

In all osseous fishes the opening under the operculum for the exit of the respired water, is a simple fissure; but in most of the cartilaginous tribes, there is no operculum, and the water escapes through a series of apertures in the side of the throat. Sharks have five oblong orifices of this description, as may be seen in Fig. 367.*

As the *Lamprey* employs its mouth more constantly than other fish in laying hold of its prey, and adhering to other bodies, the organs of respiration are so constructed as to be independent of the mouth in receiving the water. There are seven external openings on each side (Fig. 368,) leading into the same number of separate oval pouches, situated horizontally, and the inner membrane of which has the same structure as gills: these pouches are seen on a larger scale than in the preceding figure, in Fig. 369. There is also an equal number of internal openings, seen in the lower part of this last figure, leading into a tube, the lower end of which is closed and the upper terminates by a fringed edge in the œsophagus. The water which is received by the seven lateral openings, enters at one side, and after it has acted upon the gills, passes round the projecting membranes. The greater part makes its exit by the same orifices; but a portion escapes into the middle tube, and thence passes, either into the other cavities, or into the œsophagus.†

life, when surrounded by air instead of water, is that the branchiæ become dry, and lose the power of acting when thus deprived of their natural moisture; for it might otherwise naturally be expected that the oxygen of atmospheric air would exert a more powerful action on the blood which circulates in the branchiæ, than that of merely aerated water. The rectification of this error is due to Flourens, who pointed out the true cause of suffocation, stated in the text, in a Memoir entitled "Expériences sur le Mécanisme de la Respiration des Poissons."—*Annales des Sciences Naturelles*, xx. 5.

* They are also visible in Fig. 293, (page 122,) which is that of the *Squalus pristis*, a species belonging to this tribe.

† It was commonly supposed that the respired water is ejected through the nostril; but this is certainly a mistake, for the nostril has no communication with the mouth, as was pointed out by Sir E. Home. *Philos. Trans.* for 1815, p. 259. These organs have also been described by Bloch and Gærtner.