



CERATOPS MONTANUS, Marsh. One-fourth natural size.

APPENDIX.

ART. L.—A New Family of Horned Dinosauria, from the Cretaceous; by O. C. MARSH. (With Plate XI.)

DURING the past season, a special effort has been made by one field-party of the U. S. Geological Survey, to explore the Laramie formation, more particularly in Dakota and Montana. In this work, important collections of vertebrate fossils have been secured, and among them are remains of some new Dinosaurs of much interest, one of which is briefly described below.

Ceratops montanus, gen. et sp. nov.

The present genus appears to be nearly allied to *Stegosaurus* of the Jurassic, but differs especially in having had a pair of large horns on the upper part of the head. These were supported by massive horn-cores firmly coössified with the occipital crest. The latter are probably attached to the parietal bones, but, as the sutures in this region are obliterated, they may be supported in part by the squamosals.

The horn-cores in the type specimen are sub-triangular at base, but nearly round in section in the upper half. Their position is represented approximately in the figures of the accompanying plate. These horn-cores are slightly hollowed at the base, but are otherwise solid. The exterior texture and markings show that they were evidently covered with true horns, and these must have formed large and powerful offensive weapons.

In position and direction, these horn-cores are somewhat similar to the large posterior pair of protuberances in *Meiolania*, one of the extinct *Testudinata*, and to the corresponding ones of the existing *Phrynosoma*. The only known example of similar structure in the *Dinosauria* is the single median horn-core on the nasals of *Ceratops*, from the Jurassic. It is not improbable that there were other horn-cores on the skull in the present genus, but, of this, there is at present no positive evidence. A detached median prominence resembling a horn-core was found with some similar remains, but may pertain to an allied genus.

The resemblance in form and position of the posterior horn-cores to those of some of the ungulate mammals is very striking, and, if detached, they would naturally be referred to that group.

The basioccipital found in place with these horn-cores, and represented in plate XI (figures 1 and 2, *b*), is much elongated, and formed the entire occipital condyle. Its exact position with reference to the horn-cores could not be determined.

Teeth, vertebrae, and limb bones which probably belong to the present genus were all secured in the same horizon. They indicate a close affinity with *Stegosaurus*, which was probably the Jurassic ancestor of *Ceratops*.

Among other remains referred to the present reptile, but not found with the type specimen, are some peculiar, large dermal plates, in pairs, that indicate a well-ossified armor. These plates show indications of being covered, in part at least, with scutes, as in turtles. Their position cannot at present be determined.

The type specimen on which the present genus and species are based was found in place, in the Laramie deposits of the Cretaceous, in Montana, by Mr. J. B. Hatcher, of the U. S. Geological Survey. Other specimens apparently pertaining to the same species were secured in the same horizon of the same region.

Remains of the same reptile, or one nearly allied, had previously been found in Colorado, in deposits of about the same age, by Mr. G. H. Eldridge, also of the U. S. Geological Survey.

The associated fossils found with the present specimens are remains of other Dinosaurs, crocodiles, turtles, and fishes, mostly of Cretaceous types. The mollusks in the same beds indicate fresh-water deposits.

The fossils here described indicate a reptile of large size, twenty-five or thirty feet in length, and of massive proportions. With its horned head and peculiar dermal armor, it must have presented in life a very strange appearance.

The remains at present referred to this genus, while resembling *Stegosaurus* in various important characters, appear to represent a distinct and highly specialized family, that may be called the *Ceratopsidae*. They will be described more fully in a later number of this Journal.

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EXPLANATION OF PLATE XI.

FIGURE 1.—Horn-core and basioccipital of *Ceratops montanus*, Marsh; side view. *a*, horn-core; *b*, basioccipital.

FIGURE 2.—Horn-cores and basioccipital of same skull; posterior view. *a*, left horn-core; *b*, basioccipital; *c*, right horn-core.

Both figures are one-fourth natural size.

