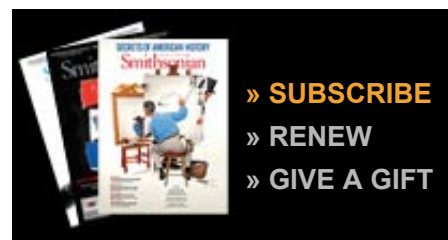


Smithsonian.com



While Marie Curie dominates the conversation, there have been many other brilliant women who have pursued science over the years. (Harold Clements / Daily Express / Hulton Archive / Getty Images; The Granger Collection, New York (4); Bernard Gotfryd / Hulton Archive / Getty Images)

Ten Historic Female Scientists You Should Know

Before Marie Curie, these women dedicated their lives to science and made significant advances

By Sarah Zielinski
smithsonian.com
September 19, 2011

When it comes to the topic of women in science, Marie Curie usually dominates the conversation. After all, she discovered two elements, was the first woman to win a Nobel Prize, in 1903, and was the first person to win a second Nobel, in 1911. But Curie was not the first female scientist. Many other brilliant, dedicated and determined women have pursued science over the years.

Emilie du Chatelet (1706 – 1749)

Gabrielle-Emilie Le Tonnelier de Breteuil, the daughter of the French court's chief of protocol, married the marquis du Chatelet in 1725. She lived the life of a courtier and bore three children. But at age 27, she

began studying mathematics seriously and then branched into physics. This interest intensified as she began an affair with the philosopher Voltaire, who also had a love of science. Their scientific collaborations—they outfitted a laboratory at du Chatelet's home, Chateau de Cirey, and, in a bit of a competition, each entered an essay into a contest on the nature of fire (neither won)—outlasted their romance. Du Chatelet's most lasting contribution to science was her French translation of Isaac Newton's *Principia*, which is still in use today. At age 43, she fell in love with a young military officer and became pregnant; she died following complications during the birth of their child.

Caroline Herschel (1750 – 1848)

Herschel was little more than the household drudge for her parents in Hanover, Germany (she would later describe herself as the “Cinderella of the family”), when her older brother, William, brought her to England in 1772 to run his household in Bath. After she mastered the art of singing—to accompany William, who was the organist for the Octagon Chapel—her brother switched careers and went into astronomy. Caroline followed. In addition to assisting her brother in his observations and in the building of telescopes, Caroline became a brilliant astronomer in her own right, discovering new nebulae and star clusters. She was the first woman to discover a comet (she discovered eight in total) and the first to have her work published by the Royal Society. She was also the first British woman to get paid for her scientific work, when William, who had been named the king's personal astronomer after his discovery of Uranus in 1781, persuaded his patron to reward his assistant with an annual salary. After William's death in 1822, Caroline retired to Hanover. There she continued her astronomical work, compiling a catalogue of nebulae—the Herschels' work had increased the number of known star clusters from 100 to 2,500. She died in 1848 at age 97 after receiving many honors in her field, including a gold medal from the Royal Astronomical Society.

Mary Anning (1799 – 1847)

In 1811, Mary Anning's brother spotted what he thought was a crocodile skeleton in a seaside cliff near the family's Lyme Regis, England, home. He charged his 11-year-old sister with its recovery, and she eventually dug out a skull and 60 vertebrae, selling them to a private collector for £23. This find was no croc, though, and was eventually named *Ichthyosaurus*, the “fish-lizard.” Thus began Anning's long career as a fossil hunter. In addition to ichthyosaurs, she found long-necked plesiosaurs, a pterodactyl and hundreds, possibly thousands, of other fossils that helped scientists to draw a picture of the marine world 200 million to 140 million years ago during the Jurassic. She had little formal education and so taught herself anatomy, geology, paleontology and scientific illustration. Scientists of the time traveled from as far away as New York City to Lyme Regis to consult and hunt for fossils with Anning.

Mary Somerville (1780 – 1872)

Intrigued by the x's and y's in the answer to a math question in a ladies' fashion magazine, 14-year-old Mary Fairfax of Scotland delved into the study of algebra and mathematics, defying her father's injunction against such pursuits. Her studies were sidetracked by a marriage, in 1804, to a Russian Navy captain, but after his death she returned to Edinburgh and became involved in intellectual circles, associating with people such as the writer Sir Walter Scott and the scientist John Playfair, and resumed her studies in math and science. Her next husband, William Somerville, whom she wed in 1812, supported these efforts, and after they moved to London, Mary became host to her own intellectual circle, which included the astronomer John Herschel and the inventor Charles Babbage. She began experimenting on magnetism and produced a series of writings on astronomy, chemistry, physics and mathematics. She translated astronomer Pierre-Simon Laplace's *The Mechanism of the Heavens* into English, and although she was unsatisfied with the result, it was used as a textbook for much of the next century. Somerville was one of the first two women, along with Caroline Herschel, to be named honorary

members of the Royal Astronomical Society.

Maria Mitchell (1818 – 1889)

Young Maria Mitchell learned to observe the stars from her father, who used stellar observations to check the accuracy of chronometers for Nantucket, Massachusetts, whalers and taught his children to use a sextant and reflecting telescope. When Mitchell was 12, she helped her father record the time of an eclipse. And at 17, she had already begun her own school for girls, teaching them science and math. But Mitchell rocketed to the forefront of American astronomy in 1847 when she spotted a blurry streak—a comet—through her telescope. She was honored around the world, earning a medal from the king of Denmark, and became the first woman to be elected to the American Academy of Arts and Sciences. In 1857 Mitchell traveled to Europe, where she visited observatories and met with intellectuals, including Mary Somerville. Mitchell would write: “I could not help but admire [her] as a woman. The ascent of the steep and rugged path of science has not unfitted her for the drawing room circle; the hours of devotion to close study have not been incompatible with the duties of wife and mother.” Mitchell became the first female astronomy professor in the United States, when she was hired by Vassar College in 1865. There she continued her observations, particularly those of the Sun, traveling up to 2,000 miles to witness an eclipse.

Page 1 of 2

About Sarah Zielinski



Sarah Zielinski is an award-winning science writer and editor. She is a contributing writer in science for Smithsonian.com and blogs at Wild Things, which appears on Science News.

|