1931

THE MILFORD MASTODON, MASTODON MOODIE I, SP. NOV. A PRELIMINARY REPORT

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BULLETIN 24 VOLUME I DECEMBER, 1931

THE NEBRASKA STATE MUSEUM
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THE MILFORD MASTODON, MASTODON MOODIEI, SP. NOV.
A PRELIMINARY REPORT

BY ERWIN HINCKLEY BARBOUR

In developing the hydro-electric plant of the Iowa and Nebraska Light and Power Company, a number of dams were thrown across the Blue River and its branches. One of these, known as Dam No. 7, was built across the West Blue, about nine miles southwest of Milford, Seward county, Nebraska. This dam raised the water well above the ordinary river level, and flooded fifteen or twenty acres of valley land. The impounded water soaked into, and washed against, the base of a twenty-foot bank of cross-bedded sand, until some time during the winter of 1931, a portion of the bank near the base slipped, and slid down, carrying with it a well-preserved mastodon skull which hitherto had lain buried there. The skull was eased down on the sand at the water's edge unbroken, and came to rest on its crown.

In this position the skull was soon encased in ice, where it was quite discernible in the transparent matrix, and since it lay with the teeth upward, fully exposed, it was easily recognized by Messrs. Elmer Danekas, Walter Farrow, and N. F. Morris, who found it while hunting. The skull at that time was in fine condition. They undertook to dig it out after the first thaw, but quickly realized that without training and experience the undertaking would be futile. They promptly discontinued further attempts, and, on March 19th, Mr. Farrow called at the State Museum and gave notice of the discovery.

Friendly acts of this nature facilitate museum work more than citizens of the State may realize. As a result of such information, many important specimens which otherwise would have fallen into complete decay, or which would have gone out of the State altogether, have been rescued. Even school children, as well as adults, have united in reporting local discoveries which often prove to be of consequence. By common acceptance it is the plain duty of every state to pre-

serve in its cabinets good examples of its own resources and likewise its living and fossil fauna and flora.

On the twentieth and twenty-first of March, 1931, the weather being mild and suitable, one of the field parties of the State Museum, consisting of C. Bertrand Schultz and Loren Eiseley visited Dam No. 7 and secured certain skeletal parts and chunks of the skull, which are catalogued No. 21-3-31. As soon as possible thereafter they made a second trip and found additional parts. Since the weather was propitious, extensive exploratory digging was planned, but had to be temporarily postponed because of flood conditions. After securing as much material as possible, work was suspended until the water could recede. On June fifteenth this spot was again visited and thoroughly explored by two combined field parties, namely, C. Bertrand Schultz, and assistant Frank Crabill, and E. L. Blue and assistant Eugene Vanderpool. They soon unearthed fragments of the skull along with the atlas, axis, two thoracic vertebrae, ribs, and mandible with teeth. Three days later, after the quarry was well opened, the writer, accompanied by Mr. Henry Reider, visited the place.

The mandible of this mastodon is of the tetracaulodont type, and, therefore, the more noteworthy. It is additionally distinctive because the tip of the rostrum curves abruptly downward, thus imparting a sort of rhynchotheroid aspect. At first glance the mandible may suggest the general form of Rhynchotherium. The resemblance is slight, however, and is wholly superficial. The rhynchotheres are long-jawed mastodonts, so their rostra are long and are slim, and, as an outstanding character, are notably recurved. This seems to apply especially to the specimens from the Kansas Pliocene; namely, Rhynchotherium euhypodon, and R. dinotheroides, less so, perhaps, to the California specimen R. shepardi from supposed Miocene beds. Rhynchotherium and the American mastodon are unrelated in time and in generic phyla. The Rhynchorostrinae are the earliest proboscidean immigrants, and the oldest of the American elephants. The Rhynchorostrinae occur in the early Pliocene, the very earliest of them probably in the Miocene, while the American mastodon belongs to the Pleistocene and was even a contemporary of man. On going higher in the proboscidean scale, we find that mastodons, mammoths, and modern elephants have their rostra reduced to zero. In the case, however, of such of the American mastodons as have mandibular tusks, namely, the

FIG. 130.—Mandible of Mastodon moodiei, the Milford mastodon, No. 21-3-31. Male. Tetracaulodont type, with strongly deflected rostrum bearing two robust, blunt tusks. The Morrill Palaeontological collections, the Nebraska State Museum. The dotted portion above the tusk has since been found, and is no longer conjectural. Likewise much of the coronoid. The inner wall is more nearly complete and continuous than the outer one.

number of ridges; namely, four and a heel. The superior tusks were in evidence when the skull was discovered, but had fallen to pieces. By the position of the fragments the tusks were judged to have been 6 to 8 feet in length.

The writer has visited the proboscidean collections in the museums of the various states, but recalls nothing similar to the Milford Mastodon.

Those who have seen this specimen concur in thinking it a distinct species. Before foisting a new name upon an overcrowded roll, however, the customary allowances must be made for age, sex, individual variations, and possible patho-

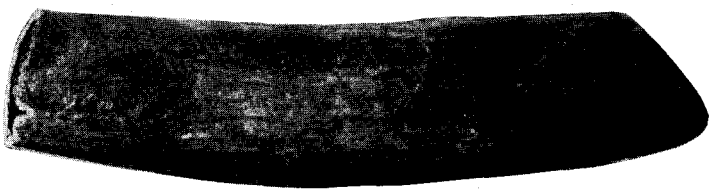

FIG. 131.—Right mandibular tusk of Mastodon moodiei, the Milford Mastodon, worn off squarely at the tip. Length, 9¼ inches (235 mm.). Diameter, 2 inches (51 mm.). Over one-third natural size. The pulp cavity is but half an inch deep, (13 mm.). Depth of the alveolus or socket, 6½ inches (165 mm.). Portion protruding, about 2½ inches (64 mm.).

logic condition. A break in the right jaw, well in front of the grinders, gives a clean section and reveals a rare tumor about the size of a hen's egg and resembling a botryoidal concretion. Suspecting that this might be the possible cause of the deflected rostrum, the jaw was submitted to Dr. Roy L. Moodie for a decision.

His report reads as follows: "I think that the jaw is not diseased in any sense. It is an accident of growth that the tumor was present. It is purely local, and has no significance other than it indicates the persistence of a clump, or rod, of embryonic epithelium. I am preparing my notes on this tumor under the heading 'Discussion of a Cystoma in the Jaw of a Fossil Proboscidean from Nebraska.' The tumor thus properly becomes an example of what pathologists call a multilocular cystic epithelial odontoma. The tumor is of a benign, slow-growing type, seldom causing any trouble, and none in this case, only a little bulging of the wall." This decision is counted final, and since the mandible is not patho-

logic, and since nothing similar to it has been reported, we shall consider this specimen entitled to rank as a valid new species, and shall christen it Mastodon moodiei.

However disconcerting the multiplication of names may be, it seems to be an undoubted fact that a host of elephants await designations. Avowedly, elephant bones and teeth are the commonest vertebrate relics the world over. They are apt to be strong and well preserved, and, being large, they attract notice. This has resulted in the preservation of these relics in unusual numbers, a fact of which palaeontologists have taken full advantage. Knowledge has been facilitated,

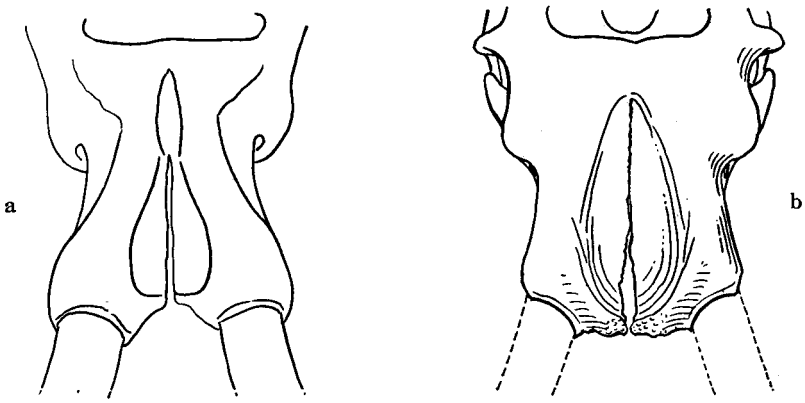

FIG. 132.—The incisive sheaths of two Mastodons for comparison.
a. Incisive sheaths of Mastodon americanus from Otisville, New York, No. 12600, the Yale Museum. After a drawing by Miss Nelda Wright, furnished by Dr. Richard S. Lull.
b. Incisive sheaths of Mastodon moodiei, showing its differences in form, the thickened border being noteworthy.

and the taxonomy and phylogeny of the Proboscidea promises to be more fully known than those of other mammals.

While the bones of this specimen lay bleaching on the surface, elephant herds, unmindful of the relics of their kind, must have trampled upon and scattered them. Both incisive sheaths and zygomatic arches were broken off and impelled several feet from the skull. The heavy mandible was broken into many pieces and scattered over the quarry floor. Creatures less ponderous could scarcely have crushed to flinders such heavy and resistant material. Fortunately the scattered splinters and chunks were buried, fossilized, and thus pre-

served. Citizens of this fossiliferous region would find it most interesting to see complete bones built out of petrified slivers which fit together perfectly until the bones are reconstructed as in life.

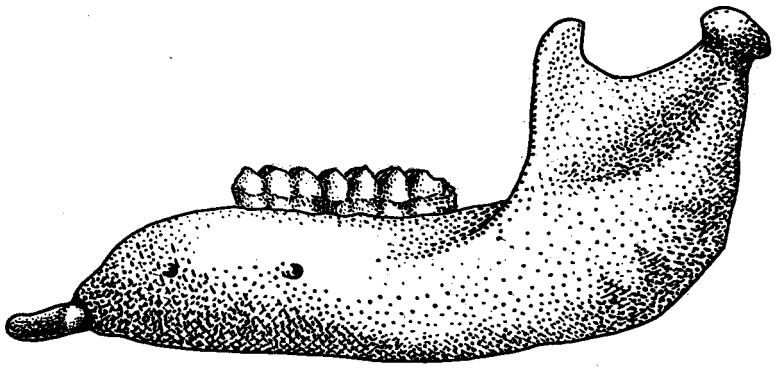

FIG. 133.—Mandible of the Warren Mastodon, male, showing one small vestigial tusk four inches in length. Locality: Newburg, New York. Preserved in the American Museum of Natural History, New York City. For comparison with Mastodon moodiei.

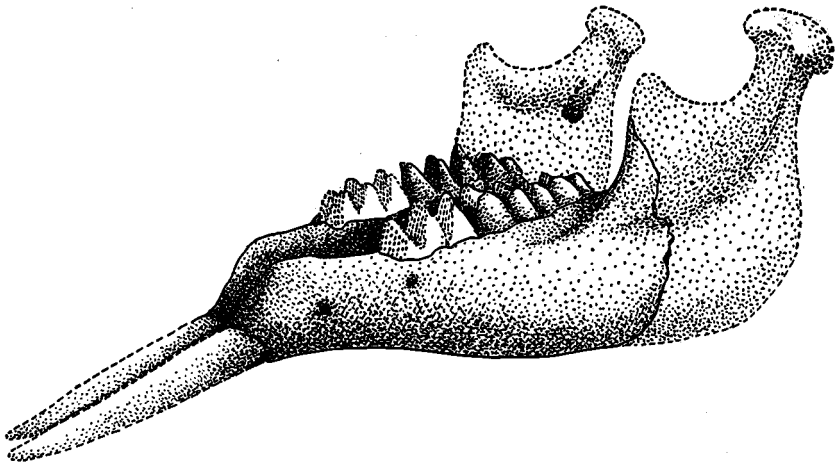

FIG. 134.—Mandible of Mastodon americanus, male, with two vestigial tusks restored. Found 75 feet below the surface in interglacial gravels, near Seward, Seward County, Nebraska. Reversed to face left. The Morrill Palaeontological collections, The Nebraska State Museum. Specimen No. 11-7-25. For comparison with Mastodon moodiei.

The skull, mandible, and certain skeletal parts lie on the sand tables in the laboratory undergoing necessary repairs. Examination of the skull shows no essential parts missing or seriously damaged. Even the incisive sheaths, so commonly imperfect or wanting altogether, are essentially whole and but slightly injured. The mandible was set together temporarily with modelling clay in order that measurements and photographs might be made. When finished and mounted, this specimen will be figured and described at greater length. Work in this quarry was suspended for the time, June 20, 1931, and one end of the quarry, from which additional parts may be expected, remains to be worked out. Following the collectors inviolable rule, every scrap of the skull, jaw, and bones have been saved. The smaller bits will go together to make the larger ones, and finally, when the fragments are all properly assembled and cemented together, this promises to be the best mastodon skull and jaw secured as yet in this State.

MEASUREMENTS

Transverse diameter of condyle, 5 inches (127 mm.)
Depth in front of the molar, 7⅛ inches (180 mm.)
Depth just back of the molar, 6¾ inches (172 mm.)
Greatest thickness, 7 inches (182 mm.)
Length of molar, 6⅞ inches (175 mm.)
Width of molar, 3¾ inches (96 mm.)
Length of mandibular tusks, 9¼ inches (235 mm.)
Diameter of tusk, 2 inches (51 mm.)

The beds which yielded the relics of Mastodon moodiei are plainly Pleistocene in age, probably Aftonian. A section at this quarry according to field notes by C. Bertrand Schultz is as follows:

SECTION

Turf, or top soil, and weathered sand	36	inches
Bed of pumicite	22	"
Carbonaceous layer	2	"
Sandy clay	17	"
Cross-bedded sand with lenses	27	"
Sandy clay with limonite concretions	5	"
Sand	5	"
Bone layer in cross-bedded sand and gravel	16	"
Clay	16	"
Sand, thickness undetermined	?	"

Two or three rods up the slope from the quarry face, with a rise of eight to ten feet above it, occurs a layer with boulders of Sioux quartzite, which abound in the drift of this region.

The University of Nebraska,
Lincoln, December, 1931