

The Ascidiozoid (Pl. V. fig. 13) may be divided into the body, the vascular appendage (*v. ap*), and the incubatory pouch (*n. p.*). The body, like that of all the Distomidæ, consists of two regions, the thorax and the abdomen. Of these the thorax is rather the larger, and is the more anterior or superficial of the two. It is flattened laterally and is rudely quadrangular in shape, the ends being anterior and posterior, the margins dorsal and ventral, and the sides right and left. It has the branchial and atrial apertures at its anterior extremity, is united to the abdomen posteriorly by a narrow neck, and has the incubatory pouch as a large diverticulum on its dorsal edge. The thorax consists of the branchial and atrial siphons, the branchial sac with all its contained organs, the tentacles, the nerve-ganglion and the neural gland, the upper part of the œsophagus, the terminal parts of the rectum and genital duct, and the atrium or peribranchial space—the whole being surrounded by the mantle.

The abdomen lies posterior to or deeper than the thorax, to which it is united by a narrow neck formed of the œsophagus, the rectum, the genital duct, and a covering of mantle. The abdomen is smaller than the thorax, is of an oval or ellipsoidal shape, and has the long vascular appendage attached to its posterior extremity. It contains the remaining organs of the body, namely, the stomach and intestine, the genital glands, and the heart.

The vascular appendage starts from the posterior end of the abdomen on the right side, and runs, as will be more minutely described hereafter, inwards and then downwards through the colony.

The incubatory pouch is a large spirally coiled diverticulum from the peribranchial space, with the dorsal part of which it communicates by a narrow duct.

The mantle forms the outer wall of this irregularly shaped body, the parts of which have just been enumerated. It does not vary much in thickness; the part covering the abdomen, however, is thinner than that on the thorax, which, excluding the siphons, is nearly equally strong all over; the neck of the incubatory pouch is thicker than the rest of that sac, the farther end being rather weak. The parts forming the two siphons are the strongest of all (Pl. VI. fig. 2), and the marginal lobes of the branchial aperture especially predominate (Pl. VI. fig. 4, *br.*).

Histologically the mantle is composed mainly of three elements—the connective tissue, the muscles, and the epithelium. The connective tissue is the ground-work, and is present in the form of a thin hyaline homogeneous membrane, containing many scattered cells; it encloses and joins the bundles of muscle fibres, and is clothed on its inner surface by a layer of tessellated epithelium. The connective tissue cells are round, fusiform, and stellate in form, have granular protoplasm, and generally distinct nuclei which stain readily with carmine. In some parts of the mantle, as, for example, on the thin part of the incubatory pouch, many stellate cells are present, and the long processes of adjacent cells unite, forming an intricate network. On the narrow neck of the incu-