Lecture - 2

B.Sc Part I
unit - 2

# Significance of Torsion and Detortion in Mollusca

**Significance of Torsion** - According to Garstang (1928) torsion first occured as a larval mutation of advantage to the larva adapted to Pelagic life but of little direct use to the adult. Before torsion, the untwisted swimming larva fell an easy victim to its Predators because the Posterior mantle cavity could receive the delicate head and velum only after the foot was already inside. After torsion, the mantle cavity became anterior, so that the sensitive parts ie head and velum could withdraw first followed by the foot. Operculum sealed the aperture aperture, the cilia of velum stopped beating so that the larva could fall to the sea bottom and avoid its enemies swimming in the water.

According to Morton (1958) main advantage of torsion are as follows -

1) Torsion promotes stability in the adult by placing bulky mass of animal nearer the substratum.
2) After torsion, mantle cavity is curled anteriorly above the head so that all the ~~three~~ currents of water flow in one direction flushing the mantle cavity continuously with fresh clean water and increasing its ventilation.
3) The anteriorly placed chemoreceptive organs (osphradia) can also sample the sediment and incurrent water stream and animal orients itself properly.
4) As the shell is lost the ~~pa~~ pallial

complex shift back to their original posterior position a phenomenon called Detorsion.

Detortion - Changes occuring in torsion are to a certain extend reversible. This reversion is known as detortion and is a characteristic feature of Euthyneura. The phenomenon of detortion can be elaborated as follows -

(1) In some cases the right ctenidium and the osphradium is absent.

2) In Eolis, there is a veliger larva with a coiled visceral hump that undergoes torsion but adults do not show any sign and the pallial complex is posteriorly placed in adult. Naturally the detorsion must have occured during the course of further development.

4) In pulmonata, the pallial complex is shifted but there is no chiastoneury as a result of shortening of visceral commissures. The pleurovisceral mass and so the chiastoneury is secondrily lost.

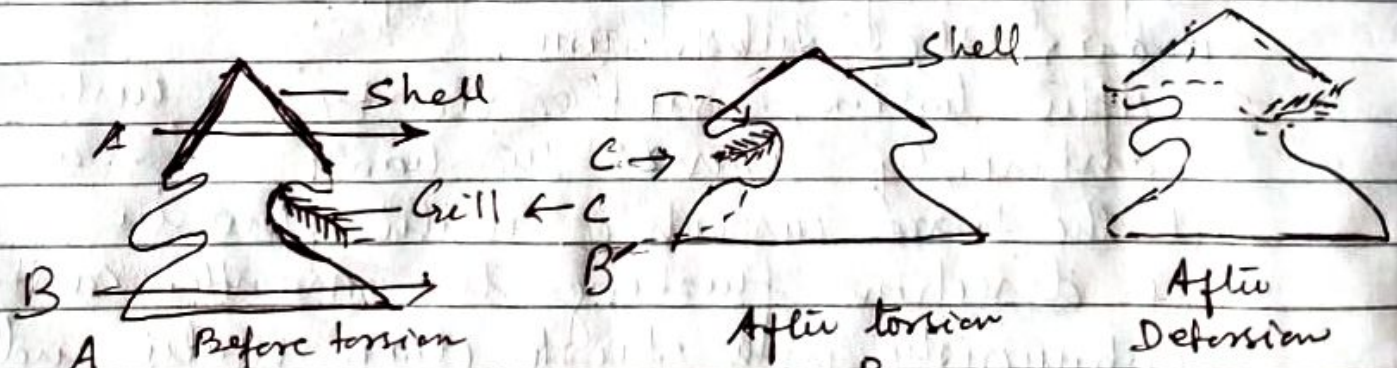


fig - Diagram showing the possible advantage of torsion A. Current due to flow of water
B. Current due to movement of gastropod
C. Respiratory current.