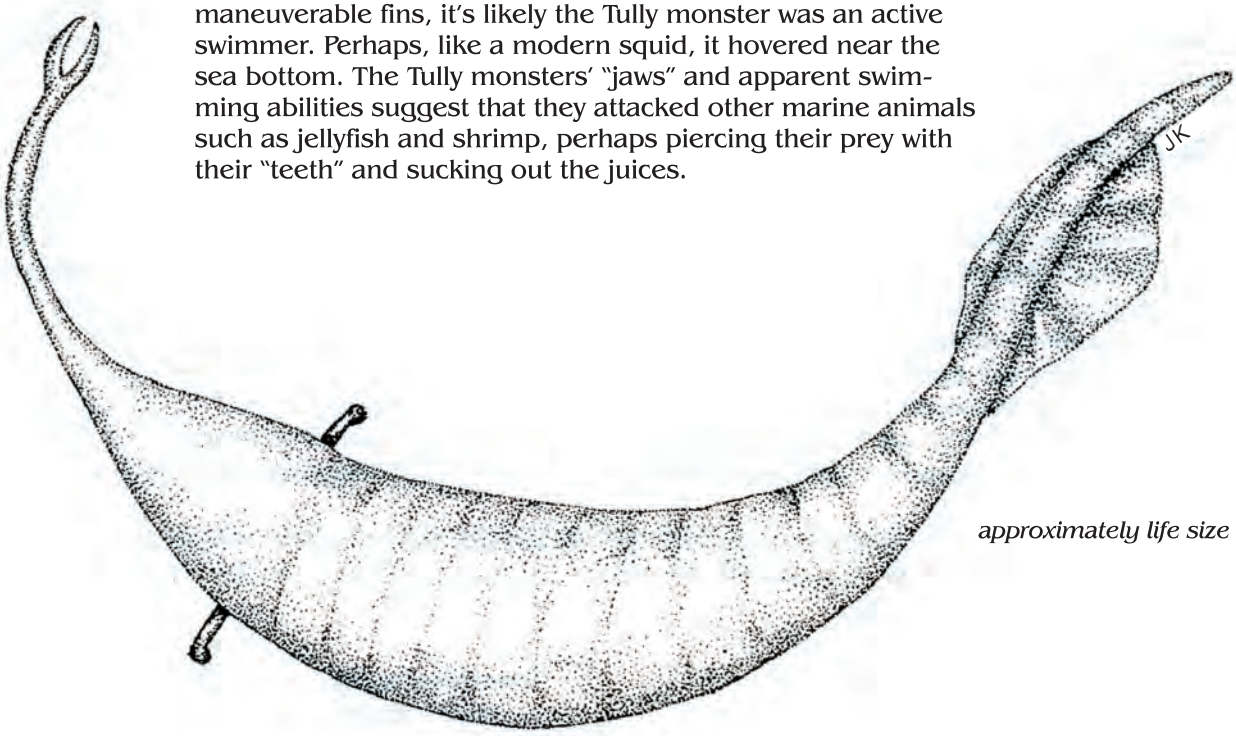
Illinois State Geological Survey

Geobit 5

Illinois' State Fossil—*Tullimonstrum gregarium*

Tullimonstrum gregarium, *the "Tully monster," is the official State Fossil of Illinois. Now extinct, this animal was once a fairly common inhabitant of this area during the Pennsylvanian Period of geologic time, some 300 million years ago.*

The Tully monster was a soft-bodied, invertebrate, marine animal—an animal that has no shell and no backbone, and lived in the ocean. It had an elongate, segmented body that tapered at both ends. At the front was a long snout ending in a "jaw" with eight tiny "teeth." At the other end was a tail and two fins. Two eyes on stalks projected out sideways near the front of the body. Judging from the streamlined shape, flexible body, and maneuverable fins, it's likely the Tully monster was an active swimmer. Perhaps, like a modern squid, it hovered near the sea bottom. The Tully monsters' "jaws" and apparent swimming abilities suggest that they attacked other marine animals such as jellyfish and shrimp, perhaps piercing their prey with their "teeth" and sucking out the juices.



approximately life size

The ancient landscape

During the Pennsylvanian Period, the land that is now Illinois lay near Earth's equator. Dense swamps, forested with primitive plants, covered much of western and central Illinois. In shallow seas nearby, the Tully monster swam along with relatives of modern shrimps, jellyfish, squid, sharks, and other marine animals. Rivers that meandered through these swamps carried sediment as well as leaves and other debris from land plants into the sea. The setting may have been rather like the Amazon River delta in South America today. Through time, vegetation that accumulated in the swamps was buried and converted to coal, an important economic resource for Illinois. Meanwhile, the mud carried to the ocean by rivers that drained the swamps buried the plant debris and the bodies of dead animals that had settled to the sea floor.

How the Tully monster was preserved

Only the hard external shells or bony skeletons of animals are typically preserved as fossils. The soft flesh of dead animals, whether in the ocean or on land, quickly decays and is eaten by scavengers. So the chances of a soft-bodied animal like the Tully monster or a jellyfish being preserved as a fossil are very small. But conditions in these seas were apparently just right for making fossils; animals that died were buried so quickly in the mud that scavengers and decay didn't have time to work.

Chemical reactions between seawater, mud, and organic matter of dead animals and plants caused nodules of reddish brown "ironstone" (the mineral siderite) to harden around the buried organisms. Although the actual flesh that formed the body is gone from the inside of these nodules, the appearance of the soft parts of the animals and plants has been preserved in fine detail in the hardened mud, either as impressions or outlined by color differences. There are only about five other places in the world where fossils of so many different types of soft-bodied creatures have been found preserved in such fine detail.

The world-famous fossil-bearing nodules of Illinois were first discovered in the late 1850s in natural exposures along the banks of Mazon Creek in Grundy County. The nodules occur in a bed of shale that overlies a valuable coal seam. In the 1920s, when strip mining operations began south of Braidwood near where Grundy, Will, and Kankakee Counties meet, the area quickly became popular for fossil-collecting. To expose the coal beds, the mining operation stripped off the shale containing the fossil-bearing nodules and dumped it out of the way in huge waste piles. Most of the fossils of Tully monsters, other marine organisms, and numerous fossil plants have come from these piles. Because the nodules are too hard to hammer open, and the fossil can be destroyed in doing so, the best way to collect these fossils is to find the naturally split nodules.

Mr. Tully finds a fossil!

In the late 1950s, Francis Tully, an avid amateur fossil collector from Lockport hunted regularly in the strip mines near Braidwood. When he discovered a fossil unlike any other he'd ever seen before, he brought it to the paleontologists at the Field Museum of Natural History in Chicago. They had never seen anything like it either, and the fossil was soon dubbed "Mr. Tully's monster" or "Tully monster." In this case, "monster" means something extraordinary, and the Tully monster is certainly that! It is so unusual that it does not appear to be closely related to any known animal, living or extinct.

In 1966, Eugene Richardson, then Curator of Fossil Invertebrates at the Field Museum, gave the fossil its proper scientific name, *Tullimonstrum gregarium*. *Tullimonstrum* is simply the Latinized version of the animal's nickname, and was bestowed in honor of Mr. Tully who first found it; *gregarium* means "common."

Although more than half of all the states have official fossils, few have one unique to their state. The Tully monster is found nowhere else in the world. Not only is it unique to Illinois, but apparently it is unique among animals.

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