Marie Curie Her Life and Contributions

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Importance of Marie Curie's life and legacy lies not only in her pioneering work in radioactivity and x-rays, or the discovery of the two distinct elements of Polonium and Radium, but also in the social and political barriers she had to overcome to come to excel in physics. The first women to ever be awarded the nobel prize in the physics, by the Royal Swedish Academy of the Sciences in 1903 for her work on Radiation, an award that was split between herself and a team of researchers, which included her Husband Pierre Curie. (Waclawek 1572) In 1911, a second nobel prize was award to Marie Curie, on this occasion for her advancements to the field of Chemistry, and for isolation of radium and polonium (Skwarzec 1551) The impact of the nobel prizes was to establish Marie Curie in the public mind, from which her legacy is primarily remembered, being the first women to ever be given the award. However, the journey to discovery for Marie Curie was a long and arduous one, met with numerous challenges. The Marie Curie that's remembered in popular culture represents only a partial view of a unique, and cultivated mind, with ideals rooted in humanitarianism, and desire to understand and confront the unknown.

Marie Curie was born in Warsaw in 7th of November, 1867 during a period in Polish history in which Poland had yet to gain it's independence from the Russian Empire. Born into an academic background, Marie Curie's father, Wladyslaw Sklodowski was a professor of Mathematics and Physics, and her mother, Bronislawa Sklodowski taught at young school for girls, located within Warsaw. (Gasińska 823) (Skwarzec 1547) Growing up with an informal education being surround by academics and teachers, she didn't begin her formal education until the age of 10, when she attended a boarding school in Warsaw, which she would graduate from in 1883. (Skwarzec 1547) Before attending Marie's life had been marked with emotional turmoil, following the death of her older sister and her mother. However, Marie Curie continued to flourish in her educational pursuits, later going on to attend a university in Warsaw in 1890, that taught "clandestine" classes in the Polish Language, an illegal activity during the Russian Occupation. (Waclawek 1567) (Skwarzec 1548) While gaining proficiency in

chemistry at the “Floating University,” after several attempts to secure employment opportunities as governess with several different wealthy families. It was at the dubbed Floating University, that Marie became active in a vibrant political youth culture, using her talents to educate and inform the public through clandestine activities. (Skwarzec 1548) It was the relationship with political organization that would eventually lead her to travel to Paris, due to the fact that women we barring from participating in much of the University system in Poland under Russian Occupation. (Gasinska 824) But it was the opportunity to travel to Paris, that would set her toward the path of her major discoveries. With a mutual arrangement with her sister, who was studying medicine at the University in Paris, Marie made the journey in November of 1891, upon the promise assist her sister financially. (Skwarzec 1548) At the university in Paris, Marie continued her interests in Mathematics, Chemistry, and Physics at Sorbonne, graduating in 1893, through the following year would receive a number accreditations from scientific societies, and had already distinguished herself as a mathematician with noticeable merit. (Gasinska 824)

Throughout her University education, she had exhibited incredible work ethic, and dedication to discovery, going so far that she“rationed her intake of food until, on more than one occasion, she collapsed of weakness.” (Jardins 2011) It was also in the Paris, that she came to meet her life-partner in marriage and science, Pierre Curie, who was a physicist and lecturer at a prominent school for chemistry and physics, The two married 26th of July, 1895, the same year that Piere published his doctoral thesis. (Skwarzec 1548) Her major scientific contributions would come after the advent of new discoveries in science, including work on rays emitted by uranium and work by scientists like Henri Becquerel. (Gasinska 825) In which, Marie Curie, through scientific measuring of levels of radiation, concluded that radiation was a property of the matter itself, for the first time modern conceptions of radiation emerged. In an article published in *Century Magazine,* by a Marie Curie acknowledges the work by physicists like Henri Becquerel, saying:

> "The merit of this discovery belongs to M. Becquerel, who succeeded in demonstrating that Uranium and its compounds spontaneously emit rays that are able to traverse opaque bodies and to affect photographic plates." (Curie 1904)

Drawing from the conclusion reached by scientists like Becquerel, Curie began conducted controlled experiments using Uranium and Thorium, reaching the conclusion that radiation is something common amongst substances. (Skwarzec 1548) The discovery of radiation, was only the most immediate of Curie's accomplishments. She also isolated three Uranium minerals, but she also discovered and isolated for the first time Radium and polonium elements. (Waclawek 1577)

By the beginning of the 20th century, Marie Curie had a teaching position at, "Ècole Normale Superieur de Sevres for Girls" (Skwarzec 1550) and in the span of several years, her husband and research partner, Pierre Curie died, and she published her thesis in 1910 and founded the Institute of Radium a year before. In 1911 she was award her second Nobel Prize. (Gasińska 826) However, she was profoundly affected by the passing of her husband, and spent a great deal of time living with relatives, and family, in particular her children for psychological counseling, as well as sending time with colleges. Remaining active, joining institutes and conducting investments on applied radium for cancer treatment and therapeutic radiation defined the remainder of Curie's life. In which the Curie Foundation was founded in the 1930's, which she was an active member of. Marie Curie would die on July 4th, 1934, from Leukemia, a result of a lifetime of exposure to radiation. (Gasińska 827) Within her lifetime she had a profound impact not only through her contributions to scientific knowledge, but also medicine, industry, and politics. Leading the way in our understanding of the nature of radiation and their chemical and physical properties.

Citations

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