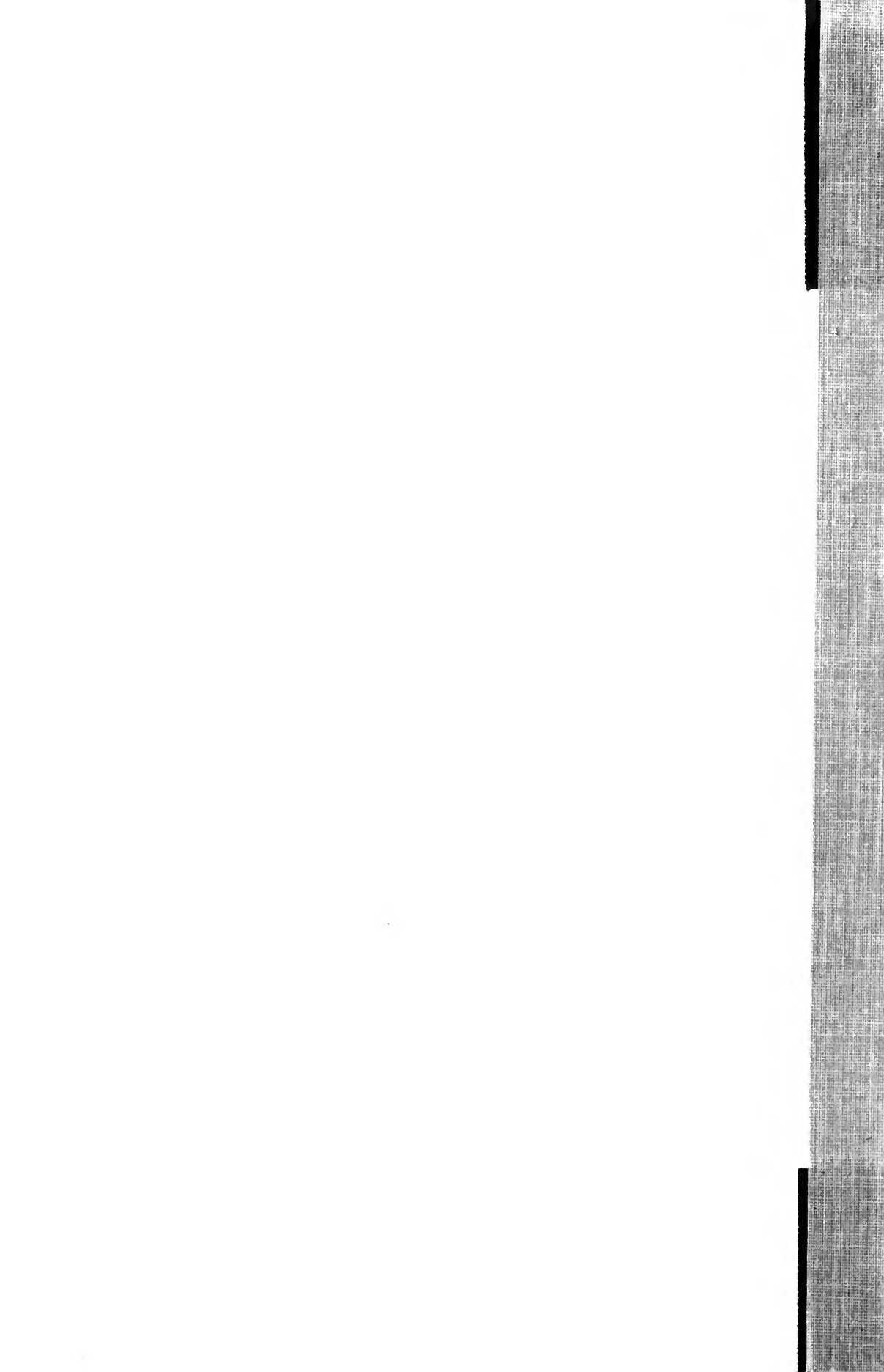


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Volume 10

JUNE 19, 1953

No. 15

A NEW AND PRIMITIVE EARLY OLIGOCENE HORSE FROM TRANS-PECOS TEXAS

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Fragmentary remains of Oligocene mammals have been found sporadically in Trans-Pecos Texas for some twenty-five years. Real knowledge of these interesting occurrences dates from 1938 and 1940, when parties from the Museum of the University of Oklahoma collected in the Porvenir-Pilares area, Presidio County (Stovall, 1948). In 1946, a Chicago Natural History Museum expedition, composed of Bryan Patterson, James H. Quinn and John M. Schmidt, working in collaboration with the Texas Memorial Museum and the Bureau of Economic Geology, the University of Texas, made extensive collections in the same area. The Equidae obtained by this expedition were entrusted to me for study, for which I wish to express my sincere thanks. The description of the new and very interesting form here recorded has been extracted from my manuscript and is being published now in order to facilitate work by others, in which reference to it is desirable.

Family Equidae

Subfamily Hyracotheriinae

Haplohippus gen. nov.

Type species.—*Haplohippus texanus* sp. nov.

Known distribution.—Earliest Oligocene, western Texas.

Diagnosis.—Height of cheek teeth approximately as in *Ephippus*; lower premolars without and lower molars with external cingula; $P_{\frac{1}{2}}$ not molariform, with single anterior cusp and poorly distinguished posterior cusps; $P_{\frac{2}{3}}$ partially molariform with incomplete lophids; $P_{\frac{3}{4}}$ and molars with distinct entoconids and low parastylids; symphysis long.

Haplohippus texanus sp. nov.

Type.—C.N.H.M. PM 17, nearly complete lower jaw with symphysis and both rami, lacking coronoids and condyles.

Hypodigm.—Type and C.N.H.M. PM 29, portion of left ramus with talonid of M_1 , M_{2-3} .

Horizon and locality.—Vieja Formation, near the base of a series of maroon tuffs and greenish-gray conglomerate 180 feet thick; this series overlies the basal lava flows of the formation. Both specimens were found at the base of a conspicuous promontory, known locally as Big Cliff, $3\frac{3}{4}$ miles east-northeast of the mouth of Van Horn Creek and $2\frac{3}{4}$ miles northwest of the old Quinn Ranch Spring. This appears to be the spot where the greater part of the University of Oklahoma material was obtained (Patterson, personal communication).¹

Diagnosis.—As for the genus.

Description.— P_1 is a simple tooth only slightly separated from P_2 . It is compressed laterally, with an antero-posterior crest extending the entire length of the tooth. It has a rather prominent posterior shoulder and a slight postero-internal cingulum. The tooth is double-rooted; that of *Mesohippus* is single-rooted. P_2 is very primitive, and, in sharp contrast to known contemporary horses, not molariform. There is a single, high, rather sharp cusp with no sign of separation into metaconid and protoconid. Running along the anterior side of this cusp is a vertical ridge corresponding with the parastylid of the posterior premolars and the molars. Behind the anterior cusp is a broad, shallow valley with a low ridge extending posteriorly from the crest of the cusp. Posteriorly, the hypoconid is a high, pointed central cusp. Sloping internally from the hypoconid is a small entoconid. Behind the entoconid and separated from it by a narrow groove is a postero-internal ridge that probably is the hypoconulid. P_2 has reached approximately the same stage of evolution as P_3 of *Hyracotherium*.

P_3 is sub-molariform. Anteriorly, there are two rather closely appressed cusps, separated by a narrow groove, that represent the metaconid and the protoconid. A ridge slopes anteriorly and slightly internally from the protoconid, but is little more than an incipient parastylid. The hypoconid and the entoconid are separated by a

¹ It must be noted that the scale given by Stovall (1948, fig. 2) is misleading. The portion of the map reproduced (U.S.G.S. Texas, Presidio County, San Carlos Sheet) is reduced to two-thirds, whereas the scale in miles is reduced to one-half.



FIG. 65. *Haplohippus texanus* gen. et sp. nov. C.N.H.M. PM 17; $\times 1$
Drawing by Miss Maidi Wiebe.

distinct, sharp groove and would become connected only with considerable wear. Extending antero-internally from the hypoconid is a ridge that slopes to the base of the metaconid. A distinct metastylid, such as occurs on the completely molariform $P_{\bar{3}}$ of *Mesohippus*, is not present. $P_{\bar{4}}$ is molariform, although the lophids are not well developed. The entoconid remains distinct. The premolars are without external cingula.

The molars are primitive in that the metastylids are poorly developed and the anterior portions of the protolophids are low. A prominent external cingulum is present and the entoconid is a distinct cusp on all. In PM 29, the external cingulum rises to a cusp between the hypoconid and the hypoconulid. Compared with *Mesohippus*, all cheek teeth are low-crowned; the ramus is much deeper and the symphysis much longer.

MEASUREMENTS

(In Millimeters)

PM 17	$P_{\bar{1}}$	$P_{\bar{2}}$	$P_{\bar{3}}$	$P_{\bar{4}}$	$M_{\bar{1}}$	$M_{\bar{2}}$	$M_{\bar{3}}$	PM 29	$M_{\bar{1}}$	$M_{\bar{2}}$	$M_{\bar{3}}$
L	5.0	8.0	9.5	9.0	9.5	9.7	13.2	L	...	9.5	14.3
W	2.9	4.2	5.7	6.7	6.7	7.0	6.8	W	6.6	7.3	6.8
								PM 17	PM 29		
								Length of symphysis	40.6	
								Length of diastema, C- $P_{\bar{1}}$. . .	36.2	
								Depth of ramus under $P_{\bar{1}}$. . .	20.5	
								Depth of ramus under $M_{\bar{3}}$. . .	26.4	25.0	

Discussion.—After so many years of extensive field collecting and intensive research on fossil horses, it is most interesting to discover at this time a new Early Tertiary phylum. Several phyla of horses are well known in the Miocene, Pliocene, and Pleistocene, but, until now, it has been believed that in the Eocene and Oligocene there occurred only a single, approximate line of descent: *Hyracotherium-Orohippus-Epihippus-Mesohippus-Miohippus*. *Haplohippus*, an Early Oligocene form retaining many of the dental characters of the Mid Eocene *Orohippus*, from which it may well have descended directly, shows that at least two phyla were in existence in the Eocene and Oligocene. Both apparently stemmed from *Orohippus*; the one culminated, so far as known, in the Chadronian *Haplohippus*; the other passed through the Uintan and Duchesnean *Epihippus* to the Oligocene and Miocene Anchitheriinae. To judge from its molar structure, there can be little doubt that *Haplohippus* should be included in the Hyracotheriinae, hitherto unknown subsequent to Eocene time. *Epihippus*, a form with more advanced molar structure

and on or near the line leading to *Mesohippus*, should, I believe, be transferred from this subfamily to the Anchitheriinae. We thus have in the earlier Tertiary a situation comparable to those obtaining later on, when browsing anchitheriines were contemporaneous with grazing equines and three-toed hipparions lived side by side with one-toed forms. Horse evolution, it would seem, has been a complicated, branching affair almost from the beginning.

These surviving phyla of the later Cenozoic enjoyed a wide geographic range in North America, and several of them made their way to the Old World. This may not have been true of the line represented by *Haplohippus*, no trace of which has yet appeared in northern Chadronian deposits or in those of Uintan and Duchesnean age. It is possible that the phylum was largely restricted to the southern portion of the continent, but the rarity of horse remains in the Uinta, Duchesne River, and lower Chadron prevents assurance on this point.

REFERENCE

STOVALL, J. W.

1948. Chadron vertebrate fossils from below the Rim Rock of Presidio County, Texas. *Amer. Jour. Sci.*, **246**, pp. 78-95, figs. 1-3, pls. 1, 2.



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