The Girl Who Discovered Dinosaurs
How a 12-year-old girl made an incredible discovery that changed the world

BY LAUREN TARSHIS

In 1811, on a windy beach in southern England, a 12-year-old girl made a discovery that shocked the world. The girl was Mary Anning, and she lived in a tiny seaside town called Lyme Regis. Her beloved father had died just a few months before, leaving the family penniless.
Mary had been close to her father. Since she was a little girl, they had gone together to the beach a mile from their house to search for unusual shells and rocks they could sell.

But this latest discovery was different from anything Mary—or scientists—had ever seen. Mary unearthed it from the beach. It was the 17-foot-long skeleton of a creature with the face of a crocodile, the body of a lizard, dolphin-like flippers, and a tail like a shark’s. It seemed like a monster from a storybook.

But as the world would soon learn, Mary’s creature came from a place far more fantastic than any book. The animal was a giant marine reptile that would later be named *Ichthyosaurus*. It had lived perhaps 200 million years before, during the time of the dinosaurs.

**A Dazzling World**

Imagine what it was like to see such a skeleton in 1811, when not a person on Earth had heard of—or imagined—dinosaurs. Today, scientists have given us a dazzling (and terrifying) picture of what the earth would have been like 200 million years ago. We can almost feel the hot and steamy air and see the vast, shallow seas crowded with ichthyosaurs and other marine reptiles, some as big as cars. And on land, of course, there were the giants—the ferocious *Allosaurus*, with its monstrous jaws; the towering *Brachiosaurus*, its head seeming to skim the clouds; the lightning-fast *Dilophosaurus*, with its slicing claws. There were likely thousands of different kinds of dinosaurs that thrived on Earth during the different prehistoric eras. But they died out millions of years before humans first appeared.

This world was completely unknown when Mary came across the skeleton. The most respected scientists in the world believed that the planet was only about 6,000 years old. Few accepted the idea that an animal could become extinct. The word *dinosaur* did not yet exist.

**Monsters and Giants**

There had been impressive fossil finds over the centuries: mysterious bones jumbled together in dried riverbeds, gruesome skeletons smiling out from cliffsides, monstrous footprints embedded in rocks.

How did people explain such discoveries? It’s likely that many of the giants and monsters from ancient myths were in fact inspired by fossil discoveries. Look closely at a
3,000-year-old drawing of the mythical griffin, a half eagle, half lion that the Greeks believed guarded gold mines. It looks almost identical to the skeleton of the Protoceratops, a four-legged dinosaur with a giant beak. It’s possible that gold miners in the Gobi Desert discovered Protoceratops skeletons, which are plentiful in this region. Is it so surprising that they imagined the remains—with giant beaked skulls and long spiny tails—belonged to a type of monster? (And were they so wrong?)

By the 19th century, many believed that fossil skeletons were remains of animals that still existed but were tucked away in the far-off corners of the Earth. In 1801, a farmer in New York discovered a complete skeleton of an enormous animal in one of his fields. Was it a new species of carnivorous elephant? The skeleton attracted hordes of people when it was displayed in a Philadelphia museum.

Scientists were convinced that this animal must still be lurking somewhere in America. But where? Two years later, President Thomas Jefferson sent two men—Meriwether Lewis and William Clark—to lead a team of explorers in the American West, which was at the time an unmapped wilderness.

Lewis and Clark helped map the West. They brought home specimens of many birds, reptiles, and mammals. But much to Jefferson’s disappointment, they brought no giant elephants. A few years later, the famous skeleton was identified as a mastodon. This large elephant-like land mammal once roamed throughout North America. It became extinct about 10,000 years ago.

**New Ideas**

It was only a few years after Lewis and Clark returned that Mary unearthed her skeleton. Her brother spotted it first, a 4-foot-long skull embedded in the sand, its saucer-sized eye peeking out. Mary found the rest. Every day for months, she returned to the beach, braving roaring waves and falling rocks. Locals grew accustomed to the sight of Mary, bundled up in a tattered coat, her hair snarled by the salty air. She painstakingly chipped away at the rock surrounding the skeleton. It took four men to help her carry it to her home. She quickly sold it—earning enough money to feed her family for months. Soon it was put on display in a small London museum. People came from all over to see it.

Mary’s skeleton was one of the most important fossils ever discovered. Already, new ideas had been simmering—that Earth was far older than previously imagined, that fossil discoveries were remnants of long-extinct animals. Unlike the mastodon skeleton, Mary’s
skeleton clearly did not belong to any creature on Earth. To many scientists, it proved that animals could become extinct. Like a spark, Mary’s discovery helped ignite an entirely new field of science—paleontology—dedicated to studying fossils. Soon scientists would completely change our understanding of Earth’s natural history.

**New Discoveries**

Over the next few decades, Mary made more important fossil discoveries. Scientists came to Lyme Regis to comb the beach with her, to hear her opinions, and to discuss new ideas.

So why isn’t Mary Anning as famous as Thomas Edison, Albert Einstein, or other important scientists from history?

The reason is simple: Mary was a woman. At the time, even brilliant, talented, and wealthy women were barred from colleges and most professions. European and American scientists in Mary's day were almost all wealthy men from important families. Many of them met Mary, and marveled over her knowledge and her unique talents for finding and identifying important specimens. But they never invited her to join their scientific organizations or write articles for their magazines. Some actually took credit for her discoveries. Mary resented this bitterly, but she remained proud and passionate about her work until she died, at the age of 47.

Over the years, new discoveries have continued to add to our understanding of the prehistoric world. Today, scientists study fossils with 21st-century technology. They are learning more about what prehistoric creatures looked like, how they behaved, and perhaps most important, why they disappeared. Most likely it was years of climate changes, volcanic eruptions, and, finally, a massive meteor hit that caused the dinosaurs to die out about 66 million years ago.

What is clear is that today we have just a glimpse of the prehistoric world. Scientists believe we have identified barely .0001 percent...
Dinosaurs for Sale
Why some of today's important fossils will never be studied

It was one of the most important fossil finds in history—perfectly preserved specimens of two dinosaurs locked in battle. The fossils, nicknamed the "Dueling Dinosaurs," were discovered in 2006 on a ranch in Montana. It was a rare find, one that could provide important new information about the prehistoric world.

But the fossils might never be studied by scientists.

Today, many prized fossils are not going to museums but into the homes of wealthy fossil collectors. In recent years, the price of fossils has skyrocketed. At auction houses and fossil shows, dinosaur eggs, skulls, and skeletons can sell for hundreds of thousands of dollars. A Tyrannosaurus skull can sell for millions.

To many collectors, these specimens are like works of art to be proudly displayed. One wealthy New York City banker shows off his 3-foot-long Psittacosaurus skeleton in his office. The beaked dinosaur is a huge hit with his customers.

Once a fossil is in private hands, it is often lost forever to science.

So why don't museums simply make sure they buy important specimens?

The answer is simple: Most can't afford them.

By law, a fossil found on private land is the property of the person who owns the land. The Dueling Dinosaurs were discovered on the land of Mary Ann and Lige Murray. They are eager to earn as much as possible from their rare treasure, which some estimate might be worth between $7 million and $9 million.

So far nobody has offered that much, but the owners are in no rush. For now, the Dueling Dinosaurs are locked away—and so are the secrets they might reveal to scientists.

of the dinosaur species that lived. Each new discovery creates a more vivid picture of the world that Mary helped open for us. These discoveries also offer clues that can help us understand our environment, the web that connects all the creatures on Earth.

And perhaps at this moment, a 12-year-old girl or boy is on a beach somewhere, about to make a discovery that will change our ideas yet again.

WRITE TO WIN

Write a well-supported letter to the school board explaining why a new school should be named after Mary Anning. Send it to "Dinosaur Contest" by May 15, 2014. Ten winners will each receive a copy of The Wondrous Journals of Dr. Wendell Wellington Wiggins by Lesley Blume. See page 2 for details.