

ART. XX.—*A New Horse from the Lower Miocene;* by
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WHILE the series of fossils, which show us the development and racial adaptations of the horse family, is already a large one, there still remain breaks and places where more material is desired. Such an unfilled gap exists between the rich Oligocene *Mesohippus* fauna and the upper Miocene *Protohippus* group, just where the transition from the brachydont uncemented teeth to the hypsodont cemented ones occurs. The finding by Peterson* of the excellent type of *Parahippus nebraskensis* in the Upper Harrison beds of Nebraska, closed in a part of this gap, and for two or three seasons fragments

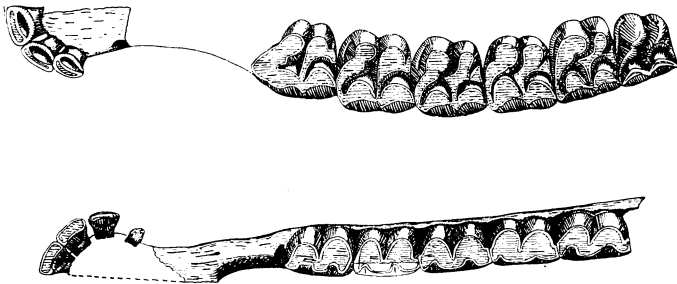


FIG. 1.—Crown views of the upper and lower dentition of the type of *Parahippus tyleri*. One-half natural size.

have raised the expectation of a Lower Harrison horse. During the season of 1907, under the guidance of Mr. Harold Cook, the Amherst '96 expedition found a prospect, which proved to be the major part of the skull of this much desired type. While the brain case is wanting, a nearly perfect upper and lower dentition of an adult individual is preserved, showing an animal closely related to *P. nebraskensis*, but about a fourth smaller. The following specific description will point out the affinities and characters of the new species.

Parahippus tyleri sp. nov.

Type, a skull numbered 1079 in the Amherst College Museum, which while lacking the brain case preserves all the dentition except the upper canine and the first premolar of the

* Ann. Carnegie Museum, vol. iv, p. 57, 1906.

upper and lower jaw. The specimen was found in the upper part of the Lower Harrison beds, 8 miles northeast of Agate, Sioux Co., Nebraska; and is named to honor Prof. J. M. Tyler, the organizer of the Amherst expeditions.

While having a rather short facial portion, the skull is moderately high and narrow. The individual being described is an adult, only recently matured, as indicated by the moderate wear on the teeth and the fact that the third upper molar is scarcely worn at all. On the upper incisors the pit is deep, being entirely surrounded on the inner side by the raised cingulum. This pit seems to be more developed than in *P. nebraskensis*. A canine is indicated by a small alveolus a short distance from the third incisor. The first premolar is wanting in this specimen. The second to the fourth premolars, while slightly larger, grade into the molars having the same characteristics. While the parastyle and the mesostyle are well developed they are not as prominent as in *P. nebraskensis*. A remnant only of the cingulum is present on the inner part of the front border of each tooth. The protocone and protoconule unite to make a strong protoloph, but are separated from each other by a narrow constriction. On the metaloph of premolar four and the succeeding molars a small crochet is developed, which while distinct does not however unite with any part of the protoloph; consequently the prefossette is not entirely isolated. The hypostyle is strong and notched in the rear.

On the lower jaw the pit in the incisors is not as well developed as in incisors of the upper jaw, appearing more like a groove behind a well-marked cingulum. The lower canine is a simple cone of moderate size. The first premolar is indicated by a small alveolus and must have been tiny. The remaining premolars and molars each have a well-marked cingulum, starting from the parastyloid, continuing around the outer border, and back to a tiny hypostyloid. The inner wall of each tooth is relatively straight, the upper part being, in little worn teeth, notched to separate off the strong parastyloid, and again between the paraconid and hypoconid. The heel of the third molar is moderate in size and simple in form.

While very like, and probably ancestral to *P. nebraskensis*, this species is distinguished by the less pronounced parastyle and mesostyle, by the relatively narrower teeth, the deeper pit in the incisors, and the smaller size. It is a primitive member of the genus, the crochet not uniting with the protoloph and cement being entirely absent.

Measurements.

Length of the upper incisor series	28 ^{mm}
Distance from incisor 3 to the canine.....	11
Length of the upper premolar series.....	59
Length of upper premolar 3	20
Width of upper premolar 3	25
Length of the upper molar series	55
Length of upper molar 2	19
Width of upper molar 2	26
Length of the lower premolar series	56
Length of the lower molar series	59
Width of lower molar 1	14

Amherst College, Department Biology,
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