



PREHISTORIC NEW YORK

—fossil collecting in the Empire State

By Alan Zdinak

All photographs by author, unless otherwise noted

When I was a boy I would visit the American Museum of Natural History in Manhattan and marvel at the dinosaur skeletons. I couldn't get enough of the *T.rex*, *Triceratops* and their brethren. I dreamed of digging up fossils myself, but imagined them as rare buried treasure found only in far-flung places like Montana and Mongolia. It was nearly half a lifetime later that I learned central New York is a fossil wonderland that anyone can explore.

There are no *Brontosaurus* bones coming out of the Finger Lakes. In fact, aside from a few small footprints unearthed in Nyack there are no dinosaur fossils at all. The Mesozoic Era—the Age of Reptiles (approximately 248 to 65 million years ago)—is pretty much absent from New York's geologic record.

What New York does have are plenty of fossils from the Early Paleozoic era (from the Cambrian through the Devonian periods, 550 to 350 million years

ago)—way before the dinosaurs. During that time a succession of shallow seas covered the state. These seas contained vast coral reefs and submarine thickets of sea lilies that armored squid and giant sea scorpions called home. Over time, sea bottom and deltaic sediments turned into the shale, sandstone and limestone that underlie the state from the Catskills to the Great Lakes. And those rocks are bursting with the fossilized remains of that long-ago marine fauna.



Above: North Brookfield trilobite site.

Inset: Cephalon (head) of a *Dipleura* trilobite found there.



Fossil-laden cliffs on the Lake Erie shore south of Buffalo.

This is not news. Paleontologists have been studying these strata for more than 175 years. Utica native Charles Doolittle Walcott started his career collecting local trilobites before moving on to head the U.S. Geological Survey and the Smithsonian. Mark Twain collected brachiopods on his Elmira farm. The region is so fecund with fossils that a nineteenth-century survey of New York fossils by James Hall, the first State Paleontologist, ran 13 volumes.

The Early Paleozoic was the heyday of invertebrates, creatures without backbones. Certainly in New York the most abundant fossils are brachiopods. At first glance these fossils look like the clam and mussel shells you find washed up at the beach today. But our modern seashells are mollusks, whereas brachiopods are a different sort of animal altogether and are more closely related to Bryozoa. Back in the Paleozoic they dominated the seascape, coming in a dizzying array of forms, from winglike spirifers (called butterfly stones) to scallop-shaped orthids. Their thick shells were ideal for

fossilization and as such they're found studding slabs of rock or weathered out where you more readily spy them.

Reef building corals are also common fossils, both the honeycombed, colonial varieties and the funnel-shaped cones of extinct horn corals. Fossils of another group of colonial creatures, bryozoans, look like delicate lacework etched on rock, and the whorled shells of snails, or gastropods, are also frequent finds.

I've been collecting fossils for many years. One site I enjoy visiting is at a popular roadcut outside Schoharie. Here, a half hour southwest of Albany, as a back road crests a crumbling, limestone hillside, there's a shoulder wide enough to pull a car over safely. The rubble-strewn slope represents the middle of an eroding formation where you can pluck Devonian brachiopods and sponges right out of the gravel, making it a good site for kids and beginners.

To get at fossils still embedded in the 15-foot cliff beyond, hammer and chisel are required. This is standard procedure for most fossil collecting



Nicolas Dranna

in New York. Geologic, mason's or crack hammers are the core of any collector's kit. These are supplemented by a variety of cold chisels, pry bars, shovels and lidded plastic containers for holding specimens. Water, sunscreen, insect repellent and first aid gear come in handy too. It's worth splitting some rocks at Schoharie because cephalopods and trilobites have come out of that site, and the cliff is capped by layers of crinoid (includes sea lilies and feathered stars) hash.

Today's cephalopods include the familiar octopus and squid. But the ancient ancestors of calamari were the apex predators of their food chain. We think of cephalopods as soft bodied animals, but many Paleozoic varieties had external shells like today's nautilus and these are the fossils they've left



Fossil hunters examine a roadcut outside Pompey Center.

behind. While some can be as big as tractor tires, typical specimens tend to be much smaller.

A favorite of New York's fossils are trilobites. Trilobites were arthropods, relatives of today's spiders and crabs. They flourished throughout the 300 million years of the Paleozoic, evolving into thousands of species. Then they vanished. Their ovoid exoskeletons are often capped by eyes like headlamps, among the first complex peepers in nature. Many trilobites could roll up like pill bugs, and perished in that pose. Trilobites shed their exoskeletons as they grew, so their most common remains are molted head shields, fanlike tails, or rib-like thoracic segments. Complete, fully articulated specimens are rare, but frequent enough to make hunting them a rewarding challenge for the determined collector.

Sea lily (crinoids) fossils are another New York prize. With their long stalks and feathery crowns, sea lilies resemble flowers, but they are actually animals akin to sea urchins and starfish. Like brachiopods, crinoids still exist in diminished numbers today, but were widespread in the Paleozoic. Complete fossils, with both stem and tentacled crown, are prized

by collectors, but uncommon because crinoids tend to fall apart, or, disarticulate, after death. What are plentiful are the disk-like plates that stacked up to form their stems. Crinoid columnals can be so numerous that whole rock formations are composed of these tough little plates.

The big kahuna of New York fossils is the eurypterid, or giant sea scorpion. Some species grew to nine feet long, the largest arthropods ever. Several of these monsters were no doubt fearsome, with huge, grasping claws or dagger-tipped tails. Others may have been benign as their relative the horseshoe crab. Eurypterids flourished in the Silurian Period (443-416 million years ago), but are not common finds. Nonetheless, some of the finest specimens hail from New York, earning their status as our state fossil.

New York's richest fossil strata are the Devonian deposits of the Allegheny Plateau. This vast region stretches from the Hudson River west to Lake Erie, and from Lake Ontario south to the Pennsylvania border. But all that fossiliferous bedrock is buried under dense forests and topsoil. It's only exposed in quarries, creek beds, or where canal, road and rail

construction have cut through it. A little research online will divulge well-known, accessible sites.

Just off the interstate in Tully, there's a bald hillside that can be scavanged for spirifers, rippled *Grammysia* bivalves and the odd trilobite. Fossil collecting tends to be dirty work in often remote places. This site is uniquely located behind a motel with its hot showers and other comforts.

In rolling farmland outside Pompey there's a long roadcut riddled with the ribbed cones of cephalopods at one end and black, button-like gastropods at the other. In North Brookfield a mudstone bluff stands half hacked to rubble by generations of fossil hunters prospecting for palm-sized *Dipleura* trilobites. Over in Earlville, pickups and 4x4s have worn a dirt road down to bedrock paved with cephalopods and pelecypods, making it a tantalizing, but hazardous, place to collect.

One thing to consider in fossil hunting, though, is that while fossils may seem to exist in unlimited supply, this is not true. Fossils are a non-renewable resource that provide scientific evidence of past life forms and environmental conditions. When possible, you may consider



Large and small eurypterids with discoverer, Allan Lang.

Photo courtesy/Lang's Fossils

collecting only fossils that are already dislodged from their rock matrix, or even simply photographing or admiring them in place. You should also obtain permission from property owners before entering or collecting on private property. Additionally, be aware that collecting fossils on New York State-owned or federal lands requires a permit.

A good approach to fossil collecting is to join a fossil club like the New York Paleontological Society. Their field trips introduce members to public sites and gain them access to private ones, including “pay-to-dig” sites. If you are determined to find a eurypterid, make an appointment with Lang’s Fossils in Ilion for access to their famed quarry. On the outskirts of Buffalo, the Hamburg Natural History Society manages the renowned Penn Dixie site. Over the years this quarry has produced beautiful trilobite specimens. Visitors can either become members of the society or pay a day-use fee for the privilege of collecting there. While brachiopods are abundant—some naturally cast in iron pyrite (fool’s gold)—the trilobites usually require some luck or elbow grease to uncover.

Other fossils have been found in New York as well. For instance, the first mastodon found in the U.S. was unearthed in the Hudson River Valley and the state has since proved one of the richest sources of Ice Age elephants in the world. Dam construction near Gilboa uncovered petrified tree stumps from the Devonian, the oldest fossil forest on record. And crabs and oysters embedded in Pleistocene clays wash up in the Rockaways regularly.

In the end, the Empire State is distinguished by its rich Paleozoic heritage. It may not exactly be buried treasure, but it’s a hidden resource that can be enjoyed by just about anyone with the desire to seek it out.



Mucrospirifer brachiopod, *in situ* in a stream in Windom.



Cephalopod *in situ* at Pompey Center.

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Author’s note: The places listed here are just a sampling of some of the scores of known sites across central and western New York. Virtually any roadcut or exposed rockface in this region is worth a look.

Editor’s note: While there are many locations across New York where people can legally collect fossils, please be aware that it is illegal to dig for or remove fossils from any state or federal lands.