MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Crinoids and Brachiopods

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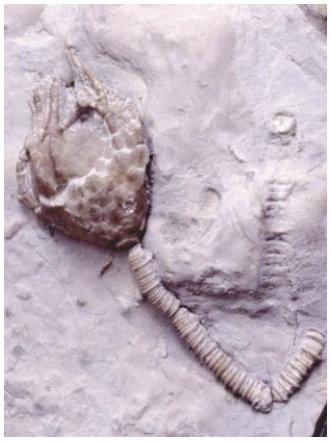
Two Records of Earth's Early History



Contrary to what some people may think, a fossil does not always represent a type of plant or animal that only lived long ago and is now extinct. Crinoids or “sea lilies” and brachiopods or “lamp shells,” are good examples. They are two of Missouri’s most common fossils, yet both kinds of animals have living representatives in today’s oceans and seas. Missouri is a fertile hunting ground for fossil collectors. Fossils of almost every size have been found in Missouri, from the bones of the gigantic woolly mammoth of the ice age period to the microscopic remains of primitive, one-celled animals that once lived in warm, ancient sea waters.

Most of the fossils represent species of marine life because the sedimentary layers of rock common to Missouri, such as sandstone, chert, shale, dolomite and limestone, were formed millions of years ago by deposits laid down when shallow inland seas covered most of the state. It is in limestone beds that crinoids and brachiopods are generally found.

Burlington Limestone is most renowned for its abundant crinoid fossils. Crinoids often appear as tiny discs of stone that may have a hole (often star-shaped) in their center. Loose pieces of stem can often be strung like beads. The fossil is also preserved as sections of stems with distinctive segmentation marks. Occasionally, it is possible to find the “cup” or “calyx,” which protected the animal’s soft body with a symmetrical “petal pattern” of calcium-rich plates atop the stem. Today, hundreds of different species of crinoids exist in the warm, clear waters of the Pacific and Indian oceans and the Caribbean Sea.

Brachiopods are shell-bearing animals with shells that are bi-valved, meaning a shell composed of two distinct and usually movable halves that may be opened or closed. Often, only one side (valve) or portions of broken shell can be seen embedded in a rock outcrop. The remains of a single animal range in size from fractions of an inch to more than 10 inches in length across the shell’s hinge. Most of the rocks in Missouri that contain brachiopods are from the Devonian period (416 to 359 million years ago). Live, mature brachiopods found in today’s oceans and seas attach themselves to rocks or other solid objects with their pedicle (foot). They prefer shallow sea water. As is true of most organisms with a long fossil record, brachiopods and crinoids are more varied and numerous as fossils than is indicated by their living representatives.

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