

at one end around the nucleus, leaving a larger or smaller clear space between it and the cell-wall at the other extremity.

The peduncle is mainly composed of investing mass, and is seen on section to be very spongy in texture (Pl. XIII. figs. 1-4). Large and rather irregular longitudinal canals traverse it in great numbers and throughout almost its entire thickness. These are united by a vast number of smaller vessels which run in horizontal or transverse planes and communicate freely with the larger vessels (Pl. XIII. fig. 2, *v.*). The latter contain the vascular appendages closely attached to their walls throughout, and giving off lateral branches which occupy the smaller canals. Thus a colonial system of blood-vessels is formed, the vascular systems of the different Ascidiozooids being placed in direct communication with one another through the vascular appendages and their lateral branches in the peduncle.

In a transverse section (Pl. XIII. fig. 1) the matrix is seen in the form of a series of islands surrounded by the small horizontal vessels, while here and there (Pl. XIII. fig. 3) the cut ends of the larger vertical vessels are seen. The investing mass, as in the upper part of the colony, contains no bladder cells, only the small spherical, fusiform, and branched test cells being present (Pl. XIII. fig. 4).

*Mantle.*—Under this head, as in the last species, the shape of an adult Ascidiozoid dissected out from the investing mass will be described first. The body may be divided into two parts, the thorax and the abdomen, the latter of which bears the long vascular appendage. The incubatory pouch in this species is so rudimentary as not to require consideration apart from the peribranchial cavity of which it is merely a portion. The thorax is flattened laterally and has an oblong shape (Pl. X. fig. 9), somewhat narrowing as it recedes from the wide obliquely truncated anterior end where the two apertures are placed. The abdomen is rather long and narrow, and is rounded posteriorly where the vascular appendage projects from it (Pl. X. figs. 9, 10). It is of a dark indigo-blue colour, and gives the deeper part of the colony in which it lies the well-marked characteristic tint. These regions of the body contain the same organs as in the last species.

The mantle covers the thorax, abdomen, and vascular appendage in the form of a delicate sac with two openings, the branchial and atrial siphons. In its structure and the distribution of the musculature it resembles the last species closely. In the thorax, however, the transverse parallel muscle bands are more regular and more frequent, while the longitudinal bands are fewer in number, and in the case of some of the Ascidiozooids almost entirely absent (Pl. X. fig. 10).

The connective tissue elements present no notable peculiarity; a few fusiform and stellate corpuscles are scattered in the homogeneous transparent membrane connecting and surrounding the muscle fibres. The mantle is lined on its inner aspect with the usual layer of squamous epithelium, which is often distinctly visible in this species without any staining (Pl. XI. fig. 4). The ectoderm on the outer surface is in its