

THE ANATOMY OF *Hedylopsis cornuta*

*Alimentary Canal:* Mouth situated terminally and ventrally between bases of oral tentacles. Buccal cavity glandular, paired oral glands discharging into the cavity immediately within the outer lips. Oral tube narrow, thin-walled, leading to the buccal mass from the mouth. Buccal mass (Fig. 2C) large, intrinsic musculature including odontophore well developed. Salivary glands (Fig. 3C) paired, discharging into oesophagus immediately behind the buccal mass. Oesophagus short, narrow, opening into a wide, folded stomach (Fig. 2A) that joins the digestive gland behind the diaphragm. Digestive gland unbranched, lying on the left side of the haemocoel, extending to the posterior end of the body. Intestine short, ciliated, leaving the digestive gland at the anterior end, discharging ventrolaterally into a ciliated cloaca (Fig. 4B).

*Nervous System:* Central nervous system (Fig. 2D) similar to that described from other Acochliidae but unusually concentrated around the main nerve ring, which is pre-pharyngeal. Cerebral ganglia large, linked dorsally by a short wide commissure. Anterior nerves in the form of two chains of ganglia on either side, one terminating in a number of fine nerves supplying the oral region the other providing nerves for both the oral tentacles and rhinophores. Pleural ganglia distinct, linked by short connectives laterally to the cerebral ganglia. Pedal ganglia joined ventrally beneath the oesophagus, linked to the pleural rather than the cerebral ganglia. Otocysts with single otoliths situated on the pedal ganglia but connected to the cerebral ganglia by fine nerves. Supraintestinal and subintestinal ganglia situated immediately behind the main nerve ring, linked beneath the oesophagus, connected to the pleural ganglia. Visceral ganglion distinct but closely linked to the supraintestinal. Buccal ganglia lying beneath and behind the buccal mass, connected to the cerebral ganglia by fine nerves. A large number of nerves leave the posterior surface of the nerve ring and supply the foot, the body wall and the posterior region of the body.

*Renopericardial System:* Kidney (Fig. 4C) a large unfolded sac lying on the right side of the haemocoel at the level of the cloaca. Pericardium (Fig. 4B) an ill-defined, thin-walled sac anterior to the kidney, heart with no discernible division into ventricle and auricle, aorta present but discharging almost immediately into the haemocoel, reno-pericardial duct present.

*Reproductive System:* Ototestis (Fig. 4E) essentially tubular, occupying major part of the body cavity in mature animals compressed beneath digestive gland in immature specimens, no division into separate male and female regions, oocytes and sperm situated in different regions of the same follicles.

*Female System:* Hermaphrodite duct wide, ciliated, lying on right side of body cavity, joined anteriorly to and continuing into the lumen of the albumen gland which extends forward changing at its anterior end into the mucous gland. After leaving the mucous gland the hermaphrodite duct bifurcates into vas deferens and oviduct. The vas deferens extends laterally towards the right side then anteriorly to the level of the base of the right rhinophore as a fully-closed, ciliated, intra-epidermal duct. Oviduct short, opening ventro-laterally into a ciliated cloaca. A short blind sac, the bursa copulatrix, extends into the middle of the body cavity from the wall of the cloaca (Fig. 4A). In the sectioned specimens no sperm were seen in this organ but it contained a weakly staining, non-cellular mucoid substance. A diagram of the cloaca, of the adjoining ducts and of the path followed by the different reproductive products is given in Fig. 4D. The region of fertilisation of the ova is uncertain but both the bursal duct and the cloaca itself are possible sites.

*Male System:* (Fig. 3A-D) from the base of the right rhinophore a ciliated duct runs backward within the haemocoel for a short distance, then bifurcates. One branch of the spermatic duct extends posteriorly to the level of the diaphragm then loops to the right and joins a large prostate gland. Attached to the prostate is a