

EXCRETORY SYSTEM

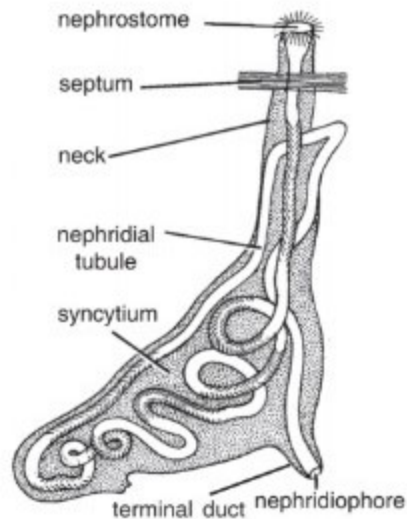
In *Nereis*, the excretion is carried out by means of special type of coiled tube-like structures, the **nephridia**, one pair of which is found in each segment except the first and the last segment.

Structure

The nephridia of *Nereis* are macroscopic structures; they can be observed by naked eyes. Each nephridium consists of a coiled ciliated tube lying embedded in the syncytial mass of protoplasm. It is differentiated into two parts; a body and a neck. The main **body** of nephridium is an irregular, oval, compact and glandular mass which is placed transversely in the segment. It contains highly convoluted and mostly ciliated tubule. The nephridial tubule passes through the septum into the anterior segment in the form of **neck**, where it opens by a ciliated funnel or **nephrostome**. Posteriorly the tubule opens by a contractile (*i.e.*, sphinctered) **nephridiopore** located ventrally at the base of parapodium near the origin of ventral cirrus.

The nephridial tubule is an excavation in the mass of protoplasm. Such an open type of nephridium with a ciliated nephrostome is called **metanephridium**.

Function of nephridia. The outer surface of nephridium is richly supplied with blood capillaries. The gland cells present in the wall of ciliated tube remove waste materials, chiefly **ammonia** from blood. This liquid waste is expelled out of body through nephridiopores. The ciliated funnels (nephrostomes) opening into the coelom also removes dead coelomic corpuscles (coelomocytes or amoeboid corpuscles) which have eaten up bacteria, etc., and other foreign bodies.



Nereis. Nephridium.

Box 3.2

Nephridia that open into coelom by a **nephrostome** are called **metanephridia**. Nephrostome is funnel-shaped and ciliated. Metanephridia are of two types:

1. **Micronephridia**. These are many and minute or microscopic in size, e.g., *Pheretima*.
2. **Macronephridia or Meganephridia**. They are large in size and few in number. They can be observed by naked eye, e.g., *Nereis* and leech.

Besides the nitrogenous excretion, nephridia of *Nereis* do **osmoregulation**; it maintains salt and water balance in the body of *Nereis* by reabsorption of water and salts. Lastly, in *Nereis* occur **chlorogogue cells** (Meglitsch and Schram, 1991) in the visceral peritoneum; these cells are meant for permanent accumulation of the nitrogenous wastes.