

The Radium Girls of Ottawa, Illinois



A presentation by the LaSalle County Historical Society

A brief history of Radium

- Radium was discovered by Marie & Pierre Curie on December 21, 1898. Curie and her husband Pierre were working with a mineral called pitchblend in 1898 when they realized the radiation it emitted came from more than just uranium. They reported their discovery to the French Academy of Science on December 26, 1898.
- They discovered it contained two new elements -- polonium, named for Curie's home country, and radium, after the Latin word for "ray." The Curies continued to research the radioactive elements.
- In 1902 Marie & Pierre Curie gave samples of radium to William Joseph Hammer. Hammer, an innovator with ties to Thomas Edison, began to experiment with the radium. He theorized that it had health benefits as well as noted its ability to glow in the dark when mixed with zinc sulfate. He is the first credited with making luminous paint.
- In 1903 Hammer and Dr. Willy Meyer experiment with radium and its effects on cancer. They applied radium to a tumor and noticed that the radium was able to shrink the tumor. With this discovery many other scientists now were inspired to search for other health benefits that radium may provide.
- In 1909 a businessman from Pittsburg, Joseph Flannery, received news that his sister was diagnosed with cancer. He went to Europe to seek out the wonder drug, radium, after hearing of Hammer and Meyers experiment. Although the radium he received did not cure his sister, Flannery was still intrigued by the promise of a cure.
- Marie Curie and André-Louis Debierne isolated the element as a pure metal in 1910
- The most stable isotope of the element Radium is radium-226 which has a half-life of 1,600 years.



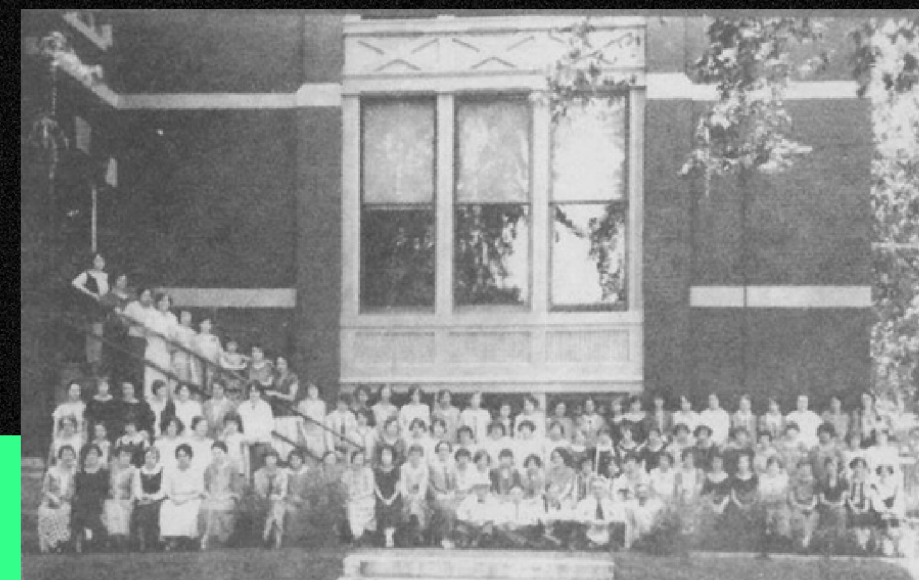
Radium and it's Industrial use

- **Joseph Flannery and his brother James established the Standard Chemical Company in 1911. It became the first commercial producer of radium in the United States. Before this the only place you were able to acquire radium at the time was in Europe.**
- **The company launched research efforts into the medical benefits of radium and started a radium clinic to treat patients. They also published their findings in a journal, which they distributed to doctors.**
- **In addition to their medical research the company began producing radium for other uses including luminous paint. Joseph Flannery often would use radium on his garden, and believed it could be used to revolutionize agriculture.**
- **The radium that the Standard Chemical Company manufactured was used for many things while they were in operation including:**
 - **In toothpaste, cosmetics, chocolate, and water.**
 - **For treating impotence.**
 - **In heating pads and suppositories .**
 - **At health spas.**
 - **In toys and nightlights.**
 - **On watches and clocks because it glowed.**
- **In 1917 the United States entered into World War I, this raised the demand for radium painted dials.**
- **The Standard Chemical Company began to supply the Untied States Radium Corporation with radium for use on watch and clock dials. That same year the Radium Dial Corporation was incorporated.**



The Radium Dial Co.

- In 1917 the Radium Dial Co. opens its first studio in Long Island City, N.Y
- The company was a division of the Standard Chemical Company based in the Marshall Field Annex building in Chicago.
- In 1920 Joseph Flannery died of what is presumed to be radium poisoning. Joseph A Kelly, Flannery's son in law, took over the operation of the company.
- That same year the company moved its headquarters to Peru, Illinois to be closer to the Westclox Company, and the zinc manufacturer, M & H Zinc.
- The Westclox company subcontracted the dial painting through Radium Dial. Because of the difference in pay between a dial painter and a clock maker Westclox asked Radium Dial to relocate to Ottawa. They could not compete with the pay and did not want to lose their workforce.
- In 1922 the headquarters moved to Ottawa, Illinois and the Radium Dial Co. began hiring young working class women to become dial painters. Many of whom were first generation immigrants.
- 50 workers were initially hired.
- Dial Painters made 1.5 cents per dial. The Radium Dial paid three times as much as other job prospects for the young women. Many of these women took their paychecks home to help with family expenses.
- By 1925 the Ottawa studio had become the largest dial painting studio in the United States producing 4,300 dials a day.



The Process

- Radium salt and zinc sulfate mixed with water would create a paint that glowed in the dark.
- The dial painters were responsible for mixing their own paint.
- They used a process called “ Lip, dip, paint”. The girls were encouraged to make a point with the brush by using their mouths.
- When they were first hired the painters would start out by painting the dials of the “Big Ben” clock and would work their way up to painting on the smaller “Baby Ben” pocket watches, which required much more precision.
- Workers would often paint their teeth, nails, and face when goofing around at work. Many times they would use the materials on their clothing to glow when they went out on the town.



In the lower picture, Mrs. Deans is shown giving a demonstration of the method used to paint watch and clock dials. She is seen with a small, round brush as she put it to her mouth after dipping it in an insensory dish of radium compound. The demonstration was given to show how it was possible for radium to enter the system of girls who worked at the National Dial Studio here in the 1920-31 period during which she was employed. The camera moved to New York last year. Leonard J. Grossman, Chicago attorney who is representing her, is shown nearby looking through his binoculars.



The Effects of Radium Poisoning

- First signs of radium poisoning in the dial painters often was associated with the mouth, gums and teeth.
- When teeth were pulled they often did not heal
- Bones could become “honey-combed” and break very easily.
- Catherine Donahue’s jaw actually broke while speaking. She saved the piece of jaw as evidence of her sickness.
- Increased rates of cancer were documented among the women.
- Anemia was often sited as a large problem among the girls
- Limbs often would have to be amputated.
- Their bodies would become so fragile due to the havoc the radium would cause among their bones, and circulatory system.



The Girls

Margaret "Peg" Looney



- Hired on to the Radium Dial Co. in 1923 at the age of 17
- Chosen for a company physical exam in 1925, did not hear the results so she assumed she was healthy
- Suffered from fatigue, weight loss, tooth loss and jaw soreness. Many times was unable to walk due to her frailty. Her fiancé would pull her around in a wagon because she was so frail.
- Her mother and father took her to see a doctor in Chicago. The doctor confirmed the parents suspicions that the cause of all of Peg's health problems was due to her exposure to radium. They took this information to a lawyer and he would not take the case.
- Collapsed at work on August 6, 1929 and was rushed to the hospital.
- Doctors associated with the company refused to have her family with her in the hospital. Her sister was able to speak with her from the hallway but was not allowed into her room.
- She died August 14, 1929. The company wanted to take her body from the hospital soon after her passing. The family stepped in because Looney would have wanted a Catholic Mass and burial. The company begrudgingly accepted.
- Company doctors claimed the cause of death was diphtheria.
- In 1978 her body is exhumed and tested. It is found to have 1000 times over the safe amount of Radium.

Catherine Donahue

- Catherine Donahue was hired by Radium Dial Co. in 1923 at the age of 20
- In 1924 Donahue starts experiencing the effects of Radium poisoning after working in the studio less than one year
- Catherine continues to decline in health until she is let go from the Radium Dial Co. in 1931. Officials state that she has been terminated due to the fact that her physical condition is frightening to other coworkers.
- Donahue hires Leonard Grossman to represent her in 1937 and files suit with the company through the Illinois Industrial Commission. Catherine's husband Tom reaches out to other women whom worked with Catherine and had been ill to see if they would want to join in the suit against the company.
- Donahue dies on July 27, 1938 at the age of 35. She was only 71 pounds when she passed away.
- Her case was won shortly before her death, appealed in 1939, and rejected shortly after the appeal was filed.
- In 1938 Catherine Donahue is awarded compensation: \$2,255 back salary, \$2,500 for medical, surgical, and hospital expenses, \$11 a week compensation until June 1940, and an annual pension of \$277.60.
- Catherine Donahue's daughter was born with a club foot and her son died of leukemia at a young age.
- Both Catherine Donahue and Peg Looney are buried in lead lined coffins.



Pearl Payne

- Born in 1900 and hired on to the Radium Dial in September of 1923
- Became very close with Catherine Donahue while employed
- Worked at Radium Dial for 8 months before being terminated
- Was in “perfect health” until 1929 when she became unable to walk and needed assistance climbing stairs.
- Pearl's issues became worse as the years wore on. She had abdominal surgery to remove a tumor, had her head swell two times it's normal size, had to drain around her jaw bone, and suffered a miscarriage.
- Pearl joined in the litigation against Radium Dial, also hiring Leonard Grossman.
- Submitted to countless tests at the Argonne National Laboratory
- Died on May 7, 1998



Pearl Payne Collection

PHONE RANDOLPH 2026

LEONARD J. GROSSMAN
ATTORNEY AT LAW
SUITE 1800 CHICAGO REAL ESTATE BOARD BLDG.
32 WEST RANDOLPH STREET
CHICAGO

October 15, 1938.

Mrs. Pearl Payne,
Utica, Illinois.

Dear Mrs. Payne:

Received your very lovely card a few days ago and am terribly sorry I did not get to write you girls sooner, but have been busy day and night, working on the Radium case. Just recently we have completed two briefs which have been filed in the Supreme Court of Illinois, in answer to Radium Dial's Co. petitions for leave to file a Writ of Error and Mandamus. We expect to have further word on this by the end of this month and will write you again. If the light prevails like I think it should in Springfield it will be carried to Washington, D. C. by Radium Dial Company, as they are laying the foundation in Springfield to take the case to the Supreme Court of the United States.

God bless you and my heart is for you and I am happy to be in this fight for you and may be one of you can see some light as to how there can be some help forthcoming towards these continuous expenses, which thus far I have had to bear. I trust this letter finds you cheerful and as well as may be expected. With kind and cordial greetings to your dear ones in which Mrs. Grossman and Carol join,

Yours truly,
Leonard J. Grossman
LEONARD J. GROSSMAN

PHONE RANDOLPH 2026

LEONARD J. GROSSMAN
ATTORNEY AT LAW
SUITE 402
134 NORTH LASALLE ST.
CHICAGO

Peoples Hospital
Peru, Ill.
June 15, 1932.

Dearest Sweetheart:

I love you and I am laying here, thinking of you and wishing I was in your dear arms. I am afraid, I was very impatient with you for some-time and I am heartily sorry. Please forgive me, as I have been very nervous and ill for a long time. Beneath it all I have loved you very deeply and dearly. You and my baby girl are two of my dearest possessions in this world. Pray for me daily, that I may get well perfectly. If not do not grieve, as we must bow our heads to the Lords will. Prayers and ^{time} will heal your sorrow some. Be good to our baby girl, teach her ^{to} love and remember me and above all, to be a good virtuous girl. Tell her I loved her dearly. Kiss and hug her each day for me. In time teach her to pray for me. Oceans of love, hugs and kisses to both of my dearest and sweetest darlings.

Pearl.

History Record Of Illness
Upon Which I Base My
Claim That Compensation Be
Paid Me For Radium Poisoning
Contracted While An Employee
Of The Radium Dial Co. Of
Ottawa Illinois.

On or about September 1923 I
secured employment at the
Radium Dial Co. of Ottawa,
Illinois. I was trained in
the regular technique of
applying radium paint to
clock dials, on the application
of the paint we were taught
to ^{press} the brushes pointed by
placing them between the
lips. Continued in the

WESTERN UNION
TELEGRAM

Udd Street

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE	SYMBOLS
This is a full-rate Telegram or Cablegram unless its delivery is deferred by a suitable symbol above or preceding the address.	DL - Day Letter
	NM - Night Message
	NY - Night Letter
	LC - Deferred Cable
	NLT - Cable Night Letter
	Ship Radiogram

WESTERN UNION

R-ceived at 748 FIRST ST., LA SALLE, ILL., TELEPHONE 432
5 C J 28 NL

CHICAGO ILL MAR 28 1938

PEARL PAYNE
LASALLE ILL

CAN I SEE YOU AT IMPORTANT CONFERENCE RADIUM POISON VICTIMS TONIGHT
TUESDAY MARCH 29TH AT 8 PM AT HOME OF CATHERINE DONOHUE 520 EAST
SUPERIOR STREET OTTAWA ILLINOIS

LEONARD J. GROSSMAN

748 A MAR 29 1938

Pearl Payne Collection

FORM NO. 158

ARGONNE NATIONAL LABORATORY
OPERATED BY THE UNIVERSITY OF CHICAGO
UNDER GOVERNMENT CONTRACT NO. W-31-109-ENG-38
LEMONT, ILLINOIS


ALWAYS REFER TO OUR CHECK NUMBER IN YOUR CORRESPONDENCE
No. 360867

VENDOR'S NO. OR DATE	OUR NUMBER	AMOUNT	DISCOUNT	FREIGHT	NET AMOUNT
3-16-59	34447	13.60			13.60

REIMBURSEMENT FOR LOSS OF ONE DAY'S SALARY INCURRED BY HER VISIT TO ANL ON MARCH 10, 1959 TO PARTICIPATE IN RADIUM IN HUMANS EXPERIMENT.

DETACH BEFORE PRESENTING CHECK FOR PAYMENT




ARGONNE NATIONAL LABORATORY
November 3, 1970

Mrs. Pearl Payne
436 Wright
LaSalle, Illinois

Dear Mrs. Payne:

I have been asked to write to you again in connection with your previous participation in our studies of radium in people who were possibly exposed to this substance many years ago. You will remember that in my letter of several months ago I stated that the information that we gathered has been held in strict confidence and your identity and whereabouts have not been made available to anyone apart from the original group that studied your case.

The U. S. Atomic Energy Commission has recently assigned a new team of scientists to this study and they would like to get in touch with you. We will release your name and address and medical records to this new group only if you wish to have us do so.


It will be very helpful to me if you will fill out the enclosed form and let me know if you agree to my release of the data, or if you do not agree to my release of the data, or if you do not wish to respond either way. Please use the enclosed, prepaid envelope that is provided, and I will abide by your wishes in this matter.

With kindest personal regards, I am

Sincerely yours,
Asher J. Finkel M.D.
Asher J. Finkel, M.D.
Director, Health Division

AJF:dac

9700 South Cass Avenue, Argonne, Illinois 60439 • Telephone 312-739-7711 • TWX 910-258-3285 • WUX LB, Argonne


ARGONNE NATIONAL LABORATORY
CENTER FOR HUMAN RADIOBIOLOGY
Argonne National Laboratory • Massachusetts Institute of Technology • New Jersey Field Station • Southwest Field Station

February 7, 1978

Mrs. Pearl Payne
436 Wright Street
LaSalle, Illinois 61301

Dear Mrs. Payne:

Could you please help me with a problem? The problem is the identity of the people on the picture that is enclosed.

I would really appreciate any help you can give me. Please put your name in the space at the upper right hand corner labeled informant. Then please put in each space provided the name of the person in that spot on the picture. Even guesses will be helpful. If you are positive of an identification, please put a * by that name.

Then place the picture (if you don't have a copy and would really like one, you may keep the picture), the form you have completed and the cardboards in the envelope I am enclosing. The envelope has postage on it so do not add any postage to the envelope - just place it in the mail.

Thank you so very much for your help.

Sincerely,
Carol Daun Croft
Carol Daun Croft
Medical Assistant

CDC:jmt
Enclosure

CENTER FOR HUMAN RADIOBIOLOGY
9700 S. Cass Avenue, Argonne, Illinois 60439 Tel. 312-739-7711 Ext. 4625

Radium Dial to Luminous Processes

- In 1928, one year prior to Peg Looney's death, Joseph Kelly took out a full page ad in the Daily Times stating that radium was not dangerous. By this time word was circulating about the Radium Girls plight in Orange, New Jersey.
- Radium Dial also opened a new dial painting studio in neighboring Streator. This location was opened in case word got out about the Radium Girls out east and their pending litigation. The news died down and the company quickly closed the Streator location.
- 1934 Radium Dial Co. goes out of business
- Joseph Kelly, president of Radium Dial Co, opens a new operation called Luminous Processes six weeks after Radium Dial is shut down. No one in town realizes that Kelly is behind the new company.
- The Luminous Processes stopped the practice of "Lip, Dip, Paint" The workers were made to stand under a black light before lunch and leaving for the day. They were made to scrub the glowing paint off before they went on break or home for the day. No other form of protection was afforded.
- Luminous Processes was the largest importer of Radium at the start of World War II. Because of this Joseph Kelly was called to a meeting with President Roosevelt and Albert Einstein.
- After this meeting and using Luminous Processes as a cover, the company began to reprocess radium into polonium. Polonium is an essential element for the atomic bomb.
- In 1977 the EPA fined Luminous Processes \$3,200 and the Nuclear Regulatory Commission closed the studio in 1978. Shortly after this the company pulled their headquarters from Illinois to avoid lawsuits.

Argonne National Laboratory

- The Argonne National Laboratory was opened in 1948 in Lemont, Illinois. This laboratory was overseen by the United States Atomic Energy Commission. One of the first projects initiated by the Laboratory was to contact and test the past and present employees of Radium Dial and Luminous Processes.
- Families of the workers that had died because of the effects of radium poisoning were contacted as well and asked to either donate their loved ones body to the lab or at least agree to testing of the remains.
- Items from the two factory locations and personal items used daily by the women (like Peg Looney) were tracked down and tested to see if there were any signs of radiation.
- By 1968 Argonne National Laboratory had solicited 4,863 former employees that used radium in their daily jobs. Many of the participants were from Ottawa.
- The tests found that 80% of the workers in the study had cancer caused by radium exposure and 50% of workers died before the completion of the study.
- Many dial painters allowed Argonne Laboratory to use their bodies, which were highly radioactive, to set nuclear standards. These tests were often very painful to endure.
- The study performed is one of the most expensive medical studies of a group of workers ever done in the United States to date.

The Fallout of the Radium Dial

- The first Radium Dial location is torn down in 1968. Debris from the building is buried around town, including near the YMCA and the local high school football field. Local workers complained that they were not provided proper protection when demolishing the building.
- In 1985 the Luminous Process building is demolished, again claims of unsafe working conditions were cited by the workers.
- 1987 the documentary "Radium City" was released on Cinemax. This caused an uproar in the community. It was noted that Ottawa was often referred to as "Death City"
- In 1988 the EPA addressed the public on a continued radium radiation investigation.
- In 1991 16 areas in and around Ottawa are placed on the EPA's National List of Priorities. To date 15 of the 16 locations have been remedied, with one site remaining in the landfill.
- A memorial was dedicated in 2010 at the site of the Luminous Process building.
- Kate Moore debuts her New York Times bestselling book in 2017
- In 2020 Netflix releases the movie "Radium Girls"