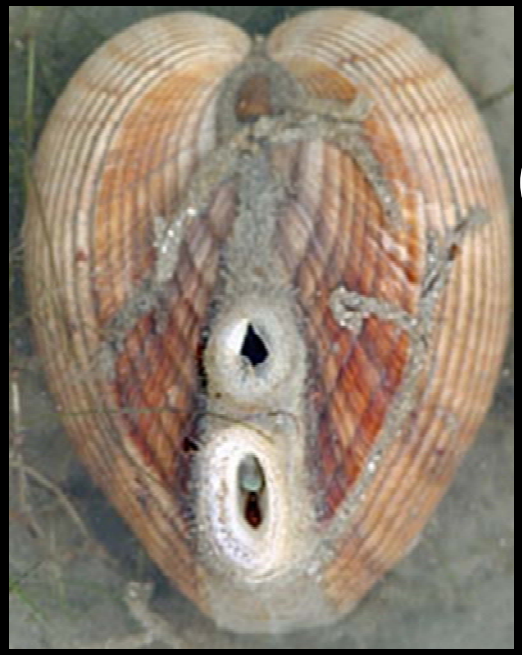
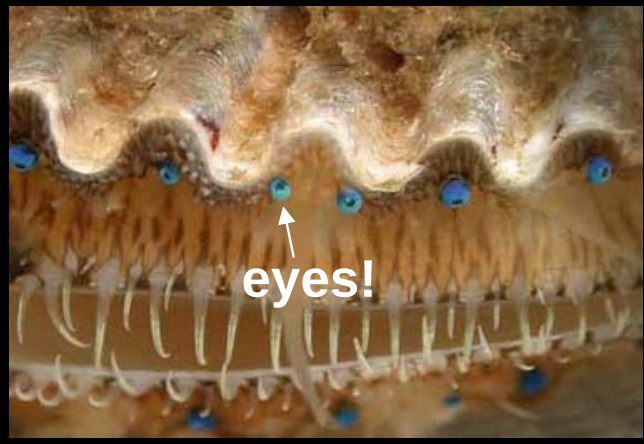
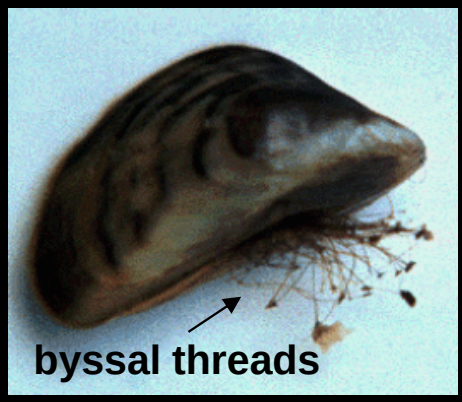
Cl. Bivalvia
(= Cl. Pelecypoda)

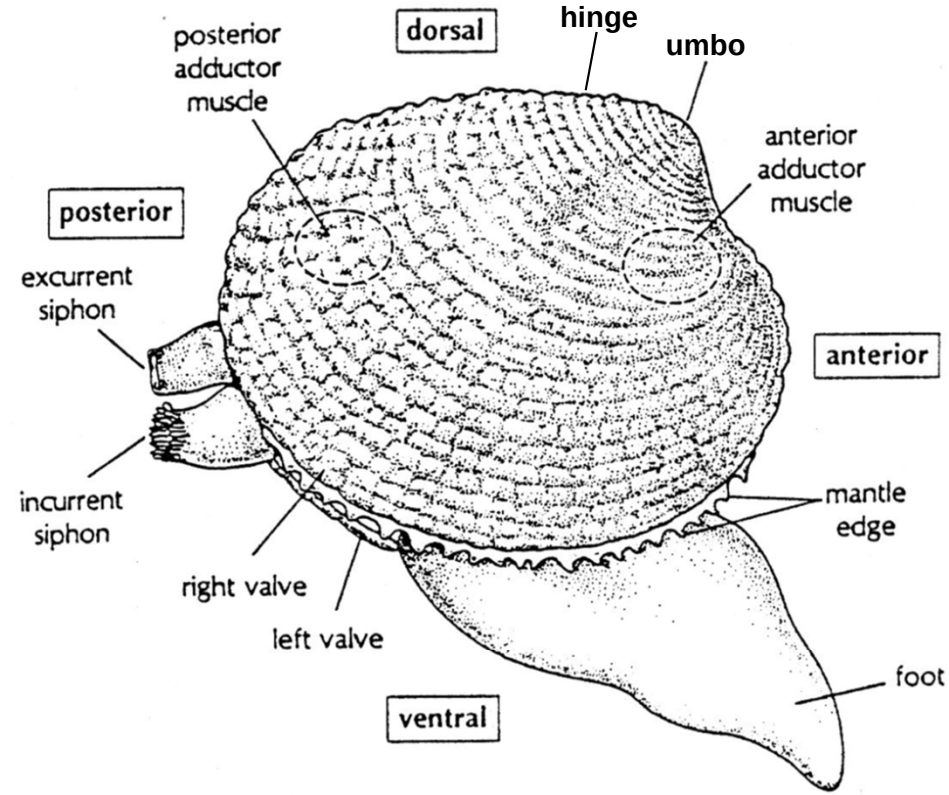


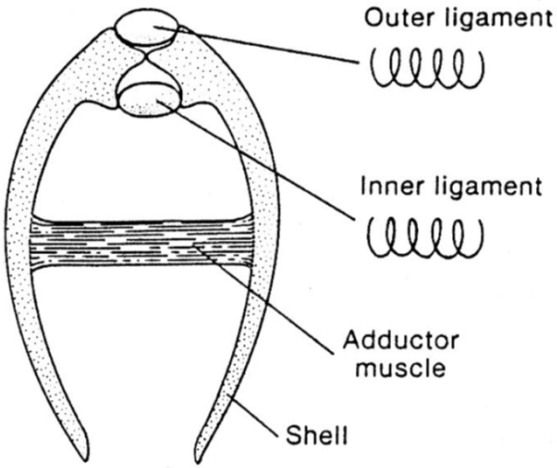
shell = paired valves

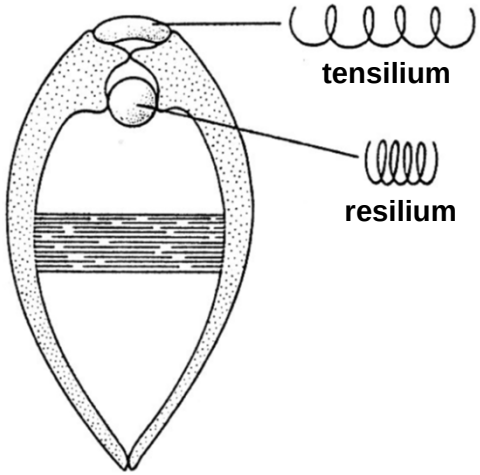


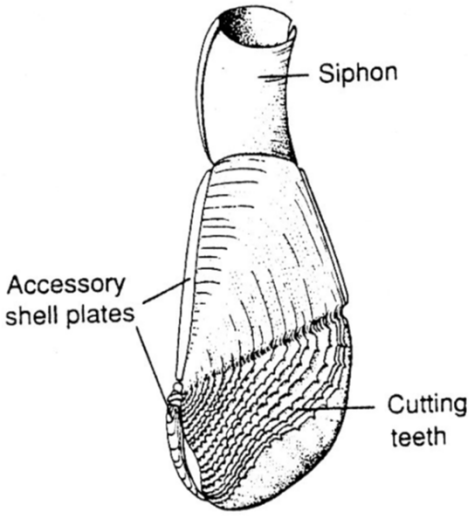


Cl. Bivalvia: body orientation

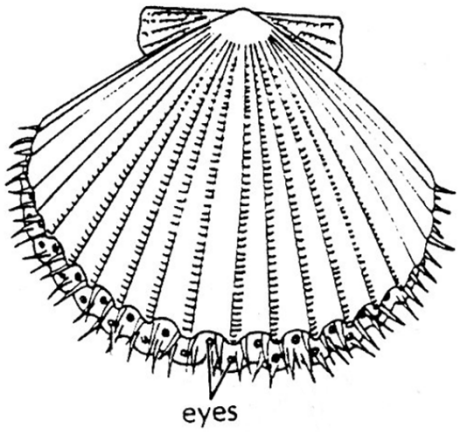






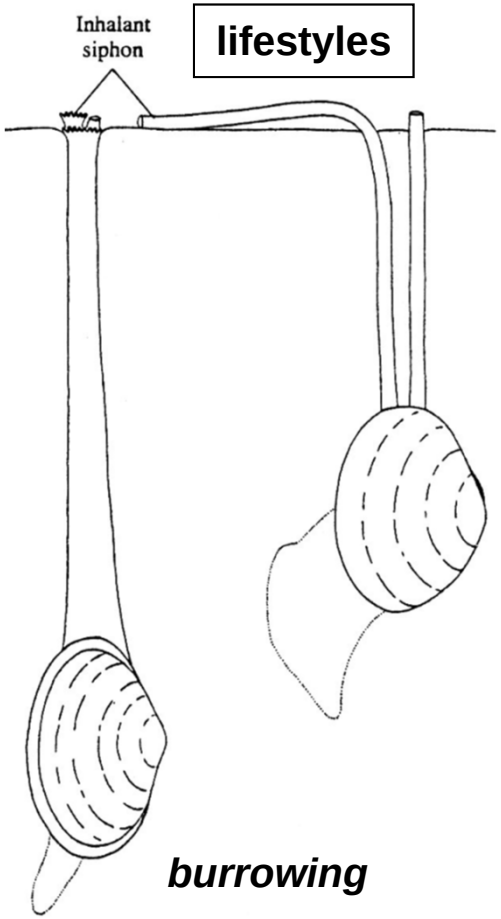


boring



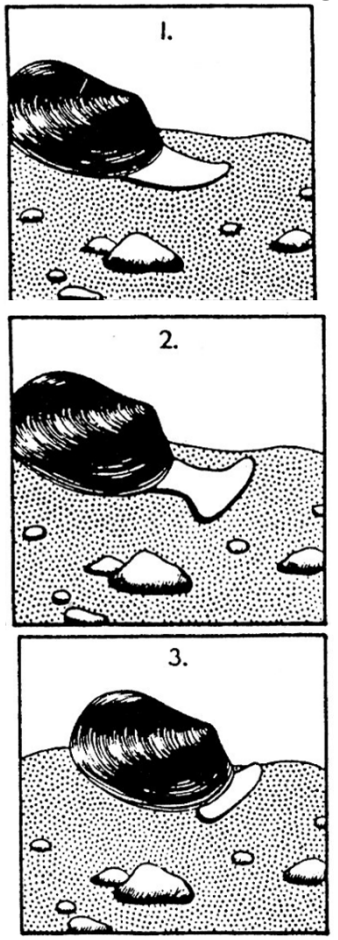
"non-burrowing"

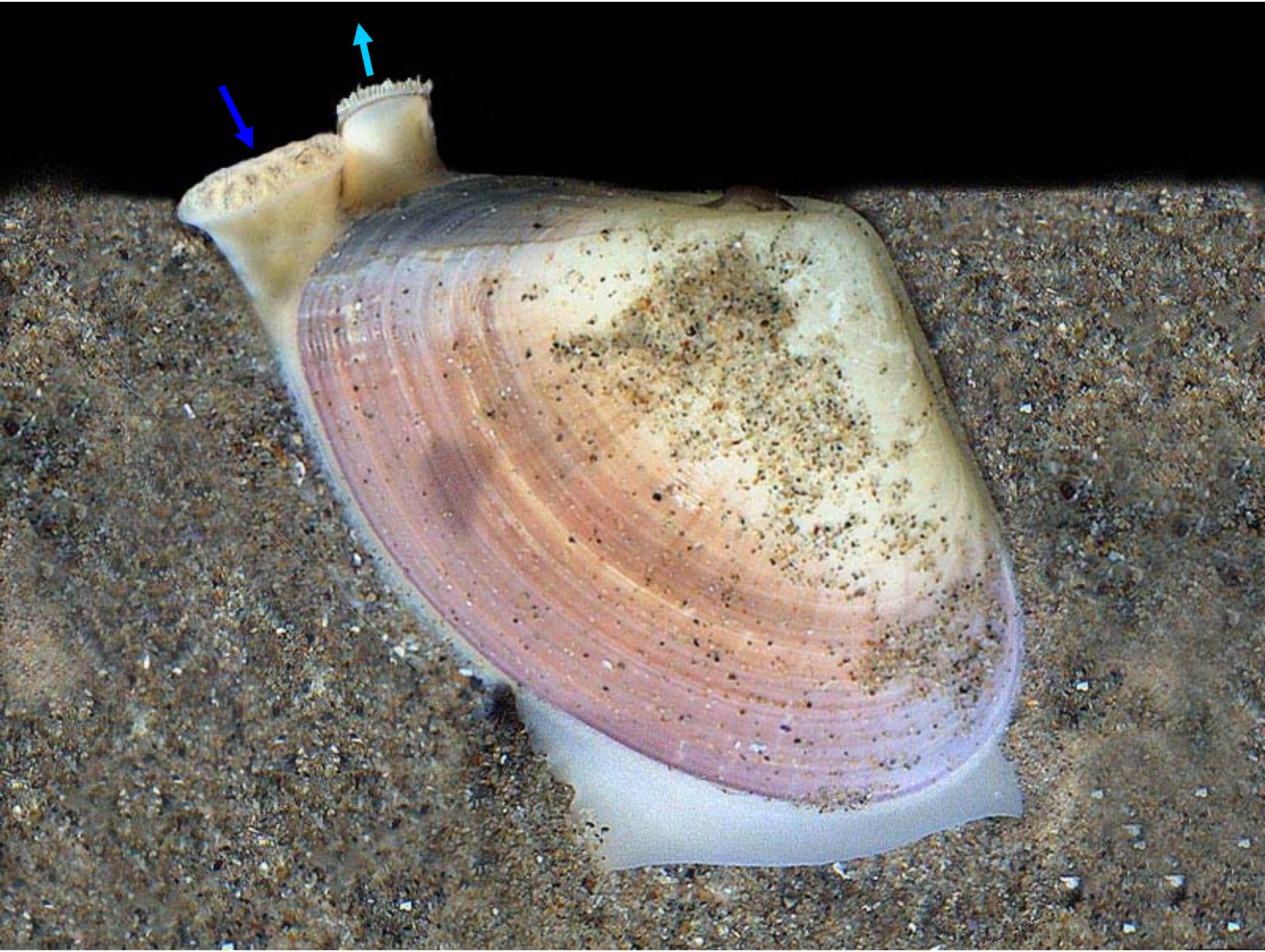
lifestyles



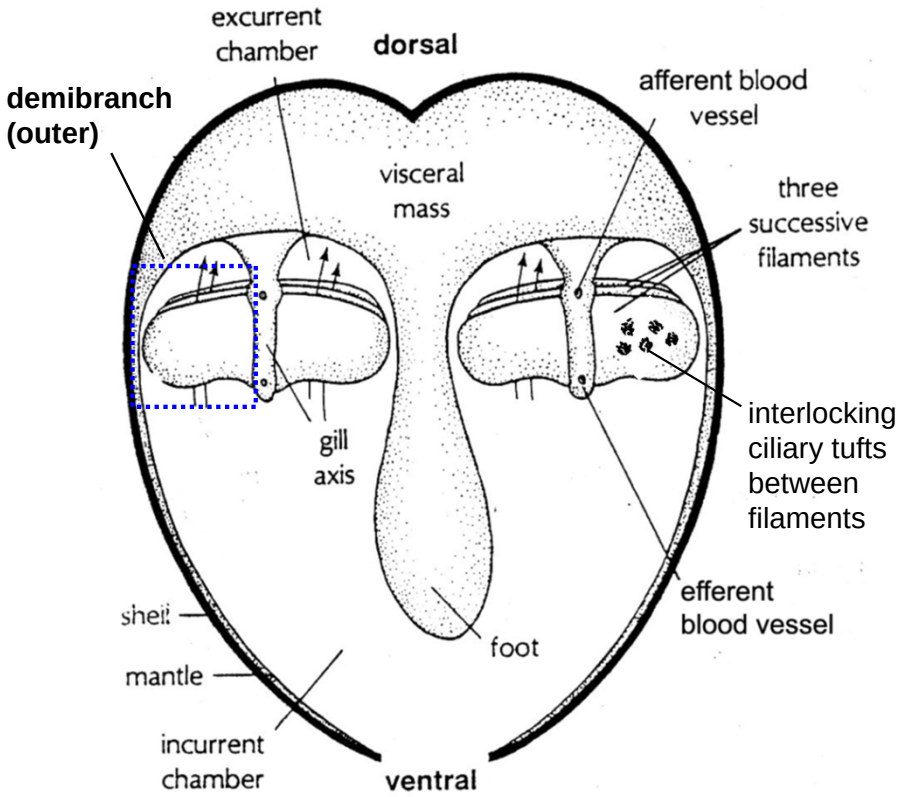
burrowing

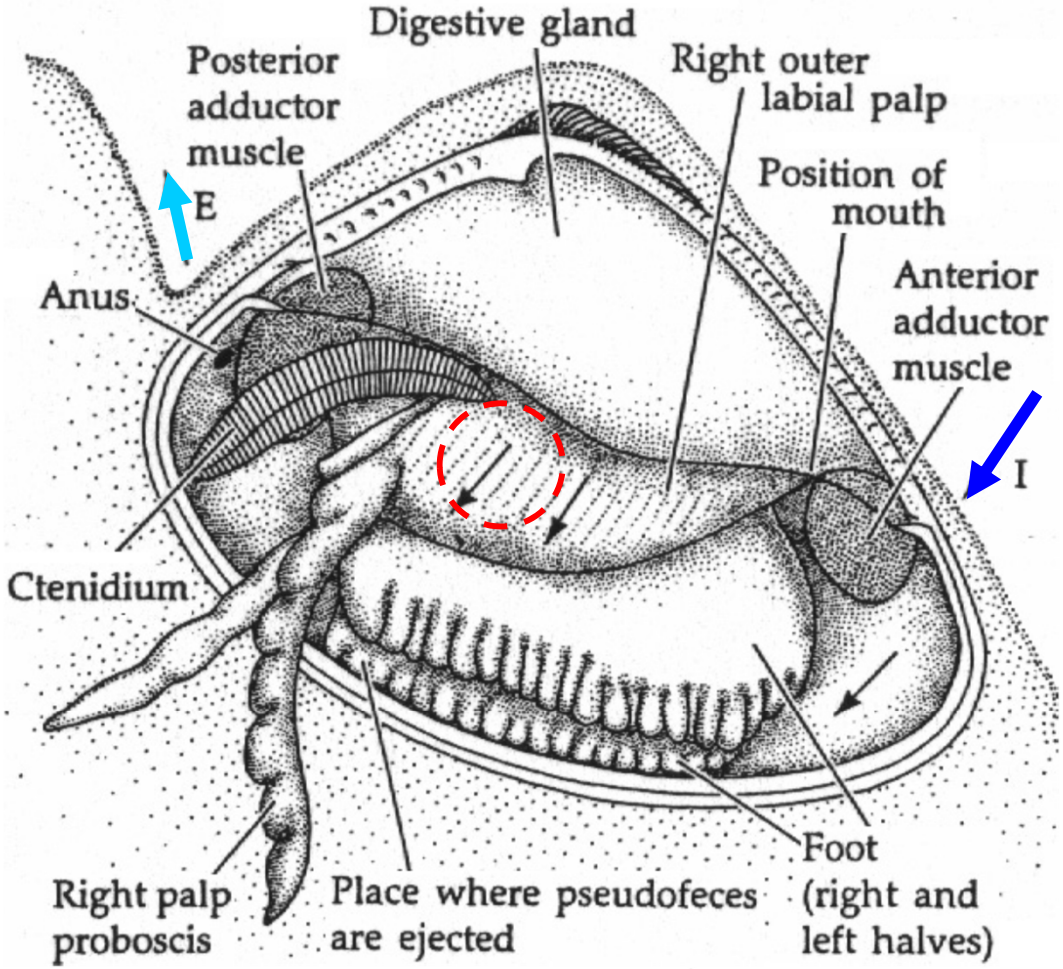
Use of an anchor in bivalve burrowing



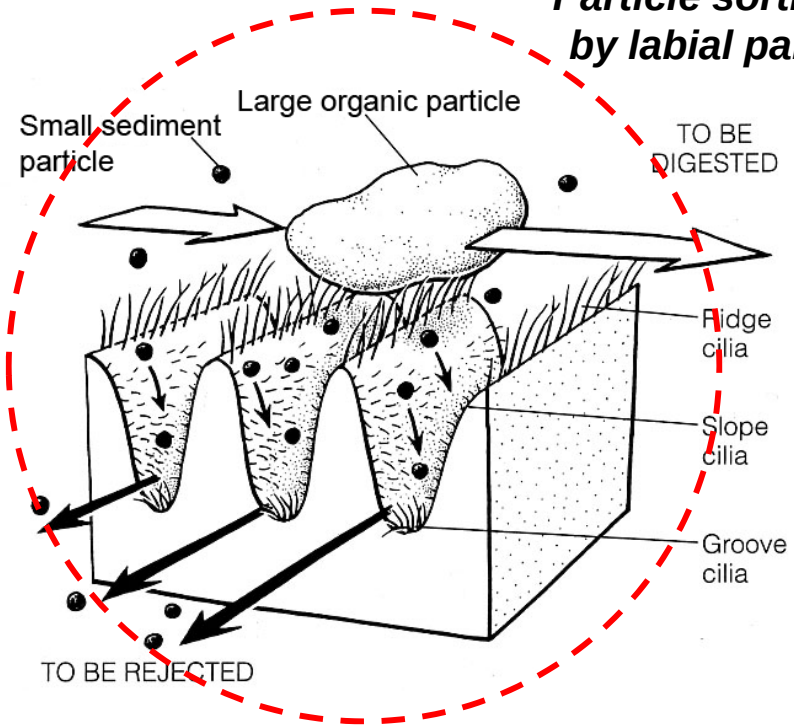


Bivalve “subclasses”: Protobranchs

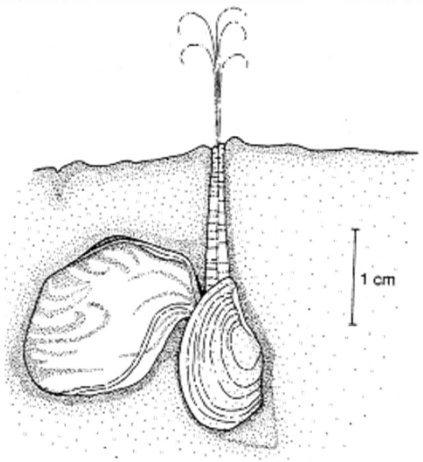




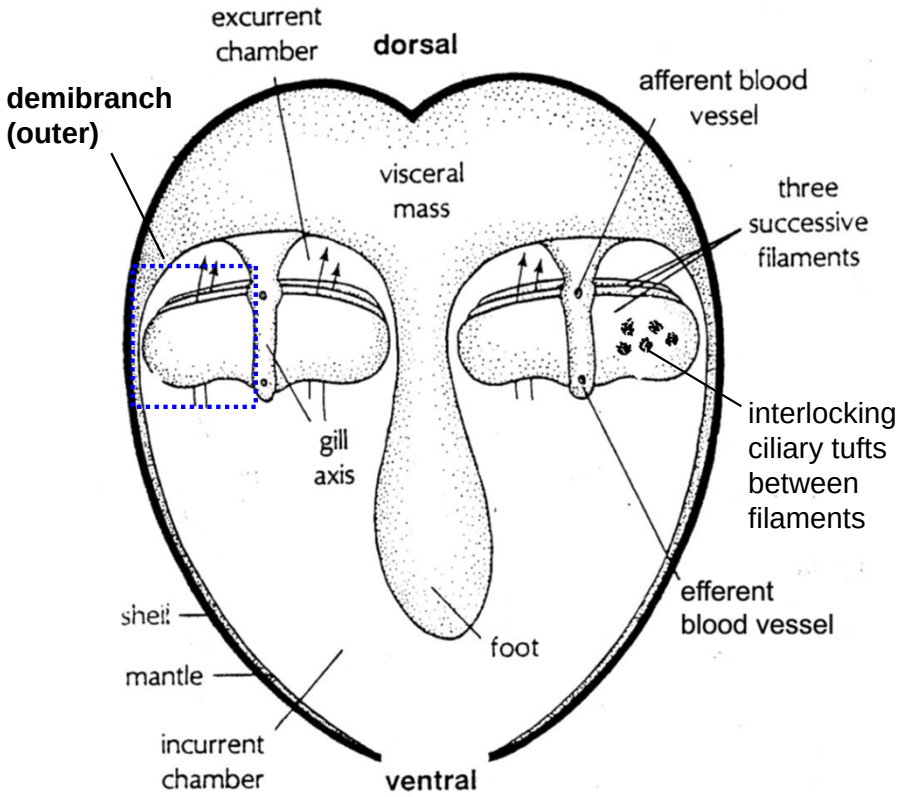
Particle sorting by labial palps

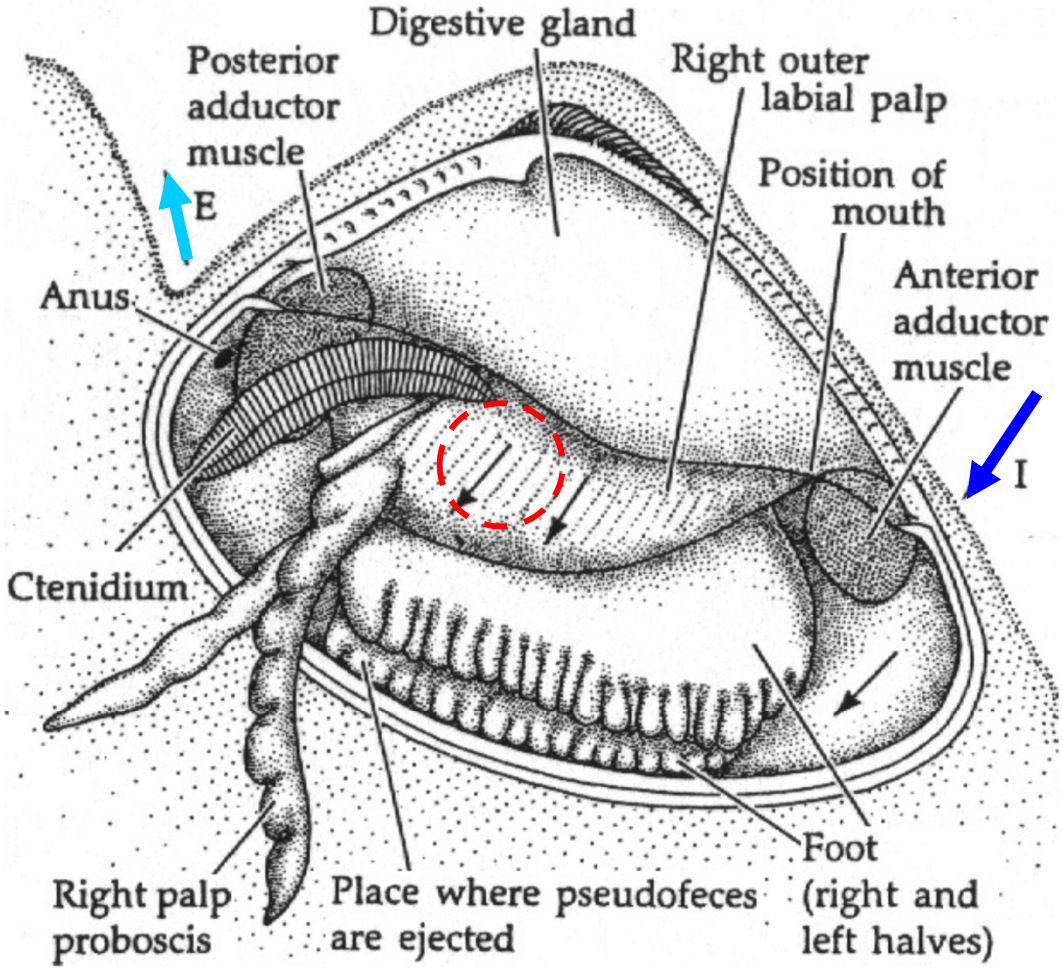


Separate feeding and respiratory functions

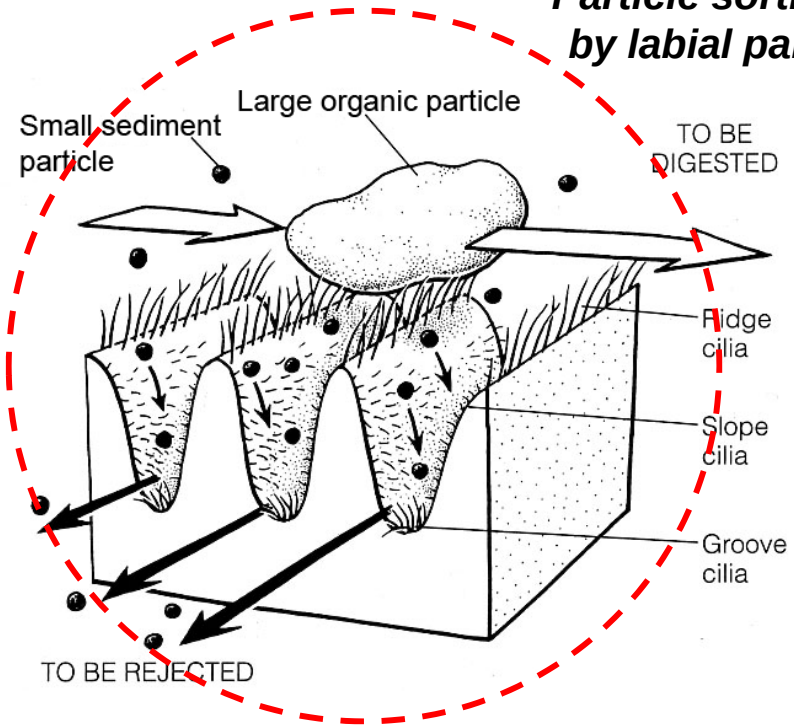


Bivalve “subclasses”: Protobranchs

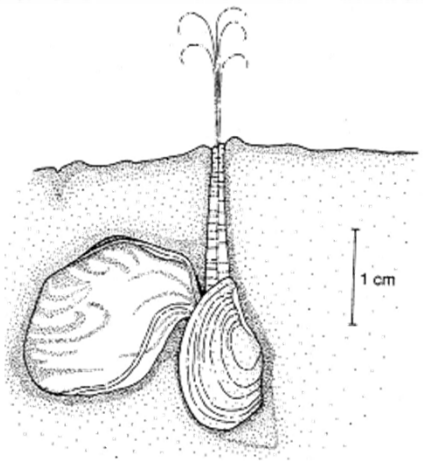




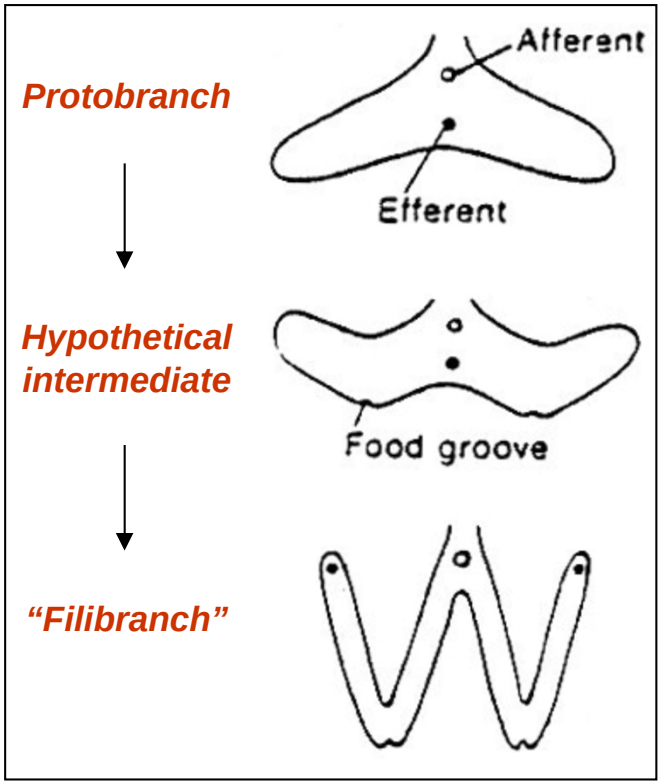
Particle sorting by labial palps

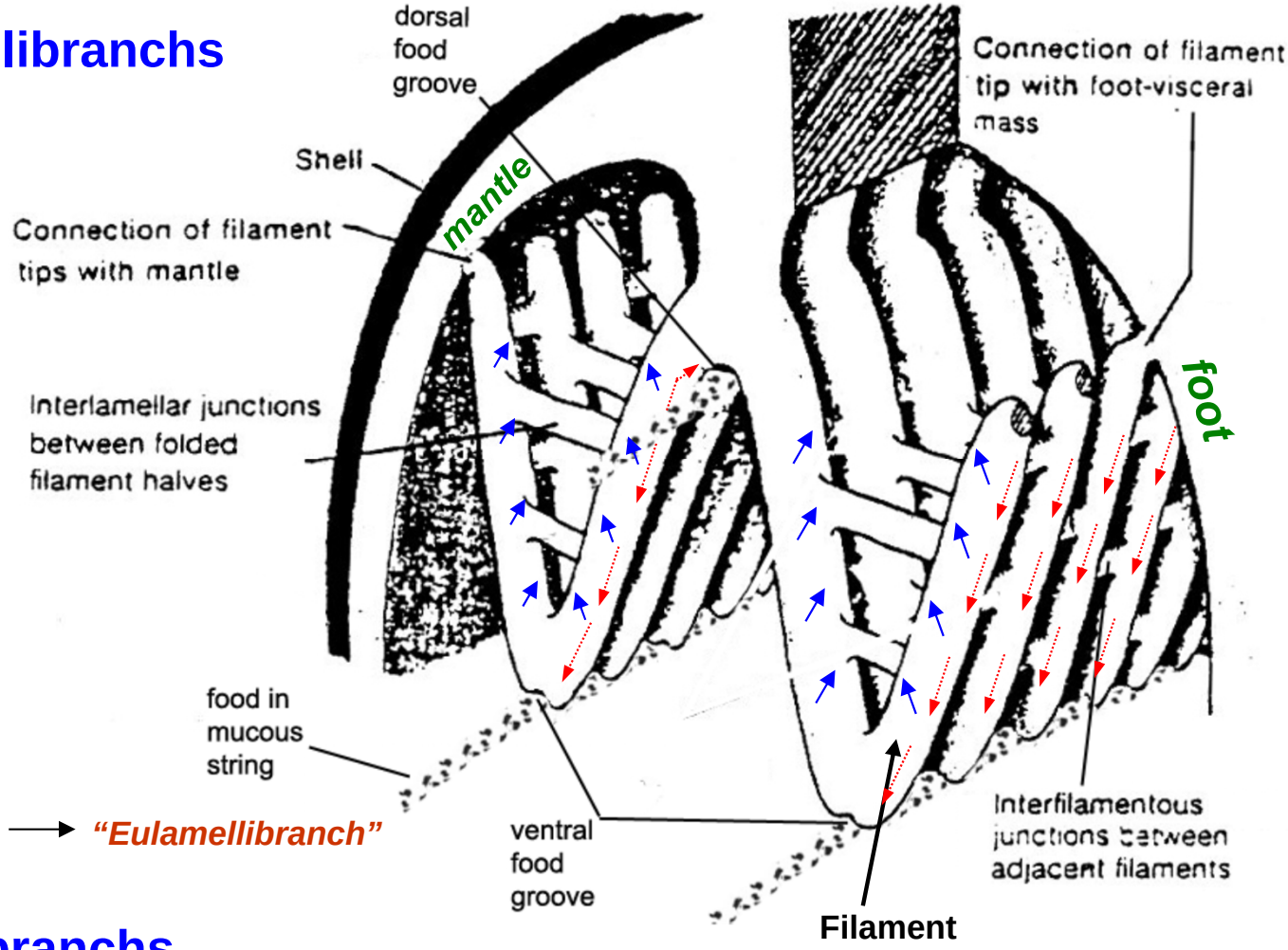


Separate feeding and respiratory functions



Bivalve “subclasses”: Lamellibranchs





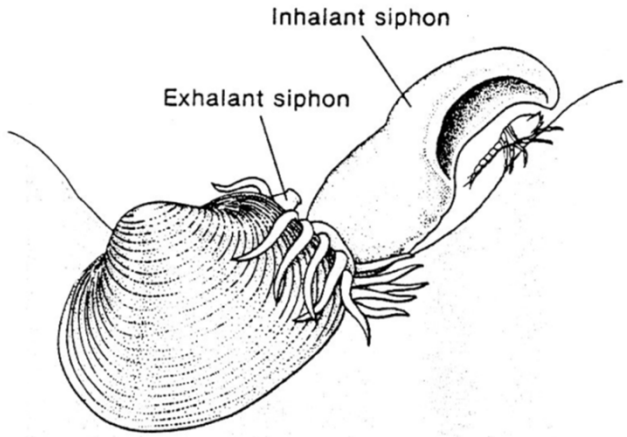
“Eulamellibranch”

Bivalve “subclasses”: Septibranchs

Septa at rest, pores open

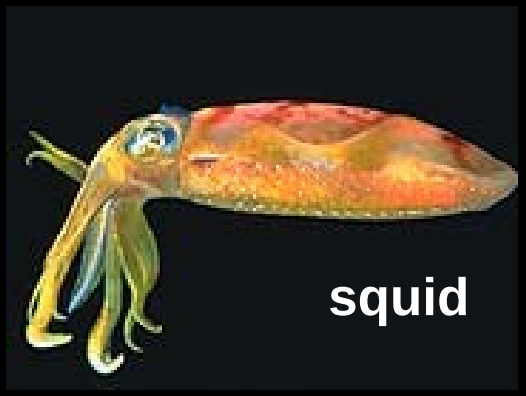
1)Septa lowered, 2)pores closed

3)Septa raised, pores still closed

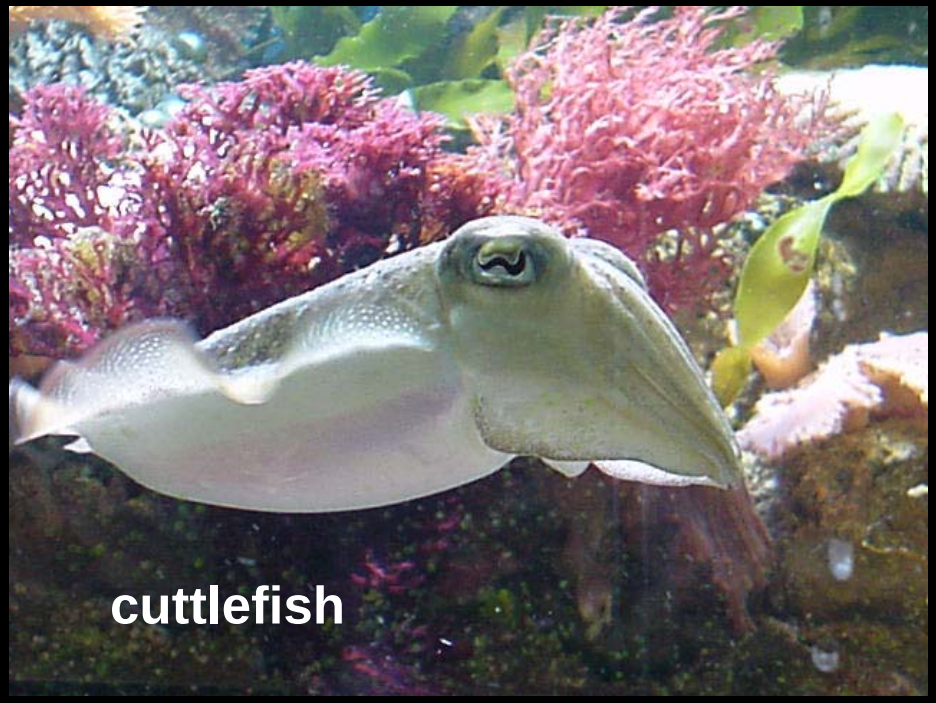


Cl. Cephalopoda


nautilus

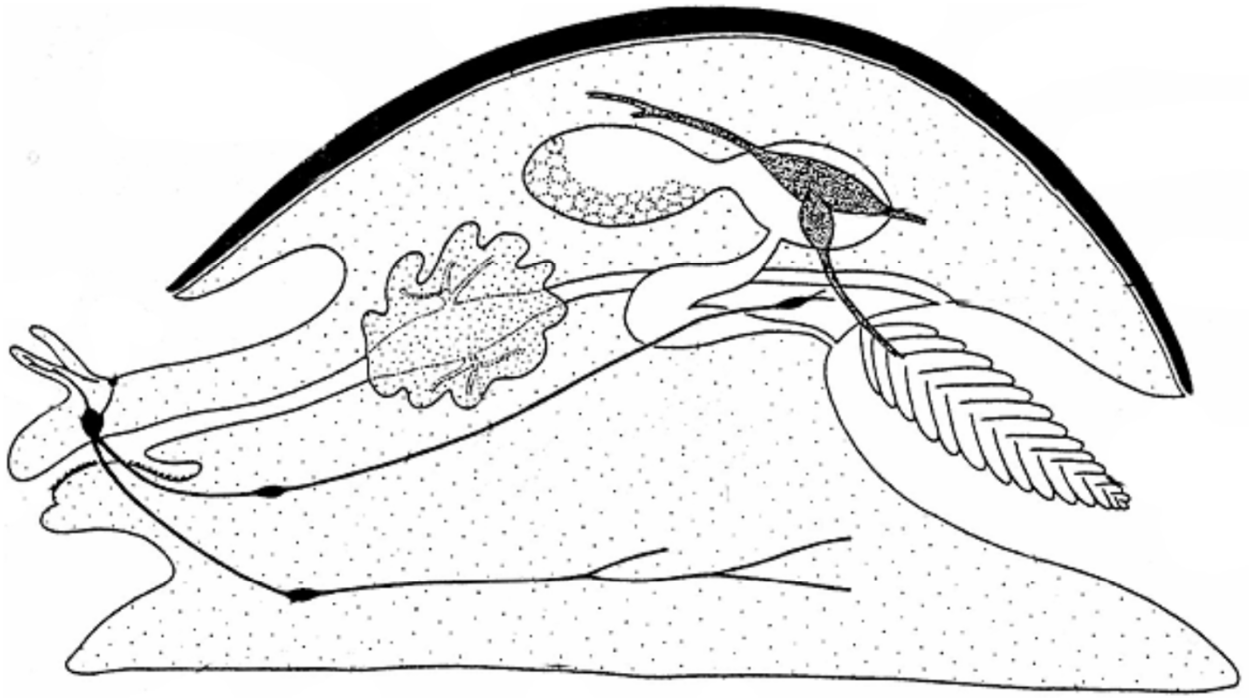

squid

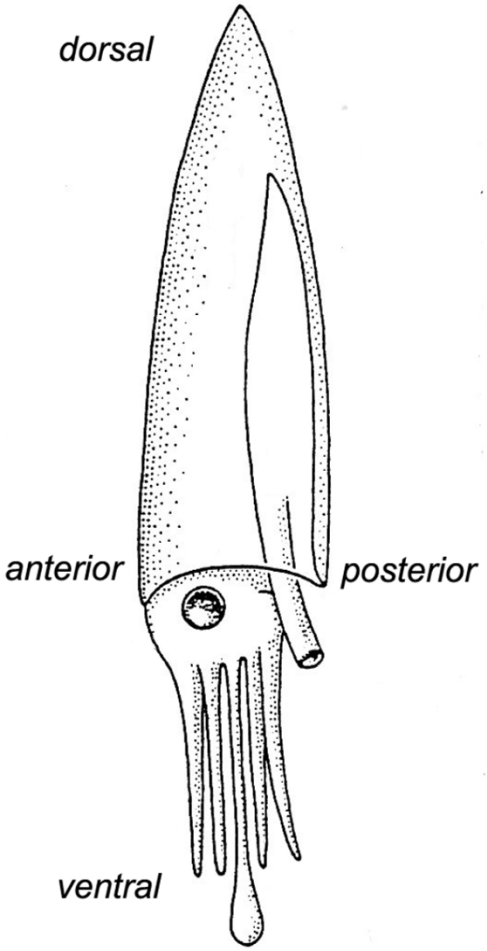

squid radula and beak


cuttlefish

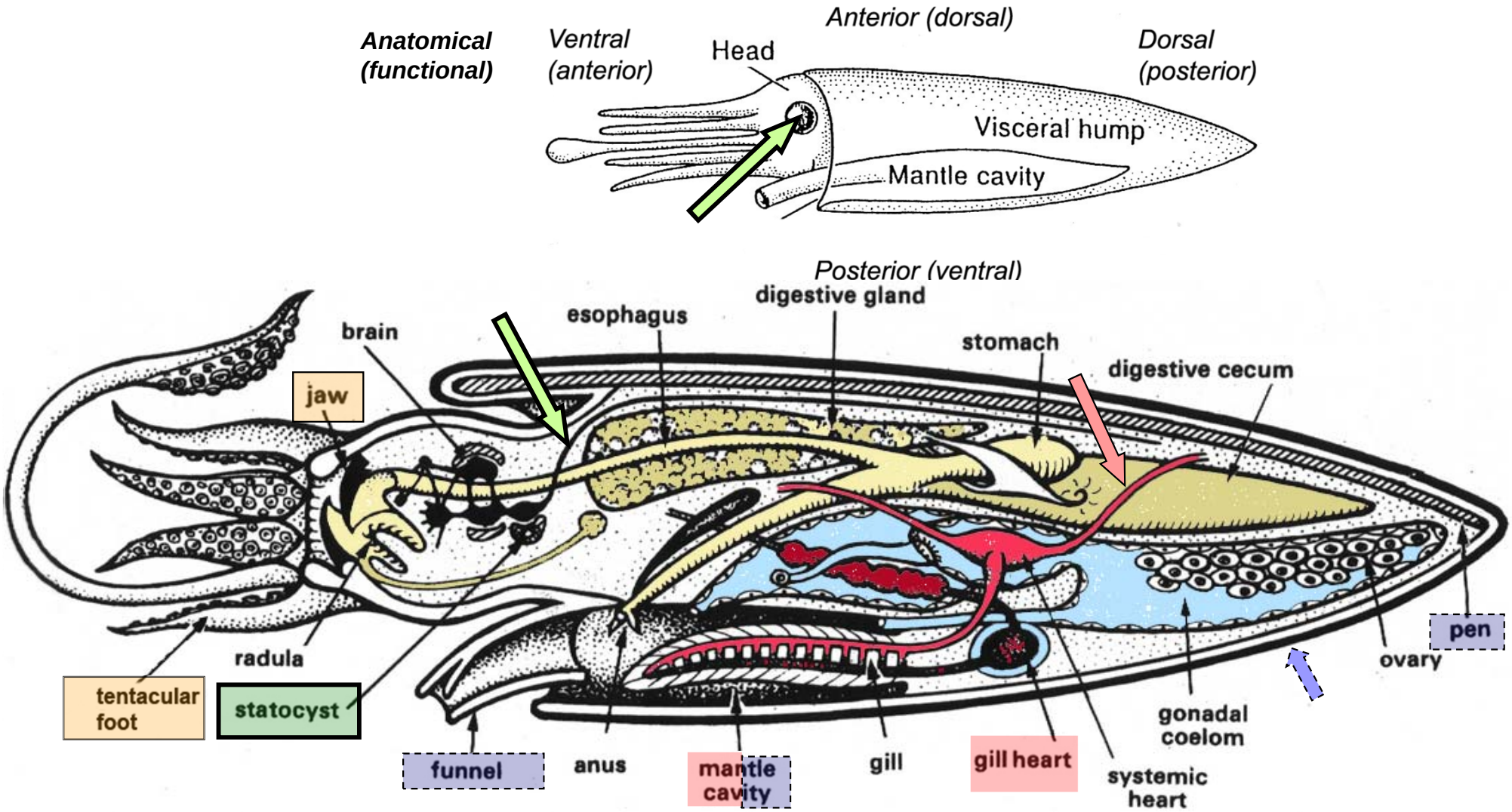

octopus

Cl. Cephalopoda





Cl. Cephalopoda



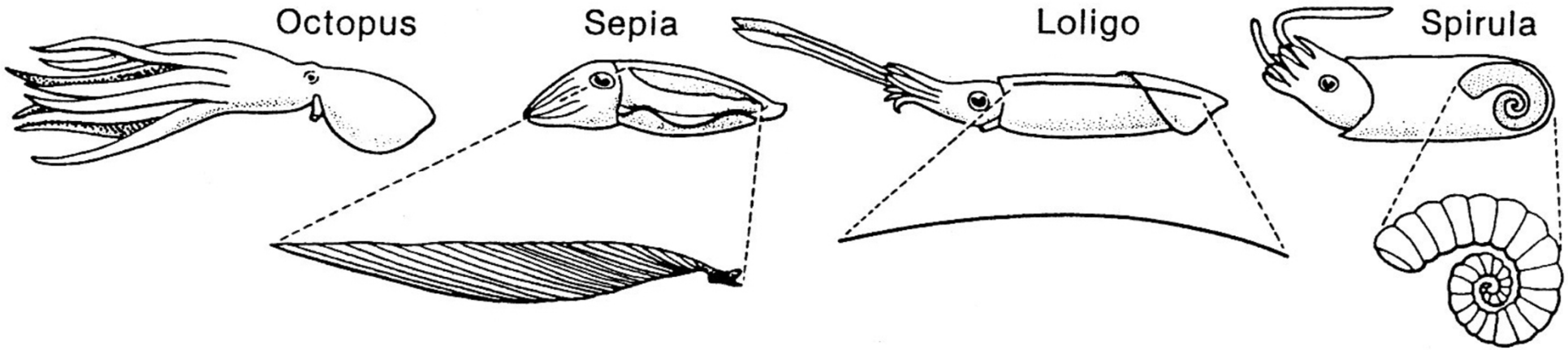
Circulatory/Respiratory: *closed circulation, branchial hearts, muscular ventilation*

Locomotory: *shell reduction, fusiform shape, mantle fusion, funnel, (mantle fins)*

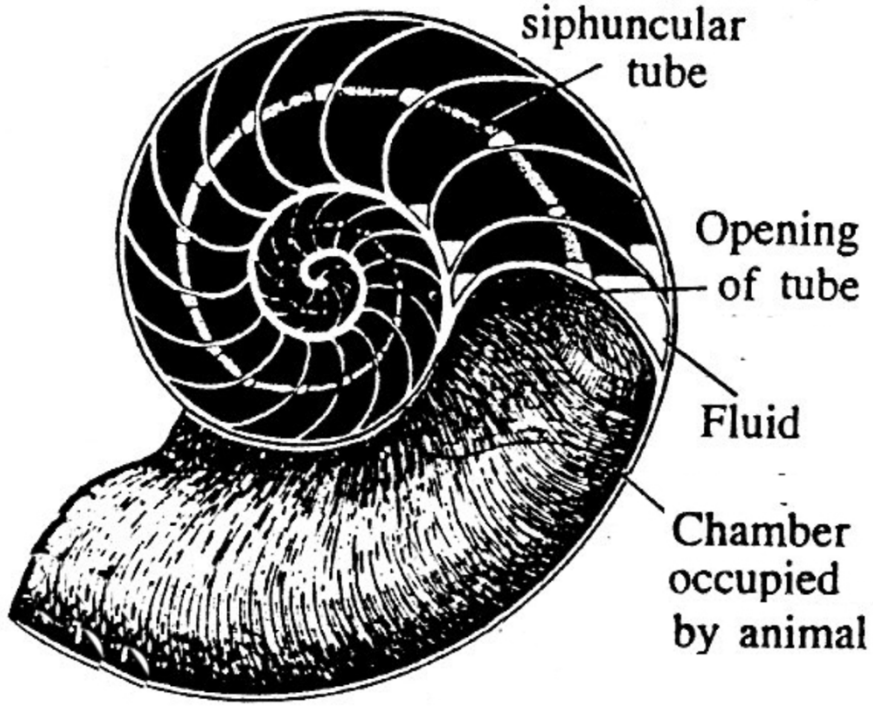
Feeding: *beak, tentacular foot*

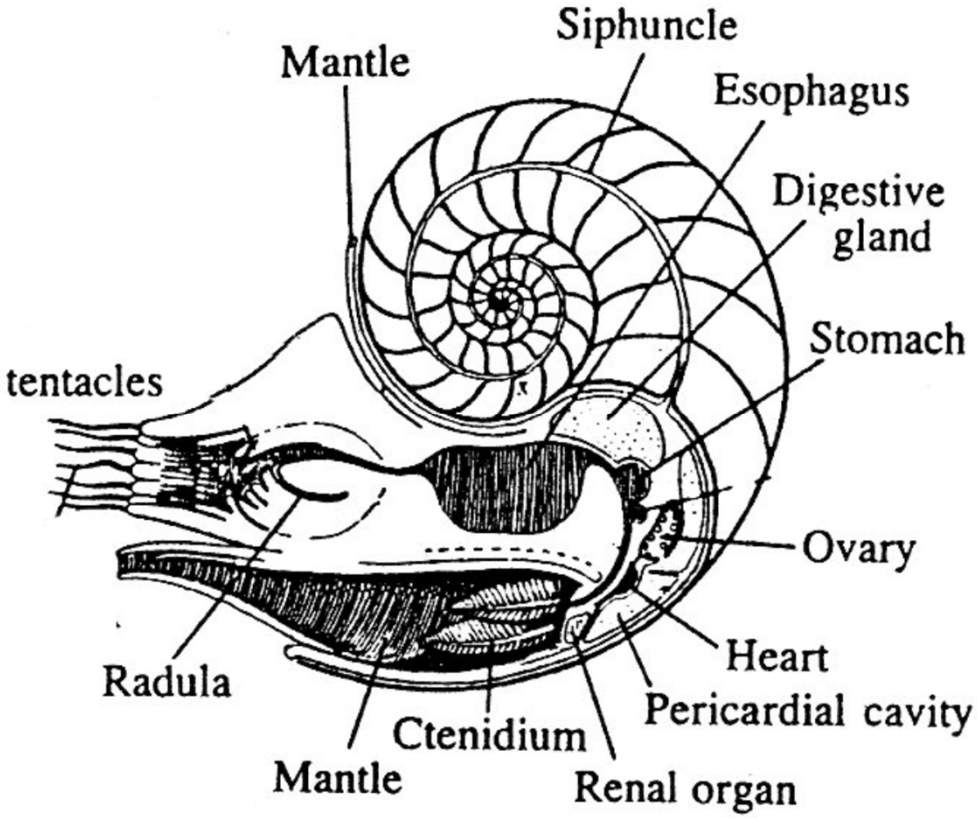
Nervous: *giant axons, statocyst, (camera eye)*

Internalization and reduction of the cephalopod shell

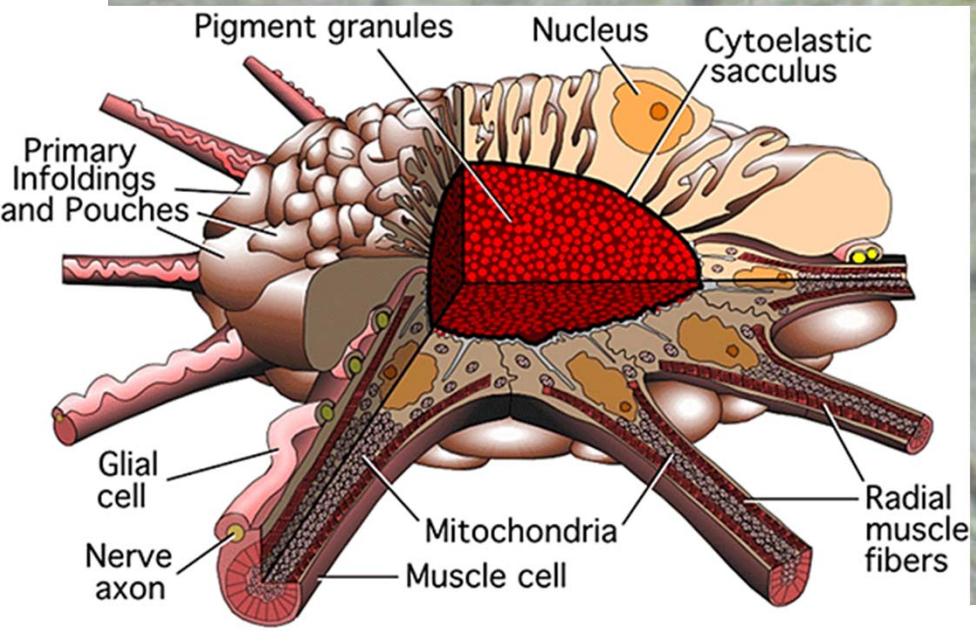


Chambered nautilus

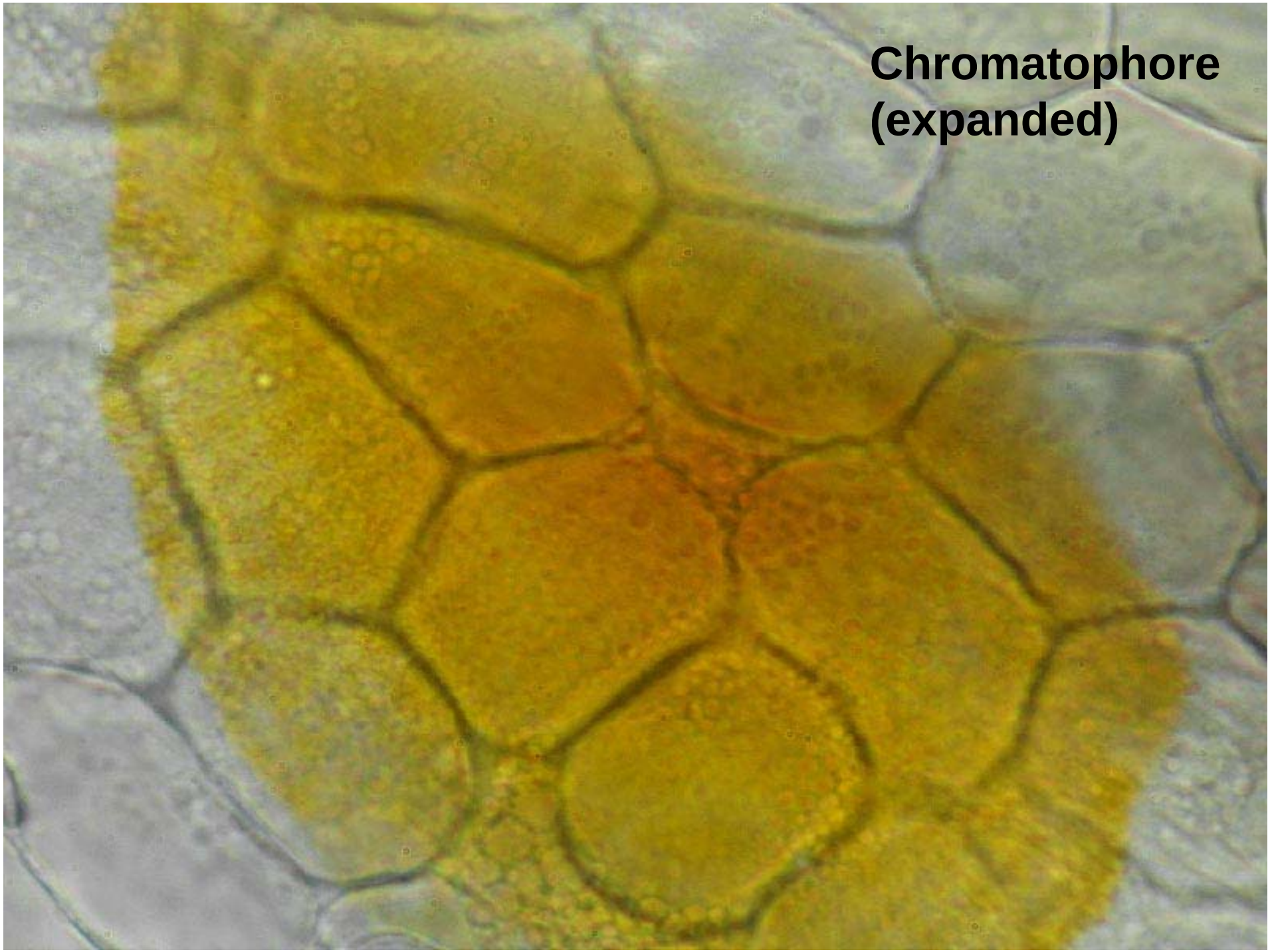




Chromatophore (condensed)



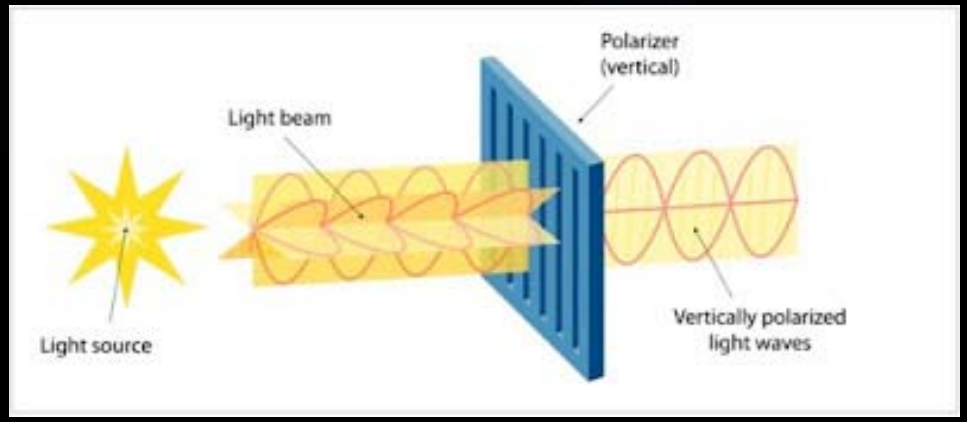
http://tolweb.org/accessory/Cephalopod_Chromatophore?acc_id=2038


Chromatophore
(expanded)

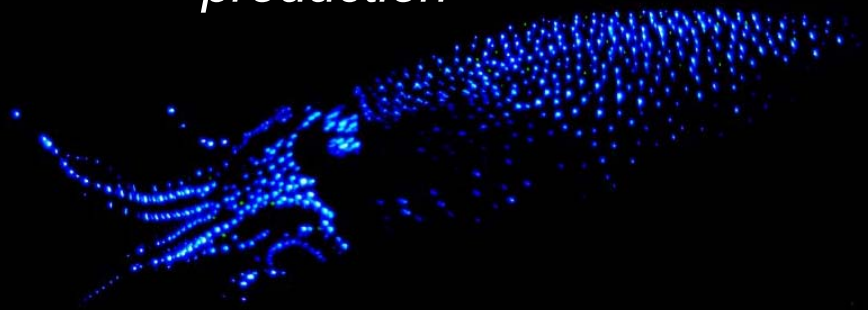
Plasticity of skin appearance

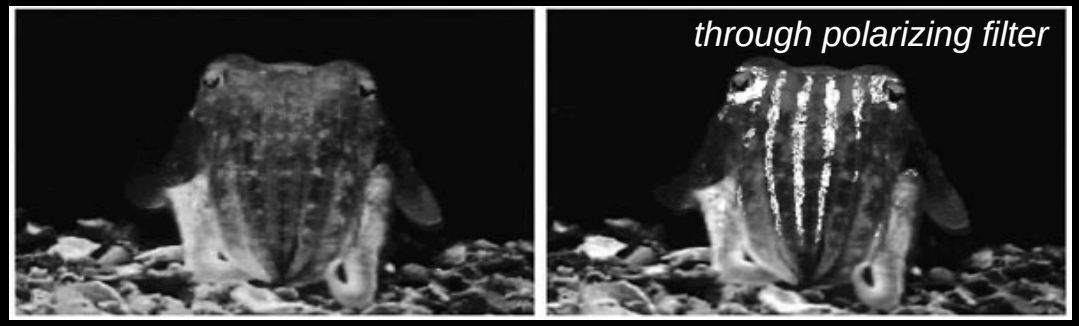
Chromatophores (pigment)
reflection

Iridophores (polarization)
refraction

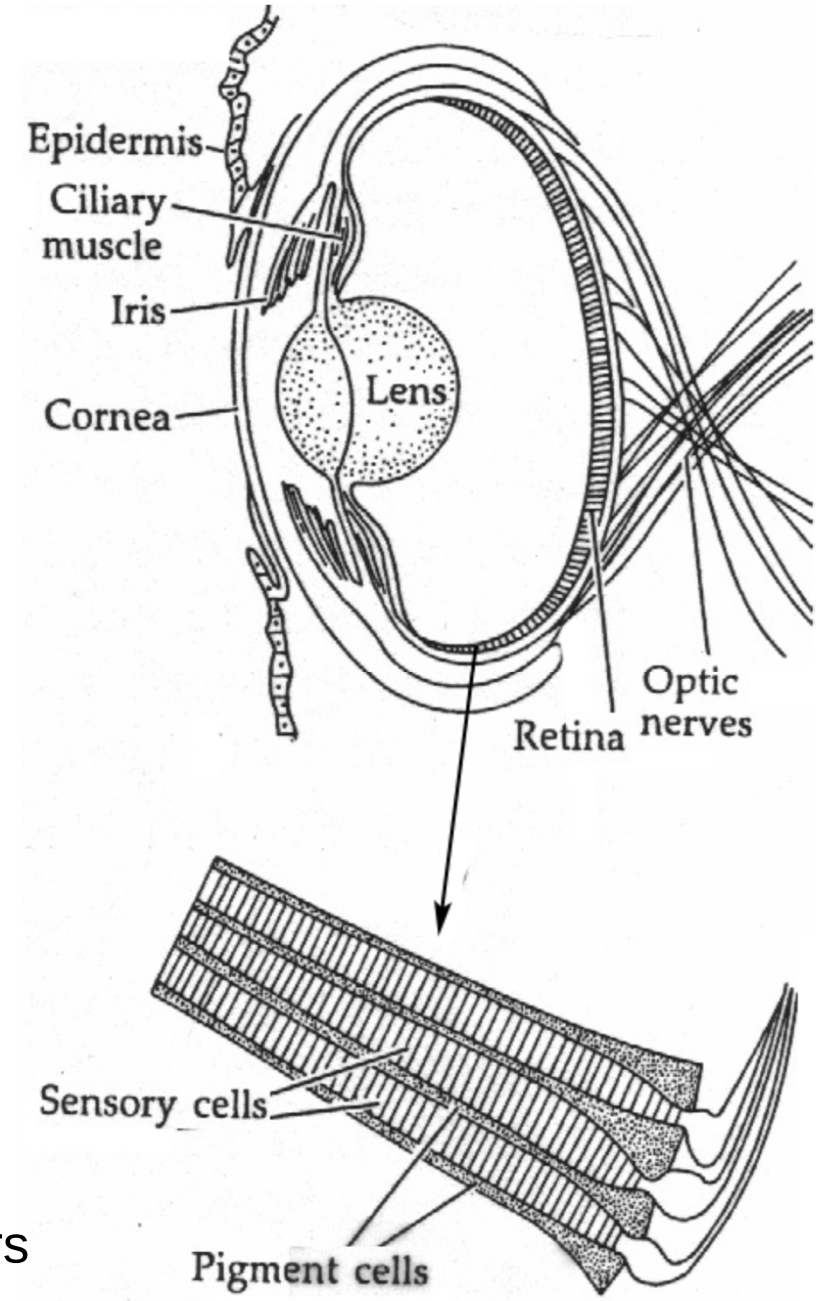


Photophores (light)
production





The cephalopod eye: an example of convergence?



Some differences from vertebrate eye:

- position of optic nerves relative to photoreceptors
- focusing mechanism
- polarized vision—orientation of pigment and sensory cells

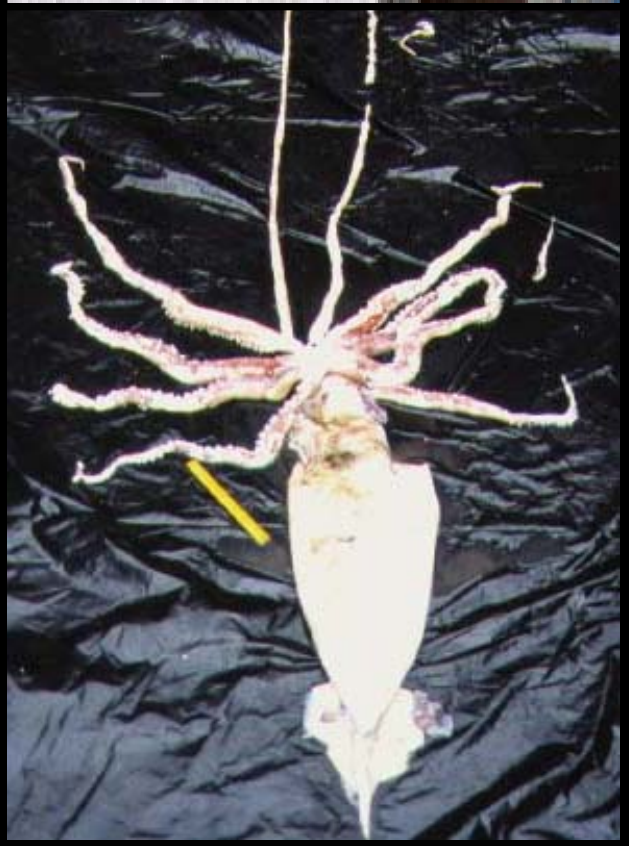
Mollusc giants!

Cryptochiton stelleri
14”, 4 lbs.

Mesonychoteuthis hamiltoni
1000 lbs.

Syrinx auranus
40”, 40 lbs.

Tridacna maximus
50”, 750 lbs.



Architeuthis princeps
40’, 600 lbs.
15 lb. eyeball (volleyball-size)

Modern-day nautilus

Extinct ammonites
(up to 4.5 m-diam!)

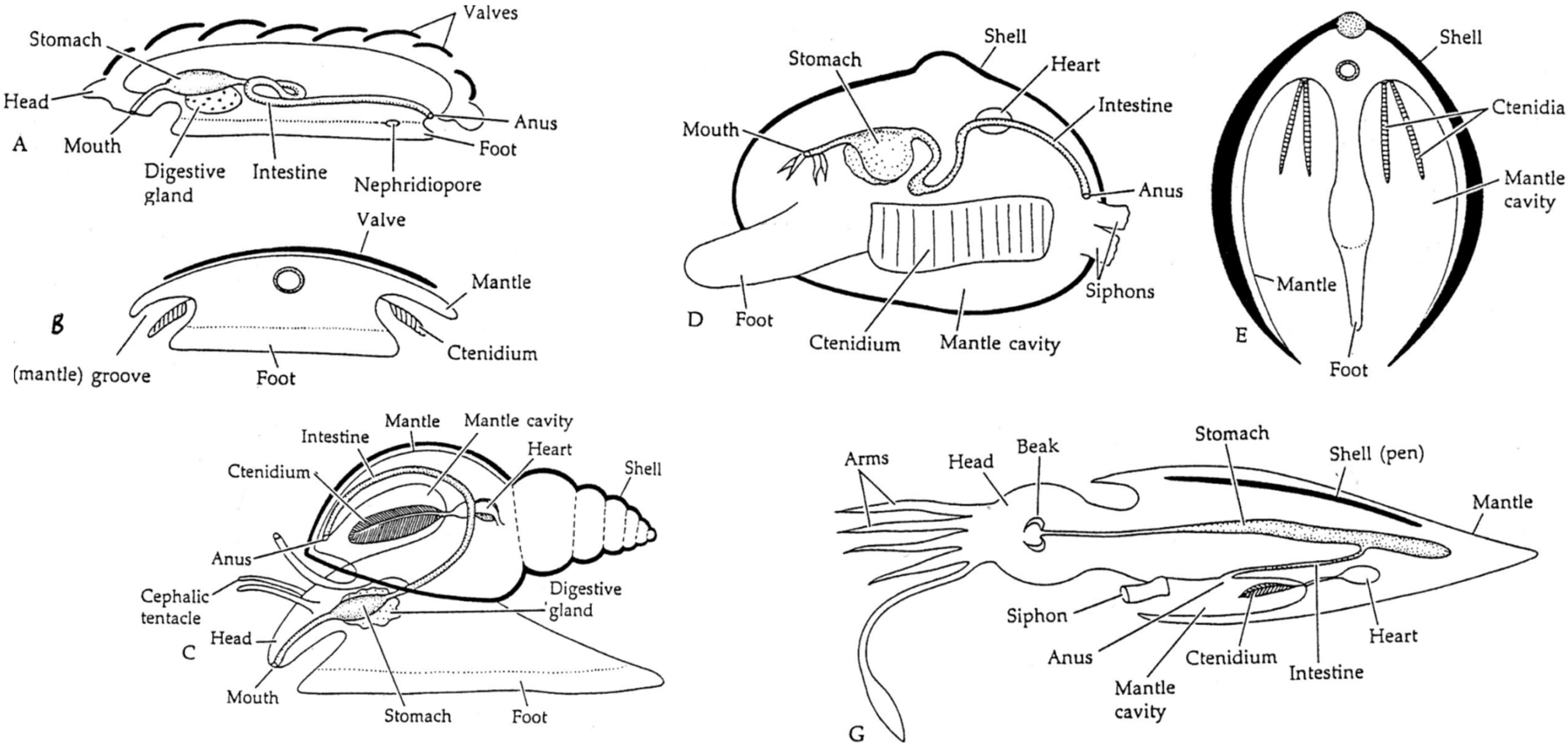
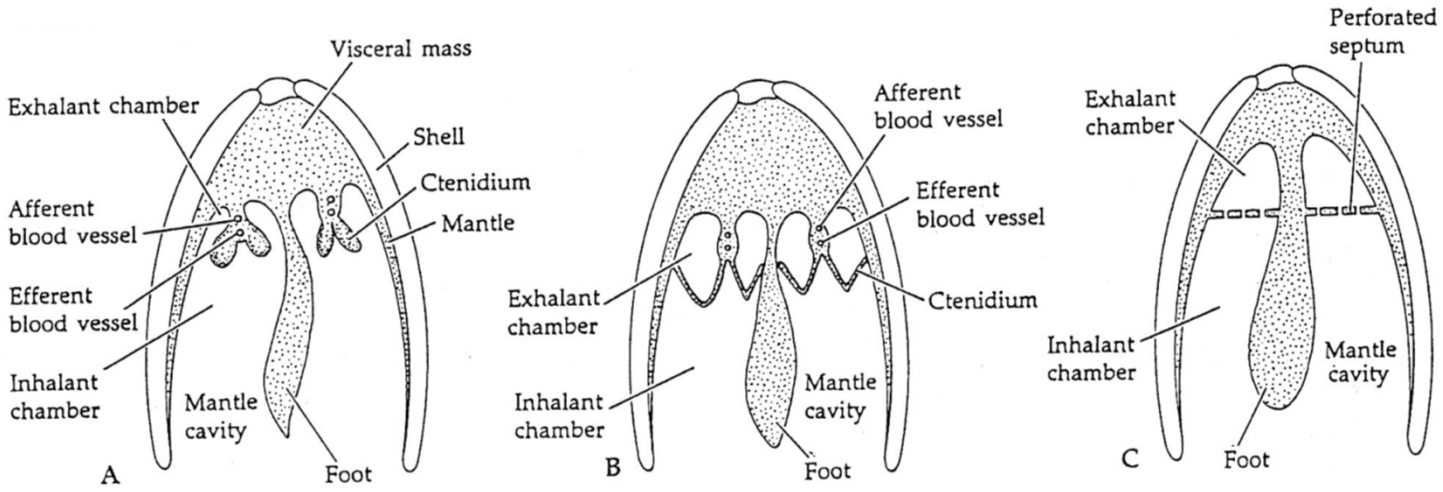


Figure 13

Modifications of the shell, foot, gut, ctenidia, and mantle cavity in five classes of molluscs. A–B, Lateral and cross sections of a chiton (class Polyplacophora). C, Side view of a snail (class Gastropoda). D–E, Cutaway side view and cross section of a clam (class Bivalvia). F, Lateral view of a tusk shell (class Scaphopoda). G, Lateral view of a squid (class Cephalopoda). In cephalopods the foot is modified to form the siphon and at least parts of the arms.



Bivalve subclasses (=grades of construction): (A) Protobranch, (B) Lamellibranch, (C) Septibranch.