Types of Fossils

(Refer to page 3 for illustrations. Unless otherwise noted, illustrations are about the size of the fossils you might find.)

Trace Fossils

Trace fossils are not the body remains of an animal. Instead, they are traces, or impressions, made when an animal burrowed, rested, or crawled upon the seafloor. The example illustrated probably was a burrow made by a segmented worm or arthropod.

Anthozoans (corals)

Corals commonly found in the Decorah Shale are called horn corals because their skeleton, which is preserved, looks like a tiny horn. Corals are simple animals that feed by capturing floating sea life with their tentacles. Most modern corals are colonial, which means that many animals live together in one skeleton. Ordovician horn corals were solitary (having only one animal per coral skeleton). While many types of corals are abundant in today's oceans, horn corals are extinct.

Bryozoans

These fossils commonly resemble a twig, a ribbon, or a small fan with tiny pores. Others are biscuit or gumdrop shaped or encrust other fossils. Like corals, bryozoans live by filtering food from surrounding water with special tentacles. Unlike the horn corals, byrozoans are colonial organisms; each pore in the skeleton is home to one tiny animal. They were abundant during the Ordovician Period, but they are scarce in modern seas.

Brachiopods (lampshells)

Brachiopods are shelled organisms: their shell is composed of two unequal halves called valves. Commonly, fine growth lines and ribs are preserved on the valves. Brachiopods usually attach themselves to the seafloor by a fleshy stalk that extends through one of the valves. They are filter feeders; however, their tentacles remain inside their shell. Like bryozoans, they were abundant during the Ordovician Period, but are now quite rare.

Pelecypods (clams)

Pelecypods, like brachiopods, are shelled creatures. Generally, their two valves are the same size and are mirror images of each other. Pelecypods are filter feeders that can move around by means of a fleshy foot. Commonly, the form of the animal is preserved as a cast of the internal cavity between the two valves. The shells are usually not preserved, and fine growth lines and details are lost.

Gastropods (snails)

Gastropods usually possess one tightly coiled shell. Some shells are coiled in a plane (like a garden hose), and some are coiled in a spiral (like a cone). Snails without shells are called slugs. Although some modern snails have lungs and live on land, many others live under water. They are scavengers, finding food along the seafloor.

Cephalopods

Cephalopods of today include octopuses, squid, and the only living representative with an outer shell—the pearly nautilus. The bodies of Ordovician cephalopods were like those of modern squid or octopuses, but the ancient cephalopods had no internal skeleton. Instead, they had an external shell which grew as a series of chambers. The animal occupied only the last, largest chamber. Ancient cephalopods were able to jet themselves rapidly through the water like the modern octopuses and squid and, like them, captured their prey with their tentacles.

Trilobites

Trilobites are long-extinct relatives of modern arthropods such as crabs and lobsters. Like these modern relatives, they shed or molted their hard external skeleton as they grew. Many of the fragments of trilobites found in rocks may be molted segments. Most commonly, the fossilized fragments are from the head or tail of the animal. Trilobites fed along the sea bottom or burrowed for food. Trilobite fossils are typically the most sought after fossils, and the most difficult to find.

Crinoids (sea lilies)

Crinoids, relatives of starfish and sea urchins, are spiny skinned animals with a five-fold body symmetry. The animal has a small cup-shaped body made of calcified plates (see Fig. 2). Five arms, each with many branchlets, extend from this cup. The crinoid attaches itself to the sea floor by a stem, and feeds itself by filtering food from surrounding water with its branchlets. The columnals which made up the stem are common fossils. The body plates are less common, but also may be found.

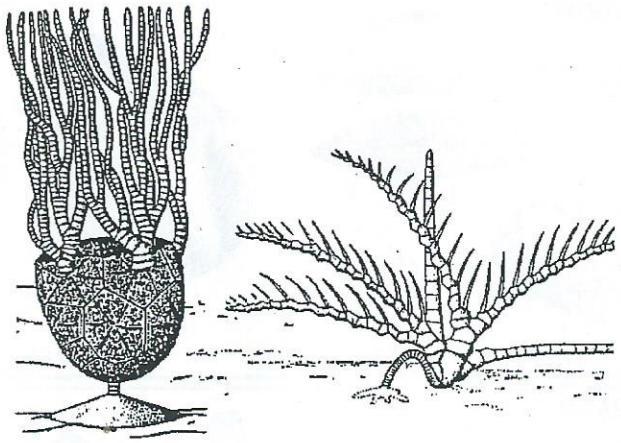

Figure 2. Restoration of the crinoid *Carabocrinus* sp. (left) and *Cremacrinus* sp. (right) from the Decorah Shale. *From* Brower, J.C., 1987, The Middle Ordovician crinoid fauna of the Twin Cities area, *in* Sloan, R.E., ed., Middle and Late Ordovician lithostratigraphy and biostratigraphy of the Upper Mississippi Valley: Minnesota Geological Survey Report of Investigations 35, p. 177-178.