layer of test which immediately surrounds each Ascidiozooid is also of the same nature, being destitute of bladder cells.

The peduncle is composed chiefly of the same tissue which forms the test or investing mass in the head. The external layer, however, is somewhat modified (Pl. VIII. figs. 6–8); it is very compact, contains no bladder cells, shows an indication of fibrillation, and is of a yellow or yellowish-brown tint. To its external surface grains of sand are sometimes found adhering. This external cuticle passes gradually into the normal tissue of the stalk (Pl. VIII. fig. 8), which shows a homogeneous matrix containing bladder cells, generally isolated, and never so numerous as is the rule in the head, and many of the ordinary small fusiform and stellate cells; these are arranged in the outer part so as to form rows more or less parallel to the outer edge of the section.

At the very base of the colony the tissue is compact, but a short distance up (Pl. VIII. figs. 2, 6) a few tubes channelled through it and placed at first in the centre of the section are met with. Further up these increase in number and encroach more on the peripheral layers, till, near the top of the stalk, they are found scattered over the whole section except in a narrow zone just under the cuticle. These canals contain the downward prolongations of the vascular appendages already mentioned as being continued through the test from the posterior extremities of the Ascidiozooids. The vascular appendage occupying a canal appears as a thin-walled tube of varying width, divided longitudinally into two cavities by a delicate septum, so that in reality the vascular appendage is formed of two vessels running side by side (see Pl. VIII. figs. 10, 11, 12, *v. ap.*).

In sections of the stalk the small yellow dots which were visible externally are frequently met with. These are now seen to be gemmæ or buds in various stages of development (Pl. VIII. figs. 6, 7, 8, 9, *emb.*). They begin to appear a short distance above the base of the stalk, increase in number (for a certain time), and advance in development as they are traced upwards.

Mantle or Muscular Coat.—This layer forms the true body-wall of the Ascidiozooid. It covers all the other organs of the body, and lies directly under the investing test, with which, however, it is throughout the greater part of its extent not closely connected. A cavity, in spirit specimens at least, in which the Ascidiozooid lies is distinctly visible. The mantle is united to the test at the apertures, and is in close contact with it on the vascular appendage and the incubatory pouch. In the living animal, however, when the muscles were relaxed and the peribranchial space filled with water, the mantle was doubtless in contact with the test throughout, and there was therefore no cavity around the Ascidiozooid.

The mantle is a delicate sac with two openings, and having rather an elaborate shape, covering as it does all the organs and appendages of the body. Its form therefore is the same as that of an Ascidiozooid dissected out from the test, which will now be described.