

Memorial to James Alexander Noble 1898–1993

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Jim Noble died in Jackson, Wyoming, on March 29, 1993, at the age of 94, closing a generation of outstanding field-focused economic geologists.

Noble was a complete earth scientist—an exceptional teacher and detailed field observer. Over a period of 59 years, he published some 30 papers on the origin of ores and distribution of metals in crustal rocks. His Harvard Ph.D. thesis on the Homestake Mine, Lead, South Dakota, and subsequent work unraveled the complex geology of the Homestake Formation and demonstrated the application of very detailed structural geology in understanding ore controls and expanding reserves. His observational and mapping skills were remarkable. Examples of his detailed maps of the Homestake Mine are illustrated in McKinstry's textbook, *Mining Geology*. In the 1950s, Noble led the California Institute of Technology team in southeastern Alaska that documented evidence for intrusions of ultramafic magmas as multiple series of differentiated hot liquids, outlining millions of tons of iron ore resources in the process.

Jim was born in Chicago, Illinois, on July 1, 1898, where his father was a lawyer, but he was raised in Oklahoma City, to which the family moved in 1900. He graduated from Harvard with an A.B. in 1920, and S.B. in 1922, an A.M. in 1936, and a Ph.D. in 1939; all interspersed with an active career in mining geology. On June 12, 1922, he married Marion Louise Goldthwaite. They had three children: James A. (died 1988), Stedman B., and Elizabeth Louise Noble Shor. Marion died in 1976. He moved to Spearfish, South Dakota, in March 1985, to be near his summer cabin and fishing streams in the Black Hills.

Jim Noble started his career in 1922 as mining engineer and geologist with the American Zinc Company in Mascot, Tennessee. From 1924 to 1931, he worked as geologist in Oroya, Peru, for Cerro de Pasco Copper Corporation. He was chief geologist for Homestake Mining Company in Lead, South Dakota, for 16 years, starting in 1931. He was professor of economic geology at the California Institute of Technology from 1947 to 1959, where he inspired many students, now professionals. From 1950, he consulted for more than 20 years for U.S. Steel and other companies on mineral properties in Alaska and elsewhere.

He was a Fellow of the Geological Society of America and the Society of Economic Geologists, and a member of the American Institute of Mining and Metallurgical Engineers, Sigma Xi, Tau Beta Pi, and the Harvard Club in New York City and southern California.

Jim was an ardent and expert trout fisherman and an excellent photographer. He provided a number of photos of cacti to Lyman Benson for *The Cacti of the United States and Canada*. A dedicated gardener and specialist in both cacti and orchids, he was my codiscoverer (1960) of *Epidendrum ibaguensa*, a species of orchid, in Venezuela.

James A. Noble will be remembered not only for his professional contributions but by his family, friends, and students as a complete and inspiring personality liberally spiced with a wonderful dry wit. Jim was an anachronism in the 1950s ore deposit classroom. He brought 25 years



of pragmatic underground mine geology experience into a university environment rapidly changing from qualitative geology to quantitative geoscience. He strongly encouraged his students to understand the geologic framework of an ore deposit problem before launching into all the wondrous analytical research that was coming of age at that time. He was much appreciated and admired by his students, several of whom have contributed their thoughts to this memorial: Donald G. Bryant, Richard L. Nielsen, and John C. Wilson.

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