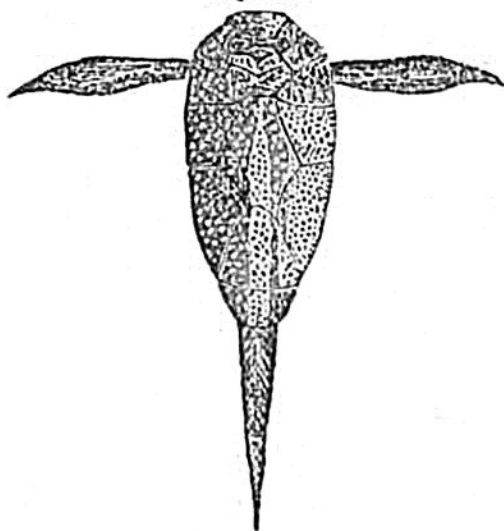


Five species of *Pterichthys* have been found in this lowest division of the Old Red. The wing-

Fig. 550.



Pterichthys, Agassiz; upper side, showing mouth; as restored by H. Miller.*

like appendages, whence the genus is named, were first supposed by Mr. Miller to be paddles, like those of the turtle; but Agassiz regards them as weapons of defence, like the occipital spines of the River Bull-head (*Cottus gobio*, Linn.); and considers the tail to have been the only organ of motion. The genera *Dipterus* and *Diplopterus* are so named, because their two dorsal fins are so placed as to front the anal and ventral fins, so as to appear like two pair of

wings. They have bony enamelled scales.

The *Asterolepis* was a ganoid fish of gigantic dimensions. *A. Asmusii*, Eichwald, the species characteristic of the Old Red Sandstone of Russia as well as that of Scotland, attained the length of between 20 and 30 feet. It was clothed with strong bony armor, embossed with star-like tubercles, but it had only a cartilaginous skeleton. The mouth was furnished with two rows of teeth, the outer ones small and fish-like, the inner larger and with a reptilian character.† The *Asterolepis* occurs also in the Devonian rocks of North America, in the lower division of the Old Red. Coniferous wood, with structure showing medullary rays, has likewise been detected in the lower division by Hugh Miller,‡ who has pointedly dwelt on the importance of the fact, as the oldest example yet known of so highly organized a plant occurring in a rock of such antiquity.

South Devon and Cornwall.—*Term Devonian.*—A great step was made in the classification of the slaty and calciferous strata of South Devon and Cornwall in 1837, when a large portion of the beds, previously referred to the "transition" or Silurian series, were found to belong in reality to the period of the Old Red Sandstone. For this reform we are indebted to the labors of Professor Sedgwick and Sir R. Murchison, assisted by a suggestion of Mr. Lonsdale, who, in 1837, after examining the South Devonshire fossils, perceived that some of them agreed with those of the Carboniferous group, others with those of the Silurian, while many could not be assigned to either system, the whole taken together exhibiting a peculiar and intermediate character. But these paleontological observations alone would not have enabled us to assign, with accu-

* Old Red Sandstone. Plate 1, fig. 1. Mr. Miller's description of the fish is most graphic and correct.

† Footprints of the Creator, by Hugh Miller.

‡ Footprints, p. 199.