Volume75/March

# CosmoChemistry weekly

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All you need to know about Curie!

Marie Curie

# Get These *Hot* Items While You Still Can!





# *MarIe Curie*

# *Stamps*

# BeFoRe YoU rEaD tHiS aRtIcLe...

## Background information:

Maria Curie, maiden name *Maria Sklodowska*, was born in Warsaw, Poland on November 7, 1987. Mother and father were both school teachers. Five children accompanied her. She couldn't attend the University of Warsaw because women weren't permitted to study there. She joined a "floating university" that would study at night at different location to avoid detection by czar's police. She knew she had to attend a university in Western Europe. Instead, on Sundays she secretly studied chemistry course at as "Museum," which was actually an illegal lab for training Polish scientists. Curie then moved from Warsaw to Paris in autumn of 1891.

She attended a university in Paris under a new name 'Marie' (French form of Maria). She completed master's degrees in physics and math in only three years. This work won her a scholarship. Then, a group of industrialists, Society for the Encouragement of National Industry, paid her to investigate steel. She needed a lab to investigate. Then, in 1894, she met Pierre Curie. She used his lab to investigate for Encouragement of National Industry.

"Marie Curie is, of all celebrated beings, the one whom fame has not corrupted." - Einstein

are your dates correct?

## Most Memorable Awards

| Year | Award | Details |
|---|---|---|
| 1903 | Noble Prize in Physics | study into the spontaneous radiation discovered by Becquerel |
| 1911 | Noble Prize in Chemistry | recognition of her work in radioactivity |
| 1903 & 190 | Davy Medal of the Royal Societ | presented her with one gram of radium in recognition of her service to science. |

A Story Never Once Told... Until Now.

# MarieCurie

## Is telling you her journey...

written

***Wrote/Interviewed: Brittany Sales***

**Q: How did you get interested in the science field?**

*A: Well, I grew up in Warsaw, Poland. Life there was very degrading. On top of that, my mother died of tuberculosis when I was young. But back then women weren't allowed to get an education. I was interested in applying myself and discovering what was out there. I was just fascinated in reading many subjects and found I was best in math, physics, and chemistry. The Russian Authorities had forbidden the teaching of science, but I received lessons from a chemist in the beet-sugar factory. I would also attend a chemistry course a "Museum," which really was a lab for the training of Polish scientists.*

**Q: What did you do after receiving these classes and training? Did you quickly get out of Poland? In what direction were you headed?**

*A: Yes, I was pretty much in a rush. I was headed to Western Europe. I left my family back in Poland; I told them I'd return when I was satisfied. I even changed my name to Marie (French form of Maria) before attending the University of Paris. Where then I received master's degrees in physics and math in just three years. This happened to lead to a scholarship.*

**Q: How did you get a laboratory? Did anyone ask you to perform experiments?**

*A: Yes, well the Society of Encouragement of National Industry asked me to investigate the magnetic properties of different steels. Of course then I needed a lab. That is when they sent me to the Paris Municipal School of Industrial Physics and Chemistry. That is when I met Pierre Curie. He was Laboratory Chief there. He was 10 years older than me. After working with him, I convinced him to get a doctoral degree and write up his magnetism research. He was promoted. We then just hit it off and we're married in July 1895. I submitted my steel results and then gave birth to Irene, our first daughter, in September 1897.*

**Q: How was the laboratory? What conditions did you face?**

*A: Well, the laboratory was perfect to me at first. I was just happy to have somewhere to experiment and of course having Pierre there was great, too. The lab was pretty crowded and damp. I just had to overcome the conditions and make the most of it.*

**Q: Was there anything neat then about your new laboratory?**

*A: Yes, Pierre and I loved going in at night to the workshop (lab) and all around us we would see the luminous silhouettes of the beakers and capsules that contained ~~out~~our experiments. It was exciting for us!*

**Q: What was next for you in life? Did you move on to your next experiment? What was the outcome?**

*A: Chemical compound that contained uranium was my starting point. I studied them and found out that the strength of the rays that came out depended only on the amount of uranium in the compound. Whether the material was solid or powdered, dry or wet, pure or combined with other substances had no impact.*

**Q: Explain.**

*A: Well, if you had a certain amount of uranium (which is a certain number of uranium atoms) that would mean there is a certain intensity of radiation.*

**Q: I'm curious to know, what else did you study?**

*A: Well I did come to notice from handling tons of minerals that thorium was radioactive. Pierre and I discovered that radioactivity was not the result of a chemical reaction. It was a property of the element/atom. I studied pitchblende, too. In that mineral I measured an intense activity than is present in uranium alone. So, then I realized that there were more substances besides uranium that were radioactive. Polonium and radium were then discovered in about 1898.*

**Q: If you are all right with discussing, what happened to Pierre?**

*A: Well, I was standing strong with Becquerel trying to win the noble prize for physics for the discovery of natural radioactivity. I was working long hard hours ~~g~~2ot getting enough to eat-(I was) very weak. Pierre was overworked from his studies of radium to cure malign tumors that I guess we were just both coming to end. In 1906, Pierre was run over by a car. From there I was forced to continue alone in the science field and struggled to take care of our family. But I became the first women to be appointed professor at Sorbonne.*

# Got Milk?

*Recent studies suggest that including 24 ounces of low fat or fat free milk a day in a reduced calorie diet may help you burn more fat and lose more weight that cutting calories alone!*

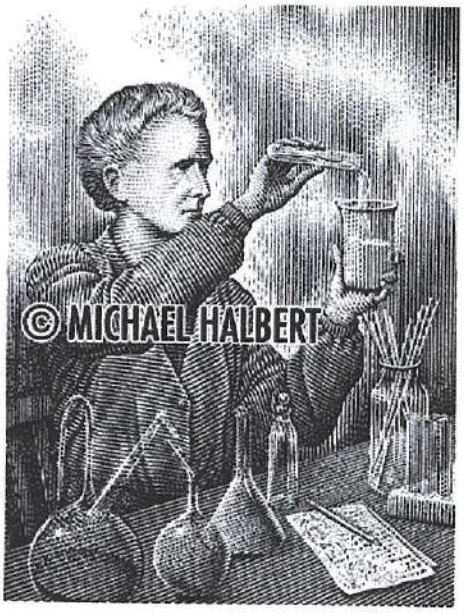
**Q: Did you have any other interests in life besides the science field?**
*A: Well, I had an interest in easing human suffering. But the founding of the Radium Institute by the University of Paris and the Pasteur Institute in 1914 enabled me to fulfill my dream.*

**Q: What were your contributions to the war?**
*A: Well, I did create x-ray vans because I think that it was important to not move the wound. The x-rays, though, helped to locate the bullets.*

**Q: Did you stop there? I mean a girl like you so experimental and curious?**
*A: Of course not! I provided equipment for hospitals. I trained over 150 female manipulators, too.*

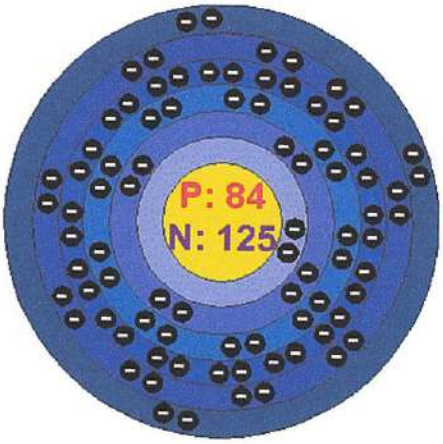
**Q: How were you mentally and physically now at this time in your life?**
*A: Right now I am exhausted. My sight isn't the same as it used to be. My feelings for Pierre are overcoming me. My fingers are burnt and stigmatized by radium. But my curiosity and mind keep on going.* **-BS.**

> *"There are sadistic scientists who hurry to hunt down errors instead of establishing the truth."* - *French (Polish-born) chemist & physicist (1867 - 1934)*



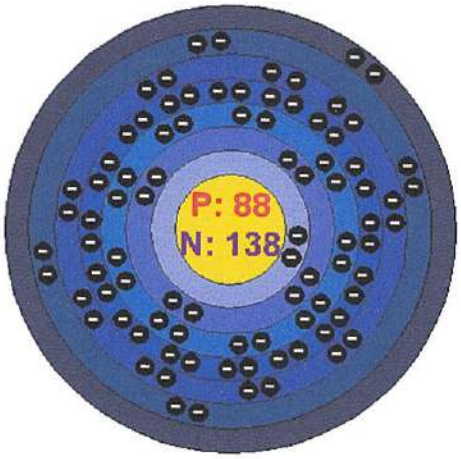
# Going In-depth Into Elements

## POLONIUM




**Basic Information**
Name: Polonium
Symbol: Po
Atomic Number: 84
Atomic Mass: (209.0) amu
Melting Point: 254.0 °C
Boiling Point: 962.0 °C
Number of Protons/Electrons: 84
Number of Neutrons: 125
Classification: Metalloid
Crystal Structure: Monoclinic
Density @ 293 K: 9.4 g/cm3
Color: Unknown

## RADIUM




Basic Information
Name: Radium
Symbol: Ra
Atomic Number: 88
Atomic Mass: (226.0) amu
Melting Point: 700.0 °C
Boiling Point: 1737.0 °C
Number of Protons/Electrons: 88
Number of Neutrons: 138
Classification: Alkaline Earth
Crystal Structure: Cubic
Density @ 293 K: 5.0 g/cm
Color: Silverish

*"You cannot hope to build a better world without improving the individuals. To that end each of us must work for his own improvement, and at the same time share a general responsibility for all humanity, our particular duty being to aid those to whom we think we can be most useful."* – Marie Curie *French (Polish-born) chemist & physicist*

Cited: Bentor, Yinon. Chemical Element.com - Polonium. Feb. 23, 2006 <http://www.chemicalelements.com/elements/po.html>.

Brittany Sales
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Feb. 24, 2006

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