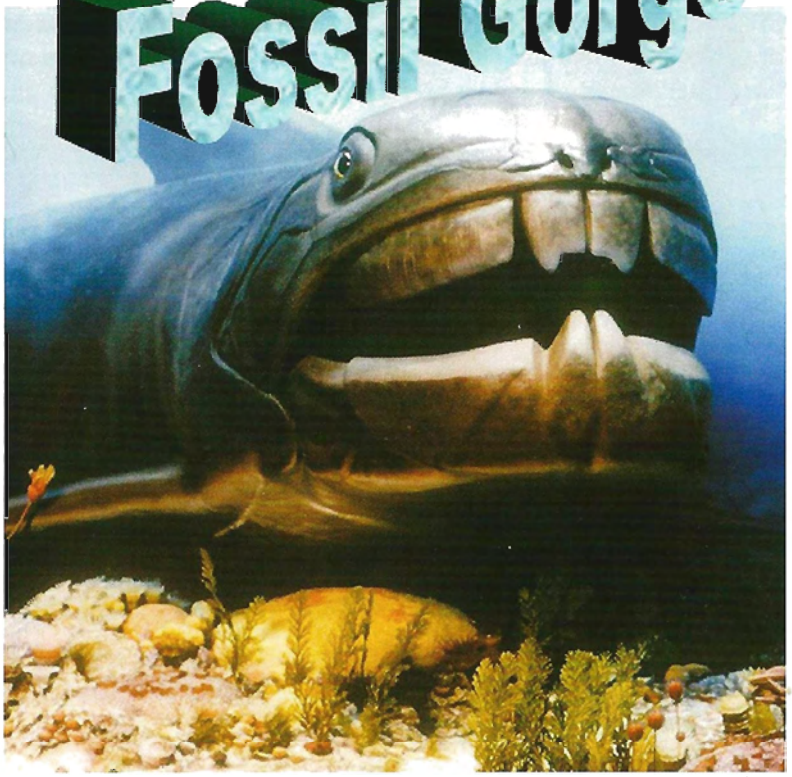
Devonian Fossil Gorge



Dunkleosteus as seen in a diorama in Iowa Hall, University of Iowa

Coralville Lake Emergency Spillway

Iowa Geological & Water Survey
Educational Series

US Army Corps Of Engineers
Coralville Lake

rocks

The rocks exposed at the Devonian Fossil Gorge are of middle Devonian age (about 375 million years old) and include the Rapid and Solon members of the Little Cedar Formation. At this time, Iowa and much of North America lay at tropical latitudes just south of the equator, and the Devonian sea covered most of what is now the United States.

This is a photograph of part of a diorama in Iowa Hall on the University of Iowa campus, showing corals, crinoids, a cephalopod, and other Devonian animals as they would have looked 375 million years ago.

The rocks at the Devonian Fossil Gorge are limestone, composed of the fossilized remains of the shells, disintegrated algae (mud), and other parts of animals that lived in the shallow tropical seas that covered the region during the Devonian. Rocks like these were deposited across most of Iowa but have been eroded away from the northeast and buried by younger rocks in the west and southwest parts of the state. The rock exposures at Devonian Fossil Gorge are special because they are bedding planes that let you see the sea floor much as it was deposited. Most rock exposures in Iowa, as in road cuts, are vertical cuts thru the original bedding planes.

fossils

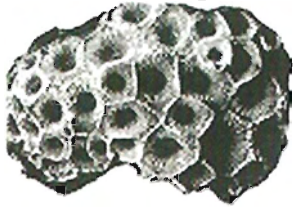
The fossils of many types of animals are found in the limestone rocks exposed at Devonian Fossil Gorge. The most common are described below.

Corals found at the gorge lived in a shallow, clear, warm tropical sea environment. The two principle types are colonial (that lived in connected colonies) and solitary (single animals).

colonial corals

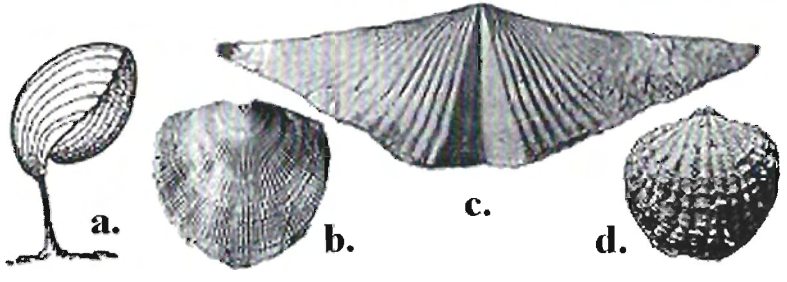
Favosites

Hexagonaria

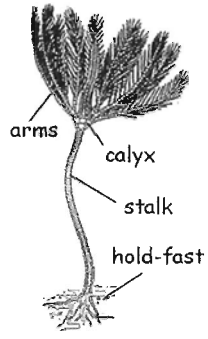


solitary corals

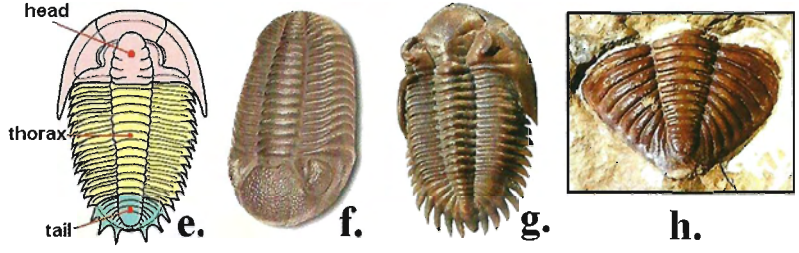
Brachiopods are shelled animals that lived attached to the sea floor (**a.**). Typical species include atrypids (**b.**), orthospirifers (**c.**), and *Spinatrypas* (**d.**)



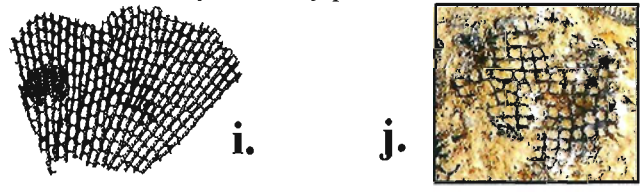
Crinoids are animals that lived attached to the sea floor by a long stalk made of small disk-shaped plates. A calyx (head) was attached to the top of the stalk and long feather-like arms attached to the head collected food. They usually fall to pieces after death (see stalk pieces below), although rare complete animals can be found at the gorge.



Trilobites are arthropods that lived on the sea floor. They have 3 main body sections (**e.**), the head, thorax, and tail. The most common at the Gorge include *Phacops rana* (**f.**) and *Greenops boothi* (**g.**). Sometimes only the tails are preserved (**h.**).



Bryozoans, like corals, live attached to the sea floor. They are colonies of hundreds of animals that have branching forms (**i.** & **j.**) and can be identified by their tiny pores.



Cephalopods were the shelled relatives of today's squids and related animals. Their shells were segmented (chambered) and cone-shaped (**k.**) and usually only portions are preserved at the gorge (**l.**).

structures

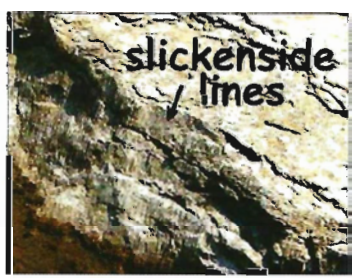
Karst describes the dissolution of limestone by groundwater moving along fractures. Many karst features are seen at the Devonian Fossil Gorge, including dissolution along bedding planes (**m.**) and along vertical fractures (**n.**).

m.

n.

Faults are fractures along which rocks have moved. There are many faults present at the Devonian Fossil Gorge (seen as linear fractures in the rock) including one that moved about 10 feet (**o.**). Linear scratches (slickensides) indicate fault movement (**p.**)

o.



p.

Folds are the bending of rocks produced by tectonic forces. The folds at the Devonian Fossil Gorge were probably produced about 310 million years ago.