

In Memoriam Max Merle Mortland (1923–2013)



Max M. Mortland, retired Distinguished Professor of Soil Science and Geology at Michigan State University, passed away peacefully on July 29, 2013, at the age of 90. Max was recognized internationally for his pioneering studies of clay-mineral-intercalation chemistry. Using infrared spectroscopy and X-ray powder diffraction as his primary instrumental methods of analysis, he elucidated the acid–base chemistry of inorganic and organic exchange cations on the interlayer surfaces of smectite clays, particularly Wyoming montmorillonite, his ‘favorite’ clay. He was the first to report electron-transfer reactions between transition-metal cations (*e.g.* Cu^{2+}) and physically adsorbed aromatic molecules (*e.g.* benzene) on montmorillonite clay surfaces. These fundamental studies provided the basis for understanding the role of clay minerals in soil fertility and the development of new materials for environmental protection and clean-up based on smectitic clays. In recognition of his scientific achievements, Max received two of the most prestigious awards of The Clay Minerals Society, namely, the Distinguished Member Award in 1988 and the Pioneer in Clay Science Lecture Award in 1996.

As a BS graduate, Max mapped many soils for the Illinois State Geological Survey. It was this experience that exposed him to numerous Indian burial mounds and the rich history of the American Indian. It also was the beginning of a life-long love of history, particularly

European history. As an officer aboard a battleship in the Pacific Theater during World War II, Max whiled away many lonely nights in the blackness of the ocean writing poetry, a pastime he continued into his later years, though he seldom shared the product of this aspect of his creative talents with others. Upon completing his military service, Max earned a Ph.D. degree from the University of Illinois. Though a soil science major, he completed as many graduate chemistry courses as a regular graduate chemistry major. He attributed much of his professional success to the chemical background he gained as an Illinois graduate student. Indeed, his deep understanding of fundamental chemical principles is evident in the quality of his published work.

Max’s first academic position was in the Soil Science Department of the University of Wyoming. In the few years he spent in Wyoming, he not only initiated a comprehensive soils-research program, but also gained an appreciation for the art of fly fishing. He continued to be an avid fisherman throughout his life. Upon joining the Crop and Soil Science Department at Michigan State University in 1953, he acquired access to a Philips X-ray powder diffractometer, for which he provided tender loving care and kept working until the date of his retirement more than 30 years later. Also, he soon acquired a state-of-the-art Perkin-Elmer infrared spectrometer. It was the creative application of these two analytical tools to important problems in the clay-

science field that propelled him to international distinction. Max often credited his 1962–63 Fulbright sabbatical year at the University of Louvain in the laboratory of J.J. Fripiat for making possible his initial spectroscopic studies of clay minerals.

In addition to his extensive readings in history, Max read *Science* magazine avidly in order to keep abreast of advances in astronomy. As a boy growing up on a farm outside Streator, Illinois, he made his own telescope starting with the hand polishing of the lens mounted on a barrel head in a remote corner of the family barn. Ever physically active, Max played tennis right up to his 89th birthday. He relished in defeating opponents many decades his junior. Max loved classical music, particularly the music of the human voice. He sang as a tenor in

three East Lansing choirs. An invited performance at the Vatican was one of his most cherished singing experiences.

As one colleague so accurately remarked upon learning of Max's passing, Max is universally recognized as a "warm, friendly, and approachable person with absolutely no pretensions – a thoroughly nice guy." Max was indeed a great inspiration for many young scientists and, through his published work, will continue to be so for many generations to come.

Max Mortland is survived by his wife Betty, daughters Janice, Priscilla, and Cynthia, son Jamie, and grandchildren Stefan and Kelsey.

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