

the mantle are joined. Thus the gills, being in juxtaposition to each other behind the foot (by the reflected lamina of the inner or ventral plate), and to this fold (by their posterior extremity, and the dorsal edge of their dorsal or external plate), effect a complete separation between the two chambers.

Dorsally to the gill there is on the mantle a glandular swelling, comparable in its position to the hypobranchial gland of Gastropoda.

19. *Lyonsiella papyracea*, Smith. Station 157; 1950 fathoms.

As in the preceding species, the mantle has three apertures. The largest of these is the branchial aperture, which here also is surmounted by a crown of tentacles, larger and less numerous than in the above (Pl. II. fig. 8, *q*), and which is continued inwards by an annular membranous valve similar to but more extended than that in *Lyonsiella jeffreysi* (*k*). This aperture is separated from the pedal aperture by a pallial commissure of considerable extent, as far as *j*.

The mouth (*a*) is encircled by a fold (corresponding to the lips and palps), specially developed anteriorly, where it stretches over the anterior adductor muscle.

The foot (*d*) is cylindrical and obtuse at its distal extremity; it has a simple byssal groove on its posterior surface.

The gill consists, as in *Lyonsiella jeffreysi*, of two plates, of which the dorsal or outer (*e'*) has only one lamina, while the ventral (*e*) has two. But here the gill is thicker, the lamellæ more dilated, and pressed close together, so as to give the organ an almost fleshy appearance.

The outer plate is joined to the mantle, all along its external margin, by means of a membrane (*h*). This union is complete from the anterior adductor (*l*) to the posterior adductor (*m*). In addition, the two gills are united to each other behind the foot by the ventral margin of their ventral plate, and their posterior extremity is joined, by the same membrane (*h*), to the division between the two siphonal apertures, so that they form a great partition through which the foot passes, the reflected lamina of the ventral plates forming a fold round it.

We find, therefore, that the pallial cavity is divided into two chambers morphologically similar to those which I have already had occasion to describe in *Cryptodon moseleyi*. But here the "anal" chamber is very much larger, for it extends to the anterior adductor, that is, in front of the foot, of which the greater part is contained within it.

The pallial wall of the anal chamber exhibits on each side, as in *Lyonsiella jeffreysi*, a glandular thickening, which I have compared to the hypobranchial gland of Gastropoda.

These two species of *Lyonsiella* differ remarkably in regard to the arrangement of the gills, and the existence of well-divided pallial "chambers." While in *Lyonsiella*