

the spicule seems to be built up of a number of short wedges or cones joined by their apices, and having the bases prolonged into tapering rays.¹

The muscle bands in the mantle are delicate but very numerous. They run longitudinally, transversely, and irregularly, and form a close network over the thorax. The branchial siphon is very large, in some cases nearly as large as the branchial sac. It is lined by test containing a number of spicules (Pl. XXXIV. fig. 9, *br.*). The branchial sphincter is large, and it gives rise at its posterior edge to a strong retractor muscle on each side, which runs backwards over the thorax near the dorsal edge, and, after joining a smaller muscle band from the mantle in the neighbourhood of the posterior extremity of the endostyle, runs outwards into the test for a considerable distance. This retractor muscle is, when in the test, a tubular prolongation of the mantle; it may be regarded as a vascular appendage from the Ascidiozoid, in the walls of which muscle fibres have been developed.

The branchial sac is a small ovate organ (Pl. XXXIV. fig. 9) with rather thick walls and small stigmata. The endostyle is especially large. The dorsal languets are long, and are tentacular in shape; there is one on each transverse vessel. The tentacles are rather larger than is usual in the Didemnidae (see Pl. XXXIV. fig. 13). There are eight larger and eight smaller placed alternately.

The œsophagus leads directly backwards from the posterior end of the small branchial sac to the rather large stomach (Pl. XXXIV. fig. 9). The shape of the stomach is ellipsoidal, and its outer wall is smooth. Several longitudinal thickenings formed of long columnar cells project into the lumen. The intestine is very similar in appearance and course to that of *Leptoclinum speciosum*.

The testis is large, and lies alongside the intestinal loop. The vas deferens is conspicuous; it commences by coiling from eight to ten times spirally around the testis (Pl. XXXIV. fig. 9).

Two small cylindrical colonies of this species were obtained at Station 142 near the Cape of Good Hope, from a depth of 150 fathoms. They are exactly like the elongated forms of *Leptoclinum speciosum*, var. *asperum* from Bahia (figured in Pl. XXXVI. fig. 9), in all respects except that the surface is perfectly smooth. The Ascidiozooids seem, however, to be rather more numerous and more closely placed than in *Leptoclinum speciosum*. The spicules vary a good deal in size, but resemble those of that species and its variety. These specimens from Station 142 seem to be in an intermediate condition between *Leptoclinum speciosum* and the variety *asperum*, and show therefore that the two forms cannot be regarded as distinct species.

¹ In this respect they resemble the spicules of some Alcyonaria, such as *Sarcodictyon* and *Alcyonium*. The simple spicules, formed of 1, 2, 3, or 4 pieces only, found in *Sarcodictyon* (see Herdman, On the Structure of *Sarcodictyon*, *Proc. Roy. Phys. Soc. Edin.*, vol. viii. p. 31, 1884) never seem to occur in the Leptoclinids.