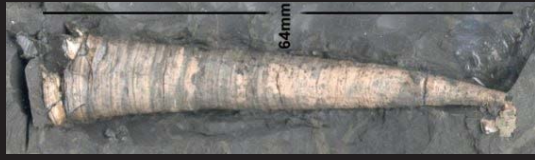


Ph. Mollusca (7 classes)



Chaetoderma
Cl. Aplacophora



Cl. Monoplacophora



Cl. Polyplacophora



ivalvia

Cl. Bivalvia



Cl. Gastropoda

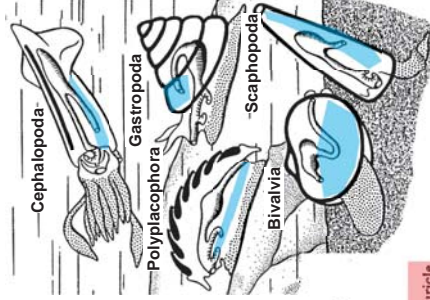
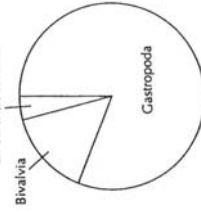


Cl. Cephalopoda

Theme: class level body plans

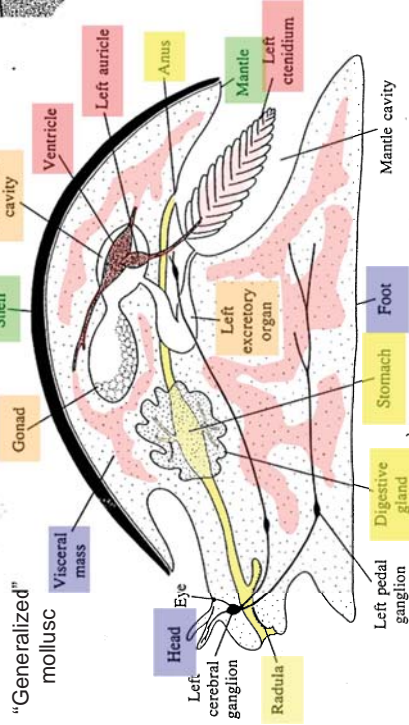
Ph. Mollusca

all other (5) classes

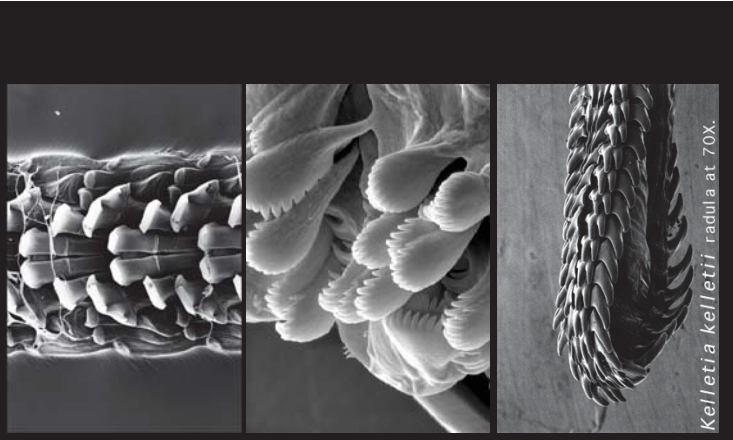
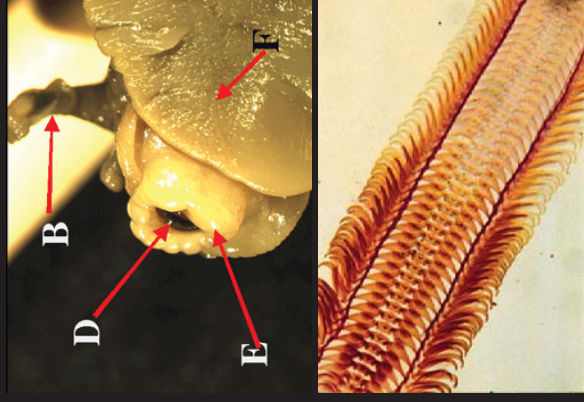


The molluscan body plan has been modified in the various groups. In this diagram, the digestive tract is shaded, the foot is stippled, and the shell is marked by a heavy black line. The squid is most readily compared to the other mollusks when oriented with the head and foot down.

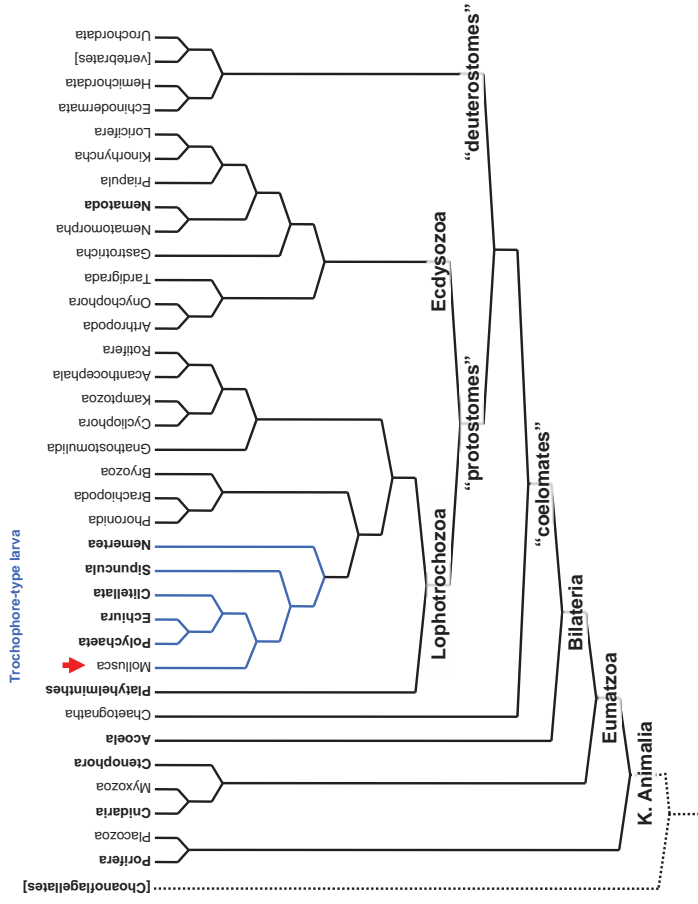
- digestive tract
- foot
- shell
- mantle cavity

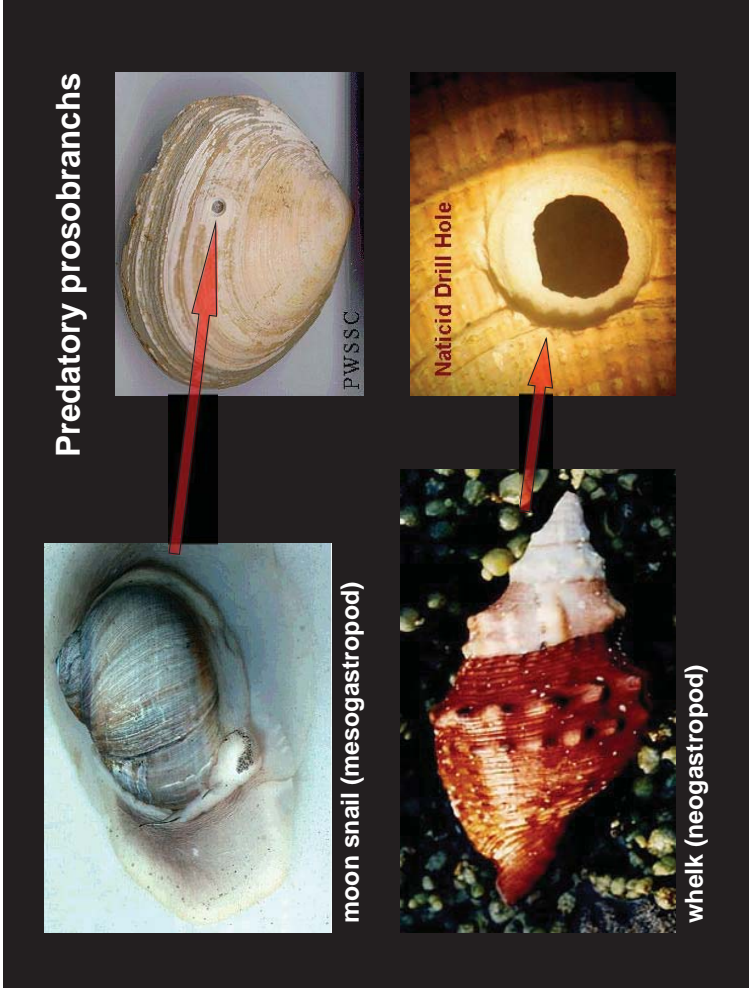
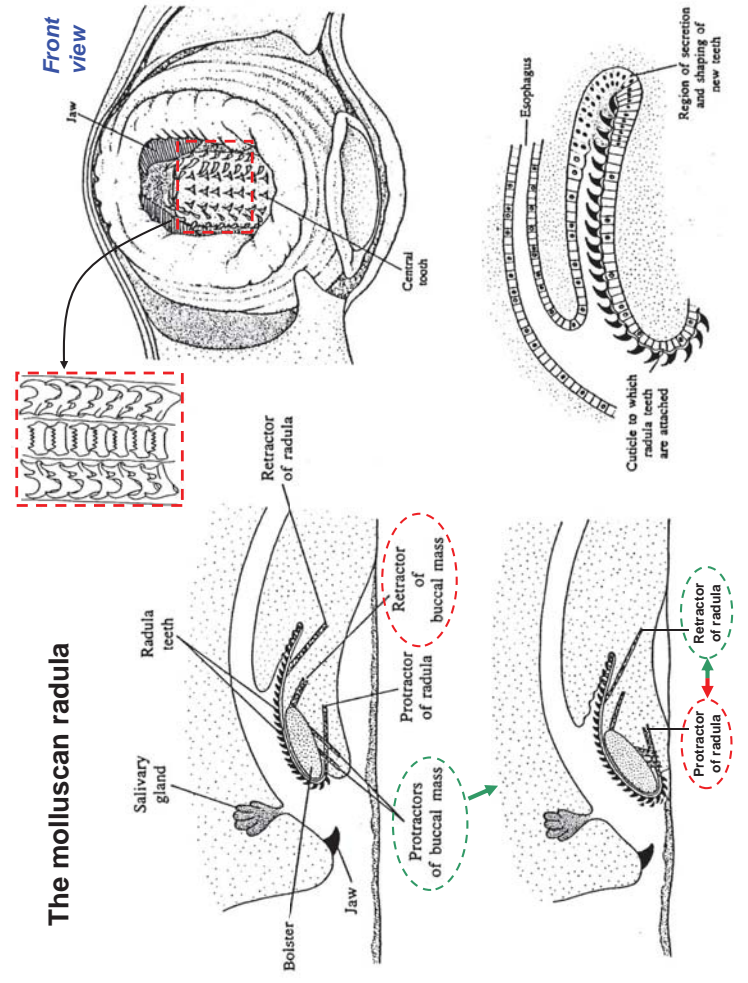
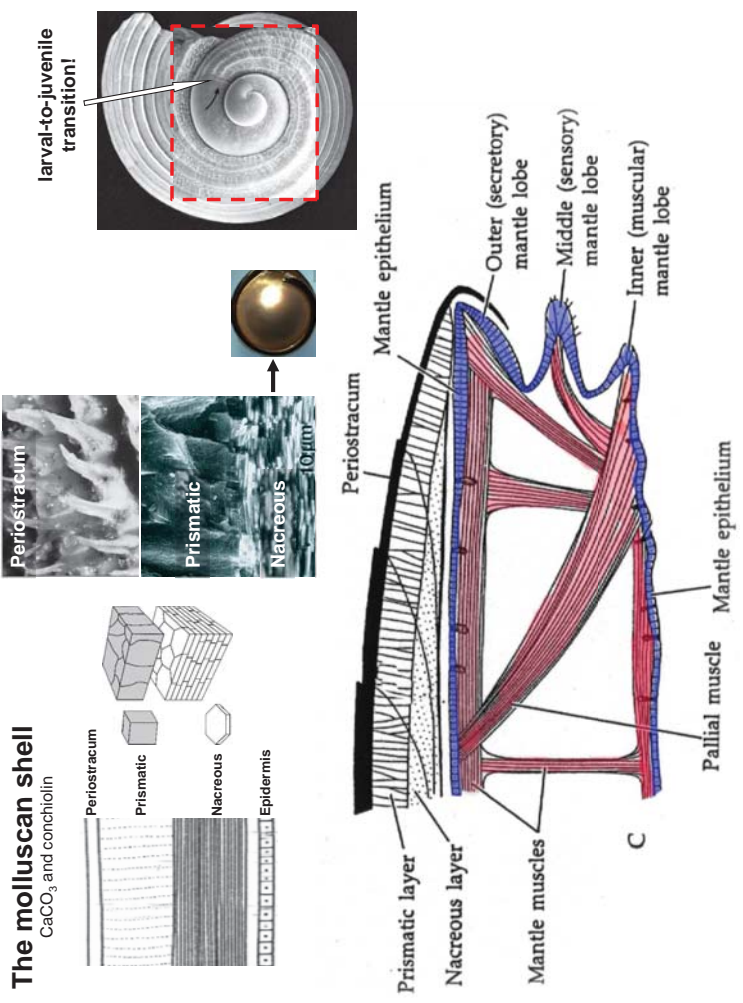


Radular teeth can vary with diet (within and between species)

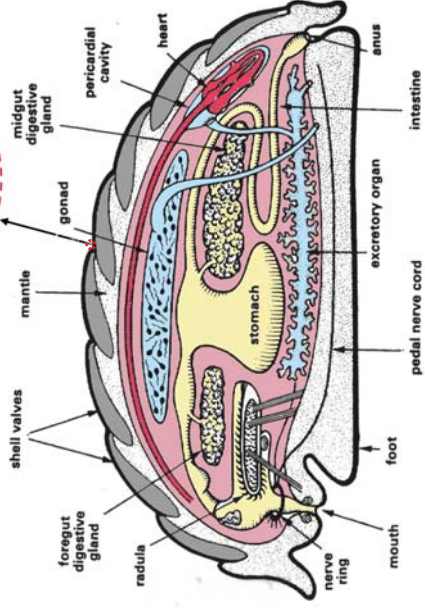
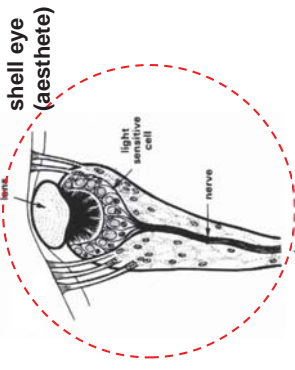
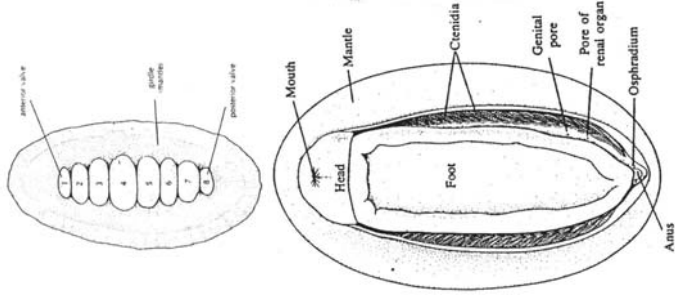


Kelleteria kelleterii radula at 70X.





Cl. Polyplacophora



ctenidia in mantle cavity



Ph. Mollusca
Cl. Polyplacophora



Gumboot chiton
Cryptochiton stelleri



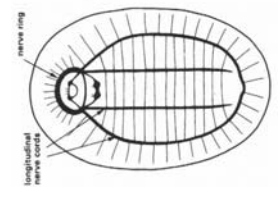
Hairy chiton
Mopalia lignosa



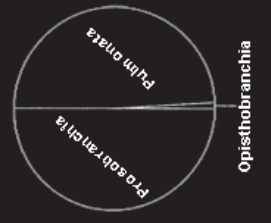
Ph. Mollusca
Cl. Polyplacophora



Predatory flap!



Ph. Mollusca
Cl. Gastropoda



Opisthobranchia



turban shell

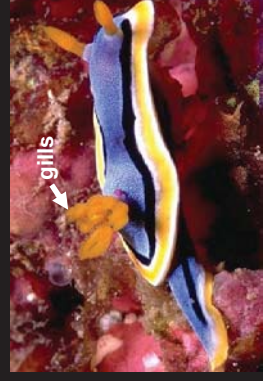


keyhole limpet



pneumostome

Subcl. Pulmonata
(land snails/slugs)



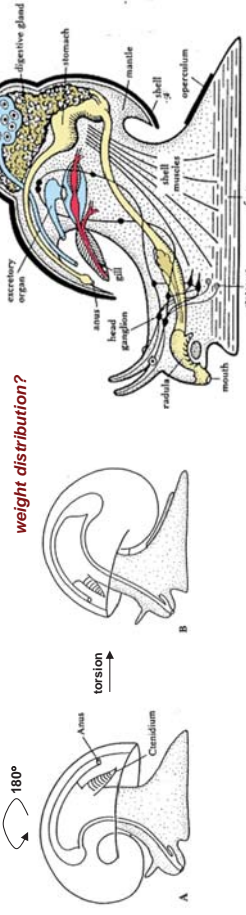
gills

Subcl. Opisthobranchia
(nudibranchs, bubble snails)

Subcl. Prosobranchia
(snails, limpets)

Consequences of gastropod torsion

Consequences of gastropod torsion

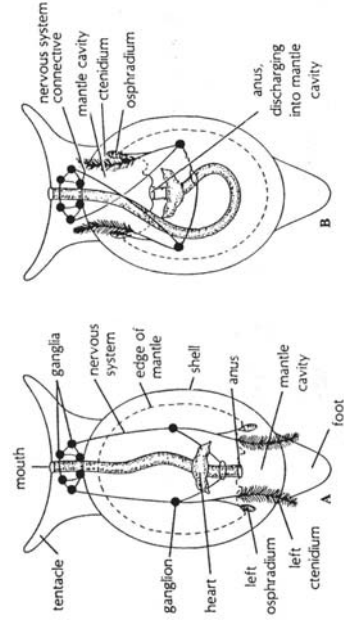


weight distribution?

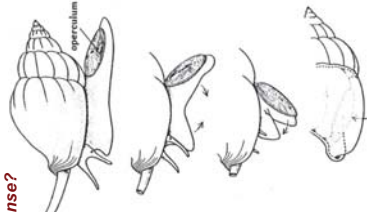


"Pre-torsion"

"Post-torsion"



defense?

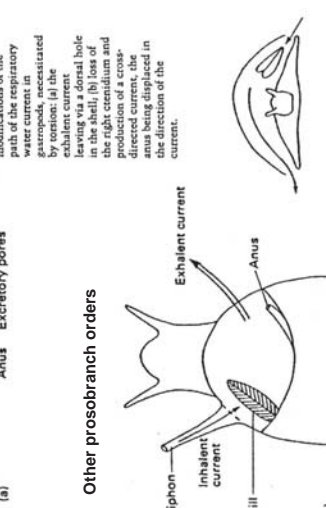


Consequences of gastropod torsion

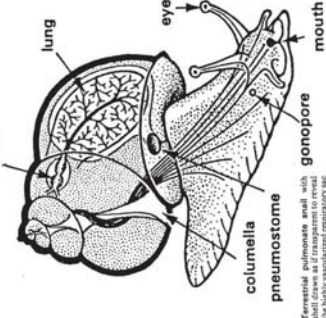
Subcl. Prosobranchia



Fig. 51.4 Two paths of the respiratory water current in gastropods, accentuated by torsion: (a) the exhalent current through the shell hole in the right ctenidium and the production of a cross-directed current, the anus being displaced in the direction of the current.



Subcl. Pulmonata



Torsionless pulmonates with shell drawn as if transparent to reveal the highly vascularized respiratory sac, some through which air stores and leaves.

Consequences of gastropod torsion

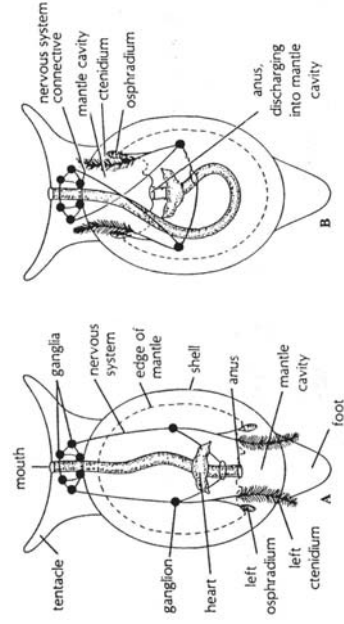
Q: Why?

weight distribution?

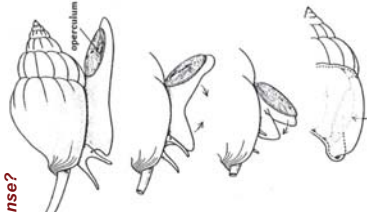


"Pre-torsion"

"Post-torsion"



defense?



Aposematic coloration in nudibranchs

Nudibranch families Chromodorididae and Phyllidiidae

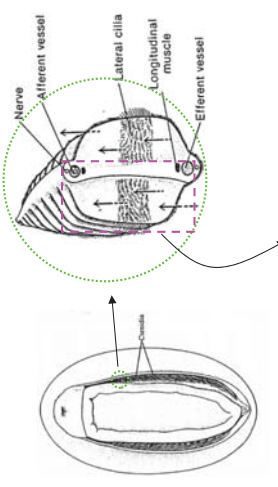


Flatworm family Pseudocerothidae

Mimicry in flatworms

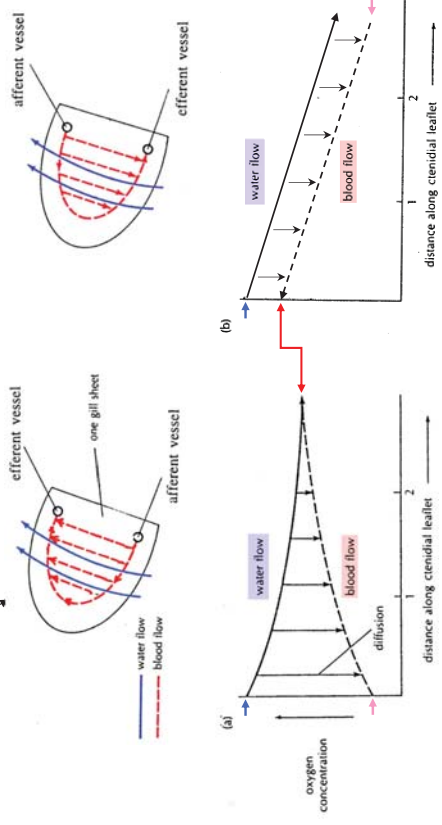
Subcl. Opisthobranchia





Counter-current gas exchange (in molluscan ctenidia)
(alternative diagrams p. 209)

Figure 14.15. Changes in O₂ concentration for cases of (a) water and blood running in the same direction and (b) countercurrent exchange. Note the relative positions of the afferent vessel, which carries deoxygenated blood to the heart and then to the body tissues, and the efferent vessel, which carries O₂-enriched blood to the heart and then to the body tissues.



Gastropod creeping locomotion

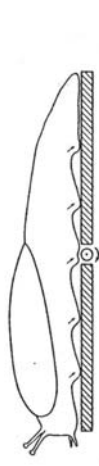
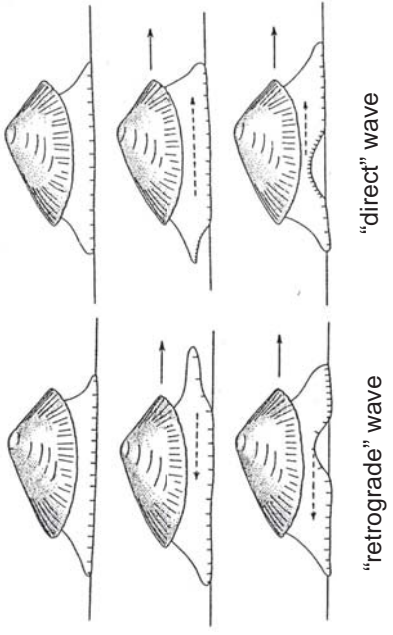


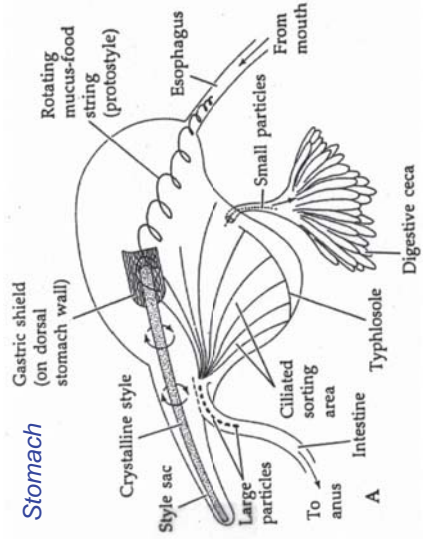
FIGURE 13.18 Diagram showing the waves of muscular activity in the foot of a slug. The roller is turned by the waves as they impinge on it.



Two forms of "creeping" locomotion used by gastropods and chitons. (1) How can waves that move in opposite directions both create forward movement? (2) Which types of muscles must be used, and in what sequence, to achieve each type of wave?

Gastropod feeding diversity

- Benthic grazing (algal crusts or epiphytes)
- Predation (drilling, browsing)
- Planktonic grazing and predation
- Suspension feeding (with mucus or ctenidia)
- Kleptoparasitism
- Toxic harpooning



Digestive system

