

first high-energy experimental research performed by the university's department of physics and astronomy. In 1982, Richard was promoted to professor. He continued his work on Argus until 1986.

In 1988, Richard worked on the Čerenkov detector at Fermilab. However, he devoted most of his available time during the mid- to late 1980s to writing, mostly as a coauthor. He published more than 150 research articles, but is perhaps best known for his coauthorship with one of us (E.R.J) of *Contemporary College Physics* (McGraw-Hill, 2001), a textbook that has been widely used in noncalculus introductory physics. Many of the photographs in the text were taken by Richard, and remain as a reminder of his interest in optics and his skill as a photographer.

Richard finished his research at Fermilab in 1992. In 1993, USC honors students named him outstanding professor of science. He retired from USC in 1996, but continued to work there part time until his death.

Richard had a special regard for physics demonstrations, which was heightened by his interest in magic and an understanding of the showmanship involved. He once developed a bed of nails at a 1972 workshop on physics demonstrations. That workshop, sponsored by the National Science Foundation, was held at the US Naval Academy in Annapolis, Maryland, by Richard B. "Dick" Minnix and Rae Carpenter Jr, who were members of the physics faculty at the Virginia Military Institute. Anyone who has tried lying on a bed of nails knows the great sense of relief, on lowering himself or herself onto the bed, that physics really works! A member of ring 105 (a local branch) of the International Brotherhood of Magicians in Columbia, South Carolina, Richard carried his showmanship into the classroom.

Throughout his career, Richard actively promoted physics education in the high schools. Early on, he arranged for high-school students to visit the university, where they were given tours of the research laboratories and a demonstration lecture on physics. His efforts culminated with his organization of the Midway Physics Day at the South Carolina State Fair following his retirement. His calm, commonsense perspective on departmental matters will be missed by his colleagues.

RONALD D. EDGE

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Kenneth Bailey McAfee Jr

Kenneth Bailey McAfee Jr, who spent nearly 40 years in pure and applied research at AT&T Bell Laboratories (now a part of Lucent Technologies), died on 21 February 2000 in Basking Ridge, New Jersey, from complications of heart disease.

Born in Chicago on 22 June 1924, he served in the US Navy during World War II aboard the *USS Macon Island*. Ken received a bachelor's degree in chemistry in 1946, a master's in chemistry in 1947, and his PhD in chemical physics in 1950, all from Harvard University. His doctoral research, done under the guidance of E. Bright Wilson, involved chemical structure determination by microwave spectroscopy.

Ken joined Bell Laboratories in 1950 as a member of the technical staff in the physical chemistry research department. His initial work concerned charge mobility in semiconductors, an important aspect of the physics of the transistor that had been discovered only four years earlier. He later developed a method for separating pure helium from natural gas, with which it is found in nature, by gaseous diffusion using silica tubes. He also began a program to develop high dielectric strength gases based on an understanding of their electron affinities. Microwave waveguides pressurized with high dielectric strength gases can transmit higher peak power without breakdown, thereby increasing the maximum radar detection range attainable. Development of radars capable of detecting small objects at great range was of critical importance to the Ballistic Missile Defense effort.

In 1966, Ken became the head of the atmospheric physics research department in the Bell Labs military research division in Whippany, New Jersey. He designed, conducted, and analyzed experiments that improved understanding of the physics of the reentry process. This understanding led to development of processes for discriminating warheads from decoys based on atmospheric effects observable by radar during reentry of these objects into the atmosphere. He also was a member of the Defense Science Board and a member of the Scientific Advisory Committee of the Defense Advanced Research Projects Agency.

In 1972, after Bell Labs withdrew from R&D on the Ballistic Missile Defense program, Ken returned to the



KENNETH BAILEY MCAFEE JR

Bell Labs research area at Murray Hill, New Jersey, as the head of the environmental chemistry department. His broad knowledge of the physics and chemistry of atmospheric processes was directly relevant to many of the environmental problems then becoming manifest, such as stratospheric ozone pollution and the sources of low-altitude pollution. His work contributed to understanding and ameliorating of some of these problems. He was a unique resource to the Bell system in its efforts to make certain that it was a good corporate citizen.

From 1972 to 1974, Ken served on the Delphi Panel of the Environmental Protection Agency and from 1975 to 1978, on the Commission on Sociotechnical Systems of the US Nuclear Regulatory Commission. He chaired New Jersey's first science advisory committee from 1979 through 1983. This committee advised the state's department of environmental protection on environmental standards, provided peer review of departmental science and technical policies, and became an integral part of the structure of advisers to the state government.

Ken was well known for his ability to mentor new staff members, many of whom rapidly became highly productive researchers under his tutelage.

He was a fine tennis and squash player and very much enjoyed climbing and skiing.

CHARLES W. HOOVER JR

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