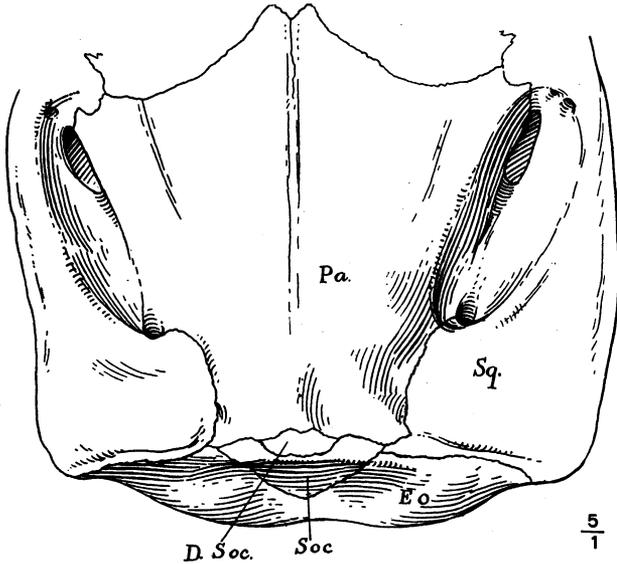


Article IX.—THE DERMO-SUPRAOCCIPITAL BONE IN THE CROCODILIA¹

BY CHARLES C. MOOK

In a number of figures of Permian reptiles Williston has indicated dermo-supraoccipital bones, lying immediately posterior to the parietals. These dermo-supraoccipital bones are large and prominent in three of the Permian genera, i. e., *Limnoscelis*, *Seymouria*, and *Nothodon*. All of the bones of the surface of the cranium are paired in these genera.



Mus. Comp. Zool. No. 13101

Fig. 1. Posterior portion of brain-case of a very young alligator (*Alligator mississippiensis*) Mus. Comp. Zool. No. 13101. Five times natural size. Superior view. D. Soc., dermo-supraoccipital; Eo., exoccipital; Pa., parietal; Soc., supraoccipital; Sq., squamosal.

Of *Nothodon* Williston says: "Back of the parietals are the broad dermo-occipitals, which are blended on the upper side with the supraoccipitals almost indistinguishably. I believe, however, that their sutural separation follows about the line as I have drawn it." He describes the inferior surface in detail.

¹Contributions to the Osteology, Affinities, and Distribution of the Crocodylia. No. 6.

Miall has noted the dermo-supraoccipital as a component of the skull of the Crocodylia. It has never been figured in this group and does not appear on most crocodile skulls.

Upon taking up the study of the Crocodylia it was suggested to the writer by Professor W. K. Gregory that it would be advisable to make a careful study of very young crocodylian skulls to verify Miall's statement, if possible, and to determine the characters of the dermo-supraoccipital if it were found to be present. Two very young alligator skulls (Amer. Mus. No. 2320 and Amer. Mus. No. 2321), which are 57 mm. and 53 mm. long, respectively, were examined for this purpose and showed no indications of the dermo-supraoccipital as a separate element. In a very young skull in the collection of the Museum of Comparative Zoology kindly loaned by Dr. Thomas Barbour (Mus. Comp. Zool. No. 13101), which is only 35.3 mm. long, a distinct bone is visible posterior to the parietal and anterior to the supraoccipital in position; this bone is united to the parietal and supraoccipital by distinct sutures. In a slightly larger specimen (Mus. Comp. Zool. No. 13102), which is 39.5 mm. long, the element is likewise clearly visible but, while its suture with the supraoccipital is clean-cut and open, its suture with the parietal is obscure; the bone appears to be partially fused with the parietal.

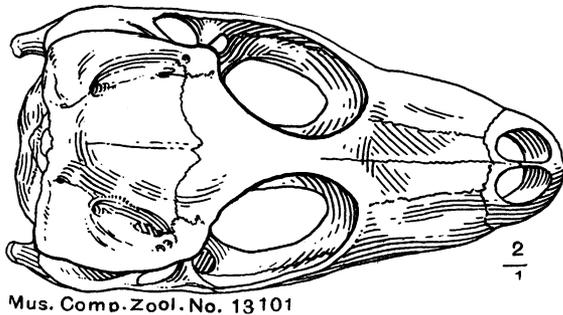


Fig. 2. Skull of young alligator (*Alligator mississippiensis*). Mus. Comp. Zool. No. 13101. Twice natural size. Superior view. In this figure the relations of the parts represented in Fig. 1 are indicated.

Regarding the element noted, the following may be said: it occupies the position indicated by Williston for the dermo-supraoccipital in *Limnoscelis*, *Nothodon*, and *Seymouria*; furthermore, it appears to be more closely connected with the parietal (of dermal origin) than with the supraoccipital (of cartilage origin). From these facts it may be confidently stated that the element is the dermo-supraoccipital and that it fuses at a very early stage with the parietal. Along with the other cranial

elements, it has lost its paired character. This fusion has been greatly accelerated, in comparison with the Permian reptiles, so the bone is only present as a distinct element in a very young stage.

The bone is much smaller than the supraoccipital and is bounded by it laterally as well as posteriorly. In respect to the latter character the bone differs from the corresponding element in the Permian reptiles, in which it is large and is bounded laterally by the tabulars and supra-temporals, separating the parietal completely from the supraoccipital. In shape the bone is broader than it is long, its length being about two-fifths as great as its breadth. Its posterior boundary is a symmetrical convex curve; its anterior boundary is more complex but is symmetrical; it extends inward and slightly forward from each sharp lateral corner, then curves forward, and then backward to the median line and in a symmetrical direction to the opposite lateral corner. The bone is therefore slightly notched at the median line.

It will be interesting to search for this element in the Tertiary and Mesozoic crocodylians and to trace, if possible, its history back through a primitive diapsid stem to the ancestral Palæozoic Reptilia.

