

**DINO-MITE FIND MADE ON ISLAND / FOSSIL
HUNTER DUG UP TREASURE
ON NORTH SHORE BEACH**

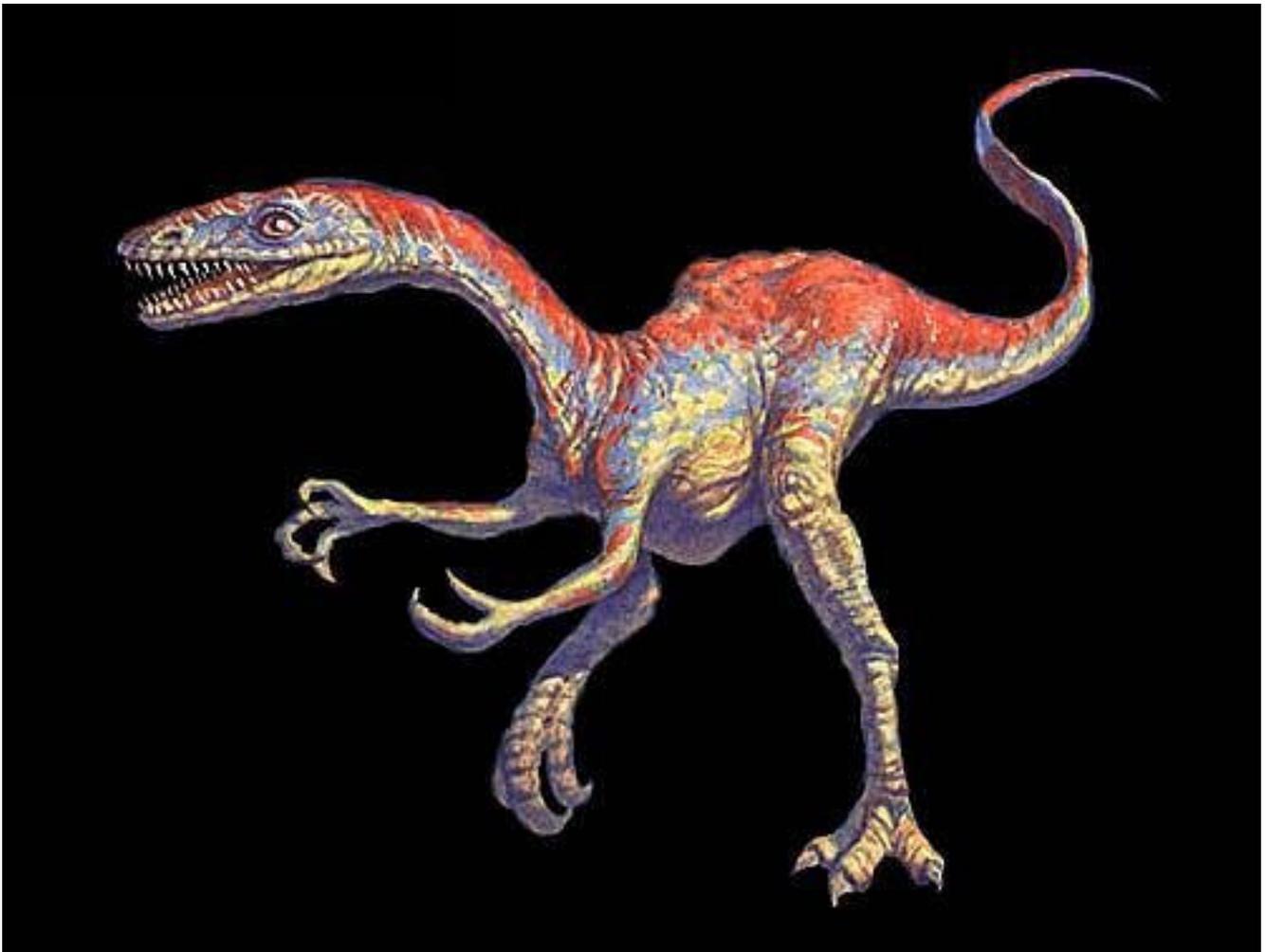


Image source: <http://enciclopedia.cc/es/media/6/68/coelophysis.jpg>

DIRECTIONS: Use your E.S.R.T. to answer the questions on separate paper. Answer each question BEFORE you continue reading!!!

THE ARTICLE:

A small three-toed imprint on a piece of red shale that sat in the closet of a self-taught fossil buff from Riverhead for more than 20 years was confirmed yesterday as the first dinosaur fossil ever found on Long Island, surprised experts said.

1. WHAT TYPE OF ROCK IS SHALE? WHAT SIZE ARE THE SEDIMENTS THAT MAKE UP SHALE? WHAT IS THE NAME OF SEDIMENTS OF THIS SIZE? WHY IS THE SHALE RED?

"It's an amazing find," said Herbert Mills, the staff geologist for Nassau County's museum system, after showing the 3-inch footprint to one of the nation's leading experts on dinosaur tracks, who confirmed its veracity.

The 200-million-year-old print was made by either a Coelophysis (pronounced SEAL-oh-FIE-sis) or a close relative of the 6-foot tall ostrich-like meat eater, which looked something like the voracious velociraptor in the movie "Jurassic Park" except for its longer neck and smaller head and feet. The print's small size suggests it may have been made by a juvenile, or perhaps a smaller unknown species.

2. DURING WHICH GEOLOGIC PERIOD WAS THIS FOOTPRINT MADE? WHEN DID COELOPHYSIS LIVE ON EARTH?

"It's a very interesting and wonderful discovery," said Paul Olsen, a professor of earth and environmental sciences at Columbia University's Lamont-Doherty Earth Observatory in Rockland County, who confirmed the track after examining it yesterday.

Olsen said he plans to revise the manuscript of his forthcoming book on dinosaur tracks to include a description of the unique discovery made by Glenn Magee, a sewer plant worker, who found the rock in the mid-1970s on a North Shore beach and broke it open to find the dinosaur track.

"I love fossils. I was just determined to find something on Long Island," said Magee, a 43-year-old maintenance worker in Riverhead's sewage treatment department whose living room is festooned with dinosaur models.

Now that his discovery has been confirmed, Magee said, "I feel really good about it. This is the first time I've ever had a first.' I guess I've had my moment of glory, anyway."

Magee always thought he had found a dinosaur track, but didn't realize its uniqueness until he read a story in Newsday last month that said no dinosaur fossils had ever been found on Long Island. He then contacted Mills because the geologist was quoted in the article, which was part of Newsday's ongoing history series, Long Island, Our Story. After Mills explained its significance, Magee decided to donate the fossil to Nassau County's Garvies Point Museum in Glen Cove, where it will soon be displayed.

What's extraordinary about Magee's discovery, experts said, isn't the track itself but the fact that it was found on Long Island - more specifically, on the beach a few blocks from Magee's home in Roanoke, a hamlet north of Riverhead.

3. WHEN DID LONG ISLAND FORM? IS IT MADE OF RED SHALE? DESCRIBE THE GEOLOGY OF LONG ISLAND.

4. USING YOUR KNOWLEDGE OF EARTH SCIENCE, MAKE A HYPOTHESIS EXPLAINING HOW THE FOOTPRINTS OF COELOPHYSIS ENDED UP ON LONG ISLAND.

Several thousand dinosaur tracks, teeth and even bones have been found upstate and in Connecticut, Massachusetts and northern New Jersey, but never before on Long Island because the geology here is very different.

In those other places, a glacier scraped away layers of younger sediment as the ice sheet expanded southward about 25,000 years ago, exposing older fossil-laden bedrock below. But the glacier stopped at the site of present-day Long Island about 22,000 years ago and began receding north again, leaving in its wake a thick layer of bulldozed sediment that formed the Island's distinctive fish shape and buried the older dinosaur-era bedrock.

Magee's remarkable discovery doesn't prove dinosaurs ever lived here, although most experts believe they probably did because fossils are so common in nearby areas. The animal that made the track Magee found probably lived in Connecticut, and the rock was eventually carried south by the last glacier, Mills and other experts said. Hundreds of similar dinosaur tracks have been found in siltstone in an area due north of Roanoke known as the Connecticut Basin, including the famous tracks in Dinosaur State Park in Rocky Hill, Conn.

"It's a very unusual occurrence to find a track in a glacial boulder, but it's not unheard of," said Olsen, who said the rock's weather-beaten flat surfaces and distinctive striations confirm that it was transported to Long Island by a glacier.

That the soft siltstone could be carried by an ice sheet all the way to Roanoke from central Connecticut without being ground to powder is unexpected, but certainly not impossible, experts said. In fact, they said it's likely that other fossils are buried somewhere inside glacial boulders in Riverhead, due south of the Connecticut Basin.

"Stranger things have happened," said William Gallagher, a paleontologist at the New Jersey State Museum in Trenton. "It's very logical that it would be south of the Connecticut basin."

Experts said it was stroke of luck that the fossil-bearing siltstone was found by a person who knew to crack it open, and could recognize the imprint as a dinosaur track. "The amazing thing is that Magee recognized it for what it was," he said.

Magee's rock probably began as silt located near a swampy lake or river of the subtropical Jurassic time period, Olsen said. A dinosaur walking on the silt compressed it and made a track, which was quickly covered with wind-blown silt that was packed more loosely.

Over millions of years, the silt solidified into a reddish stone, with the differing pressure zones created by the track forming a sort of fault line with the rock. When Magee broke it open with a hammer, the rock split along the fault and revealed the track inside.

There are at least two other kinds of dinosaurs - syntarsus or podokosaurus - that may have left the track, Olsen said. Both are similar to Coelophys, and podokosaurus has been found in the Connecticut Basin.

The track itself is what paleontologists call a grallator, which refers to a small three-toed imprint in which the middle toe is longer than the other two. Grallators have been found in New Jersey and Connecticut, and near Nyack, N.Y.

The Connecticut basin is rich in dinosaur fossils because, like the Newark basin in New Jersey, it is a sort of geologic "stretch mark" that dates from the breakup of the supercontinent Pangaea about 200 million years ago, soon after the dawn of the Jurassic period. As North America

pulled away from Africa and Europe, great valleys opened up that were filled with fossil-rich sediments from adjacent areas.

A fossil buff ever since he was a child, Magee said he remembers deciding to break open the piece of siltstone he found on the beach because he knew that red rocks in Connecticut and southern Massachusetts sometimes contained dinosaur fossils.

When he saw the track, he showed it to a few friends, but kept it in a shoebox in his closet where it was almost forgotten amid his collection of dinosaur books and other fossils sent to him by friends in other states.

"I kind of knew what it was," said Magee. "I put it away. Once in a while I'd take it out, but most of the time it sat in a box."

He doesn't think news of his discovery will make him famous. "If I found the Hope Diamond, maybe," he joked. But he still likes to drive his truck down to the reddish cliffs near Roanoke Point and break the most interesting rocks he finds.

"I just like breaking rocks," Magee said.

5. HOW DOES YOUR HYPOTHESIS COMPARE TO THE ONE IN THE ARTICLE?

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