Extraordinary Lives: **Mary Anning**

A keen palaeontologist, Mary Anning discovered fossils which have influenced and enhanced our understanding of dinosaurs and their environment. As a woman living in the patriarchal society of 19th century England, she was never properly acknowledged or rewarded during her lifetime for her significant scientific discoveries.

Early Life

Mary Anning was born in 1799 to Richard and Molly Anning, a couple who had moved to the town of Lyme Regis in Dorset just a few years previously. Mary was one of ten children born to the Annings, although the vast majority of them did not survive infancy; Mary was, in fact, named after a sister whom she never knew, who had died months before in an accident at the family home – her dress caught fire and she burned to death.

This dramatic event was followed by another extraordinary occurrence when Mary was just a baby: she was with a group of women standing underneath a tree when lightning struck them. All three women were killed instantly, but the baby Mary was revived. Her family claimed that this shock transformed her completely – they maintained that she became much more lively and intelligent following the lightning strike.

Life for the Anning family was difficult, as it was for many families at the beginning of the 19th century. The French Napoleonic Wars (fought between European countries and England against France) meant that there were food shortages and many people struggled to find enough money to pay the rising costs of food. Richard was a furniture maker, but he would supplement his income by running a fossil shop from a street stall. As a family, the Annings would search the nearby cliffs for fossils and then sell them to visitors to the town as souvenirs. Because of the wars in Europe more people were holidaying in England, so there were many tourists.

A portrait of Mary Anning and her dog, Tray.

Fossil collecting had become a fashionable pastime.

Richard taught Mary and her brother Joseph how to recognise and identify fossils, and she quickly became a keen and astute collector. Sadly, in 1810 Richard died of tuberculosis, with complications from injuries he had sustained when falling from a cliff while searching for fossils. The family were left in dire financial straits; Joseph managed to get a job as an apprentice, while Mary doubled her fossil-collecting efforts.

How are fossils formed?

Fossils are formed when animals die and their remains become covered with layers of dirt or sand. Over time, these layers build up and become compressed and hardened into rock, and an impression of the animal is left. This is a process which takes place over millions of years. Fossils can also be of plant matter – or even poo!

The section of Dorset coast where Lyme Regis is located is known as the Jurassic Coast, because it has layers of limestone and shale sedimentary rock in which many fossils from the Jurassic period have been found. Over the past 200 million years the area has been desert, sea and marshland – so it has a wealth of different animals and plants preserved in its rocks. The ebb and flow of the tide uncovers new fossils all the time, and it is a popular destination for fossil hunters.

Fossil Discoveries

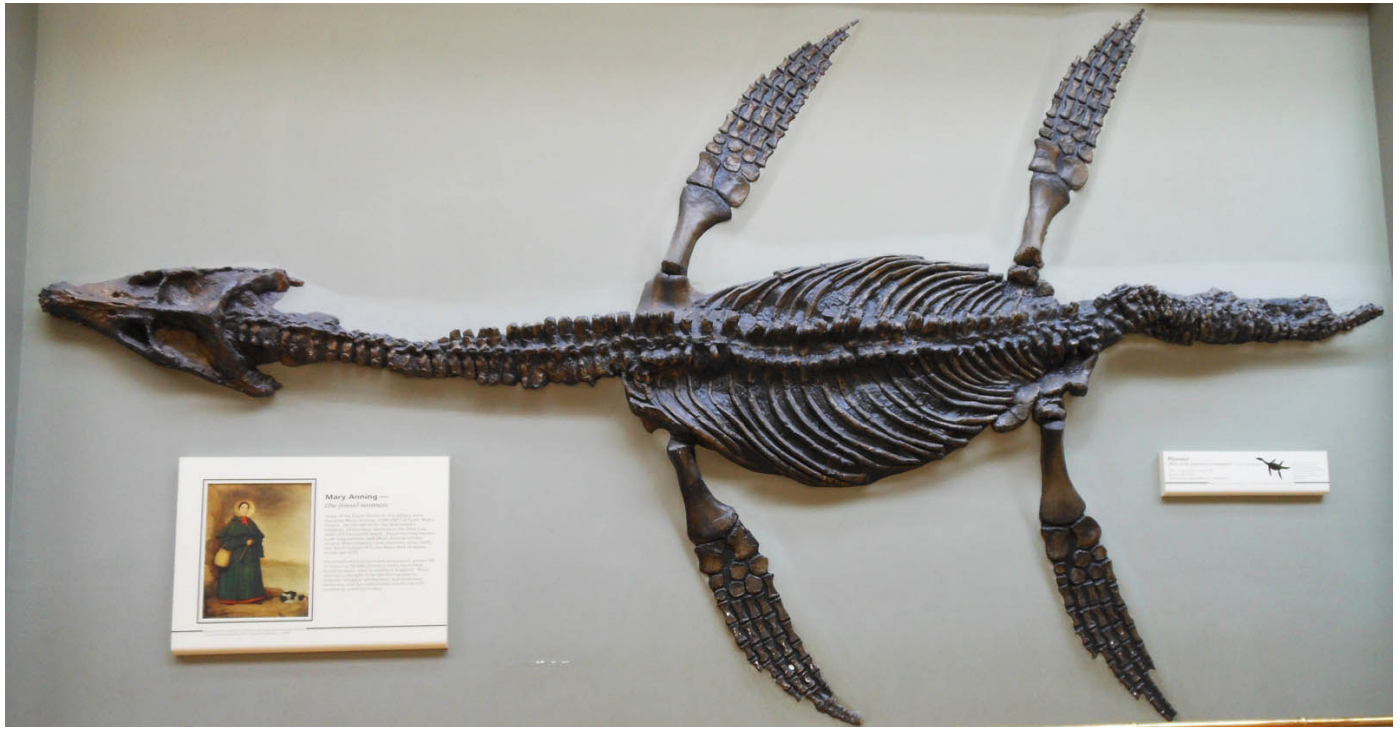
Anning's most common find were ammonites and belemnite shells – examples of invertebrate fossils. However, in 1811, she and her brother Joseph found the skeleton of an ichthyosaur – a large, prehistoric marine reptile – on the cliffs around Lyme Regis. As well as earning the family a much-needed sum of money (£23), it caused shock waves in the scientific community, as it was such a substantial and unusual find.

Mary continued her work looking for fossils, often putting herself in considerable danger, as cliffs could crumble without warning. (Indeed, on one outing with her dog Tray in 1833, there was a landslide and she narrowly escaped being crushed. Her dog was buried alive in front of her eyes.)

In 1823, Anning found the first complete skeleton of a plesiosaur – a Jurassic marine reptile. A few years later, in 1826, she had made enough money from her discoveries to buy a proper shop with a glass front. She opened Anning's Fossil Depot, and displayed the skeleton of an ichthyosaur in the window.

She continued to make astounding discoveries in her fossil hunts: in 1828 she uncovered a Pterosaur (flying reptile) skeleton, and in 1829, a squaloraja (fish) skeleton.

Mary Anning found the first complete plesiosaur skeleton.



Scientific Standing

Anning had a highly scientific mind and was adept at uncovering, identifying and recording fossils. She became known as an expert and was consulted by many leading geologists and palaeontologists of the time, including George Featherstonhaugh, Henry De La Beche, William Buckland, William Conybeare and Thomas Hawkins. Despite her considerable expertise, her work was not formally acknowledged because she was a woman. She was refused admittance into the Geological Society of London (they wouldn't admit any women at all until 1904). Often, Anning would advise her male counterparts on fossils, but they would accept the credit for themselves. Anning became quite disillusioned and bitter about the way she was ignored by the scientific community, simply because she was a woman.

One noted palaeontologist, Charles Cuvier, even disputed her find of a plesiosaur, and maintained it was a fake. The Geological Society met to consider the fossil – without Anning, as she was a woman! – and Cuvier was eventually forced to admit his mistake.

One of the reasons Anning's finds were so ground-breaking was that up until then people had had very little understanding of how the earth was formed. People mostly believed the Biblical story of creation, and the idea of extinct species had only just been suggested as a possibility. These new and outlandish skeletons shook up people's understanding of how the earth had formed.

As well as being instrumental in the identification of dinosaurs including the ichthyosaur and plesiosaur, Anning was also an expert on coprolites – fossilised poo!

Despite her numerous ground-breaking scientific discoveries, Anning was still struggling financially. As some acknowledgement of her work, in 1838 she was granted a £25 annuity by the British Association for the Advancement of Science and the Geological Society.

Mary Anning in Numbers

1: piece of scientific writing by Anning published during her lifetime.

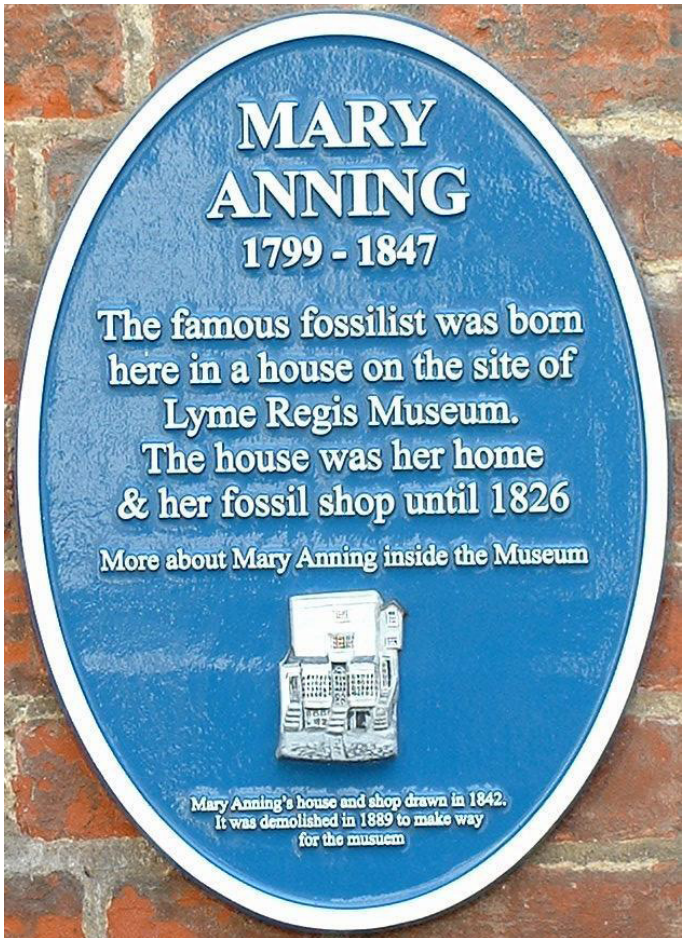
5: age at which Anning started collecting fossils.

6: length in meters of an ichthyosaur skeleton found by Anning.

27: age when Anning bought her first proper shop.

200: number of pounds she earned for finding a plesiosaur skeleton in 1830.

There is a plaque to commemorate Mary Anning outside where her house once stood.



Death

In 1847, Anning succumbed to breast cancer. Although she never became a member of the Geological Society, they recorded her death – a tribute to work she had done – and the local parish made a stained-glass window for the church in her honour.