

construction has been, in all cases, designed to obtain a considerable extent of surface over which the minute subdivisions of the blood vessels might be spread, in order to expose them fully to the action of aerated water.

The Mollusca, also, present great diversity in the forms of their respiratory organs, although they are all, with but a few exceptions, adapted to aquatic respiration. In many of the tribes which have no shell, as the *Thetis*, the *Doris*, and the *Tritonia*, there are arborescent gills projecting from different parts of the body, and floating in the water. In the *Lepas*, or barnacle, a curious family, constituting a connecting link between molluscous and articulated animals, these organs are attached to the bases of the *cirrhi*, or jointed tentacula, which are kept in constant motion, in order to obtain the full action of the water on the blood vessels they contain.

We are next to consider the extensive series of aquatic animals in which respiration is carried on by organs situated in the interior of the body. The first example of internal aquatic respiration occurs in the *Holothuria*, where there is an organ composed of ramified tubes, situated in a cavity having an external opening for the admission of the aerated water, which is brought to act on a vascular network, containing the nutritive juices of the animal, and apparently performing a partial circulation of those juices. A still more complicated system of respiratory channels occurs, both in the *Echinus* and *Asterias*, where they open by separate, but very minute orifices, distinct from the larger apertures through which the feet protrude; and the water admitted through these tubes is allowed to permeate the general cavity of the body, and is thus brought into contact with all the organs.

The animals composing the family of *Ascidia* have a large respiratory cavity, receiving the water from without, and having its sides lined with a membrane, which is thrown into a great number of folds; thus considerably extending the surface on which the water is designed to act. The entrance