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JOHN HOWER 1927–1983



John Hower was born on December 2, 1927, in Englewood, New Jersey. He served as an electronics mate in the U.S. Navy at the close of World War II, after which he entered Syracuse University. In 1950 he married Joann Therrell, and graduated (A.B., magna cum laude) in 1952. He received the M.A. (1954) and Ph.D. (1955) degrees from Washington University in St. Louis, Missouri. His dissertation, "The Fixation of Heavy Metal Cations by Some Clay Minerals," was directed by A. F. Frederickson. At Washington University (while standing in a registration line), John met R. C. (Bob) Reynolds, Jr. and, thus, began a lifelong collaborative friendship which would later produce important research and a number of graduate students who worked under both.

Immediately after graduation, John and Bob, with Professor Frederickson, joined the staff of the Pan American (Amoco) research laboratory in Tulsa, Oklahoma. Here, John met Frank Stehli who later would, as department chairman, bring John into the geology faculty of Case Western Reserve University. John left Amoco to join the faculty of the University of Montana. His first graduate students included Murli Manghnani, Bruce Velde, Orrin Pilkey, and Bill Hood. In 1960, he joined the faculty at Massachusetts Institute of Technology, where he became involved in some of the first isotope dating studies of clay minerals. Returning to Montana in 1961, John taught a variety of subjects, including geophysics and igneous and metamorphic petrology. He obtained a grant from the National Science Foundation (NSF) to study the mineralogy of illite and interstratified illite/smectite. Tom Mowatt was his research assistant on this project. Other graduate students working with John at that time included D. Maxwell, R. Chase, and the undersigned.

John left Montana again in 1965, this time to accept a professorship at Case Western Reserve in Cleveland, Ohio. The ten years he was to spend there were to be the most productive of his career. Working with Reynolds, he was able at last to make sense out of the X-ray powder diffraction patterns of natural illite/smectites. He spent the 1967–1968 academic year at the University of Paris (with Velde) as a visiting professor. His students at Case Western Reserve included Ed Perry, Gray Thompson, Dennis Eberl, Pete Hall, Janet Hoffman, John Hetrick, Tom Durst, Bob Rettke, and Joe Rudmann. Jim Hoffman, Steve Franks, H.-W. Yeh, and Eric Eslinger, although not his students, were clearly influenced by him. Sam Savin, then a young faculty member at Case, was "almost his student," and the same can be said regarding Jim Aronson. The latter two colleagues and several students, especially Ed Perry, collaborated with John on what is probably his major contribution to clay science—a series of articles on burial diagenesis of Tertiary Gulf Coast shales. In 1975, Jan Środoń came from Poland on a Fulbright Grant and became part of the group.

In 1976, John became the Geochemistry Program Director for the NSF in Washington, D.C. His colleagues there included Alan Gaines and Bill Benson. During this same year he served as President of The Clay Minerals Society (CMS). John accepted the chairmanship of the Geology Department, University of Illinois at Urbana–Champaign in 1978. Students he advised or otherwise worked with included Gene Whitney, Duane Horton, Steve Altaner, Norma Vergo, Ginny Colton, and Sylvia Couto Anjos. With faculty member Jim Kirkpatrick, he began some pioneering nuclear magnetic resonance work on clay minerals.

John's research accomplishments alone establish him as a major force in the area of clay diagenesis. But his contributions are far greater than a few outstanding journal articles. Perhaps more that any other recent figure in clay mineralogy, John was a man with a following. He was the center of a group of people, each of whom tended to work on different aspects of the same problems: shale diagenesis, mixed-layer clays, and the origin of illite. What characteristics made him so influential? First, most of his students consider him

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their best teacher, largely because he had the rare ability to "think out loud" from which one learned to reason as he did. There is truly a little bit of John Hower living now in each of his students and associates. Second, John believed that good research was based *not* so much on the concept of "multiple working hypotheses," but on sticking to a hypothesis (his was the diagenetic origin of illite) and testing it by as many methods as possible. His clear statement of this hypothesis and his deep understanding of ways in which it might be tested attracted students as well as researchers from other disciplines.

Who were the major influences on this man who himself was so influential? Based on John's lectures during the early 1960s, four individuals stand out, and for the first three, it is primarily their published works that John knew. Norman Bowen taught him the value of testing hypotheses and the general application of chemical principles to solve geologic problems. From Charles Weaver he learned about clay petrology and the importance of mixed-layer clays. Margaret Foster showed him how to use chemistry and structural formulae in clay studies. Lastly, his lifelong friend Bob Reynolds served as an intellectual trampoline off of whom John could bounce his ideas and from whom he could obtain feedback. Although they lived far apart, it is hard to imagine that John's accomplishments would have been the same without Reynolds' influence.

John Hower was the sort of teacher who would do anything for his friends and students, who always seemed to come first in his life. Research was confined largely to summers—the rest of the year was given over to students and class preparation. He was a great "facilitator," bringing people together, helping students get to meetings, guiding new members to the CMS, and assisting people with their projects and careers, even decades after they had been his students. This man, with his mischievous, almost kid-like sense of humor and gentle caring ways, also suffered from periods of deep depression. During one of these periods, on September 20, 1983, he took his own life.

This issue of *Clays and Clay Minerals* has been prepared by John Hower's colleagues and former students, with the undersigned serving as issue coordinator. It is dedicated to his memory and to his wife Joann and their three children Mark, Brigitt, and Gretchen.

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