

MADAME CURIE

A BIOGRAPHY BY EVE CURIE
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Introduction to the 2001 Edition

MARIE CURIE IS ONE OF THE MOST FAMOUS scientists the world has ever known, a name right up there with Einstein, Newton, and Galileo on the immortal summit of Mt. Cerebrum. She was by any measure an extraordinary woman, whose every accomplishment must be preceded by amplifiers like “the first” or “the only.” She was the first woman to receive a doctorate in France and the first woman anywhere to earn that doctorate in physics. She was the first female professor at the great Parisian university, the Sorbonne. She was the first woman to win a Nobel prize, for physics, which she and her husband Pierre shared with Henri Becquerel in 1903 for their studies of the nature of radioactivity. Eight years later, she became the first scientist, male or female, to be awarded a second Nobel prize, this time in chemistry, for the isolation of the elements radium and polonium, and this time hers alone to claim.

Madame Curie, born Marja Sklowdowska in Warsaw, Poland, in 1867, embodied the image of the romantic, heroic scientist. She pursued her research so passionately that she was willing to work suprahuman hours in dank basements and abandoned sheds as the radioactive samples she handled burned the tips of her fingers, clouded her eyes with cataracts,

bent her spine with pain, and eventually killed her. She snubbed fame and personal vanity. Her wardrobe consisted of a few navy or black dresses, which hid stains and so could be worn in the laboratory one day, at her wedding or a state dinner with U.S. President Warren Harding the next. When, during World War I, France called on its citizens to donate their gold and silver to the war effort, Madame Curie offered her vast collection of prize medals, including the two Nobel medals. The offer, I'm relieved to say, was respectfully declined.

Yet, lest she seem too much the selfless saint, it must be said that Madame Curie sometimes cultivated the image of herself as, in the words of one scholar, a "tragic heroine," particularly when it suited her fundraising needs. Nothing inspires donors to yank out the checkbook more readily than tales of the lone scientist laboring against all odds to discover the secrets of nature and new cures for human diseases, and to this day researchers continue the tradition of the hyper-oxygenated "narrative of discovery" when they go prospecting for grants. In the case of Pierre and Marie Curie, the story line happens to hew fairly closely to the truth.

There are many reasons to admire the woman who had the profound insight that radioactivity is a property inherent to the atomic structure of heavy elements like radium, and who demonstrated to the world the lifesaving potential of radioactivity for the treatment of cancer and other diseases. But I'd like to emphasize here a reason that is not often mentioned in paeans to her genius: She was a great mother. Not in the conventional sense. She didn't sacrifice her needs and her career for her children, as congeries of pedia-scolds to this day advise women to do. In fact, Pierre Curie's father, who moved into his son and daughter-in-law's house when his wife died of breast cancer, proved an ideal babysitter, allowing Marie to return to the laboratory soon after her first child, Irene, was

born in 1897, as she did after her second daughter, Eve, was born seven years later. Even upon being left a young widow and single mother in 1906—when Pierre was killed by a horse-drawn wagon as he crossed the road in the rain—Marie continued her research. And it's hard to imagine greater proof that, in her daughters' eyes, she made the right decision than in the career paths they eventually chose for themselves. Irene Joliot-Curie followed her mother in the study of radioactivity and became, with her husband Frederic, the second woman to win a Nobel prize. Eve Curie became an accomplished musician and writer, producing one of the best-selling biographies of all time—the book you hold in your hands. What a mother: to bear and raise two girls who loved, admired and, yes, romanticized her so much. Usually it's the father who exerts that sort of mesmerizing hold on girls, the father who can do no wrong. Lucky Marie, and lucky, lucky Irene and Eve.

Lucky us as well, for in a sense Madame Curie was the mother of us all, a role model for every girl who stakes a claim to a life of the mind, particularly that part of the mind too often deemed masculine—the scientific, mathematical part. I have interviewed hundreds of female scientists over the years, and a number of them have told me how, in their girlhood, the story of Madame Curie captivated and inspired them. Through reading about her, they felt less freakish, less alone in their passionate “unfeminine” love of algebra and chemistry kits. Let's face it: They had painfully few role models to worship, few examples of prominent women in science who could stand up there and say, “There is nothing more wonderful than being a scientist, nowhere I would rather be than in my lab, staining up my clothes and getting paid to play.” Marie Curie, for all she suffered in the course of her career—from the ill effects of working with radioactivity to the opprobrium of the public she endured when, after

Pierre's death, she had an affair with fellow physicist Paul Langevin—clearly loved being a scientist and conveyed that passion to her daughters and, through Eve Curie, to us.

These days, of course, there are many more women in science than there were a century ago, when Curie entered the Sorbonne. I sometimes get annoyed at laments about how "there are no women in science," because I find women all the time, everywhere I look, doing fascinating research of the most creative, snazzy, and unorthodox variety. Yet it remains true that there are very few women scientists at the front-and-center ranks, few who win big awards, or get invited to give important talks at scientific meetings, or are asked to collaborate on important projects with other important scientists. Since the Curies, *mere et fille*, won their Nobels, a mere eight other women have been so honored. Women account for only about 5 percent of the membership of the prestigious National Academy of Sciences. In the United States, the number of Ph.D.s awarded to women in science has climbed steadily over the past twenty-five years, and women now account for about 40 percent of the science doctorates awarded each year. And yet, the percentage of women at the uppermost echelons of academia, the full professors who command large labs, large grants, and large *homage*, remains modest at best, laughable at worst: A mere 3 percent of full physics professors are women, 5 percent of astronomy professors, 18 percent of biomedicine professors.

Many organizations and conferences have addressed the problem of increasing female participation in science, and many books, articles, symposium proceedings, and task force reports have offered analysis, advice, pleas, the clicking of rosary beads. For the sake of our story, I want to offer these thoughts about the take-home lessons we may learn about the success of the Curie women: that hard work, passion, and perseverance are essential, yes, but equally important is a

firm emotional infrastructure on which one can build the towering cathedral that is a life in science. Marie Curie found her support in so many places—in her father, who never thought to discourage his daughters from their love of learning and science; from her sister, Bronya, who preceded Marie to Paris to pursue a medical career; from her husband, Pierre, who, far from being intimidated by the genius of his buoyantly somber young wife, was smitten by it and never allowed anybody to disdain or ignore it; and in her daughters, who in turn found their bedrock in her.

We live in a culture that exalts the individual, but forget the fascistic Ayn Rand fantasy: We are the most social of all primates, and we cannot go it alone, particularly not when we are doing something as difficult and demanding as vanguard research can be. The old canard has it that behind every great man is a woman, but forget the sexes of subject and object. Behind every great individual is somebody or, better still, a platoon of somebodies, a crowd of cheerleaders, sounding boards, tear-blotters, den mothers, den grandfathers. Women in science need mentors, but they also need true believers, and they should not be ashamed of that need or see it as a sign of girlish weakness. This is one reason why women in science should, indeed must, support each other. It is difficult enough to take care of the nuts and bolts of science, but what about the soulful ornaments, the extras that keep you going? What about somebody telling you, You're good. You're really, really good.

This book is the sound of a proud daughter's lusty applause. As a mother of a daughter, and as a woman who cares deeply about the progress of women in science, I can only say, It is music to my ears.

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