

## Pelecypods

The pelecypods are a division of mollusks which stands rather well apart from others in having a skeletal covering that consists of two calcareous valves. These are joined by a hinge on the dorsal side of the animal along a line paralleling the front-to-rear axis. Thus, one valve encloses the right side and the other the left side of the pelecypod. Pelecypods are primitive in having gills located in a posterior mantle cavity. Also, the pelecypods are primitive in their general bilateral symmetry and relatively simple digestive, circulatory, and nervous systems, but they are specialized in lacking a distinct head and in the elaboration of gill structure found in most of them.

The name pelecypod signifies “hatchet foot,” in reference to the shape of the fleshy muscular antero-ventral part of the body—the so-called foot—which may project outward when the valves are open. The name clam may be applied to all pelecypods. Many fresh-water and a few marine clams (for example, *Mytilus*). Most pelecypods are bottom-dwelling aquatic invertebrates, among which the vast majority live in shallow marine waters. Unlike gastropods, none are air breathers. Although a few pelecypods, such as the scallop, *Pecten*, and the so-called file shell, *Lima* (Fig. 1, 1, 3), can propel themselves rapidly through the water for short distances, nearly all others are sluggishly moving bottom dwellers, or they live firmly fixed in one place.

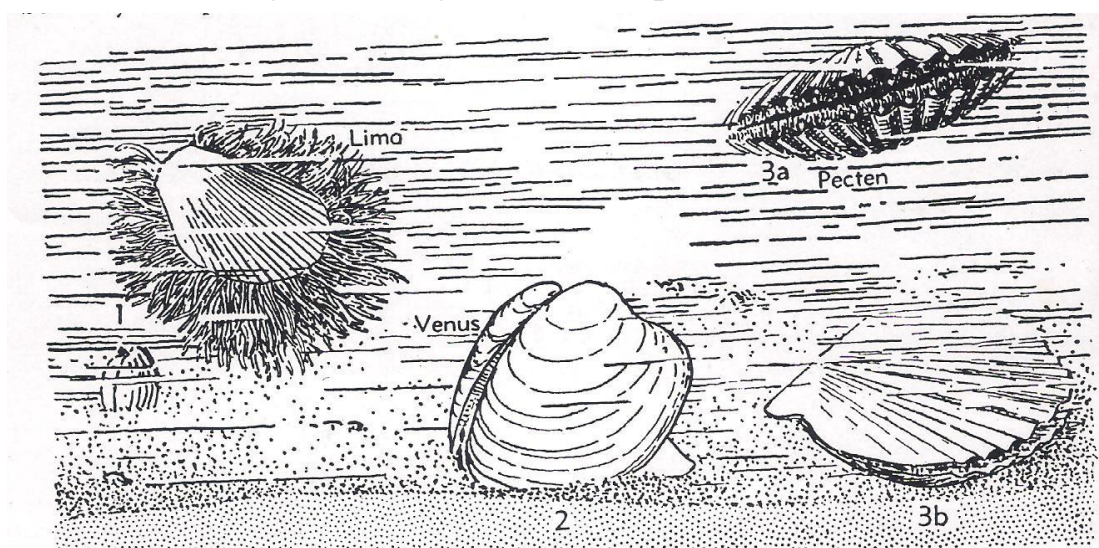


Fig.1. Mobile types of pelecypods. Most so-called “normal” clams, like *Venus* (2), slowly crawl about on the floor of the water body in which they live, using the foot as an organ of locomotion. The peaks point upward and forward. A few pelecypods, such as *Lima* (1) and *Pecten* (3), are able to swim.

Those that crawl about or burrow into bottom sediments are able to move by extending the foot outward and forward between the slightly opened valves, expanding the tip of the foot in such a way as to gain anchorage and then draw the body along by contracting the foot muscles. In this way, many clams can dig rapidly, and some (such as *Macoma*, Figs. 10-2, 3) use their shell as an aid in cutting into mud or sand by moving the body back and forth sideways. Some clams can travel slowly with nearly all the shell above the bottom sediment, the dorsal edge uppermost (Fig. 10-1, 2); or they can burrow into the sediment in any direction so that the shell is varyingly oriented and entirely concealed (Fig. 2, 1—3). Many burrowers do not move about but live in a fixed position, generally with the front end pointed downward and the rear upward. The pelecypods range in size from adults barely 1 mm. in length to fossil forms having a shell nearly 1 m. (3.3 ft.) wide and 1.5 m. (5 ft.) long

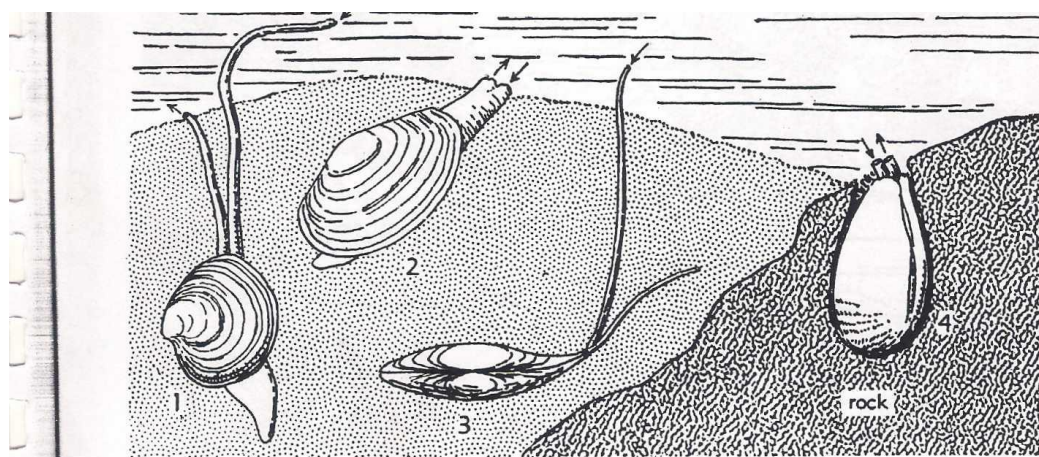


Fig.2. Burrowing types of pelecypods. A majority of this group of clams burrows in the soft mud, silt, or sand beneath shallow seas or on the floor of fresh-water bodies.

### Shell:

The hard parts of a pelecypod, which naturally have chief importance for paleontological study, are the two valves, secreted mainly by the mantle. The valves surround the soft parts, forming a protective cover which may be very thin and delicate, or extremely thick and heavy. The shell consists of calcium carbonate in the form of calcite or aragonite, or both, associated with a relatively insignificant amount of dark organic substance, called conchiolin. The conchiolin forms a very thin outermost cover (**periostracum**, Fig. 3, 33), and it maybe interlaminated with the main calcareous part of the shell - (**ostracum**, fig. 3, 36). Normally, the



calcareous shell consists of two main parts, an outer **prismatic layer** and - an inner **lamellar layer** (Fig. 10-5, 34, 35).

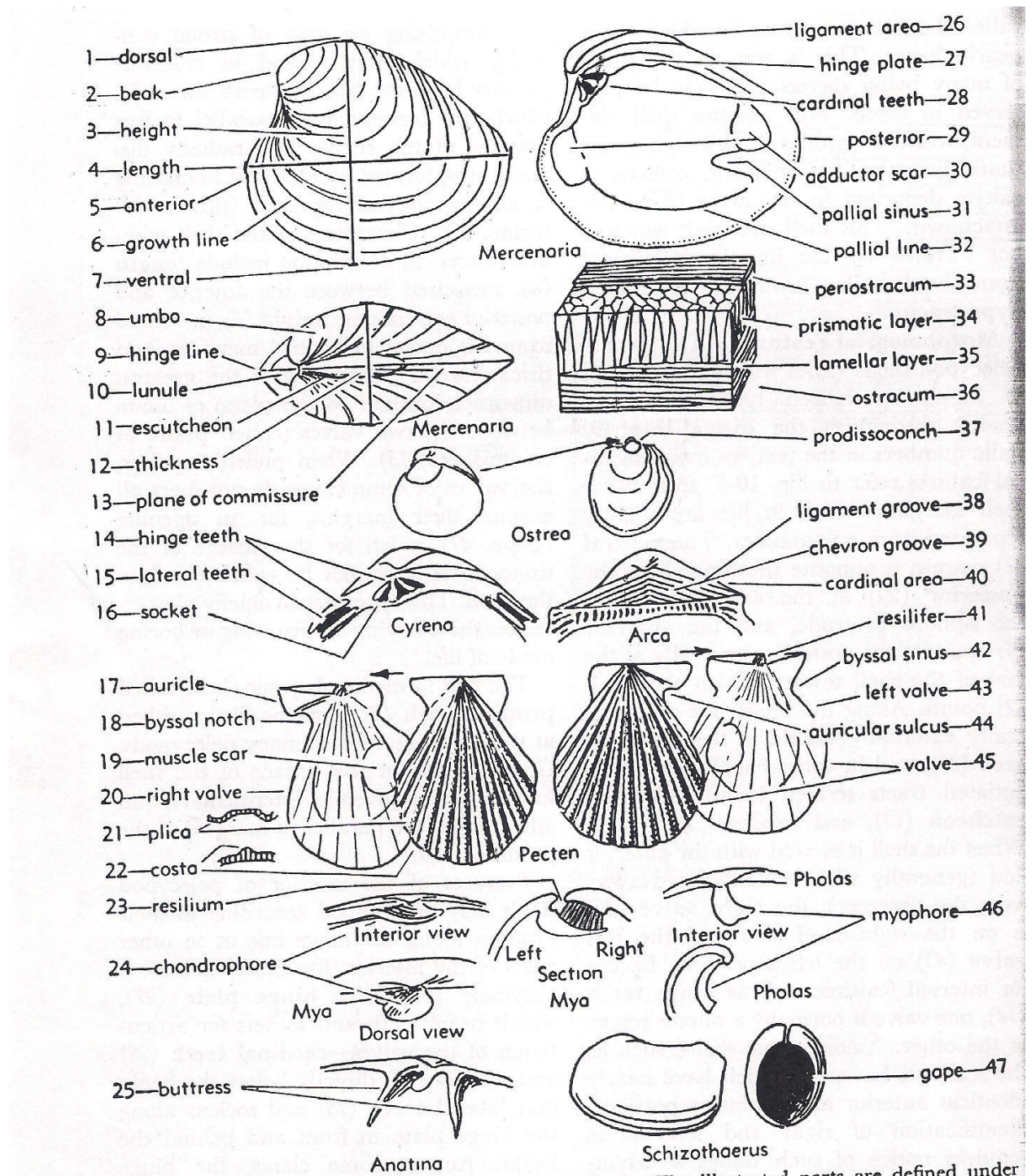


Figure 3 Morphological features of Pelecypod shells

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**Classification:**

Pelecypods (*class*), aquatic bivalve mollusks. Ordovician—Recent.

1- prionodesmacea (*subclass*), pelecypods having prismatic shell structure; Ordovician—Recent.

2- Teleodesmacea (*subclass*), pelecypods having porcelaneous structure; Ordovician—Recent.

**GEOLOGICAL DISTRIBUTION AND IMPORTANCE:**

some genera and families of clams have short stratigraphic range, we do not find among pelecypods any major group, as among corals, brachiopods, and cephalopods, which is exclusively lower Paleozoic, any which is confined to middle or late Paleozoic, or any (excepting pachyodonts) which expand greatly in Mesozoic or Cenozoic parts of the column and then disappear. In contrast to such a record, each main group of clams seems to have become adapted to a certain mode of life and to have maintained its existence very successfully in its chosen setting with little alteration in response to changes in the spread of epicontinental seas and multitudinous fluctuations in the local nature of marine environments. They have managed to persist by finding somewhere the living conditions for which they are suited. No good reason is known for thinking that the Pelecypoda are less sensitive to environment than other invertebrates, nor is this evident.