

RAYMOND CECIL MOORE
Legendary Scholar and Scientist
World-Class Geologist and Paleontologist



Raymond Cecil Moore: Legendary Scholar and Scientist, World-Class Geologist and Paleontologist, by Daniel F. Merriam, University of Kansas Department of Geology and Paleontological Institute Special Publication 5, Lawrence, Kansas, paperback, viii + 170 p., USD 25.00, ISBN: 978-1-891276-55-2.

In a letter to Robert Hooke, Isaac Newton is quoted “If I have seen further it is by standing on the shoulder of giants.” Raymond Cecil Moore (1892-1974) was such a giant. The incredible advances in invertebrate paleontology during the last four decades were built squarely on the foundation laid by R. C. Moore. His insight and sheer will resulted in a remarkable career. Daniel F. Merriam presents a thoughtful biography in *Raymond Cecil Moore: Legendary Scholar and Scientist, World-Class Geologist and Paleontologist*.

R. C. Moore was born on 20 February 1892 in Roslyn, Washington, and he was raised in Kansas, Missouri, Wisconsin, and Illinois, as his father followed his career as a Baptist minister. R. C. Moore graduated from Calumet High School in Chicago, attended Denison University (Granville, Ohio) from 1909 to 1913, and after three years earned a Ph.D. degree from the University of Chicago (June, 1916). His dissertation was *Stratigraphy of the Mississippian System of Missouri*, directed by Stuart Weller and published as Moore (1938). From Chicago, Dr. Moore went directly to the University of Kansas, and at the age of 24, he assumed positions as Assistant Professor in the Department of Geology and Director and State Geologist of the Kansas State Geological Survey. R. C. Moore stayed at University of Kansas for the remainder of his life; and R. C. Moore, *Kansas Geology*, and the *Kansas State Geological Survey* grew nearly to become synonyms. Indeed, to this day, he casts a shadow across the University of Kansas campus.

“... R. C. Moore was the multifaceted, misunderstood character good movies and good novels are built around ...” (Galas, 1994; Merriam, 2007, p. 43), and Merriam develops his biography around the many facets of R. C. Moore and his career: e.g., Ch. 5, *The Private Raymond Cecil Moore*; Ch. 6, *Moore the Man*; Ch. 7, *Moore the Scientist*; Ch. 8, *Moore the Administrator*; Ch. 9, *Moore the Professor*; Ch. 10, *Moore’s Living Legacy—The Treatise on Invertebrate Paleontology*; and Ch. 11, *Moore the Artist*. After working on the Mississippian of Missouri, the Pennsylvanian and Permian of his adopted Kansas became a significant research focus. These are complex, cyclic rocks that can be very difficult to correlate, and their origin is even more difficult to understand. R. C. Moore was educated and worked during the last decades when most geoscientists interpreted the geography of Earth as fixed. He called on diastrophism to explain

cyclic stratigraphy, and his ideas were argued and prominent among other models of his day for understanding the genesis of these strata. As State Geologist, R. C. Moore incorporated his Pennsylvanian and Permian work into a comprehensive classification of the stratigraphy of Kansas, and this led to a *Kansas Geological Map*. Neither have changed significantly since R. C. Moore’s work.

R. C. Moore wrote on many topics, both general syntheses and new research. His textbooks trained generations of students. *Introduction to Historical Geology* (Moore, 1949, 1958) was an influential text prior to the paradigm shift to plate tectonics. Similarly, *Invertebrate Fossils* (Moore et al., 1952) (in many ways a precursor to the *Treatise* project) was the primary invertebrate paleontology text for at least two decades and is still a primary reference in many paleontology laboratories.

Paleontologists ply various techniques, are involved in sedimentology and stratigraphy, and use various other applications of fossils, yet each commonly studies one group. One fossil group catches our imagination, and crinoids were R. C. Moore’s research specialty. Like his other research interests, Moore’s work on crinoids changed the field. One must assume that his crinoid work grew from his study of Pennsylvanian and Permian stratigraphy. R. C. Moore’s first crinoid publication (Moore, 1938) was on Pennsylvanian crinoids. At that time very little was known about Pennsylvanian and Permian crinoids from North America, and even less was known about the entire animal—column, aboral cup, and arms. R. C. Moore and his colleagues, especially Harrell L. Strimple, dramatically changed our understanding of these late Paleozoic crinoids. R. C. Moore established the terminology we use for fossil crinoids; established the basic classification for crinoids (Moore and Laudon, 1943; Moore and Teichert, 1978), which has changed very little in 60 years; and also wrote papers on crinoid ontogeny (Moore, 1940), crinoid evolutionary history and paleogeography (Moore, 1950), and crinoid evolutionary rates (Moore, 1952). R. C. Moore, his research associates, his students, and their students have represented the majority of crinoid workers in North America for the last 70 years.

R. C. Moore’s most lasting contribution to paleontology was the creation and editorship of the *Treatise on Invertebrate Paleontology*. From start to finish writing a *Treatise* is a thankless

task. It is a comprehensive synthesis of a group of organisms including genus-level treatment of its systematics. Each volume is a compilation of the lifeworks of many careers. Contemplating preparation of even a single volume is daunting. Moore, however, edited the majority of the entire collection, wrote many parts, and the Treatise legacy continues. At publication a Treatise volume is out of date. Since it is a comprehensive synthesis, it is a springboard, however. A Treatise volume outlines both what we do know and what we do not know, and it establishes the agenda for the next generation of research. The Treatise also provided the foundational data for the Sepkoski compendium (2002) and subsequent studies in richness, origination, extinction, and macroevolutionary patterns through the Phanerozoic.

It is fun to speculate on how R. C. Moore would view modern treatment of his foundational research. Could the diastrophism cyclic stratigrapher adopt climate-driven eustasy? Would he think we are clarifying crinoid phylogeny and systematics? In any event, it is certain he would have an opinion.

Merriam presents a balanced treatment of the many facets of R. C. Moore. Moore was larger than life. He was a driven man who completed and published an extraordinary amount of important research. From dictating manuscripts while driving his car to editing manuscripts while watching, in person, University of Kansas basketball games, R. C. Moore had a clear, confident focus on his goals. His demanding pace and commanding style were not embraced by all, but it was R. C. Moore; and, to a large degree, these were necessary for him to complete his lifetime's work. His personal life had setbacks, and some colleagues left Kansas, but R. C. Moore's research continued on a steady pace. He was an artist, intolerant of those not performing as expected, and capable of laughing at himself. For example, he enjoyed noting that "he had lived to read his own obituary" (Merriam, 2007, p. 59). He urged, pleaded, and threatened authors to submit Treatise manuscript. Good authority has it that to pry portions of one Echinodermata volume, R. C. Moore wrote a complaint to the Dean of the author's college! In the end, he complied, organized, and synthesized as well as anyone before or after.

R. C. Moore died in Lawrence, Kansas, on 16 April 1974. He left geology and paleontology far richer than he found them. Recognition by one's peers is a true measure of accomplishment and impact, and R. C. Moore received many honors including, among others, Distinguished Professor, University of Kansas (1958); Powers Memorial Medal, American Association for Petroleum Geology (1959); the first Paleontological Society Medal (1963); Wollaston Medal, Geological Society of London (1968); Mary Clark Thompson Medal, National Academy of Sciences (1970); the first Twenhofel Medal of SEPM (Society for Sedimentary Geology) (1972); and in 1980, SEPM named its medal for outstanding paleontologic research the Raymond C. Moore Medal for Paleontology.

D. F. Merriam has written a fascinating glimpse of the legendary geologist and paleontologist R. C. Moore. This

biography should be required reading for paleontologists of the twenty-first century. Our research today would be much less significant and much less fun if we were not standing on the shoulders of Raymond Cecil Moore.

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William I. Ausich
School of Earth Sciences
Orton Geological Museum
The Ohio State University
Columbus, Ohio 43210
ausich.1@osu.edu