Bedtime Biography: Madame Curie

A Biography

By Eve Curie

9-minute read

Synopsis

Two Nobel Prizes, brilliant scientific breakthroughs, tragic losses, tireless work in the hospitals of the First World War: Marie Curie had an eventful life. In this Bedtime Biography, we will tell the story of Marie Curie, and introduce you to the woman behind the many myths.

Who is it for?

- Those interested in the history of science
- Fans of biographies
- Parents in search of female role models

About the author

Ève Curie (1904-2007) was the daughter of Marie and Pierre Curie. She was a pioneering journalist and war reporter and later a staunch supporter of UNICEF. Her biography of her mother, published in 1937, was highly acclaimed. It won the National Book Award for non-fiction.

Introduction

Bedtime Biographies are best when listened to. Check out the audio version to get the full experience!

Who exactly was Marie Curie? You probably already know her as an iconic scientific visionary.

She helped discover radioactivity, revolutionized our understanding of the atom, and developed life-saving X-ray technologies. With her passion, dedication, and unquestionable brilliance, Marie Curie forced the snooty French Academy of Sciences to finally take women seriously. She remains an inspiration for ambitious women and budding scientists everywhere. She's still the only woman to have held two Nobel Prizes.

But, she was also publicity-shy, humble, and shrouded in mystery. So, who was the woman behind the myth? Let's find out in this Bedtime Biography.

Chapter 1

Marie Curie was born in Warsaw as Maria Salomea Skłodowska, on November 7, 1867. She was the youngest of five children. Her mother was a school principal, and her father a physics professor. They planted the seed of scientific ambition in their youngest daughter early on.

At just four years old, little Maria stood transfixed in front of her father's glass cabinet, which contained what he called his "physics apparatus." Inside was shelf upon shelf of instruments, mineral specimens, and even a gold-leaf electroscope. She didn't understand what they were for, but her fascination with their potential stayed with her for life.

Maria's extraordinary intellect drew attention early on. That same year, she noticed her older sister Bronya struggling to read a book. Little Maria took the book out of Bronya's hand and read the first sentence aloud effortlessly. The family was dumbfounded – and Maria started to cry, thinking she'd done something wrong!

Though Maria was unquestionably very gifted, she lacked the opportunity to make the most of her talents. Poland had been occupied by Russia for over 50 years, and the Russians were attempting to suppress Polish identity and culture. All street signs were in Russian, and it was forbidden to speak Polish in schools. Even the word "Poland" was no longer printed on maps.

Maria's family felt the sting of Russian occupation. They'd been Polish aristocrats, but the Russians had seized most of their property and land. By the time Maria was born, the Skłodowskas lived in Warsaw with meager salaries under precarious conditions. Unsurprisingly, both of Maria's parents were passionate patriots with a deep hatred of czarist Russia, a hatred they passed on to their children.

Maria's father believed he could keep Polish nationalism alive through his work; he secretly lectured on Polish achievements to instill patriotism in his students. He was not trusted by the authorities, and eventually, it cost him his job. The family was forced to move to a smaller apartment and to start tutoring on the side to make ends meet. It got so cramped at home that Maria had to sleep on the couch in the living room – not exactly ideal conditions for a knowledge-hungry little genius. But in spite of – or maybe even because of – the circumstances, Maria dived obsessively into her schoolwork.

When Maria was 16, she graduated at the top of her class and made a pact with her sister Bronya. They both desperately wanted to study science and medicine, but at the time, women weren't allowed to attend university in Poland. The next option was Paris – but they were broke. And so they cooked up a plan to work for a few years, save every extra penny, and study in secret.

While working as private tutors, they attended Poland's "Floating University" – an illegal academy for the higher education of women, with ever-changing clandestine locations throughout Poland. They never got degrees, of course, but they met dozens of other strong and brilliant women during their studies.

Though Maria and Bronya scrimped and saved, the money just wasn't enough. Maria changed their plan and sought a position as a live-in governess in the country, where room and board was free. She urged Bronya to go to Paris to study medicine and promised she'd send half of her salary. Once Bronya could work as a doctor, she would then support Maria.

After a hard day's work as a governess, Maria would retreat to her room and study obsessively into the night: physics, sociology, anatomy, physiology . . . and though her interests were broad, she found that math and physics interested her most. Her father supported her efforts from Warsaw and would regularly send her complex math problems. He advised her to never stop learning, or she'd fall behind.

But Maria's life in the country wasn't all work and no play. She became close to Bronka, a daughter of the family she was living with, and together they illegally taught Polish peasant children to read. Twenty shy but eager children would regularly attend night classes in the family's kitchen.

Maria and the family's oldest son, Casimir, another math wiz, fell deeply in love and decided to marry. But Kazimierz's parents were furious and refused to let their firstborn son marry a penniless employee. Maria's positive relationship with the family soured, and Kazimierz retracted his proposal.

Maria, humiliated and heartbroken, fell into a long depression, but she didn't quit the job. She worked, saved, and sent money to Paris until Bronya finished her

degree – as one of only three women of a thousand med students. Bronya kept her word and urged Maria to come to Paris as soon as she had an income of her own. And so, in 1903, after eight long years, Maria packed her bags and boarded the train to Paris. She was finally off to the Sorbonne.

Chapter 2

After a four-day-long journey to Paris, Marie arrived at the Gare du Nord. She was to live with Bronya and her husband – another Casimir – who'd fled Poland because of his predilection for socialism. They lived in an apartment in the Rue d'Allemagne. Marie spent her first few weeks living with Bronya and Casimir until the commotion there became too much for her. Marie was ready to *finally* commit herself wholeheartedly to science, but in their tiny apartment Bronya and Casimir would receive patients by day and host parties at night where discussions on art, science, and socialism would extend until daybreak.

Marie didn't have time for all this idle chatter, as she called it, and moved out to an unheated tiny apartment, which would later become part of her legend. There, she could finally devote herself to her obsession as she'd longed to for so long. And it was also during this time that she started calling herself Marie, the French version of her name. In a new city, at a world-class university, and with a new name, Marie finally felt free.

At the Sorbonne, Marie dived into her studies and neglected nearly everything else. She didn't know where to buy the simplest things, and wrote to her father asking if he could send her tea or an iron from Poland. Even meals were a thorn in her side. When a fellow student suggested that she make soup at home to gather her strength, Marie brusquely rejected the idea – cooking was just a waste of time!

She subsisted on bread, fruit, and chocolate, which she ate with her nose in a book. Occasionally, she treated herself to an egg or a piece of meat. Once in a blue moon, she deigned to drag a bucket of coals up the many stairs. Most nights, her only source of warmth was a pile of clothes.

But her hard work paid off. In 1893, she finished her physics exams at the top of her class and was promptly granted a scholarship. The next year, she completed her math degree and received her first paid research assignment. She was asked to perform an analysis of different types of steel and their magnetic properties.

This payment finally afforded Marie to eat proper meals regularly. For experiments on her research assignment, her professor Gabriel Lippmann granted her access to use his lab. But, it was small and poorly equipped. A friend recommended that she talk to a magnetism expert he knew: a certain physicist named Pierre Curie.

[pause]

Marie and Pierre had immediate chemistry. Both were devoted scientists, and their research interests perfectly complemented each other. They spent every day in the lab together, and every night hugging each other tight. They were deeply in love, married in July 1895, and eventually had two children. They worked together obsessively and became science's ultimate power couple. But although they worked together, it was Pierre who got official credit for their discoveries. But the Academy of Science's deeply entrenched sexism would soon put their love to the test.

In her doctoral research, it was Marie who discovered that radioactivity is an atomic property – but Pierre got all the credit. The two published the paper together, which got Pierre a teaching position at the polytechnic college in Paris. Marie went empty-handed. After all, she was just a young, Polish immigrant – and a woman to boot. *Of course* it was the husband who had made such a groundbreaking discovery!

Marie was deeply upset by the lack of recognition. But she never blamed Pierre.

The Curies' joint research also became a real test of endurance. They had to heat and stir tons of pitchblende in huge cauldrons to obtain just a few milligrams of radium. Earlier, Marie had already deduced that the high radioactivity of the pitchblende must be caused by a still unknown element – now they just had to isolate it to prove her hypothesis.

At the time, there was a race among scientists to isolate new elements – and the Curies took up the challenge with single-minded gusto. They eventually discovered two elements together.

But it didn't take long for their experiments to start affecting their health. The two constantly had inflamed fingertips – a harbinger of radiation poisoning, which was still unknown at the time.

But every time Pierre passed by Marie, bent over some sample in the lab, he stroked her hair lightly and she gave him a happy look. Their love for each other and for research was so strong that all other problems faded into the background.

Ten years after their wedding, Marie and Pierre Curie achieved something that no couple before them ever had. Together with their colleague Henri Becquerel, they were awarded the Nobel Prize in Physics. The reason? Nothing less than the discovery of radioactivity.

While experimenting with uranium salts, Henri Becquerel had discovered that they blackened a photographic plate. He called the phenomenon "uranium radiation," but then neglected it. Marie then investigated this radiation more closely as part of her doctoral thesis and coined the term "radioactive."

Becquerel had made his discovery quite by accident. Marie's discovery came through dedication and vision.

She also found that the radiation was a property of atoms – and that this knowledge could help discover new elements. She and Pierre did just that, discovering the elements radium and polonium – which, by the way, is named after Marie's native Poland.

At the Nobel Prize ceremony, Pierre was invited to give a speech; Marie was once again snubbed. And so Pierre made a point to emphasize again and again how important his wife's work was for their joint research. He proudly pointed out Marie, who was sitting in the audience.

Despite the lack of ceremony, this award made Marie Curie the first woman to be honored with a Nobel Prize. But she got less out of it than the two men. Becquerel received prize money of 70,000 francs, and the Curies got the same amount to be split. Pierre was accepted into the prestigious Academy of Sciences. Marie was not.

Pierre was then offered a teaching position at the Sorbonne – then, finally, Marie was appointed his head of research. It must be said, though Marie was a Nobel Prize winner, the scientific community had immense difficulty giving her any recognition.

Despite the infuriating injustice, the Curies' situation improved. Their scientific achievements had finally been recognized, and with Pierre's cushy new job, they no longer had money worries. and could afford to have fresh flowers in every room of their apartment daily.

Chapter 3

Pierre and Marie's good fortune didn't last long. In April 1906, one year after the Nobel Prize ceremony, Pierre died unexpectedly in an accident.

Marie's grief over the loss of her great love turned into a long depression. She spent her days indoors, mourning in the dark. She was unable to deal with all of the problems that this sudden loss brought. She'd lost not only her husband but also her research partner. His income was gone, and Marie didn't even know if she was allowed to continue to use his lab.

She eventually returned to everyday life, which was chock-full of new obstacles. Without a respected man vehemently vouching for her, it was even harder for Marie to be taken seriously as a scientist. However, Marie kept on pushing. She was eventually given a position at the Sorbonne and allowed to keep going with her work.

The Sorbonne, for example, needed to find a replacement for Pierre's teaching position. Marie would have been the obvious choice, but the university still refused to offer a woman the prestigious position. Eventually, they settled on a half-measure: she was allowed to teach, but she wasn't granted full professorship.

Still, as the first woman to receive a teaching position at the Sorbonne, Marie got quite a lot of media attention, which she didn't indulge. She slipped unobtrusively into her first lecture through the side door, wearing what would become her trademark black. She spoke for a full hour very objectively about the last topic that Pierre had lectured about. She didn't mention him at all.

A few years later, Marie applied to the Academy of Sciences, where Pierre had been a member. Gender bias reared its ugly head once again, and she was denied. But Marie pushed through life as a widow with characteristic stoicism. She researched, she taught, and she cared for her two daughters. All the while wearing black.

In 1911, five years after her husband's death, Marie was awarded the Nobel Prize in Chemistry for the discovery of radium and polonium – making her the first person to win two Nobel Prizes. But it wasn't just her scientific curiosity that drove her work. Marie was also motivated by a deep altruism and sought to develop technologies that would save human lives.

During the First World War, she had the chance to make this dream a reality. Everywhere on the battlefield was immense human suffering, and Marie considered how she could use her knowledge to alleviate it. Thanks to her extensive knowledge of radiation, she developed a small, mobile X-ray machine that could be used at the front and in field hospitals.

Previously, soldiers who needed X-rays had to be taken to a city hospital and often died in transit. The mobile X-ray units were soon called "les petites Curies," and throughout the war, Marie worked to make them as effective as possible. She improved their technology, supervised their manufacture, and explained to nurses how to use the new instrument. And so, she saved dozens of lives.

Despite her achievements, the French public hardly celebrated Marie. A few years earlier, news broke that she'd had an affair with a married colleague, Paul Langevin. The press pounced on the scandal and made her out to be a loose foreigner who was destroying a perfect French family. As a result, Marie not only had to endure public hostility but also had great difficulty financing her research – even after her contributions in the First World War.

And so, In 1921, Marie decided on a change of scenery. With help from Missy Meloney, an activist and influential journalist in the United States, Marie took a trip to New York City. There, where her reputation as a brilliant trailblazer preceded her, Marie Curie was received as a hero.

Together with her two daughters, who in the meantime had both become researchers in their own right, Marie

went on a whirlwind tour of the United States: she spoke at 18 colleges, received seven honorary doctorate degrees, and explored the Grand Canyon. She also met with President Warren Harding in the White House, who presented her with radium for her research.

Radium wasn't cheap – one gram alone cost one hundred thousand dollars. Missy Meloney had organized the fundraising for the radium and additional equipment for Marie's lab, which was primarily gathered by small donations from women across the country. And Meloney even helped restore Marie's reputation: she used her nationwide influence with the press to ensure that no journalist who interviewed Marie would print a peep about her affair with Pierre Langevin.

By the time Marie returned to France, her reputation as a loose foreigner was old news, and she was once again celebrated as an icon.

Chapter 4

Even before her US trip, Marie's many years of experimenting with radioactive materials were starting to catch up with her. Nowadays one might view her relationship with radium to be reckless, but at the time, the risks weren't known at all. Quite the opposite, actually – people thought it was a cancer-curing health elixir. Radium drinks and creams were all the rage.

Not only that, radium was Marie's pride and joy. After all, she'd discovered it with Pierre. She had a special relationship with the substance and compulsively carried it around with her in a vial. She even kept some at her nightstand and would take it out at night to gaze at its hypnotic blue glow. Even now, her records are so radioactive that they have to be kept in a lead safe.

On top of all that, Marie fled to her lab whenever she needed to escape her problems. As a result, she'd exposed herself to far more radiation than if she'd kept a typical eight-hour workday.

As radiation sickness wasn't a known phenomenon at the time, doctors gave Marie's health problems all kinds of diagnoses: tuberculosis, gallstones, kidney damage . . . even tinnitus. When she finally died in a sanatorium in 1934, her doctor said it was remarkable she'd lived for as long as she had.

The dangers of her work finally caught up with her in 1934. She died in a sanatorium aged 66, her death almost certainly caused by the radiation she'd spent her life studying.

Marie Curie left behind a luminous legacy. With her incredible determination, she contributed to the discovery of radioactivity and revolutionized our understanding of the atom. She was France's first woman to earn a doctorate and to this day is the only woman to have won two Nobel Prizes. Above all, she blazed an iconic trail through the male-dominated field of physics. And even now, she remains a role model for many young women.

Unfortunately, she didn't live to see her daughter Irène Joliot-Curie also receive a Nobel Prize the year after she died. Together with her husband Frédéric Joli ot-Curie, Irène discovered how to generate radioactivity artificially – a real breakthrough that was entirely in the spirit of her mother.

The End

You've reached the end of this Bedtime Biography. Thank you for listening. Why not pause listening now so you can stay in a relaxed state? And if you're off to bed now, I wish you a good night's sleep.