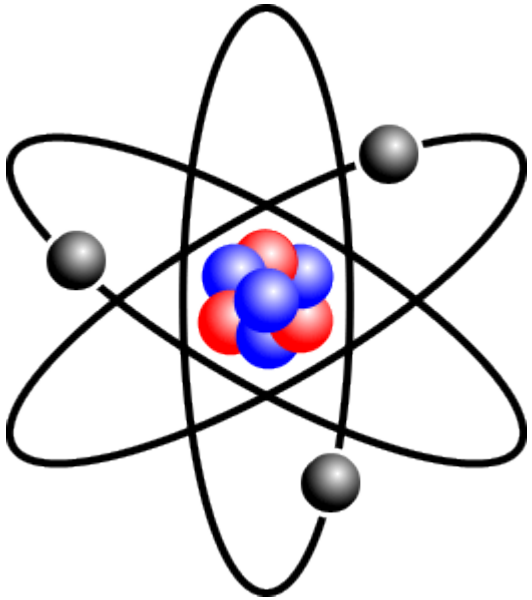
CLIL 2021

Atoms and Beyond

Istituto Nazionale di Fisica Nucleare



Marie Curie’s personal effects are still radioactive!

and they will be for the next 1,500 years.

We all have heard her name before. But who was Marie Curie?

- Marie Curie was a Polish-born, French physicist
- She's famous for her work on radioactivity
- First woman to win a Nobel Prize
- Only woman who won two Nobel Prizes in two different fields (Physics and Chemistry)

Lab research

She worked with her husband, Pierre Curie

She was «the mother of modern Physics»

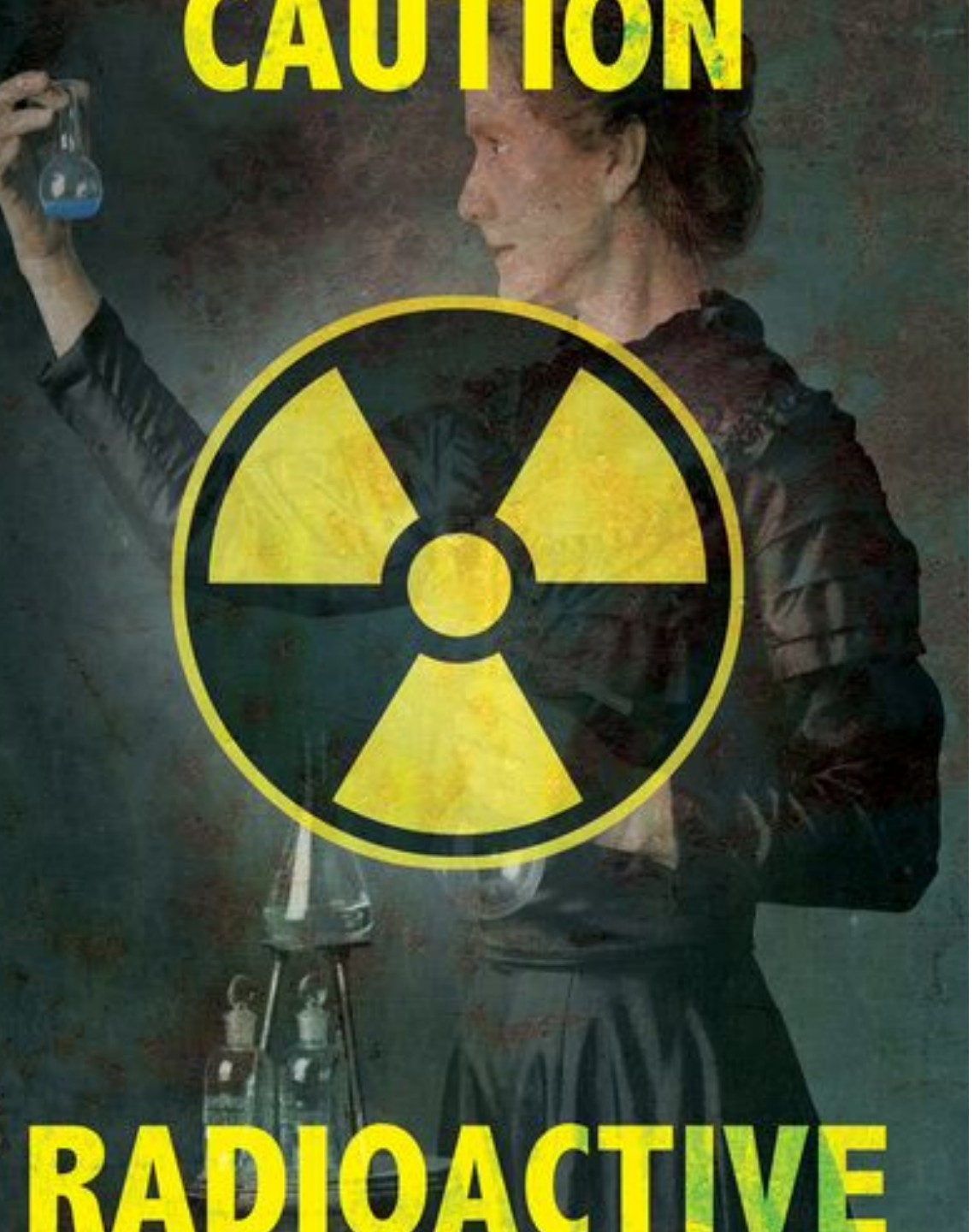
- She began studying the x-rays and uranium with her husband
- They discovered two new radioactive elements: polonium and radium
- She invented the word «radioactivity» to define the activity of rays
- She understood that the radioactivity of uranium was due to its atomic structure
- Her discoveries led to a new scientific field: atomic physics.

Madame Curie's contribution to medicine

- The x-rays machine was discovered by German scientist Wilhelm Roentgen in 1895
- She made it more precise by using radium as the source of gamma rays
- She created small portable x-ray machines

Madame Curie's contribution to the Great War

- Madame Curie helped her country, France, during WW1 and saved many lives especially during the battle of Marne
- She even designed a CAR which contained a big x-rays machine and was alimented with a dynamo.
- Thanks to these cars, doctors could perform delicate surgeries with much more confidence.



Was she aware of the dangers of radioactivity?

She was not.

Very sadly, Madame Curie died of *aplastic anemia*, a very rare condition which causes a deficiency of blood cells.

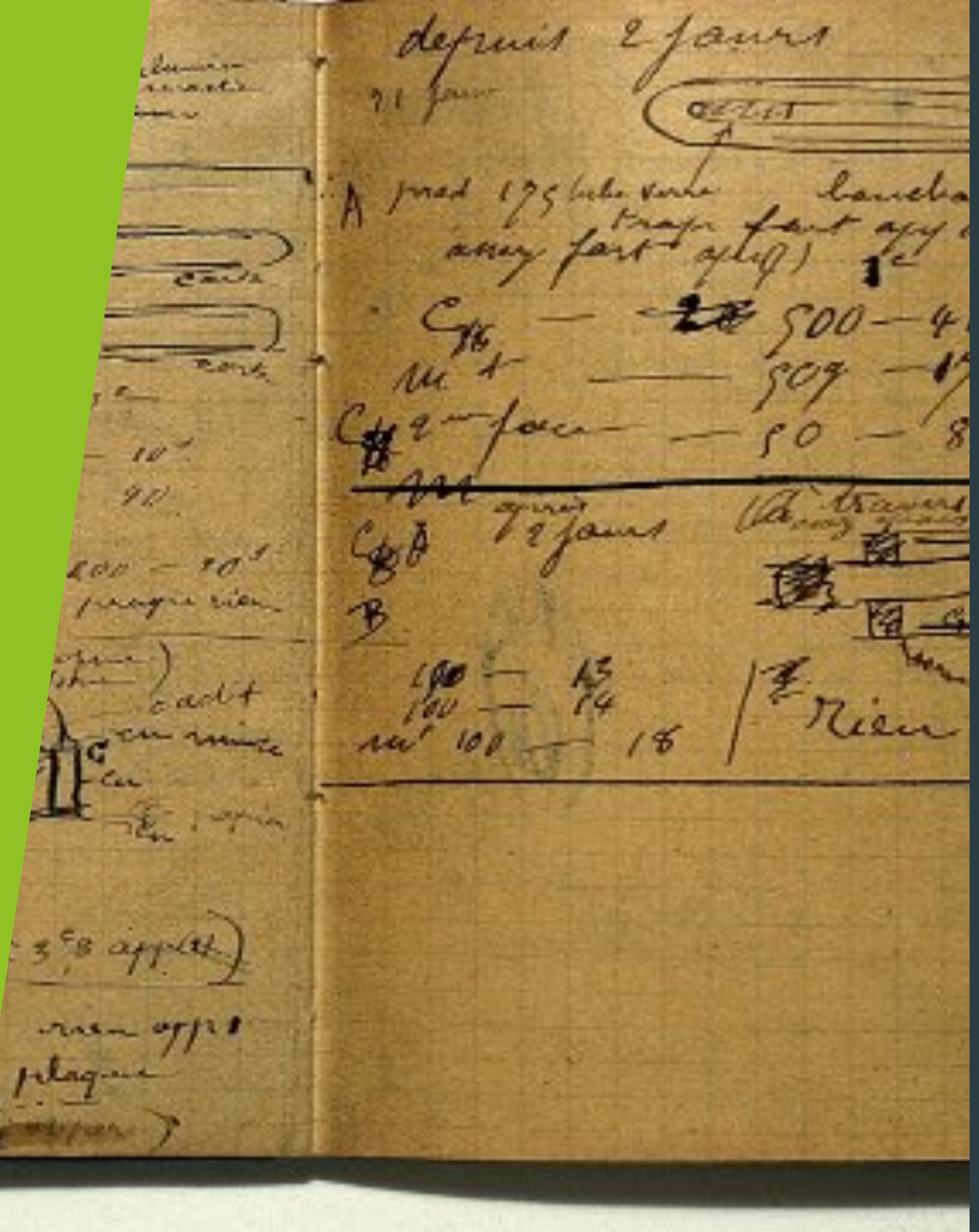
It is believed that she developed this condition due to her prolonged exposure to radioactive materials.

The most damaging experience, however, was her service during WW1. She did not wear any protection while performing radiographies.

She carried radioactive elements in her own pockets.

She was afraid of possible health risks, but she didn’t know how to protect herself from radiations.

It is also thanks to her sacrifice that we now know how to.



Her lab notebooks from a century ago are still radioactive.

They’re considered a national treasure.

They’re stored in the French National Library in Paris.

They’re still so dangerous they have to be kept in lead-lined boxes.

If you want to go and consult her works, you'll have to wear specific protective garments.

FUN FACT: Madame Curie wrote her favorite recipes in cookbooks. These cookbooks spread radiations even though they were NOT inside her lab!

The bodies of Marie and Pierre Curie are radioactive too.

They’re buried at the Pantheon, among other icons of French history.

Marie Curie’s casket is made of lead.

Even their furniture and personal belongings will be radioactive for the next 1,500 years.

Bibliography

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Image sources are cited in the notes section below each slide.