Franklin. He held such prominent posts in the field as editor of *Isis*, president of the History of Science Society, and first chairman of the History of Science Department at Harvard. Cohen's life and work are described in detail in a lengthy article in *Isis* published a few years after his death (1).

Given the opportunity to publish recollections of such a prominent historian of science by such a prominent chemist as Dudley Herschbach, I gladly took it. What follows are Herschbach's remarks from a memorial service for Cohen at Memorial Church, Harvard University, Nov. 19, 2003 (with bibliographic references added by the editor).

—Carmen Giunta, Editor

To my regret, I came to know Bernard Cohen only during the last ten years of his life. But that opportunity proved to be a joy and privilege that I count among my most valued experiences at Harvard.

It came about when I was asked to give a talk to the American Academy of Arts and Sciences, to be delivered in January 1994. In choosing a topic, I had to consider that January was a dreary time of year, and that the President

of the Academy said recent talks had been exceedingly dull. Accordingly, I proposed a topic intended to signal that even a talk by a scientist might be fun: "Ben Franklin's Scientific Amusements."

Most of what I'd learned on that topic I'd found in two of Bernard's books: *Benjamin Franklin's Science* (2) and *Franklin and Newton* (3). I had also read and admired two other books of his, *Birth of a New Physics* (4), and *Revolution in Science* (5). But I had not met Bernard, so a few weeks before my talk I called and he agreed to have lunch. At our lunch, I was delighted to learn that Bernard's first talk to the American Academy, given in 1950 soon after his election, was also on Ben Franklin. Then and later, I was enchanted by Bernard's courtly dignity and his earnest lucidity. He had a cornucopia of apt stories, artfully recounted in his lovely baritone voice. His vivid depictions of episodes and people often had the character of biblical parables.

After my talk, at another lunch, Bernard gave me a present I greatly cherish: a copy of his first book, published in 1941, in which he had edited, with a 150 page introduction, a reprint of the final edition of Ben Franklin's famous book, titled *Experiments and Observations on Electricity, Made at Philadelphia in America* (6). The original text, published in 1774, is a collection of letters sent by Franklin to a friend in England. In his introduction and editorial annotations, Bernard elucidates wonderfully the historical context and scientific significance of the experiments and interpretations developed by Franklin

and traces the evolution and impact of the book, which went through ten editions, including five in English and three in French, during twenty years.

In 1995, Bernard published a book I have enjoyed giving to many friends: *Science and the Founding Fathers* (7). It has a subtitle in 18<sup>th</sup>-century style: *Science in the Political Thought of Thomas Jefferson, Benjamin Franklin, John Adams & James Madison*. In marked contrast to our day, Bernard demonstrates that for these founders in the Age of Reason, science was an integral part of intellectual life. He examines their scientific education and how they used their knowledge of science, which was “esteemed as the highest expression of human reason...as a means of transferring to the realms of political discourse some reflections of the value system of the sciences.” The book offers a host of compelling stories and analyzes the scientific perspectives, metaphors, and analogies incorporated in the Declaration of Independence, the Constitution, the Federalist Papers, and other canonical political scriptures.

Other cherished memories of Bernard came from gatherings held at his home in Belmont, early each year. There I first met his wife Susan and many of their friends, and also had the chance to admire superb photographs Bernard had taken on journeys all over the world.

A special joy was another afternoon in his Widener study with him and his delightful friend, Claude-Anne Lopez. She had come up from Yale, where she had worked on the Franklin Papers project (8) for over two decades, to discuss with Bernard and me her ideas for a TV series on Franklin. Eventually this led to the four-hour PBS program produced by Middlemarch Films. The program, shown nationwide in November 2002 and several times since, received the Emmy award for the best documentary series (9). Bernard appears in several portions, drawn from a two-hour interview filmed in his study in May 2001. Middlemarch Films has donated the original master film to the Harvard Archives. Using excerpts from this interview, Professor Sara Schechner and I are preparing a twenty-minute DVD edition, to be sent as a gift to friends and colleagues of Bernard.

From Professor George Smith at Tufts University, a long-time collaborator of Bernard's, I learned of his charming autobiographical essay titled “A Harvard Education” (10). In that essay, Bernard begins by describing the two courses in history of science offered when he was an undergraduate in the mid-1930s: “One began with the Greeks and ended with Galileo; the other began with Newton and went up to fairly recent times.”

Ironically, the course on early science was given by L. J. Henderson, a biochemist, whereas the modern science course was given by George Sarton, a historian whose major research dealt with early science.

Bernard had come to Harvard hoping to become a “theoretical or mathematical physical chemist” (a rare breed in those days). As a sophomore, he took a course in “rational mechanics,” then “still traditionally given in the mathematics department.” It was taught by George Birkhoff, “America's first great mathematician...a true genius who radiated enthusiasm for mathematics from every pore.” Bernard became a concentrator in mathematics, and a tutee of Birkhoff, a special honor as Birkhoff was then serving as Dean of the Faculty so only took on one or two undergraduate tutees (in addition to teaching regular courses). Birkhoff emphasized the historical and philosophical bases of rational mechanics. Bernard comments that “This must have had a strong influence on my subsequent interest in writing about Isaac Newton and my eventual career in the history of science.”

After graduating in 1937 with honors in mathematics, Bernard entered Harvard Graduate School, in a new program in the History of Science and Learning, launched only the year before by President J. B. Conant. At that time, Bernard notes, graduate school was “merely a way of postponing the inevitable.” As the grip of the great depression remained strong, academic jobs of any kind were scarce; there were none at all in the history of science. Fortunately, Bernard was appointed Librarian of Eliot House, which provided him room and board. As a graduate student, Bernard undertook a remarkably broad range of studies. In science, this included work in astronomy with Fred Whipple, in optics with Theodore Lyman, with Edwin Kemble in electromagnetic theory, and with Otto Oldenburg in spectroscopy and quantum theory. In history, Bernard did work in the history of religions with Arthur Darby Nock, intellectual history with Crane Brinton, and American history with Samuel Eliot Morison and Perry Miller.

During the war years and until the end of 1946, Bernard was also much engaged in teaching physics, in the absence of most of the regular faculty. After nine years as a graduate student, he knew that “my academic future was in considerable jeopardy, since I had not fulfilled any formal requirement for the Ph.D. degree except residence.” He finally took his general examination late in 1946, and then presented a long outline of a book he proposed for his thesis. (Much later this became his *Franklin and Newton*.) He was astonished when Crane Brinton urged Bernard to complete his degree immedi-

ately, by submitting his annotated edition of Franklin's book on electricity, published in 1941. Bernard objected that he "did not want to get out of fulfilling requirements." However, Brinton pointed out that the graduate school rules said nothing about *when* the thesis had to be written; he felt Bernard had already "fulfilled the thesis requirement fully and honorably." Brinton also offered to persuade Bernard's nominal thesis advisor, George Sarton, who told Bernard that it was his choice, if he wanted to take such an "easy way out." That was how, in 1947, Bernard became "the first American to receive a formal Ph.D. in the history of science."

In the final years of his life, when a cruel disease was robbing him of oxygen and energy, Bernard did not choose an easy way out. With the great help of Susan and others, he endured frequent blood transfusions and persevered to finish his last book, *The Triumph of Numbers* (11). After his manuscript was sent to press, Bernard decided to end the transfusions, which had become less and less effective.

Susan kindly invited me to visit him, about a week before his death. Bernard was serene while recalling favorite people and events of his life. I reminded him of a story I'd heard him tell a group of freshmen at an orientation program a few years before. It had to do with a visiting minister who came to preach at Harvard, having never before been to New England. It was in the fall, and his host took the visitor up to see the foliage in Vermont. Walking along a country road, they admired a splendid farm. Just then the farmer himself appeared, behind his horse and plow, and politely paused by the pair of preachers. The visiting minister exclaimed: "It's marvelous to see what a beautiful farm you and the Lord have made!" The farmer, after some reflection, replied: "Yes, it is a beautiful farm. But you should have seen it when the Lord was taking care of it by himself." This story had come to mind, as I said to Bernard, because he had done so well the Lord's work.

### About the Author

Dudley Herschbach is Frank B. Baird, Jr. Professor of Science, Emeritus, at Harvard University.

### References and Notes

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4. I. B. Cohen, *Birth of a New Physics*, Doubleday, New York, 1960; revised and updated, Norton, New York, 1985.
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6. B. Franklin, I. B. Cohen, Ed., *Benjamin Franklin's Experiments; a New Edition of Franklin's Experiments and Observations on Electricity*, Harvard University Press, Cambridge, MA, 1941. Cohen's edition showed a facsimile of the title page of the 1774 fifth edition, published in London. The first edition was B. Franklin, *Experiments and Observations on Electricity Made at Philadelphia in America*, E. Cave, London, 1751.
7. I. B. Cohen, *Science and the Founding Fathers*, Norton, New York, 1995.
8. To date, Yale University Press has published 43 of an anticipated 47 volumes of Franklin's papers over the period 1959 through 2018. For more information, see *The Papers of Benjamin Franklin*, <https://franklinpapers.yale.edu> (accessed Nov. 10, 2020).
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11. I. B. Cohen, *The Triumph of Numbers : How Counting Shaped Modern Life*, Norton, New York, 2005.