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A NEW AMEBELODONT, TORYNOBELODON BARNUMBROWNI, SP. NOV. A PRELIMINARY REPORT

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THE NEBRASKA STATE MUSEUM
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A NEW AMEBELODONT, TORYNOBELODON BARNUMBROWNI, SP. NOV.
A PRELIMINARY REPORT

BY ERWIN HINCKLEY BARBOUR

The subfamily of longirostrine mastodonts known as the Amebelodontinae have been so recently discovered and described that as yet they are little known by the citizens of this state. They are most briefly and directly described as shovel-tusked mastodons. The first one found, namely Amebelodon fricki, was secured in April 1927, and was published June 1927. In the meantime, many other examples of Amebelodonts have been added to the Morrill Palaeontological Collections of the Nebraska State Museum. The exact number cannot be stated until the material shipped in from the field during the current season is unpacked, cleaned, and identified. Already there have been secured, according to field reports, six or eight fine mandibles and a number of broken ones. Some of these mandibles seem to deviate so from type as to kindle expectation and fire the field parties with enthusiasm.

According to field reports there are three, probably four, skulls, more or less complete, with mandibles attached, and with perfect upper and lower dentition. Besides, there remain to be listed many skeletal parts such as ribs, vertebrae, limb bones, scapulae, pelves, upper and lower tusks, molars and the like. Better still, there are probably three skeletons sufficiently complete to furnish in each case an authentic restoration. It should be noted that up to this date skulls and skeletons of the amebelodonts have remained unknown. Amebelodon quarry No. 1, eight miles south of the Kansas-Nebraska state line, and five miles west of Reamsville, Kansas, has been practically worked out during the two field seasons, 1930 and 1931. This quarry is on the farm of Mr. James Billings, who extended every courtesy to our field parties. Credit for the large vertebrate collections in the Nebraska State Museum is due primarily to the farmers and ranchmen of this Great Plains

region. Without their spirit of cooperation, hospitality and generosity, this work could not have made such progress.

Not only do they refrain from exacting toll for the privileges of digging and collecting, but they welcome all field parties. They have given freely of their time and of their means. Moral and material support such as this promotes any cause.

Amebelodon Quarry No. 2, 3¼ miles northwest of Cambridge, Furnas County, Nebraska, on the farm of Mr. Henry Arthaud, has just been opened. Here the Ambelodon bones are dense, ivory-white, uninjured, and apparently numerous.

Amebelodon Quarry No. 3, several acres in extent, surpasses the others in all respects.

There is no predicting what the yield will be by the close of the field season, judging by the present rate of collecting. Close upon the discovery of Amebelodon in this country, came that of Platybelodon danovi, by Borissiak, from the Caucasus (1928, 1929), and of Platybelodon grangeri, by Osborn, from the Gobi desert of Mongolia, 1929. That there is close relationship between the amebelodonts of these two continents is perfectly apparent. The great migration route between the two hemispheres, now submerged under a shallow sea, was once a grand faunal highway between the orient and the occident. Many animals, successful as pathfinders, trekked across, and there was a faunal interchange between the two hemispheres. Mysteriously enough, other animals equally endowed failed to find and cross this broad inter-continental thoroughfare. Foremost amongst the pathfinders were the Proboscidea. The amebelodonts were successful in their extended march and triumphal entry into the land of their adoption. They pressed forward as far eastward as Nebraska, where they must have flourished.

As far as the group is now known there seem to be three forms of shovel-tuskers, which are worthy of first attention. First, there are those having exceptionally long jaws and long straight mandibular tusks such as Amebelodon fricki and A. sinclairi. Second, there is a group having shorter, broader jaws, with shorter, but broader and moderately curved tusks. These are the scoop-tuskers, or dredge-tuskers, Torynobelodon, so named because of a rough resemblance to these implements. Third, there is a group from the Gobi desert, similar to the last mentioned, having a relatively long slim jaw, which

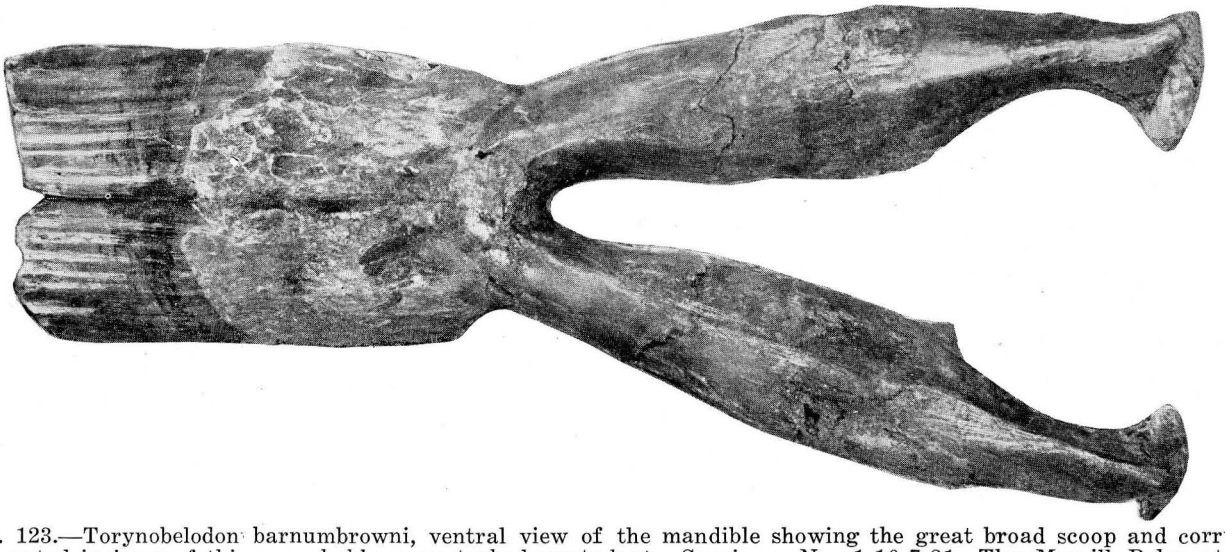

FIG. 123.—Torynobelodon barnumbrowni, ventral view of the mandible showing the great broad scoop and corrugated incisors of this remarkable scoop-tusked mastodont. Specimen No. 1-10-7-31. The Morrill Palaeontological Collections of the Nebraska State Museum. One-eighth natural size. The jaw of this scoop-tusker is relatively short and noticeably stocky. Width of scoop 12 inches. Length of mandible from condyles to tips of tusks, measured on the median line, 50 inches (1271 mm.). Length of mandible from condyles to the insertion of the tusks 41 inches (1042 mm.).

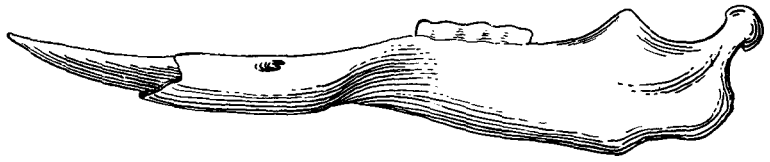

FIG. 124.—Torynobelodon barnumbrowni, side view, showing a straight thin, stocky jaw with a very low ascending ramus. The tusks are short, about 22 inches, and are but very moderately curved. The under side of the tusk is in shadow, the edge in high light.

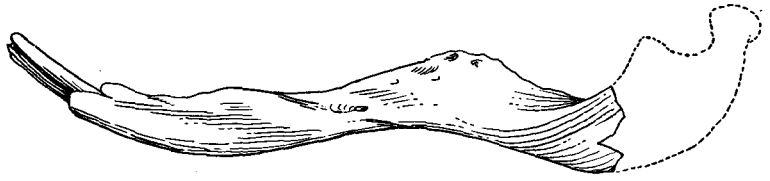

FIG. 125.—Platybelodon grangeri Osborn, side view for comparisons, showing a long slim jaw with abruptly curved incisive tusks. From the Gobi desert, Mongolia. Amer. Mus. 26200. Modified after Osborn and Granger.

FIG. 126.—Oblique view of the mandible of Platybelodon grangeri, a scoop-tusked mastodont from Mongolia, showing deep capacious scoop, and abruptly curved tusks. Specimen No. 26200, The American Museum of Natural History.

a, The deep scoop-shaped rostrum and large curved tusks viewed obliquely from in front and above.

b, Same viewed obliquely from behind and above.

The two broad incisors are accidently separated. Width of the incisor 6½ inches (166 mm.) Maximum breadth of scoop 15 inches (380 mm.) Modified after Osborn and Granger.

flares into a broad, deep scoop with tusks decidedly curved. The rare specimen under consideration seems to belong to the second group, and we are naming it Torynobelodon barnumbrowni. This mandible shows unmistakable Asiatic relationships, and it approaches Platybelodon grangeri of Osborn.

Torynobelodon barnumbrowni was dug out of Pliocene gravels on Snake River, Cherry County, 25 miles south-west of Valentine, Nebraska, July 1931, by Paul O. McGrew, and Grayson Eichelberger, students in the University of Nebraska, and student assistants in the museum.

The following measurements are subject to minor corrections for the mandible is still in cinches with just enough cut away and turned back to expose the under surface completely, and the upper surface obscurely in places.

MEASUREMENTS:

Mandible No. 1-10-7-31

TORYNOBELODON BARNUMBROWNI

Total length of mandible 50 inches. (1271 mm.)
Distance across the condyles 19 inches (484 mm.)
Transverse diameter of the condyle 4¼ inches (107 mm.)
Depth back of the molar, 4¼ inches. (107 mm.)
Width back of the molar 4¼ inches. (107 mm.)
Width of the combined incisors at insertion 12⅜ inches (315 mm.)
Width at the tip, 12⅝ inches (321 mm.)
Length of each incisor estimated 22 inches (559 mm.)
Width of each incisor 6¼ inches (159 mm.)
Thickness of mandibular incisor, average, about 1 inch (25 mm.)
Height of molar 2 inches (50 mm.)
Length of molar 6½ inches (165 mm.)?
Rostrum, maximum breadth 12½ inches (317 mm.)
Width of mandible at narrowest point 9½ inches (241 mm.)
Length of the symphysial line 14 inches (356 mm.)
Condyle to coronoid 8 inches (200 mm.)
Depth at the coronoid 9 inches (230 mm.)

In the accompanying illustration, it is obvious that the tusks are broad, are roughly and deeply corrugated, and heavily worn by use, presumably in digging. This is confirmatory of the original conception that amebelodonts were elephants adapted to digging in mud, sand, or soft earth.

Again it must be stated that the thinness of the jaw, its length as a lever and the smallness of the masseteric muscles seem at variance with this conception. Nevertheless this jaw must be an adaptation for digging.

MANDIBULAR MEASUREMENTS OF TWO FOREIGN AMEBELODONTS

PLATYBELODON DANOVI

Length, condyle to tip of incisor ? 1240 mm.
Length, condyle to tip of median symphysis ? 1102 mm.
Length of symphysis to tip of incisors ? 700 mm.
Length to symphysial border ? 518 mm.
Maximum breadth of the rostrum 245 mm.
Minimum breadth of rostrum 130 mm.
Breadth of the two combined incisors 220 mm.
Breadth of single incisor 110 mm.
Maximum breadth of mandibular ramus 90 mm.
Maximum depth of mandibular ramus 120 mm.

PLATYBELODON GRANGERI

Length, condyle to tip of incisor ? 1530 mm.
Length, condyle to tip of median symphysis ? 1340 mm.
Length of symphysis to tip of incisors 880 mm.
Length to symphysial border 670 mm.
Maximum breadth of the rostrum 380 mm.
Breadth of the two combined incisors 327 mm.
Breadth of single incisor 166 mm.
Maximum breadth of mandibular ramus 106
Maximum depth of mandibular ramus 178 mm.

The masseteric fossa is small and but slightly impressed, so the great chewing muscle must have been reduced in size. Altogether, the jaw seems inadequate mechanically. The ascending ramus is very low, like that of Eubelodon morrilli. Judging by the known position of the base of the incisors in Amebelodon fricki, the tusks in this mandible must be about 22 inches (559 mm.) long. Their width is 6¼ inches (160 mm.) and thickness about 1 inch (25 mm.). They bear a strong outward resemblance to the mandibular tusks of Torynobelodon loomisi. The tusks are sound and unbroken so it is not known whether or not sections would show the same dental tubules. Both molars are present and seem to be perfect, but at present are obscured by matrix and plaster cinches They seem to be short but rather high-crowned.

The color of the specimen is a light brown, and transverse bars of chocolate brown on the tusks may be related to the gingival line. As soon as the iron supports can be forged and the mandible oriented, the cinches will be removed, whereupon other descriptions and figures will follow.

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The collecting season of the current year continued from March 21, to the opening of the University in September. There were five parties of two students each, the more experienced of the two being in charge. Their quest for amebelodonts, other proboscideans, and various mammalian fossils was amply rewarded.

Personnel of the Morrill Palaeontological Expeditions of 1931.

C. Bertrand Schultz and Frank Crabill.
Paul O. McGrew and Charles Osborn.
E. L. Blue and Eugene Vanderpool.
Frank Johnson and Grayson Eichelberger.
Frank Denton and Loren Eiseley.

Special collecting trips by Henry Reider, Frank Bell, and the writer.

The University of Nebraska,
Lincoln, Nebraska,
July 25, 1931.