

to each Ascidiozoid in the system. The edges of the lobes are somewhat variegated, as they contain irregular patches of white and brown pigment.

In a section of the colony it is seen that the Ascidiozooids occupy merely a thin surface layer 1.5 mm. to 2 mm. in thickness, while all the rest of the colony is made up of the soft gelatinous grey test, like the part exposed at the base of the colony, but more transparent. The superficial layer of test all over the colony is modified into a thin transparent but firm membrane; when this is removed the underlying test is found to be very much softer. The vessels of the test in this species are decidedly narrow (see Pl. IV. fig. 8, *v.*), and sometimes very fine vessels may be traced for a long distance. The terminal knobs are large, and are always more or less globular in shape. Although the matrix is as a general rule homogeneous, still in some parts a delicate fibrillation can be made out. The stellate test cells are usually very distinct.

The mantle at first sight seems to have no musculature, but under a high magnification (300 diameters and upwards) very delicate fibres are found in some parts of it. These are decidedly finer than in most of the Botryllidæ, and very much finer than those in the mantle of *Polycyclus lamarcki*. The connectives between the branchial sac and the mantle are very thin, and are sometimes of considerable length.

The branchial sac is wider than usual (see Pl. IV. fig. 7), and the meshes are considerably larger than in any of the other Botryllidæ in the collection; they are wider than long, and have usually five or six stigmata each (Pl. IV. fig. 9). The usual arrangement is as follows, going along the side of the sac from the dorsal lamina to the endostyle:—first a dorsal series of eight stigmata, then the first or dorsal internal longitudinal bar, then a mesh containing five stigmata, then the second bar, then a mesh with six stigmata and the third or ventral bar, then finally a ventral row of nine stigmata bounded by the endostyle.¹ The transverse vessels in some cases vary a little in size, but there is no regular arrangement; they have slight horizontal membranes attached to their inner edges; they have usually a few delicate muscle fibres.

The endostyle is broad (Pl. IV. figs. 7, 10, *en.*). The dorsal lamina is very distinctly ciliated along its free margin. Its narrow anterior end has a curious undulating course (Pl. IV. fig. 10, *d.l.*). There is a certain amount of irregularity in regard to the eight smaller tentacles. They are always very short (Pl. IV. fig. 10), but in some cases they are reduced to mere stumps, and some of them may be absent altogether. The prebranchial zone is pear-shaped (Pl. IV. fig. 10, *z.*), and has the narrower end ventral as in *Polycyclus lamarcki*. Two rounded masses of yellowish-green pigment are found at the sides of the prebranchial zone, one immediately posterior to each median lateral tentacle (Pl. IV. fig. 10, *pig.*). These are the two opaque spots seen in the surface view of the colony (see above, p. 67). Similar cellular masses are found in the same position in *Pyrosoma*.

¹ This may be expressed shortly by the following formula :—D.L.—8 sg.—I.—5 sg.—II.—6 sg.—III.—9 sg.—En.