COLLECTING FOSSIL ELEPHANTS
AT DALLAS, TEXAS*

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That man was co-existent with the mastodon and mammoth in Europe is well established. Many geologists and archaeologists are convinced that man lived in North America during the Pleistocene but the belief is by no means universal. Certainly the archaeologist has a definite interest in the search for fossil elephants and for any evidence of their association with man.

Elephants were widespread and numerous in Texas during the Pleistocene. In fact, it is easier to prove that vast herds of elephants roamed along Texas streams than to prove that countless buffalo succeeded them; though as for that, there are men in Dallas who have seen buffalo tongues peddled on the streets. When it comes to the counting of skulls it is far easier to find an elephant skull than a buffalo skull. The bones of the victims of the lawless buffalo hunting days have disappeared.

The industrial use of sand and gravel in the City of Dallas has uncovered almost daily over a period of fifty years bones of fossil elephants.

The best preserved fossils are found in the sand terraces along the Trinity river about fifty feet above the present flood plain and at the general level of the Dallas City Park, from the sands of which one of the earliest skulls was excavated, which is now in the Peabody Museum at Yale. Fossils found below this level show evidences of stream erosion and probably come from reworked terraces.

Accepting the date of the fossils found at the level of the City Park Terrace as mid-Pleistocene, following Dr. O. P. Hay, then the valley of the Trinity River has been deep-

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ened almost fifty feet since mid-Pleistocene time. The total change in the surrounding topography since Pleistocene times, however, has been small.

Changes in climate and vegetation are problematic. Are the palmetto's at Preachers Slough on the Trinity river in the southeastern corner of Dallas County remnants of a more tropical vegetation? What do the teeth of the mammoth and mastodon tell of the food on which they lived? Most importantly, were the climatic conditions favorable for Prehistoric man? As yet there are no satisfactory answers.

However, since it is improbable that there were fundamental changes in the soil, there seems to be little reason for thinking that there was at any time a dense forest over the surrounding prairies; more rainfall, which is highly probable during the Pleistocene, might produce more luscious grasses. More rainfall might cover the river flood plain with an entirely different flora perhaps better adapted to elephants. But what would be man's part in the picture? It would be that of the hunter with a most serious problem of shelter and protection, for along the rivers of Central Texas there are few rock shelters or caves.

The Elephants Were Trapped in Quick Sands

A study of the commercial sand pits around Dallas gives a clue as to how the elephants were commonly trapped. Many, perhaps most of them were caught in ancient quicksands. In the old Vilbig sand pit in East Dallas in 1915 five skulls were to be seen lying on the dump. Three additional skulls were later removed from the pit and were preserved. The sand in this pit has a total depth of forty feet. The locality was abandoned because the sand grains became too small for commercial use. Here was an ideal trap for the unwary elephant, a quicksand along the ancient Trinity River.

Whether smothered in a sucking sand or killed in another way it is very rare that the elephant skeleton is not widely dismembered. This is true even in a quicksand. The skeleton which was recovered by Southern Methodist University in the spring of 1931 weighed forty feet. The fossil skull was found at contacts of sand and solution. The disappearance of the bones is due to carbon dioxide. Where is the lime from the bone and the clay above and around the fossil itself?

Recovery

The chief problem in preventing quick drying and losses of recoveries by amateurs is to saturate the bone with shellac. If shellac has been dissolved 1 to 10 the ratio is increased until the bones are well impregnated. It is necessary to enclose the bones in pieces of sack dipped in the shellac. Flour paste may be used— it is not so desirable.

One of the most interesting finds was made by the spring of 1931 in the southeastern part of Dallas city, the eastern part of the Trinity Bayou. A complete skeleton is shown uncovered. It was recovered by students of Southern Methodist University under the supervision of Dr. 

First the femur and the skull were removed. Then for a man to crawl through the hole. The man helped with his drysuit, a bathrobe. Two vertebrae and parts of the pelvis continued. A tent was set up, the watch established, for bones would be brought in droves. The great surprise was when McAdams called out a laugh and a smile which spread over the room. 'It's a lower jaw!'

A recent find, Plate 3
in the spring of 1931 was spread over an area of about sixty feet. The fossil skulls and heavier bones are usually found at contacts of sand and gravel or of clay and sand. The disappearance of the smaller bones seems to be due to solution. The river water carried in it vegetable acids and carbon dioxide. Where the skeleton is covered with clay the lime from the bone is leached out and redeposited in the clay above and around it, often making it as white as the fossil itself.

**Recovering the Bones**

The chief problem in the recovering of the bones is to prevent quick drying and slacking. The greatest number of recoveries by amateurs are ruined by slacking. A good method is to saturate the bones immediately as they are uncovered with alcohol in which a small amount of white shellac has been dissolved. Beginning with a solution of 1 to 10 the ratio is increased (in successive solutions) until the bones are well impregnated with the shellac. In order to move the specimens without breaking it will probably be necessary to enclose it in a plaster cast made of torn pieces of sack dipped in a thin solution of plaster of Paris. Flour paste may be used, but—and I speak from experience—it is not so desirable in a country of rain.

One of the most interesting finds at Dallas was made in the spring of 1931 in the Connor sand pit about three miles southeast of Dallas city limits. The almost complete skeleton is shown uncovered in Plate 12, No. 47. This skeleton was recovered by students of Southern Methodist University under the supervision of Mr. Ed McAdams.

First the femur and then the big pelvic girdle, big enough for a man to crawl through, were uncovered. The sand pit man helped with his drag, and the boys made the dirt fly. Two vertebrae and part of a rib were found. The digging continued. A tent was brought down and a day and night watch established, for by that time the public was coming in droves. The great skull appeared. Then in the afternoon McAdams called over almost in a whisper but with a smile which spread over all his face, “Shuler I’ve found the lower jaw!”

A recent find, Plate 12, No. 46, again in the Connor pit,
was a medium size skull which has not yet been identified. Two tusks were found projecting from a clay bank. The skull was found resting on a fine sand; it had been covered with mud and much of the lime of the skull had been redeposited in the clay above. With the greatest care and with constant impregnation with alcohol and shellac this skull was preserved.

By far the greatest number of recoveries are leg bone fragments and teeth, but twenty-one skulls have been uncovered around Dallas. Not more than eight of these have been preserved. In the Dallas finds are represented Elephas imperator; Elephas columbi, Mastodon americanus, and undetermined species.

In 1918 the skeleton of a man identified by Dr. McCurdy of Yale as an Indian was uncovered in the Lagow sand pit east of the Dallas Oil Mill. The degree of fossilization was greater than that of a camel skull found in the same pit. Had the bones been those of any other mammal there would have been no question as to their age; but although found in a fossiliferous part of the pit the skeleton was not covered over with a layer of limestone and so possibly could have been buried artificially.

No artifacts have been discovered at Dallas, which show evidence of the association of elephants and man. At this point a warning should be made. If artifacts should be discovered associated with skeleton bones do not move them. Photograph and have pictures sworn to by a Notary Public. Send for an odd number of geologists so that you can get a decision.

After all if man was coexistent with the elephant in Texas what should we expect to find? Native tribes living with the modern elephant succeed in trapping the elephant with pits rather than in killing them with weapons. It seems improbable that prehistoric man armed only with spears or arrows with flint heads could successfully hunt the thick skinned elephant. Again if prehistoric man did kill an elephant there was the very smallest chance for its preservation in river sands.

not yet been identified. Each bone was wrapped in cloth, then placed in a clay bank. The skull was in one piece; it had been covered with burlap and oiled. Each bone was then dried in the greatest care and with the utmost precautions. The skull was then covered with shellac and shellac this skull was carefully examined.

In the recoveries are leg bone fragments and three complete skulls have been uncovered. Seven of these skull fragments are represented Elephas antiquus, and one is Mastodon americanus, apparently identified by Dr. McCurdy and Cope. Each in the Lagow sand pit located in an area of fossilization was found in nearly the same strata. In the same strata, there was a specimen of other mammal there with the elephant, but their age; but although they were similar in age, the skeleton was not so preserved, and so possibly could not be identified.

The remains of molars and teeth, which show the development of teeth in animals and man. At this time people are making many new discoveries and new ideas are being published, and it is of great importance that the correct facts and ideas be made known. The attribution of facts should be determined by a Notary Public, or other trained man. They are the results of the work of our modern anthropologists, so that you can make the facts known to the public.

The Elephas antiquus from Texas and the mastodon from Lagow, were both used in the elephant in Texas and Lagow, and the tool of the elephant with which they were used, are our weapons. It seems improbable that only with spears or spears we could have successfully hunt the thick elephant. The ancient man did kill an elephant, as we shall see, for its preserva-
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If the human bones should be found in the fossiliferous zone or bed of a sand pit; if the bones have no association of burial mounds; if the degree of fossilization were approximately the same as other bones in the pit, then the association of the human bones with those of fossil elephants should be very significant and would probably indicate a common collection of the bones by current action or perhaps show the fate of the unwary watcher of an elephant caught in the quick sands. Certainly the facts of occurrence should outweigh any preconceived notion as to the type of man which should be uncovered.

It is certain that to develop the wide diversity of prehistoric Indian stocks and languages man must have been in North America a very long time. Is there time for such development since the opening of the Behring passway following the southward push of the Wisconsin sheet?

If the Indian came in north from China, why is it necessary to standardize his development by that of the early men of France or England?

Plate 12

46. Dr. Shuler excavating a mammoth skull.
47. An almost complete skeleton uncovered.
48. Section of the Connor Sand Pit near Dallas, Texas, where bones were excavated.