

along the thorax near the dorsal edge until it reaches the œsophageal aperture, around which it curves so as to meet and join its fellow of the opposite side on the posterior surface of the œsophagus (Pl. XLI. fig. 5). From this point the single muscle band runs downwards into the test below the Ascidiozoid, where it gradually spreads outwards and ends. In all probability this is a retractor muscle for drawing the anterior end of the Ascidiozoid downwards into the colony. It would probably also compress the branchial sac so as to expel the contained water, and would at the same time help to tighten the branchial sphincter, with which it is continuous anteriorly.

Sections of this retractor muscle are met with occasionally in sections of the test (Pl. XLI. fig. 5), and more rarely short ectodermal vessels with dilated bulbous ends are seen. The latter form of appendage is very short in this species. It springs from the region of the œsophageal aperture, and runs posteriorly or dorsally (Pl. XLI. figs. 5, 7, *v.*)

The branchial sac is short and wide. Its dorsal edge is straight, and its ventral edge is curved. The stigmata are large. They are not quite so numerous as in *Leptoclinum carpenteri*. The ciliated cells are distinct; and they are columnar in shape. The endostyle is particularly large and convoluted (Pl. XLI. fig. 7, *en.*). The dorsal languets are few but large. They are of elongated triangular form.

The œsophagus arises at the dorsal edge of the posterior end of the branchial sac, and at first runs dorsally so as to pass through the loop formed by the two branches of the retractor muscle (Pl. XLI. figs. 5, 7, *æ.*). It then turns posteriorly to open into the large fusiform stomach. Transverse sections show the stomach as a simple circular cavity without any ridges or other thickenings on its wall. The intestine is narrow and simple. It lies alongside the stomach and œsophagus, and consequently the intestinal loop is narrow.

Sections of the large rounded testis were found in some of the Ascidiozooids, but no ova and no embryos were discovered in any part of the colony.

Leptoclinum edwardsi,¹ n. sp. (Pl. XXXIX. figs. 12-15).

The Colony is of irregular form, and is attached by the whole of the lower surface. The upper surface is convex and moderately smooth. The colour is grey.

The length is about 3 cm., the breadth is 7 mm., and the thickness is about 3 mm.

The Ascidiozooids are fairly large and numerous. They are distributed evenly over the surface, and do not form definite systems. A few common cloacal apertures are present. The body of the Ascidiozoid is placed vertically in the test, and is divided into two regions, thorax and abdomen.

The Test is firm but not hard. It is of a warm greyish colour, and is nearly opaque. The matrix is densely crowded with large granular test cells and with calcareous

¹ Named in honour of the late Professor H. Milne-Edwards who founded the genus *Leptoclinum*.