

Article XXII.—THE SKULL OF *BATHYOPSIS*, WIND RIVER UINTATHERE.

BY HENRY FAIRFIELD OSBORN.

PLATES LXIV-LXVI.

The American Museum expedition of 1909 fortunately secured the long sought skull of *Bathyopsis*, an animal known previously only by the type jaw of the species *B. fissidens*, described by Cope. This skull from the upper portion of the Lower Eocene presents an ideal ancestral stage of the Middle Eocene uintatheres of the Bridger formation. The rudiments of three pairs of osseous horns (maxillary, frontal, parietal) are prophetic of the great maxillary and parietal horns of *Uintatherium*, or *Dinoceros*.

This specimen (Pl. LXIV-LXVI) was discovered by Mr. George Olsen on Alkali Creek, north of Walton, Wind River Basin, Wyo. The formation is known as "Lost Cabin"; the life zone is known as the Lambdotherium Zone, a zone which contains also the ancestral titanotheres *Eotitanops*, the survivors of *Phenacodus*, and especially a number of surviving forms of *Coryphodon*.

Skull of Bathyopsis.

The skull is provisionally referred to *B. fissidens* Cope. The specimen, Amer. Mus. Nat. Hist. No. 14802, has been very skilfully restored by Mr. Walter Granger, who was in charge of the Museum expedition which secured

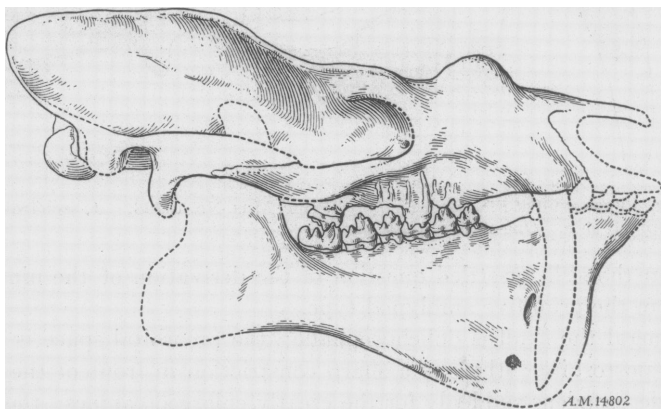


Fig. 1. Skull and jaw of *Bathyopsis fissidens*, Composition from type, Amer. Mus. Nat. Hist. No. 4820, and from skull Amer. Mus. No. 14802. One fourth natural size.

it. Although fully adult the skull is small, the basilar length being estimated at .310 and the zygomatic width .180. That it is fully adult is proved by the fact that the first and second superior molars, $m^1 - m^2$, are well worn; the unworn crest of m^3 reveals the typical V-shaped untathere molar pattern with a postero-internal hypocone on m^3 . The specimen thus throws no

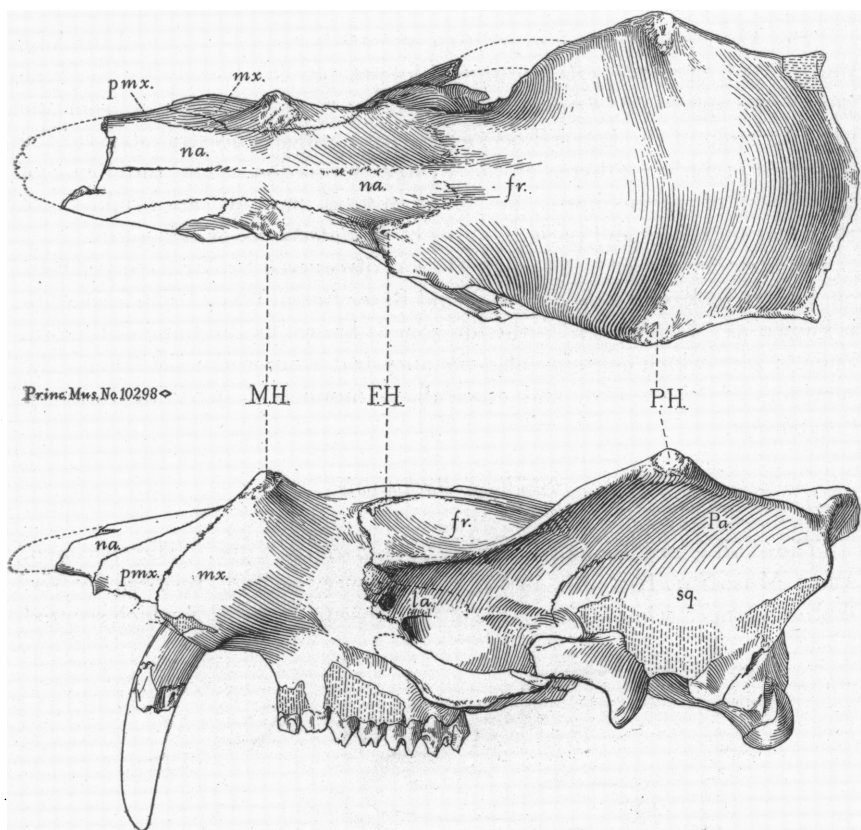


Fig. 2. Type skull of *Elachoceras parvum*, Princ. Mus. No. 10298. A, seen from above; B, seen from left side. One-sixth natural size.

light upon the still unsettled question of the derivation of the untathere molar from the primitive amblypod type.

In general the skull is dolichocephalic; the preorbital space is shorter than the postorbital; there is a sharp constriction in front of the orbits; the muzzle broadens suddenly for the greatly enlarged canines; the supra-temporal crests flare widely in the region of the rudimentary parietal horns (P. H.); the occiput is broad and low, overhanging the condyles.

Superior view. Of the three pairs of horn rudiments the maxillary horns (*M. H.*) are the most prominently developed, of an elongate oval form. The nasals are sharply constricted between them. Anteriorly the nasals are very slender, and there is no evidence that they bore nasal horn bosses such as are developed in Middle Eocene uintatheres. The nasals expand posteriorly behind the maxillary horns into a broad plate, suturally distinct from the frontals at the sides but merging into the frontoparietal complex posteriorly. The rudimentary frontal osseous horns (*F. H.*) are located immediately above the orbits and form the anterior termination of the supratemporal crests. The parietal horns (*P. H.*) are very rudimentary, being represented by obliquely transverse ridges (*r*) which terminate in the widest portion of the supratemporal crest above the middle of the temporal fossa. From this point the supratemporal crests converge slightly toward the occiput. This condition is directly comparable to that of the type specimen of *Elachoceros parvum* Scott (Fig. 2) of the Bridger, in which, however, the parietal horns are more pronounced and developed.

The occiput is relatively low and broad as compared with that of the Bridger uintatheres (see Fig. 3); the occipital condyles are very broad; the paroccipital processes are low, or sessile; the posttympanic portion of the squamosal is prominent and separated by a wide open external auditory meatus from the broad and transversely placed postglenoid processes.

The *palatal view* indicates the presence of six grinding teeth, p^2-m^3 , the true molars, as noted above, being apparently entirely similar in structure to those of *Uintatherium*. The hard palate opens opposite m^3 . The superior canines are of considerable size, the alveolar diameters being a. p. .024, tr. .017. This

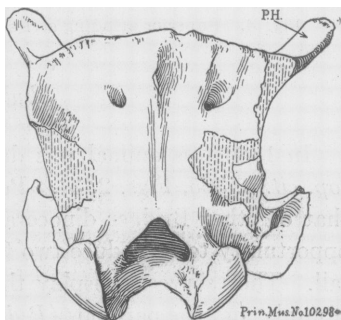


Fig. 3. Occiput of *Elachoceros parvum*. One sixth natural size.

hypertrophy of the canines has already been anticipated from the presence of the deep flange on the lower jaw of *B. fissidens*. The premaxillaries are extremely slender and were probably edentulous as in *Uintatherium*.

As a whole the skull and dentition are so closely related to those of *females* of the primitive species of *Uintatherium* as to fall almost within the same generic definition. The skull, however, is that of a robust *male*, with well developed canine tusks, and is consequently to be regarded as in a typical ancestral stage. It differs from that of the somewhat problematical type of *Elachoceros* (Fig. 2) in the fact that in the latter the parietal horns

(*P. H.*) are much more prominently developed and somewhat more posteriorly placed, while the entire parietal crest is so broad that when seen from above (Fig. 2, B) it hides the temporal fossa completely.

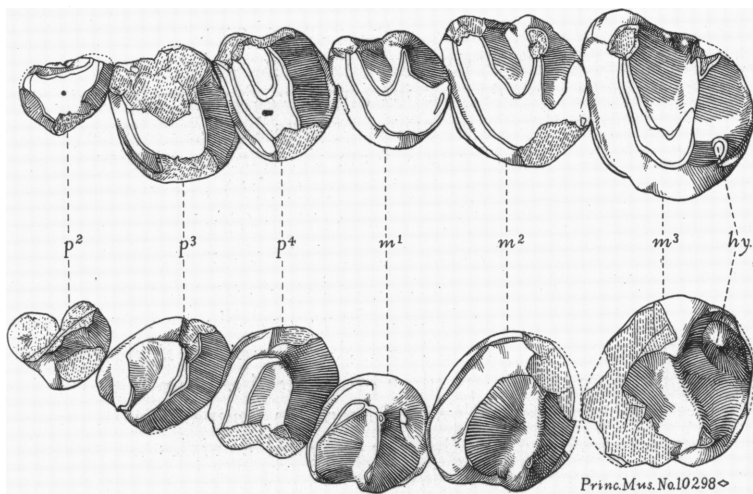
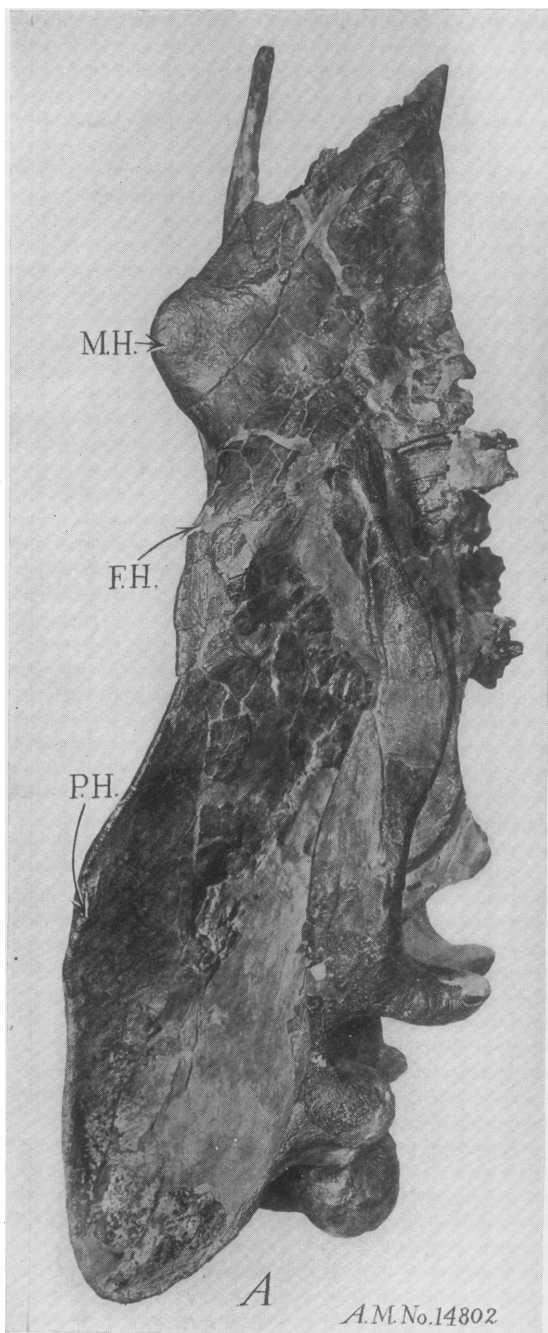


Fig. 4. Superior grinding series of type of *E. parvum*. Two-thirds natural size.

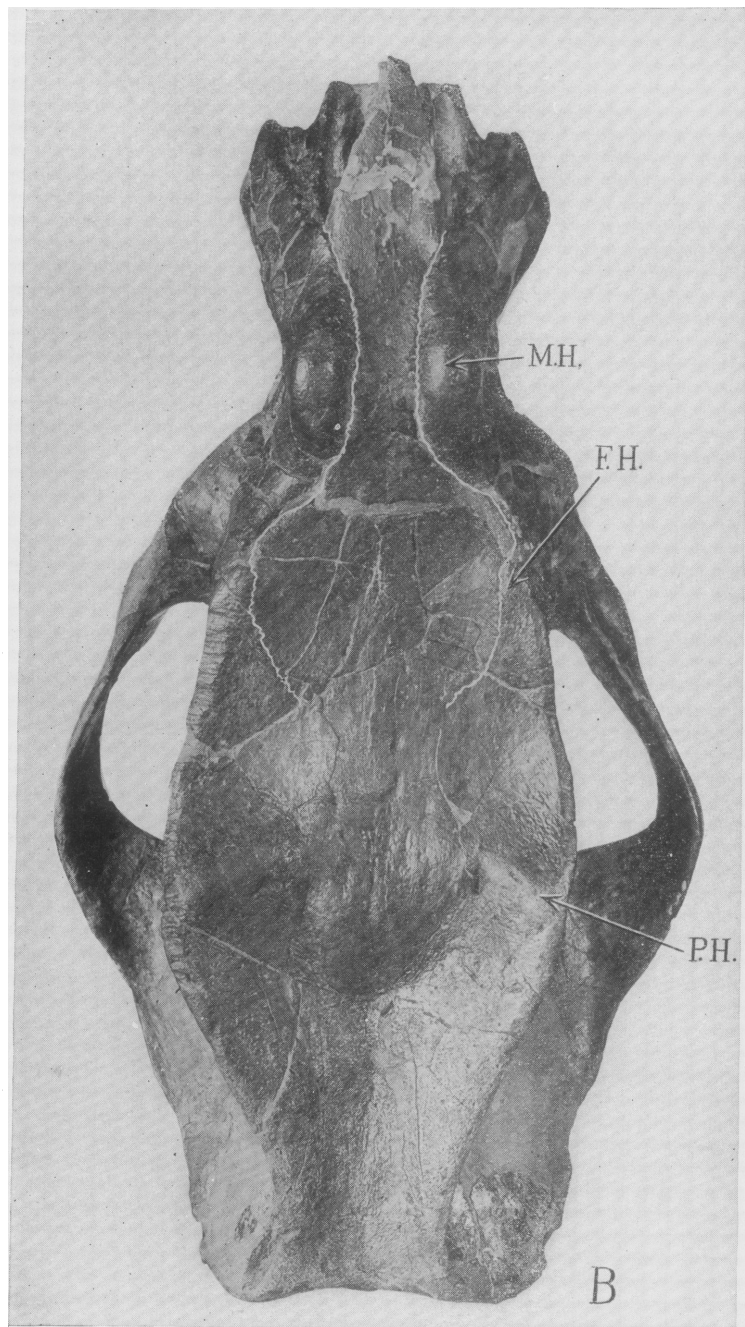
Skull of *Elachoceras*.

In 1886 this animal was described by W. B. Scott¹ with two figures (*op. cit.* p. 305, Figs. 2, 3). Pending a close comparison of this type with that of other Bridger dinocerata the author owes to Professor Scott the opportunity to reproduce two figures herewith, drawn by Mr. Bruce Horsfall. They serve to display the three horn bosses on the maxillaries, the frontals, and the parietals (*P. H.*). This skull, as above noted, is strikingly similar to that here described as *B. fissidens* but it is in a more advanced stage of evolution. It will be observed that the frontal horn rudiments (*F. H.*) are directly above the orbits.

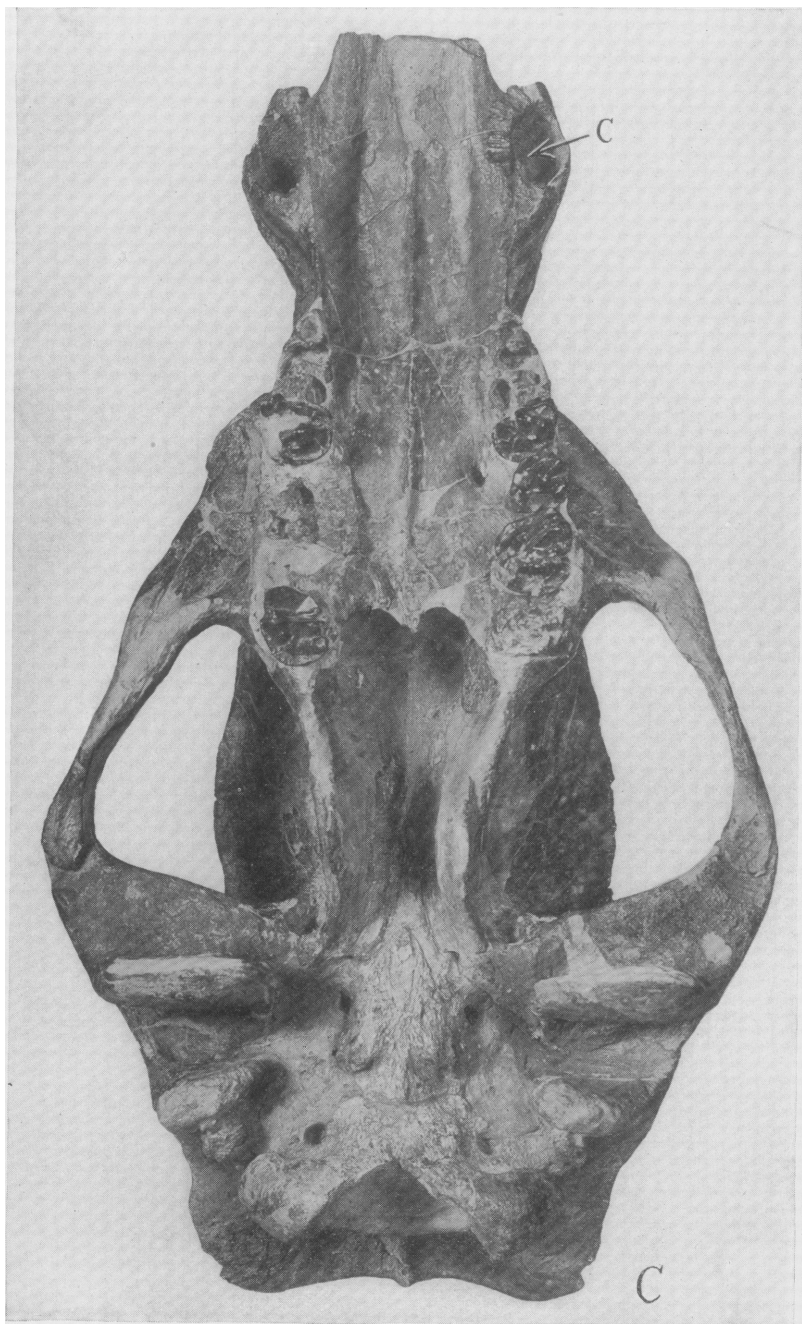
¹ Scott, W. B. 'On Some New Forms of the Dinocerata.' Amer. Jour. Sci. Vol. XXXI, Apr. 1886, pp. 303-307.



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