

constituted by the œsophagus, the stomach, and the first portion of the intestine, while the second portion forms the anterior segment of the loop, lying close to and parallel with the posterior. From the dorsal end of this second portion of the intestine a short rectum usually runs anteriorly towards the atrial aperture. Sometimes the loop of the intestine is so long that, after extending to the ventral edge of the body, it is turned round anteriorly and then dorsally, so as to almost completely surround the left genital mass (Pl. V. fig. 9), which lies anteriorly to the intestine.

In the *Ascidia* Compositæ the stomach and intestine always project beyond the branchial sac, but to very different degrees in different forms. In *Botryllus* they are close to the branchial sac, and there is no distinct abdomen; while in *Amaroucium* and a number of allied genera the intestine projects for a long way behind the branchial sac, and an abdomen as long as, or longer than, the thorax is formed. *Botrylloides*, *Didemnum*, and some other genera, show a state of affairs intermediate between these extremes. In all these forms the œsophagus commences near or at the posterior end of the branchial sac at the dorsal side, and after running posteriorly for a short distance opens into the stomach. The intestine emerging from the opposite end of this organ still runs posteriorly for a short distance, and then turns round towards the ventral side to run anteriorly. It afterwards crosses the œsophagus, so as to become dorsal again in its last part, which opens as usual into the peribranchial cavity.

In *Pyrosoma*, the alimentary canal is placed transversely at the posterior end of the branchial sac, but on account of the position of the atrial aperture at the opposite extremity of the body from the branchial, the intestine bends round posteriorly so as to describe a circle.

In the Thaliacea the digestive canal and genital glands are usually aggregated into a small mass, the "nucleus," placed in the ventral region of the posterior end of the body.

In *Appendicularia* the œsophagus commences at the narrow posterior end of the branchial sac, and leads ventrally towards the large stomach, which lies transversely and has two lobes, a right and a left. The latter gives rise to the intestine, which turns forwards as a short rectum and terminates in an anus placed on the exterior of the body about the middle of the ventral surface.

In many Tunicates the wall of the intestine is raised up to form a fold, which projects into the lumen (fig. 9, page 40, and fig. 12, *ty.*, page 47). This "typhlosole" varies somewhat in its development in different species, extending throughout the entire intestine in some (*Styela tuberosa*), while in others it is only present in a part of it. The connective tissue underneath the endoderm and forming the centre of the fold usually contains large blood-vessels.

Several glandular appendages are found in connection with the alimentary canal in the Tunicata, and are, like a number of nondescript organs in other groups of the Invertebrata, usually referred to as the liver.