

Respiration, in its different modes, may be distinguished, according to the nature of the medium which is breathed, into *aquatic* or *atmospheric*; and in the former case, it is either *cutaneous*, or *branchial*, according as the respiratory organs are external or internal. Atmospheric respiration, again, is either *tracheal*, or *pulmonary*, according as the air is received by a system of the air tubes, denominated *tracheæ*, or into pulmonary cavities, composing the *lungs*.

### § 2. *Aquatic Respiration.*

ZOOPHYTES appear in general to be unprovided with any distinct channels for conveying aerated water into the interior of their bodies, so that it may act in succession on the nutritive juices, and after performing this office, may be expelled, and exchanged for a fresh supply. It has accordingly been conjectured, on the presumption that this function is equally necessary to them as it is to all other animals, that the vivifying influence of the surrounding element is exerted through the medium of the surface of the body. Thus, it is very possible that in *Polypi*, while the interior surface of the sac digests the food, its external surface may perform the office of respiration; and no other mode of accomplishing this function has been distinctly traced in the *Acalephæ*. *Medusæ*, indeed, appear to have a farther object than mere progression in the alternate expansions and contractions of the floating edges of their hemispherical bodies; for these movements are performed with great regularity under all circumstances of rest or motion; and they continue even when the animal is taken out of the water and laid on the ground, as long as it retains its vitality. The specific name of the *Medusa pulmo*\* (the *Pulmone Marino* of the Italians,) is derived from the supposed resemblance of these movements to those of the lungs of breathing animals. The large cavities adjacent to the stomach, and which have been already pointed

\* See the delineation of this animal in Fig. 135, vol. i. p. 198.