IN MEMORIAM

Richard LeRoy Hay
Professor of Geology, Emeritus
Berkeley
1926 – 2006

Richard L. Hay, professor of geology at the University of California, Berkeley for 26 years (1957-1983) and at the University of Illinois for another 11, died of pulmonary fibrosis on February 10, 2006, at his home in Tucson, Arizona. He was 79. He is survived by his wife of 32 years, Lynn, his son Randall of Fort Wayne, Indiana, and his brother Robert of Tucson, and their children.

Hay was born on April 29, 1929, in Goshen, Indiana, the son of Angela and Edward Hay, a dentist. He earned his bachelor's and master's degrees from Northwestern University, in 1946 and 1948, and his Ph.D. from Princeton University in 1952. After two years in the army, Hay began his career in academia in 1955 as assistant professor at Louisiana State University in Baton Rouge. In 1957 he moved to Berkeley, where he advanced from associate professor to professor. In 1983 he retired from Berkeley to assume the prestigious Ralph Grim Professorship at the University of Illinois at Urbana- Champaign. He retired from Illinois in 1997, moved with Lynn to a beautiful house in Tucson, established contact with new colleagues at the University of Arizona, pursued his old hobby of collecting jade and agates, kept publishing papers, and was in touch with friends and ex- students at annual meetings of the Geological Society of America. His ashes are buried in Goshen (along with a bit of his jade), next to his parents.

Hay had a distinguished career in sedimentary petrology and in archeological geology. He is best known for his work on the significance and interpretation of sedimentary zeolites; for providing the definitive geological framework for two famous hominid- bearing sites in East Africa, Olduvai Gorge and Laetoli; and for the discovery of the mega- replacement of Cambrian- Ordovician strata throughout the U.S. mid- continent by low- temperature potassium feldspar. Coming to Berkeley was crucial in setting those research avenues, as he put it in his acceptance of the 2001 Leakey Award, shared with Professor Garniss Curtis:

"My acquaintance with Olduvai began in 1961 with a look at rock samples which my colleague Garniss Curtis brought back for K- Ar dating. At that time I was interested in the zeolites of desert lakes, and these samples were loaded with zeolites. I was quick to accept an opportunity to go there in 1962. The main purpose was to work on the stratigraphy of Bed I and resolve some of the controversy over the age of Zinjanthropus, who had been given the almost unbelievable age of 1.75 million years. The stratigraphy of the gorge quickly proved to be an irresistible puzzle. I love puzzles, and this one took me 12 years to get most of the pieces in the right places. The zeolites were great fun and developed into a nice line of evidence about the paleoclimate. … I thank you very much for this honor today, and I wish all of you the same enjoyment in your work that … I experienced at Olduvai Gorge."

Berkeley also was crucial in another way. The study of mineral alteration in sedimentary rocks requires petrographic analysis, the unique kind of visual reasoning one carries out on thin rock samples observed with a polarizing microscope. Whether by design or serendipity, Hay came to Berkeley in 1957, when its Department of Geology and Geophysics had the world's greatest concentration of distinguished petrographers, Professors Howell Williams, Francis Turner, and Charles Gilbert, who had just published the book on the subject, their unsurpassed Petrography. Sure enough, Hay became another top petrographer himself, and this crucial skill would underlie not only his study of Olduvai Gorge but his discovery later, after he moved to Illinois, of the low- temperature mega- replacement of uppermost Precambrian and Cambrian-Ordovician rocks of the U.S. mid- continent by potassium- feldspar, a huge geochemical alteration still not understood dynamically in the context of the geological history of the North American continent. In the note he sent one of us along with reprints on this work Hay scribbled "But we still don't know where the potassium comes from." Hay was a man of few words, an excellent scientific writer, a man who loved solving geological puzzles.

Hay's publication with the most lasting impact among archeologists and anthropologists is his Geology of the Olduvai Gorge, published by the University of California Press in 1976. Here Hay worked out the stratigraphy, magnetostratigraphy, chronology, sedimentology, and (thanks to the zeolitic alteration of the sediments) the Pleistocene paleogeography of the area, showing the contemporaneity of certain hominid taxa and of two cultural traditions in the last two million years. For geology, Hay's comprehensive research at Olduvai had spin offs in magnetic stratigraphy (the "Olduvai" reversal period was discovered there) and in geochemistry and petrography.

A remarkable paper in Contributions to Mineralogy & Petrology (1978) exemplifies Hay's "holistic" method. Field relations and petrography, and chemical, isotopic and x- ray- diffraction analysis, are beautifully intertwined and integrated into a total picture of the nature, rapid cementation and geochemical history of the Laetoli Beds of Tanzania, about 30 kilometers south of Olduvai Gorge. As described more explicitly in papers with Mary Leakey in Nature (1979) and Scientific American (1982), those ash beds at Laetoli preserved a spectacular set of early hominid footprints discovered by Leakey. The footprints soon allowed anatomists to establish that early man was bipedal by 3.5 million years ago, long before man's brain exploded in size, reversing the previous idea that man's bipedalism had resulted from the increase in brain size. Hay's penetrating understanding of the alteration and cementation of the footprint- bearing tuff ended up leading anthropologists to uncover fundamental stages of man's evolution.

Hay's influence is pervasive through many fields of geology – sedimentology; low- and high- temperature geochemistry; weathering and diagenesis, especially zeolitic; volcanology and the petrology and alteration of ash, tephra and other volcanic sediments; geochronology; and of course archeological geology. He wrote several review papers, the latest in 2001, on the expanding field of zeolites in sedimentary rocks that he had helped establish.

You knew he was "in" if his ancient Volvo was parked in front of the Earth Science Building (now McCone Hall), or by the cigar smoke coming out of his office. His impact on students and peers was gentle but lasting. His students well remember his "apparently casual scientific rigor, exceptional petrographic skill, dry sense of humor, and warmth"; "his availability and willingness to discuss ideas, evidence, concerns, and writing"; his conciseness and unfussy modesty. He "knew what to tell students in the field and what to leave for the students to work out by themselves." The geology course for physical anthropologists that he taught at Berkeley was "the best course I ever had," wrote one student. He insisted on integrating analytical data with the petrography, and the petrography with field relations. He studied rocks and strata that he could "walk up to in outcrop". Another student called Richard Hay "one of the finest human beings I have ever known."

Walter Alvarez
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