



The Waterbury Clock Company and The Radium Girls

When millions of American men were recruited or conscripted into the military for the United States' entry into the Great War, women filled their roles on the homefront. Whether these women were swept up in a patriotic fervor to join the war effort, saw the opportunity for better pay, or sought greater independence, the end result was more rights and a milestone towards new opportunities. The role women played during the years of the First World War are often credited as the final push needed for the signing of the 19th amendment two years after the war's end. Indeed, President Wilson publicly endorsed women's right to vote for the first time in 1918, directly acknowledging their vital role in the war effort (Wilson Center). The Waterbury Clock Company was just one of many factories in Connecticut that offered jobs to women during and after the war. The clock company prided itself in selling watches and clocks with dials that could glow in the dark. Unfortunately, the company specifically hired women to paint these new luminescent designs, who were unaware of the risks.

The Waterbury Clock Company was incorporated in 1857 in the city of its namesake. It was originally created as just one of many subsidiaries by its parent company, the Benedict & Burnham Manufacturing Company. Benedict & Burnham was a prominent brass production company that made brass for other facilities and light hardware items such as hinges or door knobs. For more specific product lines, separate entities were created and would make finished consumer goods using brass from their factory (*Making Places: Historic Mills of Connecticut*). In the 1860s, the Waterbury Clock Company moved away from its parent company facility to its



Waterbury Clock Company Movement Shop (1888). Source: Waterbury and Her Industries by Homer F. Bassett (1889).



The former Waterbury Clock Company facility in 2023. Now used for apartments and other industries. Corner of North Elm St and Cherry Ave, Waterbury CT.

own location. The company prospered and grew in both numbers of buildings and employees. The company employed three hundred workers in 1887. By 1917, employee count was around three thousand (Pape 224). The final decade of the 19th century saw massive success for the company. R. H. Ingersoll & Brother, a small mail-order company located in New York, contracted with the Waterbury Clock Company to produce a watch that could be sold for just one dollar. This “Yankee” dollar watch was incredibly popular and millions of them were sold, earning it the slogan “the watch that made the dollar famous.” In 1910, the Waterbury Clock Company was producing 3,500,000 of these watches annually for Ingersoll’s company and the Waterbury Clock Company had become the largest clock maker in the United States (Mattatuck Museum).

With these numbers and production capability, the Waterbury Clock Company was in a good position to produce for, and make money off of, the Great War. Soldiers needed a quick

Ingersoll
Waterbury

In the first place it's the size that is so much wanted to-day—especially in the cities—the smaller “12-size.” Then the whole “get-up” of the watch is smart, stylish, up to the minute in all the little features found in the high-priced watches.

But a watch is to keep time and to meet practical requirements. Here is three dollars' worth of watch by the best Ingersoll standards. It's jeweled with four jewels at points of greatest friction. It is accurate; and it is sturdy, too. It isn't put out of business by a little rough handling that most watches won't stand.

As an added attraction you have the Waterbury “Radiolite” at \$4. The hands and figures are made of a new self-luminous substance containing genuine radium. This causes them to glow with a brilliance that lasts for ten years—probably much longer.

You can always tell an Ingersoll store by the display of Ingersolls in the window. There's one not far from you.

Waterbury Radiolite \$4

ROBT. H. INGERSOLL & BRO.
New York Chicago San Francisco

R. H. Ingersoll & Brother radiolite watch advertisement. *The Masses Magazine* (June 1917) Source: NYU Libraries.

way to check the time instead of fishing around for their pocket watch. Artillery barrages, troop movements, and strategy were heavily based around specific timing. Before WWI, wristwatches were considered lady’s jewelry and proper gentlemen were to have a pocket watch - the war changed this trend permanently. The practical utility of the wristwatch was shown in the field and soon soldiers were required to purchase one. Innovating in the watch market once again, R. H. Ingersoll & Brother, using the Waterbury Clock Company as their manufacturer, modified a line of their women’s “midget” pocket watches by adding lugs. A canvas strap would be placed through these lugs to enable it to be worn on the wrist. The crown of the watch, traditionally in the 12 o'clock position, was moved to 3 o'clock (JCK Magazine 2005). In addition, the numbers were painted with a luminescent paint so wearers could tell the time in the dark. This luminescent substance was radium, a radioactive chemical that the Ingersoll company branded as *Radiolite*. After the end of the First World War, soldiers brought their wrist watches home and it became the dominant style for men’s time pieces. The novelty and usefulness of the luminescent radium painted dial made the glowing clocks and watches quite popular and these continued to be made through the 1920s, leading to disastrous effects.

To keep up with Ingersoll’s contracts for watch production, the Waterbury Clock Company opened up new dial painting positions for young, working class, white women; usually childless so that they could spend the majority of their 7-day work week in the factory (Clark

109). Thinner fingers and a more delicate touch were more desirable for the meticulous work of painting the hands and numbers of a watch or clock face. The job paid decently well. However, speed was an important factor. Similar to an assembly line, dials would be placed in front of seated women to be painted. To quicken the process, managers encouraged the process of “lip pointing”: Placing the paintbrush in the mouth and using their lips to make a fine point to their brush (Fontaine). The brush was then dipped into a mixture of radium, water, and gum arabic. This process continued for every dial to be painted, every day, every week they worked. The danger of ingesting the radium was unknown to the workers and the quicker they worked, the more radium they would absorb. The company in Waterbury was not the only location painting illuminating clocks and watches. Firms run by the Radium Dial Company and the United States Radium Corporation in Ottawa, Illinois and Orange, New Jersey also had unaware women ingesting the radium solution (Richter 5).

While the effects of radium were not fully understood at this point by the general population, advertisers and some medical professionals extolled the virtues of the substance, often suggesting it was beneficial for the human body. This, along with their supervisor's assurances, quelled the need for any negative suspicion by the dial painters of the radium laced paint. If the women were going out for the evening after work, they would occasionally paint their nails, hands, or teeth with the radium paint to make themselves stand out (Moore). Behind the scenes, management of the radium corporations did know the negative effects of working with radium but chose to keep it a secret for the sake of profit. Higher-ups in the Orange,



US Radium Dial Painters in the Paint Application Building. Orange, NJ (1922). Source: Public Domain Wikimedia Commons.

New Jersey plant believed that radium was dangerous but that the girls were working with such small quantities that precautions were not needed (Moore).

By the early 1920s, some of the girls were experiencing radium's effects. Frances Spletscher joined the Waterbury Clock Company as a dial painter at the age of 17 in 1921. Within a few years, she was terribly ill with severe anemia in addition to her jaw aching and bleeding constantly. Upon visiting a dentist for a tooth extraction, part of Frances' jaw came out with the pulled tooth. Her health would further deteriorate with bones weakening and suffering necrosis in her jaw. In 1925, she would be the first radium girl to die (Moore). The company refused to admit that her illness was related to her employment. Nevertheless, the Waterbury Clock Company hired Dr. Frederick Flinn to examine the employees experiencing similar

ailments later that year. Flinn had previously worked with the radium corporations in New Jersey and said he had found no traces of radiation in their employees. Flinn covered for the companies, stating again that there were no traces of radium in the girls' bodies. Another employee, Elizabeth Dunn, was also experiencing severe symptoms. She had broken her leg dancing in 1925 as a result of the radium weakening her bone strength. Similar to Frances Splettscher, she developed necrosis in her jaw and died in 1927. Flinn continued to lie and assure the girls that

**RADIUM GIRL IS
UNDER CARE OF
THE CLOCK CO.**

**Infected Years Ago But
Company is Paying All
the Expenses**

A 28-year old Waterbury girl who has been under medical treatment for the last several months has had her case diagnosed as chronic radium poisoning, contracted while engaged as a dial painter in the employ of the Waterbury Clock company, it was learned today.

Charles H. Granger, vice president of the Clock company confirmed the report, stating that the girl was employed by the company in 1923. Mr Granger said that through arrangements made with Attorney Martin J. Parker, representing the girl's interests, the company, while not obligated under the law, is making all necessary payments of medical and hospital expenses, and in addition, has agreed to make weekly compensation payments.

Mr Granger further announced that the practice of dial painting by hand has been abolished by the company and that a new system, described as 'steel-plate pressure' has been substituted. This new system was introduced by the company when it learned that the radium poisoning cases arose from the practice of the girls' pointing the brushes, used to apply the radium paint to the clock and watch dials, by their lips.

Frontpage news article on a Waterbury radium girl (1934).
Source: *The Waterbury Democrat*
via Library of Congress.

they were healthy and had no traces of radium in their body until 1928, when he began convincing the girls to accept the settlements that the company had begun to give out (New England Historical Society). Employees were developing tumors and cancer. The deaths of Mildred Cardow and Mary Damulis would follow in the late 1920s, causing the Waterbury Clock Company to finally denounce lip pointing (Fontaine). The deaths of the Waterbury radium girls, along with deaths at the dial painting firms in Ottawa, Illinois and Orange, New Jersey caused other radium girls to push more strongly in court. Some of these settlements were won in New Jersey and Connecticut (*The Waterbury Democrat*). Entering the late 1920s and 1930s, the battle of the radium girls against their employers was now frontpage news and the danger of radium was no longer a question. However, the Waterbury Clock Company did find a way to protect their bottom line by changing its qualifications for worker's compensation, lessening the time to file a claim to only three years. Cancer development could take years leaving some radium girls ineligible. In time, the radium girls' exposure to radium would lead to over 30 deaths at the Waterbury Clock Company. The last of the Waterbury radium girls, Mae Keane, passed away in 2014 at 107 years old. She had only worked as a dial painter for a few months before moving to another area of the company, perhaps contributing to her full life. Unfortunately, she was not completely saved from any symptoms. She had lost all of her teeth by age 30 due to the radium and did fight battles with cancer throughout her life (Ofgang; Fontaine).

Due to scores of deaths across the three States most involved in radium dial painting, the process of doing the work by hand was abolished by the 1930s (*The Waterbury Democrat*, May 24, 1934). During the Second World War, demand for these luminescent watches increased once more. Many women understandably still feared taking the job, regardless of the new awareness of radium and advanced safety precautions. While factory work for women certainly had its risks, it played a major role for women's suffrage. The plight of the radium girls was not totally in vain. Their experiences shaped future regulations on workplace health laws to protect workers and influenced precautions during the Manhattan Project in the Second World War. Additionally,

The Center for Human Radiobiology studied the radium girls for decades to better understand the symptoms of internal radiation (Moore). As for the Waterbury Clock Company, it went through a change in ownership in 1941. It left the city of Waterbury to move to Middlebury in 1944 under the new name of the United States Time Corporation - better known today as Timex.

Ryan Elgin serves as EC-CHAP Assistant Director, Curator of the Gardiner Hall Jr History Museum, and Volunteer Coordinator. He may be contacted directly at ryan@ec-chap.org.

The Gardiner Hall Jr Museum is open to the public Saturdays from 10:00am to 12:00pm. For more information, please call 518-791-9474.

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