



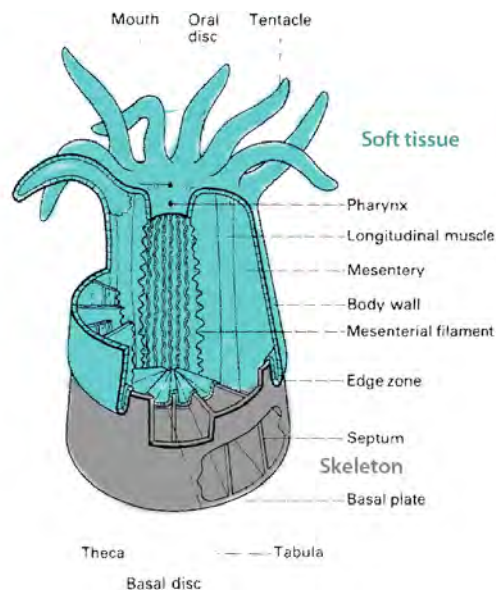
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Lab 5 Corals and Bryozoa

Corals (Phylum Cnidaria) and bryozoans (Phylum Bryozoa) are two common Paleozoic groups. Skeletons of the two groups are superficially similar, but the animals are very different and unrelated to each other. In this lab you will look at bryozoans and corals from Indiana and learn the basics of their classification and anatomy. The groups are diverse with many, many species, often requiring a specialist to identify them correctly. Nevertheless, it is possible to learn some of the major features that make up their diversity.

Corals

Many cnidarians lack skeletons, but corals (Anthozoa) are a major exception. Coral polyps produce a calcium carbonate skeleton that serves as a supporting, cup-like base around them. Some corals are solitary, usually forming a horn-like base, while others are colonial, forming a tile-like mosaic of supporting structures that are fused in a single colony. Anatomically corals are one of the simplest metazoan phyla. Only sponges have simpler tissue structures. Ecologically corals are predators, most of them using stinging cells on the polyp's tentacles to immobilize prey before it is ingested.



Coral anatomy (from Boardman, Cheetham and Powell, 1987.
Fossil Invertebrates. Blackwell Scientific: Palo Alto).

Classification

Class **Anthozoa** (Precambrian to recent)

Order **Rugosa** (Middle Ordovician through Permian)

Have septa and tabulae in skeleton

Often solitary, but sometimes colonial

Have calcite skeletons

Order **Tabulata** (Lower Ordovician through Permian)

Have tabulae in skeleton, but septa are often reduced or absent

Always colonial

Have calcite skeletons

Order **Scleractinia** (Triassic to recent)

Includes most **living corals**

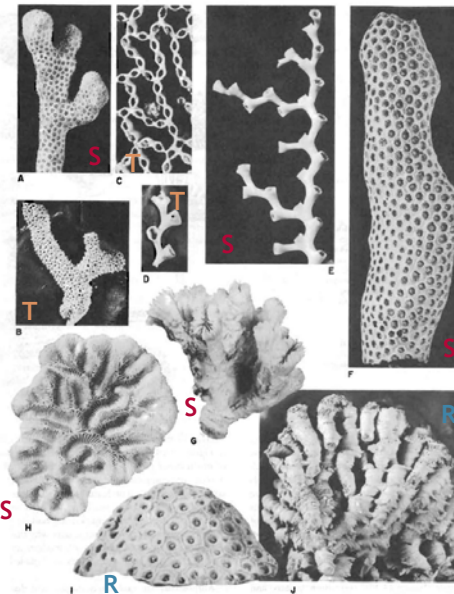
Have septa, but usually no tabulae

Have aragonitic skeletons

Coral growth forms

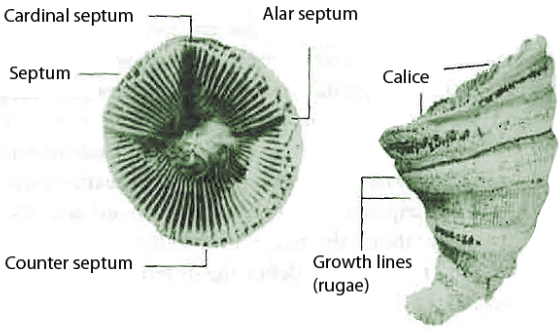
Colonial
Rugosa
Tabulata
Scleractinia

Solitary



(from Boardman, Cheetham and Powell, 1987. *Fossil Invertebrates*. Blackwell Scientific: Palo Alto)

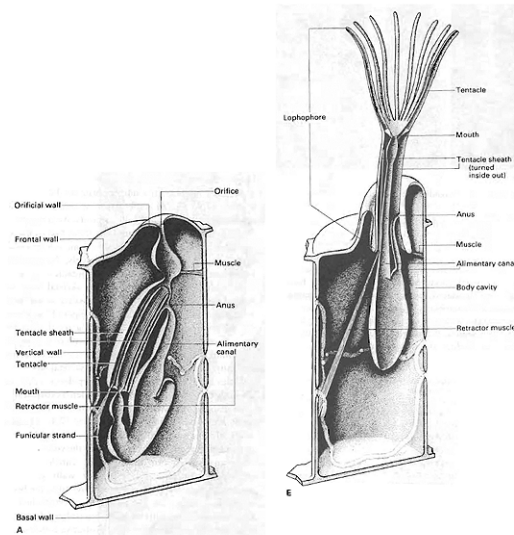
Structures of a rugose coral



(from Boardman, Cheetham and Powell, 1987. *Fossil Invertebrates*. Blackwell Scientific: Palo Alto)

Bryozoa

Bryozoans are colonial organisms whose skeletons look superficially like corals, but are structurally different. The animals themselves are very different from corals. Ecologically, bryozoans are filter feeders, using their lophophores to generate currents that pull food particles to the mouth. There are at least 15,000 bryozoan species whose distinctions often involve internal structures that can only be seen in thin section.



Anatomy of an individual bryozoan zooid. Zooid: individual organism; Zooecium: skeletal chamber of zooid; Zooarium: colony of chambers (plural: zooaria). In this lab you are looking at zooaria. (from Boardman, Cheetham and Powell, 1987. *Fossil Invertebrates*. Blackwell Scientific: Palo Alto)

Phylum **Bryozoa** (Ordovician to recent)

Class **Phylactolaemata** (Triassic to recent)
Includes non-calcareous living freshwater bryozoans

Class **Stenolaemata** (Ordovician to recent)
Calcareous skeleton, usually without operculum
Includes most **Paleozoic bryozoans**

Order **Cyclostomata** (Ordovician to recent)
upright or encrusting

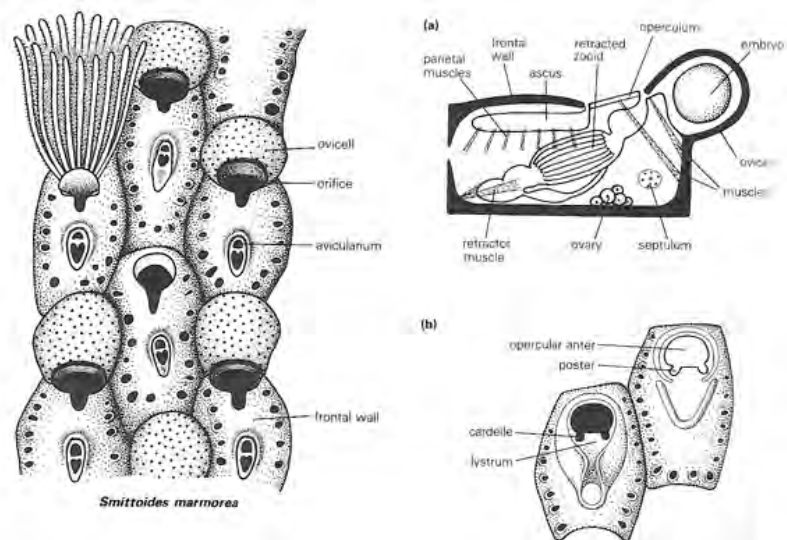
Order **Cystoporata** (Ordovician through Permian)
upright or encrusting

Order **Trepostomata** (Ordovician through Triassic)
'stony' bryozoans

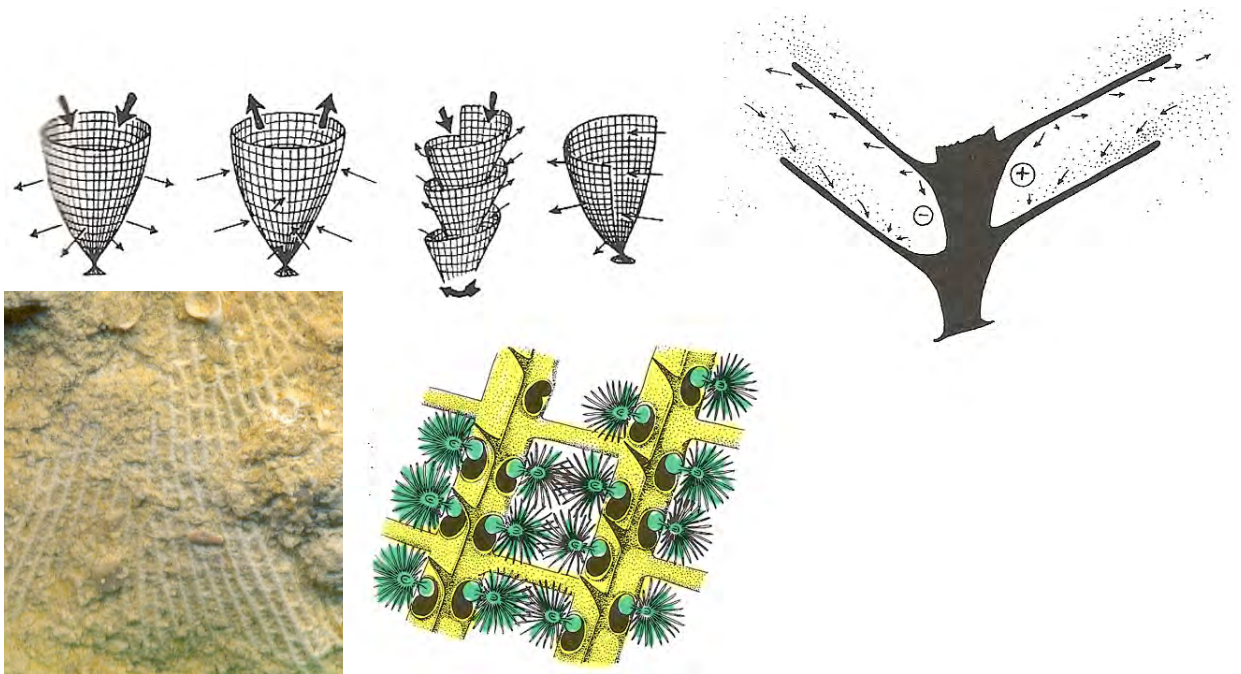
Order **Cryptostomata** (Ordovician through Permian)
Often, usually upright and branching

Order **Fenestrata** (Ordovician through Permian)
upright with net-like branches

Class **Gymnolaemata** (Ordovician to recent)
Calcareous skeleton, usually with operculum
Includes most **Living bryozoans**



Structures of bryozoan zoecia and zoaria. (from Boardman, Cheetham and Powell, 1987. *Fossil Invertebrates*. Blackwell Scientific: Palo Alto)



Fenestellid anatomy and feeding currents (from Boardman, Cheetham and Powell, 1987. *Fossil Invertebrates*. Blackwell Scientific: Palo Alto)

Assignment

1. Corals. For the following coral genera, provide the information indicated in the table.

Genus	Colonial or Solitary?	Septa or no septa?	Tabulae or no tabulae?
<i>Madrepora</i> (recent)			
<i>Manicena</i> (recent)			
<i>Zaphrentis</i> (Mississippian)			
<i>Triplophyllites</i> (Mississippian)			
<i>Diphyphyllum</i> (Devonian)			
<i>Prismatophyllum</i> (Devonian)			
<i>Thecia</i> (Silurian)			
<i>Palaeofavosites</i> (Silurian)			

2. Bryozoans. For the following coral genera, provide the information indicated in the table.

Genus	Colony type (massive, ramose, fenestrate)	Maculae (Monticules) present or absent?	Autopores (openings) even sized or varied size?
<i>Amplexopora</i> (Ordovician)			
<i>Prasopora</i> (Ordovician)			
<i>Monotrypa</i> (Devonian)			
<i>Peronopora</i> (Ordovician)			
<i>Monticuloporella</i> (Ordovician)			
<i>Homotrypa</i> (Ordovician)			
<i>Archimedes</i> (Mississippian)			
<i>Chasmatopora</i> (Ordovician)			