

## CHAPTER VII.

## FISHES.

IN reviewing the series of animals which compose each great division of this kingdom of nature, we constantly find that the simplest structures and modes of progression are those belonging to the aquatic tribes. Among vertebrated animals, the lowest rank is occupied by *Fishes*, a class comprehending an immense number of species, which are all inhabitants of the water, which exhibit an endless variety of forms, and open to the physiologist a wide field of interesting research. We cannot fail to perceive, on the most cursory glance, the beautiful adaptation of the form and structure of all these animals to the properties of the element in which they are destined to reside. In order that the fish might glide through the fluid with the least resistance, all its vital organs have been collected into a small compass, and the body has been reduced into the shape of a compact oval, compressed laterally, and tapering to a thin edge, both before and behind, for the purpose of readily cleaving the water as the fish darts forward, and also of obviating the retardation which might arise from the reflux of the water collected behind. With a view to diminish friction as much as possible, the surface of the body has been rendered smooth, and the skin impregnated with oil, which defends it from injurious impressions, and at the same time prevents the water from penetrating into its substance.

The body of a fish is nearly of the same specific gravity as the water it inhabits; and the effect of gravity is therefore almost wholly counterbalanced by the buoyant force of that fluid; for the weight of a mass of water, equal in bulk to the body itself, is the exact measure of this buoyant force. If this weight were precisely the same as that of the fish, the animal would be able to remain suspended in any part of the