

Radioactive: The pioneering efforts of physicist and chemist Marie Curie

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Directed by Marjane Satrapi; written by Jack Thorne; based on the book by Lauren Redniss

Marie Skłodowska Curie (1867-1934) was the first woman to win the Nobel Prize, and the first person and only woman to win it twice. Her life and work are the subject matter of Iranian-born French filmmaker Marjane Satrapi's feature, *Radioactive*, written by Jack Thorne, based on Lauren Redniss's 2010 graphic novel. The film is available online.

In 1903 Marie and Pierre Curie (1859-1906) won the Nobel Prize in physics for their discovery of radioactivity. After Pierre's sudden death, Marie continued her research and won a second Nobel Prize in Chemistry in 1911. According to the movie's production notes: "Together, the Curies discovered two new scientific elements, radium and polonium, with remarkable properties which would have consequences, both good and bad, that are still impacting us today—nuclear weapons, radiation for medical treatment and nuclear energy."

In creating *Radioactive*, not an inspired work, the filmmakers stumble centrally over the relationship between science, technology and class society, as many have done before them. The movie's principal attribute is that it calls attention, with the help of some impressive performances, to two of modern history's most remarkable figures.

In 1890s' Paris, Marie (Polish-born Maria) Skłodowska (Rosamund Pike) and fellow scientist Pierre Curie (Sam Riley) begin working together in the latter's dingy laboratory after Marie is evicted from her lab at the university by a group of older male scientists. Pierre, a renowned physicist, and Marie wed, collaborating in the titanic discovery of radioactivity.

In an interlude that suggests the combining of science and art, Satrapi (*Persepolis*) shows the American dance and theatrical lighting innovator Loie Fuller (1862-1928) (Drew Jacoby) performing her famed "Fire Dance" at the

Folies Bergère. The other-worldly, ethereal movements and a costume that emits light seem to hint at Pierre's interest in spiritualism. Indeed, despite her skepticism, a grief-stricken Marie consults a medium after Pierre is tragically killed, at the age of 46, in a Paris street accident in April 1906.

The most wrong-headed juxtapositions in the film occur when images of cancer being treated by radiation are overlaid with video clips of the Enola Gay dropping atomic bombs on Japan in August 1945, the 1945 American military testing of a nuclear device in the Southwest—the infamous mushroom cloud—and the 1986 Chernobyl nuclear disaster in the former Soviet Union.

In an apparent effort to be "balanced," the filmmakers insert a sequence, towards the movie's conclusion, in which Marie and her famous daughter Irène (Anya Taylor-Joy), a future Nobel Prize winner in chemistry herself, fight to bring X-ray machines to the front in World War I. (The film's postscript notes that more than 1 million men were X-rayed by Marie's mobile radiographic units during the war.)

"As we say in the story, they [Pierre and Marie] picked up the pebble and they cast it in the pond, but they're not responsible for the ripples," state the movie's producers. "The consequences of their discoveries and the immense power that can be harnessed through them have been put to terrible use and to very good use: radioactivity at once causes cancer and cures cancer." But *Radioactive* sends a very mixed and confused message.

In fact, Pierre Curie, in his June 1905 Nobel Lecture (briefly represented in the movie), was clearer about those who employ science and technology against humanity, that is, the ruling elites, who today threaten humanity with a nuclear holocaust: "It can even be thought that radium could become very dangerous in criminal hands, and here the question can be raised whether mankind benefits from knowing the secrets of Nature, whether it is ready to profit

from it or whether this knowledge will not be harmful for it. The example of the discoveries of Nobel is characteristic, as powerful explosives have enabled man to do wonderful work. They are also a terrible means of destruction in the hands of great criminals who are leading the peoples towards war. I am one of those who believe with Nobel that mankind will derive more good than harm from the new discoveries.”

After Pierre’s death, Marie has an affair with a younger, married colleague, Paul Langevin (Aneurin Barnard), a world-class scientist in his own right (and, much later, a member of the Communist Party). The “right-wing tabloid press of the day,” according to *Obsessive Genius*, a biography of Marie Curie by Barbara Goldsmith, “accused her [Marie Curie] of being a home wrecker, a dissolute woman, a Polish temptress, a Jew.” Curie’s house was “surrounded by people who threw stones at her windows.”

After all this controversy, a member of the 1911 Nobel Committee wrote asking her not to come to Sweden to accept her prize. She replied (not in the film): “The action that you advise would appear to be a grave error on my part. In fact the Prize has been awarded for discovery of Radium and Polonium. *I believe that there is no connection between my scientific work and the facts of private life* ... I cannot accept the idea in principle that the appreciation of the value of scientific work should be influenced by libel and slander concerning private life.” (Emphasis added.)

How ironic! Substitute the phrase “artistic work” for “scientific work” and a woman whose life story has been treated as a vindication of #MeToo feminism provides a devastating indictment of the sexual witch-hunt.

Interestingly, in an interview with Rogerebert.com, the director reveals that “Marie Curie’s granddaughter ... told me, ‘My grandmother wrote a letter to my mother to say that ... Everybody wants to make a figure of feminism out of her, but she was not a part of any feminist movement. She was a factual feminist because she did what she had to do and she fought much more for her science than for being a woman.’”

Along these lines in the movie, Marie/Pike adamantly claims that she suffered more “from lack of resources and funds than ever [for] being a woman.”

Unfortunately, in *Radioactive*, as noted, the filmmakers lump together both the horrors and benefits of radioactivity without seriously thinking about the issue. They don’t understand that the fundamental issue is the existence of class society and the fact that technology and

science remain hazardously in the hands of the ruling, dominant class.

Leon Trotsky elaborated on this reality in his brilliant 1927 essay “Culture and Socialism.” In its opening section, “Technology and Culture,” Trotsky explained that humanity had developed technique as part of its “struggle with nature for existence, for the improvements of living conditions” and “for the increase” of its power. However, class society arose on the same basis. “In the process of adapting to nature, in the struggle with its hostile forces, human society develops into a complex class organization.”

Since historical society was and continued to be class society, then culture, including technology, unfolded as an instrument—with massively destructive potential in the case of nuclear weaponry—of class oppression. However, Trotsky asked, in regard “to technology above all else, we must ask ourselves: is it only an instrument of class oppression? It is enough to ask such a question to be able to answer at once: no, technology is a basic conquest of mankind; although it has indeed served until now as an instrument of exploitation, it is at the same time the basic requirement for the liberation of the exploited. The machine strangles the wage-slave. But the wage-slave can only be freed through the machine. Herein lies the root of the whole question.”

Marie and Pierre Curie, like their contemporary Albert Einstein and many other trailblazing scientists, carried out their work in a convulsive period. Their genius flourished in the imperialist era, an age of wars and revolutions, with all the contradictions that implies. In fact, their immense scientific contributions were expressions of an epoch in which many conceptions about the physical and social universe were shattered. The filmmakers have not seriously grasped this, or grasped it much at all. They touch on certain interesting questions, without ever developing them in a genuinely consistent manner.



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