

The nerve ganglion is placed at the anterior end of the branchial sac on the dorsal edge (Fig. 4, *n.g.*). It has a small pigmented sense-organ placed upon it. The sub-neural gland bears the usual relation to the ganglion, being on its ventral surface. The gland has a duct leading forwards and ventrally to open into the posterior dorsal part of the prebranchial zone on the dorsal tubercle. The aperture of the duct is simple, but prominent (Pl. II. fig. 13).

On each side of the anterior end of the branchial sac, close to the peripharyngeal band, is seen a mass of rounded glandular cells (Pl. I. figs. 18, 19, and 20), which have given rise to a good deal of speculation. They were supposed by Savigny to be laterally placed ovaries. This mistake was corrected by Huxley, who found the true position of the ova. Huxley himself suggested that the cell masses were kidneys, and Keferstein and Ehlers regarded them as being probably organs for aiding in the production of buds. Panceri¹ first showed that they are really organs for the production of the phosphorescence, for which *Pyrosoma* is so famous.

The alimentary canal is placed posteriorly to the branchial sac (Fig. 4). The œsophageal opening is wide. It lies at the dorsal edge of the posterior end of the branchial sac, and the œsophagus curves posteriorly and ventrally to open into the dorsal end of the large quadrangular stomach. The stomach lies with its longer axis directed dorso-ventrally. It is usually narrower at the intestinal than at the œsophageal end. The intestine is a narrow curved tube which runs at first ventrally, and then curves anteriorly, then dorsally, and, finally, a little posteriorly, so as to describe nearly a complete circle. The anus opens into the peribranchial cavity, which is a large space consisting of three regions—(1) a median part occupying the posterior part of the body, and opening into the common cloaca by means of the atrial aperture; and (2 and 3) two lateral parts extending anteriorly from the median part, one at each side of the branchial sac. Into these lateral regions of the peribranchial cavity the slits in the wall of the branchial sac open, while the anus opens into the median posteriorly placed region.

Ramifying over the wall of the intestine is found a system of delicate tubules which branch and anastomose, and finally end in small ampullæ. This, like the corresponding systems in other Tunicata, is probably a digestive gland. It pours its secretion by a common duct into the pyloric or ventral end of the stomach on its anterior border.

The heart is situated near the posterior end of the endostyle; and close to it, and therefore placed posteriorly and ventrally, there is a diverticulum of the body wall containing a process from the endoderm. This structure is the gemmiparous stolon upon which the buds destined to become the future Ascidiozooids of the same colony are produced. This stolon is evidently identical both in constitution and in position with the various processes for the production of buds found in the Compound

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