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A NEW SPECIES OF RHINOCEROS.

DICERATHERIUM LOOMISI.

FROM THE LOWER MIOCENE OF NEBRASKA.

BY HAROLD JAMES COOK.

Diceratherium loomisi[1], sp. nov.

The type, No. HC260, collection of the writer, consists of a portion of the right upper maxilla, containing P^4, M^1, and M^2, and was found by the writer in the Agate Spring Fossil Quarry, during the summer of 1910.

A number of jaw fragments and isolated teeth of this form were found, but the writer has been of the opinion that these specimens represented portions of the deciduous dentition of some of the known species of Diceratherium, so numerous in this quarry. The structure of these teeth was so aberrant that it was taken for granted that they were deciduous teeth, and no careful examination of the specimens was made for nearly a year after they were collected. But after careful examinations, some of these specimens show conclusively that the teeth present are permanent, not deciduous, teeth.

Loomis[2] has decribed a single tooth—M^1 or M^2, he states—under the name of *Diceratherium aberrans,* which is somewhat parallel in development to P^4 in the present species, but it has not

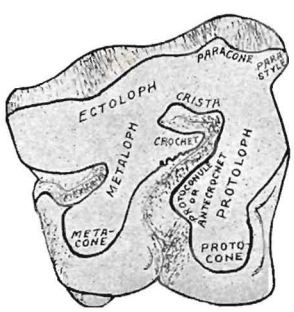

Fig. 1. Key to terminology. M^2 right side, Diceratherium cooki, Peterson.

(1) Specific name in honor of Prof. F. B. Loomis of Amherst College, Amherst, Mass.

(2) Loomis, F. B., "Rhinocerotidae of the Lower Miocene", Am. Jour. Sci. Vol. XXVI, Art. IV, 1908.

been entirely clear to the writer that this is a valid species, as he has seen deciduous teeth of D. *cooki*[3] in position which closely paralleled it. Still—if the type of D. *aberrans* is a permanent tooth—it could be P^4, instead of a molar, in which case it would indicate a second species closely paralleling D. *loomisi*. Comparing the type of D. *aberrans* with P^4 of the present species, it is to be noted that the antero-posterior and the transverse diameters of *loomisi* are about equal, while in *aberrans*, the antero-posterior diameter considerably exceeds the transverse, and the latter is somewhat larger.

D. *loomisi* is small, about the size of D. *schiffi*, but with very different dentition. The teeth are brachyodont, with rather heavy, broad roots. The crowns of the molars are compressed, much as D. *schiffi* but the external perpendicular ridge of the paracone is more prominently developed than in *schiffi*, both actually and in relation to the parastyle. In fact, this external ridge is unusually well developed in M^1, and M^2. The hypocone in M^1 and M^2 is relatively small, and the crochet is unusually developed, touching, and sometimes uniting with, a well developed crista. The protoconule is moderately developed. But in P^4 we find a remarkable structure.

Both protoloph and metaloph are well developed, and of about equal size, as in D. *aberrans*. In describing D. *aberrans*, Loomis calls the type, "either the first or second upper right-hand molar". Either his drawing of the type is inverted in printing, or else the tooth is a left, instead of a right, upper. If inverted, the structure is quite similar to that found in P^4 of the present species. But if this is a left tooth, then there is a great difference. Loomis states that "the crochet is developed to enormous size" in *aberrans*.

This is true of P^4, M^1, and M^2, in *loomisi*, but unless the drawing of *aberrans* is inverted, it is the protoconule which is so strongly developed in that type, instead of the crochet. The protoconule is moderately developed in the molars of the present species. The crista is unusually well developed, but not as in *aberrans*.

A large accessory cusp, or loph, rises just posterior to the crista, and extends to the internal cingulum, thus adding greatly to the triturating complexity of the tooth. There is no external cingulum. The internal cingulum is quite strongly developed, but is interrupted by the protoloph and metaloph, and between these two has a tendency to form minute accessory cusps.

(3) Peterson, O. A., Ann. Carn. Mus. Vol. IV No. 1.
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Specimens are present in all stages of wear, but unfortunately no skulls of this rather rare type have so far come to light.

Another peculiar feature is the location of the infra-orbital foramen. This is situated directly above P^4, instead of P^3, as is usual in the *Diceratheres*. In some instances among contemporary forms, this foramen opens above P^2, and this is true in *Metacaenopus egregius*. This led the writer to wonder if there might not be a mistake in the identification of the teeth. But the extreme transverse

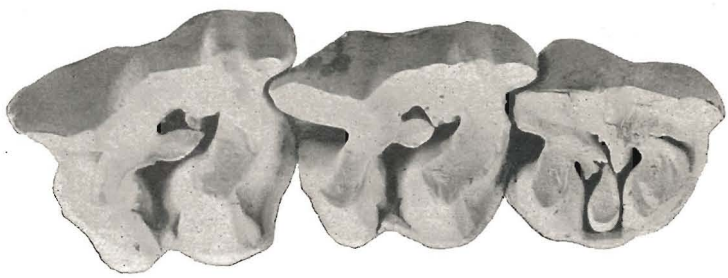

Fig. 2. Premolar 4 and molars 1 and 2, right upper, of Diceratherium loomisi, natural size. No. HC260. Type.

Fig. 3. Premolar 4 and molar 1, right upper, referred to Diceratherium loomisi, natural size. No. HC261.

compression of the posterior half of the last tooth in the series—in the type—its rather sharp inward turn, the position of the tooth in relation to the beginning of the zygomatic arch, and the whole character of the tooth, would stamp it as M^2. The next tooth forward is just what one would expect in M^1, to go with this M^2, but of course P^4

is sometimes completely molariform. This position of the infra-orbital foramen would seem to indicate a very brachycephalic type of skull, and a rather flat one.

DICERATHERIUM LOOMISI.

Measurements of type.

P^4 antero-posterior diameter	24	m. m.
P^4 transverse diameter	26	m. m.
M^1 antero-posterior diameter	32	m. m.
M^1 transverse diameter	27	m. m.
M^2 antero-posterior diameter	35	m. m.
M^2 transverse diameter	31	m. m.
Height of infra-orbital foramen above base of P^4	24	m. m.
Same, in D. cooki, (referred specimen, not type)	32	m. m.

(The last measurement above was taken from an excellently preserved specimen, which agrees closely to the type of D. cooki, in all measurements).

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