

## Article VII.—ACERATHERIUM TRIDACTYLUM FROM THE LOWER MIOCENE OF DAKOTA.

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### *Aceratherium tridactylum*, sp. nov.

*General Characters.*—I  $\frac{2}{1}$ , C  $\frac{0}{1}$ , P  $\frac{4}{3}$ , M  $\frac{3}{3}$ . Digits, 3-3. Vertebrae, D 19, L 5, S 3, C 21. Occiput elevated. Postglenoid and post-tympanic enclose auditory meatus inferiorly. Superior molars with strong 'antecrochet' and 'crochet' feeble or absent. First upper premolar well developed. Incomplete cingulum upon inner face of true molars. Occiput high and narrow.

The very thorough search of the Lower Miocene (White River) exposures of South Dakota by the Museum Expedition of 1892 has resulted in the discovery of a complete series of *Aceratheria* in an horizon which has hitherto yielded but two well-determined species. The smallest of the series was found immediately overlying the 'Titanotherium Beds,' and the largest in the 'Protoceras Beds,' which mark the top of the White River formation in this locality. These forms will be figured and described in a forthcoming bulletin. The present paper is a preliminary description of the largest type, *A. tridactylum*.

The type of this new species is a complete skeleton in excellent preservation, which was discovered by Mr. Peterson of the Museum party, and has now been mounted for exhibition by Mr. Hermann. The only parts lacking are the left forelimb, a few of the ribs, and the sternal bones. All the other parts are complete, the vertebral column being perfect to the tip of the tail.

The skeleton measures seven feet nine inches in length, and four feet in height to the top of the lumbar vertebral spines. There are nineteen dorsal, five lumbar and three sacral vertebrae. The pelvis is long and rather slender, and the limbs are of an intermediate type, heavier than in *A. occidentale* and much longer than in the Upper Miocene *A. fossiger*. There are only three digits in the manus, hence the name *tridactylum*, there being no trace of the fifth digit, which is so characteristic of the lower Miocene Rhinoceroses of America and Europe, with the possible exception of *A. mite* Cope.



The total length of the skull is 51 centimeters, while in *A. occidentale* it measures 44. The occiput is high and rather narrow, whereas in *A. occidentale* it is low and broad; the upper line of the skull thus curves upwards, and the sagittal crest is considerably shortened. Another progressive feature is that the molars show, besides the strong 'antecrochet,' a beginning of the 'crochet,' which is wholly undeveloped in *A. occidentale*. The median upper incisors are much larger than the outer pair, and the lower canines are correspondingly enlarged. The first lower premolar (P<sub>1</sub>) is rudimentary or wanting.

Another distinctive feature of the skull is the union of the postglenoid and post-tympanic processes to enclose the external auditory meatus inferiorly.

The upper view of the skull, especially in the great elongation of the nasals, which overhang the premaxillaries, suggests a close affinity to *A. megalodus*<sup>1</sup> Cope of the Upper Miocene or Loup Fork; the molars are in a similar stage of evolution; the occiput of *A. tridactylum* is constricted below and spreads above, while that of *A. megalodus* is broad at the base and narrows regularly to the top; a partial cingulum is present upon the inner side of the true molars, and is said to be wanting in *A. megalodus*; the first upper premolar is well developed in *A. tridactylum*, and is variable or wanting in *A. megalodus*. These features are such as usually separate Lower from Upper Miocene types.

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<sup>1</sup> Pal. Bulletin, No. 14, Proc. Am. Phil. Soc., July, 1873.





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