

side of the branchial sac in its lower half, and terminates by opening into the atrial cavity. The anus is inconspicuous, being furnished in the adult Ascidiozoid with no lips, lobes, or raised margins, such as are seen in many Compound Ascidians. In a young specimen observed, however, the rectum was provided at its termination with a thickened border. It is just possible that this difference may be due to the fact that in the latter case the rectum was empty, while in the adult Ascidiozooids it was always found distended with fæcal matter.

From the above course it follows that the alimentary canal first runs dorsally, then ventrally, then ventrally again, and finally dorsally, and therefore describes a curve of which the first half has the convexity dorsal, and the second half has the convexity ventral.

The wall of the intestine has much the same structure as that of the stomach. On its inner surface, however, an arrangement of large clear cells may be seen, placed generally in a single row, and forming a wide-meshed network. No distinct nuclei are visible, but in some granules are present. As no concretions are ever found in them they cannot represent the renal vesicles seen on the intestine of some Simple Ascidians. Probably they secrete a digestive fluid and correspond to the gland which has been described as occupying a similar position in many other Compound Ascidians (see p. 22).

*Blood-Vascular System.*—The heart lies on the right side of the abdomen, close to the inner (ventral) edge of the stomach. It is a delicate fusiform tube with undulating walls, and is enclosed in an outer also very delicate membrane, the pericardium, which can only be made out with difficulty. At its anterior end the heart gives off two large vessels which run upwards to the thorax alongside the intestine, and are soon lost to view. At the posterior end three vessels are given off from the heart. One runs upwards along the stomach, another along the intestine, and the third is continued backwards into the vascular appendage, which traverses the peduncle and plays an important part in the process of gemmation.

*Reproductive Organs.*—The ovary is placed on the left side of the abdomen (Pl. VII. fig. 7), and, in the young condition, is confined to the intestinal loop. When it has attained its adult size, however, it spreads far beyond, covering the intestine in its lower part and extending beyond it on the ventral side enclosed in a sac-like diverticulum of the mantle (Pl. VII. fig. 8). The ova are distinctly visible, and vary in size from about 0.02 mm. to 0.15 mm. in diameter; the larger ones exhibit the germinal vesicle and germinal spot. The smallest ova observed are collected together to form a mass which lies generally at the base of the ovary (Pl. VII. figs. 9, 10). These young ova are irregular in shape, and are often triangular from mutual pressure. They have distinct strongly refracting nuclei resembling the germinal spots of larger ova, and the surrounding protoplasm stains very deeply with carmine. The mature ovum (Pl. VII. fig. 11) is spherical and of a yellowish-brown colour. It has a large germinal vesicle and a