THE MANDIBLE OF *TORYNOBELODON BARNUMBROWNI.*

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It is now possible to offer descriptions, figures, and measurements of various aspects of the mandible of the new amebelodont, *Torynobelodon barnumbrowni.* It is that of a shovel-tusker, or amebelodont, of extreme type, better characterized, perhaps, as a scoop-tusker. The broad rostrum is similar to a scoop-shovel in form and size. The Amebelodontinae have been so recently discovered that they are probably less familiar than other proboscideans. Hence, it is well to point out that *Torynobelodon barnumbrowni* makes a close approach to *Platybelodon grangeri* of the Gobi desert. It is plainly an Asiatic migrant which had pushed eastward as far as Nebraska, where it seems to have flourished along with the many and varied amebelodonts which have been found since the first one, *Amebelodon fricki,* was announced June, 1927.[1]

As may be seen in the figures, the tusks are thinned at their tips, and exhibit on their edges the general appearance of a worn-out shovel. This is due entirely to wear, not to fracture. The upper surface of each is abraded to a plane, supposedly by shovelling mud, sand, or soft earth in quest of food. The accumulating evidence seems to substantiate the original conception that the Amebelodontinae were shovellers.

The jaw of *Torynobelodon barnumbrowni* is somewhat short and stocky, the ascending ramus rather low, the fossa small and but slightly impressed. The tusks are broad, strong, and deeply corrugated below, resembling in this respect, *Torynobelodon loomisi.* They are heavily worn, especially on the upper surface, exposing the thin laminae of the ivory.

The rostral shovel, or scoop, is not quite as broad, nor as deep as that of *Platybelodon grangeri,* neither have the tusks as short a radius of curvature. Viewed from the side the jaw is rather thin as compared with longirostrine mastodonts. Two grinding teeth are present on either side, and are unblemished, save that they are slightly checked. The crown of molar number two is heavily worn and flattened, while that of molar number three is but moderately worn, the two anterior

[1] Barbour, Erwin H. Preliminary notice of a new Proboscidean, Amebelodon fricki, gen. et sp. nov., Bull. 13, Vol. 1, June 1927, The Nebraska State Museum.

Fig. 1. Torynobelodon barnumbrowni. Oblique side view of the mandible. About one-eighth natural size. Specimen No. 1-10-7-31, the Morrill Palaeontological Collections, The Nebraska State Museum. Mandible and dentition perfect, barring minor cracks and a slightly crushed and displaced left ascending ramus. The edges of the tusks are ragged from wear and not from fracture.

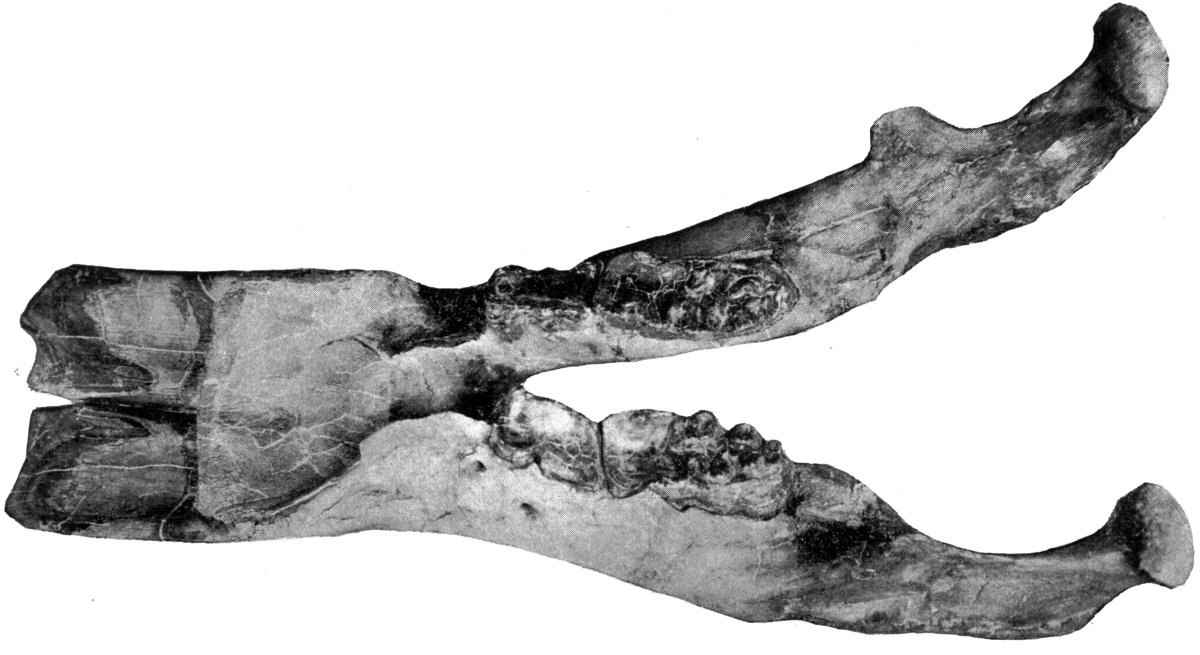

Fig. 2. Torynobelodon barnumbrowni. Crown view, showing mandible with teeth, rostral shovel, and broad, incisive tusks, flattened by wear. About one-eighth natural size. The scoop-shaped rostrum is about the size, and has the capacity of the common scoop-shovel. Due to crushing, the left ascending ramus is thrown slightly out of symmetrical position.

ridges being considerably cupped and confluent. Apparently the creature was well matured rather than aged.

According to the present state of knowledge there seem to be three distinct types of Amebelodonts. In the first group are those having immoderately long jaws with long, straight, shovel-shaped tusks, such as *Amebelodon fricki* and *Amebelodon sinclairi.*[2] These are distinctive. In the second group are amebelodonts having shorter jaws with very broad, scoop-shaped rostra, set with wide, but very moderately curved tusks, such as *Torynobelodon loomisi*[3] and *Torynobelodon barnumbrowni.* In a third group the rostrum is still broader, more capacious and dredge-like, with tusks curved on a much shorter radius, such as *Platybelodon grangeri* of the Gobi desert.

In studying amebelodonts it is difficult, at the present juncture, to judge the differences which are due to age, sex, and individual variation. It is assumed that the immoderately developed tusks may have belonged to the males, the narrower and weaker ones to the females. So many mandibular tusks, of such varied forms, are now at hand that confusion is heightened.

The specimens in the Nebraska State Museum exhibit such a wide range of form that it seems safer than ever to repeat the forecast that an important amebelodont fauna awaits discovery. The Amebelodont collection in the Museum is now large, comprising six or eight jaws, and numerous fragments of jaws, odd teeth, and many tusks, as well as various skeletal parts. There are also three skulls, more or less complete, and enough bones from two specimens to furnish good skeletal restorations.

Field parties sent out by the University of Nebraska have now found amebelodont relics scattered over an area about three hundred miles in diameter. It seems more inexplicable than ever that this extraordinary group escaped discovery so long. In fact, during the last two years, whole amebelodon quarries have been developed. One of these, Amebelodon Quarry 1, near Reamsville, Smith County, northern Kansas, nine miles south of the Nebraska state line, has yielded to the Nebraska State Museum, during the field seasons of 1930 and

[2] Barbour, Erwin H. Amebelodon sinclairi, sp. nov., Bull. 17, Vol. 1, January, 1930, The Nebraska State Museum.

[3] Barbour, Erwin H. Torynobelodon loomisi, gen. et sp. nov., Bull. 16, Vol. 1, December, 1929, The Nebraska State Museum.

Fig. 3. Torynobelodon barnumbrowni. Ventral view of the mandible, showing the great, broad scoop and deeply corrugated incisors of this remarkable scoop-tusked mastodont. About one-eighth natural size.

1931, some five or six good jaws, many broken ones, and fragments of skulls. Amebelodon Quarry 2, near Cambridge, Furnas County, Nebraska, has yielded its quota of unusually fine, hard, perfect bones, tusks and teeth. Quarry 3, with a half-mile exposure of amebelodont bones, far exceeds in importance all of the others. In fact, there is no predicting what the yield will be when this new quarry is fully developed in the field season of 1932. In passing, it is well to mention that amebelodonts have been reported by Borissiak from the Caucasus, and by Andrews and Granger from the Gobi desert of Mongolia, where their bones are profuse, according to Osborn and Granger.

The mandible of *Torynobelodon barnumbrowni* was found by field parties sent out by the University of Nebraska on the Morrill Palaeontological Expedition of 1931. It was dug out of late Pliocene gravels on Snake River, Cherry County, Nebraska, 25 miles southwest of Valentine, during July of that year. The under surface, stripped of cinches, was figured and described the same month.[4] Fortunately this mandible and its dentition are practically perfect throughout, barring inconsequential cracks. Those engaged in the investigation of the Amebelodontinae in Nebraska are plainly so engrossed with field operations, the preparation and mounting of new and strange forms, that determination of the exact geologic position of the group has suffered scant attention. This seems to be a natural and rather prevalent shortcoming, for which there are often extenuating circumstances. This much seems to be assured; namely, that amebelodonts are apparently late arrivals, and that they pertain to the late Pliocene, and that some may have survived to the Pleistocene. In the case of *Amebelodon barnumbrowni,* a considerable associated fauna was found. This associated material when unpacked, cleaned, and identified can scarcely fail to give the exact geologic horizon, which the field parties consider to be very late Pliocene.

[4] Barbour, Erwin H. A New Amebelodont, *Torynobelodon barnumbrowni,* sp. nov., A Preliminary Report, Bull. 22, Vol. 1, August, 1931, The Nebraska State Museum.