TOPIC: CTENAPHORA:STRUCTURE AND AFFINITIES-I

LECTURE NO:20

B.SC PART 1

ZOOLOGY(HONS.)-PAPER I-GROUP A

CHAPTER 6

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Ctenophores: Structure, Development and Affinities

Shape and Size of Ctenophores:

The name Ctenophora was coined by Eschscholtz in 1829 for a group of marine plankton animals commonly known as “Comb jellies” or “Sea walnuts”. Ctenophora refers to the locomotory comb-like plates on the body (Gr. Kestos – comb, phoros – bearing). About 80 species have been described. Some are abundant enough to be ecologically important

Shape:

Different members have variable shapes. A typical one like Pleurobrachia is somewhat spherical.

Size:

Moderate, usual range few millimeters to 20 cms.

Symmetry:
Biradial. Structures are tetramerously arranged in a radial fashion around the oral-aboral axis.
Colour:
Usually transparent, tentacles and combplates are tinged with white, orange or purple.

Structure of Ctenophores:
The spherical body can be divided into two hemispheres. The mouth lies at one end or oral pole and a sense organ at the opposite end or aboral pole.

(i) Combplates:
Eight equally spaced rows of paddle plates arranged on the sides of the body and are used in swimming. The comb rows are composed of a series of short ciliary plates or ctenes. The cilia are strong and propel the animal slowly through the water.

(ii) Tentacles:
Two in number, found nearer to the aboral end on opposite sides of the body. They are extremely long, solid and retractile. Tentacles emerge from deep ciliated epidermal blind pouch or tentacular sheath. Tentacle bears short lateral branches or pinnae. Nematocysts are absent, but tentacles possess peculiar adhesive cells called lasso cells or colloblasts which help in food capture.

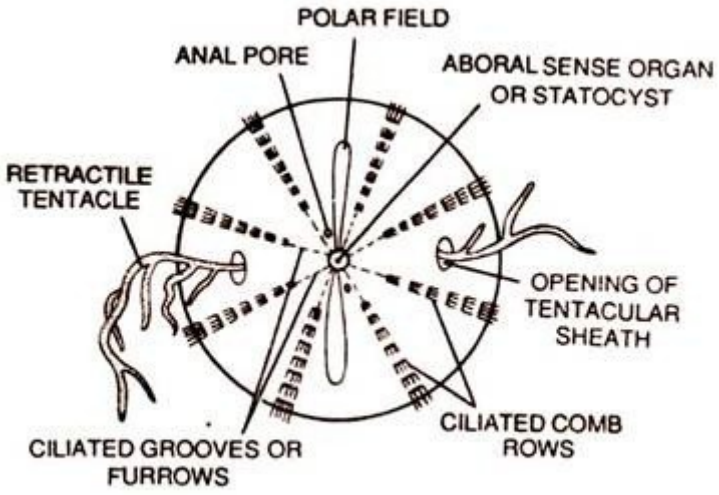

Fig. 12.1 **Pleurobrachia** Aboral view

Sense Organs of Ctenophores:

Apical sensory organ is a deep seated statocyst at aboral pole. It is lined by tall, ciliated epithelial cells. Statocyst contain statolith and balancers. It is covered by a roof like a dome or bell, formed of fused cilia. The sensory organ serves as an organ of equilibrium.

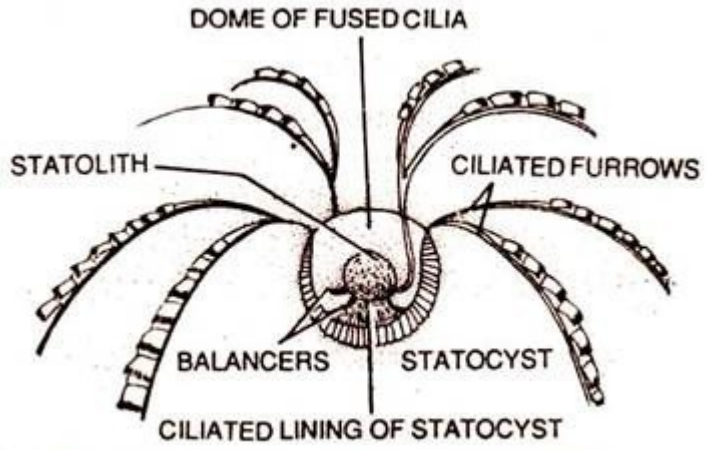

Fig. 12.2 **Pleurobrachia** Aboral sense organ

Body Wall of Ctenophores:

Composed of an outer epidermis and an inner gastrodermis separated by a thick gelatinous mesogloea. The epidermis is syncytial and contains many gland cells, sensory cells and

pigment granules. Mesogloea contains amoebocytes, connective tissue fibres muscle fibres and some nerve cells.

Digestive System of Ctenophores:

Mouth slit-like situated in the centre of the lower end. It leads into a long tubular pharynx lined with epidermis. The pharynx opens into a small but wide stomach. It gives out a system of five gastrovascular canals which extend throughout jelly in a definite arrangement. The stomach and gastrovascular canals are lined with gastrodermis. Two anal canals open to the outside near the aboral sense organ, each by an anal pore.

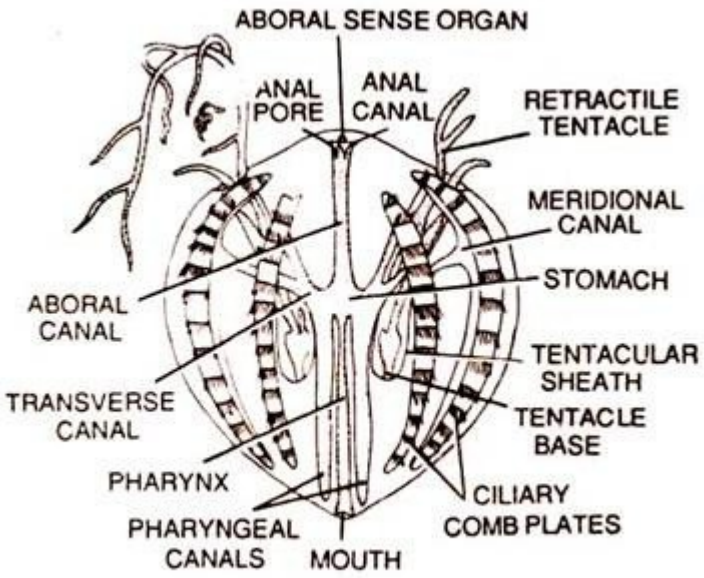

Fig. 12.3 **Pleurobrachia** Side View.

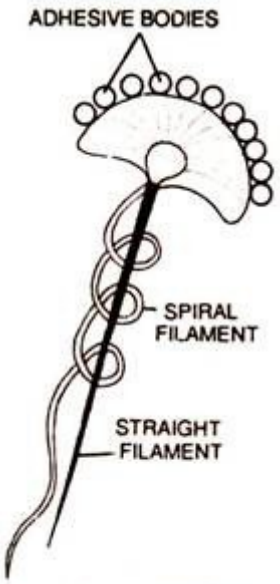

Fig. 12.4 A colloblast.

Ctenophores feed on small planktonic organisms and are voracious Food is captured by trapping in colloblast. Digestion is extracellular in pharynx and intracellular in gastrovascular canals.