

Marie Curie Greatest Female Scientist

By Norman Hill



Marie Curie is considered to be the greatest female scientist, and perhaps even more significant, the most inspirational female scientist.

Curie, under her maiden name, Marie Skłodowska, followed her older sister to Paris in 1891. She eventually became a French citizen and resident, although she remained devoted to the country of her birth.

She lived to see Poland restored as a sovereign nation after World War I. Perhaps just as well, her 1934 death spared her from witnessing the ravaging of Poland by Hitler during World War II.

Curie received a degree in physics from the University of Paris in 1893. This was followed by her second degree in 1894. Around 1894, she met a young Frenchman, Pierre Curie. Their shared interest in natural

Her achievements include being the first female to win a Nobel Prize, the first person to win two Nobel Prizes, the only woman to win prestigious awards in two fields, and the only person to win such awards in multiple sciences

Her scientific achievements include formulation of a scientific theory of radioactivity. This involved techniques for isolating radioactive isotopes. She isolated two hitherto unknown elements, polonium in 1898 and pure metallic radium in 1910.

Curie was born in Poland in 1867. This was a turbulent and difficult period for the people of Poland, who had been deprived of their political identity and freedom for nearly a century. Her family lost most of its wealth, due partly to bad investments and partly due to connections with groups advocating Polish independence.



science drew them together. When Curie proposed marriage to her, she at first declined, since she had planned to return to teach in Poland. But she was rejected for a teaching post at Krakow University -- because she was a woman.

Pierre's pursuit of her by letters convinced her to return to Paris to obtain a PhD. Part of her decision must have been related to the fact that her own pressure on Pierre led him to write up his research on magnetism and receive his PhD and professorship in 1895. Marie's focus was on invisible radiation from uranium salts, which led to her PhD from the Sorbonnes Institute.

Marie and Pierre were married in 1895 in a civil ceremony. (Curie was not religious, which fact was used against her professionally.) Their two pastimes were bicycling and journeys abroad, but primarily their joint passion was collaboration in scientific research. After the marriage they continued this study and made numerous experiments together. However, they both agreed that for work, Marie would publish her findings under her own name.

Marie concentrated on two uranium minerals: pitchblende and torbernite. By 1898, from these minerals, they were able to isolate two new radioactive substances: polonium and radium. Despite considerable skepticism from other scientists, by 1902, they were able to isolate this radium completely. As a result, she and her husband received the 1903 Nobel Prize.

Curie began teaching in Paris in 1900. She became the first female full professor of physics at the renowned Sorbonne in Paris. She succeeded to her late husband's chair after his untimely death from a carriage accident in 1906. Despite her grief, she continued her devotion to scientific research.

Marie Curie continued work with intricate scientific experiments. During this period, she developed her scientific theory of radioactivity. After isolating pure metallic radium in 1910, she received a second Nobel Prize, this time in chemistry.

After a break due to illness, Curie worked on developing a new Radium Institute, which was completed in 1914. In between, she visited Poland again, after being offered a directorship in a new laboratory in Warsaw. However, when World War I broke out, she returned to Paris. Most of the researchers in her new Institute were drafted into the French Army, which ended most of its activities until 1919.

During the Great War, Curie performed great service for her adopted country. She saw the value of radiological centers near battlefields to assist surgeons. She developed mobile radiography units and became director of the Red Cross Radiology Service.

In 1915, Curie produced a device known as a "hollow needle," which contained "radium emanation," a colorless, radioactive gas given by radium. This gas, later identified as

radon, was very useful in sterilizing infected tissue.

She started to travel extensively, coming, in 1921, to the United States, where she was welcomed at the White House and received numerous honors and monetary awards. She also traveled to Belgium, Brazil, Spain, Czechoslovakia and her native Poland.

She visited Poland for the last time in early 1934. That summer, she became critically ill with aplastic

anemia and died in July, 1934. The conclusion was that Curie had suffered fatal effects from long term exposure to radiation. During her lifetime, the damaging impact from such exposure and the need for protective clothing were not known.

By the time of her death in 1934, Marie Curie had received eight prizes, 16 medals and decorations, and 104 honorary titles and degrees. Over the years since, no one else has risen to claim the title of world's greatest female scientist.

