

animal. It lies in the mantle near its inner surface, underneath the muscular layers, and above the neural gland.

It has usually an oblong form, slightly constricted in the middle, and giving off nerve trunks from the expanded ends, one of which is directed anteriorly and the other posteriorly.

In the *Ascidia* Simplicis, where the branchial and atrial apertures are usually approximated, the nerve ganglion lies in the angle between them, almost invariably nearer the branchial than the atrial aperture (the reverse is the case in *Ascidia compressa* and *Ascidia fusiformis*), and the anteriorly and posteriorly directed nerve trunks run directly to the neighbourhood of the apertures, and give off branches to the tentacles, the ocelli, and the margins of the lobes.

In *Appendicularia* there is a large ganglion, with three dilatations, placed in the usual position on the dorsal side of the anterior end of the pharynx, and giving off, in addition to nerves to the branchial aperture, a long nerve trunk, which runs back alongside the œsophagus and past the stomach till it reaches the base of the caudal appendage. Here it goes to the left side of the urochord, along which it runs to the extremity, giving off nerves from ganglionic enlargements which occur at intervals. The most anterior of these caudal ganglia is the largest. Fol states that this gangliated nerve trunk is traversed by a fine canal.

The periphery of the ganglion is formed of globular or pyriform unipolar nerve cells, while the centre is a mass of nerve fibres, with a very few small nerve cells scattered through it. The nerve trunks arise from this central fibrous part.

Sense Organs.

In the adult Simple and Compound Ascidiæ the only structures which can be called sense organs—now that the sensory nature of the so-called “olfactory tubercle” has been disproved—are the tentacles round the base of the branchial siphon, which have probably some sensory function, and the ocelli or pigment spots situated around the branchial and atrial apertures. They are usually equal in number to the lobes surrounding the apertures, and are situated in the clefts between them. The pigment, which is almost invariably red, is imbedded in the mantle just above the anterior edge of the sphincter muscle, where the test is usually thin and transparent, and is supplied by branches of the nerve trunks from the anterior end of the nerve ganglion.

In *Appendicularia* there is a rounded otocyst, containing a spherical otolith, attached to the main ganglion, while Fol has described a number of fine tactile setæ situated around the branchial aperture. In some forms of *Doliolum* there is also a spherical otocyst, containing a single otolith and supplied by a nerve from the ganglion.