A NEW FOSSIL PECCARY, *PROSTHENNOPS NIOBRARENSIS*, FROM BROWN COUNTY, NEBRASKA

Edwin H. Colbert
A NEW FOSSIL PECCARY, PROSTHENNOPS NIOBRAEISENSIS, FROM BROWN COUNTY, NEBRASKA

BY EDWIN H. COLBERT

During the summer of 1929, the writer, accompanied by Mr. Paul O. McGrew of the University of Nebraska, discovered during the course of excavations for fossil vertebrates in northern Brown County, Nebraska, a fairly complete peccary skull referable to the genus Prosthennops. This skull, due to its several unusual characters, as well as to its fair degree of completeness, would seem to warrant a special and a rather detailed description. Consequently the specimen has been kindly turned over to me by Dr. E. H. Barbour, Director of the Nebraska State Museum, not only for the purpose of the present description, but also as a supplementary aid in an extended study of the North American fossil Tayassuidae. I wish to acknowledge here my thanks to Dr. Barbour for the opportunity of studying this skull.

The illustrations for this article were made by Margaret Matthew Colbert.

THE PHYLOGENETIC STATUS OF PROSTHENNOPS

The genus Prosthennops is of upper Miocene and of Pliocene age. It is seemingly derived from Desmathyus, a lower Miocene form, and it is most certainly ancestral to Mylohyus of the Pleistocene. Perhaps the phylogenetic relationships of Prosthennops may best be shown by a simple chart (see Figure 198).

Prosthennops, although found throughout the Pliocene deposits of North America, is especially abundant in the upper Tertiary beds along the Niobrara River in northwestern Nebraska, in Brown, Cherry, and Sioux counties.

DIAGNOSIS OF PROSTHENNOPS

The genus Prosthennops was founded by Gidley in 1904, P. crassigenis being designated as the generic type. The original diagnosis of the genus is given below.

1 American Museum of Natural History, New York
Incisors vestigial; canines elliptical in cross section, more recurved than in Tagassu; premolars less completely molariform than in Mylokyus (or Tagassu?); muzzle anterior to premolars more elongate than in Tagassu, but less so than in Mylokyus; malar bones expanded transversely into massive tuberosities; orbits placed well back, being directly over the glenoid fossae."


On the basis of more complete knowledge of the genus, especially as derived from the skull to be considered below, the generic characters might be written in the following manner.

Incisors variable, incisors 1 and 2 in both the upper and lower jaws being fairly well developed, incisor 3 superior and inferior being either present or wanting; canines elliptical in cross section; premolars less completely molariform than in Mylokyus; muzzle anterior to premolars more elongate than in Tagassu, but less so than in Mylokyus; malar bones more or less expanded transversely into massive tuberosities; orbits placed well back, over the glenoid fossa; long narrow grooves on the upper surface of the skull, extending from the supraorbital foramina to the ends of the nasals; glenoid on a line with the alveolar border; paroccipitals short; mandible slender, with the angle produced deeply downward.

From the new skull, to be considered later, it would seem that Prosthenops may be peculiar among the upper Tertiary, Pleistocene, and recent peccaries in the possession of a third upper incisor.

Prosthenops niobrarensis sp. nov.

Type Specimen:
A partial skull. Nebraska Museum 20-6-7-29-CM.

Type Locality and Level:
Deep Creek, north of Ainsworth, Nebraska.
Devil's Gulch Beds—Valentine.
Upper Miocene or Lower Pliocene.

Description and Discussion:
This skull is represented by a complete palate and dentition, as well as by the nasal and cranial regions. The basicranium is missing, as are the zygomatic arches.

The skull is of an advanced type. The muzzle is long, being approximately of the same length as that of Prosthenops crassigenis, the generic type. The cranium is wide and expanded. Two supraorbital foramina are placed on the frontals, above the midline of the orbits, and from these two deep sulci or grooves run forward to the anterior tip of the muzzle.

The cranium is constricted behind the postorbital process of the frontal. Two low ridges spring from the frontals, at a
Fig. 198. Phylogenetic relationships of Prosthennops.
distance of about 20 mm. behind the postorbital processes, and they approach each other in a graceful curve, so that at their posterior terminations they all but meet. Thus this skull has an incipient sagittal crest, in which respect it differs widely from Prosthennops crassigenis.

The anterior border of the orbit is situated somewhat behind M\(^3\). The zygomatic arches are missing, but a fragment of the anterior portion of the right arch would indicate that these structures in no way approach the expansion and robust form characteristic of Prosthennops crassigenis. The foregoing statement is based mainly on assumption, but the lack of any expansion above the orbits, and the manner in which the fragment of the arch joins the maxillary would seem to make this assumption reasonable.

The preorbital region of the maxilla is relatively smooth and only slightly depressed, which is quite different from the condition in Prosthennops crassigenis. The infraorbital foramen is above P\(^4\), and it is rather long, extending from above the middle portion of P\(^4\) to a position above the anterior border of M\(^3\). A deep groove for the reception of the lower canine is found in front of the upper canine, and the bone of the alveolus of this last mentioned tooth extends upward into a small, sharp knob.

The palate is smooth. There is a rough ridge occupying the length of the canine-premolar diastema.

THE DENTITION

There are three incisor teeth, and in this respect Prosthennops niobrarensis differs from all other species of advanced Tayassuidae. The first incisor is a very large tooth, of elliptical cross section and with the long axis of its occlusal surface at an angle of about 45 degrees to the midline of the palate. The second incisor is hardly a third as large as the first one, and its long axis is located somewhat more anteroposteriorly. Incisor 3 is a very small, conical tooth. It offers one of the most interesting characters of this skull, and its presence in an advanced peccary may probably be attributed either to individual variation, or to an unduly long retention of a primitive character.

The canines are relatively small, quite narrowed and blade-like. Their size, combined with the "smooth" character of the cranium, may indicate this skull to be of a female peccary.
Fig. 199. Prosthenops niobrarensis, new species. Side view of skull and crown view of the superior dentition.
P¹ is absent. P² is triangular and small and three-rooted.
P³ is quadritubercular and four-rooted, as is P⁴. The latter tooth is somewhat larger than P³.

M¹ is naturally larger than the tooth that precedes it. Since it is the oldest tooth of the permanent dentition it is greatly worn, so that the occlusal surface presents two transverse cups, where formerly the four cusps were situated. M² is considerably longer than M¹. It has four main cusps, all showing the beginnings of wear, and there is a small cuspule in the median transverse valley. A small external cingulum is present. M³ is longer but narrower than M². It is quite unworn. There are four cusps and a fifth cuspule, occupying the median transverse valley. In front of, and between the two anterior cusps is a small cuspule, and occupying the antero-internal angle of the tooth is a small cingulum. A large cingulum lies behind the two posterior cusps, and in the unworn condition of this tooth, it is seen to consist of three transversely arranged conules. There is a small external cingulum.

REMARKS AND COMPARISONS

The cheek teeth of this specimen show many resemblances to the few upper molars of Prosthenops edensis, as described and figured by Frick. They show, however, the tendencies towards the formation of cuspules, features not seen in the California specimen.

The skull in question shows many striking contrasts to the skull of Prosthenops crassigenis. It is of much more delicate proportions. The nasal region is expanded transversely, as compared with the nasal region of Prosthenops crassigenis, although in both skulls this portion is of approximately the same length.

One is impressed by the apparent expansion of the cranium in the newer form. The supraorbital ridges come quite close together at the back of the skull, while in Prosthenops crassigenis they remain apart. The preorbital region is relatively smooth, consisting of one shallow fossa. In Prosthenops crassigenis this region is divided into three deep fossae, the middle one of which contains the infraorbital foramen.

The teeth of the newer form seem to be more delicate and less expanded transversely than in the type of the genus. The presence of three incisors has been discussed.

The frontals are not expanded above the orbits into bulbous swellings as in Prosthenops crassigenis.
These comparisons are shown in the accompanying table.

*Prosthennops crassigenis*
1. Two incisors of subequal size. There is no third incisor, nor are there traces of a vestigial alveolus.
2. Canines elliptical in cross-section; projecting downward.
3. Cheek teeth transversely broad.
4. Palate containing a deep sulcus between the canine and P3, and a ridge between P3 and M3.
5. Preorbital region deeply sculptured. Three distinct preorbital pits, the middle one of which contains the infraorbital foramen.
6. Malars expanded transversely into massive tuberosities.
7. Top of cranium very massive.
8. Cranium not greatly elevated above the level of the nasals.
9. No sagittal crest.
10. Two grooves, arising above the orbits and extending the length of the nasals.

*Prosthennops niobrarensis*
1. Three incisors. The first very large, the second of medium size, and the third very small.
2. Canines thinner transversely and of smaller size. Projecting forward and downward.
3. Cheek teeth transversely narrower.
4. Palate smooth.
5. Preorbital region not deeply sculptured. One broad pit, containing the infraorbital foramen.
6. Malars seemingly not expanded. (?)
7. Top of cranium smooth.
8. Cranium elevated to quite a degree above the level of the nasals.
10. Two grooves, as in *P. crassigenis*

Comparative Skull Measurements of *Prosthennops crassigenis*, *Prosthennops niobrarensis* and *Prosthennops serus*.

<table>
<thead>
<tr>
<th>Prosthennops crassigenis</th>
<th>Prosthennops niobrarensis</th>
<th>Prosthennops serus</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.M. 10882</td>
<td>Neb. Mus. 20-6-7-29 CM.</td>
<td>A.M. 17582</td>
</tr>
<tr>
<td>mm.</td>
<td>mm.</td>
<td>mm.</td>
</tr>
<tr>
<td>Lengths of dental series, I1 to M3 inclusive</td>
<td>175</td>
<td>175</td>
</tr>
<tr>
<td>Length of molar-premolar series</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Length of molar series</td>
<td>50</td>
<td>47</td>
</tr>
<tr>
<td>Length of diastema between P3 and C</td>
<td>50</td>
<td>37</td>
</tr>
<tr>
<td>Total length of skull</td>
<td>295</td>
<td>.....</td>
</tr>
<tr>
<td>Width across malars</td>
<td>215</td>
<td>.....</td>
</tr>
<tr>
<td>Width of palate at M1</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>Incisor, 1, anteroposterior</td>
<td>3.5</td>
<td>7</td>
</tr>
<tr>
<td>Incisor 1, transverse</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Incisor 2, anteroposterior</td>
<td>3.5</td>
<td>3</td>
</tr>
<tr>
<td>Incisor 2, transverse</td>
<td>3.5</td>
<td>2</td>
</tr>
<tr>
<td>Incisor 3, anteroposterior</td>
<td>absent</td>
<td>2</td>
</tr>
<tr>
<td>Incisor 3, transverse</td>
<td>absent</td>
<td>1.5</td>
</tr>
<tr>
<td>Canine, anteroposterior</td>
<td>12</td>
<td>7.5</td>
</tr>
<tr>
<td>Canine, transverse</td>
<td>8</td>
<td>3.5</td>
</tr>
<tr>
<td>Canine, height</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>
Barbour has described *Prosthennops xiphodonticus* from the Valentine beds near Valentine, Nebraska. This species is probably of about the same age as *P. niobrarensis*, since it comes from beds closely related to the upper Tertiary series of Brown County. Perhaps a few remarks will help to demonstrate the characters of *P. xiphodonticus*, and will serve to show the relation of this form to other species of the genus.

A comparison of *Prosthennops xiphodonticus* with the other species of this genus reveals some interesting points. *Prosthennops xiphodonticus* is small, the mandible being considerably more delicate than in any other species of *Prosthennops*, or in any other species of peccary. Yet the canine is actually longer than in the other peccaries, whereby giving it a proportional length that is remarkable. Again, the first two functional premolars of *Prosthennops xiphodonticus* are unique in their lateral compression. This is a pig-like character, and it is surprising in a peccary where it appears as an independent development. A comparison of the mandibles of *Prosthennops xiphodonticus* and *Prosthennops longirostris* Thorpe, a specimen from the Thousand Creek formation of Nevada, clearly illustrates the differences of the cheek teeth. In *Prosthennops longirostris* the premolars are molariform, even to P₂, which is very small. On the other hand, the premolars of *Prosthennops xiphodonticus* are decidedly not molariform. P₁ and P₂ are essentially single cuspied, and P₃ is only partially molariform.

Thus *Prosthennops xiphodonticus* is seen to be a small species, rather apart from the typical members of the genus, and therefore quite different from *Prosthennops niobrarensis*.

**CONCLUSIONS**

*Prosthennops niobrarensis* is seemingly a new species of fossil peccary from the lower Pliocene of northern Brown County.
PROSTHENNOPS NIOBRAENSIS

County, Nebraska. It is closely related to Prosthennops crassigenis and to Prosthennops serus, but certain characters, pointed out in the above pages, would seem to separate it as a distinct form.

A Review of the Genus Prosthennops

Prosthennops Gidley


Generic Type—Prosthennops crassigenis Gidley.


Type—Amer. Mus. No. 10882, a complete skull.

Horizon—"Loup Fork", Little White River= Valentine beds, Lower Pliocene.

Locality—Canyon of the Little White River, South Dakota.

Prosthennops edensis Frick


Type—Univ. Calif. Coll. Vert. Pal. No. 23369, a maxilla with P—M.

Paratypes—Univ. Calif. Coll. Vert. Pal. Nos. 23370, a fragmentary mandibular ramus with P—M; 23775, a portion of an M; 23776, a premolar; 23777, an upper molar; 23788, an incisor.

Horizon—"Eden"—Mt. Eden formation, Middle Pliocene.

Locality—Univ. Calif. loc. 3269, near Mt. Eden, in the vicinity of Beaumont, California.

Prosthennops haroldcooki (Osborn)


Type—Collection of H. J. Cook, No. HC465, a fourth upper premolar tooth.

Horizon—Upper Snake Creek formation, Lower Pliocene.

Locality—Snake Creek, near Agate, Nebraska.

Prosthennops longirostris Thorpe

Prosthennops niobrarensis, Colbert 1935. (See preceding pages of this paper.)
Type—Neb. Mus. No. 20-6-7-29CM, a skull, lacking the basi-cranium and the zygomatic arches.
Horizon—Valentine beds, Lower Pliocene.
Locality—Deep Creek, north of Ainsworth, Nebraska.

Prosthennops serus (Cope)

Type—Amer. Mus. No. 8511, a mandible.
Horizon—Republican River beds, Lower Pliocene.
Locality—Sappa Creek, Decatur County, Kansas.

Prosthennops xiphodonticus Barbour

Type—Neb. Mus. No. 85-11-8-15 BW, a left mandibular ramus with complete dentition.
Horizon—Valentine beds, Lower Pliocene.
Locality—Three miles southeast of Valentine, Nebraska.

Species Provisionally Assigned to this Genus

Prosthennops condoni (Marsh)

Type—Yale Peabody Mus. No. 11869, portion of a right mandibular ramus with molars 1-3.
Horizon—Mascall formation (?), Middle Miocene (according to Matthew). Pliocene (according to Thorpe).
Locality—Oregon.
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*Prosthennops rex* (Marsh)


Type—Yale Peabody Mus. No. 11870, molar teeth.

Horizon—Rattlesnake formation (?), Lower Pliocene.

Locality—Wilson’s Springs, Crooked River, Oregon.

*Prosthennops ziegleri* (Marsh)


Type—Some upper premolar teeth.

Horizon—Unknown.

Locality—“Grizzly Buttes, base of Uintah Mountains.”

**BIBLIOGRAPHY**


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The University of Nebraska, Lincoln, Nebraska, January, 1935.