

# Memorial to Frank W. Osterwald

## 1922-1989

JOHN O. MABERRY

*Lathroig, P.O. Box 67, Deer Isle, Maine, 04627*

WALLACE R. HANSEN

*U.S.G.S. (retired), Denver Federal Center, Denver, Colorado, 80225*

Frank W. Osterwald, a research geologist with the U.S. Geological Survey for 28 years and a Fellow of the Geological Society of America, died unexpectedly August 27, 1989, in Alamosa, Colorado. Frank and his wife of 42 years, Doris Beck ("Becky") Osterwald, were returning with their church group from a field excursion to the narrow-gauge railroad country near Chama, New Mexico, when he was stricken with a pulmonary embolism that took his life.

Frank was born in Casper, Wyoming, on February 11, 1922, but he grew up near Sheridan, in the shadow of the Bighorn Mountains. His boyhood in a land of rocks and shortgrass prairie helped set the pattern for his career. After high school in Sheridan, Frank earned a bachelor's degree in geology from the University of Wyoming, with minors in mathematics and military science. World War II was then at its height, so Frank entered the Army, and when he was wounded at the Battle of the Bulge—an experience he was reluctant to talk about—he won the Bronze Star and Purple Heart.

After the war, Frank returned to the University of Wyoming for his master's degree in geology and a teaching assistantship. He also worked with locally based consultants and for the Geological Survey of Wyoming, where he published several geological reports. Frank and Becky were married on September 3, 1947, in a union of professional and personal lives that brought great success and happiness. Their union was blessed by four children: Ray, Ed, Carl, and Becky, all of whom grew to adulthood with the same love of the outdoors that their parents shared. Frank is survived also by five grandchildren.

In 1951, Frank earned his doctorate in geology from the University of Chicago. Then in 1952, after another stint as a consultant and as an assistant professor at Wyoming, he joined the U.S. Geological Survey in Denver, Colorado. The uranium boom was near its peak, and a near-frenetic search for ore swept the Intermountain West. With characteristic enthusiasm, Frank plunged into the scientific maelstrom to help make geological sense of the varied occurrences of uranium and other critical minerals.

Frank was an astute field geologist, acutely aware of his surroundings on the outcrop, and he often pointed out key, if abstruse, features that had escaped his coworkers. He had a special interest in geologic structure, in unraveling tectonic history, and in relating tectonics to the occurrence of mineral deposits, and he published many relevant papers, both alone and in collaboration with other scientists. His work on the Cordilleran Foreland stimulated new interest in the tectonic setting of mineral deposits in that broad region.

When the search for uranium waned, Frank joined the Engineering Geology Branch



of the USGS, where he spent the balance of his career in varied research and advisory capacities. When asked to serve as branch chief, he demurred with the argument that someone else could do it better. To those who knew him well, however, a more plausible reason was that an administrative post would inhibit his field work, which was his first love in geology.

In 1958, Frank was asked to investigate a rash of life-threatening coal-mine bumps in eastern Utah. After several years of persistent study, including surface and underground mapping and innovative seismic monitoring, he demonstrated that the bumps (or bursts) were genetically related to the direction of the mine workings with respect to the orientation of fractures in the country rock and in the coal beds themselves. When the operators modified their extraction procedures in light of his findings, the accident rate caused by bumps—which had averaged several accidents per year—dwindled to no deaths and few injuries.

Frank reported on many subjects during his long service to the profession, and his efforts earned him the esteemed Meritorious Service Award of the Department of the Interior. His bibliography contains nearly 90 entries, and his writing and mapping needed little review or editing. His penchant for encouraging subordinates to publish and thus advance their careers is evident in his own bibliography, which contains many coauthorships. Frank's outlook was optimistic. He believed the final bit of information needed to solve a geological problem was just around the hill in the next outcrop, or would emerge from discussions with friends and colleagues. He believed that people were innately good and that determination and perseverance could overcome any obstacle.

Over the years, Frank developed a passion for railroads and model railroading. He and Becky shared a love for the Durango and Silverton and the Cumbres and Toltec narrow-gauge lines high in the San Juan Mountains of southwestern Colorado. With Frank's help and support, Becky published widely popular mile-by-mile guidebooks for both routes, both strongly flavored with geology. Just before his death, Frank completed the typesetting, text editing, and photography for their latest collaboration, *Rocky Mountain Splendor, a Mile-by-Mile Guide to Rocky Mountain National Park*.

Frank retired from federal service in 1980, but he worked as an amniot for three years more, completing his research and his remaining unfinished manuscripts. Besides his affiliation with the Geological Society of America, he was a member of the Society of Economic Geologists, the American Association of Petroleum Geologists (a founding member of its Energy Minerals Division), and the Association of Engineering Geologists. He served as a section chairman and director of AEG, and was an early member and enthusiastic supporter of the American Institute of Professional Geologists (CPG no. 953). He was also a Registered Professional Engineer in Colorado (no. 5311). Frank Osterwald's enthusiasm for all aspects of his world, from the environment to tectonics and geophysics and from photography to Western history, will be remembered by all who made his acquaintance. For those who also enjoyed his friendship, his passing leaves a void that will not soon be filled.

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