

5- Phylum CTENOPHORA المشطيات

About 100 species known (at 1977). Ovoid forms measure up to about 5 cm, flattened forms may be up to 1 metre or more in length.

Characteristics

- 1 -Marine, most free-swimming, but a few creeping or sessile forms.
- 2 -The larva (cydippid) is free-swimming.
- 3 - Body spherical to ovoid, or flattened and elongated.
- 4 -Most orders tentaculate.
- 5 -Tentacles, where present, bear special adhesive colloblast cells used in prey capture.
- 6 -Transparent, gelatinous.
- 7 -Possess 8 radially-arranged ciliated bands (comb rows or costae). Each costa is composed of a row of ciliary plates called ctenes.
- 8 - Locomotion by ciliary beat of the comb rows.
- 9 -Digestive system of branched canals.
- 10 -Hermaphroditic.

Larval form: the free-swimming cydippid larva. One genus possesses a planula larva.

Metamorphosis:The cydippid larva undergoes a more extensive change in shape when attaining the body form .

Adult body form: The more primitive ctenophores are those with the spherical to ovoid body form. There is a mouth at one pole and an apical sensory organ at the other. The body bears eight ciliated bands or comb rows, extending from the apical organ to the mouth.

1-Class TENTACULATA e.g.

Pleurobrachia Fig. 5.1

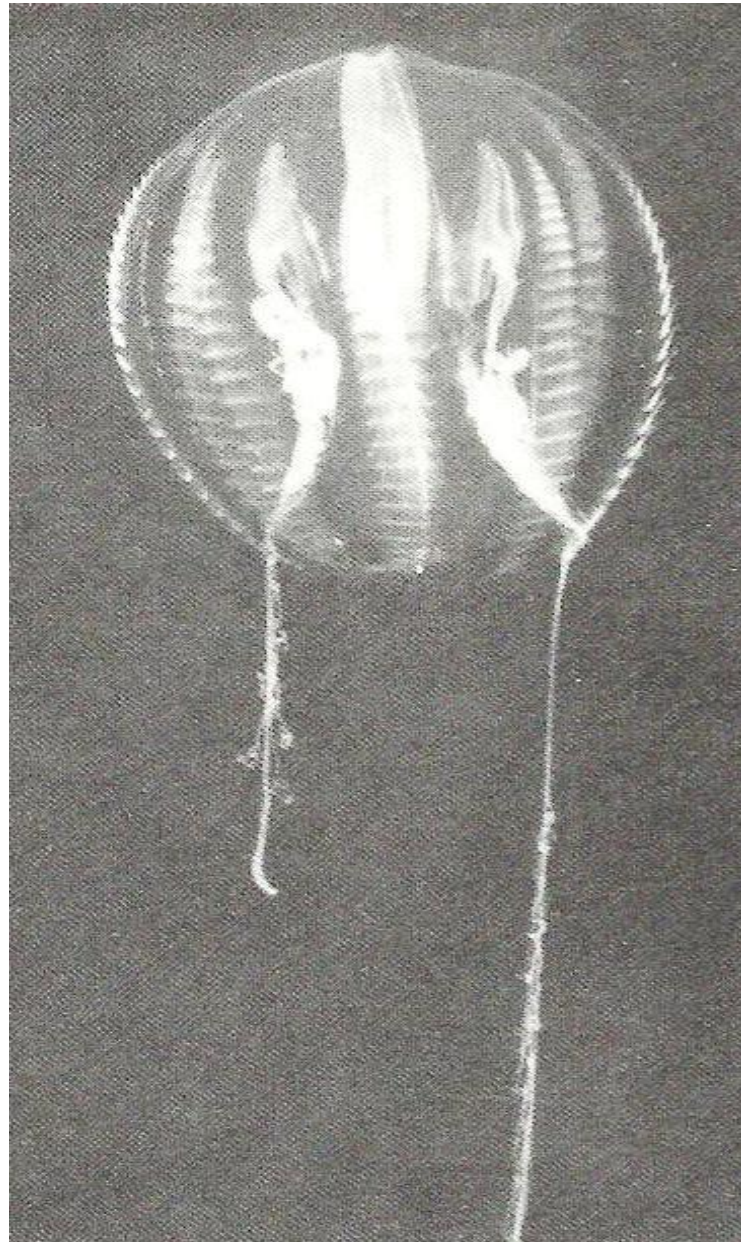


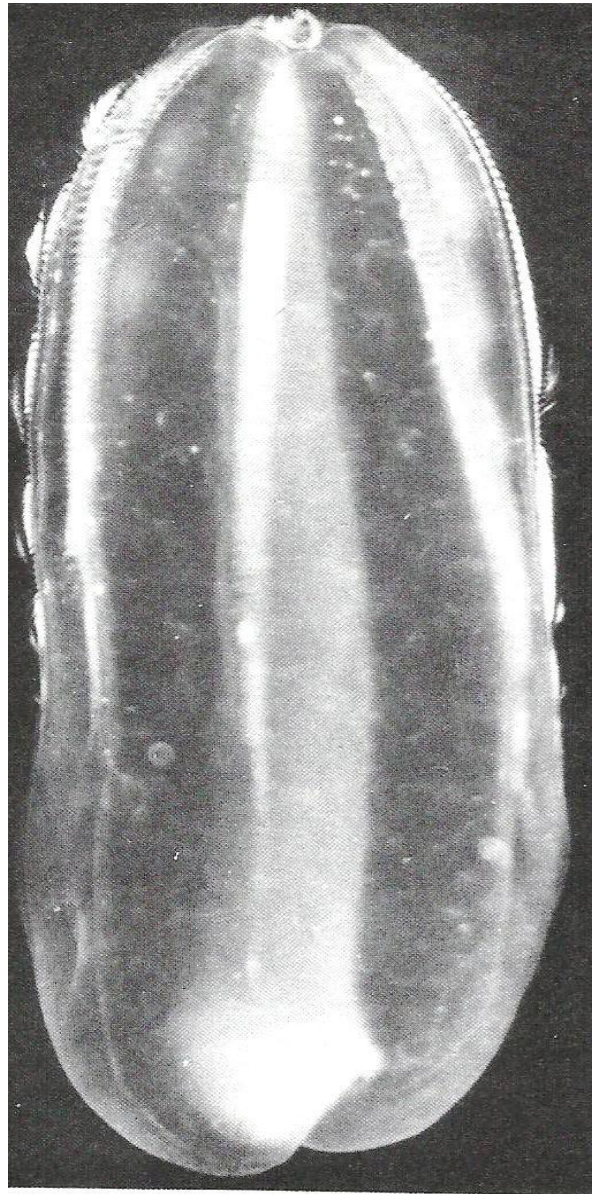
Fig 5-1

Pleurobrachia

2-Class NUDA: lacking tentacles,
e.g. Beroe, with a conical body and
large pharynx (Fig. 5.2)

Beroe

Fig 5-2

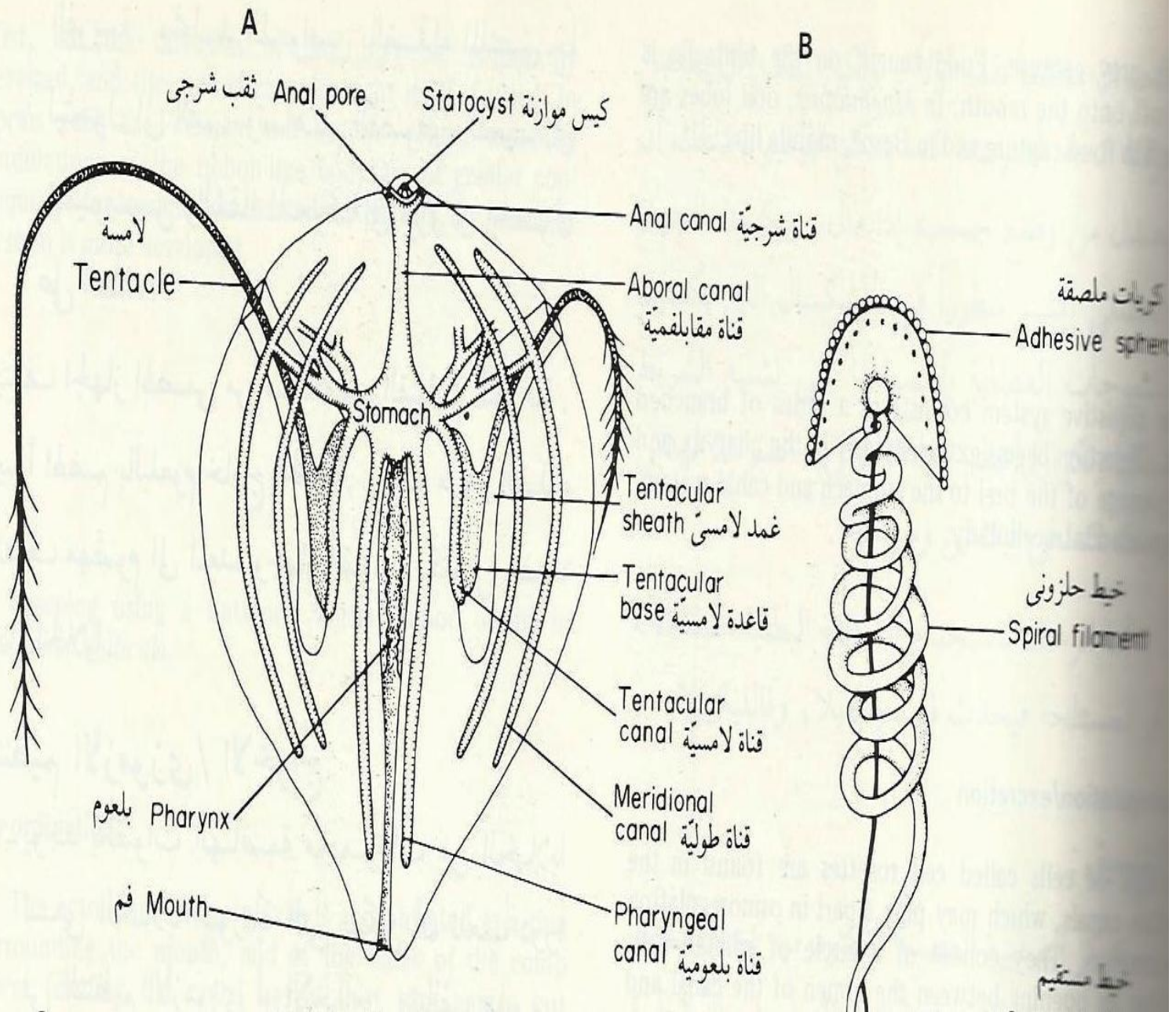


Feeding :

a Ctenophores are carnivorous on plankton.

b The contractile tentacles, which lack nematocysts, bear adhesive colloblasts in the epidermis (Fig. 5.3B). These are used in prey capture. Food caught by the tentacles is wiped off onto the mouth. The digestive system consists of a series of branched canals. Digestion begins extracellularly in the pharynx and is completed intracellularly.

Fig 5.3



Digestive system

Coolloblast

Osmoregulation/excretion:

Groups of cells called cell rosettes are found in the digestive canals, which may play a part in osmoregulation and excretion.

Possibly waste fluid may pass from the mesogloea through the openings and canals. Most nitrogen is excreted through body surface. Indigestible wastes removed through the mouth and anal pores

Movement:

a-Depending on species, ctenophores move by slow swimming or creeping.

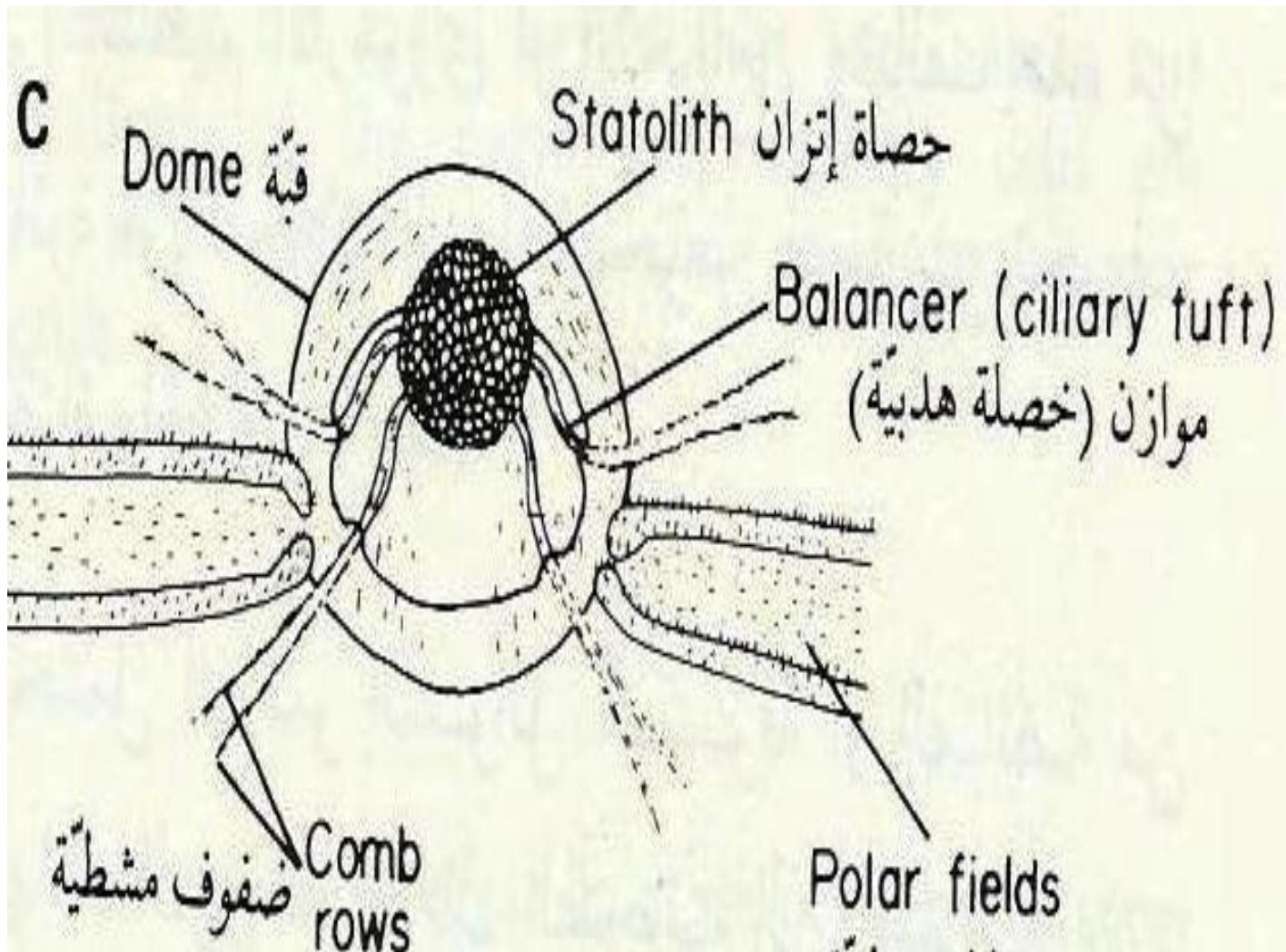
b-Waves of ciliary movement are initiated at the aboral ends of the comb rows and pass orally.

co-ordination:

a The ectodermal nerve plexus is concentrated as a ring surrounding the mouth, and at the bases of the comb rows, forming the radial nerves

The sensory apical organ is a statocyst or balancer organ, used in maintaining normal orientation.

b – Hormones unknown



Statocyst

Respiration: There are no special respiratory structures

Circulation/coelom :

a -The gastrovascular cavity combines both circulatory and digestive functions. There is no blood system.

b -The stomach and digestive canals are lined with ciliated cells which probably provide the circulatory current.

Reproduction :

a- Hermaphrodite . Sexual reproduction The gonads form two bands (one an ovary, the other a testis) located in the thickened body wall .

b-Eggs and sperm are generally shed to the outside through pores, fertilization occurring in sea water.

c- Asexual reproduction may occur in some creeping species (e.g. Ctenoplana). Small fragments shed during locomotion, develop into complete ctenophores.

Economic importance :

Dangerous fish farm , as predators
of young fish fry .

Habitat: Entirely marine, mostly
pelagic and typical members of
plankton, in all waters. A few are
benthic, slow, creeping forms.

6- Phylum MESOZOA الوسيطة

About fifty species are known (at 1977), all minute.

Characteristics

1- Parasites of body cavities of various advanced invertebrates.

2-Metazoan, of simple organization.

3-Body of two cellular layers but lacking endoderm and mesogloea.

4 -Body consists of outer ciliated cells (the somatoderm) and inner reproductive cells during at least part of the life-cycle .

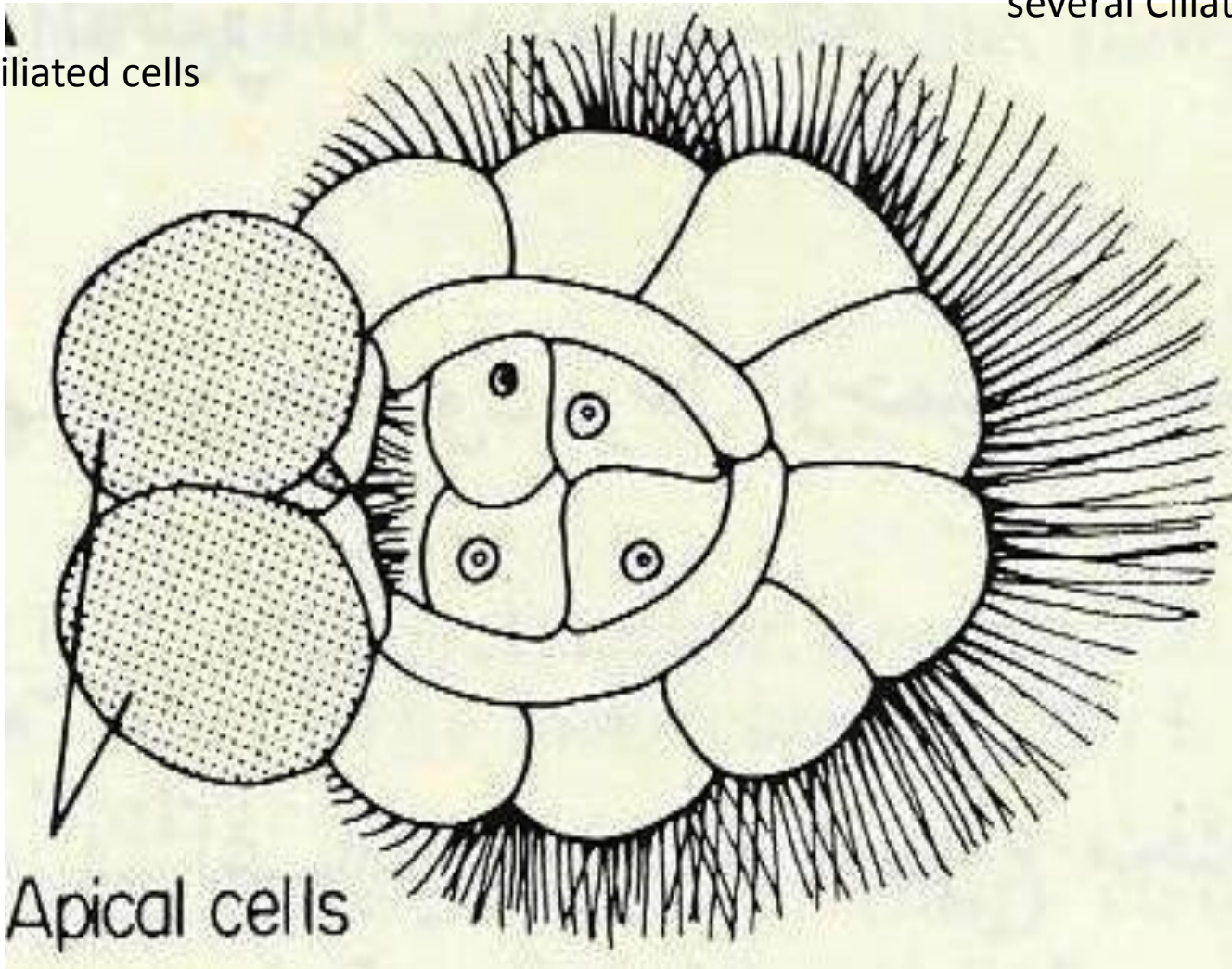
5- Life-cycle complex.

Larval form:

They have larvae called *Dicyemida* or infusiform or diembryonated larva .It parasitized in the kidney of cephalopod host as sepia. It has two apical unciliated cells filled with high density material, and several large ciliated cells covering the surface. It escapes from their parent with the host urine and then into the sea as in (Fig. 6.1A)

2 Unciliated cells

several Ciliated cells



2 Apical cells

Dicyemida larva
Infected stage

Fig 6-1-a

Metamorphosis: There is no metamorphosis.

Adult body form: e.g. *Pseudocyema*.

Common parasites of the kidneys of sepia and octopus, the form generally observed is the vermiform (Fig. 6.2) which is small, ciliated, worm-like.

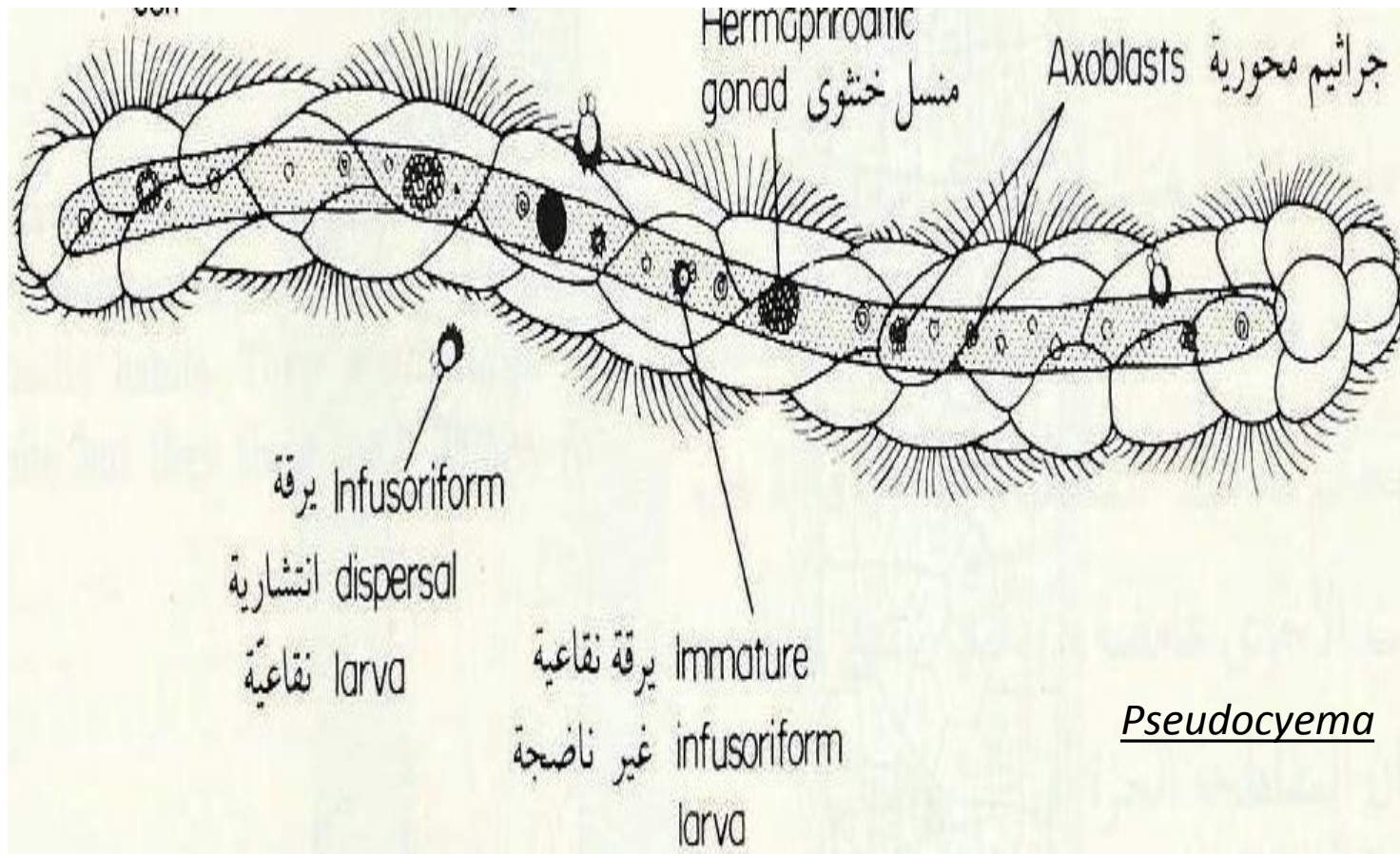


Fig 6-2

Feeding ,osmoregulation and excretion :

across bady wall

Movement: Ciliated forms are swimming

Co-ordination: No Specialized nervous structures

Reproduction: There are no special organs.

b- Sexual reproduction.

If the vermiform population in the host kidney reaches high density, the axoblast within the axial cells give rise hermaphroditic gonad and produces eggs fertilized by sperm from the same gonad, and develop into infusoriform (Diembryonic larva or *Dicyemida larva*) dispersal larvae (infected stage) which escape into the sea.

c -Asexual reproduction. The axoblasts undergo complex division, giving rise one large cell and smaller cells . The smaller cells form a jacket around the larger cell which become axoblast ,then elongate and become adult and this process is cyclical .

Habitat : Parasitic in the kidneys of cephalopods.