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B.Sc. Part-I,
Zoology (Hons.)
Paper-I-A(Mollusca)

Unio – The Freshwater Mussel

Unio is a genus of medium-sized common freshwater mussels, aquatic bivalve molluscs in the family Unionidae, the river mussels.

Systematic position:

Phylum: Mollusca
Class: Pelecypoda (Bivalvia)
Order: Eulamellibranchia
Family: Unionidae
Genus: Unio

Habits and habitat :

Unio is found in freshwater ponds, lakes, streams and rivers. The animal is sedentary. It crawls slowly with the help of its plough - like, wedge - shaped muscular foot that leaves a deep trail all along it's journey. It usually moves to shallow places by night and retires to deeper places by day. Food consist of microscopic organisms, both animals and plants, which are fed upon by filter – feeding mechanism. Animal responds to light, touch or some other stimulus by withdrawing its foot and closing the siphons, meant for incoming and outgoing water currents.

Morphology :

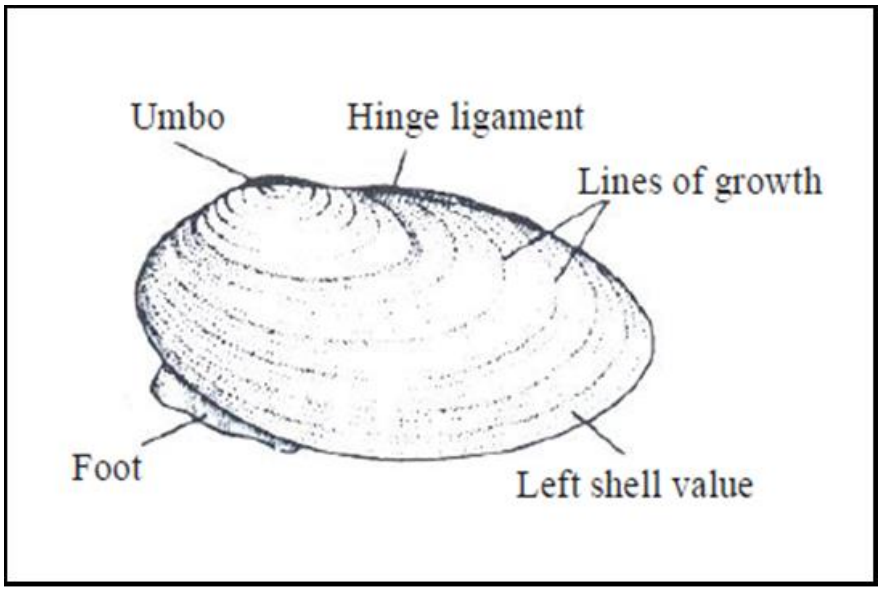

Fig 1 : External features of *Unio*.

Shell :

The body of *Lamellidens(Unio)* is laterally flattened . *Lamellidens* has a bilaterally symmetrical body. The body is light cream in colour, soft elongate oval with a somewhat broad and narrow posterior end. The soft body of Unio is

completely enclosed by a hard-calcareous shell which represents its exoskeleton. Shell measures about 10 cm in length and 5 cm in width. Shell is composed of two symmetrical and equal halves called valves and known as right and left valves.The two valves are united by a dorsal elastic band called a hinge ligament which is continuous with the two shell valves but is made of un-calcified conchiolin, it is elastic and causes the valves of the shell to open. If a shell valve is removed from the mantle lobes, its inner surface is seen which shows marks of insertion of muscles running transversely between two valves.

The insertion of the edge of the mantle marks a pallial line. Anteriorly is an impression of an anterior adductor muscle, posteriorly is a larger impression of a posterior adductor muscle; close to these impressions are marks of an anterior retractor muscle and a posterior retractor muscle, Near the anterior adductor is also an impression of a protractor muscle.

The adductor muscles close the shell valves tightly by pulling them together, the retractors pull in the foot, and the protractor pushes out the foot. The hinge ligament acts antagonistically to the adductor muscles and causes the shell valves to open.

A mantle or pallium having to equal halves, the mantle lobes, lines the inter surface of the cell and encloses a space, the mantle or pallial cavity.

The organs in the cavity are collectively termed visceral mass or pallial complex. There are two siphons- the dorsal exhalant siphon with smooth margin and the ventral inhalant siphon with fimbriated margin- formed by the mantle protrude beyond the shell at the posterior end.

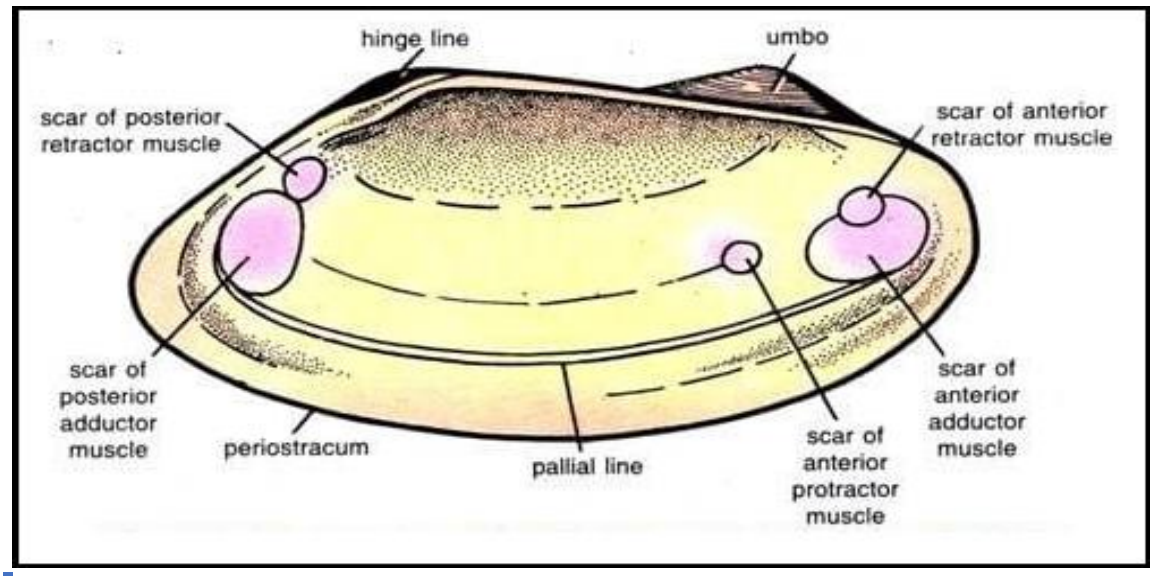

Fig : 2 Unio. Internal surface of right shell valve.

The shell consists of two equal halves or valves is made of conchiolin and calcic substances. It grows along the margins with the growth of the mussels. The two valves are hinged along a Straight, dorsal hinge line by a tough, elastic hinge ligament, running transversely from one to another valve.

In natural state, a narrow gape between the valves of the shell allows the muscular foot to project out from the antero -ventral end of the body.The visceral mass, a pair of gills or ctenidia, two renal pores and the anus are lodged in the mantle cavity.Each valve bears teeth-like projections, the hinge- teeth along the hinge line. The teeth of one valve fit with the sockets of the other.

A narrow streak, the pallial line, marking the outer border of the mantle lobe is present on the inner surface of the shell, close to the margin.

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