COMMON SALEM MICROFOSSILLS
(Phyla and Classes)

Mollusks  Brachiopods  Arthropods  Foraminifera  Bryozoans  Coelenterates  Echinoderms

Gastropods  Pelecypods  Ostracods (Crustaceans)  

A  B  C  D  E  F  G

H

Figures A through G
Indiana Geology and Natural History
12th Annual Report, 1882

INDIANA STATE MUSEUM

Figure H
Moore, R.C.; Lalicker, C.G.; and Fischer, A.G.
Invertebrate Fossils, 1952
McGraw-Hill Book Co., Inc.
Mississippian Period, 360 – 355 million years ago

The Salem Limestone, deposited during the Mississippian Period, is probably one of the most famous rocks in the world. Most people have likely seen it—even if they don’t realize it. Going by many slang names, include Indiana limestone and Borden Limestone, Salem Limestone is used on buildings all over the world and is known for its strength, regularity, and ease to cut and shape.

The sediments that make up the Salem Limestone were deposited when Indiana was under a great shallow sea. Shallow seas have strong waves and currents, and are able to carry large and small particles. Shifting, underwater shoals can be composed entirely of tiny particles, moving much like dunes under the waves. The Salem Limestone was formed in just these conditions. Looking closely at a piece of limestone, we can see small fossils – some are fragmented, some are whole but small. Geologists once thought that the fossils found in the Salem Limestone were part of a dwarf fauna. They now understand that the wave energy was such that the waves winnowed out anything larger or smaller than a certain grain size. That’s what is left in the limestone, and the regularity of particle size makes the limestone great building material.

Types of fossils found in the Salem Limestone

Brachiopods: a variety of brachiopods are found in the Salem Limestone. A common species found in the Salem Limestone is Girtyella turgida, but Eumetria, Spirifer, and Girtyella may also be found. Unlike clams, which have two identical shells, brachiopods have two unlike shells. Brachiopods are still living in oceans today, but there are much fewer species now than during the Mississippian.

Bryozoans: Bryozoans are colonial organisms, meaning that each zoecium, or visible structure, houses many animals that are all clones of one another. Branching (twig-like), sheet, and fan-like bryozoans (called fenestrate) can be found making up the structure of the Salem Limestone.

Corals: the horn coral Triplophyllites is commonly found. Horn coral is an example of a solitary coral. The space the animal would have occupied is filled when looking at the fossil form. Many people mistake horn coral for a horn, a claw or a tooth. The living coral animal deposits a protective layer around itself. This is the “skeleton” which is the part of the coral that becomes fossilized.

Crinoids: mostly found in the form of small disks called ossicles, these stacked form the crinoid stem. Crinoids are relatives of other echinoderms such as star fish, sea urchins, and sand dollars, and are still living in the seas today. Crinoid fossils are very plentiful in Indiana. The crinoid as a whole, however, looked a lot like a flower, and in fact the name crinoid means “lily-like”. Crinoids were not plants, but stationary animals that were rooted. The petal-like tentacles of the crinoid collected nutrients from the surrounding ocean water and directed them toward the animal’s mouth.

Foraminifera: Foraminiferans are single-celled organisms called protists. Most of them are quite small, measuring in the millimeter scale, but others can be quite large. Most Salem Limestone forams are of the species Globoendothyra baileyi, a coiled, multi-chambered example of the group.

Gastropods: more commonly known as snails, were present in the Mississippian seas, and gastropods such as Belierophon are common. There were freshwater, saltwater, and land-dwelling varieties. Gastropods of the Mississippian are very similar to those living today.

Ostracods: Ostracods are tiny bivalved crustaceans that are commonly found living, or having lived, in a variety of marine and freshwater environments since the Ordovician Period. A variety of species can be found in the Salem Limestone. Ostracods can easily be confused with ooids, foraminiferans, or pellets.

Pelecypods: Pelecypods are common marine and freshwater animals, and are perhaps among the most familiar. Included in this group are clams, pectens, mussels and scallops. Pelecypods are bivalved mollusks, and were much less common in the past than now. While the Salem Limestone pelecypods are small, many pelecypods can become quite large, up to a half foot or more.