TOPIC: ANIMAL KIMGDOM PART-IV:MOLLUSCA

LECTURE NO:10
CLASS:XI
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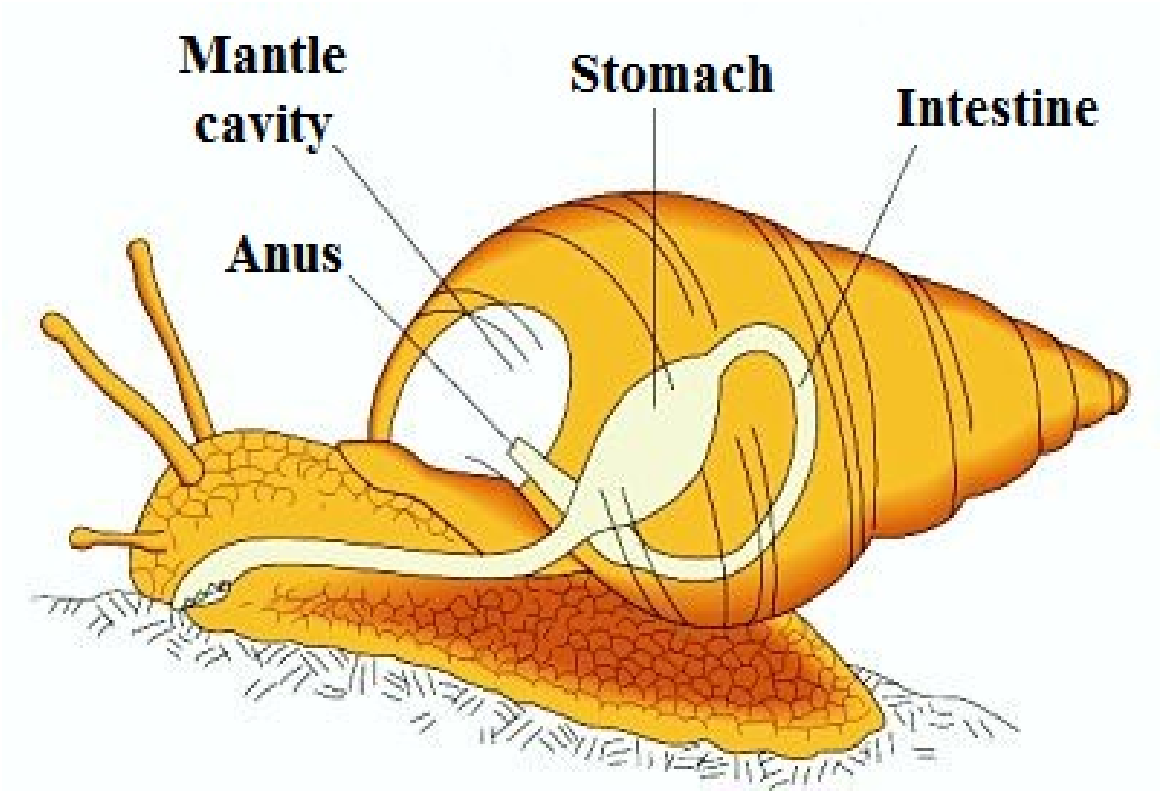
AUTHOR: DR.NIRMAL KUMARI

Phylum Mollusca

(i) Basically bilateral and protostomial eucoelomate eumetazoans whose soft body (L., *mollis* or *molluscum* = soft)

is non-segmented and enclosed within a skin–fold (mantle) which usually secretes a calcareous shell.



Salient Features:

(1) Molluscs are multicellular organisms

(2) They have a bilateral symmetry, but snails are asymmetrical

(3) They are triploblastic animals.

(4) They are coelomate animals.

(5) They have organ system grade of organization.

(6) The body is soft and non-segmented.

(7) The soft body is covered by a fleshy fold of the body wall. It is called mantle.

(8) The molluscs are provided with one or two calcareous shells.

(9) Respiration is carried out by the gills or pulmonary chambers.

(10) The digestive system is well developed.

(11) The circulatory system is of an open type.

(12) The excretory organ is the kidney.

(13) The nervous system is well developed.

(14) The sensory organs are eyes, statocysts and osphradia.

(15) Sexes are separate in them, or they are hermaphrodites.

(16) The development in their case in either direct or indirect

Classification of Mollusca

Class 1 - Aplacophora or Solenogasters

- The body is worm–like, bilaterally symmetrical and cylindrical.
- The head, mantle, foot, shell and nephridia are absent.
- The body is covered with spicule–bearing cuticle.

- The digestive tract is straight with radula.
- A mid dorsal longitudinal keel or crest is often present.
- Example: Neomenia, Chaetoderma, etc.

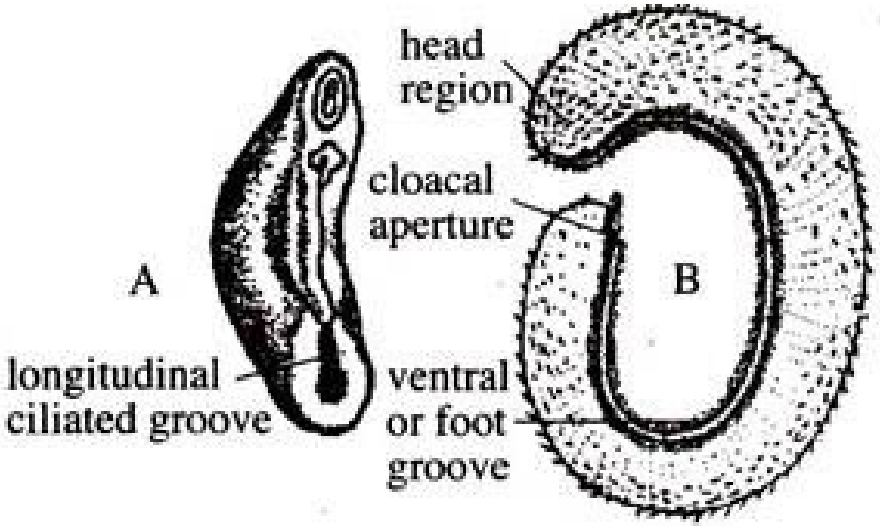


Fig. 1.72 : A. *Neomenia*, B. *Proneomenia*.

Class 2 - Monoplacophora

- The body is bilaterally symmetrical and segmented.
- The shell is formed of a single valve.
- The head is without eyes and tentacles.
- The gills are external and serially arranged.
- The nephridia are five pairs.
- **Example:** Neopilina galatheae

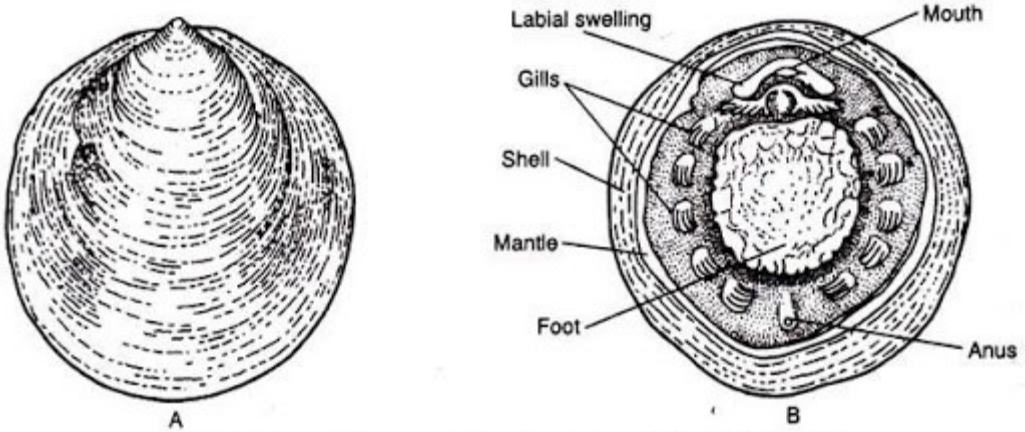


Fig. 16.2: External features of *Neopilina*. A. Dorsal view. B. Ventral view.

Class 3 - Polyplacophora

- These molluscs are bilaterally symmetrical, and dorsoventrally flattened.
- The shell is composed of a longitudinal series of 8 plates.
- The foot is flat and ventral.
- The radula is well developed.
- **Example:** Chiton, Cryptochiton, etc.

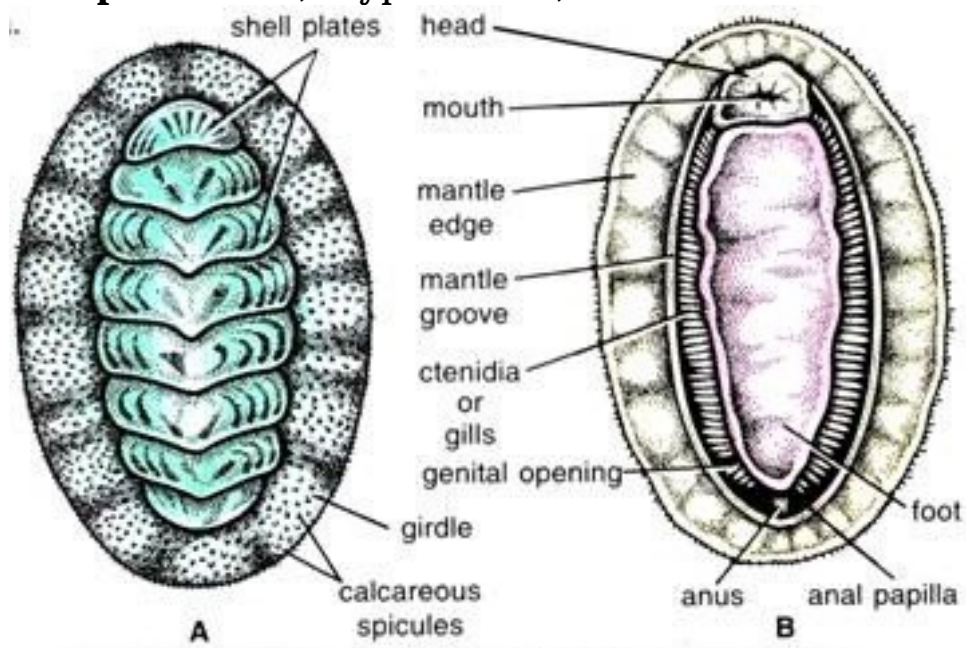


Fig. 62.1. *Chiton.* A—Dorsal view ; B—Ventral view.

Class 4 - Gastropoda

- It seems that these animals are moving on their stomach. Hence, the name is gastropoda.
- Gastropods are marine, fresh water or terrestrial animals. A few are parasitic.
- The body is non-segmented and asymmetrical.
- The shell is univalve and spirally coiled.
- The head is distinct. It bears tentacles, eyes and a mouth.
- The foot is ventral and muscular.
- The buccal cavity is provided with a radula.

- The circulatory system is open.
- The sexes are mostly separate, while some forms are hermaphrodite.
- The development includes veliger and trochophore larvae.
- **Examples:** Haliotis, Cypraea (Cowrie) Pila (apple snail)

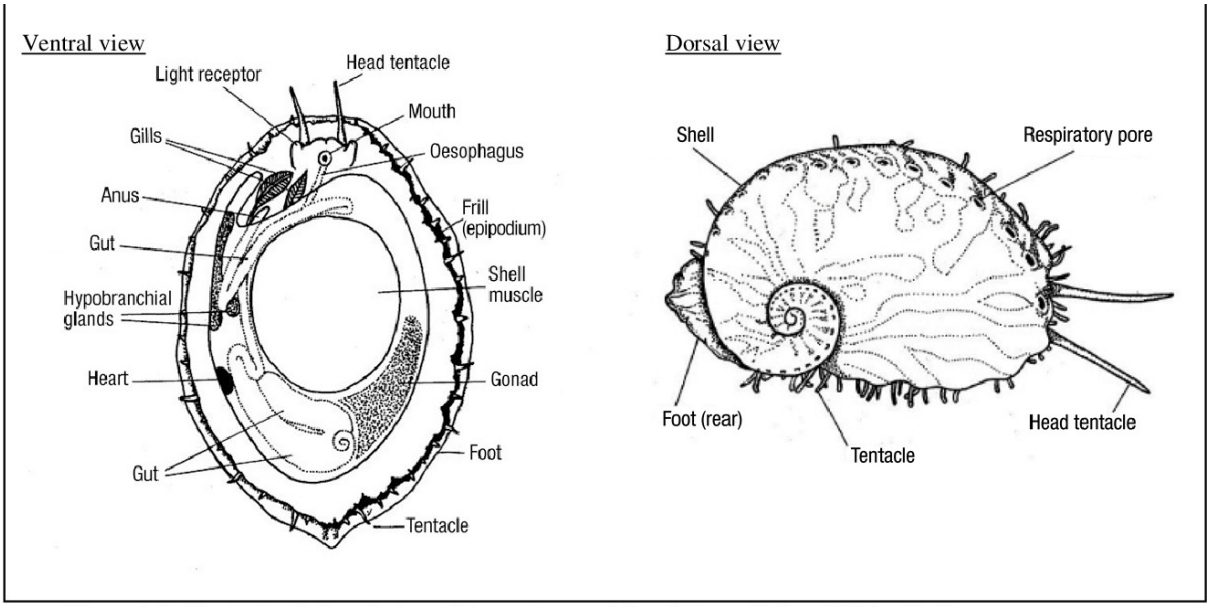


Figure 1.1. Ventral and dorsal view of the anatomy of the abalone (Fallu, 1994 [online]).

Class 5 - Scaphopoda

- The foot is boat–shaped.
- The eyes, the tentacles and ctenidia are absent.
- Marine, bilaterally symmetrical molluscs.
- **Examples:** Dentalium, Siphonodentalium and Pulsellum

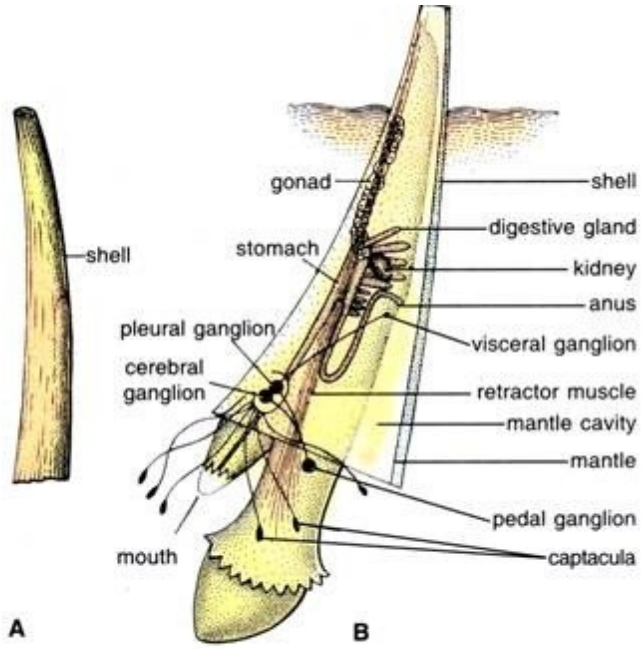


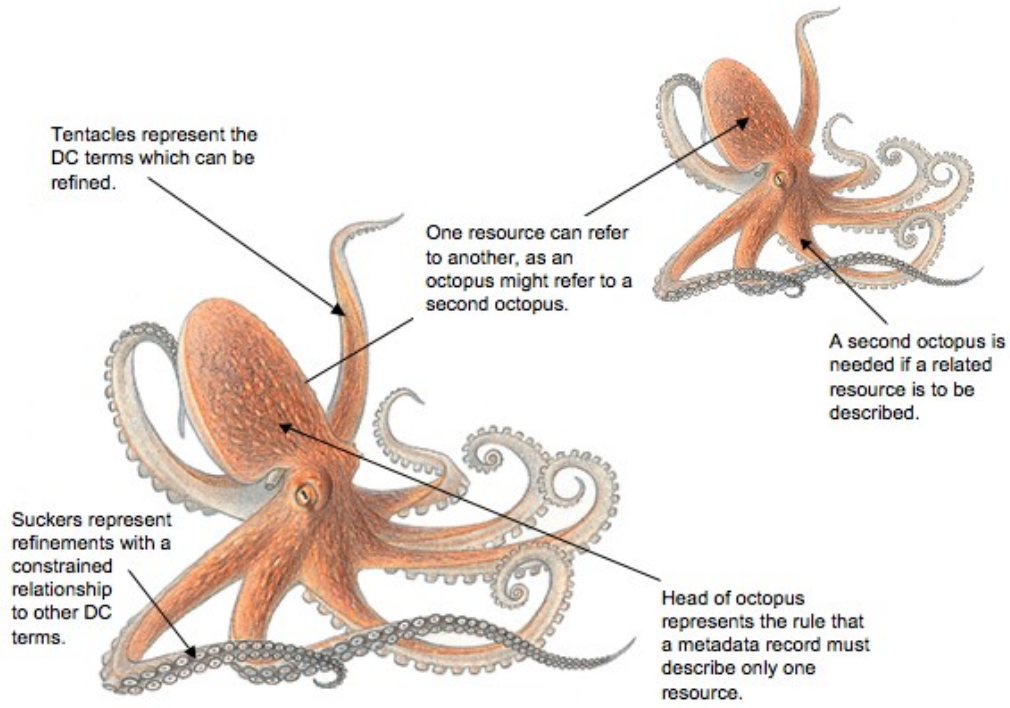
Fig. 62.10. *Dentalium.* A—Shell ; B—Structure of specimen in buried sand.

Class 6 - Pelecypoda

- Pelecypoda are aquatic in habit.
- The body is bilaterally symmetrical and laterally compressed.
- The shell is formed of two distinctive shell plates.
- The head is not distinct.
- The alimentary canal shows a crystalline style.
- The gills, excretory organs and the other structures are paired.
- The sexes are separate or united.
- The development is indirect having a glochidium larva.

Class 7 - Cephalopoda

- The body is bilaterally symmetrical.



- The foot is modified into arms and funnel.
- The shell may be either absent or rudimentary
- The odonotophore with a radula is present.
- The ink–gland is present.
- The sexes are separate.
- The development is direct hence no metamorphosis and larval stage.
- **Example:** Nautilus, Loligo Sepia, Octopus

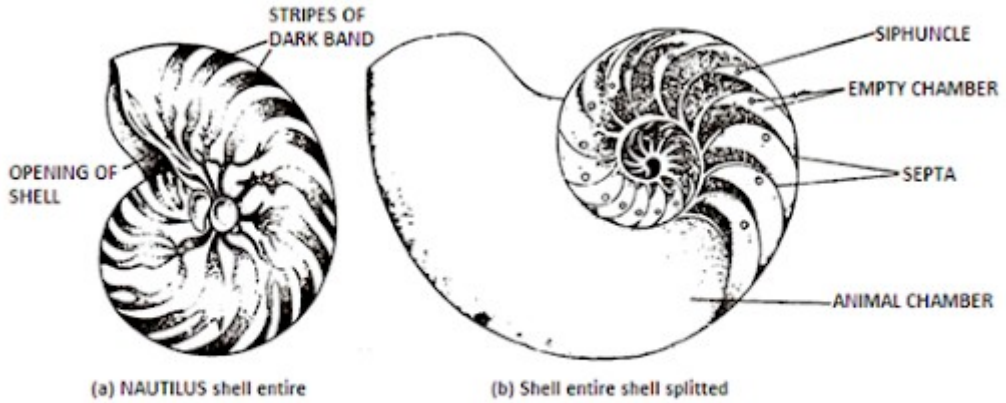


Fig. 220. NAUTILUS

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