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Seventeen skeletons of *Moropus*.

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*SEVENTEEN SKELETONS OF MOROPUS; PROBABLE HABITS OF
THIS ANIMAL*

BY HENRY FAIRFIELD OSBORN
AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK CITY

Read before the Academy, April 29, 1919

Moropus is an aberrant perissodactyl, closely related to the family of the Titanotheres and more remotely to that of the Horses. It occurs in the Lower Miocene age in France and North America, and its ancestors have been

traced back to the Upper Eocene in both countries; it is thus of Holarctic distribution, and while very rare, it must have been perfectly adapted to its environment, because it survived the majority of perissodactyls and occurs in the Pliocene of Europe and England and will not improbably be found in the North American Pliocene.

The habits and habitat of the animal have always presented a very difficult problem. The skeleton presents the most noteworthy exception to Cuvier's law of correlation. All the foot bones which were discovered since Cuvier's

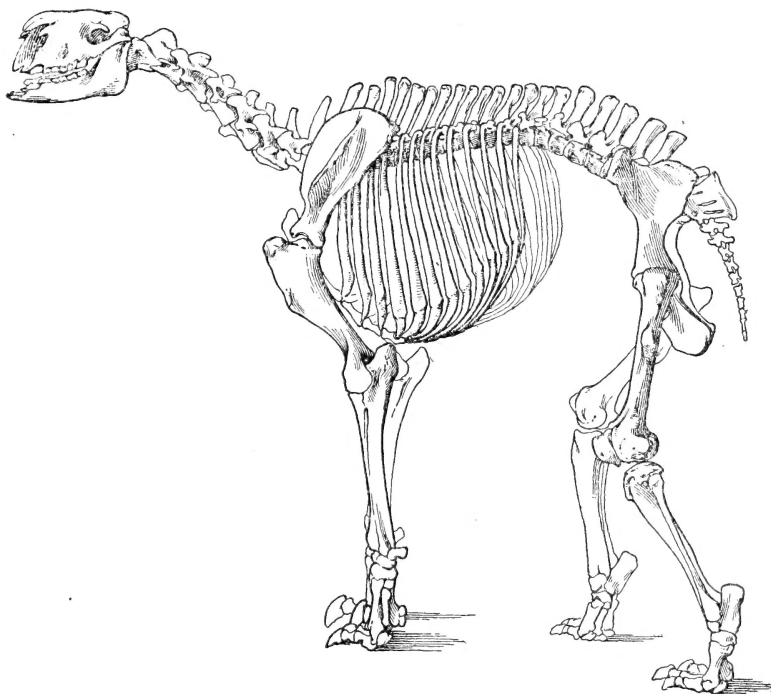


FIG. 1

Mounted skeleton of *Moropus cookei* in The American Museum of Natural History. One of the seventeen. Drawing one twenty-sixth natural size.

time consisted of large deeply-cleft terminal phalanges and were grouped with the edentates, especially the plantigrade sloths. All the teeth which were discovered, on the other hand, were grouped with the perissodactyl ungulates. It was not until H. Filhol discovered the nearly complete skeleton of *Macrotherium* that he was enabled to prove that the chalicotheres were of composite adaptive structure, with the teeth of perissodactyls and the claws of edentates. *Macrotherium* is very similar to the American *Moropus*.

Great light was thrown upon the structure of *Moropus* through the explorations of the Carnegie Museum by Holland and Peterson, described in 1914, from materials collected in the famous Agate Spring Quarry, Sioux County,

Nebraska, discovered by James H. Cook in 1897. After the lapse of the Carnegie researches and explorations, the American Museum entered this quarry and through five years of continuous exploration (1911-1916) an irregular area within a square of about 36 feet yielded nearly complete skulls of ten individuals and skeletal parts of seventeen individuals all together. From this wonderful material it has been possible to supplement the descriptions of Holland and Peterson and to present for the first time the proportions and pose, by which we may estimate the habits of this animal. We reach the conclusion that the *Moropus* type was not plains living, but forest living; that it was the seclusion of the forests which protected this type and which accounts for its great rarity in fossil deposits, for it is characteristic of forest-living forms that they are not readily entombed. We form an entirely different conception of the habits of the animal when we observe the extremely long fore limbs, which are not of the digging or fossorial type, and which thus belie the apparently fossorial or digging structure of the terminal phalanges. It appears more probable that these terminal claws were used partly for purposes of offense and defense, but largely for the pulling down of the branches of the trees. The animal was probably forest living like the African okapi, with which in its general body and head proportions it has many analogies. Like the okapi it survived through retreat to the recesses of the forests.

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