

The Lophophorate Phyla

Ectoprocta
Brachiopoda
Phoronida

three phyla share several distinctive characteristics:

1. all possess a horseshoe-shaped or circular set of hollow ciliated tentacles for filter feeding

→ = **lophophore**

2. a "U-shaped" digestive system in which the anus opens OUTSIDE the lophophore

also

3. nearly every member is **sessile**
4. poorly developed head
5. secretes a protective shell or flexible casing

Phylum Ectoprocta (bryozoa; moss animals)

means "outside anus" an old name = "fairy lace"

~4500 living species; 16,000 fossils

rich fossil record

all are aquatic; marine or freshwaters

especially in shallow waters

sessile; can be found on almost any hard surface:

sea weeds, shells, rocks, even bottom of icebergs

almost all are **colonial**

each colony consists of individual **zooids** ~ .5mm long

colony may be >1 M long; most are smaller

colonies can be **encrusting**, **arboreal** or **gelatinous balls**

Body Form

each **zooid** lives in a tiny chamber that it secretes

= an **exoskeleton**

→gelatinous, chitinous or hardened with calcium or sand

often with trapdoor = **operculum**

tentacles (= **lophophore**) used for feeding and may play role in respiration

most zooids in most colonies are feeding zooids

some colonies contain other kinds of zooids

- a. zooids with "bird beaks"

→ protects colony from invaders

- b. zooids with long bristles

→ sweep foreign material away from colony

Body Wall

outer casing (exoskeleton) = **zoecium**

made of **chitin** and calcium deposits

one area of the zoecium has a thinner flexible membrane embedded

interior of body with large **coelom**

coelom extends into lophophore

Feeding and Digestion

ciliated tentacles draw water across to trap food

mouth is at center of **lophophore**

material trapped in tentacles is passed to mouth by ciliary movement and by pumping action of pharynx

from mouth food passes into a "U-shaped" digestive tract consisting of **stomach** which may have a **gizzard** and the **intestine**

waste material passes through intestine to **anus** (outside the ring of tentacles)

no respiratory or excretory organs or vascular system

gasses are exchanged through body surface

especially the tentacles

Reproduction

Asexual

colonies produced by **budding** of a single larva which settles and attaches to substrate

freshwater forms also reproduce asexually by special resistant bodies = **statoblasts**

disc shaped
germinative cells enclosed in tough capsule
very resistant to drying

statoblasts form during summer and fall

in winter, colony dies, statoblasts remain

may fall to bottom or some float

statoblasts remain dormant until spring
or favorable conditions appear

then can regenerate a new colony

Sexual

most are **monoecious**

→ may have eggs and sperm produced
simultaneously

most bryozoa **brood** their eggs externally or in
body cavity

some shed eggs into water

larvae of some show **polyembryony**

in which a single larva proliferates into several larvae

larvae swim for a few months before settling

Economic Importance

1. fossil bryozoa used extensively by petroleum companies as indicator fossils to find oil deposits
2. over 17 antitumor chemicals have been extracted from various species
3. since they grow on hard surfaces
→ sometimes cause fouling of ship hulls and pilings
4. pharmaceuticals
potent anticancer chemicals