

Memorial of Richards A. Rowland December 20, 1910–April 29, 1985

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Richards A. Rowland, a Fellow of the Mineralogical Society of America, was born on December 20, 1910, in Richmond, Virginia, to Henry Richards and Alma Rowland. Dick attended schools in Richmond, Virginia, graduating from high school in 1928. He went to college at the University of Cincinnati, graduating in 1932 with a degree in chemical engineering. In 1934 he received a master of science degree in engineering geology from the University of Cincinnati. Dick continued his graduate work at Cornell University where he received his Ph.D. in geology in 1938. His doctoral thesis title was "Petrofabric analysis of cleavage in otherwise unmetamorphosed sediments."

Dick started his professional career in 1937 at the Illinois Geological Survey where he was assigned to the Clay Section. This assignment molded his future career, because he worked with clays and clay minerals for the remainder of his professional life. At the Illinois Geological Survey he was associated with two world-renowned clay mineralogists, Ralph E. Grim and William F. Bradley, both past presidents of the Mineralogical Society of America. Dick's first assignment in his new job was to help Ralph Grim in his study of the heating characteristics of clay minerals using a relatively new technique called differential thermal analysis. Dick was very clever in designing and modifying laboratory apparatus, and he enjoyed working on the DTA equipment and was instrumental in getting the technique organized. Grim and Rowland published a landmark paper on differential thermal analysis of clay minerals in 1942 in the *American Mineralogist*. Bill Bradley was the X-ray mineralogist at the Illinois State Geological Survey, and Dick became one of Bill Bradley's most ardent admirers because he recognized that Bill was an outstanding X-ray crystallographer. Dick learned a great deal about the techniques of analyzing clay minerals using X-ray techniques learned from Bill Bradley.

In 1942 Dick was called into service in the U.S. Army and served as an ordinance engineer in the Army Ballistics Research Laboratories at Aberdeen Proving Grounds in Maryland for four years. Dick was a reserve officer having gone through the Reserve Officers Training Corps at the University of Cincinnati. Dick married Jane Mayers in 1943. Jane is a graduate in mathematical education from Montclair State Teachers College in Montclair, New Jersey, and received a Ph.D. in mathematical education from the University of Houston in 1972. She taught mathematics at Texas Southern University in Houston for many years.



After separation from the Army as a captain in 1946, Dick joined Shell Development Company in Houston, Texas. Shell was embarking on a study of clays and clay minerals and formed a large group of scientists to work in this area. Among them were John F. Burst and Charles E. Weaver, clay mineralogists; D. R. Lewis and Hank Van Olphen, colloid chemists; and Hugo Steinfink, an X-ray crystallographer. Consultants who worked with this group included Robert Stone and E. J. Weiss, ceramists at the University of Texas; W. F. Bradley, an X-ray mineralogist at the Illinois Geological Survey and later a professor at the University of Texas in materials science; and Carl W. Beck, a mineralogist at Indiana University.

Dick Rowland worked on clays using differential thermal analysis, X-ray diffraction, infrared analysis, and electron microscopy. He and Bob Stone did considerable work showing how the thermal reactions of the clay minerals could be modified using controlled atmospheres on the DTA furnace. In cooperation with D. R. Lewis and E. J. Weiss, Dick developed the first oscillating-heating X-ray

diffraction techniques, which became important in differentiating chlorite-kaolinite mixtures and characterizing montmorillonite-illite mixed-layer clays. Later Dick worked on organic-montmorillonite complexes and published papers with E. J. Weiss on this subject. Dick was an integral part of this Shell group who compiled a tremendous amount of information on clays, some of which was published.

Dick Rowland was active in several national scientific societies and was a Fellow of the Mineralogical Society of America and the Geological Society of America, a member of the American Ceramic Society, American Institute of Professional Geologists, American Geophysical Union, the American Association of Petroleum Geologists, and the Society of Mining Engineers, and a charter member of the Geochemical Society and the Clay Minerals Society. Dick was a member of the Clay Minerals Committee, which was established by the National Academy of Sciences-National Research Council in 1952. He was chairman of the committee when it was disbanded in 1961, at which time Dick initiated the establishment of the Clay Minerals Society, which was incorporated in 1963. Dick was the first president of the Clay Minerals Society and was editor of *Clays and Clay Minerals* from 1974 through 1978. In 1984 the Clay Minerals Society made a special award to Dick, recognizing his outstanding efforts in establishing the society.

Dick Rowland retired from Shell Development in 1968. Subsequently he worked as a consultant on clays for Milchem Corporation, Baroed, a division of NL Industries, and Magcobar, a division of Dresser Industries. In 1978 Dick decided he had worked long enough and fully retired from all his consulting activities and as editor of *Clays and Clay Minerals*. Dick was a devoted attendee at the national meetings of GSA and MSA and at the annual Clay Minerals Conference.

Dick was an independent and positive person who expressed his opinions in a loud and resonant manner (compensating in volume for his impaired hearing) that accen-

tuated his forcefulness and/or exasperated an adversary. He was a friendly and kindly person who would always help his friends to the utmost of his ability. Dick was in ill health the last five years of his life; he had to be very careful of his activities, but he continued to participate in the annual scientific meetings of MSA and the Clay Minerals Society.

Dick Rowland is survived by Jane, his wife, who lives in Houston, Texas; a son John, an accountant in Houston; and Beth, a psychologist with the Texas Employment Commission in Lake Jackson, Texas. Dick will be missed very much by his many friends and acquaintances.

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