

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Bulletin of the University of Nebraska State
Museum

Museum, University of Nebraska State

1935

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

Edwin H. Colbert

Follow this and additional works at: <http://digitalcommons.unl.edu/museumbulletin>

 Part of the [Entomology Commons](#), [Geology Commons](#), [Geomorphology Commons](#), [Other Ecology and Evolutionary Biology Commons](#), [Paleobiology Commons](#), [Paleontology Commons](#), and the [Sedimentology Commons](#)

This Article is brought to you for free and open access by the Museum, University of Nebraska State at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Bulletin of the University of Nebraska State Museum by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

THE NEBRASKA STATE MUSEUM

ERWIN H. BARBOUR, *Director*A NEW FOSSIL PECCARY, *PROSTHENNOPS*
NIORRARENSIS, FROM BROWN COUNTY, NEBRASKABY EDWIN H. COLBERT¹

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.² The original diagnosis of the genus is given below.

¹ American Museum of Natural History, New York

² Gidley, J. W. 1904. (In Matthew, W. D. and Gidley, J. W. 1904.) New or Little Known Mammals from the Miocene of South Dakota. American Museum Expedition of 1903. Bull. Amer. Mus. Nat. Hist., XX, pp. 265-267, figs. 14, 15.

UNIVERSITY OF NEBR.

LIBRARY

JUN 25 1935

PERIODICAL
ROOM

PROSTHENNOPS

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

Gidley, J. W. 1904. op. cit. p. 265.

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 *Mylohyus*; muzzle anterior to premolars more elongate than in *Tagassu*, but less so than in *Mylohyus*; malars 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 *Prosthennops* may be peculiar among the upper Tertiary, Pleistocene, and recent peccaries in the possession of a third upper incisor.

PROSTHENNOPS 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

The skull is of an advanced type. The muzzle is long, being approximately of the same length as that of *Prosthennops 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

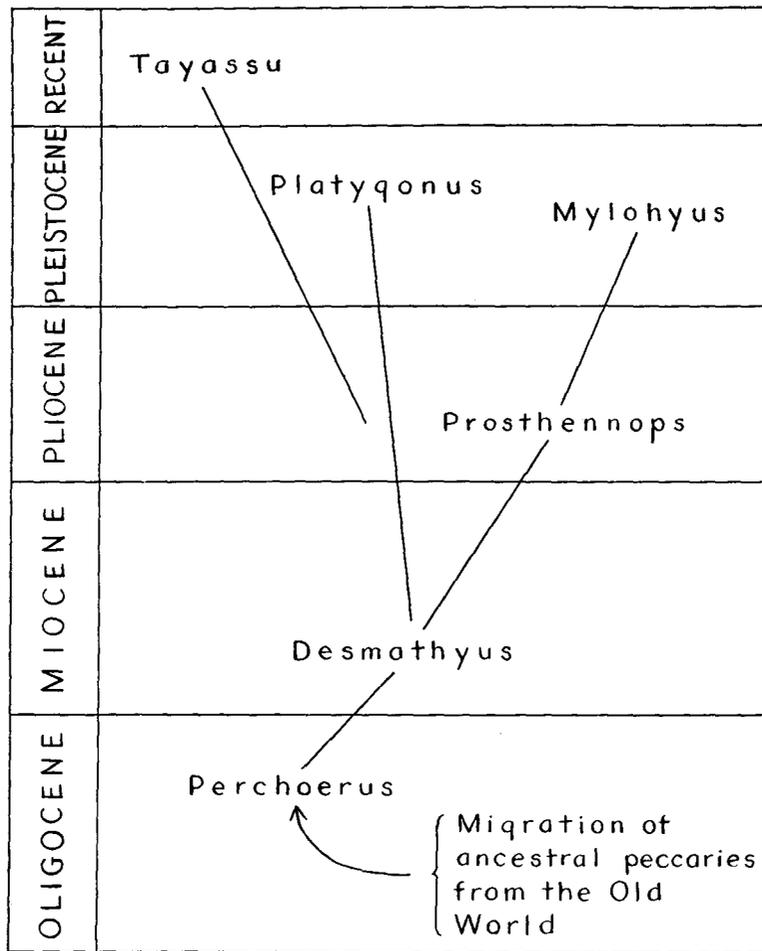


FIG. 198. Phylogenetic relationships of *Prosthennops*.

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^3 to a position above the anterior border of M^1 . 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.

Neb. Mus. 20-6-7-29-CM

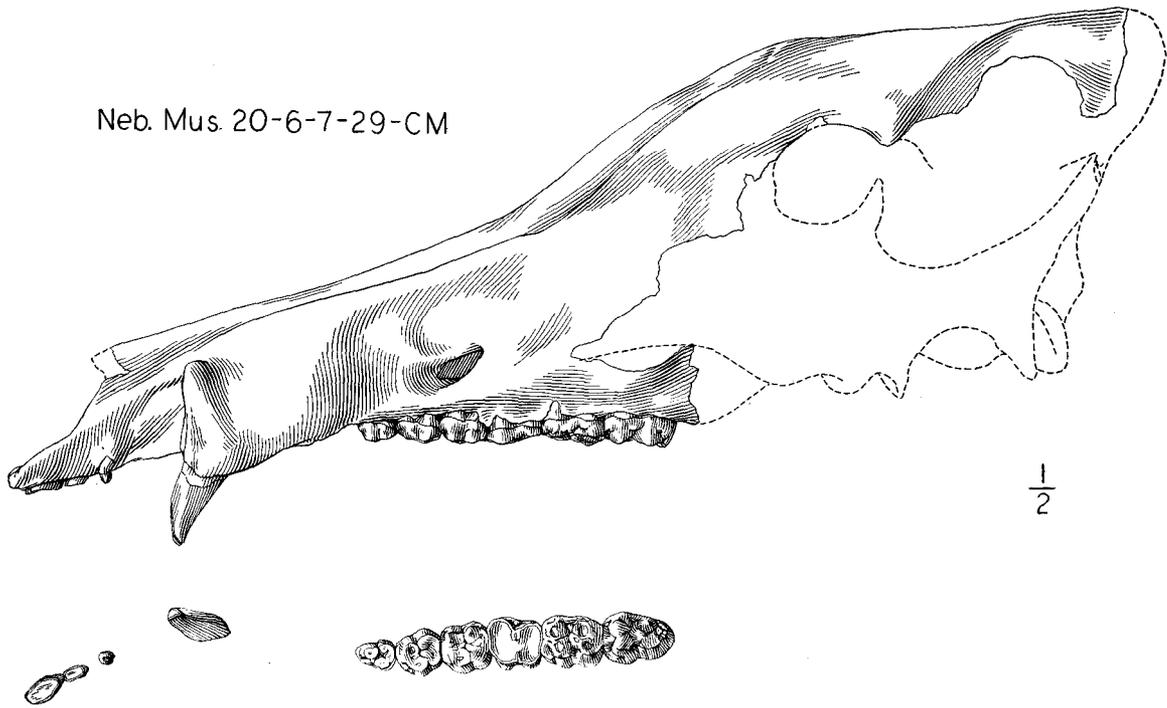


FIG. 199. *Prosthennops niobrarensis*, new species. Side view of skull and crown view of the superior dentition.

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 cusps, 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 *Prosthennops 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 *Prosthennops crassigenis*. It is of much more delicate proportions. The nasal region is expanded transversely, as compared with the nasal region of *Prosthennops 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 *Prosthennops crassigenis* they remain apart. The preorbital region is relatively smooth, consisting of one shallow fossa. In *Prosthennops 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 *Prosthennops crassigenis*.

These comparisons are shown in the accompanying table.

<i>Prosthennops crassigenis</i>	<i>Prosthennops niobrarensis</i>
1. Two incisors of subequal size. There is no third incisor, nor are there traces of a vestigial alveolus.	1. Three incisors. The first very large, the second of medium size, and the third very small.
2. Canines elliptical in cross-section; projecting downward.	2. Canines thinner transversely and of smaller size. Projecting forward and downward.
3. Cheek teeth transversely broad.	3. Cheek teeth transversely narrower.
4. Palate containing a deep sulcus between the canine and P ³ , and a ridge between P ³ and M ³ .	4. Palate smooth.
5. Preorbital region deeply sculptured. Three distinct preorbital pits, the middle one of which contains the infraorbital foramen.	5. Preorbital region not deeply sculptured. One broad pit, containing the infraorbital foramen.
6. Malars expanded transversely into massive tuberosities.	6. Malars seemingly not expanded. (?)
7. Top of cranium very massive.	7. Top of cranium smooth.
8. Cranium not greatly elevated above the level of the nasals.	8. Cranium elevated to quite a degree above the level of the nasals.
9. No sagittal crest.	9. A narrow, incipient sagittal crest.
10. Two grooves, arising above the orbits and extending the length of the nasals.	10. Two grooves, as in <i>P. crassigenis</i>

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

	<i>Prosthennops crassigenis</i> A.M. 10882	<i>Prosthennops niobrarensis</i> Neb. Mus. 20-6-7-29 CM.	<i>Prosthennops serus</i> A.M. 17582
	mm.	mm.	mm.
Lengths of dental series, I ¹ to M ³ inclusive.....	175	175	175
Length of molar-premolar series	80	80	70
Length of molar series.....	50	47	49.5
Length of diastema between P ² and C.....	50	37	44.5
Total length of skull.....	295	.....	.....
Width across malars.....	215	.....	.....
Width of palate at M ¹	25	26	24
Incisor, 1, anteroposterior.....	3.5	7	8.5
Incisor 1, transverse.....	3	3	7
Incisor 2, anteroposterior.....	3.5	3	5.5
Incisor 2, transverse.....	3.5	2	4.5
Incisor 3, anteroposterior.....	absent	2	absent
Incisor 3, transverse.....	absent	1.5	absent
Canine, anteroposterior.....	12	7.5	18
Canine, transverse	8	3.5	10.5
Canine, height.....	25	25	....

Premolar 2, anteroposterior..	....	9	9
Premolar 2, transverse.....	....	7.5	8.5
Premolar 3, anteroposterior..	10.5	11	9
Premolar 3, transverse	12	11.5	10
Premolar 4, anteroposterior..	11	12.5	11
Premolar 4, transverse.....	12	12	12
Molar 1, anteroposterior.....	12	13	13
Molar 1, transverse.....	14.5	12.5	13
Molar 2, anteroposterior.....	16	16	16.5
Molar 2, transverse.....	15.5	13.5	15.5
Molar 3, anteroposterior.....	19.5	18	19.5
Molar 3, transverse.....	14.5	13	14.5

Barbour has described *Prosthennops xiphodonticus* from the Valentine beds near Valentine, Nebraska.³ 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, thereby 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. P₂ and P₃ are essentially single cusped, and P₄ 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

³ Barbour, E. H. 1925. Bull. Neb. State Mus., I, No. 3, pp. 25-31, figs. 12, 13.

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

Gidley, J. W. 1904. Bull. Amer. Mus. Nat. Hist., XX, pp. 265-268, figs. 14, 15.

Generic Type—*Prosthennops crassigenis* Gidley.

Prosthennops crassigenis Gidley

Prosthennops crassigenis, Gidley, 1904. Amer. Mus. Nat. Hist., XX, pp. 265-268, figs. 14, 15.

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

Prosthennops edensis, Frick 1921. Bull. Dept. Geol. Sci., Univ. Calif., XII, No. 5, pp. 350-354, figs. 58-63.

Type—Univ. Calif. Coll. Vert. Pal. No. 23369, a maxilla with P³—M².

Paratypes—Univ. Calif. Coll. Vert. Pal. Nos. 23370, a fragmentary mandibular ramus with P₃—M₃; 23775, a portion of an M₃; 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)

Hesperopithecus haroldcooki, Osborn 1922. Amer. Mus. Novitates, No. 37.

Prosthennops haroldcooki, Gregory 1927. Science (n.s.), LXVI, pp. 579-581.

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 longirostris, Thorpe 1924. Amer. Jour. Sci. (5), VII, pp. 393-397, figs. 1-4.

Type—Yale Peabody Mus. No. 11160, a mandible with the dentition well preserved. Also fragments of an associated skull including a portion of the left maxilla with M¹⁻³.

Horizon—Pliocene.

Locality—"Near the John Day Region, Oregon."

Prosthennops niobrarensis Colbert

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)

Dicotyles serus, Cope 1878. Proc. Amer. Phil. Soc., XVIII, p. 224.

Tayassu serus, Hay 1902. Bull. U. S. Geol. Surv. No. 179, p. 659.

Prosthennops serus, Gidley 1904. Bull. Amer. Mus. Nat. Hist. XX, p. 265.

Type—Amer. Mus. No. 8511, a mandible.

Horizon—Republican River beds, Lower Pliocene.

Locality—Sappa Creek, Decatur County, Kansas.

Prosthennops xiphodonticus Barbour

Prosthennops xiphodonticus, Barbour 1925. Bull. Neb. State Mus., I, No. 3, pp. 25-31, figs. 12, 13.

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)

Platygonus condoni, Marsh 1871. Amer. Jour. Sci., (3), II, p. 41.

Prosthennops condoni, Thorpe 1924. Amer. Jour. Sci., (5), VII, p. 396.

Prosthennops condoni, Matthew 1924. Bull. Amer. Mus. Nat. Hist., L, p. 178.

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.

Prosthennops rex (Marsh)

Platygonus rex, Marsh 1894. Amer. Jour. Sci., (3), XLVIII, p. 273, figs. 31, 32.

Prosthennops rex, Thorpe 1924. Amer. Jour. Sci., (5), VII, p. 397.

Prosthennops rex, Matthew 1924. Bull. Amer. Mus. Nat. Hist., L, p. 178.

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

Horizon—Rattlesnake formation (?), Lower Pliocene.

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

Prosthennops zieglerei (Marsh)

Platygonus zieglerei, Marsh 1871. Amer. Jour. Sci., (3), II, p. 40.

Prosthennops zieglerei, Matthew 1924. Bull. Amer. Mus. Nat. Hist., L, p. 178.

Type—Some upper premolar teeth.

Horizon—Unknown.

Locality—"Grizzly Buttes, base of Uintah Mountains."

BIBLIOGRAPHY

- Barbour, E. H. 1925. *Prosthennops xiphodonticus*, sp. nov. A New Fossil Peccary from Nebraska. Bull. Neb. State Mus., I, No. 3, pp. 25-31, figs. 12, 13.
- Frick, Childs. 1921. Extinct Vertebrate Faunas of the Badlands of Bautista Creek and San Timoteo Canyon, Southern California. Bull. Dept., Geol. Univ. Calif., XII, pp. 277-424. Plates and text figures.
- Gidley, J. W. 1904. (In Matthew, W. D. and Gidley, J. W. 1904). New or Little Known Mammals from the Miocene or South Dakota. Bull. Amer. Mus. Nat. Hist., XX, pp. 265-268.
- Gill, Theodore. 1902. Note on the Names of the Genera of Peccaries. Proc. Biol. Soc. Wash., Vol. 15, pp. 38-39.
- Matthew, W. D. 1907. A Lower Miocene Fauna from South Dakota. Bull. Amer. Mus. Nat. Hist., XXIII, pp. 169-219.
- . 1909. Faunal Lists of the Tertiary Mammalia of the West. Bull. U. S. Geol. Surv., CCCLXI, pp. 91-138.
- . 1915. Climate and Evolution. Ann. N. Y. Acad. Sci., XXIV, pp. 171-318.
- . 1918. Contributions to the Snake Creek Fauna. Bull. Amer. Mus. Nat. Hist., XXXVIII, pp. 183-229.
- . 1924. Third Contribution to the Snake Creek Fauna. Bull. Amer. Mus. Nat. Hist., L, pp. 59-210.
- and Cook, H. J. 1909. A Pliocene Fauna from Western Nebraska. Bull. Amer. Mus. Nat. Hist., XXVI, pp. 361-414.
- Osborn, Henry Fairfield. 1909. Cenozoic Mammal Horizons of Western North America. Bull. U. S. Geol. Surv., CCCLXI, pp. 1-90.
- . 1910. The Age of Mammals in Europe, Asia, and North America. Macmillan Co., New York.

- . 1918. Equidae of the Oligocene, Miocene, and Pliocene of North America. Mem. Amer. Mus. Nat. Hist., (n. ser.), II, pp. 1-330.
- Pearson, Helga S. 1923. Some Skulls of *Perchoerus* from the White River and John Day Formations. Bull. Amer. Mus. Nat. Hist. XLVIII, pp. 61-96.
- Scott, W. B. 1913. A History of Land Mammals in the Western Hemisphere. Macmillan Co., New York.
- Thorpe, Malcolm R. 1924. A New Species of Extinct Peccary from Oregon. Amer. Jour. Sci. (5), VII, pp. 303-307.
- Weber, Max, and Abel, Othenio. 1928. Die Säugetiere. Jena.
- Zittel, Karl A. 1925. Textbook of Palaeontology. Vol. III. Mammalia. Translated and revised by Eastman and Woodward. Macmillan Co., London and New York.

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