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Memorial of Willard Lincoln Roberts
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Willard Lincoln Roberts died March 23, 1987, of a heart attack in his office at the Museum of Geology of the South Dakota School of Mines and Technology in Rapid City, South Dakota. His wife of four decades, who was also a partner in mineralogy, had died only nine days previously. At the time of his death, Bill was senior curator of mineralogy and invertebrate paleontology at the museum, which is the only large geologic museum in a broad region, and he also was senior lecturer in the Department of Geology and Geological Engineering. He was director of the museum in 1974 and 1975.

Bill Roberts did not find his true calling as a professional mineralogist until midlife, after many years as an amateur whose livelihood was from other sources. He remained an amateur at heart. Yet he discovered new minerals; he was the principal author of two books; he taught at the undergraduate and graduate levels; and he organized and promoted amateur mineralogical activities. He became a fellow of the Mineralogical Society of America in 1974, after having been a member since 1950. He lacked even a bachelor's degree, in an era in which professionals with such a background have become almost extinct. He was awarded an honorary D.Sc. posthumously by the South Dakota School of Mines and Technology.

Bill was born February 12, 1923, in Epworth, Iowa, a small town a few miles from Dubuque. His parents were Dr. Willard Whittington Roberts, a dentist, and Elsie (Atkinson) Roberts. His grandfather Atkinson introduced him, at the age of five, to the mineral and fossil collecting that later became a passion. In 1934 the family moved to Rapid City, where his father established a dental practice. Bill graduated from the Rapid City High School in 1941 and attended the South Dakota School of Mines until the following year, when he began military service. From 1943 to 1946 he was a noncommissioned administrative officer in the Air Corps, stationed in England and France in the 8th Air Force. On returning home, he married Jean McPhail of Rapid City, July 14, 1946. He began a career as an official of the government of Rapid City that lasted until 1966, when his full-time employment by the School of Mines and Technology started. He also read law for three years until the South Dakota legislature passed a bill requiring a university law degree for admission to the bar. In the Rapid City government, his positions included clerk of courts, deputy auditor, personnel director, assistant city manager, executive aide to the mayor, and head of the building inspection department.

Military service gave Bill important opportunities. He examined major collections in British museums. He began his geologic education at Biarritz American University, Biarritz, France, by taking courses in elementary geology from J. J. Galloway and in structural and field geology from A. J. Eardley. He took a night course in philosophy at King's College, Cambridge, from Bertrand Russell.

In the 1950s Bill took courses in crystallography, X-ray diffraction, spectroscopy, and paleontology at the South Dakota School of Mines. He pursued an extensive course of self-education in mineralogy, petrography and petrology, gemology, economic geology, invertebrate paleontology, and museum techniques.

At the Museum of Geology, Bill was successively research associate (part-time 1963–1966, full-time 1966–1969), curator of mineralogy (1969–1973), director (1974–1975), and finally senior curator of mineralogy and invertebrate paleontology until his death. He taught courses in mineralogy and crystallography and directed students in the use of X-ray diffraction and spectrographic equipment. His attention to undergraduate mineralogy students and his ability to captivate them became legendary. Bill also gave numerous lectures to adult-education classes, schools, and clubs of various kinds.

Bill's fondness for mineral collecting took him and often his wife to localities in 17 countries. Their private collection contained more than 30000 specimens. Bill founded the Black Hills Mineralogical Society in 1952 and served as president for several terms. In 1955–1956, he was president of the South Dakota Federation of the Rocky Mountain Federation of Mineralogical Societies. He estimated that he added more than 100 species to the list of minerals known to occur in South Dakota. This came about partly because he was sought out by amateur collectors to identify unknown minerals. His identification in 1951 of carnotite in a specimen brought in by an amateur was the original discovery of uranium in South Dakota. This led to exploration and mining that made the Black Hills an important source of uranium and a center of major investigations of the geology of uranium deposits.

Bill was a key figure in the sudden increase of recent years in the discovery of new phosphate minerals in pegmatites. His astonishing talent for visual recognition of minerals had the effect of giving him an equal talent for finding minerals that might be new. Bill's role with phosphates was principally in the field discoveries and in preliminary optical and X-ray testing. But another important

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role was to search out mineralogists who were equipped to carry the job to completion and willing to do so. The ones who were most effective were P. B. Moore, P. J. Dunn, and D. R. Peacor. The list of new minerals with which Bill was involved includes černýite, ehrleite, fransoletite, jahnsite, johnwalkite, olmsteadite, metavivianite, pahasapaite, pararobertsite, perloffite, robertsite (named after him), segelerite, sinkankasite, tinsleyite, tiptopite, walentaite, whitmoreite, wyllieite, a wicksite-like mineral that has been described but not yet named, and probably others that were overlooked when the list was assembled or that have not yet been studied. It has been surprisingly difficult to compile this list, partly because some descriptions of new minerals say little about the field work. Only those who have seen the messiness of the phosphate aggregates in Black Hills pegmatites can appreciate the skill and diligence needed to find crystals suitable for describing a new mineral.

Bill's personal records were the principal source of data for the book *Mineralogy of the Black Hills* by Roberts and Rapp (1965), which is essential to everyone who is concerned with the geology and mineralogy of the Black Hills. Mineral names that self-doubting authors had hidden in the finest print in the most obscure places were found by Bill. Many samples were re-examined by X-ray diffraction. In addition to the mineralogical data, this book contains by far the most complete published list of reports on Black Hills geology through 1964. Bill Roberts, again in collaboration with George Rapp and with extensive help from his wife Jean, compiled the *Encylopedia of Minerals* (1974), with its many magnificent photographs by Julius Weber. This volume sold so well that he undertook compilation of a second edition, which is being completed by T. J. Campbell, a former student of Bill's.

Bill was a member of Sigma Xi, the Mineralogical Association of Canada, the American Association for the Advancement of Science, the American Institute of Mining, Metallurgical, and Petroleum Engineers, and several other societies.

Though mineralogy was his chief hobby, Bill also was active in athletics, in which he excelled in tennis, pole vaulting, and gymnastics.

The Roberts had four children: Willard James of Ryde, New South Wales, Australia; Susan Jean (Mrs. Robert Peterson), Crystal Lake, Illinois; Janelle Mignon (Mrs. Daniel Marshall), St. Joseph, Missouri; and Robert Bradley of Rapid City. To them and to the ten grandchildren we can say that the partnership of Bill and Jean Roberts left a permanent mark on mineralogy.

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