

XV. THE FOSSIL GLYPTODON IN THE FREDERICK GRAVEL BEDS

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Glyptodon is the name given by paleontologists to a gigantic armadillo, now extinct for long ages, shaped something like a huge turtle. Turtles belong to the reptile family, however, while the Glyptodon was a mammal belonging to the class Edentata or toothless animals. The modern representatives of Edentata are the sloths, ant-eaters, and armadillos, practically all of which are tropical or sub-tropical animals, found chiefly in Africa and South America. The armadillo now ranges northward on this continent into central Texas.

The Glyptodon was a huge beast covered with a shell, or carapace, an inch thick, made up of a great number of bony plates, which looked something like rosettes, dovetailed together. The home of the genus was in Patagonia and Argentina, South America, but during certain geological ages, it wandered northward across the Panama land bridge and a few specimens have been found in North America, particularly in Florida and Texas,

Professor W. B. Scott, the vertebrate paleontologist, in writing of the Glyptodon says:

"Aside from their enormous size, the most striking feature of the Glyptodon was the extraordinary development of their defensive armor, which was far more complete and massive than in the armadillos. The top of the head was protected by a thick head-shield, or casque, composed of several co-ossified plates. The body and much of the limbs were enclosed in the enormous carapace, elongate-oval, dome shaped, which covered the neck and trunk and on the sides almost reached to the ground. This tortoise-like carapace was composed of very thick, polygonal plates of bone (no doubt covered externally with horny plates) immovably fixed together by their rough edges, and ornamented with an elaborate pattern of sculpture which varied according to the genus. The tail was comparatively short and the tail sheath was made up of a series of overlapping rings, each ring consisting of two rows of plates: ornamented, on the top side of the tail, with very prominent, conical projections, capped with still longer and sharper spines of horn, so that the tail must have bristled with spikes.

"Among all the many strange and grotesque mammals which the study of fossils has brought to light, none can have been more remarkable than the Glyptodonts; slow-moving hillocks they must have seemed, the larger species 12 to 14 feet long and 5 feet or more in height. When attacked by the saber-tooth tiger or the great bears, they needed only to squat down, bringing the edges of the carapace to the ground, and draw in the head, to be perfectly protected, while a sweep of the spiny or club-like and horned tail would have been fatal to anything in its path.

Mr. A. H. Holloman is the owner of a sand and gravel pit at Frederick Oklahoma. This pit is located about a mile north of the

city near the south end of a long ridge which ends abruptly at this place. This ridge which is eight miles long averages one-half mile wide, stands something like 100 feet above the level of the plain on either side. Throughout most of its course the ridge is covered with sand and gravel to a depth of something like ten to fifteen feet. Geologists believe this ridge represents the bed of a prehistoric river which probably flowed south and that this river channel was once lower than the surrounding country. The sand and gravel on the ridge has protected the underlying shales from erosion, while the country on either side of the ridge has been worn away to a depth of something like 100 feet, so that the old river channel which once occupied the lowest land of the region, now stands about 100 feet above the general level of the plain.

Some months ago Mr. Holloman began finding in his quarry a number of bones of various kinds of animals, and also associated with the bones were some implements which seemed to show that they were the work of man. Among other things, he found seven metates, or grinding stones, such as are used by primitive people for grinding grain, also two flint arrowheads, and a bead with a hole pierced through the center.

Articles describing the find appeared in the May-June 1927 issue of the magazine *Natural History*, published by the American Museum of Natural History in New York. Mr. Cook also published an article on the subject in the August, 1927 number of *Scientific American*. Later the deposits were visited by Oliver P. Hay, veteran vertebrate paleontologist of the United States National Museum at Washington, D. C., and he wrote a brief statement for *Science News Letter* of October 1, 1927.

According to Dr. Hay, the animal bones found in the loose gravel beds and in connection with a flint arrowhead, have been identified as the bones of three types of elephants, two species of camel, two species of ground sloth, a glyptodon, and at least three species of fossil horses.

On October 8, 1927, a party from the University of Oklahoma visited the quarry. The party consisted of Dr. C. E. Decker, professor of paleontology, Dr. Leslie Spier, head of the department of anthropology, Miss Lois Gould, and the writer. The most important discovery made by the party consisted in the finding of a considerable part of the carapace or shell of a Glyptodon.

The fragment of the carapace that had been preserved was about five feet long by three feet wide, containing about 350 plates or rosettes, arranged in more or less conventional form. Something like one hundred more plates were scattered loosely in the soil. The animal had died lying on his back and only a small part of the upper portion of the skeleton remained. The part of the carapace that we secured is shaped something like a butter bowl or shallow dish. The greater part of the plate had been carried away by plow and scraper, and are now probably serving for road material somewhere on the highways of Tillman County.

From the scientific standpoint the extreme importance of the Frederick discovery lies in the fact that so far as we now know,

these specimens represent the first time in North America where artifacts, or works of man, have been found in the same strata with the bones of prehistoric animals of the species described. Fossil bones such as found at Frederick have been found in many places in this country, but never, so far as we know, in association with human artifacts.

For many years anthropologists throughout the world have been discussing the matter of the advent of man on the North American continent, and two schools of thought have been developed, one claiming that man came to America in comparatively recent times, the other believing that man has been present in America for a very long period of years. The advent of man in Europe has been fairly well established, and the anthropologist is now able to determine just when and during which particular geological epoch the various European cultures appeared. Primitive men in the Old World have been classified as Heidelberg man, Neanderthal man, Piltdown man, Cro-Magnon, and the like.

In North America, however, we have been at a loss to determine the advent of early man, largely on account of lack of discoveries of fossil remains. Heretofore, there have never been any undisputed artifacts, or works of man, found in this country at a time earlier than the last glacial epoch. Professor Hay, our best authority, says with regard to the fossil bones found at Frederick: "They are characteristic of the first inter-glacial state, the Aftonian, of the Plesitocene. The time when the deposits were laid down and the animals and flint workers lived there is roughly estimated to be 500,000 years."

At the time we visited the quarry, neither Dr. Decker, Dr. Spier, I were able to see any of the human artifacts. All of them, including the arrowheads and metates, had been carried away by Dr. Figgins and Dr. Cook to the Denver Museum. Professor Hay has said "No one can, I believe, talk with Mr. Holloman, the owner of the pit, and the finder of the fossils and artifacts, and with Dr. Priestly who brought them to the attention of the scientific world, and have any doubt that the objects are authentic." With this we agree. But we are still uncertain as to the geological conditions under which they were found. No scientific man has seen them in place.*

If the artifacts shaped by human hands found in the Frederick gravel pit along with the bones of glyptodon, elephant, camel, tapir, llama, horse, peccary and the ground sloths, were contemporaneous with these animals, it sets the advent of the first known man in America back a very long way into the remote past.

*Since the above article was written, another arrowhead has been found in the undisturbed river gravel and photographed in place by Mr. A. H. Krause of Frederick. The exact spot where this arrowhead was extracted was seen October 6, 1928, by Professors Leslie Spier, A. O. Weese, A. I. Ortenburger, and the writer. During the past few months, Doctor Hay has identified tapir, peccary, and llama bones from the locality.