

**Article XXXVII.—A NEW CRESTED TRACHODONT DINOSAUR
*PROSAUROLOPHUS MAXIMUS.***

BY BARNUM BROWN.

Among the fossils secured by the American Museum Expedition of 1915 are several Trachodont skulls from the Belly River exposures of the Red Deer River, Alberta, one of them of huge size and generically distinct from any heretofore described.

It belongs to the subfamily Saurolophinae and from the development of the facial bones and the form of the incipient crest appears to be directly ancestral to *Saurolophus* of the Edmonton formation.

This animal was one of the largest of the Trachodonts and the skull offers another example of the great variety of facial development among the Crested Trachodonts.

When found the right side of the skull was weathered off almost to the mid-line and the parietal section was crushed upward laterally so that both supratemporal arches appear from a side view. The premaxillaries were separated from the skull and they have been replaced in their proper position. All sutures are clearly defined excepting the union of the nasals and frontals underlying the crest.

***Prosaurolophus maximus* gen. et sp. nov.**

Type of genus and species, an incomplete skull and jaw, No. 5386.

Horizon and locality. Belly River formation 100 feet below top of beds, north fork of Sand Creek, 12 miles below Steeveville, Red Deer River, Alberta, Canada.

Generic and specific characters. Skull large, high, and elongate. Incipient crest short, erect, directly above the eye, and formed by prefrontals, frontals and nasals. Frontals excluded from the border of the orbit. Beak long and spatulate. Lachrymals long and narrow. Nasals high posteriorly.

The skull is considerably larger than the type specimen of *Saurolophus osborni* and the general form and relationship of the elements compares closely with that of *Saurolophus*, excepting the crest which is composed of the same elements but is small, erect, and not prolonged backward. In fact a description of other elements composing the skull that are visible in *Saurolophus* would serve equally well for those of *Prosaurolophus* and I am convinced that this form is ancestral to *Saurolophus*.

From a comparison of the material now prepared in the American Mu-

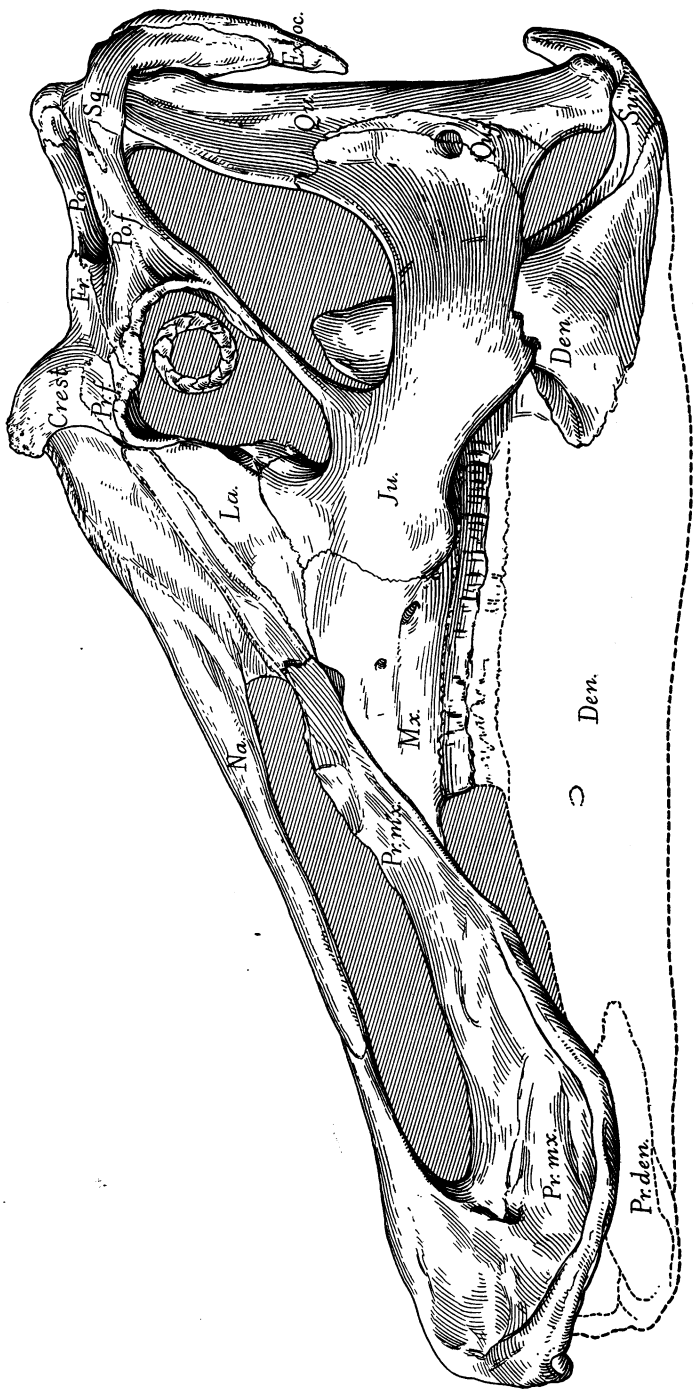


Fig. 1. Side view of *Prosaurolophus mazinius* skull, reconstructed by elimination of crushing. $\frac{1}{3}$ natural size.

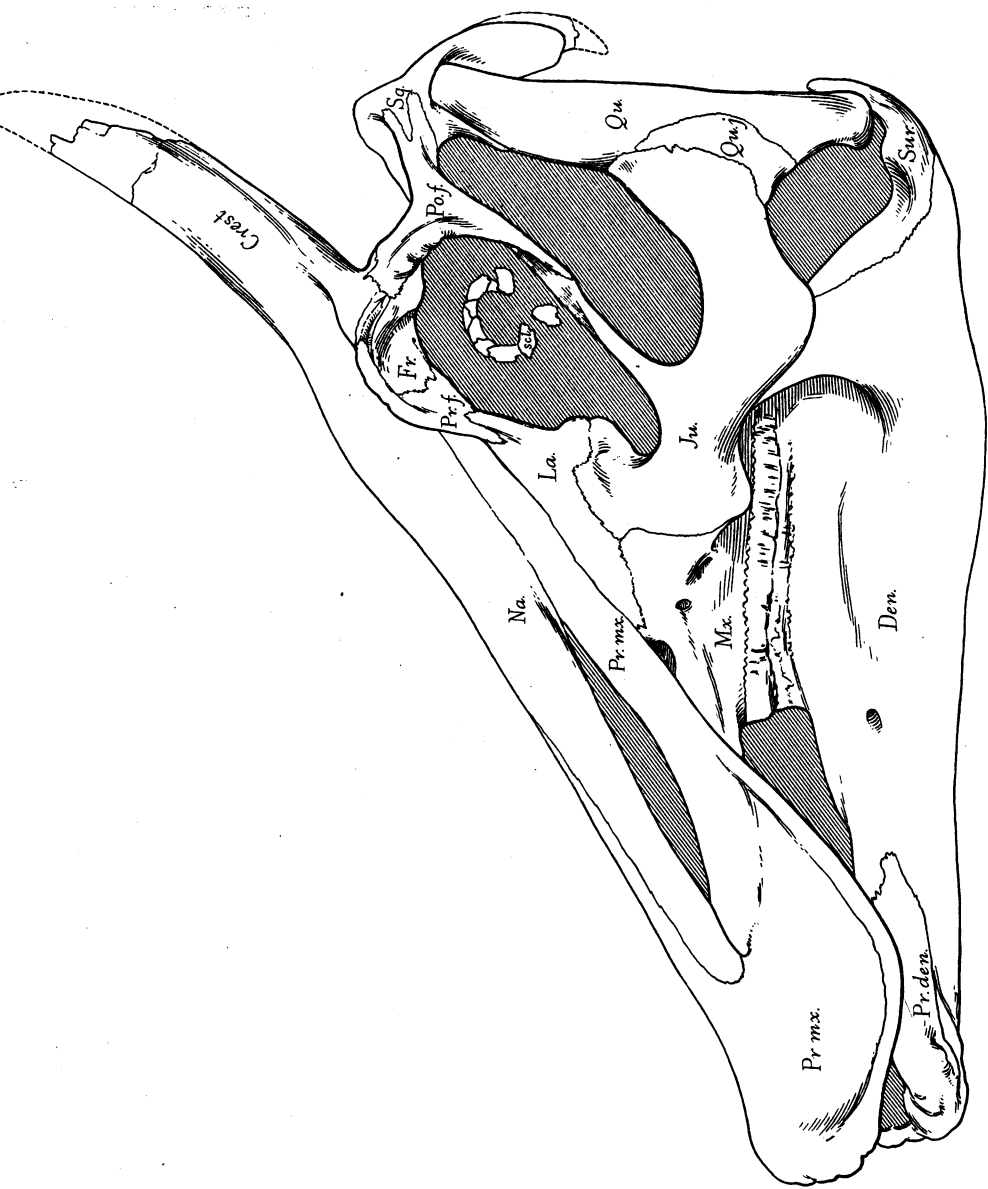


Fig. 2. Side view of *Saurolophus osborni* skull, original drawing reversed for comparison. $\frac{1}{7}$ natural size.

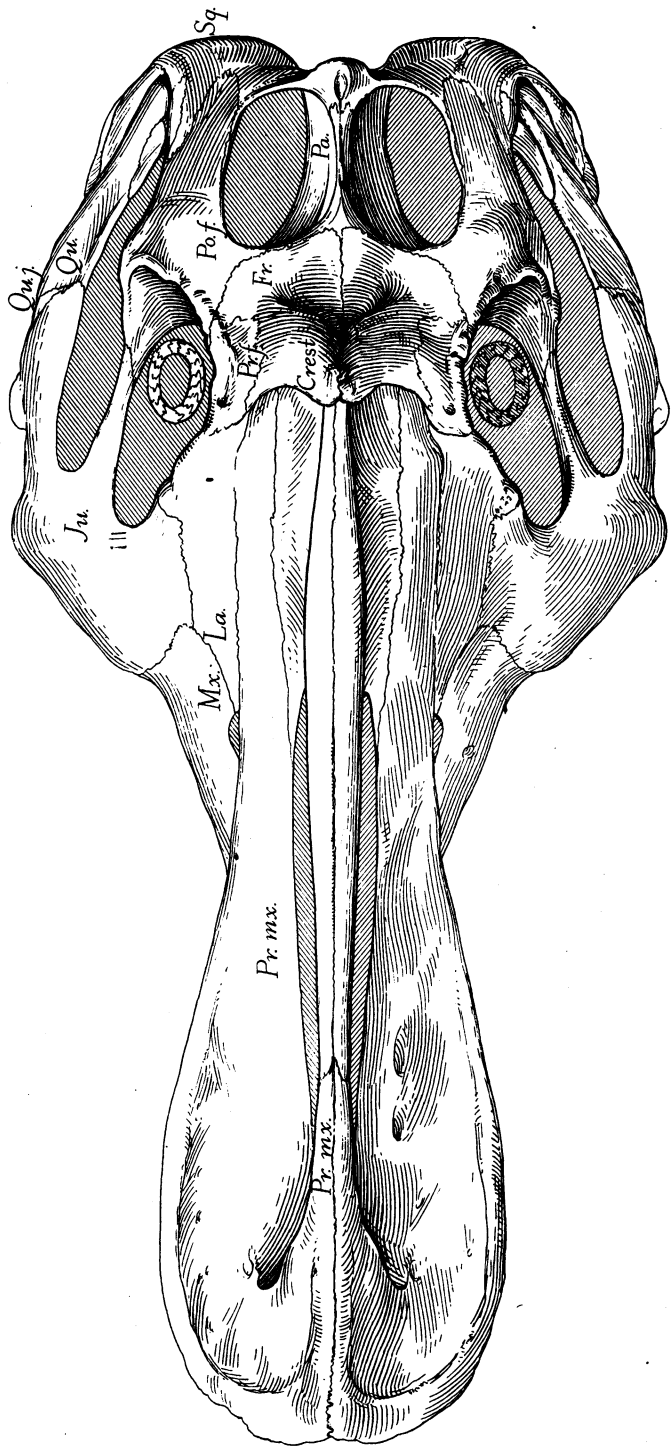


Fig. 3. Dorsal view of *Prosauroplophus mazimus* skull, reconstructed. $\frac{1}{2}$ natural size.

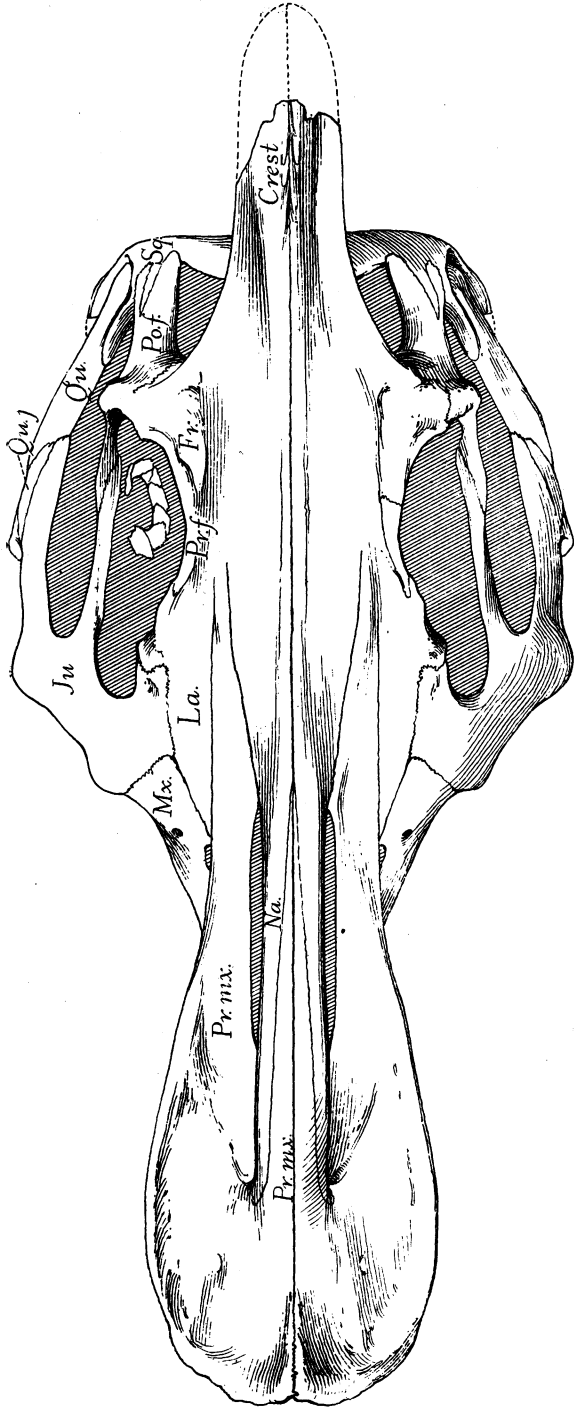


Fig. 4. Dorsal view of *Saurolophus osborni* skull, reconstructed. $\frac{1}{2}$ natural size.

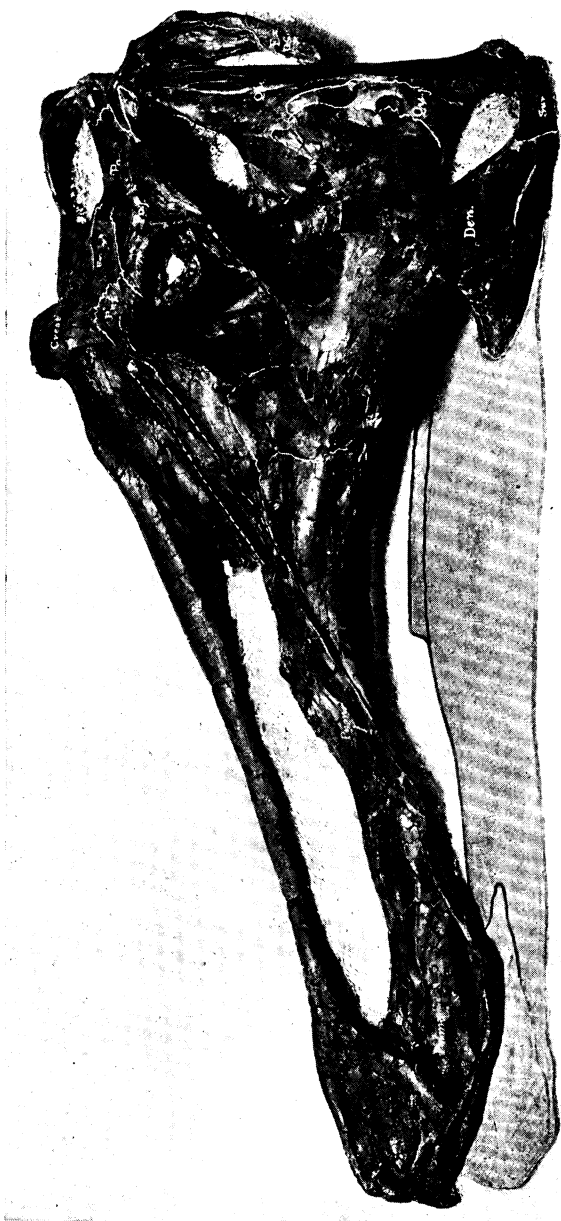


Fig. 5. *Prosaurolophus maximus* skull, type, missing part of jaw painted on base.

seum it seems evident that there were at least two distinct forms of crest among the Trachodonts: straight spike crests and helmet crests. The spike-like crests are correlated with long heads, spatulate-shaped beaks and a maximum number of teeth equal to *Trachodon*. The helmet-crested forms were short-headed and short-beaked with reduced number of teeth.

As yet I am unable to correlate these distinct forms of crest with distinguishing characters in the skeleton and group them together in the sub-family Saurolophinae as defined in a previous paper.¹

The crest is comparatively low, short anteroposteriorly and slightly curved forward at the apex with roughened superior border. It is apparently derived primarily and chiefly from the anterior lateral border of the frontals, supported at the base by the prefrontals and in front formed by the posterior prolongation of the nasals. By extending this crest upward and backward the exact condition of the crest in *Saurolophus* would be fulfilled.

The nasals are high posteriorly, rising to form the front of the crest, with sides slightly concave and their superior border in front of the crest roughened as in *Saurolophus*. The anterior ends of the nasals extend a little beyond the middle of the external nares and are separated by the superior processes of the premaxillaries. The anterior ends of the nasals in *Saurolophus* are heavier and extend to the anterior end of the external nares.

The beak is long and spatulate as in *Saurolophus* and readily distinguished from the abrupt broad beak of *Trachodon* and the shorter, narrow triangular beak of *Corythosaurus* and closer allied genera. Its lower and anterior border is roughened by large pseudo-denticles and the inferior process of the premaxillary extends to the prefrontal, overlapping the long lachrymal as in *Saurolophus*.

The maxillary, lachrymal, jugal, quadratojugal, quadrate, postfrontal, squamosal, frontal and parietal are in form and relation exactly comparable to those of *Saurolophus*.

Near the center of the quadratojugal there is a round depression which does not penetrate the bone and which apparently has no morphological significance for it is not present in any other known Trachodont skull.

As in all crested Trachodonts the parietal is free from the crest.

The maxilla has been crushed vertically and reduced in height; it was large as in *Saurolophus*. A part of the maxillary alveoli are preserved showing more than 45 rows of teeth but the exact number of rows cannot be determined.

¹ Bull. Amer. Mus. Nat. Hist., Vol. XXXIII, Art. xxxiv, pp. 559-565, 1914.

The posterior end of the lower jaw that is preserved shows a deep dentary, high coronoid process and a long posterior inwardly directed hook on the surangular. From the form of the beak it is evident that the edentulous anterior end of the dentary was long and not abruptly decurved as in *Kritosaurus* or the shorter beaked helmet-crested Trachodonts.

In this specimen the orbital ring of sclerotic plates is complete although badly broken. The plates resemble those of *Saurolophus*. Sclerotic plates have been found in *Trachodon*, *Saurolophus* and *Prosaurolophus*, and they were probably present in the eyes of all Trachodonts.

Measurements.

	mm.
Extreme length of skull, paroccipital process to end of beak.....	1300
Length distal end of quadrate to end of beak.....	1200
Height of quadrate.....	420
" " crest above border of orbit.....	160