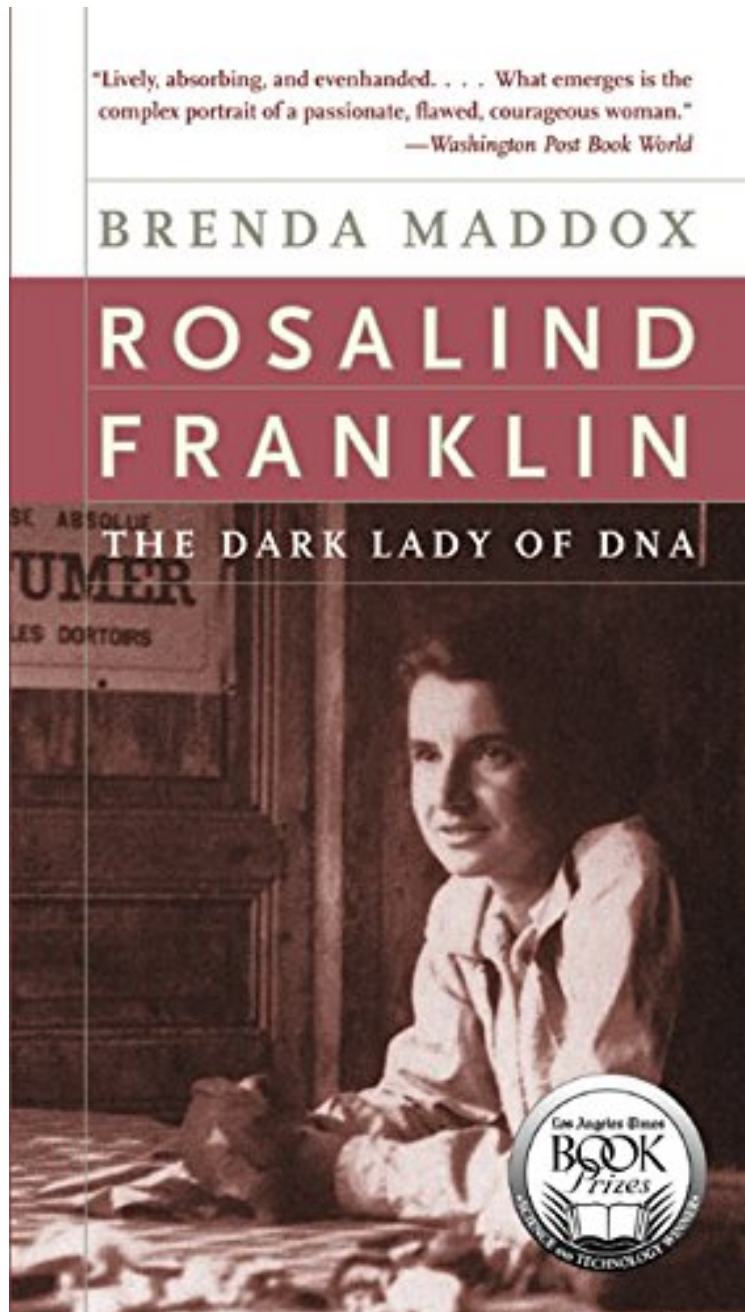


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Rosalind Franklin: The Dark Lady of DNA

Brenda Maddox

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#249655 in Books Brenda Maddox 2003-09-30 2003-09-30 Original language: English PDF # 1 8.00 x .94 x 5.311, .66 #File Name: 0060985089416 pages Rosalind Franklin The Dark Lady of DNA | File size: 79.Mb

Brenda Maddox : Rosalind Franklin: The Dark Lady of DNA before purchasing it in order to gage whether or not it would be worth my time, and all praised Rosalind Franklin: The Dark Lady of DNA:

1 of 1 people found the following review helpful. The world behind the Double Helix By P. B. Sharp After reading "The Double Helix" almost 50 years ago, I (like many other readers) was incensed at author-scientist James Watson's cavalier treatment of Rosalind Franklin. Franklin has finally come into her own with individuals flocking to her aid on both sides of the Atlantic. I wanted to find out more about Franklin as a personality and was delighted that "The Dark Lady of DNA" rounds out the Rosalind Franklin as a person as well as a scientist. On the distaff side, too much irrelevant detail is included in the book concerning her family, travels, friendships with obscure people. The accompanying photos are of very poor quality—there are several meaningless shots of Rosalind hiking, walking down the street with friends or staring at nature. Watson and Crick appear in two photos, one at the Nobel Ceremony after Rosalind's death and the famous one of Crick pointing at the molecular model of DNA with Watson staring up rather idiotically at Crick. Wilkins is seen in a closeup. But the irrelevant photographs and unessential detail in the narrative somewhat dilute Rosalind's astounding achievements and contribution to the discovery of the Double Helix. As in all situations the personalities of the players on a particular stage and how they interacted with each other is the sum of great biographies. Rosalind was a victim of the fractious atmosphere created by J.T. Randall, head of the department of Biophysics at King's college. Randall never explained the pecking order of scientists in his labs and Rosalind was viewed by some as on the level of a lab technician, not the holder of a PhD and the author of superb research in crystallography. A nasty turf war consequently erupted which literally pitted lab members against each other, competing against each other while members of the same college laboratory. (A house divided against itself cannot stand). The technique of x-ray crystallography was Rosalind's specialty, although by not wearing protective clothing against the radiation of x-rays, Rosalind stood in danger of acquiring cancer— and sure enough, ovarian cancer killed her at age 37. In x-ray crystallography a crystal is exposed to x-rays and a diffraction pattern is produced. Prior to Rosalind's work both A and B forms of DNA were mixed together resulting in muddy diffraction patterns that could not be interpreted. In a clear pattern the positions of the atoms in the molecules can be constructed. In the famous subterfuge of Rosalind's diffraction data, Maurice Wilkins showed James Watson, one of Franklin's fellow scientists, Rosalind's number 51 x-ray of the B form of DNA. Rosalind was not consulted nor did she know her work had been pirated. Watson knew immediately that the x-ray image meant DNA was a double helix and he could predict where the different atoms were located. He imparted his findings to Crick after sketching a picture of diffraction 51 in a newspaper margin, and the race was on, a race to beat Linus Pauling from publishing the correct structure of DNA first. The personality of Rosalind Franklin was an interesting one as revealed in "Dark Lady" as she could be gentle and caring and as fierce as a rottweiler. She always looked people in the eye when she spoke to them and those dark, eloquent eyes could be unnerving. She was trapped, though, in the male chauvinist scientific world of the 1950s and her fellow scientists were patronizing. Rosalind comes across in "Dark Lady" as a very attractive personality who was also pretty and feminine, nothing like James Watson's frumpy "Rosy." Rosalind loathed King's College and finally escaped to Birkbeck. Her studies now centered on tobacco mosaic virus; She traveled to the United States, amicably meeting Watson on both coasts, first at Cold Spring Harbor then Cal Tech. Her observations of America and Americans are recorded in "Dark Lady" and are quite revealing and. I found I cared very much what she thought of us. She returned to England to work in Aaron Klug's lab, and her collaboration with him led to the happiest days of her career and she went on to discover the structure of tobacco mosaic virus with her beautiful X-ray diffraction of the pencil-shaped virus. Klug, who later won the Nobel prize, perhaps hit the nail on the head when he explained why Rosalind was so close to breaking the DNA code but fell just two steps short. He said : " She needed a collaborator...somebody to break the pattern of her thinking, to show her what was right in front of her, to push her up and over." Rosalind's very early death was a huge loss to the scientific world and yet she had managed to publish thirty seven papers in her short life. Her courageous battle against cancer and her refusal to give in to her illness is well portrayed in the book. She has finally come into her own, with a university laboratory named after her, rather amusingly in her hated King's College. Many other laurels have been heaped on her as well. P.S. Google Doodle has created a marvelous tribute to Rosalind in their Google Doodle. I can't give the URL in an review, so just Google rosalind franklin google doodle..

1 of 1 people found the following review helpful. She made them famous By Pwt Excellent biography of a too often overlooked truly brilliant scientist. She is the reason Watson and Crick are famous and got the Nobel Prize. She did the work of identifying and delineating the chromosomes that have become known as the double helix of DNA. One of her lab partners essentially stole her work and gave it to Watson and Crick. My take on the history in this book: read for yourself and decide what you think.

8 of 8 people found the following review helpful. A Revelation By Customer As a career scientist and woman I am stunned (and embarrassed) that I did not know the full story of Rosalind Franklin before reading this book. Brenda Maddox sensitively tells the tale of a brilliant Jewish girl in WWII England who struggles to make a career and her mark in science. That Rosalind became a world renowned crystallographer is a testament to her inner strength and surpassing intellectual gifts; the legacy of her scientific achievement makes hers an important history. But Rosalind's story is raised to Tragedy by 2 facts. The first is that she was betrayed by some of the most regaled scientists of modern biology - Watson, Crick and Wilkins - who, when rewarded with the Nobel, did not acknowledge that Rosalind's work was integral to their uncovering the structure of DNA's double helix. This scientific theft moves into the tragic realm with the second fact -the "Dark

Lady" was stricken with ovarian cancer and died within several years of her discovery - allowing this personal betrayal to go without answer. No, this book is not a feminist polemic. It is a story of grace under duress, a story of courage, and beauty and permanence. In sum, Rosalind's personal and scientific life is the story of a soul that burned laser bright. She is the person that I would most like to meet, were that possible, and I thank Brenda Maddox for introducing her to me.

In 1962, Maurice Wilkins, Francis Crick, and James Watson received the Nobel Prize, but it was Rosalind Franklin's data and photographs of DNA that led to their discovery. Brenda Maddox tells a powerful story of a remarkably single-minded, forthright, and tempestuous young woman who, at the age of fifteen, decided she was going to be a scientist, but who was airbrushed out of the greatest scientific discovery of the twentieth century.

From Publishers Weekly Her photographs of DNA were called "among the most beautiful X-ray photographs of any substance ever taken," but physical chemist Rosalind Franklin never received due credit for the crucial role these played in the discovery of DNA's structure. In this sympathetic biography, Maddox argues that sexism, egotism and anti-Semitism conspired to marginalize a brilliant and uncompromising young scientist who, though disliked by some colleagues, was a warm and admired friend to many. Franklin was born into a well-to-do Anglo-Jewish family and was educated at Newnham College, Cambridge. After beginning her research career in postwar Paris she moved to Kings College, London, where her famous photographs of DNA were made. These were shown without her knowledge to James Watson, who recognized that they indicated the shape of a double helix and rushed to publish the discovery; with colleagues Francis Crick and Maurice Wilkins, he won the Nobel Prize in 1962. Deeply unhappy at Kings, Rosalind left in 1953 for another lab, where she did important research on viruses, including polio. Her career was cut short when she died of ovarian cancer at age 37. Maddox sees her subject as a wronged woman, but this view seems rather extreme. Maddox (D.H. Lawrence) does not fully explore an essential question raised by the Franklin-Watson conflict: whether methodology and intuition play competing or complementary roles in scientific discovery. Drawing on interviews, published records, and a trove of personal letters to and from Rosalind, Maddox takes pains to illuminate her subject as a gifted scientist and a complex woman, but the author does not entirely dispel the darkness that clings to "the Sylvia Plath of molecular biology." Copyright 2002 Reed Business Information, Inc. From Library Journal Rosalind Franklin is known to few, yet she conducted crucial research that led to one of the most significant discoveries of the 20th century—the double helical structure of DNA. Because of her unpublished data and photographs, Francis Crick and James Watson were able to make the requisite connections. Until recently, Franklin was remembered only as the "dark lady"—a stereotypically frustrated and frustrating female scientist, as profiled in Watson's 1968 autobiography, *The Double Helix*. Maddox (whose D.H. Lawrence won the Whitbread Biography Award and the Los Angeles Times Book Prize) does an excellent job of revisiting Franklin's scientific contributions (to the point of overloading nonscientists) while revealing Franklin's complicated personality. She shows a woman of fiery intellect and fierce independence whom some saw as haughty, though to family and close friends she was warm and devoted. Maddox displays a unique voice in recounting Franklin's story, using letters written to family and friends for much of the text. Her voice subtly draws us in while holding us at arm's length, much like Franklin herself. By the end, the reader is bristling that Franklin should be mostly forgotten, but this biography provides some recompense. Recommended for public libraries with science collections and all academic libraries.--Marianne Stowell Bracke, Univ. of Arizona Libs., Tucson Copyright 2002 Reed Business Information, Inc. From *Scientific American* The aphorism "history is always written by the victors" is as true for science as for geopolitics. Certainly it was the case for the discovery in 1953 of the double helical structure of DNA, the most important discovery in 20th-century biology. The victors were James Watson and Francis Crick, who together with Maurice Wilkins shared the 1962 Nobel Prize for crossing the finish line first. The loser was Rosalind Franklin, who produced the x-ray data that most strongly supported the structure but was not properly acknowledged for her contributions. According to Watson's best-selling 1968 account of the great race, *The Double Helix*, Franklin was not even a contender, much less a major contributor. He painted her as a mere assistant to Wilkins who "had to go or be put in her place" because she had the audacity to think she might be able to work on DNA on her own. Worse yet, she "did not emphasize her feminine qualities," lamented Watson, who refers to her only as "Rosy." "The thought could not be avoided," he concluded, "that the best home for a feminist was in another person's lab." Franklin never had a chance to respond; she died of ovarian cancer in 1958. Her good friend Anne Sayre did offer a rebuttal in *Rosalind Franklin and DNA*, but that biography is too polemical and pedantic to be either persuasive or a good read. Now, just in time for the 50th anniversary of the double helix, noted British biographer Brenda Maddox has produced a more balanced, nuanced and informed version of the tale. *Rosalind Franklin: The Dark Lady of DNA* is neither a paean to Franklin nor a condemnation of her competitors. It's simply the story of a scientist's life as gleaned from extensive correspondence, published and unpublished manuscripts, laboratory notebooks, and interviews with many of the protagonists. It was an interesting life. Franklin, the daughter of a prominent Jewish family, was an "alarmingly clever" girl who spent her free time doing arithmetic for pleasure. She was educated at a series of academically rigorous schools culminating in the University of

Cambridge, where, despite the fact that women were still excluded from receiving an undergraduate degree, she managed a Ph.D. in physical chemistry and developed the experimental style that was to characterize all her subsequent work-- an approach that was meticulous, albeit sometimes overly cautious. Then it was off to Paris, where she applied the new techniques of x-ray diffraction to the structure of coal. In France, Franklin bloomed both as a scientist, authoring numerous independent publications, and as a young woman free from the constraints of family and stuffy British society. It was a happy and productive period, as were her final years at Birkbeck College in London, where she collaborated with Aaron Klug on the structure of the tobacco mosaic virus. Alas, the central and most important two years of her career were spent in the far less hospitable environment of the biophysics unit at King's College London. There she immediately locked horns with Wilkins over who would get to study the structure of DNA-- a subject that had been largely ignored during World War II, with its emphasis on more practical matters, but was increasingly regarded as the problem in structural biology. Wilkins, who had been researching the matter for years, had seniority but little insight or good data. It was Franklin, a newcomer to biology, who made the critical observation that DNA exists in two distinct forms, A and B, and produced the sharpest pictures of both. They reached a compromise that Franklin would work on the A form and Wilkins on the B and went their separate ways. Or so Franklin thought. In fact, Wilkins, in a weekend visit to Cambridge, spilled the King's beans to Watson and Crick, who soon thereafter began the model building. Although their approach was less meticulous than Franklin's, it was also far quicker. A few months later it was Watson's turn to visit London, where Wilkins showed him Franklin's startlingly clear x-ray photograph of the B form. On the train back to Cambridge, Watson drew the pattern from memory on the margin of his newspaper. Yet just two months later, in their historic letter to *Nature*, he and Crick claimed, "We were not aware of the details of the results presented [in accompanying papers from Franklin's and Wilkins's groups] ... when we devised our structure." How did Watson and Crick, with the complicity of Wilkins, get away with so brazenly heisting "Rosy's" data? Maddox offers several theories. The most obvious is Franklin's position as a female researcher at an institution where women were still not allowed to set foot in the senior common room. There was also the matter of anti-Semitism. Franklin's family may have anglicized their name, but her uncle was the first High Commissioner of Palestine, and she was active in Jewish relief groups. She felt isolated, even ostracized, in a school where theology was the largest department and "there were swirling cassocks and dog collars everywhere." We'll probably never know the full story, but Maddox's book shines new light on one of the key characters in the tale of the double helix. Rosalind Franklin may not have had the intuition of some of her competitors, but what she did possess was equally important: integrity. Dean H. Hamer is a molecular geneticist at the National Cancer Institute. He is author of the upcoming *The God Gene* and co-author of *Living with Our Genes* and *The Science of Desire*.