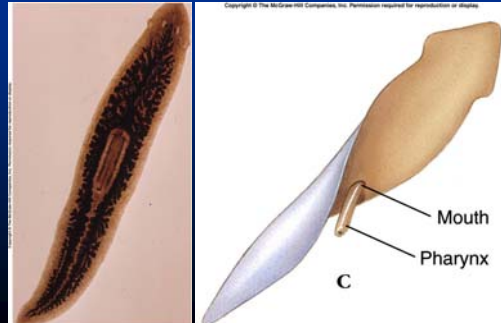


Classes of Phylum Platyhelminthes

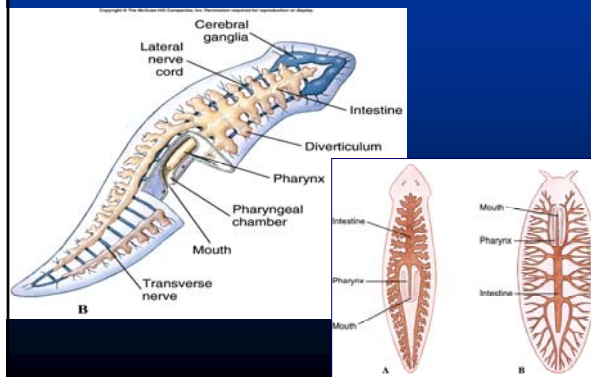
Table 33.2 Classes of Phylum Platyhelminthes

Class and Examples	Main Characteristics
Turbellaria (mostly free-living flatworms; e.g., <i>Dugesia</i>) (see FIGURE 33.9 and 33.10)	Most marine, some freshwater, a few terrestrial, predators and scavengers; body surface ciliated
Monogenea (monogeneans)	Marine and freshwater parasites; most infect external surfaces of fishes; life history simple; a ciliated larva starts an infection on a host
Trematoda (trematodes, also called flukes) (see FIGURE 33.11)	Parasites, almost always of vertebrates; two suckers attach to host; most life histories include intermediate hosts
Cestoidea (tapeworms) (see FIGURE 33.12)	Parasites of vertebrates; scolex attaches to host; proglottids produce eggs and break off after fertilization; no head or digestive system; life history with one or more intermediate hosts

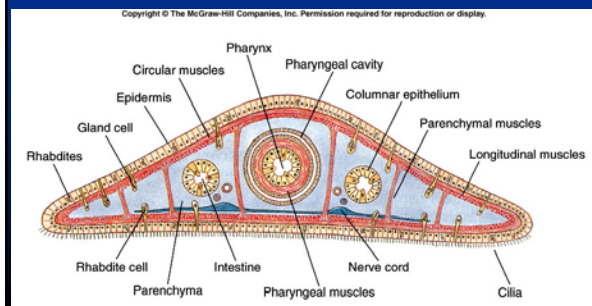
Planarian



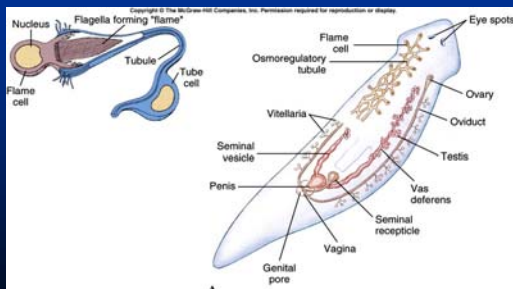
Triclade and Polyclade



Cross Section of Flatworm



Excretory and Reproductive system

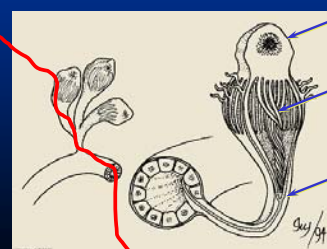


Excretory system

Flame cells (Protonephridia)

Used mostly for osmoregulation

Body (mesoderm)



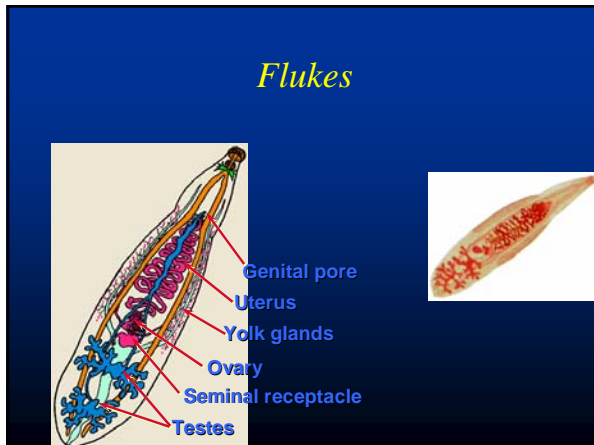
To outside



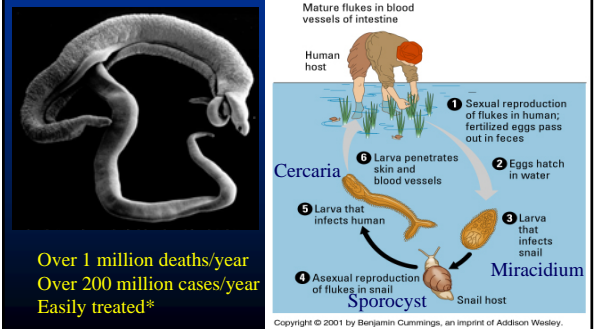
Class Trematoda



- All parasitic, mostly in vertebrate as definitive host
- Flukes- complex life cycles; 1, 2, 3+ hosts
- Most have obligate hosts, often several.
- Huge cause of illness in humans.
 - Blood, liver, GI, heart, brain, skin...
- Tegument; cysts, adhesion; reduced cephalization



The life history of a blood fluke, *Schistosoma mansoni*



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TABLE 14.1

Examples of Flukes Infecting Humans

Common and Scientific Names	Means of Infection; Distribution and Prevalence in Humans
Blood flukes (<i>Schistosoma</i> spp.); three widely prevalent species, others reported <i>S. mansoni</i> <i>S. haematobium</i> <i>S. japonicum</i>	Cercariae in water penetrate skin; 200 million people infected with one or more species Africa, South and Central America Africa Eastern Asia
Chinese liver flukes (<i>Clonorchis sinensis</i>)	Eating metacercariae in raw fish; about 30 million cases in eastern Asia
Lung flukes (<i>Paragonimus</i> spp.), seven species, most prevalent in <i>P. westermani</i>	Eating metacercariae in raw freshwater crabs, crayfish; Asia and Oceania, sub-Saharan Africa, South and Central America; several million cases in Asia
Intestinal fluke (<i>Fasciolopsis buski</i>)	Eating metacercariae on aquatic vegetation; 10 million cases in eastern Asia
Sheep liver fluke (<i>Fasciola hepatica</i>)	Eating metacercariae on aquatic vegetation; widely prevalent in sheep and cattle, occasional in humans

Class Trematoda

Limb abnormalities were induced at high frequencies in Pacific treefrogs (*Hyla regilla*) exposed to larvae of a trematode parasite

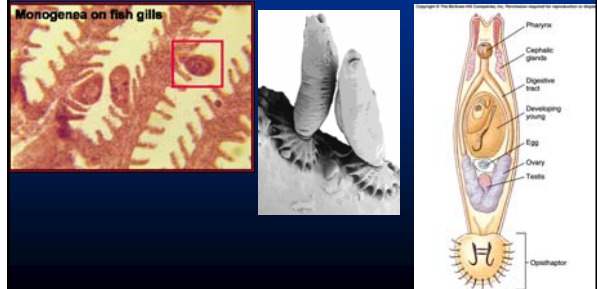
Ant and Snail behavioral changes



Cl. Monogenea

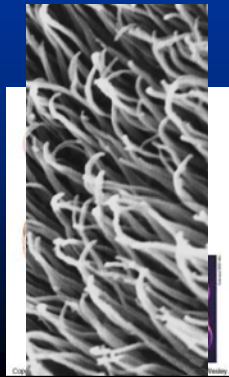
- Old order within Trematoda, but now separate class
- All parasites, mostly on gills of fish, but other places as well (Hippos, amphibians)
- Big problem in intensive fish farming
- Odd reproduction- only one host!

Monogeneans



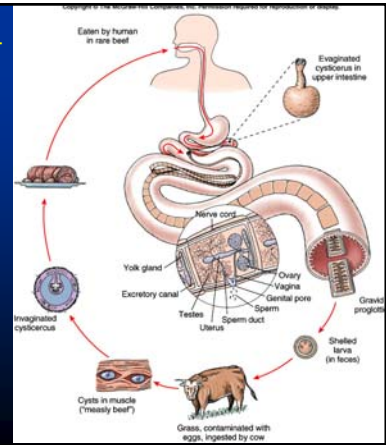
Class Cestoda

- Tapeworms- long, flat bodies with sections-Proglottids
- Segmentation?
- No Digestive system
- Tegument with microtriches for very high SA
- Complex life cycles

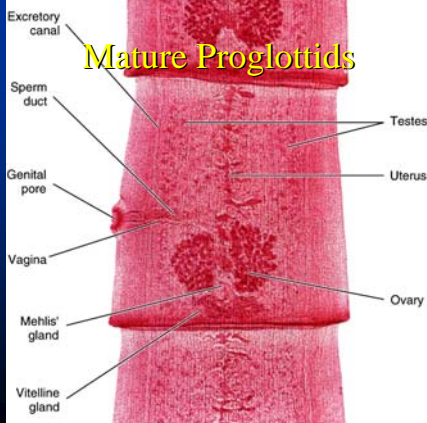


Taenia saginata- Beef Tapeworm

- Tapeworms, 100's millions of cases
- 100's thousands of deaths
- Extremely easy to treat*



Mature Proglottids



Where's the Beef?

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TABLE 14.2	
Common and Scientific Name	Means of Infection; Prevalence in Humans
Beef tapeworm (<i>Taenia saginata</i>)	Eating rare beef; most common of all tapeworms in humans
Pork tapeworm (<i>Taenia solium</i>)	Eating rare pork; less common than <i>T. saginata</i>
Fish tapeworm (<i>Diphyllobothrium latum</i>)	Eating rare or poorly cooked fish; fairly common in Great Lakes region of United States, and other areas of world where raw fish is eaten
Dog tapeworm (<i>Dipylidium caninum</i>)	Unhygienic habits of children (jennies in flea and louse); moderate frequency
Dwarf tapeworm (<i>Hymenolepis nana</i>)	Jennies in flour beetles; common
Unilocular hydatid (<i>Echinococcus granulosus</i>)	Cysts of juveniles in humans; infection by contact with dogs; common whenever humans are in close relationship with dogs and ruminants
Multilocular hydatid (<i>Echinococcus multilocularis</i>)	Cysts of juveniles in humans; infection by contact with foxes; less common than unilocular hydatid

~1% of Cattle are infected; 20% are not inspected; 25% of infections are missed...McTapeworm™???