XI.—Descriptions of New Fossil Fishes from the Trias.

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DIPLURUS, Nov. Gen.

Coelacanth ganoids of large size; body fusiform; head high behind, rapidly sloping to muzzle; cranial bones coarsely granulated; jugulars long-elliptical, their external surface covered with elongated tubercles; teeth conical acute. Paired fins lobate; fin-rays without spines; caudal fin broad and long; supplemental caudal relatively large, fan-shaped, distinctly separated from the caudal fin, composed of simple fluted rays, with bulbous bases, and, like those of the other medial fins, articulated throughout about half their length; scales small, exposed surface coarsely granulated.

This genus is closely allied to Holophagus, but differs in having the scales granulated, the rays of the median fins without spines, and the fin-rays articulated to a less degree. From Coelacanthus it may be distinguished by its having granulated scales and bones, and fin-rays much more frequently articulated. From Macropoma it differs, in having the scales more distinctly granulated, and in not possessing spines on the fin-rays.

From the above description it will be seen that this great Triassic fish can not be placed in either of the Coelacanth genera yet established; and it becomes necessary to give it a new generic name. It should be said, however, that the resemblance in structure in the whole group of Coelacanthus is so close, that if they had been found in the same formation, they would doubtless have been regarded as different species of the same genus. When the subject can be reviewed in the light of more material, it is not improbable that this conclusion will be reached.

DIPLURUS LONGICAUDATUS, Newb.

Fish large, having a length of three feet; body fusiform; exterior surface of cranial bones coarsely granulated; jugulars covered with elongated tubercles; dorsal fins large and strong; anterior dorsal supported by a large rounded plate of bone; paired fins lobate, and, like the anal and the posterior dorsal, based on forked or palmed bones; caudal fin long and large, with eleven or twelve rays on each side of the vertebral column at the extremity; supplemental caudal fin triangular, three inches in length and in breadth. Scales relatively small, exposed surface coarsely granulated.

Locality, Boonton, N. J.

PTYCHOLEPIS MARSHI, Newb.

Fish eight inches or more in length, by two and a quarter in breadth; fusiform, robust. Head pointed, contained four and a half times in the
entire length; all the bones of the head marked with strong raised lines, those of the upper surface somewhat radiate; on the opercula, maxillaries, mandibles, and gular plates, more or less undulately parallel and forked. The dorsal fin is of medium size, and placed near the centre of the back; the anal is set far back, reaching nearly to the caudal; caudal small, forked, the scales and vertebral column reaching distinctly into the upper lobe. The scales on the anterior portion of the body are twice or three times as long as high, and are marked with strong raised lines. In the middle and posterior portions, the scales are very long and narrow, five or six times as long as high, and traversed by a superficial furrow, which generally reaches from the anterior end half or two-thirds the length, and is again resumed on the posterior margin; by this the extremities of the scale are forked. On the anterior portion of the abdominal surface the scales are exceedingly narrow, acute, and spine-like. Vertebral column partially ossified.

On comparing our fish with the figure and description of *Pt. Bollensis*, Ag. (Poiss. Foss., Tom. 2, Tab. 85 b.), it will be seen that it differs from that species in the position of the dorsal fin, which is placed more anteriorly, in the details of the scale and head-markings, and in the greater degree to which the tail is vertebrated and the spinal column ossified. From *Pt. minor*, Egerton (Mem. Geol. Sur., Dec. VI, Pl. VIII), our species is easily distinguished by its much greater size, narrower scales, and more vertebrated tail. From *Pt. curtus*, Egerton (Mem. Geol. Sur., Dec. VIII, Pl. VIII), it differs in its more elongated form, in the plication of the scales, and the more heterocercal tail.

The discovery in our so-called Triassic rocks of a species of Ptycholepis—a genus before found only in the Lias of Europe—might seem to open up again the long-debated question of the age of the "New Red Sandstone" of the Atlantic States; but in fact it does not seriously invalidate the conclusion, based on other evidence, that this series of strata, though perhaps not strictly the equivalent of the Trias of Europe, and it may be covering with its upper beds a portion of the Jura, still is, on the whole, rather of Triassic than of later date; but the fish now described is a new species, and is more heterocercal, *i.e.*, has the vertebral column prolonged to a greater distance into the upper lobe of the tail, than its European Liassic representatives. Without attaching too much importance to this character, we may fairly infer that it indicates a little earlier date.

*Locality, Durham, Conn.*

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