

ate education at Catawba College. He did graduate work at Vanderbilt University and the University of North Carolina at Chapel Hill, and was granted a PhD in physics by the latter in 1943.

During World War II Beck did research on the enrichment of uranium isotopes in the Manhattan District's SAM laboratories of Columbia University. After the war, the staff and facilities were moved to the Oak Ridge Gaseous Diffusion Plant, and he joined Dixon Callihan and Elizabeth Johnson in criticality studies for the safe handling and storage of fissionable material, which involved placing variable masses of U^{235} or Pu^{239} on a variety of lattices with variable spacings.

At this stage of the development of nuclear energy, it was widely assumed that all nuclear reactors had to be government owned and operated in facilities of the Atomic Energy Commission. Beck questioned the necessity of this policy and succeeded in persuading AEC to license the construction on a university campus of a research reactor owned and operated by the university. In 1949 he went to North Carolina State University as professor and head of the department of physics. There he directed the construction and operation of the first university research reactor, which was used to train undergraduate and graduate students in the new field of nuclear energy. Participants came from many locations for what became a pioneering and international study program.

While at North Carolina State, Beck was instrumental in organizing the American Nuclear Society and was a founding member and director of the organization. In 1953 he was elected to the board of directors of the Oak Ridge Institute of Nuclear Studies (now Oak Ridge Associated Universities), and was vice president from 1954 to 1956.

In 1956 the Atomic Energy Commission separated the regulatory from the promotional functions for nuclear energy, and Beck was appointed chief of the reactor hazards evaluation branch of the new division of licensing and regulation. Later, as deputy director of regulation Beck contributed significantly to establishing safety standards in the nuclear industry. When the Nuclear Regulatory Commission was established as an independent agency, Beck transferred from AEC to NRC and distinguished himself particularly in its international program.

From 1960 to 1969, Beck served as a member of Maryland's Montgomery County board of education, serving as its president in 1967. He was instrumental in founding the Maryland State Board of Community Colleges and

served as its chairman from 1968 to 1979.

Both of us were colleagues of Beck at Columbia during the war. As members of the dwindling community of those who had the thrill of participating in the Manhattan Project, we mourn his death and shall miss his companionship in the future.

WILLIAM G. POLLARD

Oak Ridge Associated Universities

DONALD B. TRAUGER

Oak Ridge National Laboratory

Henry Levinstein

Henry Levinstein, professor of physics at Syracuse University, died on 21 June 1986 at the age of 66.

Levinstein was born in Thamar, Germany, and came to the United States in 1938. He did his undergraduate and graduate work at the University of Michigan, eventually receiving his PhD in 1947 under the sponsorship of H. Richard Crane. That same year he joined the physics department at Syracuse University.

His research was in solid state physics. At first his principal interest was in understanding and developing intrinsic photoconductive infrared-sensitive detectors, including PbSe, PbTe, InSb and GaAs. For some years, his research group was the only source of detectors whose sensitivity extended to the 5-micron region. These detectors were made available to workers in astronomy, environmental science, medicine and the military.

Subsequently he concentrated his efforts upon extrinsic infrared detectors, primarily the various doped-germanium types. Levinstein and his students greatly elucidated the physics of these materials, and many of his students continued to work in this field at various universities and industrial laboratories throughout the country.

Levinstein served as chairman of the New York State section of The American Physical Society. He was chairman of the Third International Photoconductivity Conference in 1969 and he edited its conference reports. He was also a longtime chairman of the detector group of IRIS and was president of the Syracuse chapter of Phi Beta Kappa. He served as an adviser to Texas Instruments and General Telephone and was a member of the technical advisory board of Aerojet General, and for many summers he taught a course on photoconductivity at the University of California at Santa Barbara.

One of his continued interests was "gadgets," and he developed it into a course on the physics of toys, which attracted hundreds of undergraduates

each time it was given. He became a noted speaker on the subject and gave numerous, entertaining after-dinner talks at APS meetings in the United States and Canada.

Levinstein was very popular with his undergraduate students, many of whom considered him a friend as well as a teacher and kept contact with him long after graduation because of his warm and gentle nature. His fellow faculty thought highly of him as a person and as a scientist.

NATHAN GINSBERG

H. W. BERRY

Syracuse University

Syracuse, New York

Joyce Alvin Bearden

Joyce Alvin Bearden, professor emeritus at The Johns Hopkins University and a major figure for over half a century in x-ray research, died on 28 July after a period of ill health. He was 82.

Bearden was born in Greenville, South Carolina, in 1903 and graduated from Furman University in 1923. He received a PhD from the University of Chicago in 1926 and remained there as an instructor for three years. In 1929 he joined the Johns Hopkins faculty, advancing to a professorship in 1939. During World War II, Bearden worked with the National Defense Research Committee on the variable time proximity fuze, an association that not only took him to Europe as a Colonel in the US Army but also led to his founding, with D. Luke Hopkins, Merle Tuve and Lawrence Hafstad, The Johns Hopkins Applied Physics Laboratory. After the war he assumed the directorship of the radiation laboratory at Johns Hopkins, a position he held until 1955. From 1947 through 1949 he also served as chairman of the physics department.

Bearden's 50-year scientific career began in the early years of quantum mechanics and terminated only near his death. Best known is his work dealing with fundamental constants and accurate x-ray wavelengths. But one finds as well several efforts at conceptual clarifications, such as his first paper (published jointly with Arthur H. Compton) on the effect of a surrounding box on the spectrum of scattered x rays; in this category is also to be found a paper with John A. Wheeler on x-ray line strengths. Nevertheless, it is the body of his work concerned with exact measurement that is most widely appreciated and for which he will be long remembered. Within this domain there were two periods of intense productivity which, though separated by thirty years, pro-