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Toxotherium (Mammalia: Rhinocerotoidea) from Western Jeff Davis County, Texas

by

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Contents

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JOHN M. HARRIS*

ABSTRACT

A partial right ramus of *Toxotherium* contains the only known anterior cheek tooth of this genus. The geographic range of this genus is greatly extended by the occurrence of this specimen in Trans-Pecos Texas.

INTRODUCTION

Rocks of the Vieja Group (DeFord, 1958) in the Sierra Vieja, Trans-Pecos Texas, have yielded a large variety of vertebrates of latest Ecocene and early Oligocene age (Wood, A. E., 1955; Black and Dawson, 1966). Fossil mammals of early Chadronian age have been collected from the Chambers Tuff (Wilson, 1966) and the yonnger Capote Mountain Tuff, but the results of investigations of this fauna are yet mostly unpublished.

The Ash Spring locality (N30° 37′ W104° 53′30″) comprises a small triangular area of reworked tuffs and fluviatile sandstones to the east of the Moody Bennett Ranch in western Jeff Davis County. The area was mapped by Bridges and Dasch in the summer of 1957 and forms part of the map of northern Rim Rock Country compiled by Braithwaite (1958), Bridges (1958), Dasch (1959), and Frantzen (1958). Copies of this map are included in the unpublished theses of these four authors and are on deposit in the library of The University of Texas.

Most of the vertebrate fossils from this locality have been collected from a poorly consolidated and locally derived, reworked tuff mapped as Capote Mountain Tuff (Bridges, 1958, Pl. 1). A few scraps of tooth enamel and postcranial material have also been collected from an underlying unit of similar lithology mapped as Undifferentiated Vieja Group. The following taxa have been recognized from the Ash Spring locality: turtles, lizards, *Pseudocylindrodon* sp., an eomyid rodent, *Titanotheriomys veterior,* a felid, *?Prothyracodon* sp., *Toxotherium, Hypisodus* cf. *H. minimus,* an achaenodont, a merycoidodontid, *Eotylopus* sp. and *Poebrotherium* sp. In the Vieja Group, the eomyid rodent (new genus and species), *Titanotheriomys, Toxotherium* and *Hypisodus* are currently restricted to this one locality. The remaining taxa are known from better specimens from other nearby localities. Only *Toxotherium* will be discussed in this paper.

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DESCRIPTION

Superfamily Rhinocerotoidea Gill 1872
Family *Incertae sedis*
Toxotherium Wood 1961
Toxotherium woodi Skinner & Gooris 1966
Toxotherium cf. *T. woodi*

At present, only two specimens of the genus *Toxotherium* are known to have been collected. The type species, *T. hunteri* (Wood, H. E., 1961), is represented by a partial right mandibular ramus from the Cypress Hills, Saskatchewan; the second species, *T. woodi*, is based upon an immature partial left ramus from Bates Hole, Wyoming (Skinner and Gooris, 1966). The Ash Spring specimen (University of Texas Bureau of Economic Geology No. 40283–100) is the anterior portion of a right ramus and is the only specimen to have the anterior cheek tooth preserved.

The ramus of the Ash Spring specimen (Fig. 1) is stout but shallower than in *T. hunteri*, and of approximately equal depth to *T. woodi*. The inferior border slopes gently posteriorly except beneath the symphysis where the slope is much greater. The symphysis is short, terminating slightly posterior to the tusk alveolus. When viewed from above, the angle formed between the median suture of the symphysis and the midline of the horizontal ramus is nearly 30°; this angle is somewhat greater than in *T. woodi* (as in Skinner and Gooris, 1966:7) and closer to that of *T. hunteri* (measured from

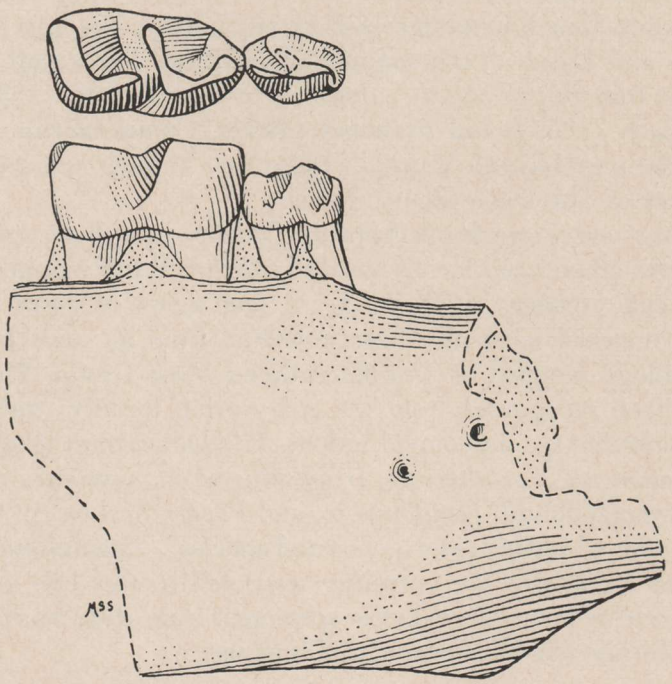

Fig. 1. *Toxotherium* cf. *T. woodi*; partial right ramus, occlusal view, labial view (x 3).

Fig. 1 of Wood, H. E., 1961). Two mental foramina are present, the posterior being located 7.5 mm. beneath the anterior root of P_3 and the anterior one 3.6 mm. in front of, and slightly dorsal to, the posterior foramen.

The alveolus for the tusk is circular in transverse section and procumbently oriented. Any anterior incisors must have been minute. The diastema between the tusk alveolus and the anterior cheek tooth is short, but cannot be compared directly to the other specimens as the posterior portion of the alveolus is missing in these.

Two premolars are present and are believed to be P_{3-4} (after the interpretation of Skinner and Gooris, 1966). The collection of more material may, however, prove this decision to be erroneous. Certainly the dimensions of the teeth of the Ash Spring specimen agree well with those of DP_{2-3} of *T. woodi*, although the anterior tooth of the latter is larger. Examination of x-ray photographs of the roots of the Ash Spring teeth revealed no trace of developing tooth germs beneath. Skinner and Gooris (1966:9), however, have indicated that these would not show until just prior to the resorption of the roots. The roots are long, those of P_3 being more than twice the height of the crown, and those of P_4 being of equal size. The only difference noted between the roots of the Ash Spring P_4 and those of the DP_3 of *T. woodi* was that the anterior root is shorter than the posterior in the latter specimen, whereas they are of equal length in the former.

P_3, as arbitrarily designated, has two roots and is slender and trenchant. The protoconid bears a weak external rib, and is produced anteriorly to give rise to the paraconid from which a *labial* spur is given off. This labial extension of the paraconid appears to be unusual in perissodactyls. A short postero-lingual spur leaves the protoconid to form the metaconid, and a crescentic posterolabial spur connects the protoconid to the hypoconid. A weak anterior cingulum is produced for a short distance along the lingual side of the tooth. The external cingulum is discontinuous. The posterior cingulum is more strongly developed.

P_4 is rectangular and submolariform, with very short anterior and posterior cingula. The protoconid is produced anteriorly to give rise to the paraconid, from which a lingual spur is given off. The protoconid is connected lingually to the metaconid, and any trace of the valley separating the two (Wood, H. E., 1961:2) has been removed by wear. The hypoconid joins the metalophid midway between the protoconid and metaconid. The entoconid is connected to the hypoconid via the hypolophid. Both lophids are oriented anteroposteriorly rather than transversely.

DISCUSSION

The Ash Spring specimen is important in that the anterior cheek tooth, whether P_3 or DP_2, is present, and the ramus is more complete anteriorly than other described specimens. The peculiar orientation of the paraconid

on the anterior cheek tooth confirms the opinions of H. E. Wood (1961) and Skinner and Gooris (1966) about the distinctness of this taxon from the remainder of the rhinocerotoids, and also separates it unquestionably from the Asian lophialetids.

The geographic range of *Toxotherium* is considerably extended by its occurrence in Trans-Pecos Texas, and although the genus was evidently not a common element of the North American Oligocene faunas it was apparently distributed throughout western North America. Presently it is restricted in time range to units of latest Ecoene and early Oligocene age.

TABLE 1.

Measurements of *Toxotherium* cf. *T. woodi*

P_{3-4}	—	12.7 mm.
P_3 anteroposterior	—	5.0 mm.
tranverse	—	3.0 mm.
P_4 anteroposterior	—	7.8 mm.
transverse	—	4.5 mm.
Length diastema	—	8.2 mm.
Depth ramus beneath P_4	—	17.7 mm.

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