2011—the year of Maria Skłodowska-Curie in the International Year of Chemistry

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Maria Skłodowska-Curie (1867–1934) [1]

Maria Skłodowska-Curie is the only scientist in history to receive the Nobel Prize twice, once in Physics (1903) for the discovery of radioactivity and once in Chemistry (1911) for the discovery of polonium and radium and studies concerning the nature of these elements. Scientific work, which she started together with her husband Pierre Curie and continued after his death, opened a new realm of Physics and Chemistry and led to the development of the first methods of studying the interior of the atom and the nature of matter. These studies have dominated contemporary science. Stating that radiation of radioactive substances induces chemical reactions, she became the founder of radiochemistry. She was able, in a very fast way, to introduce her scientific theories and check them out in practice.

Her curriculum vitae, scientific career and social activities are so fascinating and full of secrets that they could be used as a topic of many studies, not only scientific. She was born on 7 November 1867 in Warsaw and her desire for liberation from the prevailing conditions at that time (the end of the nineteenth and the beginning of twentieth century) meant that she became a beacon for modern women—a scientist, wife, mother, and philanthropist. Her life's work (education and knowledge) was performed outside of occupied Poland. As her second homeland, she chose France. How eloquently and simply she described the story of her life: "This is a small, simple story. I was born in Warsaw, in a family of professors. I married Pierre Curie. I had two children. The scientific work I have performed in France" [1].

Despite various misfortunes and adversities, she always paid attention to the education of her daughters. She showed devotion in her research and in the realization of the idea of creating Radium Institutes in Paris (1911) and Warsaw (1932) and constructing mobile X-ray laboratories—her lasting legacies. This activity, flexibility, versatility and sensitivity have met with varying degrees of perception and expressions

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of opinion about her which were often inaccurate and unfair. She was a great personality with a unique charisma and devotion to things that she started. In the memories of her numerous friends and those who were lucky enough to work with her or meet her, she remained a unique personality, and at the same time heroic and dramatic. She was best described by Albert Einstein, who stated that “Marie Curie is of all famous beings, the one whom fame has not corrupted” [1]. It is not necessary to add anything else.

Today she is a symbol of a personality of the highest moral values and the highest academic achievements.

Maria Skłodowska-Curie died on 4 July 1934 in a sanatorium near Sancełmoż, in the Savoie Alps, due to leukemia caused by continuous exposure to radiation. She was buried at the cemetery in Sceaux, next to her husband Pierre. Sixty years later, on 20 April 1995, in honour of their achievements, the mortal remains of Pierre and Marie Curie were officially transferred to the Pantheon in Paris. Maria Skłodowska-Curie became the first woman and the only person not born in France to be honoured in this way.

Maria Skłodowska-Curie is a beautiful and wonderful example of Polish and French contributions to European and world science. She was a great scientist who became one of the most prominent figures in Poland and abroad. Her name is assigned to universities, schools, cancer centres, streets and squares all around the world. Many monuments and museums are devoted to her, and she also received honorary citizenship of Warsaw and honorary membership of the Polish Chemical Society.

Some of the achievements and contributions of Maria Skłodowska-Curie to life, science and the progress of civilization are summarized briefly below:

1. Her biography is an example for others
 - Physics – she showed that this science was also for women
 - Road from devotion to success
 - Road from scientific discoveries to their implementation
2. Construction of new instruments
3. Development of new research methods
4. Introduction of the concepts and physics of radioactivity
5. Launch of new scientific disciplines
 - Medical physics
 - Radiotherapy
 - Nuclear chemistry
6. Discovery of two new elements, polonium and radium
7. Creation of new scientific therapeutic units—Radium Institutes in Paris and Warsaw, the creation of the Radiological Laboratory in Warsaw
8. Received two Nobel Prizes in two different fields of science, physics and chemistry

The issues mentioned above are presented here in a series of seven articles that show the personality and achievements of this exceptional woman [1].

Family home and place of birth of Maria Skłodowska-Curie: The Polish Chemical Society Head Office and Museum of Maria Skłodowska-Curie, 16th Freta Street, Warsaw, Poland (Courtesy of Krzysztof Woroniecki, Polish Chemical Society collection).

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