

The day Marie Curie got snubbed by the French science world

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In the early 20th century, radium was the hot “medicinal” product, and Madame Marie Curie its chief ambassador. Curie was the first woman to win the Nobel Prize for physics (shared in 1903 with her husband Pierre and fellow scientist Henri Becquerel) for isolating the element, and she became the Sorbonne’s first woman professor of general physics in 1906.

But on Jan. 23, 1911, the French Academy of Sciences made a grave error against both history and science. At their meeting on that cold, winter day, Marie Curie was proposed for membership — and promptly voted down.

Yes, you just read that last sentence correctly: One hundred and ten years ago today, Madame Marie Sklodowska Curie was formally rejected for membership by the French Academy of Sciences.

How could this ever happen? Surely, it was not a matter of her accomplishments, her application studded with world class honors.

In 1666, Louis XIV established the French Academy of Sciences in Paris, with the primary purpose of advising the monarch on scientific matters. The role and power of the Academy have changed much over its long and distinguished history, but in Curie’s day, it was very much a marketplace of important scientific issues. Every week, the nation’s premier scientists met to debate, refute and develop new theories. In the 1760s, the Enlightenment chemist Antoine Lavoisier argued against a theoretical element called “phlogiston,” which was supposedly released during combustion. Nearly four centuries later, in 1859, Louis Pasteur spoke on behalf of germ theory and destroyed the prevailing sentiment in favor of spontaneous microbial generation.

A few years before the Curies began studying radioactivity, the physicist William Roentgen discovered X-rays, and Becquerel observed the same phenomenon as he watched uranium salt crystals fog up a photographic plate. By the end of 1898, the Curies had made a series of discoveries, including radium and polonium. Radium was then used in medicine to determine or reduce the size of malignant tumors. It was also used to **manufacture “glow-in-the-dark” wristwatches, games, and even X-ray precision shoe-measuring devices.**

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For Marie, fame was costly. Especially after Pierre died in a roadway accident in 1906, the French press loved reporting on her personal affairs, romances, foibles, her Polish origins and other nonscientific, gossipy subjects.

Attaining membership in the French Academy was difficult, at best. For starters, one member had to die in order to vacate a seat for a newcomer. Moreover, women were not welcome. Even relative newcomers, such as the French physicist Emile Hilaire Amagat who was elected in 1902, boldly bellowed, “Women cannot be part of the Institute of France.”

In 1911, Curie’s only competition was a physicist named Edouard Branly, who pioneered the development of radio waves and transmission. Branly’s work was eclipsed by Guglielmo Marconi— who shared the 1909 Nobel Prize in physics with Karl Ferdinand Braun “in recognition of their contributions to the development of wireless telegraphy.”

Like their European and American colleagues, French scientists wanted their work to help advance their national and international agendas, and to honor their own discoverers—as did Germans and Italians and the British. Marie had moved to France in the 1890s after her early life in Poland. Socially, Branly had many more attractive features to his candidacy. In this Catholic nation, he was devoutly religious and the physics professor at the Catholic University in Paris; Curie was too busy in her lab to sit in church. Branly was also well-regarded as a family man who lived his life on a solid moral high ground—a direct slam on Curie’s personal life decisions. Branly even knew the pope.

By late afternoon on that January day, a member of the election committee read the ballots. Branly won the seat, Curie lost. The buzz of the news spread backward, forward and outward. Several newspapers wrote scathing editorials protesting the election choice—but the results were final. In 1911, it must be recalled, academia was a highly structured patriarchy and old boys' club.

Eleven months later, Curie won bigger than big. She was named the sole recipient of the 1911 Nobel Prize in chemistry “in recognition of her services to the advancement of chemistry by the discovery of the elements radium and polonium, by the isolation of radium and the study of the nature and compounds of this remarkable element.” Not only was Curie the first woman to win the Nobel Prize, she remains the only woman to receive it twice for two different fields of science.

During World War I, she served as France's founding director of the French Red Cross' Radiology Service. After teaching herself how to interpret X-rays, she realized this new technology could be used to help surgeons locate bullets and mend shattered bones. Working with her daughter Irene (who later won the 1935 Nobel Prize for chemistry, with her husband, Jean Frédéric Joliot-Curie, for discovering artificial radiation), she developed mobile X-ray units, called “petites Curies” (“Little Curies), which brought heavy, cumbersome, lifesaving X-ray equipment to the battlefield. On many occasions, Curie drove the X-ray trucks to the front herself.

Curie became an international celebrity for her brilliance, tenacity and heroism. Sadly, Curie proved to be overzealous in her advocacy for radium's medicinal uses. As with many new medical discoveries, the dangers of radioactivity were slower to make themselves known than its perceived values. Curie died in 1934 of aplastic anemia, a rare blood disorder where the bone marrow of the body no longer produces healthy red blood cells. Her illness was almost surely caused by excessive radiation exposure in the laboratory.

And Curie *still* is not a member of the French National Academy.

Marguerite Perey, a French physicist who discovered the element francium, was the first woman to be elected, although this did not occur until 1962, more than half a century after Curie's defeat.

Who was her professor and mentor? You guessed it: Madame Marie Curie.

By – **Dr. Howard Markel**

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