Pioneers – The History of Musculoskeletal Radiology.

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Maria Skłodowska-Curie - "Science is something truly beautiful"

Skłodowska-Curie's scientific achievements are widely known, but still little is known about her private life. When the Nobel Prize winner was living in England a journalist took the opportunity to question one of her servants. Seeing a modestly dressed woman, he started asking her about her employer, because he could not imagine that this inconspicuous figure was the great researcher herself. Undaunted she smoothly replied to the journalist: "Mrs Curie only has one piece of important advice to pass on to reporters: be less interested in people, and more interested in ideas."

Maria Skłodowska-Curie was born in 1867 in Warsaw, the capital of Poland. Her father taught physics and chemistry, while her mother ran a school for girls. The country where she was born was then divided between its powerful neighbors, making it difficult for the Poles to make truly successful careers. The Skłodowski family took care of their children's education. Józef and Bronisława became doctors, and the penultimate daughter Helena qualified as a teacher. The family went through a tragedy when their eldest daughter Zofia died after contracting typhus.

The nineteenth century was not kind to European women, and despite their intense desire for education, they did not have free access to studies. However, in France changes started to take place and Julie Daubié (1861) was the first female student at Sorbonne University. The eldest of the Skłodowski women, Bronisława, started to study there, and in 1891 Maria followed her sister's footsteps.

Teachers of the two-time Nobel Prize winner (1903 - Physics, 1911 - Chemistry) were mathematician Paul Appell, Henri Poincaré who worked on the relativity theory, and researcher of the electropilar phenomenon, Gabriel Lippmann. Under the supervision of

such famous teachers, the exceptionally talented Skłodowska graduated mathematics from 1893, and then physics. Thanks to Lippman's support, she received a scholarship for testing the magnetic properties of metals. At the same time, she also met her future husband, the well-known scientist Pierre Curie whom she married in 1895 and worked hand in hand with for a decade (unfortunately Pierre died tragically in 1906).

Initially, they used the University's shed as their laboratory. As a doctoral thesis, the Polish woman chose uranium radiation research initiated in 1896 by Henri Becquerel. However, unlike the physicist, she did not use photographic plates for this purpose, but a special apparatus constructed by her husband and his brother, Jacques Curie. She managed to observe a number of new properties of uranium and minerals, where this element occurs. However, the most important achievement of her time was the discovery that the test mineral, called torbernite, included a new, indescribable element, which in 1898 was named polonium (Po) in honor of Poland, and a few months later, together with Gustave Bémont, the Curies announced that they discovered another element, radium (Ra).

In 1914, along with the beginning of the I World War, a new stage of scientific work began for Skłodowska. She had to abandon her research on radium (she personally concealed her samples in Bordeaux) and redirected her professional activity to diagnostic medicine. She was one of the first women in Europe to obtain a driving license and after a quick study of radiology and anatomy she procured X-ray equipment, vehicles, auxiliary generators, and developed mobile radiography units, which came to be popularly known as Poetites Curies ("Little Curies"). Assisted first by a military doctor and her 17-year-old daughter Irene, Maria began training other women as aides and X-ray technicians. As a result, the availability of x-rays and ability to promptly diagnose war injuries, was significantly increased.

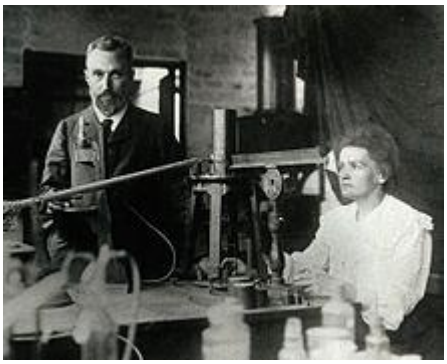
Next she became the director of the Red Cross Radiology Service and set up France's first military radiology centre, operational by late 1914.

After the war, the Nobel Prize winner continued to support radiological research and helped establish oncology institutes across the continent. Around 1935, she began to lose both her sight and her hearing. Health problems progressed and the probable cause of her death on 4th July 1934 was not as previously thought, to be due to the examination of polonium and radium, but it was rather to be due to the long-term radiation she was exposed to whilst providing "radiological" help during the war.

Today she is probably the most well-known female scientist in the world.

Skłodowski family: in the middle Władysław Skłodowski (father), surrounded by daughters. From left Maria, Bronisława (doctor) and Helena (teacher).

Source: https://commons.wikimedia.org/wiki/Category:Marie_Curie#/media/File:Sklodowski_Family_Wladyslaw_and_his_daughters_Maria_Bronislawa_Helena.jpg

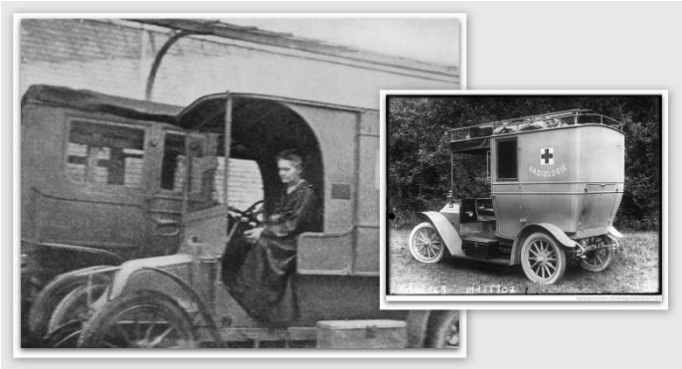


Maria and Piotr in the laboratory 1904.

Source: https://commons.wikimedia.org/wiki/Category:Marie_Curie#/media/File:Pierre_and_Marie_Curie.jpg

A photo from the Solvya scientific congress in Brussels in 1911. Maria Skłodowska is the only woman. Among the invited guests visible in the photograph, we can see others such as Albert Einstein (standing second from the right).

Source:
https://pl.wikipedia.org/wiki/Kongresy_Solvaya#/media/File:1911_Solvay_conference.jpg



A mobile radiology clinic, called the "Little Curie"

Source of the photo on the left https://www.smithsonianmag.com/history/how-marie-curie-brought-x-ray-machines-to-battlefield-180965240/ on the right *https://images.theconversation.com/files/189295/original/file-20171008-25775-tb6ded.JPEG?ixlib=rb-1.1.0&q=45&auto=format&w=600&h=448&fit=crop&dpr=1*