History Topic of the Month

Mary Anning – the fossil hunter

Mary Anning is not a name that everyone is familiar with. Yet she was responsible for fossil discoveries that helped the scientific community to extend their understanding of dinosaurs and the history of the planet. But if her discoveries were so important, why is she not better known? Why did she become almost forgotten for two hundred years?

Contributor: © GL Archive / Alamy Stock Photo

Mary Anning (1799 – 1847) English fossil collector and paleontologist with her dog, Tray

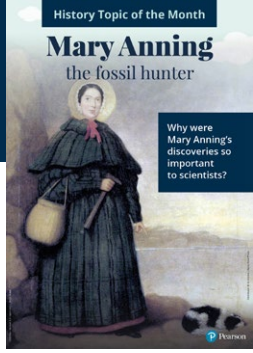
Who was Mary Anning?

Mary Anning was born on 21 May 1799, in a small coastal village called Lyme Regis in Dorset. She was born into a poor family. Her father, Richard Anning, was a carpenter, and her mother, Molly Anning, raised the children. The Annings had a large family – before Mary Anning was born, they had already had five children, and then after Mary, they had three more, making nine in total. However, the family experienced great tragedy – of the nine children, only Mary and one brother, Joseph, survived into adulthood. This was an unusually high rate, even in the early 1800s when about 1 in 3 children died before their ninth birthday. This tells us that the family was very poor, making it difficult for them to have adequate heating and food to keep healthy.

As well as working as a carpenter, Mary's father, Richard, made extra money by searching for fossils in the cliffs along the nearby beach. Mary must have gone with her father because later on she said he had taught her everything she knew about collecting fossils. He made her a fossil extractor, which was a kind of hammer, so that she could work alongside him.

Contributor: © Pearson Asset Library

This picture is a cliff not far from where Mary Anning searched for fossils (but from a different geological era).



This was not easy work, or safe. To make matters worse, the best times to search were after storms had broken up the cliff edges. Storms could uncover new fossils but also made the ground dangerous to walk on. In 1810, Richard fell from a cliff late at night. He never fully recovered, and died shortly after. The family was left in absolute poverty. Molly, Mary's mother, applied for help from the local parish, just three shillings a week. This was worth about £7 today and was about what a skilled workman could earn in one day.

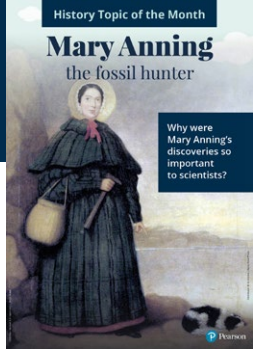
After this, Mary's mother relied on her to make a living by finding and selling fossils. She sold her first one not long after her father's death, when a woman bought an ammonite fossil from her for two shillings and six pence. This must have seemed like a fortune to Mary at that point, even though it was not a lot of money.

Contributor: © Pearson Asset Library AL1437240

Fossilised ammonites in stone, ready to be dug out.
The ammonites Mary found were a distinctive grey colour.

To whom did Mary sell her fossils?

Mary had two main groups of customers. She sold smaller items, like ammonites, to tourists. They would buy them to take home, like a souvenir from a gift shop on a day out. Bigger items, like whole fossilised skeletons, were bought by wealthy collectors. Some were using their money to collect fossils to show their friends – this was a very fashionable hobby for the wealthy in the early 1800s. Others were scientists and amateur geologists, such as members of the Geological Society, who wanted to study the finds.



A small fossil might sell for 1 shilling, but on the few occasions that Mary made discoveries of a large skeleton, it could sell for £100 (about £4,500 in modern money). This was what a skilled worker could earn in just under two years.

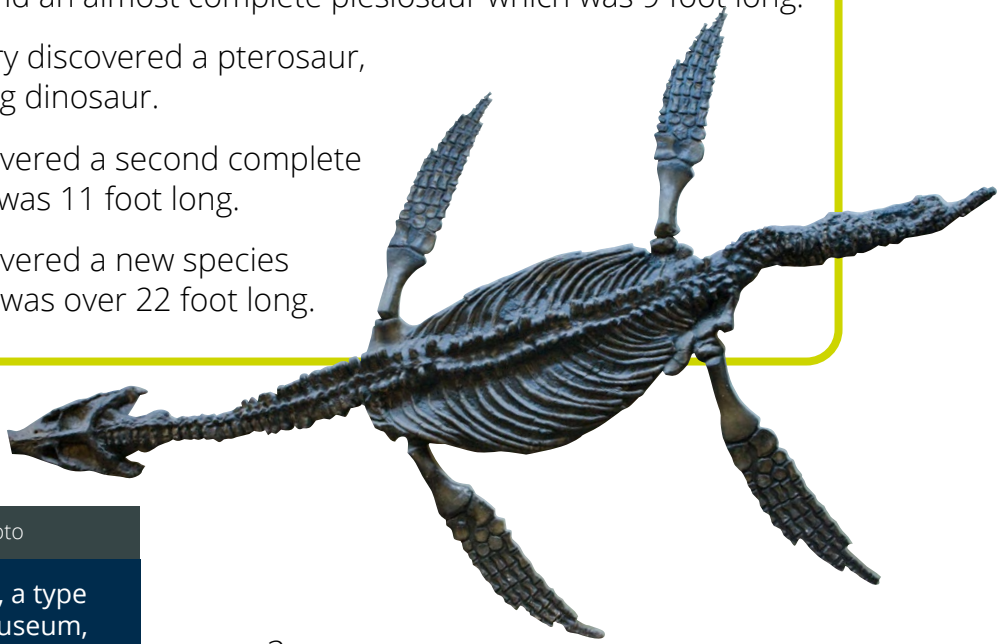
Why was Lyme Regis so good for finding fossils?

Lyme was, and still is, one of the best places in Britain to search for fossils. About two hundred million years ago, a period that scientists call the Jurassic period, this part of Britain was under water. Many sea creatures lived in the water, and when they died, their bodies sank to the bottom and, over time, turned into fossils. At the same time, the bottom of the sea built up layers of limestone, which is a chalky stone, and mudstone, which is a soft stone. Eventually, the sea levels lowered, and the bottom of the sea became the cliffs. You can still see the layers of limestone and mudstone in the cliffs, as well as fossils. In the winter, rain and the sea waves break down the mudstone until sections of cliff collapse onto the beach. Any fossils are exposed for collectors, like Mary Anning, to find.

What were Mary's achievements?

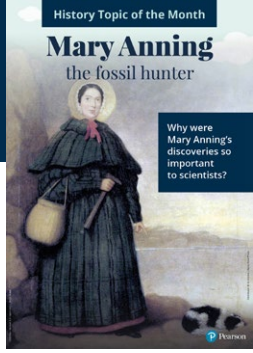
Most of the time, hunting for fossils turns up only small and insignificant finds. Mary had her share of these, but she persevered and made several very important finds.

- In 1811, Mary's brother Joseph found the skull of an ichthyosaur. In 1812, Mary found the rest of the skeleton, complete in the cliff. It turned out to be a 17-foot skeleton, in nearly perfect state.
- In 1821, Mary discovered a 5-foot skeleton of a different type of ichthyosaur, and then another one a few months later.
- In 1823, Mary found an almost complete plesiosaur which was 9 foot long.
- Later in 1828, Mary discovered a pterosaur, a new type of flying dinosaur.
- In 1829, she discovered a second complete plesiosaur, which was 11 foot long.
- In 1830, she discovered a new species of plesiosaur that was over 22 foot long.



Contributor: © Derek Croucher / Alamy Stock Photo

Pliosaur – Rhomaleosaurus cramptoni, a type of Plesiosaur, in the Natural History Museum, London. This Plesiosaur is from Yorkshire, but similar to the ones Mary found.



Mary was incredibly successful. Most importantly, five of her finds were completely new discoveries that had either only ever been seen in fragments, or which no-one knew existed. As well as these major finds, Mary also discovered many smaller fossils of ammonites and shellfish. Mary's discovery of coprolites revolutionised the way we understand these animals' diets and behaviours. Scientists had thought they were stones, but Mary proved they were fossilised animal dung.

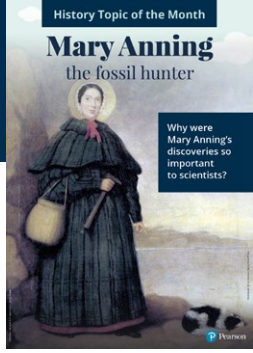
Contributor: © Pearson Asset Library AL1290707

A cast of a fossilised ichthyosaur, like the ones Mary Anning found.

What made Mary such a successful fossil finder?

Mary soon had a reputation for being talented at finding and understanding fossils. Many people came to her for advice and to learn from her expertise. What made her so successful? There were many factors which led to her success, and they combined to make her a renowned fossil finder.

- The skills her father taught her – Mary was well taught to find and extract fossils by Richard Anning.
- Her own abilities – Mary was determined, and willing to go out in poor weather without giving up. She was also very skilled at cleaning the fossils, as well as drawing what she found.
- Mary's inquisitive mind - she dissected modern marine fish and squid to understand fully the fossilised remains she dug up. She more than simply a fossil hunter.
- The family's poverty made finding fossils a necessity for survival.
- Mary was brought up a Dissenter. The church taught Mary to read and write and to ask questions about the Bible and how life began on Earth.
- Tourists would visit Lyme Regis for the sea air and so there were always customers to buy fossils. Lyme was also a small town with few work opportunities.
- Studying fossils was fashionable – Fossils were a hot topic for scientists who wanted to learn



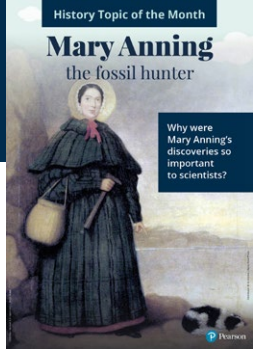
Was Mary treated poorly because she was a woman?

Despite Mary's great success, she was only known by other geologists and scientists. Eventually, she was almost forgotten and only recently has she become better known. Was this because she was a woman?

Sadly, Mary's gender is the single most important reason why she was not more successful or famous. In the 1800s, many believed women should stay at home while men worked. Worse, many believed women should not discuss science and could not understand complex ideas. For example, when the British Association for the Advancement of Science was formed in 1831, they discussed allowing women to join. The president was William Buckland, a good friend of Mary Anning, but even he said that if they allowed women to join it would prevent intelligent discussions. Instead, Mary's work was claimed by men like William Buckland and William Conybeare, who gave talks and wrote articles about Mary's discoveries.

But a good historian should not stop digging just because they have found the key reason. Other, connected factors also prevented Mary from becoming more famous.

- Class – Mary Anning was from a poor, working-class family, while famous scientists were from the middle and upper classes. It would always have been difficult for Mary to be taken seriously.
- Poverty – Mary was selling fossils to survive, rather than to study. She could not afford to hire workers, so missed some discoveries. In 1832, she discovered the head of a large ichthyosaur but could not get to the rest. Thomas Hawkins paid to dig up the entire area and find the full fossil.
- Distance to London – Lyme was about 130 miles from London, where societies met to discuss the latest discoveries. Mary did not get the chance to discuss her discoveries and ideas with fellow geologists at these meetings. Even if she could have attended, she would not have been welcome because she was a working-class woman.
- Religious impact of discoveries – In this period, fossils were controversial. New scientific ideas were starting to challenge the Bible's teaching of the Flood. For many people, this was not acceptable, so they did not want to discuss fossil discoveries.
- Competition in the scientific societies – Scientists competed over discoveries and research and were focused on their own reputations. Mary was an outsider and struggled to get the credit she deserved for her achievements.



How did Mary's story end?

Mary did not know at the time, but her 1830 discovery would be her last major find. She continued to search for fossils, but without success.
From 1838, her life became a little easier when the Prime Minister approved an annual payment of £25 for the rest of her life, as a payment for her services to science. This was not a lot, but it would have helped.

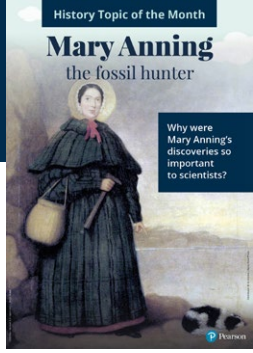
In the 1840s, she was diagnosed with cancer. The members of the Geological Society held a collection to help her financially. In 1846, the Geological Society made an unexpected decision – they would make Mary Anning an honorary member of the association. However, it was too late. Mary died in early 1847, without getting to benefit from her honorary membership. After her death, the society paid for a portrait of her which is still hanging in their meeting rooms in London, as well as a stained glass window of her in the church in Lyme Regis.

Mary's friends

Mary had many good friends who visited her in Lyme Regis. Most of these were geologists and scientists. For example, William Buckland was a close friend, as were Roderick Murchison and his wife, Charlotte. When they were not visiting her, Mary would write to these friends. One friend, Thomas Birch, was a great support for Mary when she was struggling to support her family – he sold his entire fossil collection for £400 and used it to help Mary and her mother.

She sells seashells

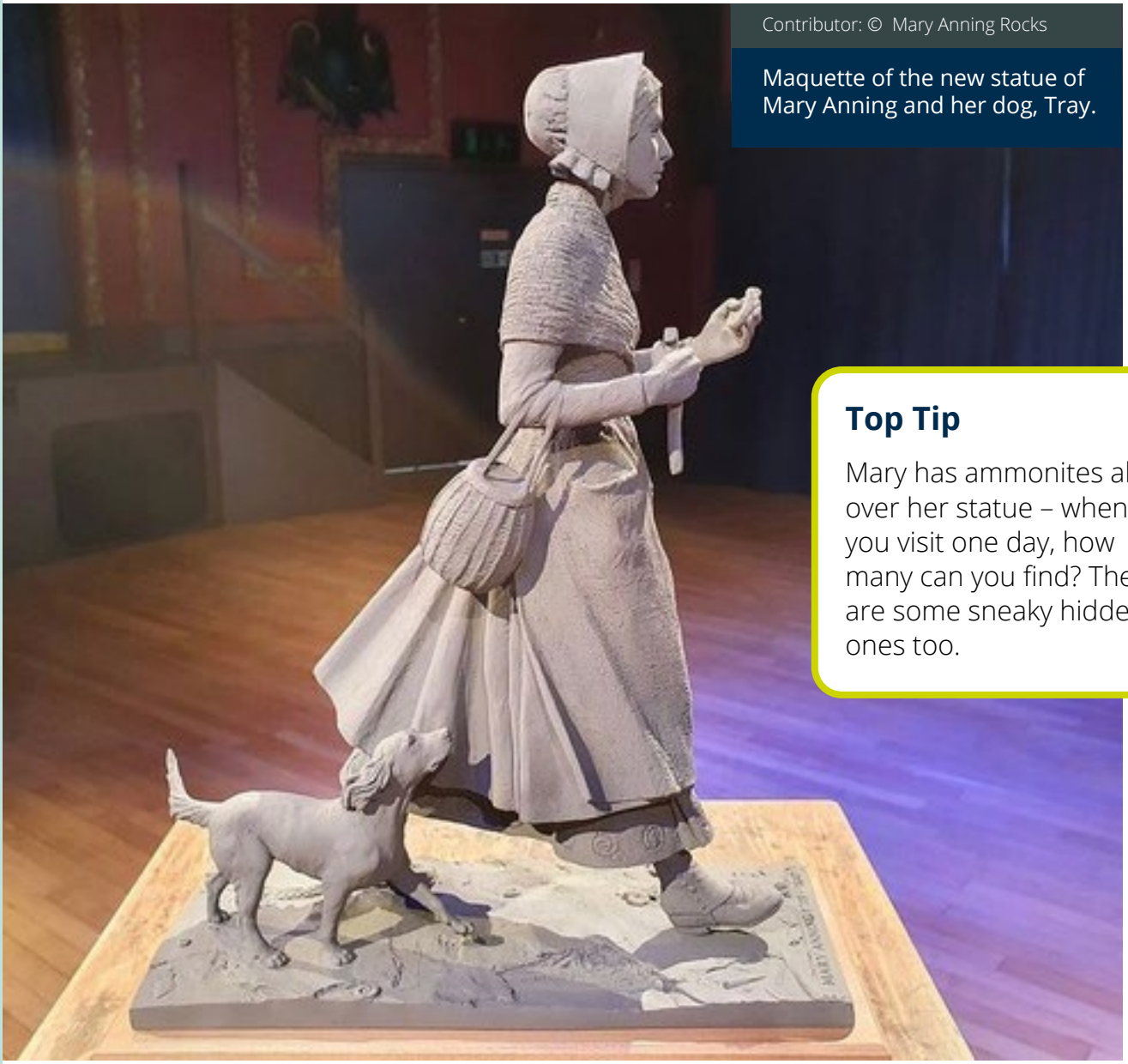
Some people claim that the tongue twister 'She sells seashells on the seashore' was written about Mary Anning. The story is a myth and there is no evidence to prove the link, but it is a nice idea.



MARY ANNING ROCKS

Did you know that Mary Anning will finally have a permanent monument erected to her in Lyme Regis soon? A campaign started over four years ago by a ten-year-old local schoolgirl to raise a statue for her forgotten Sheroe Mary will finally be unveiled.

The big unveil day will have been Mary's 223rd birthday and is on the 21st of May 2022. Mary's monument will be cast in bronze and includes her dog Tray, Mary's quintessential basket, bonnet and hammer.

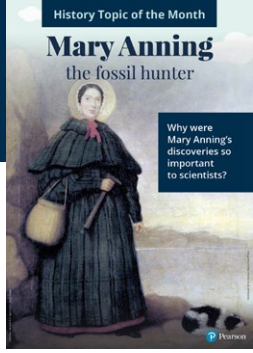


Contributor: © Mary Anning Rocks

Maquette of the new statue of Mary Anning and her dog, Tray.

Top Tip

Mary has ammonites all over her statue – when you visit one day, how many can you find? There are some sneaky hidden ones too.

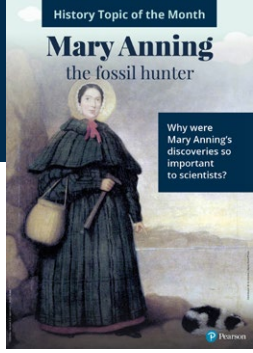


Discussion points

- What more can you find out about fossils? Have there been any fossil discoveries near where you live?
- Why were Mary Anning's discoveries so important to scientists? Do they have any impact on modern science?
- Look at the reasons, or factors, why Mary Anning became such a successful geologist and fossil hunter. Are any of the reasons more important than the other reasons? Which reason would you say is the most important? Why?
- A statue to Mary Anning is being unveiled in Lyme Regis on her birthday, 21 May 2022. Why are statues of people from the past so important today?
- The group Mary Anning Rocks have campaigned for this statue to be erected. What else can you find out about Mary Anning Rocks and their campaign?
- Find a picture of one of the types of creature that Mary Anning discovered, and then do some research about it. How big were they? What did they eat?
- One of the most important reasons why Mary Anning was not more successful was that she was a woman. Are there lessons we can learn from her story today?
- What can you find out about other female geologists from the nineteenth century, such as Mary Ann Mantell? What is the 'Matilda Effect'?
- Mary Anning was brought up as a Dissenter. How did this form of Protestant Christianity influence her?

About the author

This piece was written by Ben Armstrong, History consultant for Pearson with a background in teaching history at secondary level and writing educational resources.



Further reading

Lightning Mary, Anthea Simmons (Andersen Press, 2020)

Mary Anning's Grewsome Beasts, Deshan Tennekoon (Penguin, 2022)

Mary Anning, Fossil Hunter, Anna Claybourne (Collins, 2017)

Jurassic Mary: Mary Anning and the Primeval Monsters, Patricia Pearce (History Press, 2015)

The Fossil Woman, A Life of Mary Anning, Tom Sharpe (Dovecote Press, 2021)

Websites

Mary Anning Rocks
(An online organisation promoting Anning's memory)

Trowelblazers (a group dedicated to highlighting the contributions of women in the 'digging' sciences)

The Mary Anning Collection (a series of commemorative 50-pence pieces from the Royal Mint)

Articles

'A coprolite mystery: Who dung it?' (JSTOR)

'British women who contributed to research in the geological sciences in the nineteenth century' (JSTOR)

'Methods & strategies: Teaching the nature of science to elementary students' (JSTOR)

'Sketching rocks and landscape: Drawing as a female accomplishment in the service of geology' (JSTOR)

'The faith of a fossilist: Mary Anning' (JSTOR)

(The JSTOR articles are available for free by registering for an account).

Take a look at Pearson's Diversity and Inclusion in History webpages for more great content.

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