

PRELIMINARY REPORT ON THE LATE
MIDDLE PLIOCENE, AXTEL LOCALITY,
AND THE DESCRIPTION OF A NEW
MEMBER OF THE GENUS
OSTEOBORUS.

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ABSTRACT. A new species of the genus *Osteoborus* is described from the upper Middle Pliocene of Texas. The relationship of this form to *O. cyonoides* from the Hemphill County Middle Pliocene, and *Borophagus diversidens* from the Cita Canyon Upper Pliocene is pointed out. The new locality from which this interesting canid was obtained is referred to as the Axtel Ranch Locality.

INTRODUCTION.

THE credit for having discovered the beds from which this late Middle Pliocene fauna was obtained belongs to Mr. Don Savage, a former student of West Texas State College. Since the first specimens were taken out in the fall of 1936, excavations have been continued intermittently, and through the coöperation of the Works Progress Administration a comprehensive collection has been obtained. Thus far five families are represented. No articulated skeletons have been found. The Equidae are most abundantly represented by numerous teeth, jaws and scattered limb bones. Canidae are next in order, and these likewise are known only from teeth and lower jaws. The Tayassuidae are present but not plentiful. The Canidae and Felidae are of about equal importance as far as numbers are concerned. Camelidae are also present.

Osteoborus hilli n. sp.

Etymology: The specific name *hilli* is in honor of Dr. J. A. Hill, President of the West Texas State College, in recognition of his interest in the advancement of vertebrate paleontology.

Holotype: Right anterior portion of the skull, and part of the palate past the mid-line, bearing I³, C, P², P³, P⁴, M¹, and M² and the alveoli of I¹, I², and P¹, (Figs. 1-2, Panhandle Plains Historical Museum No. 1558). Also the left ramus bearing P₃, P₄, M₁, M₂, M₃, and the alveoli of C and P₂. (Figs. 3-4, Panhandle Plains Historical Museum No. 1558.)

Type Locality: Center of the southwest quarter of Section 165, Block 6, Randall County, Texas.

Age: Late Middle Pliocene.

Type Horizon: Lithologically the type horizon is similar to other sedimentary deposits of Late Tertiary age in this region. The horizon can only be recognized by the fauna which seems to represent an advanced stage over the Middle Pliocene of Hemphill County and yet is lacking in those characteristic Upper Pliocene forms that typify the evolutionary advances of the Cita Canyon and Mount Blanco Upper Pliocene.

Geology: The stratum from which this fauna was obtained consists predominately of brown, unconsolidated sand of fluvial origin. This rests unconformably upon the Dockum Series of the Upper Triassic, and is overlain by caliche and chert, which is probably of Lower Pleistocene Age. Gidley (1903) called attention to sediments of this type in the High Plains region, and pointed out their fluvial origin. Stirton (1936) refers to these deposits as belonging to the Ogallala Formation. As would be expected these beds can not be traced for any great distance before grading off into other beds of a different texture and color. Thus far in the Texas Panhandle it has been possible to base geologic ages and correlations only on vertebrate faunas.

Diagnosis: *Osteoborus hilli* is considerably larger than the *O. cyonoides* from the Middle Pliocene beds of Hemphill County, Texas. There is considerable variation within the latter species as shown in numerous upper and lower jaws in the collections of the West Texas State College. In general massiveness the lower jaw of *O. hilli* more closely approaches *Borophagus diversidens*, the type of which was recently redescribed by VanderHoof (1936). In *O. hilli* I³, C. P⁴, and M¹ are powerfully developed. It is not possible to tell from the alveolus whether P¹ was double or single rooted. P² and P³ are double rooted, however, and are so crowded that they are placed somewhat transversally in the jaw. These teeth are small and poorly developed with a very low central cusp. The parastyle on P⁴ is present, but vestigial. There is no anterior internal cusp on this tooth, though the root at this point is well developed. There is no trace of a cingulum on either P⁴ or M¹ as is true in *O. cyonoides*. In the following tables of dental measurements *O. hilli* is shown in comparison to *O. cyonoides* and *B.*

diversidens. The figures for the two latter species are maxima taken from a number of specimens. The material representing *B. diversidens* was collected in the Cita Canyon Type Locality, referred to in a preliminary report by Johnston (1938).

Comparison of *O. hilli* with *O. cyonoides* and *B. diversidens*. Measurements are expressed in millimeters.

DENTAL MEASUREMENTS.

	<i>O. hilli</i> Axtel		<i>O. cyonoides</i> Kansas, Type		<i>O. cyonoides</i> Hemphill		<i>B. diversidens</i> Cita Canyon	
Upper Dent.	Length	Width	Length	Width	Length	Width	Length	Width
P ²	11	6						
P ³	11.5	6.6			11.5	7.2		
P ⁴	29.4	12.2			24.5	12.5		
M ¹	17.7	24.7			17.5	24		
M ²	9	13.3						
Lower Dent.								
P ₂			6	5			9.1	6.7
P ₃	9.2	6.7	8	5	8.5	6.4	10.7	7.1
P ₄	19	12.8	15	10	16.5	11	21.2	16.1
M ₁	30	12	26	11	27.7	12.7	34.1	14.5
M ₂	13	8.1	12	8	12.1	10	12.6	8.6
M ₃	7.1	6						

LOWER JAW MEASUREMENTS.

	<i>O. hilli</i>	<i>O. cyonoides</i>	<i>B. diversidens</i>
Depth of jaw below P ₄	34.9	27.5	39.4
Thickness of jaw below P ₄	18.7	16.7	20
Depth of jaw below M ₁	36.4	31.6	36.7
Thickness of jaw below M ₁	18.2	16.7	19.1
Width of condyle	37.2	38	40.4
Length of dental series P ₃ -M ₃	78.5	70.2	82.2

UPPER JAW MEASUREMENTS, *Osteoborus hilli*.

Width of palate between anterior inner margins of P ⁴ (estimated)	57
Width of palate between posterior inner margins of P ⁴ (estimated)	80
Width of palate between inner margins of M ¹ (estimated)	46
Space between I ³ and C	6
Length of Dental series P ² -M ²	64.2
Length of palate from posterior margin of M ³ to median incisive border	108

Unfortunately the upper dentition of *Borophagus diversidens* is unknown, but numerous lower jaws and limb bones are available for study in the paleontological collections of the West Texas State College. However, it may readily be seen from the above tables that *O. hilli*, in several respects, seems to stand intermediate between the Middle Pliocene *O. cyonoides* and the Upper Pliocene *B. diversidens*.

Relationship: Osteoborus cyonoides Martin (1928) from

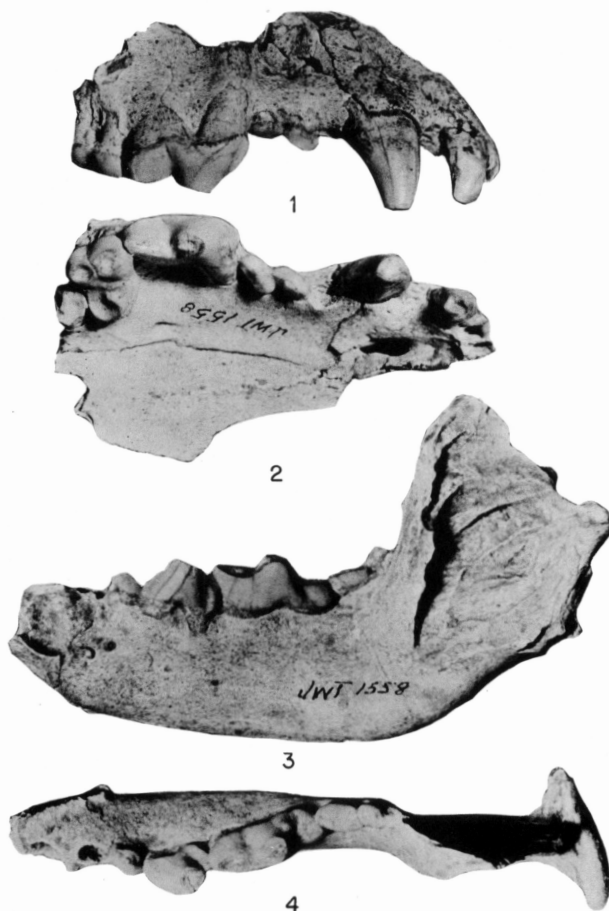
the Pliocene of Sherman County, Kansas, was originally referred to the genus *Hyaenognathus*. Later Matthew and Stirton (1930), in describing this species from Hemphill County, Texas, referred it to the genus *Borophagus*. After a further study of this material Stirton and VanderHoof (1933) erected the new genus *Osteoborus*, with *Osteoborus cyonoides* Martin as the genotype, and pointed out the relationship of this form to *Borophagus*. Inasmuch as P^4 is unknown in *B. diversidens* it is impossible to state whether or not the parastyle was present. In general proportions and massiveness, as well as the curvature of the lower dental series, *O. hilli* is at least closely related to *B. diversidens* if not actually ancestral to it. It would seem from a study of these two genera that the Upper Pliocene *Borophagus* simply carries forward a number of evolutionary tendencies already evident in the Middle Pliocene *Osteoborus* the affinities of which are evidently in the direction of *Aelurodon*.

The anterior, posterior and even the central cusps on the anterior premolars are greatly reduced in both *O. hilli* and *B. diversidens*. The length of the lower dental series is about the same in the Axtel specimen and *O. cyonoides*, but in the former species P_4 and M_1 are larger with a corresponding reduction in sizes of the remaining teeth. It is this sort of dental specialization that is well exhibited in *Borophagus*, and to a lesser extent in the Middle Pliocene species of *Osteoborus*.

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Osteoborus hilli n. sp. Holotype, Panhandle Plains Historical Museum No. 1558. Figs. 1-2, right anterior portion of skull, labial and occlusal views. Figs. 3-4, left ramus, labial and occlusal views. All one-half natural size.