

without homologue in the higher animals, on which the caudal rays rest as their bases. And in by much the larger proportion of these fishes all the four limbs are slung round the neck;— they at once exhibit the homocercal tail in its broadest type, and displacement of limb in its most extreme form.

Now, in tracing the geologic history of the ichthyic tail, we find these several steps or gradations from the heterocercal to the homocercal, represented by periods and formations. The Siluran periods may be regarded as representative of that true heterocercal tail of the Placoids, exemplified in *Spinax*, (page 172, fig. 48,) and *Cestracion*, (page 177, fig. 49.) The whole caudal portion of this latter animal, commencing immediately behind the ventrals, is, as becomes a true tail, slim, when compared with its trunk; the vertebræ are of very considerable solidity; the rays mucoidal; and where the spinal column runs into the terminal fin, it takes such an upward turn as that which the horse-jockey imparts, by the process of *nicking*, to the tails of the hunter and the race-horse. And with the heterocercal tail, so true in its homologies to the tails of the higher vertebrata, we find associated, as has been shown, the true homological position of the fore limbs. With the commencement of the Old Red Sandstone the ganoidal tail first presents itself; and we become sensible of a change in the structure of the attached fin, similar to that exemplified in the caudal rays of the sturgeon. As shown by the irregularly-angular patch of scales which in all the true Cœlacanth, and almost all the Dipterians,* runs through the

* The vertebral column in the genus *Diplopterus* ran, as in the placoid genus *Scyllium*, nearly through the middle of the caudal fin.