

Memorial of Ralph Early Grim February 25, 1902–August 19, 1989

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Ralph Early Grim was born at Reading, Pennsylvania, February 25, 1902. After attending public schools in Reading, he attended Yale University, where he received a B.A. in geology in 1924. In 1931, he received his Ph.D. in geology from the University of Iowa. In the interim between the bachelor's degree from Yale and the Ph.D. at Iowa, Ralph Grim was an assistant professor at the University of Mississippi and also an assistant state geologist of Mississippi from 1926 to 1930. His Ph.D. thesis was "The Eocene Sediments of Mississippi," which was published as Mississippi Geological Survey Bulletin 30. It was this study that generated his lifelong interest in clay minerals, since the calcium bentonite clays in Mississippi were part of that work.

After completing his Ph.D., Dr. Grim began his illustrious career at the Illinois Geological Survey as a petrographer. He published many articles in the next several years, including studies on diagenesis, soil mechanics, differential thermal analyses, dehydration and rehydration of clay minerals, the effect of heat on the clay minerals, clay-water properties, the bonding action of clays in foundry molding sands, clay mineral composition of recent sediments, clay minerals in soils and their significance, reactions of clay minerals with organic cations, petrology of underclays, ceramic properties of clays and shales, ion exchange in relation to some properties of soil-water systems, and the amenability of various types of clay minerals to Al extraction. He produced a detailed study of the clay mineral micas, which resulted in the name "illite," and a classic paper on the relation of composition to the properties of clays. By 1940, Professor Grim was considered one of the outstanding clay mineralogists in the world. His understanding of the clay mineral structures in these early years of the development of clay mineralogy enabled him to predict the various physical and chemical properties of clay minerals in their diverse industrial applications. The X-ray crystallographer at the Illinois Geological Survey during this early period in the development of clay mineralogy was Dr. W. F. Bradley. The partnership of Grim and Bradley published many classic papers in clay mineralogy, and the two coauthored many papers for over 20 years, until Dr. Bradley joined the chemical engineering faculty at the University of Texas.

In 1945, Dr. Grim became the Principal Geologist of the Illinois Geological Survey and in 1948 he left the Illinois Geological Survey to join the faculty of the University of Illinois Department of Geology as Research



Professor of Geology. This move enabled Dr. Grim to share his vast knowledge of clay minerals and their applications with a multitude of graduate students. Professor Grim supervised 40 Ph.D. theses in his years at the University of Illinois and had numerous scientists from around the world come to his laboratories for study and consultation. His graduate students became his children and he followed their careers very closely. He was always available to his former students for advice and consultation, even after his retirement in 1967, when he became Research Professor of Geology Emeritus.

Professor Grim published his classic book *Clay Mineralogy*, 1st edition, in 1953. *Applied Clay Mineralogy* appeared in 1962 and *Clay Mineralogy*, 2nd edition, appeared in 1968. Working with Necip Guven, he published *Bentonites* in 1978. All were very successful books

and are part of the library of almost anyone who deals with any aspect of clay mineralogy.

In honor of his numerous contributions to the field of geology, to the department of geology, and to the University of Illinois, Professor Grim was awarded an honorary doctor of science degree by the University of Illinois in 1984. In 1976, he established the Ralph E. Grim Professorship in Geology, and in 1983 this endowed chair was filled by Professor Richard L. Hay. He also gave the department of geology a scanning electron microscope with an X-ray dispersive analyzer.

Professor Grim was a consultant for many companies. Only two days before his death he made a visit to a company with which he had consulted for some 30 years. He worked evaluating mineral resources for many foreign countries, including the Republic of the Ivory Coast, Western Australia, South Vietnam, and Venezuela.

Dr. Grim married Hazel Tucker in 1945. She passed away in 1962, and in 1964 he married Frances Brown Reid, who resides at Pennsylvania Avenue in Urbana, Illinois. Their lovely home in Urbana was always open for visits by his former students and associates. In addition to being an outstanding scientist and a superb teacher, Ralph Early Grim was a complete person. He was patient, kind, and compassionate. He enjoyed athletics and was an avid golfer. He and his wife Fran loved to travel, and I am sure he had visited or was familiar with almost every commercial clay deposit in the world.

In a letter to F. Michael Wahl, one of his former students who is now Executive Director of the Geological Society of America, Dr. Grim's longtime friend, Dr. Walter D. Keller, Professor Emeritus at the University of Missouri-Columbia, wrote "Ralph was, indeed, not only a premier clay scientist, but he was a compassionate friend, a friend of many. Ralph did so much, cooperatively for the University of Illinois, for Bill Bradley in mutual contribution with Bill's highest rank as a clay researcher, for the Illinois Geological Survey, and for the personal development of the many students that came under his influence. His reputation will continue to remain high as long as that generation lives."

Professor Grim was a member of many professional organizations during his long illustrious career, including Life Fellow—Mineralogical Society of America; Vice President in 1958 and President in 1959; Roebling Medal in 1974

Fellow—Geological Society of America
 Fellow—American Ceramic Society
 First Distinguished Member—Clay Minerals Society
 Member—International Association for the Study of Clays (AIPEA); chairman in 1948–1960
 Member—British Ceramic Society
 Member—Society of Economic Geologists
 Member—Society of Economic Geologists and Paleontologists—Honorary Member, 1982

Member—Sigma Xi

Honorary Fellow—National Academy of Sciences, Arts, and Letters of Modena, Italy

Honorary Fellow—National Academy of Science of India

Honorary Fellow—Ceramic Society of Brazil

Honorary Fellow—Ceramic Society of France

Honorary Fellow—Mineralogical Society of Great Britain

First Chairman—U.S. National Research Council—Committee on Clay Minerals

Chevalier—Ordre Nationale of Republic of the Ivory Coast, 1973

Gold Medal—Clay Minerals Society of Spain, 1972

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