

## RESPIRATORY SYSTEM

The chief respiratory organs are a pair of ctenidia and mantle. Each side of the gill or ctenidium has inner and outer gill lamina or demibranch or gill plate, which is made of inner and outer layers called lamella. All lamellae have vertical gill filaments which are joined by the interfilamental junctions at short intervals. The lamellae and the interfilamental connections together make the gill lamella a sieve-like structure through which the water is filtered and food particles are trapped. At the same time exchange of gases also takes place through the epithelium of the lamellae. During breeding season the outer gill lamina enlarges and serves as a brood pouch to hold the eggs and glochidium larvae.

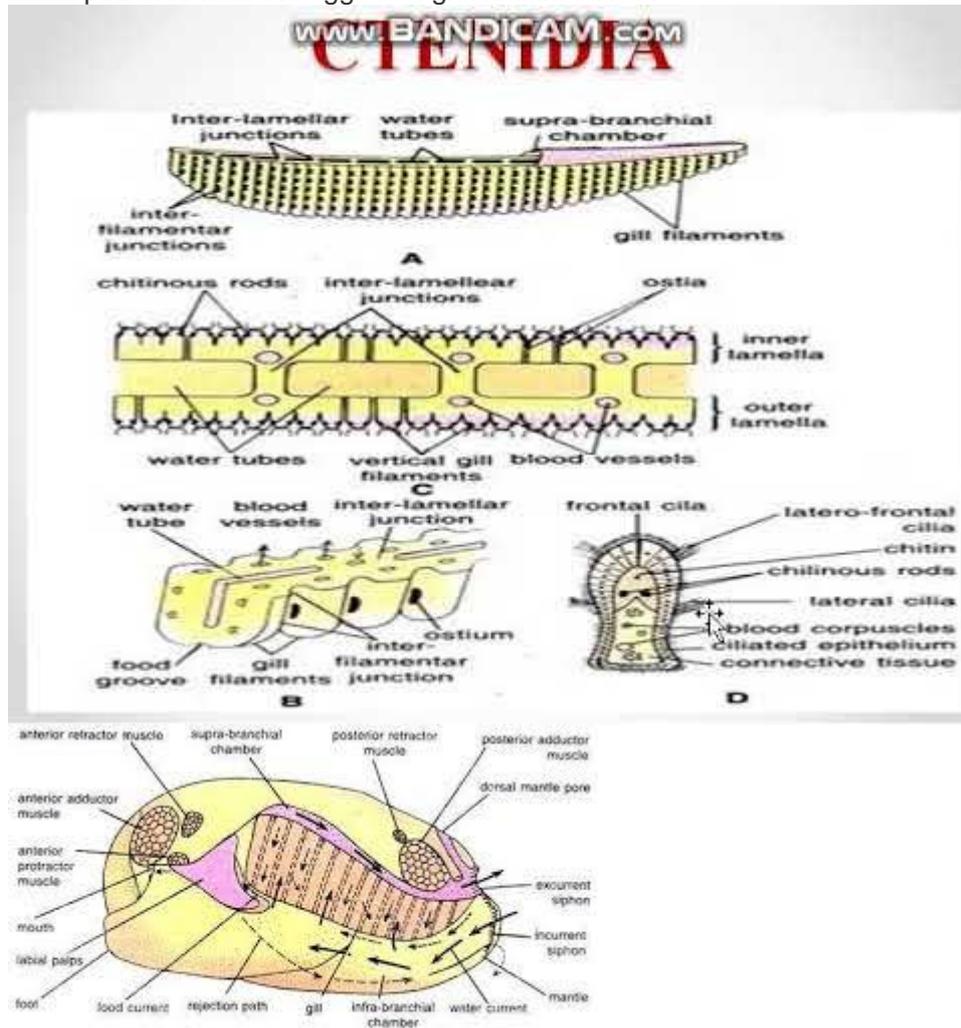


Fig. 61.10. *Unio*. Diagram showing water and food currents.

## CIRCULATORY SYSTEM

Blood vascular system is open type comprising heart, arteries, veins, lacunae and sinuses. **Blood** is colourless but in some cases is slightly bluish due to the respiratory pigment **haemocyanin**. Only *Solen* has haemoglobin dissolved in plasma in bivalves. Large number of granular and agranular leucocytes and amoebocytes are present in the blood.

**Heart** is 3-chambered, with one ventricle and 2 auricles. Pericardium encloses the heart. **Ventricle** gives off anterior and posterior **aortae**, the former carrying blood to foot, mantle and visceral organs. The posterior aorta supplies blood to mantle only.

The blood from the posterior part of mantle is collected by the **pallialvein** and is taken to the auricle. On the anterior side the visceral vein and pedal veins collect blood and take it to the kidneys or organ of Bojanus. From kidneys either the blood can go directly to auricles via the efferent renal vein or can be taken to gills for oxygenation through the afferent ctenidial vein.

From the ctenidium the blood is collected by the efferent ctenidial vein and taken to auricles. Thus auricles receive the venous blood from all over the body and pump it to the ventricle.

There are no capillaries in *Unio*. The arteries end in **lacunae** and **sinuses** and veins collect blood from major sinuses and take it to the heart. This type of circulatory system is called **opentype**.