LLOYD WILLIAM STEPHENSON, GEOLOGIST [1]

Lloyd William Stephenson is the recognized authority on the stratigraphic relations of the Cretaceous formations of the Atlantic and Gulf Coastal Plain from New Jersey to Tampico, Mexico. Dr. Stephenson was born at Scio, Ohio, on August 31, 1876. After receiving his Ph.D. at the Johns Hopkins University he joined the United States Geological Survey in 1907 and immediately began the studies of Cretaceous stratigraphy that have won him international renown. His first assignments were in North Carolina, where he completed classic reports on the general geology and ground water of the Coastal Plain and a monograph on the Cretaceous fossils. The North Carolina reports—still the standard reference works of the middle Atlantic Coastal Plain—fully demonstrated his careful, accurate field methods and his ability to integrate necessarily scattered observations into tightly knit stratigraphic hypotheses that explain the complex geologic history of that region.

When Dr. Stephenson completed his studies in North Carolina, the Geological Survey assigned him the task of studying the Cretaceous stratigraphy and faunas throughout the Atlantic and Gulf Coastal Plains. This work involved recognition and definition of faunal and lithologic units from New Jersey to the Rio Grande. The years spent on this research resulted in new concepts of Cretaceous stratigraphy. It was during this period that he first observed the intertonguing of lithologic facies that led him in 1918 to propose the word "Tongue" as a new stratigraphic term. Professional Paper 81, in which **Exogyra cancellata** was first described (at that time as a variety of **Exogyra costata**) and in which Dr. Stephenson suggested that **E. cancellata** apeared to be restricted to the lower part of the **Exogyra costata** zone, was published in 1914. This paper also discussed other faunal zones that have since proved useful in making regional correlations, and it included discussions of the stratigraphy and nomenclature of all Cretaceous formations east of the Mississippi River. The stratigraphic concepts proposed in the paper still stand except for minor details.

Although his early years were spent largely east of the Mississippi River, Dr. Stephenson is perhaps best known for his pioneering work on the many facies of Upper Cretaceous rocks in Texas. Individual contributions are too numerous to mention here, but attention should be called to his definition of the faunal zones of **Diploschiza cretacea, Exogyra cancellata, Ostrea elegantula,** and **Gryphaea wratheri,** all of which are now used extensively as key faunal zones both in Texas and in the eastern Gulf region. His Texas work included preparation of the Coastal Plain portion of the State geologic map, and it culminated in his two comprehensive monographs—one on the fauna of the Navarro group and the other on the fauna of the Woodbine formation.

In the early days of oil exploration in Mexico and Venezuela, Dr. Stephenson was employed by petroleum companies as a consultant to outline the Cretaceous stratigrophy of complex areas. These expeditions in 1920, 1921, 1923, 1924, and 1929-1930 gave him a regional grasp of Cretaceous stratigraphy that enabled him to solve perplexing problems of more local interest. For example, he found that **Exogyra cancellata** is restricted to a thin but nearly continuous zone from the State of San Luis Potosi, Mexico, to New Jersey.

When T. Wayland Vaughan resigned as Chief of the Section of Coastal Plain Investigations in 1922, Dr. Stephenson was the logical choice as successor because of his proved leadership and research ability. He directed a compact group of five or six specialists, mostly paleontologists, who were expected to do all the Geological Survey's paleontological and stratigraphic work in the Atlantic and Gulf Coastal Plain and as time permitted to do as much areal and economic geology as possible. The duties of administering even such a small group were so time-consuming that in 1936 Dr. Stephenson asked to be relieved of all administrative work in order to devote his time exclusively to research. His request was granted, and his decision proved to be wise; in the succeeding years he completed the monographs on which his enduring reputation will rest.

Dr. Stephenson reached the legal retirement age of 70 in 1946, but his service continued to be so greatly needed that he was granted a Presidential extension of one year. After retiring in 1947 he voluntairly continued his studies of Cretaceous paleontology. From time to time he interrupted his work to perform special services, as when the University of Texas asked him to assist in teaching at the summer geology camp in west Texas in August 1948. In the summer of 1949 the Department of the Army sent him to Japan to advise the occupation forces on the petroleum potential of the Japanese Islands. Shortly after his return from Japan he was called to the University of North Carolina as a visiting professor for two quarters to teach courses in advanced stratigraphy; this work ended in June 1950.

The Geological Survey recognized the continuing value of his paleontologic contributions by reappointing him to the staff in 1951 on a part-time basis. He continued with the Geological Survey in this capacity until June, 1955. During this time he added about seven titles to his already long bibiliography.

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[1]/Publication authorized by the Director of the U. S. Geological Survey.

Dr. Stephenson has received many scientific honors. He was president of the Geological Society of Washington in 1925, vice president of the Washington Academy of Sciences in 1926, president of the Paleontological Society of Washington in 1940, president of the Paleontological Society (national) in 1941, and third vice president of the Geological Society of America in 1942. In 1948 he was granted the Department of the Interior's gold metal for Distinguished Service and in 1952 the National Academy of Science awarded him the Mary Clark Thompson Gold Medal in recognition of his outstanding contributions to stratigraphy and paleontology.

Dr. Stephenson's contributions to our knowledge of the geology of North America are of permanent value.. His stratigraphic concepts have radically revised earlier ideas of the relations of the different lithologic units to each other, particularly units of the Cretaceous system. But probably most important of all has been his recognition of the restricted stratigraphic ranges of several of the species of the oyster family—in fact, oysters are so abundant in rocks of Cretaceous age and they have proved so useful in stratigraphic work that he has often termed the Cretaceous period "the age of oysters."

I cannot close this introduction without a word of appreciation of Lloyd W. Stephenson both as a chief and as a friend. He was my first section chief when I joined the Geological Survey. He had the patience to teach me his thorough, systematic field methods, and he had the even greater patience to carefully review my first stumbling scientific papers and to teach me to revise them. Above all he is a friend who is not only admired but loved by the hundreds of geologists who have been privileged to know him.

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