

way to trace chemical reactions.

The remainder of his long career, beginning in 1913, was spent at the University of California, where he taught some 40 000 students, collaborated with some 200 researchers and filled many administrative positions. Hildebrand was an authority on intermolecular forces, the theory of regular solutions, solubility and the structure of liquids. His research interests included fluorine chemistry, electroanalysis, emulsions, fused salt mixtures, vapor pressure of metals, and liquid alloys.

He was granted leaves of absence in both World War I and World War II and served his country well. During the first war he served as captain and lieutenant colonel in chemical warfare service and in the second as liaison for the US Office of Research and Development in London.

Hildebrand wrote numerous chemistry textbooks (including the classic *Principles of Chemistry*), about 300 scientific papers, and books on education, mountaineering, backpacking and campcooking. "A History of the Theory of Solutions," appeared as the lead article in the *Annual Review of Physical Chemistry* at about the time of his one hundredth birthday. Hildebrand's administrative career was also long and varied, both inside the University and outside. He served as Dean of the College of Chemistry, Dean of Men, and Dean of Letters and Science at the University. Outside the University, he served as President of the American Chemical Society (1955), President of the Sierra Club (1937-39), manager of the US Olympic Ski Team (1936) and associate editor of several scientific journals.

The week-long celebration of Hildebrand's centennial was an appropriate tribute to this remarkable man, a legend in his own time. It included the establishment of the American Chemical Society's national award, the Joel Henry Hildebrand Award in the Theoretical and Experimental Chemistry of Liquids, with Hildebrand the first recipient, and the establishment of a Joel H. Hildebrand Chair in Chemistry at the Berkeley campus of the University of California.

GLENN T. SEABORG
University of California, Berkeley

Clarke Williams

Clarke Williams, a pioneer in the peaceful applications of nuclear energy and a former deputy director of Brookhaven National Laboratory, died on 15 March 1983.

Williams was born in 1902, in New York City. He received an AB in physics from Williams College in 1922,

a BS in civil engineering from MIT in 1924, and a PhD in physics from Columbia University in 1935. He was an instructor and later an assistant professor at the College of the City of New York between 1930 and 1945.

In 1941 Williams began working at Columbia on a project to separate uranium-235 by gaseous diffusion. This project later became the SAM Laboratories of the Manhattan Project, and Williams became group leader in charge of pilot plant construction.

In 1946 Williams was executive assistant for the Initiatory University Group, which made the preliminary plans for the creation of Brookhaven National Laboratory. He joined the Laboratory staff in the early months of its operation, first as assistant to the chairman of the reactor science and engineering department, which was responsible for the design of the Brookhaven graphite research reactor. For the next fifteen years his scientific work was concerned largely with reac-



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tor development and applications of nuclear energy. In 1952 the nuclear engineering department was created at Brookhaven, and Williams became its chairman. In this capacity he oversaw the design and construction of the high-flux beam reactor, which became—and has remained—one of the world's foremost research reactors. He also administered other research programs, including the liquid-metal-fueled reactor, and built up much of Brookhaven's strength in applied science. In 1962 he was named deputy director of the Laboratory, a post in which he served until his retirement in 1967.

Williams, an early member of the American Nuclear Society, held many offices in that organization. He was a member of its board of directors from 1957 to 1960, its vice president for 1962-63, and its president for 1963-64.

Always interested in environmental preservation, Williams became the research administrator of the Marine Resources Council of the regional planning board of Nassau and Suffolk counties upon his retirement from Brookhaven, and he was a member of the US AEC's Atomic Safety and Licensing Board Panel. Williams had a great sense of social responsibility and took an active part in community affairs, holding office in town and county organizations.

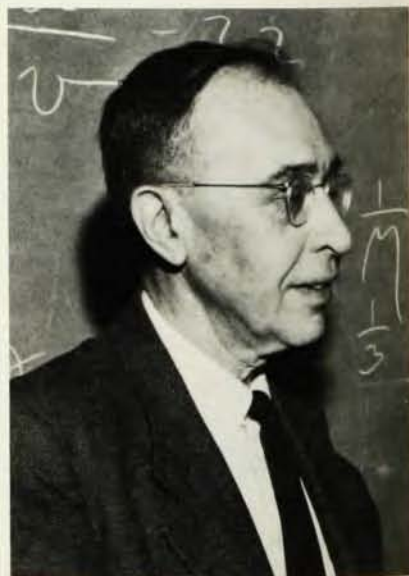
MAURICE GOLDBABER

GEORGE H. VINEYARD

Brookhaven National Laboratory

Gregory Breit

Gregory Breit was born 14 July 1899 in Nikolaev, Russia. He was educated at Johns Hopkins University, receiving his AB, AM and PhD degrees in 1918, 1920 and 1921, respectively. All three degrees were in electrical engineering,



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