

batory pouch the cells are fusiform, and are arranged with their long axes placed along the length of the neck. They are very close together, and form a nearly compact tissue of longitudinally placed rows of cells. These fusiform cells have their ends in many cases greatly drawn out so as to resemble fibres. Cells of the normal spindle-shape without the terminal fibres occur also on the lobes at the margins of the apertures. Here also, as on the neck of the pouch, they form a rather compact layer.

The muscle fibres are non-striped, very long, almost colourless, stain yellow with picrocarmine, and exhibit no traces of a nuclei. The different parts of the mantle vary greatly in the amount and disposition of the musculature. In the thin part covering the abdomen, and adhering closely to the subjacent organs, muscular fibres are usually not visible at all, though occasionally in the upper part, next the thorax, a few delicate stragglers may be seen. The thorax, on the other hand, has fibres running in almost every direction. They are arranged in bands, generally two or three fibres thick, which branch and unite again (Pl. VI. fig. 5); single fibres being alone for short distances only, as when they stretch from one band to an adjacent one. A number of bands are more or less transversely placed, encircling the middle and lower part of the thorax as a series of equidistant parallels (Pl. VI. fig. 4); often, however, they are more irregular. This is the rule on the anterior part of the thorax where the bundles cross at all angles and seem at first to have no definite arrangement. On account of the anterior curvature the circular bands, as they pass over the dorsal and ventral margins, are directed posteriorly, this gives them an oblique course and causes a decussation of those from the two margins (Pl. VI. fig. 4). A few longitudinal fibres are also present running down the sides of the thorax from the sphincter muscles of the apertures. These cross the densest part of the decussation of the circular fibres, which is in the middle of each side just posterior to the branchial aperture, and thus form a patch from which fibres seem to radiate in all directions. On each side, near the ventral margin, a long and rather close bundle of fibres may be seen running in a curved direction from the branchial siphon to the posterior end of the sac where the fibres diverge, many of them sweeping round to the dorsal edge.

The ventral margin over the endostyle (Pl. VI. fig. 4) seems to be more muscular than the corresponding region of the dorsal edge, the bands also cross, branch, and anastomose more frequently; possibly this may be accounted for by the more anterior position of the ventral margin, the atrial aperture being slightly posterior to the branchial. Circular muscle bands act as sphincters at the two apertures (Pl. VI. figs. 2, 3, 4). They are placed around each siphon and the fibres are much coarser and closer than on any other part of the thorax. The branchial sphincter is stronger than the atrial.

Over the incubatory pouch the musculature, though stronger than over the abdomen, is feebly developed. In the young pouch not a fibre is visible, but in those which