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AN AMERICAN FOSSIL GIRAFFE Giraffa nebrascensis, sp. nov.

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AN AMERICAN FOSSIL GIRAFFE

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BY W. D. MATTHEW

E. H. BARBOUR

A fragment of the lower jaw of a large fossil mammal with two well-worn teeth was dug up in June 1918, at a depth of 20 feet, while digging a cess pool at Bradshaw, York County, Nebraska.

This unique specimen, accessioned 7-7-18, was brought to the Nebraska State Museum by A. Archie Dorsey, and was donated by C. B. Palmer, both of Bradshaw. It undoubtedly occurred in loess, which is thickly as well as extensively developed in this region.

It is a ruminant jaw, the teeth preserved being p_4 and m_1. The characteristic pattern of the premolar excludes reference to the Bovidae, and leaves the choice between the Giraffidae, Palaeomerycidae, and certain large Cervidae. The teeth are much larger than in any known cervid or palaeomerycid and agree better in proportions and pattern with the giraffes, especially certain fossil species from the Pliocene of China and India. If it is not a giraffe, it represents a wholly new genus of gigantic ruminant, rivalling the giraffe in size.

The giraffes are among the mammals that have been generally regarded as characteristic of the Old World and absent from the New. They flourished in Europe and Asia during the later Tertiary, the modern Giraffa and Ocapia of Africa being the sole survivors of a numerous and varied family group. They have never been found, living or fossil, in North or South America. The Bovidae (antelopes, sheep, and cattle) are very numerous and varied in the Old World,

especially at present in Africa. They were more abundant and more varied in the later Tertiary of Asia and the Mediterranean region than they are at present. In North America they are now represented by a few stragglers only, the American bison, the mountain sheep, and the mountain goat. The so-called American antelope belongs to a distinct family. There are, however, in the later Tertiaries of our Western states, a number of imperfectly known, extinct genera which may be true Bovidae, and Mr. J. W. Gidley has described an upper jaw indistinguishable from that of the

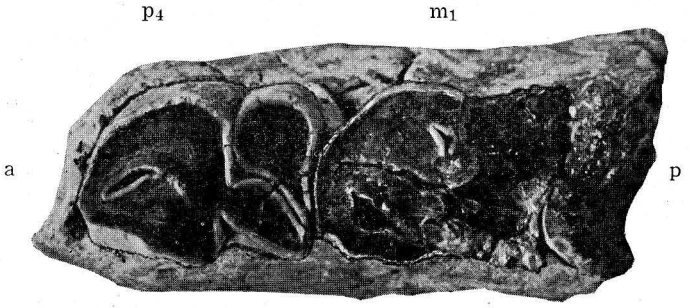

Fig. 14. American giraffe, *Giraffa nebrascensis*. Portion of mandible, right, showing pre-molar 4, and molar 1. Crown view. Natural size. Type specimen, No. 7-7-18. The Nebraska State Museum.

Eland, from the Pleistocene of Cumberland County, Maryland. It may be therefore, that other Bovidae invaded the New World in the later Tertiary, but failed to maintain a foothold. The species here described, if correctly referred to the giraffes would be similarly interpreted.

The Cervidae are a family of Holarctic dispersal, the largest and most advanced genera being limited to the more northerly areas of the Holarctic, Canada, and northern Eurasia. The primitive survivals in tropical America, the Mediterranean, and Oriental regions, and the ancestry of the family, are traceable in the Tertiary of both Eurasia and North America in a series of parallel evolutionary stages,

corresponding to those of the Equidae. But in the Giraffidae the more direct series is found in the Old World, while with the Equidae, North America affords the more direct series. All these families, Cervidae, Bovidae, and Giraffidae, are derived from the Palaeomerycidae of the Holarctic Middle Tertiary, and represent the common ancestral group.

It is possible that this specimen is a gigantic cervid, equalling the giraffe in size; and it is also possible that it is a palaeomerycid; in either case it would be a quite unknown and very remarkable branch of these North American groups.

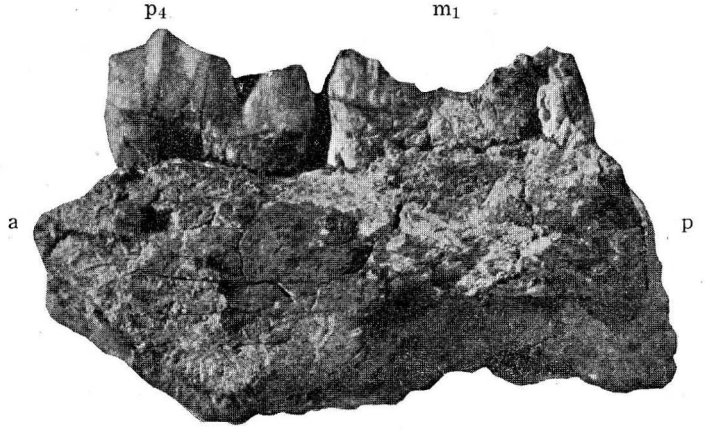

Fig. 15. *Giraffa nebrascensis.* Side view of the above. Natural size.

Additional evidence from the North American Pliocene and Pleistocene may settle this doubt. Meantime it may be described as:

GIRAFFA NEBRASCENSIS, sp. nov.

Type: a lower jaw fragment from York County, Nebraska, in the collections of the University of Nebraska, with p_4-m_1 preserved.

Family and generic characters: Teeth moderately brachydont, very wide and massive, enamel rugose, anterior inner crescent of p_4 large, somewhat oblique, more than half the

length of the tooth; posterointernal crest of p_4 oblique, connected with the anteroexternal crescent; posteroexternal crest of p_4 oblique, connected with the anteroexternal crescent; posteroexternal crest of p_4 separate, with a wide, rounded base, extended as a crest towards the posterointernal angle. Length and width of p_4 little less than that of m_1. The m_1 shows indications of a strong pillar between the outer crescents, with no indications of cement.

Specific characters: The premolar is less quadrate than that of the modern giraffe. It is proportioned much as in Giraffa schlosseri, but the posterointernal crest is less discrete than in the type figured by Schlosser. The size is equal to Giraffa schlosseri or to a large modern giraffe.

Measurements

	mm.
p_4. anteroposterior diameter	29
transverse diameter	21
anteroexternal crescent a.-p. diameters	18
anterointernal crescent a.-p. diameters	17
posteroexternal crescent a.-p. diameters	10
posterointernal crescent a.-p. diameters	11
m_1. anteroposterior diameter (inner side)	30
transverse diameter (anterior half)	23

All these measurements are made on the well-worn teeth of the type specimen.

The Palaeontological Collections of Mr. Charles H. Morrill and Mr. Hector Maiben, which are rich in types, are distinctly enhanced by this fragmentary but notable specimen.

NOTES

Fossil and living giraffes are now recorded for China, India, Persia, Greece, and North America. Accordingly their distribution seems to have been world-wide. The two surviving members, the *Ocapia* and *Giraffa,* are restricted to Africa. The following comprise the well-known giraffes, both fossil and living.

Samotherium, a Pliocene giraffe from the Isle of Samos, the Turkish archipelago, approached the living giraffe in size, but with somewhat shorter limbs and neck. It is an extinct okapi. The females were destitute of horns.

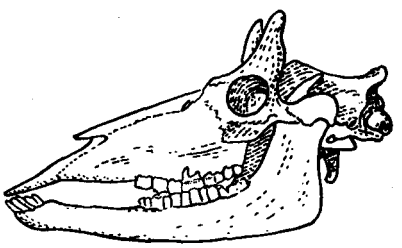

Fig. 16. Skull of *Samotherium boissieri,* an extinct okapi from the Upper Miocene of the Isle of Samos.

Ocapia. The okapi is a small and primitive giraffe found in the deep forests of the Belgian Congo, Africa. It was discovered in 1899. It is somewhat smaller than the ox, and is remarkably colored.

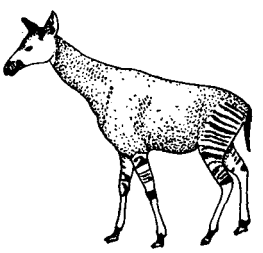

Fig. 17. *Ocapia johnstoni* or okapi, a primitive living giraffe of the deep forests of the Congo, Africa.

Helladotherium, a hornless giraffe from the Lower Pliocene of Pikermi, near Athens, Greece, shows fore and hind quarters of about equal height. In bulk it passed the living giraffe.

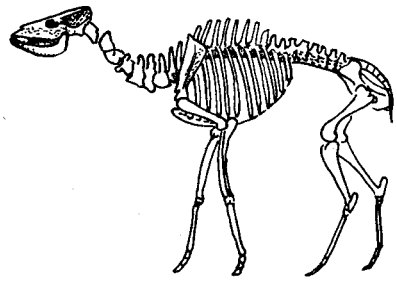

Fig. 18. *Helladotherium duvernoyi,* Lower Pliocene, from Pikermi, near Athens.

Sivatherium, a four-horned giant giraffe from the Siwalik formation, Lower Pliocene, India, was possessed of a pair of conical horns in front, and a pair of large palmated moose-like horns behind. Sivatherium was a giant giraffe and ranks as the largest recorded member of the Pecora.

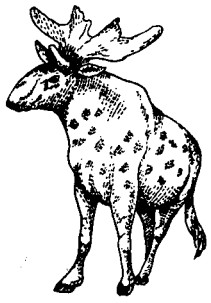

Fig. 19. *Sivatherium giganteum,* a giant, four-horned giraffe from the Siwalik formation, Lower Pliocene, India.

Giraffa, Giraffa camelopardalis, the well-known giraffe, may attain a height of 16 feet, the withers being high, and the hind quarters retreating. The neck though excessively long has but seven cervical vertebrae, the normal number in the mammals. Giraffes are browsers, feeding upon trees, preferably upon the leaves of the mimosa and the prickly acacia.

Vertebrae: C 7, D 14, L 5, S 3, C 20.

Dentition: i 0/3, c 0/1, p 3/3, m 3/3.

Both males and females have short horns, or bony processes, attached permanently to the skull, and covered with hide and hair.

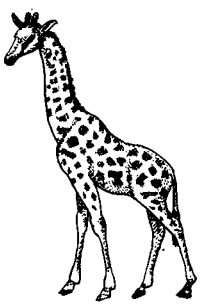

Fig. 20. *Giraffa camelopardalis,* a living giraffe of Africa.

The following is a classification of the Artiodactyla, modified after Osborn, and others, showing the position of the giraffes.

ORDER ARTIODACTYLA

Section 1. PRIMITIVE ARTIODACTYLS.

Section 2. SUINA. Pig-like Artiodactyls.

Section 3. OREODONTA. American Primitive Ruminants.

Section 4. TYLOPODA. Camels and Llamas.

Section 5. TRAGULINA. Primitive and Ancestral Deer-like Ruminants.

Section 6. PECORA. True or Modernized Ruminants.

Family GIRAFFIDAE, giraffes.

1. *Palaeotragus.*
   L. Pliocene, Europe.
2. *Samotherium.*
   An extinct okapi. U. Miocene, Europe.
3. *Ocapia.*
   Okapi. Congo.
4. *Helladotherium.*
   An extinct giraffe. L. Pliocene, Europe and Asia.
5. *Sivatherium.*
   L. Pliocene, Asia.
6. *Hydaspitherium.*
   L. Pliocene, Asia.
7. *Vishnutherium.*
   L. Pliocene, Asia.
8. *Giraffa.*
   Giraffe. E., W., & S. Africa. (L. Pliocene, Europe and Asia.)

Family CERVIDAE.

Family MERYCODONTIDAE.

Family ANTILOCAPRIDAE.

Family BOVIDAE.

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