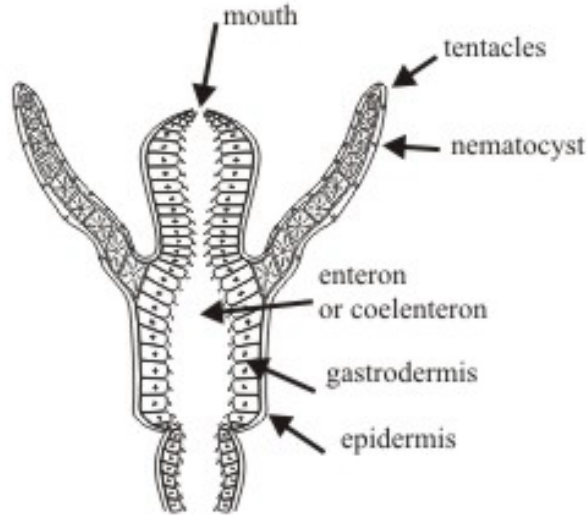


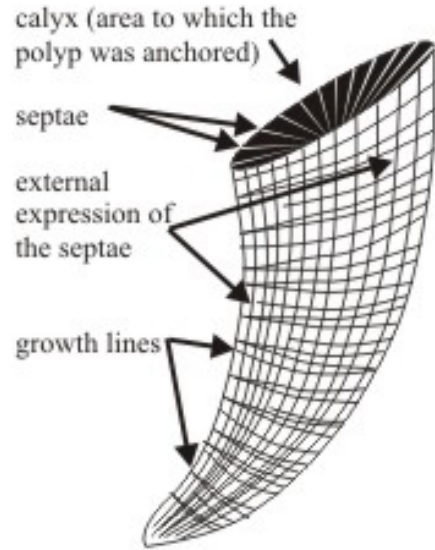
COELENTERATA

These animals consist of cells that have specific purposes: epidermal tissue (skin), gastrodermal tissue (like a stomach), and nematocysts (stinging cells).

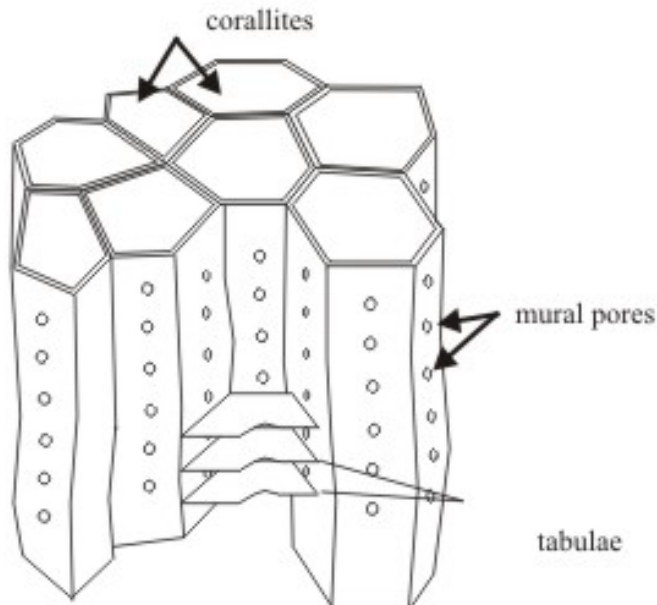
See the figures below for the general morphology of coelenterates and the corals (Class Anthozoa). Like sponges, coral polyps lived a benthic sessile life style.



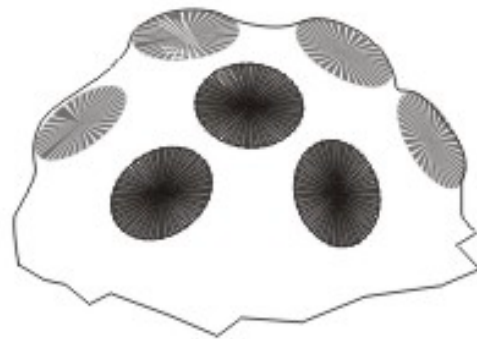
A polyp



remains of a solitary coral



a colonial tabulate coral



a scleractinian coral

Figure p.01. Phylum Coelenterata. Class Anthozoa - the corals. Cross section of a polyp, morphology of solitary rugose and colonial tabulate and scleractinian corals.

BRACHIOPODA

Brachiopods are filter feeders like bryozoans and pelecypods. That is, they took water into their shells and sent it back out minus the edible stuff. They are identified on the basis of bilateral symmetry of the shells. In other words, each side of a shell is the mirror image of the other side. Many are found with the brachial valve and pedicle valve still attached. The figures below shows the symmetry and anatomy of brachiopods. Most were attached to the sea floor by means of a pedicle. Some actually burrowed into the sediment and were somewhat vagrant.

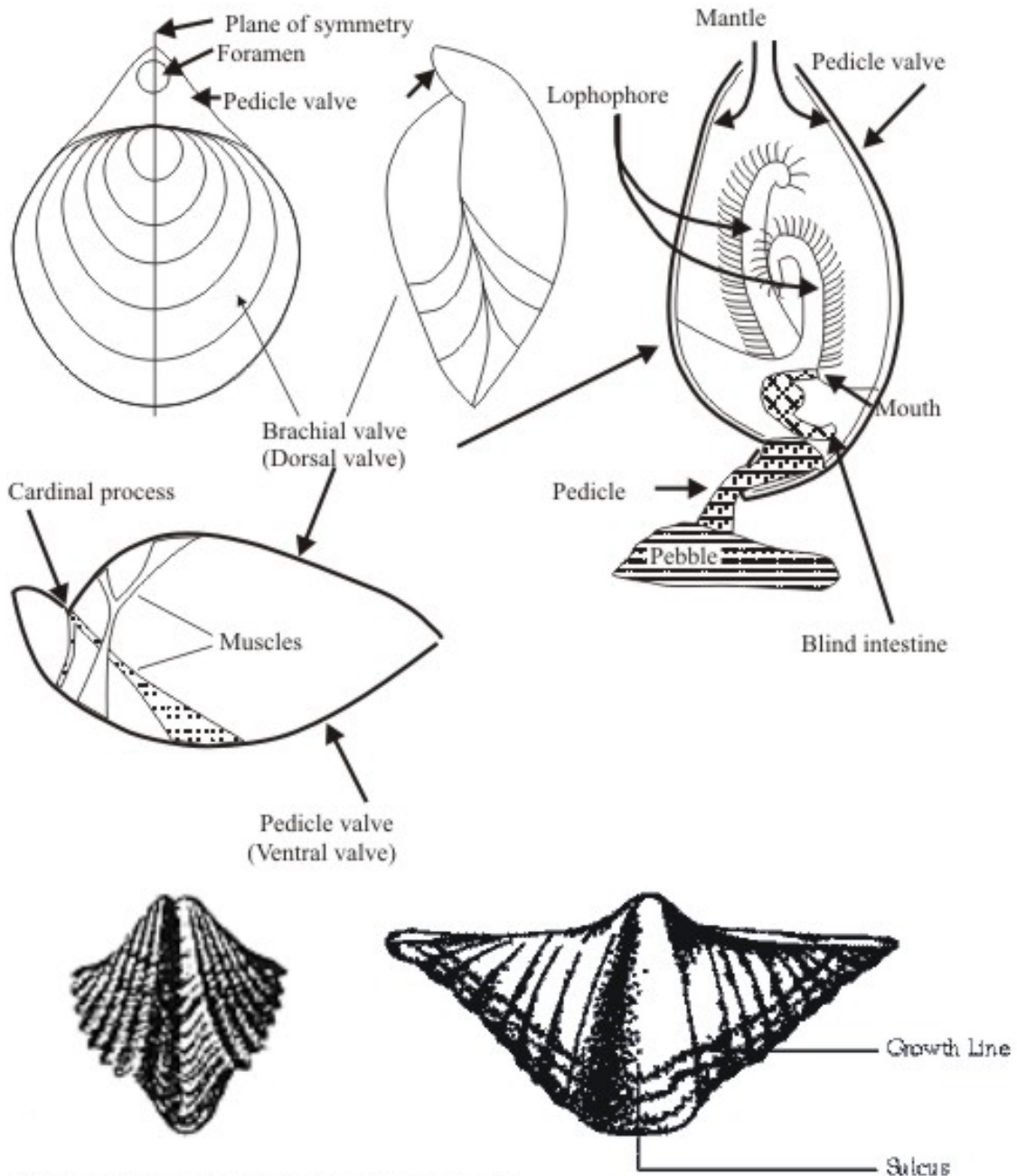


Figure p.02. Morphology of articulate brachiopods

MOLLUSCA
CLASS - PELECYPODA

These are the clams. They are filter feeders with pairs of shells that are most commonly mirror images of each other. The figure below shows the anatomy. Notice that there is only one set of muscles and these are used to close the shell. In the relaxed state the two shells tend to gape as a result of the tension provided by the ligament. In the relaxed state, water is allowed to flow into the shell, or allow the foot to extend so that the clam can move. Most pelecypods are move about the sea floor.

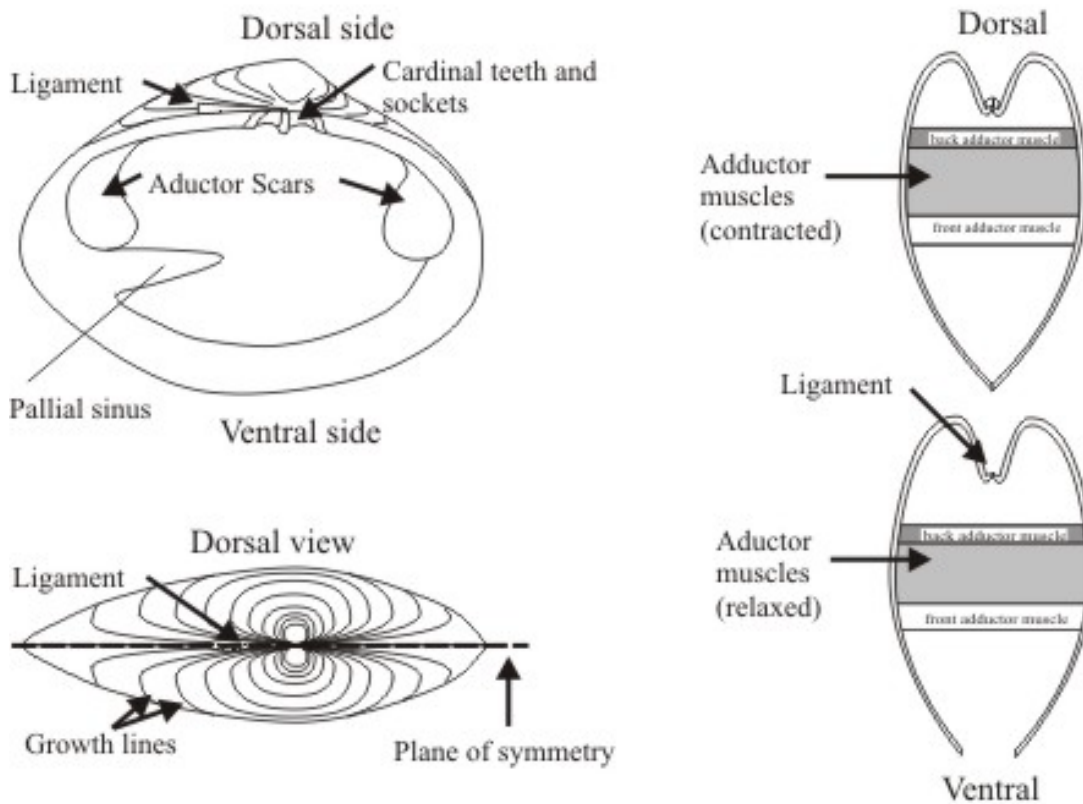


Figure p.03. Morphology of Pelecypods (bivalves).

MOLLUSCA
CLASS - GASTROPODA

These are commonly known as snails, but include limpets and slugs. The figure below shows some of the variety of gastropod shapes. Gastropods run the gamut of carnivores, scavengers and herbivores. They roam the sea floor and land in search of food.

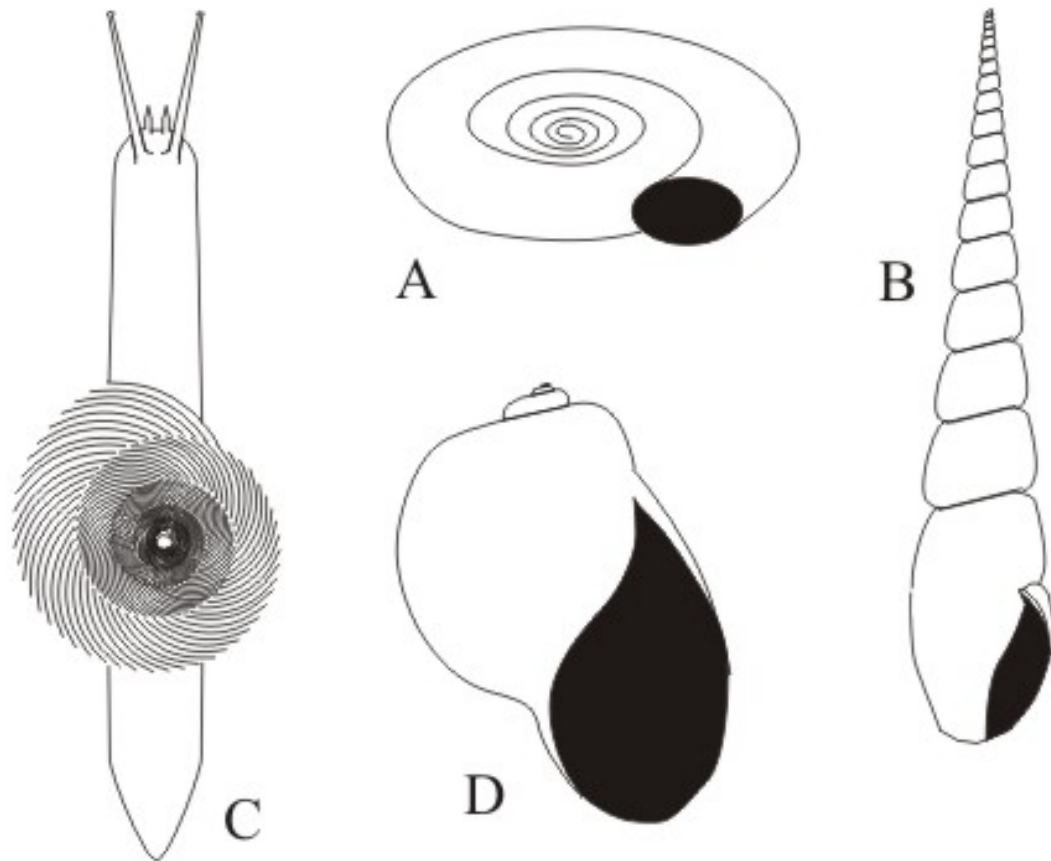


Figure p.04. Examples of gastropods - morphology and spire variation.
A - flattened spire B - greatly produced (highly tapered) spire C - gastropod extended from shell.
The eyes are at the ends of the stalks. Note the growth lines associated with daily growth.
Monthly and yearly variation can be manifest through ornamentation in many gastropods.
D - globose spire.

MOLLUSCA
CLASS - CEPHALOPODA

These are octopi, cuttlefishes and nautilus in modern terms. Nautiloid morphology is shown below. An extinct group, the Ammonoids, had elaborate setae and sutures (the junction of the outer shell and septal wall). Examples of these suture patterns are shown on the next page..

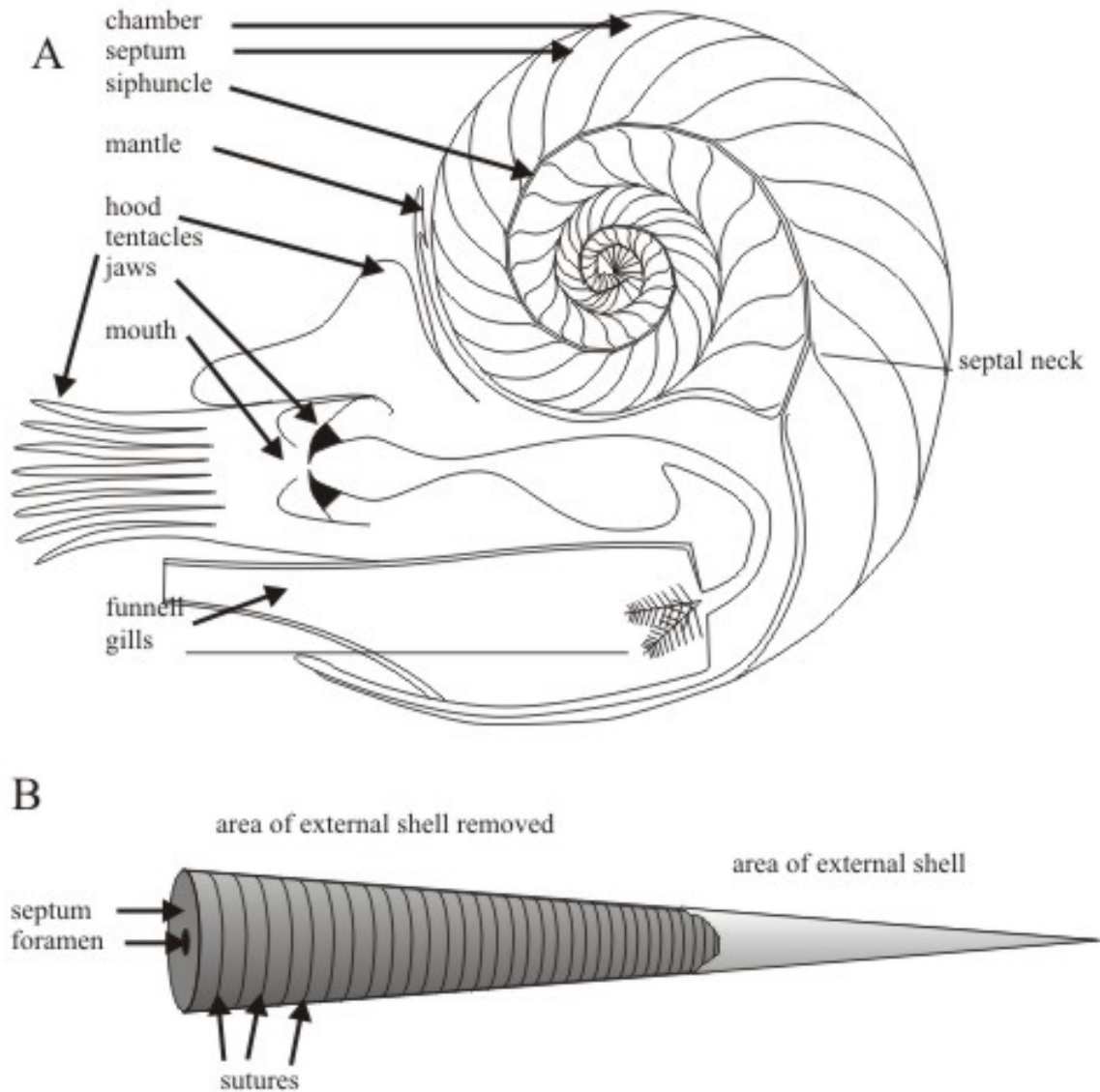


Figure p.05. Morphology of Nautiloids. A - Coiled nautiloid containing a cross-section of the animal. B - an orthocone (straight-shelled) nautiloid showing the septum, foramen and sutures. (Note the foramen is the hole through which the siphuncle passes.)

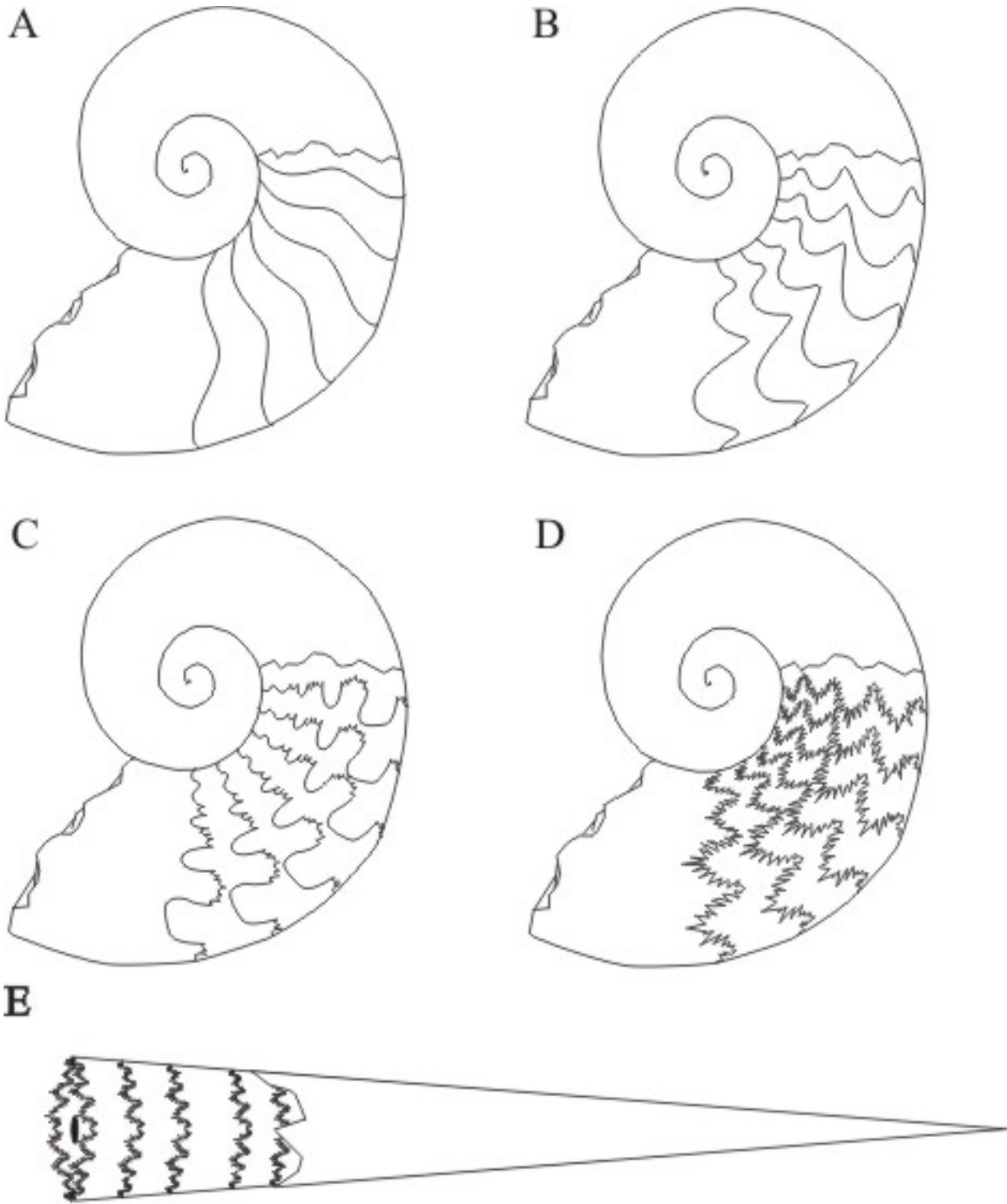
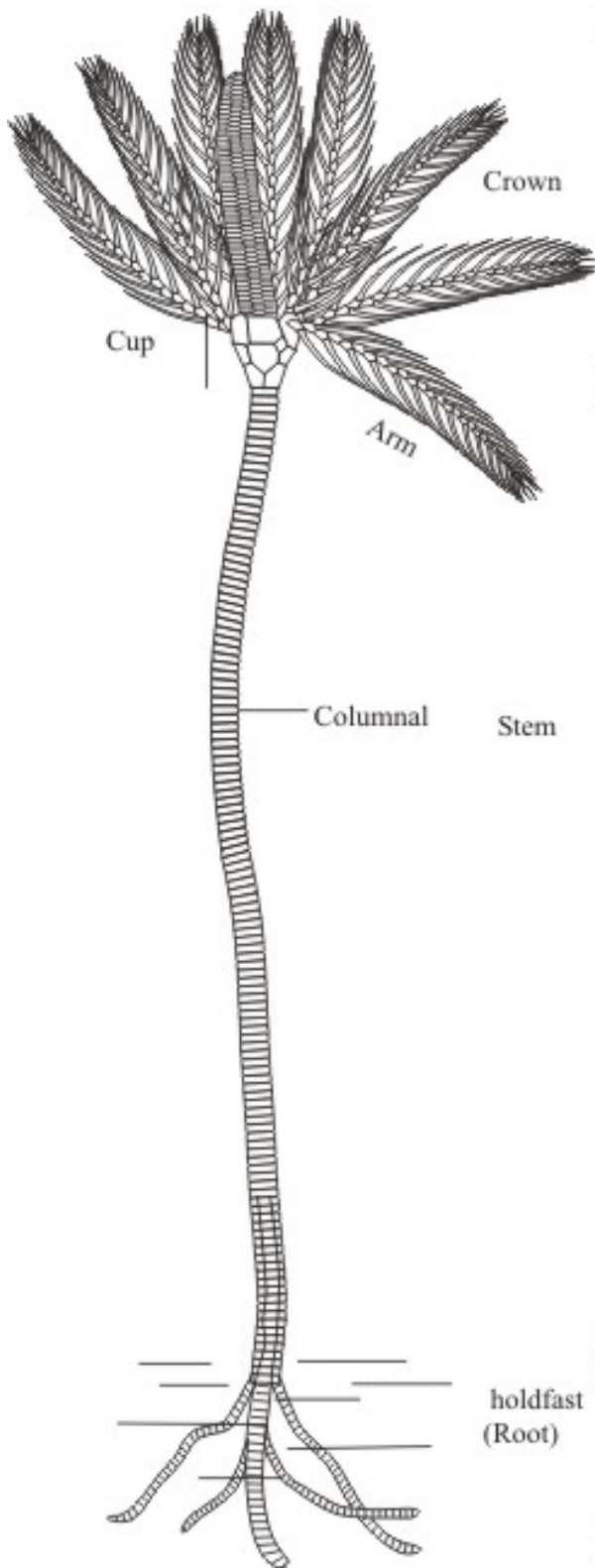


Figure p.05b. Sutures of Cephalopods. A - typical nautiloid suture. B - goniatitic suture. C - ceratitic suture. D - ammonitic suture. E - an orthocone ammonoid.



**ECHINODERMATA
CLASS - CRINOIDEA**

Echinoderms possess pentamerous symmetry. The phylum includes sea urchins and starfish which exemplify this radial symmetry. The head part, or CROWN, of the crinoid was situated atop a stem consisting of calcareous disks called COLUMNALS. The animal was attached to the sea floor by a HOLDFAST.

The Crown was the site of attachment of arms which gathered food from suspension and carried it to the mouth in the middle.

This figure shows the general morphology of crinoids as well as some detail of different columnals.

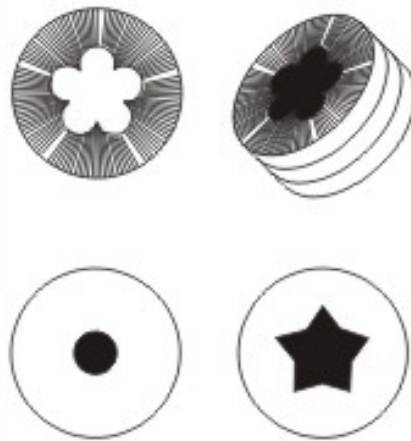


Figure p.06. Morphology and life attitude of a crinoid

CHORDATA

These are animals with a spine of cartilage, or bone and cartilage. They include fishes, amphibians, reptiles, birds and mammals. In this exercise, both fish and dinosaur remains will be seen.

Fishes and Sharks

Many fossil fishes have bones preserved. However, some such as sharks which have few bones are mainly represented by their teeth. In the early Paleozoic, armoured fishes are known from the armoured plates left behind. Below is a depiction of a shark, a fish and specialized teeth.

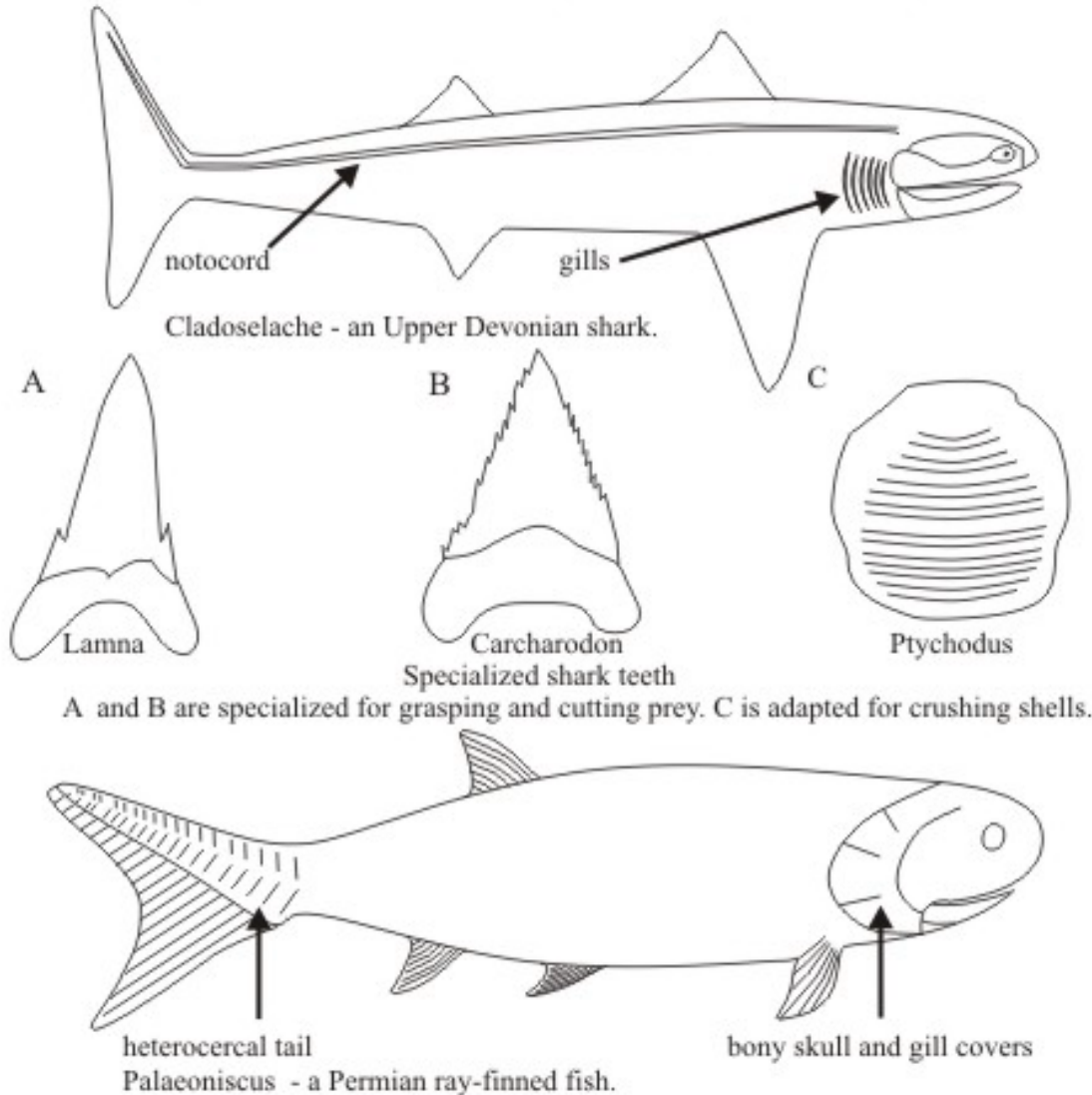


Figure p.07. Sharks and fishes. Sharks have a cartilaginous spine or notocord whereas true fishes and most other vertebrates have a spine consisting of alternating bone and cartilage disks.

DINOSAURS

Dinosaurs are the most glamorous of the vertebrates. Their habits are known from trackways as well as skeletons. In your assignment, you will see permineralized bone and a coprolite.

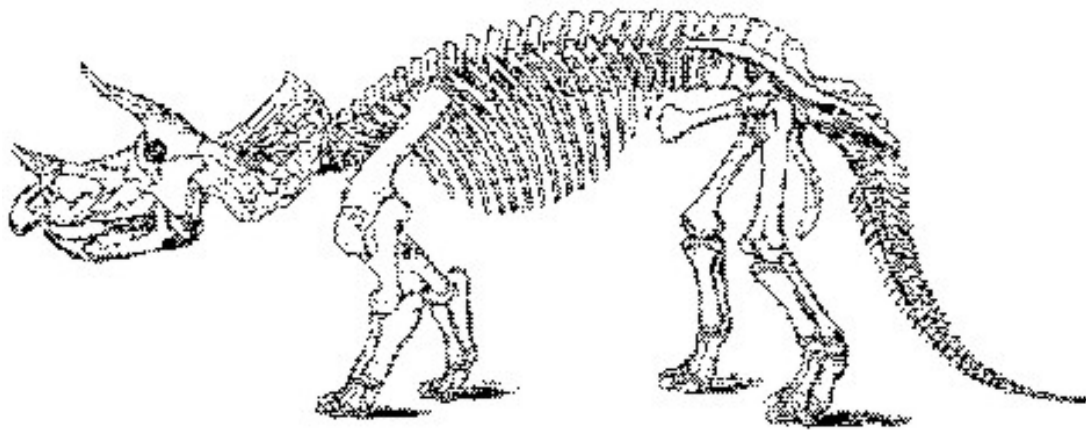


Figure p.08. Triceratops is an example of a land dwelling vertebrate of the Mesozoic era. This posture has been established by studying tracks left by these animals.



Fig. P.08b. A coprolite. Most recognised coprolites are associated with vertebrates: fish, amphibians, reptiles, birds and mammals.