In the Ascidiidæ the musculature is much more feebly developed. In typical forms (such as *Ascidia virginea*, O. F. Müller) the muscular fibres are almost entirely confined to the right side of the mantle—the part lying over the branchial sac,—while the left half, over the intestine, is thin and membranous. The bundles run in all directions, branch and anastomose so as to form an irregular network of fibres, meeting at all angles. In the genus *Ciona* the arrangement is more regular. Delicate bundles run circularly, and form a thin non-continuous coat, while much stronger bundles run longitudinally, and are united together into twelve to fourteen strong parallel bands. In *Chelyosoma* the muscular fibres are united into bundles placed between the edges of the horny plates into which the upper part of the test is modified.

In the Clavelinidæ the mantle is thin and the muscular system extremely feeble. The bundles are delicate, and placed far apart, and they run chiefly longitudinally.

In the Ascidiæ Compositæ also, the mantle is thin, and the musculature delicate.

In *Pyrosoma* the mantle is delicate and the muscle bands are confined to the neighbourhood of the branchial and atrial siphons.

In *Doliolum* the muscular fibres are arranged in eight or nine distinct bundles, which form complete hoops encircling the body, and by their contraction expel the water in the branchial and atrial cavities through the terminal apertures; thus propelling the animal through the sea.

In *Salpa* the mantle is thin and tough, and the musculature is developed in the form of a number of strong transverse bands, which sometimes branch and unite, and sometimes remain distinct, but do not form complete hoops as in *Doliolum*. Their arrangement is most definite and characteristic. There are also sphincters round the two terminal apertures.

In the Appendiculariidæ the only muscles known are those of the caudal appendage, where there are two large bundles of striped muscular fibres placed at the sides of the urochord.

Branchial Sac (Pharyngeal Sac, Branchia).

The branchial sac is probably the most important and characteristic organ of the class. It is a modification of the pharynx or first part of the alimentary canal, and differs widely in the different groups, thus affording valuable diagnostic characters. It is usually of considerable size, and in most cases is almost as large as the mantle cavity, while in a few (*e.g.*, *Ascidia mammillata*), it is longer and has the posterior end folded forwards upon the left side of the body. It communicates with the exterior by the branchial aperture or mouth, which is placed anteriorly, and is either circular (*Clavelina*) or surrounded by a definite number of more or less distinct lobes, varying from three (*Culeolus*) up to twelve or fourteen (*Abyssascidia*). The test is prolonged inwards at the edge of the