

THE DA CAPO SERIES IN SCIENCE



MARIE CURIE  
A Portrait Made in 1929.

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# MADAME CURIE

A BIOGRAPHY BY EVE CURIE  
TRANSLATED BY VINCENT SHEEAN



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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 Skłodowska 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 bio-medicine 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.

NATALIE ANGIER  
Maryland, 2000

## Introduction

**T**HE LIFE OF MARIE CURIE contains prodigies in such number that one would like to tell her story like a legend.

She was a woman; she belonged to an oppressed nation; she was poor; she was beautiful. A powerful vocation summoned her from her motherland, Poland, to study in Paris, where she lived through years of poverty and solitude. There she met a man whose genius was akin to hers. She married him; their happiness was unique. By the most desperate and arid effort they discovered a magic element, radium. This discovery not only gave birth to a new science and a new philosophy: it provided mankind with the means of treating a dreadful disease.

At the moment when the fame of the two scientists and benefactors was spreading through the world, grief overtook Marie: her husband, her wonderful companion, was taken from her by death in an instant. But in spite of distress and physical illness, she continued alone the work that had been begun with him and brilliantly developed the science they had created together.

The rest of her life resolves itself into a kind of perpetual giving. To the war wounded she gave her devotion and her health. Later on she gave her advice, her wisdom and all the hours of her time to her pupils, to future scientists who came to her from all parts of the world.

*When her mission was accomplished she died exhausted, having refused wealth and endured her honors with indifference.*

*It would have been a crime to add the slightest ornament to this story, so like a myth. I have not related a single anecdote of which I am not sure. I have not deformed a single essential phrase or so much as invented the color of a dress. The facts are as stated; the quoted words were actually pronounced.*

*I am indebted to my Polish family, charming and cultivated, and above all to my mother's eldest sister, Mme Dluska, who was her dearest friend, for precious letters and direct evidence on the youth of the scientist. From the personal papers and short biographical notes left by Marie Curie, from innumerable official documents, the narratives and letters of French and Polish friends whom I cannot thank enough, and from the recollections of my sister Irène Joliot-Curie, of my brother-in-law, Frederic Joliot, and my own, I have been able to evoke her more recent years.*

*I hope that the reader may constantly feel, across the ephemeral movement of one existence, what in Marie Curie was even more rare than her work or her life: the immovable structure of a character; the stubborn effort of an intelligence; the free immolation of a being that could give all and take nothing, could even receive nothing; and above all the quality of a soul in which neither fame nor adversity could change the exceptional purity.*

*Because she had that soul, without the slightest sacrifice Marie Curie rejected money, comfort and the thousand advantages that genuinely great men may obtain from immense fame. She suffered from the part the world wished her to play; her nature was so susceptible and exacting that among all the attitudes suggested by fame she could choose none: neither familiarity nor mechanical friendliness, deliberate austerity nor showy modesty.*

*She did not know how to be famous.*

*My mother was thirty-seven years old when I was born. When I was big enough to know her well, she was already an aging*

*woman who had passed the summit of renown. And yet it is the celebrated scientist who is strangest to me—probably because the idea that she was a "celebrated scientist" did not occupy the mind of Marie Curie. It seems to me, rather, that I have always lived near the poor student, haunted by dreams, who was Marya Skłodowska long before I came into the world.*

*And to this young girl Marie Curie still bore a resemblance on the day of her death. A hard and long and dazzling career had not succeeded in making her greater or less, in sanctifying or debasing her. She was on that last day just as gentle, stubborn, timid and curious about all things as in the days of her obscure beginnings.*

*It was impossible to inflict on her, without sacrilege, the pompous obsequies which governments give their great men. In a country graveyard, among summer flowers, she had the simplest and quietest burial, as if the life just ended had been like that of a thousand others.*

*I should have liked the gifts of a writer to tell of this eternal student—of whom Einstein said: "Marie Curie is, of all celebrated beings, the only one whom fame has not corrupted"—passing like a stranger across her own life, intact, natural and very nearly unaware of her astonishing destiny.*

EVE CURIE.

## APPENDIX

### MME CURIE'S PRIZES

Prix Gegner, Académie des Sciences, Paris, December 12, 1898. This prize was again awarded on December 11, 1900, and on December 14, 1902  
Nobel Prize for Physics (jointly with Henri Becquerel and Pierre Curie), 1903  
Prix Osiris, awarded by the Syndicate de la Presse Parisienne, divided with M. Branly, January 4, 1904  
Actonian Prize, Royal Institution of Great Britain, May 6, 1907  
Nobel Prize for Chemistry, 1911  
Ellen Richards Research Prize, April 23, 1921  
Grand Prix du Marquis d'Argenteuil for 1923, with bronze medal, Société d'Encouragement pour l'Industrie Nationale, March 15, 1924  
Cameron Prize, University of Edinburgh, 1931

### MME CURIE'S MEDALS AND DECORATIONS

Berthelot Medal (with Pierre Curie), 1903  
Medal of Honor of the City of Paris (with Pierre Curie), 1903  
Matteucci Medal, Italian Society of Sciences (with Pierre Curie), August 8, 1904  
Davy Medal of the Royal Society of London (with Pierre Curie), November 5, 1903  
Kuhlmann Gold Medal, of the Society of Industry of Lille, January 19, 1908  
Elliott Cresson Gold Medal, Franklin Institute, January 6, 1909  
Albert Medal, Royal Society of Arts, London, July 4, 1910  
Grand Cross of the Civil Order of Alphonse XII of Spain, April 28, 1919  
Benjamin Franklin Medal, American Philosophical Society, Philadelphia, 1921

John Scott Medal, American Philosophical Society, Philadelphia, April 13, 1921  
 Gold Medal of the National Institute of Social Sciences, New York, 1921  
 Willard Gibbs Medal, American Chemical Society, Chicago, 1921  
 Order of Merit of Rumania, first class, with warrant and gold medal, August 4, 1924  
 Gold Medal of the Radiological Society of North America, December 8, 1922  
 Medal of the New York City Federation of Women's Clubs, 1929  
 Medal of the American College of Radiology, April 16, 1931

### MME CURIE'S HONORARY TITLES

Honorary Member of the Société Impériale des Amis des Sciences Naturelles d'Anthropologie et d'Ethnographie, December 1, 1904  
 Honorary Member of the Royal Institution of Great Britain, May 9, 1904  
 Foreign Member of the Chemical Society of London, May 18, 1904  
 Corresponding Member of the Batavian Philosophical Society, September 15, 1904  
 Honorary Member of the Mexican Society of Physics, 1904  
 Honorary Member of the Mexican Academy of Sciences, May 4, 1904  
 Honorary Member of the Warsaw Society for the Encouragement of Industry and Commerce, 1904  
 Corresponding Member of the Argentine Society of Sciences, November 6, 1906  
 Foreign Member of the Dutch Society of Sciences, May 25, 1907  
 Doctor of Laws, University of Edinburgh, February 2, 1907  
 Corresponding Member of the Imperial Academy of Sciences, St Petersburg, January 29, 1908  
 Honorary Member of the Society of Natural Sciences, Brunswick, March 10, 1908  
 Doctor of Medicine, University of Geneva, 1909  
 Corresponding Member of the Academy of Sciences, Bologna, March 31, 1909  
 Associate Foreign Member of the Czechish Academy of Sciences, Arts and Letters, 1909  
 Active Foreign Member of the Academy of Sciences, Cracow, 1909  
 Honorary Member of the Philadelphia College of Pharmacy, September 27, 1909  
 Corresponding Member of the Scientific Society of Chile, December 19, 1910  
 Member of the American Philosophical Society, April 23, 1910  
 Foreign Member of the Swedish Royal Academy of Sciences, 1910  
 Honorary Member of the American Chemical Society, March 1, 1910

Honorary Member of the London Society of Physics, 1910  
 Honorary Member of the Society for Psychical Research of London, February 1, 1911  
 Foreign Corresponding Member of the Portuguese Academy of Sciences, April 19, 1911  
 Doctor of Sciences, University of Manchester, November 24, 1911  
 Honorary Member of the Belgian Chemical Society, April 16, 1912  
 Collaborating Member of the Imperial Institution of Experimental Medicine, St Petersburg, April 12, 1912  
 Member of the Scientific Society of Warsaw, 1912  
 Honorary Member in Philosophy of the University of Lemberg, 1912  
 Member of the Warsaw Photographic Society, 1912  
 Doctor of the Polytechnical School, Lemberg, 1912  
 Honorary Member of the Vilna Society of the Friends of Sciences, July 20, 1912  
 Member Extraordinary of the Royal Academy of Sciences (Mathematics and Physics Section), Amsterdam, May 21, 1913  
 Doctor, University of Birmingham, 1913  
 Honorary Member of the Association of Arts and Sciences of Edinburgh, January 15, 1913  
 Honorary Member of the Physico-Medical Society of the University of Moscow, March 1914  
 Honorary Member of the Philosophical Society of Cambridge, May 30, 1914  
 Honorary Member of the Scientific Institution of Moscow, March 1914  
 Honorary Member of the Institution of Hygiene, London, April 15, 1914  
 Corresponding Member of the Philadelphia Academy of Natural Sciences, April 22, 1914  
 Honorary Member of the Royal Spanish Society of Medical Electrolgy and Radiology, April 1, 1918  
 Honorary President of the Royal Spanish Society of Medical Electrolgy and Radiology, April 25, 1919  
 Honorary Director of the Radium Institute of Madrid, July 5, 1919  
 Honorary Professor of the Warsaw University, 1919  
 Member of the Polish Chemical Society, 1919  
 Ordinary Member of the Danish Royal Academy of Sciences and Letters, 1920  
 Doctor of Sciences of Yale University, June 10, 1921  
 Doctor of Sciences of the University of Chicago, July 18, 1921  
 Doctor of Sciences of the Northwestern University, June 15, 1921  
 Doctor of Sciences of Smith College, May 13, 1921  
 Doctor of Sciences of Wellesley College, July 12, 1921  
 Doctor of the Women's Medical College of Pennsylvania, May 23, 1921  
 Doctor of Sciences of Columbia University, June 1, 1921

Doctor of Laws of Pittsburgh University, June 7, 1921  
 Doctor of Laws of University of Pennsylvania, May 23, 1921  
 Honorary Member of the Buffalo Society of Natural Sciences, June 16, 1921  
 Honorary Member of the Mineralogical Club of New York, April 20, 1921  
 Honorary Member of the North American Radiological Society, 1921  
 Honorary Member of the New England Association of Chemistry Teachers, April 14, 1921  
 Honorary Member of the American Museum of Natural History, April 20, 1921  
 Honorary Member of the New Jersey Chemical Society, May 16, 1921  
 Honorary Member of the Industrial Chemistry Society, July 13, 1921  
 Member of the Christiania Academy, March 18, 1921  
 Honorary Life Member of the Knox Academy of Arts and Sciences, June 18, 1921  
 Honorary Member of the American Radium Society, July 29, 1921  
 Honorary Member of the Norwegian Society for Medical Radiology, October 15, 1921  
 Honorary Member of Alliance Française of New York, June 10, 1921  
 Associate Member, Académie de Médecine, Paris, February 7, 1922  
 Honorary Member of Russian Academic group of Belgium, January 22, 1922  
 Honorary Member of the Rumania Society of Medical Hydrology and Climatology, January 10, 1923  
 Doctor of Laws of the University of Edinburgh, July 9, 1923  
 Honorary Member of the Czechoslovakian Union of Mathematicians and Physicists, January 20, 1923  
 Honorary Citizen of the City of Warsaw, 1924  
 Honorary Member of the Polish Chemical Society of Warsaw, 1924  
 Doctor of Medicine of the University of Cracow, February 25, 1924  
 Doctor of Philosophy of the University of Cracow, February 25, 1924  
 Honorary Citizen of the City of Riga, 1924  
 Honorary Member of the Society of Psychic Research of Athens, December 15, 1924  
 Honorary Member of the Medical Society of Lublin, Poland, July 4, 1925  
 Member of the "Pontificia Tiberina" of Rome, March 31, 1926  
 Honorary Member of the Chemical Society of São Paulo, Brazil, August 12, 1926  
 Corresponding Member of the Brazilian Academy of Sciences, August 24, 1926  
 Honorary Member of the Society of Pharmacy and Chemistry of São Paulo, Brazil, July 17, 1926  
 Honorary Member of the Brazilian Association of Pharmacists, July 23, 1926

Doctor of the Chemical Section of the Polytechnical School of Warsaw, 1926  
 Honorary Member of the Academy of Sciences of Moscow, January 4, 1927  
 Foreign Member of the Bohemian Society of Letters and Sciences, January 12, 1927  
 Honorary Member of the Academy of Sciences of U.S.S.R., February 2, 1927  
 Honorary Member of the Interstate Postgraduate Medical Association of North America, 1927  
 Honorary Member of New Zealand Institute, February 8, 1927  
 Honorary Member of the Society of the Friends and Sciences of Poznan, Poland, March 6, 1929  
 Doctor of Law of the University of Glasgow, June 1929  
 Honorary Citizen of the City of Glasgow, 1929  
 Doctor of Sciences of the University of St Laurent, October 26, 1929  
 Honorary Member of the New York Academy of Medicine, January 7, 1930  
 Honorary Member of the Polish Medical and Dental Association of America, October 1929  
 Honorary Member of the Société Française des Inventeurs et Savants, March 5, 1930  
 Honorary Member of the Société Française des Inventeurs et Savants, June 16, 1930  
 Honorary Member of the World League for Peace, Geneva, 1931  
 Honorary Member of the American College of Radiology, April 16, 1931  
 Foreign Corresponding Member of the Madrid Academy of Exact Natural Physical Sciences, April 25, 1931  
 Member of the Imperial German Academy of Natural Sciences, Halle, March 18, 1932  
 Honorary Member of the Society of Medicine of Warsaw, June 28, 1932  
 Honorary Member of the Czechoslovakian Chemistry Society, September 24, 1932  
 Honorary Member of the British Institute of Radiology and Roentgen Society, London, 1933