

anatomical point of view these may represent very different parts. In the Whales, the anterior extremities and the tail are transformed into fins. In Fishes, the pectoral fins, which represent the arms, and the ventral fins, which represent the legs, are employed for swimming, but they are not the principal organs; for it is by the tail, or caudal fin, that progression is principally effected. Hence the progression of the fish is precisely that of a boat under the sole guidance of the sculling-oar. In the same manner as a succession of strokes alternately right and left propels the boat straight forwards, so the fish advances by striking alternately right and left. To advance obliquely, it has only to strike a little more strongly in the direction opposite to that which he wishes to take. The Whales, on the contrary, swim by striking the water up and down; and it is the same with a few fishes also, such as the rays and the soles. The air-bladder facilitates the rising and sinking of the fish, by enabling it to vary the specific weight of the body.

196. Most land animals swim with more or less ease, by simply employing the ordinary motions of walking or leaping. Those which frequent the water, like the beaver, or which feed on marine animals, as the otter and duck, have webbed feet; that is to say, the fingers are united by a membrane, which, when expanded, acts as a paddle.

197. There is also a large number of invertebrate animals in which swimming is the principal or the only mode of progression. Lobsters swim by means of their tail, and, like the Whales, strike the water up and down. Other crustacea have a pair of legs fashioned like oars; as the posterior legs in sea-crabs, for example. Many insects likewise, swim with their legs, which are abundantly fringed with hairs to give them surface; as the little water boatmen, (*Gyrinus*, *Dytiscus*,) whose mazy dances on the summer streams every one must have observed. The cuttle-fish uses its long ten-