During World War II Dodge served as the director of the Office of Scientific Personnel of the National Research Council, and in 1944 he became president of Norwich University in Northfield, Vermont, leading the institution through the difficult period following the war. In 1951 he was a member of a special mission to study engineering education in Japan, and later he traveled extensively in the USSR, visiting centers of scientific and engineering education. Under the auspices of Sigma Pi Sigma he lectured widely across the US in 1957–58 on scientific and technological education in the Soviet Union.

Dodge played a major role in physics education in the US. In the late 1920s many academic physicists saw a need for a forum for discussions and publications concerning physics education. Such topics were deemed to be inappropriate in the meetings and journals of The American Physical Society. A group of physicists led by Paul Klopsteg agreed that Dodge should chair a meeting that was held 29 December 1930 in Cleveland (during the APS meeting) to establish the American Association of Physics Teachers. The initial officers of the Association were Dodge, president; Klopsteg, vice president; William S. Webb, secretary–treasurer; and Karl Compton and Floyd Richtmyer, members of the executive committee. From the start, Dodge insisted that there had to be a close working relationship between APS and AAPT. Recognizing the need for a journal, he persuaded Duane Roller to be the first editor of the *American Physics Teacher* (now the *American Journal of Physics*). During the two years he was president of AAPT, Dodge helped found the American Institute of Physics (1931) and joined its governing board. In 1939 he chaired a campaign to raise funds to allow AIP to purchase a headquarters building on 55th Street in New York City. It seemed urgent to him that AIP should publish a general-interest physics journal; his efforts helped speed the establishment of PHYSICS TODAY.

DODGE

Dodge was proud to be considered "Dean of American Canoeing." Even after reaching the conventional age of retirement he continued to excel in his life-long love of white-water canoeing: He won the White Water Derby in an open aluminum canoe at the age of 85.

Dodge loved—and met—challenges in science, education, administration and canoeing. He was a pioneer in stressing the importance of applied physics. He was a leader in recognizing that the vitality of science and the vitality of industry depend on each other. He felt that this relationship should be stressed in science and engineering education, in academic and industrial research and in academic and corporate planning. The importance of this linkage is being rediscovered today.

ALBERT A. BARTLETT
University of Colorado

Warren Edgar Winsche

Warren Edgar Winsche died of cancer on 19 June 1983. At the time of his death, he was deputy director of Brookhaven National Laboratory.

Winsche was born in Brooklyn, New York, in 1917 and received his doctorate in chemical engineering at the University of Illinois in 1943. After a brief stint with the Army Chemical Corps, he went to Oak Ridge, where he worked on chemical reprocessing of irradiated uranium to separate plutonium. The originality and value of his contributions were quickly recognized, and he was appointed group leader of chemical processes. In 1946 he joined the new Brookhaven National Laboratory as associate chairman of the reactor project, in charge of the engineering design of the world's first nuclear reactor dedicated solely to peaceful research. He introduced a number of notable improvements in the design of this reactor that increased its power and neutron flux by an order of magnitude over those of the Oak Ridge X-10 reactor.

He then went to the Savannah River Laboratories, which were being started to add to the US production of fissile material for defense. As research manager of separations engineering, he developed a number of chemical processes that rounded out the application of modern chemistry and chemical engineering to large-scale uranium separation.

In 1962 he returned to Brookhaven to become chairman of the nuclear engineering department, which later became the department of applied science. He conceived a new reactor concept for rocket propulsion, based on a balance of centripetal and centrifugal forces on a rotating fluidized bed of fissionable fuel. He conceived a new fast breeder using pebble-bed fuel and spectral shift. Initiating the use of hydrogen as an alternative fuel, he pointed out the potentials that metallic powders have for dense storing of hydrogen for automobiles and for separating hydrogen isotopes. He recognized very early the possibilities of surface chemistry, toward which he pointed his department's research.

He became associate director of Brookhaven in 1975 and deputy director in 1979. He used his influence to make the Lab and other institutions more receptive employers of women and native Americans.

HERBERT J. KOUTS
Brookhaven National Laboratory

Clark Goodman

Clark Goodman, a noted nuclear physicist and a pioneer in nuclear engineering, died 23 June 1983 in Coronado, California. He was 73.

Goodman earned his bachelor's degree in chemical engineering at Caltech in 1932. He then worked as a research chemist (1932–36) but was promoted, to his chagrin, to sales. When his friend from Caltech, Robley D. Evans, invited him to MIT as a research associate in 1936, Goodman promptly accepted the offer; he went on to earn a PhD in physics there in 1940.

During World War II, Goodman served with the Office of Scientific Research and Development; after the war, he worked as a senior physicist at Oak Ridge National Laboratory. While there, he helped develop the concept of nuclear propulsion for naval vessels. On his return to MIT in 1947, he joined the faculty and also developed a curriculum for the training of navy personnel in reactor operation. Goodman was the editor and a co-author of *Science and Engineering of Nuclear Power*, published 1947–48, the first unclassified text on the subject.

While at MIT, Goodman began his consulting practice with Schlumberger, Ltd. He acquired twenty-five patents in the applications of nuclear physics to oil- and gas-well logging, a field in which he was an important innovator. He spent his final three years at MIT on partial leave, during which time he served as assistant director of the Division of Reactor Development of the US Atomic Energy Commission. In 1958, Goodman became director of research and vice-president of Schlumberger. With his great interest in independent research, he stayed only four years. In 1962 he

joined Houston Research Institute, a small consulting firm, and a year later he was appointed professor of physics at the University of Houston. Working in a developing department and having strong research interests, he attracted students, research associates and funding, as he had done previously at MIT. When the University of Houston began its collaboration with Rice University in medium-energy physics in 1968, Goodman joined the group and made important contributions. He served on the LAMPF Advisory Committee to Norris Bradbury, director of Los Alamos.

In addition to his work in medium-energy physics, Goodman undertook research projects, under NASA sponsorship, in solar physics, ultra-heavy cosmic rays, magnetic monopoles, transition radiation, and physiological effects of heavy cosmic-ray primaries. He also served on the NASA Lunar and Planetary Missions Board from 1965 to 1974 and on the Atomic Safety and Licensing Board of the Atomic Energy Commission (now of the Nuclear Regulatory Commission) from 1966 to 1974.

Goodman retired to California in 1973, but he maintained an active consulting practice. He was a member of the Safety Advisory Board for GPU Nuclear Corporation at the time of his death; this board advises corporate management on the cleanup and recovery of the Three Mile Island, Unit II, nuclear power plant. He was especially interested in assuring careful and orderly procedures in the handling and shipping of radioactive waste material.

Goodman will be remembered for his many accomplishments and buoyant spirit; an oft-repeated remark was, "What a marvelous time to be a physicist!"

JOHN C. ALLRED
WILLIAM R. STRATTON
Los Alamos, New Mexico
ROBLEY D. EVANS
Scottsdale, Arizona
M. STANLEY LIVINGSTON
Santa Fe, New Mexico

William Berry Smith

William Irving Berry (Wibs) Smith died in Sydney, Australia, on 25 July 1983 after a brief illness. Smith retired recently as a senior lecturer in the School of Physics at the University of Sydney.

Smith was born in Adelaide in 1920 and was graduated in physics from the University of Adelaide in 1941. During World War II he worked with the Commonwealth Scientific and Industrial Research Organization on aircraft structures and night vision, problems important to the war effort. After the war he went to Birmingham, England, with Sir Mark Oliphant and completed design and construction of the 60-inch cyclotron.

Smith was awarded his PhD at Birmingham in 1951 and then returned to Australia to construct the injector cyclotron for the air-core proton synchrotron being built at the Australian National University by Oliphant.

After working two years at the Cambridge electron accelerator, Smith moved to the University of Sydney in 1963 to take up undergraduate teaching and to contribute to the relatively new field of plasma physics. At Sydney he specialized in laser diagnostics of plasmas, and his efforts were responsible for the strength of the Wills plasma physics department in that area.

A memorial prize fund is to be established at the University of Sydney as a tribute to Smith's contribution to the teaching of physics.

IAN G. BROWN
Lawrence Berkeley Laboratory
IAN S. FALCONER
University of Sydney □