Portrait of Mary Anning with her faithful dog, Tray, who accompanied her on her fossil searches. Mary stands with her collecting basket and rock hammer with the Golden Cap outcrop in the background. Natural History Museum, London: This painting was owned by her brother Joseph, and was presented to the museum in 1935 by Miss Annette Anning. (Credited to Mr. Grey in Crispin Tickell's book *Mary Anning of Lyme Regis* [1996]. Public domain, via Wikimedia Commons.)

Mary Anning: She Sold (Fossil) Sea Shells by the Seashore

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The third Mary Anning was born 21 May 1799 to Richard and Mary (Molly) Anning of Lyme Regis, England. Her sister, the second Mary Anning, died just five months before the third Mary was born, the result of a tragic fire accident. As the fourth child of Richard and Molly—and one of only two of their 10 children to survive to adulthood—Mary Anning was seemingly not destined for paleontological greatness. She was poor, uneducated beyond the village school, and a woman who lived during a time when geological theorizing was conducted within gentlemen's societies.

However, Mary Anning surpassed society's expectations. Three decades after her birth, a contemporary attempted to explain her intelligence through supernatural intervention. When Mary was only a year old, a downpour forced her nurse, with Mary and two children, to shelter under a tree. Lightning struck the tree and only Mary survived. Roberts (1834) claimed that Mary was rather dull before this event, but became quite bright after surviving the lightning strike.

As a young girl, Mary and her older brother, Joseph, accompanied their father to search for fossils within the Jurassic strata of the Blue Lias cliffs along the Lyme Regis coast. Richard, a cabinet maker by trade, polished the fossil finds and set up a table of "curiosities" for sale to the tourists who visited Lyme Regis. Financial necessity probably drove the family business, in addition to Mary's and Joseph's interest in the local fossils. They became astute fossil gatherers under their father's tutelage.

In yet another tragedy for the Annings, Richard Anning fell from one of the cliffs and died from consumption and his injuries in 1810, when Mary was only 11 years old. Faced with debts and little income, the family was forced to turn to parish relief. Mary inherited the family's fossil business since Joseph worked as an upholstery apprentice.

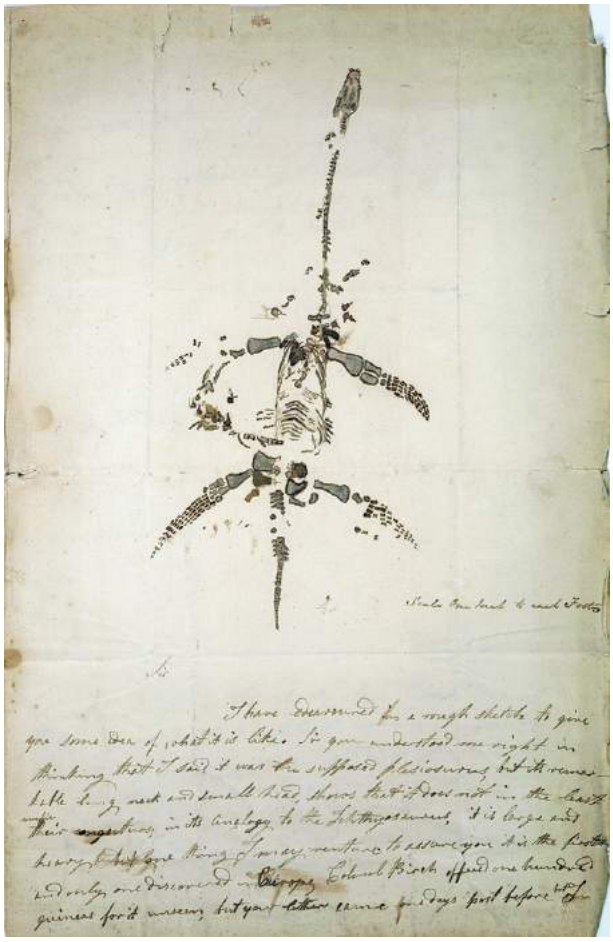
When Mary was 12 years old, Joseph found a large ichthyosaur skull. Because larger, unusual specimens commanded more money from gentleman collectors and museums, Mary searched for the remainder of the skeleton until she found it, higher in the cliffs. At the "mature" age of 12, she supervised workers to extract it. The ichthyosaur was the first Anning fossil to come to the attention of the scientific community. It was sold to a local gentleman, then to a collector, and eventually to the British Museum. Unfortunately, some parts of the specimen and its documentation did not survive.

Mary Anning continued her relentless pursuit of fossils. She uncovered more ichthyosaur fossils, and one of her specimens was published by Lieutenant Colonel Thomas Birch and illustrated in the Royal Society transactions. Upon learning the Annings were destitute to the point of selling their furniture, Birch organized a fundraiser auction in 1820 to sell the fossils he had purchased from the Annings, giving them the proceeds.

In 1823, Mary Anning found and excavated the first complete fossil plesiosaur, which was then described by gentlemen geologists William Conybeare and Henry De la Beche. The premier French paleontologist Georges Cuvier suspected it was a forgery with the large number of vertebrae in the creature's elongated neck. However, Cuvier eventually acknowledged the authenticity of the specimen. In 1828, Mary made yet another unusual discovery, this time of a pterosaur.

Mary Anning's fossil-collecting activities were not without risk. The storms that revealed new fossils also resulted in unstable cliffs and landslides. In 1833, she luckily escaped a collapsing cliff that crushed her faithful companion, Tray.

The larger fossil specimens brought greater income, but Mary continued to collect marine invertebrates to sell in the family fossil shop. She collected among the Blue Lias cliffs, which were especially productive after a storm. Among the common fossil finds were local ammonites and belemnites. Mary Anning and her friend Elizabeth Philpot cut the belemnites to reveal a tiny chamber with fossilized sepia. The ink, they hypothesized, likely served the same function for escape as in modern cephalopods. Mary, Elizabeth, and Henry De la Beche reconstituted the fossil ink with water and drew pictures of the fossils they had collected.



Mary Anning's 1823 sketch concerning her discovery of the first plesiosaurus. (Public domain, via Wikimedia Commons.)

Mary Anning also collected spiral-shaped stones and noted their placement within ichthyosaur skeletons. While William Buckland is credited with coprolite discovery and research, it seems likely that Mary's keen eye and attention to detail helped inform his identification of these spiral stones as ichthyosaur coprolites. Since women, especially poor ones, could not publish, we do not know the amount of data and insight Mary contributed to paleontological publications.

Even with important fossil discoveries, the Annings were still challenged with finances. De la Beche came to their rescue in 1830 when they were in dire straits. He drew a fanciful scene of Jurassic life, creatively adding flesh to the bones that Mary Anning collected, as he imagined the paleoecosystem of the Jurassic. De la Beche's watercolor was turned into a lithograph, and prints of *Duria antiquior* were sold to wealthy gentlemen to raise money for the Annings.

In acknowledgment of Anning's contributions to geology, William Buckland persuaded the government to recognize her. In 1838, the British government and British Association for the Advancement of Science allocated an annual pension to Mary Anning of £25. Unfortunately, she did not live a long life to enjoy the fruits of her labors, dying of breast cancer on 9 March 1847, a few months before her 48th birthday. Henry De la Beche, then president of the Geological Society of London, wrote an obituary for Anning, the only obituary afforded to a nonmember of the society. Later, the Geological Society memorialized her with a stained glass window in St. Michael's church in Lyme Regis. The stained glass panels represent the six corporal acts of mercy, recognizing Mary's compassion and generosity to those less fortunate.

McCartney (1977) claimed that Mary Anning was the subject of the common tongue twister, "She sells sea shells by the seashore." If this is correct, then many school children have heard of her, although the vast majority are unaware of her significance. Anning has been referenced as the greatest fossilist ever and one of the first women paleontologists. Woodward (1907) called her "the most notable collector during the early part of the nineteenth century." However, Anning's contemporaries did not consider her one of their peers. She was a woman, uneducated, and poor.

Some historians argue that as an uneducated woman, Mary Anning could not possibly have contributed significantly to the scientific community. However, her correspondence with famous geologists testifies to her knowledge of the fossils she was collecting as well as to her importance within professional societies of the time—although she was denied admission to the same societies that benefited from her fossil finds. Mary's sketches are detailed and accurate, supporting the view that she was quite knowledgeable in paleontology and not merely a fossil finder.

FOR FURTHER READING

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