

nothing; and even if they should be thought to imply that a warm temperature characterized the northern seas in the carboniferous era, the absence of cold may have given rise (as at present in the seas of the Bermudas, under the influence of the Gulf-stream) to a very wide geographical range of stone-building corals and shell-bearing cuttle-fish, without its being necessary to call in the aid of tropical heat.

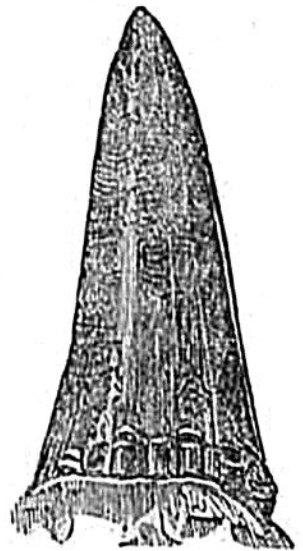
CARBONIFEROUS REPTILES.

Where we have evidence in a single coal-field, as in that of Nova Scotia, or of South Wales, of fifty or even a hundred ancient forests buried one above the other, with the roots of trees still in their original position, and with some of the trunks still remaining erect, we are apt to wonder that until the year 1844 no remains of contemporaneous air-breathing creatures should have been discovered. No vertebrated animals more highly organized than fish, no mammalia or birds, no saurians, frogs, tortoises, or snakes were known in rocks of such high antiquity. In the coalfields of Europe mention has been made of beetles, locusts, and a few other insects, but no land-shells have even now been met with. Agassiz described in his great work on fossil fishes more than one hundred and fifty species of ichthyolites from the coal-strata, ninety-four belonging to the families of shark and ray, and fifty-eight to the class of ganoids. Some of these fish are very remote in their organization from any now living, especially those of the family called *Sauroid* by Agassiz; as *Megalichthys*, *Holoptychius*, and others, which were often of great size, and all predaceous. Their osteology, says M. Agassiz, reminds us in many respects of the skeletons of saurian reptiles, both by the close sutures of the bones of the skull, their large conical teeth striated longitudinally (see fig. 509), the articulations of the spinous processes with the vertebræ, and other characters. Yet they do not form a family intermediate between fish and reptiles, but are true *fish*, though doubtless more highly organized than any living fish.*

The annexed figure represents a large tooth of the *Holoptychius*, found by Mr. Horner, in the Cannel coal of Fifeshire. This fish probably inhabited an estuary, like many of its contemporaries, and frequented both rivers and the sea.

At length, in 1844, the first skeleton of a true reptile was announced from the coal of Münster-Appel in Rhenish Bavaria, by H. von Meyer, under the name of *Apaton pedestris*, the animal being supposed to be nearly related to the salamanders. Three years later, in 1847, Prof. von Dechen found in the coal-field of Saarbrück, at the village of Lebach, between Strasburg and Treves,

Fig. 509.



Holoptychius Illiberti, Ag.
Fifeshire coal-field.
Tooth; natural size.

* Agassiz, Poiss. Foss. vol. ii. p. 88, &c.