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## A NEW GENUS AND SPECIES OF CERATOPSIA FROM NEW MEXICO, *PENTACERATOPS STERNBERGII*

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At a locality nine miles northeast of Tsaya, New Mexico, in the Cretaceous formation described in 1916 by Bauer<sup>1</sup> as the Fruitland Beds, the veteran explorer Charles H. Sternberg discovered in 1922 a fine skull and parts of a skeleton which appear to represent a new and hitherto undescribed form of Ceratopsia. The American Museum sent Charles C. Mook and one of its most experienced field workers, Peter Kaisen, to examine this locality and to assist Mr. Sternberg. The geologic age of the deposit seems to be intermediate between the Judith River and Belly River and the Lance division of the Upper Cretaceous, because all the specimens thus far discovered bear a different and somewhat more ancient aspect than the species characteristic of the Lance. It is, however, closer to the Lance than to the Belly River animal.

The present specimen, which bears the Museum number 6325, represents a ceratopsian with one nasal horn in the median line, two horns above the orbits, also two lateral horns projecting downwards and backwards below the orbits. Hence the generic name *Pentaceratops* has been suggested by Doctor Matthew, signifying "five-horned ceratopsian." The frill contains one elongated vacuity on either side of the median line, as shown in the photograph (Fig. 1), the posterior border on the vacuity being broken away. It was doubtless complete, as in *Torosaurus*. The borders of the frill are indented, especially in the lower lateral portions.

Comparing this skull with other specimens of ceratopsians, we observe the following resemblances and differences.

(1.) The fontanelles are elongate, instead of circular as in *Monoclonius* and *Torosaurus* (Hatcher-Lull Monograph, 1907, Pl. II).

(2.) The postorbital horns rise directly above the center of the orbit and curve gently forward, a different position and inclination from that observed in the types described by Hatcher and Lull (*op. cit.*, Pl. V).

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<sup>1</sup>U. S. Geol. Surv., Prof. Pap. 98 P, p. 274.

(3.) The skull of *Pentaceratops*, when compared in profile with that of *Diceratops* and *Triceratops* (*op. cit.*, Pl. XLIV), shows that the lateral horns are borne upon the jugals. They project much more widely than the prominences on the jugals of *Triceratops brevicornus* (Pl. XLII). The skull of *Pentaceratops sternbergii*, as we may designate this species, is relatively more elongate than that of *Triceratops brevicornus*; the fontanelles are much more elongate than in *Triceratops prorsus* (*cf.* Pl. XXXV); both the rostrum and the frill are more elongate than in that species. In its elongate proportions *Pentaceratops sternbergii* resembles *Triceratops serratus* more closely (*cf.* Pl. XXVII) although it differs widely from this species in the three generic characters above noted, namely, the fontanelles, the jugal horns, and the postorbital horns.

Considering the division of the Ceratopsia into two phyla (*op. cit.*, p. 161), *Pentaceratops* seems to represent rather the *Torosaurus* phylum than the *Triceratops* phylum. It may be an offshoot intermediate in geologic time between the Ceratopsia of the Judith River and Belly River formations and the *Torosaurus* of the Lance of Converse County, Wyoming.

Comparing this animal with the ceratopsians described since the appearance of the Hatcher-Lull Monograph of 1907 we make the following observations.

Belly River Formation

*Styracosaurus* Lambe, 1913, type *S. albertensis*

*Protosaurus* (*Chasmosaurus*) Lambe, 1914, type *Monoclonius belli* Lambe

Edmonton Formation

*Anchiceratops* Brown, 1914, type *A. ornatus*

*Leptoceratops* Brown, 1914, type *L. gracilis*

Two Medicine Formation

*Brachyceratops* Gilmore, 1914, type *B. montanensis*

Belly River Formation

*Eoceratops* Lambe, 1915, type *E. canadensis*

After comparison with the above ceratopsians of Belly River, Two Medicine, Edmonton and Lance age, this new genus and species appears to be distinct from all previously described genera. It differs widely from *Anchiceratops* of the Edmonton with its ornate crest, yet it would appear to belong to a geologic stage equivalent to the Edmonton. It differs widely in its elongate proportions from *Brachyceratops*. It is naturally profoundly different from the older Belly River and Two

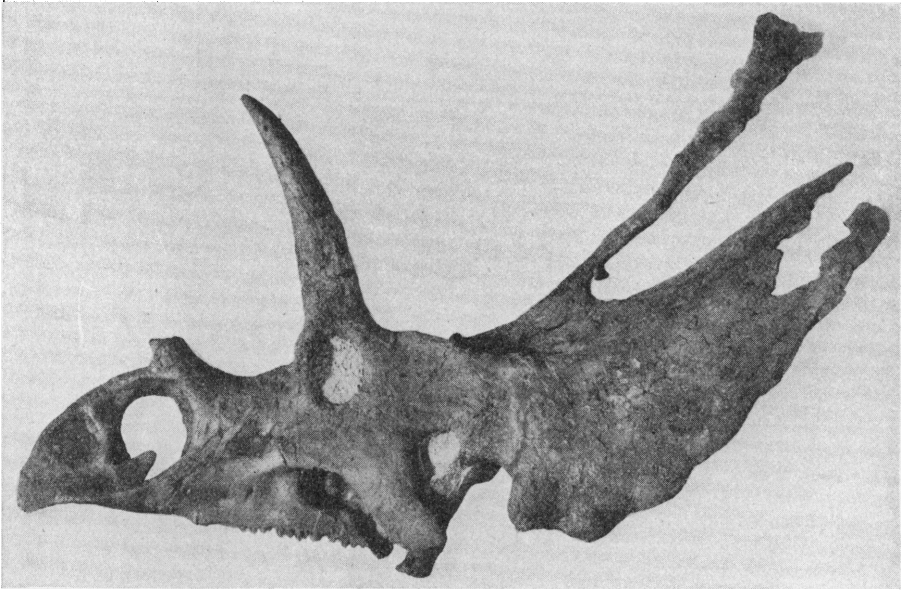


Fig. 1. Type skull of *Pentaceratops sternbergii* (Amer. Mus. 6325) from the Fruitland Beds, 9 miles N. E. of Tsaya, New Mexico; with skeleton (not yet worked out of the matrix) purchased from Charles H. Sternberg in 1922. One-sixteenth natural size.

Medicine genera described by Lambe, Gilmore, and Brown, although it might be geologically successive to the *Eoceratops canadensis* of Lambe in the Belly River stage.

**Pentaceratops**, new genus, an Upper Cretaceous ceratopsian, with one nasal horn, two prominent anteroverted postorbital horns, two lateral jugal osseous horns; with elongate narrow fontanelle in the dermosupraoccipital crest. Borders of the crest moderately sculptured. Generally intermediate in character between the *Eoceratops* and *Anchiceratops* types of skull, in size and proportion approaching the *Triceratops* type, in the large fontanelle resembling *Torosaurus*. **P. sternbergii**, new species, named in honor of Charles H. Sternberg, veteran explorer and discoverer in the fossil beds of western America.

