

ACERATHERIUM MITE, Cope.

Plate IV, fig. 5.

- Aceratherium mite*, Cope, 1874. Annual Report U. S. Geol. and Geog. Survey Terrs. for 1873, p. 493.
- Aceratherium mite*, Cope, 1885. The White River beds of Swift-current river, North West Territory, American Naturalist, vol. XIX, p. 163.
- Aceratherium mite*, Cope, 1885. Geol. and Nat. Hist. Survey of Canada, vol. 1, new series, part C, appendix I, p. 83.
- Cænopus mitis*, Cope, 1891. The species from the Oligocene or Lower Miocene beds of the Cypress hills, Geol. Survey of Canada, Contr. to Can. Palæont., vol. III (quarto), pt. I, p. 19, pl. IV, fig. 2.
- Cænopus pumilus*, Cope, in part, 1891. Idem, p. 19, specimen No. 1, pl. IV, figs. 3, 3a.
- Aceratherium mite*, Osborn, 1898. The Extinct Rhinoceroses, Memoirs Amer. Mus. Nat. Hist., vol. I, pt. III, p. 136.

In his 1891 report Cope assigned certain remains of *Aceratheres* from the Cypress hills to this species. They consist of parts of two left mandibular rami, and are referred to as specimens Nos. 1 and 2. The first specimen is a section of a left ramus holding the roots of the last two molars, and extending back beneath the base of the coronoid; the fragment is 87 mm. long. The second is part of the anterior half of another left ramus, with premolars 3 and 4 preserved, the roots of premolar 2, and the inner end of the alveolus of a procumbent canine. A figure was given (pl. IV, fig. 2, pt. I of this volume) of this second specimen viewed from above.

A symphysis of a mandible, also from the Cypress hills, described and figured by Cope in 1891, under the name *Cænopus pumilus*, in the same publication as the above, is regarded by Osborn (op. cit. 1898) as properly referable to *A. mite*. The second of the two specimens on which *C. pumilus* was founded (pt. I, this volume, pl. IV, fig. 4) has been shown by Professor Osborn (op. cit. 1898) to be part of the lower jaw of *Hyracodon nebrascensis*.

In the type ramus from Colorado, described by Cope in 1874, the space occupied by the first three lower premolars (2, 3 and 4) is 80 mm. as given in the original description. A similar measurement, taken from the "type lower jaw" (and therefore presumably from the same specimen), is stated by Osborn (op. cit. p. 139) to be 55 mm. In specimen 2 from the Cypress hills (*A. mite*) the three premolars together measure in length 58 mm., and in the symphyseal specimen (*C. pumilus*) a like measurement gives 43 mm. In one only of the three Cypress Hills specimens referred to *A. mite*, are premolar crowns preserved, and in the type ramus the crowns of the three premolars are imperfect.

A very perfect lower jaw from the *Protoceras* beds of South Dakota is referred doubtfully by Osborn (op. cit. p. 139) to this species. The premolar series in this last specimen occupies a space of 47 mm.

An upper left third molar tooth, obtained by T. C. Weston at the Cypress Hills locality in 1884, is probably referable to this species. Its dimensions are:—antero-posterior diameter, 25 mm., transverse diameter 28 mm.

A much larger tooth, plate IV, fig. 6, an upper right posterior molar of the 1904 collection, compares favourably in size and general proportions with the third molar of *Leptacerntherium trigonolon*, Osb. and Wort. Its diameters measure, antero-posterior, 31 mm., transverse 37 mm.

ACERATHERIUM OCCIDENTALE (Leidy).

Plate IV, fig. 7.

Rhinoceros occidentalis, Leidy, 1851. Proc. Acad. Nat. Sci. Phila., vol. V. p. 276.

This species is recorded by Cope (this volume, pt. I) from the Oligocene of the Cypress hills. A number of lower jaw fragments, belonging both to the collection of 1904 and to the earlier collections, apparently represent species distinct from *A. mite* and *A. occidentale*, but they are too imperfect for determination.

An inferior left posterior molar (collection of 1904) evidently belongs to this species. In it the basal cingulum is developed in front and behind but not on the exterior and interior surfaces. Diameters—antero-posterior 32 mm., transverse 21 mm.

ACERATHERIUM EXIGUUM, Sp. nov.

Plate V, figs. 3, 4 and 5.

A mandibular symphysis, collected by the writer in Bone coulee, Cypress hills, in 1904 has entirely different proportions to the symphysis (*Canopus pumilus*, Cope) from the same locality, already referred to *A. mite*. This specimen consists of almost exactly the same part of the jaw preserved in the symphysis of *C. pumilus*, viz., the anterior end of the left ramus, and a short length of the right ramus united with it so as to show the extent and form of the symphysis. No crowns of teeth are preserved, but in the left ramus the roots of premolars 2 and 3 remain. The alveoli for the canine and for one incisor in each ramus are preserved, as well as the alveolus for premolar 2 in the right ramus, and the anterior half of the alveolus for premolar 3 in the left.

Comparing it with the symphyseal specimen of *C. pumilus*, the following differences are apparent:—a narrower and longer symphysis, having increased depth behind; a more rapid deepening of the ramus from in front backward, with a corresponding increase in transverse thickness; a greater space occupied by the first two premolars; and very much larger canines as indicated by their alveoli. The greater depth of the ramus beneath the first two premolars is very noticeable.

In this specimen, belonging to the 1904 collection, the diastema is of about the same length as that of *C. pumilus*. The alveoli for the canines are 8 mm. apart in front, and close together at a lower level are those for two incisors, one on each side of the median line. Premolar 2 was a tooth of fair size with two well separated roots.

A small species of *Aceratheres*, slightly exceeding *A. mite* (*pumilus*) in size, is here represented, to which the name *exiguum* is given. The jaw is more robust than in *A. pumilus*, its main characteristics being the contracted and lengthened symphysis and the enlarged canines.

PLATE IV.

- Fig. 1. *Hyracodon priscidens*, Lambe; left maxilla with premolar and molar teeth. Type.
Page 39.
- Fig. 2. The same specimen, outer aspect.
- Fig. 3. *Hyracodon priscidens*, Lambe; anterior end of mandible, outer view from the left.
- Fig. 4. The same specimen, seen from above.
- Fig. 5. *Aceratherium nute*, Cope; left upper third molar, seen from below. Page 43.
- Fig. 6. ? *Leptaceratherium trigonodon*, Osb. and Wort.; right upper third molar, as seen from below. Page 44.
- Fig. 7. *Aceratherium occidentale* (Leidy); left lower third molar, view from above. Page 44.
- pr.*, protocone; *d.*, deuterococone; *tr.*, tritococone; *te.*, tetartocone; *c.*, canine; P₂, second premolar.



PLATE V.

- Fig. 1. *Aceratherium* sp.; left upper first premolar, outer aspect. Cypress hills, 1904.
Fig. 2. The same tooth, viewed from below.
Fig. 3. *Aceratherium exiguum*, Lambe; anterior end of mandible, left outer aspect. Type.
Page 44.
Fig. 4. The same specimen viewed from above.
Fig. 5. The same specimen viewed from the front.
Fig. 6. *Megacerops assiniboiensis*, Lambe; left mandibular ramus, outer aspect; one-half the natural size. Type. Page 51.
- c., canine; i., incisor; P₂, second premolar.

