The Story of Marie Curie and Toothpaste

In today's **encore** excerpt - Marie Curie (1867-1934), physicist, chemist and pioneer in the field of radioactivity:

"The nineteenth century held one last great surprise for chemists. It began in 1896 when Henri Becquerel in Paris carelessly left a packet of uranium salts on a wrapped photographic plate in a drawer. When he took the plate out some time later, he was surprised to discover that the salts had burned an impression in it, just as if the plate had been exposed to light. The salts were emitting rays of some sort.

"Considering the importance of what he had found, Becquerel did a very strange thing: he turned the matter over to a graduate student for investigation. Fortunately the student was a recent emigre from Poland named Marie Curie. Working with her new husband, Pierre, Curie found that certain kinds of rocks poured out constant and extraordinary amounts of energy, yet without diminishing in size or changing in any detectable way. ... Marie Curie dubbed the effect 'radioactivity.' ... In 1903 the Curies and Becquerel were jointly awarded the Nobel Prize in physics. (Marie Curie would win a second prize, in chemistry, in 1911, the only person to win in both chemistry and physics.) ...

"Radiation, of course, went on and on, literally and in ways nobody expected. In the early 1900s Pierre Curie began to experience clear signs of radiation sickness - notably dull aches in his bones and chronic feelings of malaise - which doubtless would have progressed unpleasantly. We shall never know for certain because in 1906 he was fatally run over by a carriage while crossing a Paris street.

"Marie Curie spent the rest of her life working with distinction in the field, ... [though] she was never elected to the Academy of Sciences, in large part because after the death of Pierre she conducted an affair with a married physicist that was sufficiently indiscreet to scandalize even the French - or at least the old men who ran the academy, which is perhaps another matter."

"For a long time it was assumed that anything so miraculously energetic as radioactivity must be beneficial. For years, manufacturers of toothpaste and laxatives put radioactive thorium in their products, and at least until the late 1920s the Glen Springs Hotel in the Finger Lakes region of New York (and doubtless others as well) featured with

pride the therapeutic effects of its 'Radioactive mineral springs.' Radioactivity wasn't banned in consumer products until 1938. By this time it was much too late for Madame Curie, who died of leukemia in 1934. Radiation, in fact, is so pernicious and long lasting that even now her papers from the 1890s - even her cookbooks - are too dangerous to handle. Her lab books are kept in leadlined boxes, and those who wish to see them must don protective clothing."

Bill Bryson, *A Short History of Nearly Everything*, Broadway, Copyright 2003 by Bill Bryson, pp. 109-111.