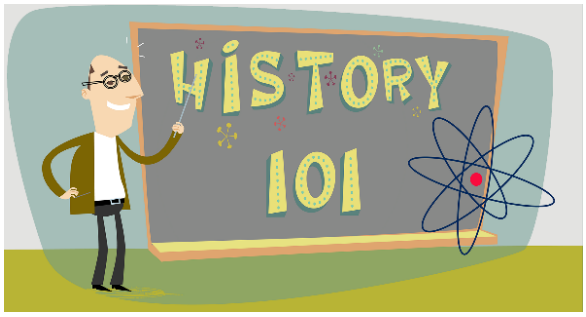
Radium Part I: Opening Pandora's Box



When Marie and Pierre Curie discovered Radium-226 in 1898, it opened up the atom's secrets and offered hope that its mysterious radioactive rays were a miracle cure. Sobering reality replaced euphoria as radium factory workers began to die.

Radium taught the world of radiation's dangers, yet it was not until 2005 that Congress put all aspects of radium safety oversight under the federal government. Until that time, it was primarily regulated — to varying degrees — by the states. This three-part blog series traces radium's long unique history where states took the lead in regulating it and compensating victims.

Soon after the Curies' discovery, radium became a consumer and medical sensation. Its radiation reduced tumor growth, and researchers found somewhat elevated levels of radiation at some medicinal spas, such as Saratoga Springs, N. Y., and Hot Springs, Ark. Conclusion? Radiation was a life saver. One physician claimed that radium's "radiation prevents insanity, rouses noble emotions, retards old age, and creates a splendid youthful joyous life."

Manufacturers hawked quack products they claimed were laced with radium as a miracle cure and status symbol: elixirs, kitchenware, clothes, pillows, razor blades, and cigarette holders, even condoms. Radium's luminescent properties also made possible glow-in-the-dark paint for watch dials.

In 1925, the *New York Times* reported one of the earliest instances of radiation-induced cancer. Its victims were young women—watch-dial painters in New Jersey, Connecticut and Illinois. The intricate work required them to "lip point" their brushes by licking them. Infections and cancers of the jaw followed from the ingested radium. The isotope's bone-seeking properties and long half-life made it particularly dangerous. (The time required for the radioactivity to decrease by one-half is referred to as the half-life. The half-life of Ra-226 is about 1,600 years.)

The tragic story of the "radium girls" transformed radiation's image from panacea to poison. Public discussion turned to compensating victims and limiting radium exposures—duties that usually fell to state courts and agencies. In New Jersey, reformers won their fight for a law allowing compensation for "radium necrosis."

State labor and health agencies were able to halt lip pointing, but their power over industry was sometimes limited. For example, the New Jersey Labor Department issued to U.S. Radium Corporation an order to tighten safety for its dial painters — "comply or close." It closed and moved elsewhere.

Federal agencies mostly deferred to state authority over radium. They issued studies, organized conferences, and developed voluntary safe work practices. The Federal Trade Commission had some influence in shutting down falsely advertised products, such as the "fountain of youth" tonic Radithor, but safety assurance was a state prerogative.

With World War II, change came as nuclear reactors of the U.S. wartime atomic program flooded the world with new isotopes, reducing to near insignificance radium's commercial and medical applications. The Curies' Nobel-Prize discovery was about to become an afterthought.

Be sure to check out Part II for the rest of the story.

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