through his work with the Sudbury Neutrino Observatory and KamLAND [Kamioka Liquid Scintillator Anti-Neutrino Detector] collaborations." The citation adds that those experiments "have led to the solution of the solar neutrino problem and the observation of neutrino oscillations."

A Chamberlain fellow at Lawrence Berkeley National Laboratory, Heeger spent the last week of April in residence at CWRU, where he gave three seminars and a colloquium on the SNO and KamLAND experiments and the future directions of experimental neutrino physics.

Obituaries

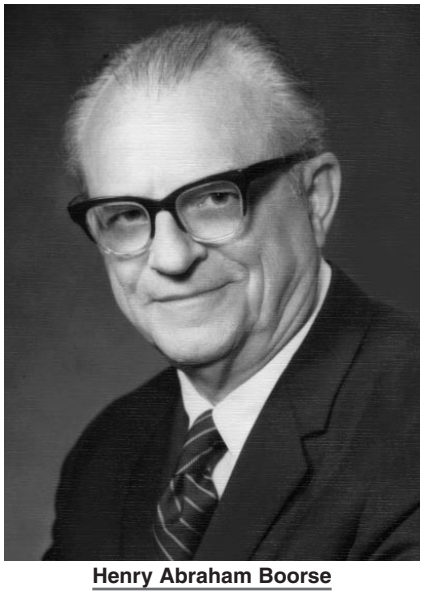
Henry Abraham Boorse

Henry Abraham Boorse, an authority on low-temperature physics, one of the founding members of the Manhattan Project, and a professor of physics at Barnard College in New York City, died in Houston, Texas, on 28 July 2003.

Born on 18 September 1904 in Norristown, Pennsylvania, Henry graduated from the US Naval Academy in 1928 and served on active duty for two years before beginning graduate study in physics at Columbia University. After earning a master's degree, he was awarded the PhD in 1934. His dissertation, under the direction of A. P. Wills, was on magnetic double refraction in liquids. He spent the following year as a postdoctoral fellow under John Cockcroft at Cambridge University in the Royal Society Mond Research Laboratory (later merged with the Cavendish Laboratory), where he worked on the low-temperature research pioneered there by Peter Kapitza.

Henry returned to Columbia to begin developing a low-temperature laboratory in the department of physics. In 1937, he accepted a teaching appointment at Barnard, the women's college affiliated with Columbia—just across the street from Pupin Hall, which then housed labs of the likes of Harold Urey, George Pegram, I. I. Rabi, Enrico Fermi, and Polykarp Kusch. For the next four years, Henry chaired the Barnard physics department, worked to develop his low-temperature laboratory, and continued to do research on the liquefaction of hydrogen.

In 1942, Henry joined Urey and Fermi, two of his Leonia, New Jersey, neighbors, in founding the Substitute Alloy Materials (SAM) Laboratory at Columbia. SAM was part of the Manhattan Project; Henry worked in the project in New York as divisional director, and then at the Oak Ridge, Tennessee, site until 1945, when he returned to Barnard and Columbia.



Henry Abraham Boorse

For the three decades that followed, he balanced roles of researcher, teacher, and dean, sometimes emphasizing one over the others, but never losing sight of his multiple responsibilities and interests. Henry went back to building his department and completing a laboratory from which, over the next several years, he published studies on helium transport on different metal surfaces at temperatures below 1 kelvin and on the heat capacities of superconducting and various other metallic elements. He became a full professor in 1948. Years later, a longtime colleague would wonder if Henry's knowledge of low-temperature physics was what allowed him to "keep his cool" as an administrator during the student unrest in the late 1960s.

In the 1950s, in a fully equipped low-temperature laboratory, he and his students worked on superconductivity and reported regularly in the *Physical Review* and the *American Journal of Physics*. At the same time, he was becoming more active in professional groups and in the governance of his college. He was a consultant to the US Atomic Energy Commission and to Brookhaven National Laboratory; he was a director of the calorimetry conference and wrote an article on the subject for *Science*; and by the end of the decade, he had become dean of the faculty at Barnard.

Henry's scientific explorations progressed during the 1960s, even as his involvement in academic administration expanded. His investigations covered various aspects of solid-state physics at very low temperatures and dealt with superconducting heat capacities of zinc, niobium, and lanthanum. He served on Commission 1 of the International Institute of Refrigeration and as a member of the US National Committee of the institute. Twice during the decade, Henry was interim president of Barnard, and he made a six-week trip to India to promote faculty exchange among women's colleges in the US and India. At the end of his first presidential stint, a faculty chorus saluted him to the tune of "God Rest Ye Merry Gentlemen":

> Now come hours of cryogenic
> joy, comfort and joy!
> Oh, tidings of kelvin zero joy!

In 1966, Henry, with the astronomer Lloyd Motz, published an annotated two-volume anthology, *The World of the Atom* (Basic Books), a collection of seminal papers by physicists from Lucretius to Hans Bethe and Victor Weisskopf, with extensive commentaries that were hailed as lucid and comprehensive. Twenty-three years later, when he was 85, he coauthored a companion volume of biographies, *The Atomic Scientists* (Wiley, 1989). At the end of the decade, under his deanship, the department established a History of Physics course with laboratory, which he hoped would "humanize physics" for Barnard and Columbia students.

In 1970, Henry stepped down from the college deanship and became professor emeritus of physics, but he only more or less retired. For the next five years it was "less." He was a special lecturer, an interim yearlong director of the college libraries, and a special assistant to the president. When he retired "more," he was able to pursue a lifelong interest in studying and collecting early American prints and maps of prerevolutionary Philadelphia. He served as the president of the American Historical Print Collectors Society and published articles in that society's journal and in the *Pennsylvania Magazine of History & Biography*.

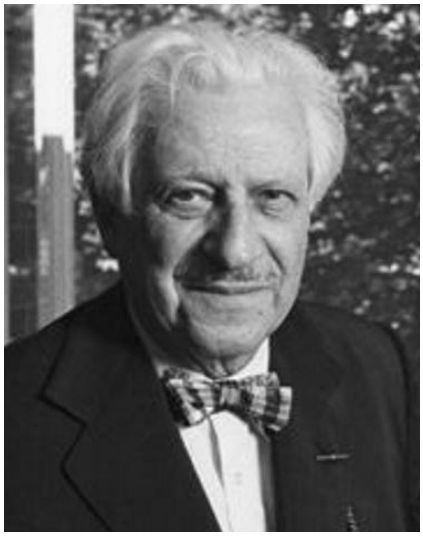
On his formal retirement, Henry was toasted as a dean with a "tidy" mind, always impartial, willing to listen before judging, and "courageous in

his caution"—surely just as descriptive of a good scientist. He probably enjoyed, even more than the toast, the senior faculty chorus that serenaded him, this time à la "When I Was a Lad" from *HMS Pinafore*, ending with the refrain:

> His cold chambers had such frigidity
> That now he is the ruler of the Faculty.

Laura Kay
Barbara Schmitter
Barnard College
New York City

I. Bernard Cohen



I. Bernard Cohen

Noted historian of science and Harvard University professor emeritus I. Bernard Cohen died on 20 June 2003 at his home in Waltham, Massachusetts. He arrived at Harvard as a freshman in 1933 and spent the remainder of his career there.

Born on 1 March 1914 in New York City, Cohen received a BS in mathematics in 1937 and a PhD in the history of science in 1947; his was the first doctorate to be granted in that field in the US. In 1942, he joined Harvard's teaching staff as an instructor in physics.

All of his life Cohen spoke with reverence of the Harvard College where he had found an intellectual home. Year after year, he taught courses in the history of science as part of Harvard's general education (later core) program. He was a true showman who recognized the affinities of lecture hall and stage and was a master of the impressive demonstration experiment and dramatically told story. He used slides liberally to introduce students to both the visual and textual sides of science. Although his students might soon have forgotten the technicalities of Johannes Kepler's laws of planetary motion or Benjamin Franklin's two-fluid theory of electricity, once the course was over, almost all came away cherishing some striking anecdote they had first heard in Cohen's mellifluous baritone.

Cohen's graduate seminars covered a wide range of literature, both orthodox and heterodox. His broad curiosity was matched by his generosity. As he grew older, his scholarly openness to new topics and approaches only expanded; repeatedly, young scholars gratefully received his encouragement for projects rejected as too radical by other éminence grises. The heart of Cohen's scholarly world, and his teaching, was Widener W, his library study. Weighty tomes filled floor-to-ceiling cases and spilled out onto paper-strewn desks and tables. A prolific author, Cohen often had several books simultaneously in progress, and each surface in his study was the site of a different project. Pride of place went to a lecternlike desk, where he wrote, standing up, with a thick fountain pen. In Widener W, Cohen taught by example the fine art of finding order in chaos—whether by forging a historical interpretation out of a swarm of dates and details or by laying hands on some book or document resting on one of those crowded tables. There, generations of student assistants were initiated into the craft of scholarship: They put together bibliographies, checked footnotes, puzzled out translations, and deciphered knotty texts in centuries-old scripts.

The output of those labors was prodigious. Cohen was among the first scholars in the US to specialize in the history of science, and, for him, that was specialization enough. Although his best-known work centered on the physical sciences in the 17th and 18th centuries, his projects in Widener W ranged from the history of inoculation to the history of computers to the history of the natural sciences at Harvard College. His first book, which he edited, was *Benjamin Franklin's Experiments: A New Edition of Franklin's Experiments and Observations on Electricity* (Harvard U. Press, 1941); his last, *The Triumph of Numbers*, was dispatched to the publisher (W. W. Norton) shortly before his death and has not yet been published. Other books include *Franklin and Newton: An Inquiry Into Speculative Newtonian Experimental Science and Franklin's Work in Electricity as an Example Thereof* (American Philosophical Society, 1956); *The Birth of a New Physics* (Anchor Books, 1960); *Introduction to Newton's "Principia"* (University Press, 1971); *The Newtonian Revolution* (Cambridge U. Press, 1980); and *Revolution in Science* (Belknap Press of Harvard U. Press, 1985).

It was primarily as a Newton scholar that Cohen established his international reputation. In collaboration with the philosopher and historian Alexandre Koyré and the Latinist Anne Whitman, he labored for more than a decade to produce a monumental variorum edition of Newton's *Principia* entitled *Philosophiae Naturalis Principia Mathematica*—that encompassed the third edition with variant readings (Harvard U. Press, 1972)—which was based on the original manuscript, the three published editions, and Newton's corrections and annotations. A new English translation of the *Principia* entitled *The Principia: Mathematical Principles of Natural Philosophy*, by Cohen and Whitman with the assistance of Julia Budenz, and prefaced by Cohen's indispensable guide to Newton's *Principia*, was published in 1999 (U. of Calif. Press). His general-audience account of Newton and the scientific revolution, *The Birth of a New Physics*, has been translated into many languages.

Cohen retired in 1984 as Victor S. Thomas Professor of the History of Science. During his long career, he held numerous offices, including the presidency of the US chapter of the History of Science Society (1961–62) and the International Union of the History and Philosophy of Science (1968–71). He also was vice president of the American Academy of Arts and Sciences and of the American Association for the Advancement of Science. Cohen was awarded the History of Science Society's George Sarton Medal in 1974 and the society's Pfizer Prize in 1986.

It is a tribute to Cohen's broad intellectual interests and to his cosmopolitan outlook that his students teach at colleges and universities in numerous disciplines and in several countries. Fields that he pioneered singlehandedly have now become flourishing specialties in their own right.

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