

ANATINACEA.

Lyonsiella.

The only anatomical knowledge we possess about this genus is due to the researches of Sars,¹ who was the first, and hitherto almost the only, investigator of the structure of deep-sea Molluscs.

There are two species belonging to this genus in the Challenger collection, *Lyonsiella jeffreysi*, Smith, and *Lyonsiella papyracea*, Smith.

18. *Lyonsiella jeffreysi*, Smith. Station 106; 1850 fathoms.

The mantle has three openings, an anterior, of moderate size (pedal), a large posterior, ventral (branchial), and a small posterior (anal).

The anal aperture forms a short siphon which is invaginated in the only existing specimen (Pl. II. fig. 7, *p*). The branchial aperture bears a crown of papilla-like tentacles, somewhat similar to those figured by Sars (*loc. cit.*, pl. iii. fig. 40) from *Lyonsiella abyssicola*. This aperture is continued inwards by a circular membranous fold projecting into the pallial cavity, and probably with a valvular function.

The foot contracted in the specimen is cylindrical and rather narrow; near its base is a projection, ventral to which is the aperture of the byssus.

The mouth (α) has neither palps nor lips in the strict sense of these words. That is to say, there is no distinction possible between lips and palps. The mouth is encircled by a fold more expanded in front (the part corresponding to the anterior palps) than behind. A gill arises from each side of the posterior portion of this fold.

This gill is delicate, and seems to be formed of a single plate. But, as in the other Anatinacea (I do not include *Solenomya* in this group), there are two branchial plates turned in contrary directions, like the two halves of an open book. The dorsal or outer plate (the so-called "appendage") is somewhat reduced, and has only one (the direct) lamina. The ventral plate has two laminae, but the reflected lamina is already reduced, and its most distal portion is no longer in folds.

The greater portion of the gill is free. The anterior portion of the dorsal plate is united to the mantle, for a short distance, by its dorsal edge. But the right and left gills are not united to each other behind the foot, so that the pallial cavity is not divided into two chambers definitely separated by the gills.

But this division into two chambers can be effected in the following manner: a fold arising between the two posterior pallial apertures (Pl. II. fig. 7, *h*) stretches into the pallial cavity to the distal extremity of the gills, with which, however, it does not unite, and is continued from each side, over the mantle, to the point where the gill and

¹ On some Remarkable Forms of Animal Life, i. p. 27 (1872).