52. <u>Poraspis</u>, U. Silurian 13.5 m

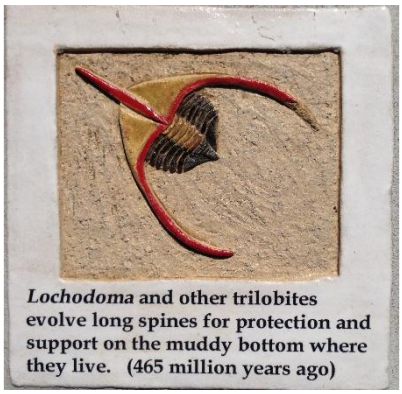
Hemicyclaspis sp. and *Poraspis sp*. were an early kind of fish that evolved in Paleozoic seas. These early fish did not have jaws. Their mouths were more like those of modern jawless fishlike hagfish or lampreys, which are their living distant cousins. Without jaws it was more difficult to capture and break apart their food, so they must have been restricted in what they could eat. They were probably slow moving, bottom dwellers, who could nose about in the mud and slurp up tasty morsels. Although jawless, they did have protective bony plates around their heads and in some forms, over much of the body. These bony plates give rise to their name, ostracoderm', which means 'shelly skin'. Jawless fish were eventually eclipsed in the fish world by fish with jaws.

53. Eurypterus, U. Silurian 13.3 m

'Sea scorpion' is the name given to a type of fossil arthropod (animals with an outer skeleton('exoskeleton') like insects, spiders and crabs.), They superficially looked like scorpions but 'sea scorpions' (more accurately known as eurypterids) were not actually arachnids (like scorpions and spiders), although they are closely related to them. We do not know if asea scorpion's telson functioned as a stinger. This sea scorpion *(Eurypterus remipes)*was 40 centimeters long, but some of its eurypterid cousins were up to two meters long. Their size and big claws made them one of the fiercest predators of the time. They evolved in marine environments, but eventually moved into brackish water and freshwater environments. Some 'sea scorpions' may even have crawled up onto the land for short periods. *Emypterus remipes* are the state fossil of New York.

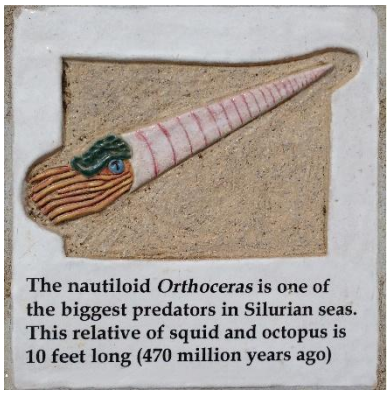
54. Strophomena Silurian 11.2 m

Strophomena subplana is the name of a brachiopod that lived during the Silurian Period. Although they look like clams, brachiopods are a quite different kind of animal (see the text for *Platystrophia* from the section covering the Ordovician Period for a description of brachiopods). If you compare the size, shape and ribs of the shells of *Strophomena* and *Platystrophomena* it is easy to see that they look quite different, although they retain the basic identifying characteristics of brachiopods, (the two shells are different, but each is symmetrical about the midline). These differences are how paleontologists group brachiopods into the various groupings used in scientific nomenclature. At this time paleontologists do not agree on the details of brachiopod groupings, and it looks to be some time before a system is proposed that every paleontologist (or at least most of them) can agree on.



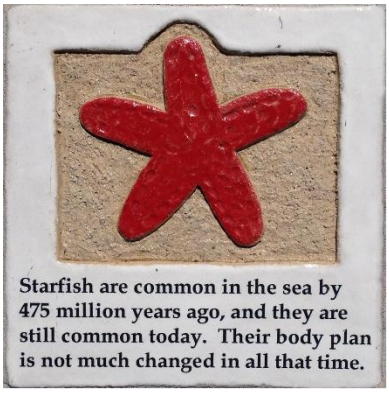
55. <u>Lochodoma</u>, M. Ordovician 8.7 m

Lochodoma volborthi is a kind of trilobite that lived during the middle part of the Ordovician Period. It was not very large, only 4 centimeters long, but it provides a good example of an interesting feature of some trilobites, their spines. Like their modern cousins, crabs and insects, trilobites had a hard exoskeleton made of chitin, a kind of carbohydrate. Chitin is also found in the hard mouth parts of mollusks, like gastropods (snails and slugs) and cephalopods (squid and octopus). Many trilobites evolved spines as long thin extensions of their exoskeletons. These spines may have evolved to provide protection from predators, to help support their bodies on soft, muddy sea bottoms, or to have been attractive to the opposite sex (?). Although difficult and tedious to excavate from the surrounding rock matrix, a well-prepared spiny trilobite makes a spectacular addition to a fossil collection



56. Orthoceras, Ordovician 8 meters

Orthoceras is a genus of cephalopod, which is a kind of mollusk (mollusks are animals like clams, snails and squid). Cephalopods have been a major part of the marine world for half a billion years. Cephalopods (the name means 'head foot'), that live today are squid, octopus and nautilus. *Orthoceras* (the name means 'straight horn') got around by swimming or crawling along with its water out of a tube near its head and jet-power itself backwards at high speed. *Orthoceras* was a huge creature, up to 5 meters long. With its large size, jet-power, grasping tentacles, big eyes and long protective shell, Orthoceras must have



57. Stenaster Echinoderm, Ordoviacian 7.5 m

Stenaster sp. lived in the Ordovician Period. Its name means 'narrow star' and it is a kind of echinoderm ('spiny skin'), a very successful and diverse group of organism that evolved before the Cambrian era and is still abundant and diverse today. Echinoderms have many unique features, the most recognizable of which are five-fold symmetry (five-sided) and hydraulically powered appendages (tube feet). The kind of echinoderm we call starfish, like *Stenaster,* evolved in the Ordovician and have continued as a successful life form ever since. The starfish you see today at the seashore is probably not that much different from the ones that lived almost half a billion years ago. When organisms are successful and long-lasting like Echinoderms, they have a body plan and metabolism that lets them flourish under stable as well as changing environmental conditions. If an organism is adapted too closely to a particular environment, it may flourish if that environment continues but disappear when its favored environment does.