DOWNLOAD PDF MADAME CURIE AND RADIUM.

Chapter 1 : Chemistry International -- Newsmagazine for IUPAC

The great Sarah Bernhardt read an "Ode to Madame Curie" with allusions to her as the sister of Prometheus. After being dragged through the mud ten years before, she had become a modern Jeanne d'Arc.

Marie Curie thus became the first woman to be accorded this mark of honour on her own merit. One woman, Sophie Berthelot, admittedly already rested there but in the capacity of wife of the chemist Marcelin Berthelot In point of fact â€" as the press pointed out â€" this initiative was symbolic three times over. Marie Curie was a woman, she was an immigrant and she had to a high degree helped increase the prestige of France in the scientific world. At the end of the 19th century, a number of discoveries were made in physics which paved the way for the breakthrough of modern physics and led to the revolutionary technical development that is continually changing our daily lives. Around , Heinrich Hertz demonstrated experimentally the existence of radio waves. It is said that Hertz only smiled incredulously when anyone predicted that his waves would one day be sent round the earth. Hertz died in at the early age of In September , Guglielmo Marconi sent the first radio signal over a distance of 1. In he spanned the Atlantic. Hertz did not live long enough to experience the far-reaching positive effects of his great discovery, nor of course did he have to see it abused in bad television programs. It is hard to predict the consequences of new discoveries in physics. The ability of the radiation to pass through opaque material that was impenetrable to ordinary light, naturally created a great sensation. On January 1, , he mailed his first announcement of the discovery to his colleagues. His discovery very soon made an impact on practical medicine. In physics it led to a chain of new and sensational findings. When Henri Becquerel was exposing salts of uranium to sunlight to study whether the new radiation could have a connection with luminescence, he found out by chance â€" thanks to a few days of cloudy weather â€" that another new type of radiation was being spontaneously emanated without the salts of uranium having to be illuminated â€" a radiation that could pass through metal foil and darken a photographic plate. The two researchers who were to play a major role in the continued study of this new radiation were Marie and Pierre Curie. Marie Sklodowska, as she was called before marriage, was born in Warsaw in Both her parents were teachers who believed deeply in the importance of education. Marie had her first lessons in physics and chemistry from her father. She had a brilliant aptitude for study and a great thirst for knowledge; however, advanced study was not possible for women in Poland. Marie dreamed of being able to study at the Sorbonne in Paris, but this was beyond the means of her family. To solve the problem, Marie and her elder sister, Bronya, came to an arrangement: Marie should go to work as a governess and help her sister with the money she managed to save so that Bronya could study medicine at the Sorbonne. So it was not until she was 24 that Marie came to Paris to study mathematics and physics. By then she had been away from her studies for six years, nor had she had any training in understanding rapidly spoken French. But her keen interest in studying and her joy at being at the Sorbonne with all its opportunities helped her surmount all difficulties. To save herself a two-hours journey, she rented a little attic in the Quartier Latin. There the cold was so intense that at night she had to pile on everything she had in the way of clothing so as to be able to sleep. But as compensation for all her privations she had total freedom to be able to devote herself wholly to her studies. After two years, when she took her degree in physics in , she headed the list of candidates and, in the following year, she came second in a degree in mathematics. After three years she had brilliantly passed examinations in physics and mathematics. Marie Sklodowska, before she left for Paris. Now, however, there occurred an event that was to be of decisive importance in her life. She met Pierre Curie. He was 35 years, eight years older, and an internationally known physicist, but an outsider in the French scientific community â€" a serious idealist and dreamer whose greatest wish was to be able to devote his life to scientific work. He was completely indifferent to outward distinctions and a career. He earned a living as the head of a laboratory at the School of Industrial Physics and Chemistry where engineers were trained and he lived for his research into crystals and into the magnetic properties of bodies at different temperatures. He had not attended one of the French elite schools but had been taught by his father, who was a physician, and by a private teacher. Such crystals are now used in microphones, electronic apparatus and clocks. Marie, too, was an idealist; though

outwardly shy and retiring, she was in reality energetic and single-minded. Pierre and Marie immediately discovered an intellectual affinity, which was very soon transformed into deeper feelings. They were given money as a wedding present which they used to buy a bicycle for each of them, and long, sometimes adventurous, cycle rides became their way of relaxing. Their life was otherwise quietly monotonous, a life filled with work and study. Persuaded by his father and by Marie, Pierre submitted his doctoral thesis in Deciding after a time to go on doing research, Marie looked around for a subject for a doctoral thesis. Becquerel himself made certain important observations, for instance that gases through which the rays passed become able to conduct electricity, but he was soon to leave this field. She had an excellent aid at her disposal â€" an electrometer for the measurement of weak electrical currents, which was constructed by Pierre and his brother, and was based on the piezoelectric effect. Surprising results Results were not long in coming. Just after a few days, Marie discovered that thorium gives off the same rays as uranium. Her continued systematic studies of the various chemical compounds gave the surprising result that the strength of the radiation did not depend on the compound that was being studied. It depended only on the amount of uranium or thorium. Chemical compounds of the same element generally have very different chemical and physical properties: Marie drew the conclusion that the ability to radiate did not depend on the arrangement of the atoms in a molecule, it must be linked to the interior of the atom itself. This discovery was absolutely revolutionary. From a conceptual point of view it is her most important contribution to the development of physics. She now went through the whole periodic system. Her findings were that only uranium and thorium gave off this radiation. She obtained samples from geological museums and found that of these ores, pitchblende was four to five times more active than was motivated by the amount of uranium. It was her hypothesis that a new element that was considerably more active than uranium was present in small amounts in the ore. Marie and Pierre â€" a fruitful collaboration Fascinating new vistas were opening up. Pierre gave up his research into crystals and symmetry in nature which he was deeply involved in and joined Marie in her project. They found that the strong activity came with the fractions containing bismuth or barium. When Marie continued her analysis of the bismuth fractions, she found that every time she managed to take away an amount of bismuth, a residue with greater activity was left. At the end of June , they had a substance that was about times more strongly active than uranium. If the existence of this new metal is confirmed, we suggest that it should be called polonium after the name of the country of origin of one of us. They suggested the name of radium for the new element. Arduous work In order to be certain of showing that it was a matter of new elements, the Curies would have to produce them in demonstrable amounts, determine their atomic weight and preferably isolate them. To do so, the Curies would need tons of the costly pitchblende. However, it was known that at the Joachimsthal mine in Bohemia large slag-heaps had been left in the surrounding forests. Marie considered that radium ought to be left in the residue. A sample was sent to them from Bohemia and the slag was found to be even more active than the original mineral. Several tons of pitchblende was later put at their disposal through the good offices of the Austrian Academy of Sciences. At this stage they needed more room, and the principal of the school where Pierre worked once again came to their aid. They could use a large shed which was not occupied. There the very laborious work of separation and analysis began. Marie carried out the chemical separations, Pierre undertook the measurements after each successive step. Physically it was heavy work for Marie. She processed 20 kilos of raw material at a time. First of all she had to clear away pine needles and any perceptible debris, then she had to undertake the work of separation. There they could devote themselves to work the livelong day. Sometimes they could not do their processing outdoors, so the noxious gases had to be let out through the open windows. The only furniture were old, worn pine tables where Marie worked with her costly radium fractions. Since they did not have any shelter in which to store their precious products the latter were arranged on tables and boards. The dangerous gases of which Marie speaks contained, among other things, radon â€" the radioactive gas which is a matter of concern to us today since small amounts are emitted from certain kinds of building materials. Neither Pierre nor Marie was at home. She presented the findings of this work in her doctoral thesis on June 25, Of the three members of the examination committee, two were to receive the Nobel Prize a few years later: Lippmann , her former teacher, in for physics, and Moissan , in for chemistry. The committee expressed the opinion that the findings represented the

greatest scientific contribution ever made in a doctoral thesis. The guests included Jean Perrin , a prominent professor at the Sorbonne, and Ernest Rutherford , who was then working in Canada but temporarily in Paris and anxious to meet Marie Curie. He had good reason. His study of the deflection of radiation in magnetic fields had not met with success until he had been sent a strongly radioactive preparation by the Curies. By that time he was already famous and was soon to be considered as the greatest experimental physicist of the day. It was a warmish evening and the group went out into the garden. Pierre had prepared an effective finale to the day. When they had all sat down, he drew from his waistcoat pocket a little tube, partly coated with zinc sulfide, which contained a quantity of radium salt in solution. Suddenly the tube became luminous, lighting up the darkness, and the group stared at the display in wonder, quietly and solemnly.

Chapter 2 : Nobel Prizes and Laureates - theinnatdunvilla.com

In Curie succeeded in isolating radium; she also defined an international standard for radioactive emissions that was eventually named for her and Pierre: the curie. Nevertheless, in the French Academy of Sciences failed, by one [22] or two votes, [48] to elect her to membership in the Academy.

After Russian authorities eliminated laboratory instruction from the Polish schools, he brought much of the laboratory equipment home, and instructed his children in its use. Sikorska; next she attended a gymnasium for girls, from which she graduated on 12 June with a gold medal. Maria declined because she could not afford the university tuition; it would take her a year and a half longer to gather the necessary funds. In , she was awarded a degree in physics and began work in an industrial laboratory of Professor Gabriel Lippmann. Meanwhile, she continued studying at the University of Paris, and with the aid of a fellowship she was able to earn a second degree in Curie, however, declared that he was ready to move with her to Poland, even if it meant being reduced to teaching French. In Pierre, Marie had found a new love, a partner, and a scientific collaborator on whom she could depend. Influenced by these two important discoveries, Curie decided to look into uranium rays as a possible field of research for a thesis. Fifteen years earlier, her husband and his brother had developed a version of the electrometer , a sensitive device for measuring electric charge. Using this technique, her first result was the finding that the activity of the uranium compounds depended only on the quantity of uranium present. The School did not sponsor her research, but she would receive subsidies from metallurgical and mining companies and from various organizations and governments. She concluded that, if her earlier results relating the quantity of uranium to its activity were correct, then these two minerals must contain small quantities of another substance that was far more active than uranium. By mid he was so invested in it that he decided to drop his work on crystals and to join her. She later recorded the fact twice in her biography of her husband to ensure there was no chance whatever of any ambiguity. It [is] likely that already at this early stage of her career [she] realized that Curie chose the same rapid means of publication. They did not realize at the time that what they were searching for was present in such minute quantities that they would eventually have to process tons of the ore. The discovery of polonium had been relatively easy; chemically it resembles the element bismuth , and polonium was the only bismuth-like substance in the ore. By the Curies had obtained traces of radium, but appreciable quantities, uncontaminated with barium, were still beyond reach. From a ton of pitchblende, one-tenth of a gram of radium chloride was separated in In , she isolated pure radium metal. Walking across the Rue Dauphine in heavy rain, he was struck by a horse-drawn vehicle and fell under its wheels, causing his skull to fracture. She accepted it, hoping to create a world-class laboratory as a tribute to her husband Pierre. In her later years, she headed the Radium Institute Institut du radium, now Curie Institute , Institut Curie , a radioactivity laboratory created for her by the Pasteur Institute and the University of Paris. Curie then in her mids was five years older than Langevin and was misrepresented in the tabloids as a foreign Jewish home-wrecker. A delegation of celebrated Polish men of learning, headed by novelist Henryk Sienkiewicz , encouraged her to return to Poland and continue her research in her native country. For most of she avoided public life but did spend time in England with her friend and fellow physicist, Hertha Ayrton. She returned to her laboratory only in December, after a break of about 14 months. She provided the radium from her own one-gram supply. I am going to give up the little gold I possess. I shall add to this the scientific medals, which are quite useless to me. There is something else: This is the chief part of what we possess. I should like to bring it back here and invest it in war loans. The state needs it. Only, I have no illusions: William Brown Meloney , after interviewing Curie, created a Marie Curie Radium Fund and raised money to buy radium, publicising her trip. It seemed to contradict the principle of the conservation of energy and therefore forced a reconsideration of the foundations of physics. On the experimental level the discovery of radium provided men like Ernest Rutherford with sources of radioactivity with which they could probe the structure of the atom. In medicine, the radioactivity of radium appeared to offer a means by which cancer could be successfully attacked. To attain her scientific achievements, she had to overcome barriers, in both her native and her adoptive country, that were placed in her way because she was a woman.

Chapter 3 : The contribution of Marie SkÅ‚odowska-Curie to the development of modern oncology

Fun Facts about Madame Curie for Kids. Marie discovered radium and polonium. These two substances are radioactive.

On the other hand, the uranic rays, discovered in by Henri Becquerel, raised a puzzling problem. Uranium compounds and minerals appeared to maintain an undiminished ability to blacken a photographic plate over a period of several months. What was the source of this inexhaustible energy that apparently violated the Carnot principle that energy can be transformed but never be created or destroyed? Pierre Curie, already a famous physicist for his work on magnetism and crystal symmetry, had a feeling that the phenomenon was quite extraordinary, and he helped his wife reach a decision in her choice of thesis topic. One reason was the proliferation of false or doubtful observations of radiation similar to uranic rays in a variety of substances. The topic was moribund when Marie Curie entered the scene. However, within eight months in she discovered two elements, polonium and radium, founding a new scientific fieldâ€”radioactivity. In addition to blackening a photographic plate, uranic rays rendered air conductive for electricity. This later property was much more amenable to quantitative measurement. Becquerel had used electroscopes, but the measurements were unreliable. At this point, little progress would have been made without the genius of Pierre Curie. In , together with his brother Jacques, he had discovered piezoelectricity i. He invented a device by which the charges produced by uranium in an ionization chamber were compensated for by opposite charges in known amounts produced by applying a weight to a leaf of quartz. The compensation was followed by a second invention, the quadrant electrometer. The emission of uranic rays could now be quantified from the weight and the time required for compensation of the charges produced in the ionization chamber. Beginning on 11 February , she tested all samples at hand or borrowed from various collections, including a large number of rocks and minerals, taking the activity of metallic uranium as a reference. She found that all compounds and minerals that contained uranium were active and that pitchblende, a massive variety of uraninite from the Joachimasthal mine in Austria, as well as chalcolite, a natural uranium phosphate, were more active than metallic uranium itself. At this stage, the hunt for the supposed element became a matter of paramount importance and urgency. On 18 March he abandoned his own research projects and joined his wife in the venture. In the course of the systematic search of Becquerel rays, Marie Curie also discovered, on 24 February, that thorium compounds were also active. However, the German physicist Gerhardt Schmidt had observed the emission several weeks earlier. The Discovery of Polonium: It became necessary to separate and identify a substance whose chemical properties were unknown. However, the hypothetical element could be followed by tracing its radioactivity. Marie Curie explained the process: It consists of separations performed with the ordinary procedures of analytical chemistry and in the measurement of the radioactivity of all compounds separated. In this way, one can recognize the chemical character of the radioactive element sought; the latter is concentrated in fractions which become increasingly radioactive in the course of the separation. On 14 April, the trio began research on pitchblende, which was two and a half times more active than uranium. Several procedures were used in parallel runs by precipitations with various reagents and sublimations of solid deposits, whereby the active substance accompanied primarily bismuth, from which it could be progressively separated. On 27 June, Marie Curie precipitated sulfides from a solution containing lead, bismuth, and the active substance. She underlined the result in her notebook: On 18 July, Pierre Curie obtained a deposit times more active than uranium. The symbol Po, written by Pierre Curie, appears in the notebook on 13 July. The name polonium had a provocative significance because Poland had disappeared as a state in , being divided between Prussia, Russia, and the Austrian Empire. The publication signed both by Pierre Curie as first author and Marie Curie, was based on experiments performed from 9 April to 16 July. The title is historic: It proclaims that the search for the element more active than uranium was successful, and the word radio-active appears for the first time The Curies dropped the hyphen the following year. It was customary that no such claim was considered valid until a pure substance had been isolated, the atomic weight of the element had been determined, and its spectral lines had been measured. They considered the entire material as a mixture. They knew nothing of radioactive decay. In this sense it was purely a matter of chance since the experiments were performed within three

months, a relatively short time with respect to the day half-life of polonium. Pierre and Marie Curie handling the electrometer. It was only a few years later that the authors noticed with astonishment and great perplexity that polonium was progressively disappearing, still unaware of its half-life. They were preoccupied with the authenticity of polonium for several years, and with their customary honesty they did not hide their doubts. In , Marie Curie still raised the question: The spark spectrum of this sample revealed for the first time a few lines characteristic of the element. The note in the Comptes Rendus concluded the short story of polonium for several years. Marie Curie maintained a strong sense of ownership for the element, which she defended with considerable emotion and vehemence. In a sense she was correct: The Discovery of Radium: Second, they found that a radioactive substance could be concentrated by fractional crystallization from barium chloride contained in pitchblende. They pursued this operation until the activity of the chlorides was times greater than that of uranium. Their third and last argument was decisive. This time the spectroscopic analysis was successful. Marie Curie maintained a strong sense of ownership for the element [polonium], which she defended with considerable emotion and vehemence. In December , the Austrian government offered the Curies a first batch of kg of uranium-free residue from the treatment of the Joachimsthal pitchblende. With the foregoing discovery of polonium, the Curies had oddly enough begun with the most difficult part of the work. In its own right, radium had outstanding advantages: He was research student of Marguerite Perey who was assistant of Marie Curie and discoverer of francium. See the References section for works cited in this article. Page last modified 15 February Questions regarding the website, please contact edit.

Chapter 4 : Madame Curie's Passion | History | Smithsonian

Marie Curie received a second Nobel Prize in , this time for chemistry. She spent the rest of her life in science, much of it promoting the healing properties of radium.

Her research had revealed that two uranium ores, pitchblende and chalcolite, were much more radioactive than pure uranium itself. She concluded that the highly radioactive nature of these ores might be due to one or more additional, as yet undiscovered, radioactive elements. They worked as a team, each taking on specific scientific tasks. Pitchblende is a highly complex mineral, made of combinations of up to 30 different elements. To isolate the unknown substances, of which only tiny amounts were present, the Curies were the first to use a new method of chemical analysis. They employed various standard but sometimes demanding chemical procedures to separate the different substances in pitchblende. For example, a particular element might dissolve in an acid, which they could pour off, leaving other elements behind in a sludge at the bottom of the pot. After the materials were separated into different types of compounds, the Curies used radiation measurements to trace the minute amount of unknown, radioactive element among the fractions that resulted. Making repeated separations of the various substances in the pitchblende, Marie and Pierre used the Curie electrometer to identify the most radioactive fractions. They thus discovered that two fractions, one containing mostly bismuth and the other containing mostly barium, were strongly radioactive. In July the Curies published their conclusion: Chemically it acted almost exactly like bismuth, but since it was radioactive, it had to be something new. A second publication , in December , explained their discovery in the barium fraction of another new element, which they named "radium" from the Latin word for ray. The Curies were close to reaching one of the highest goals that a scientist of the time could hope to achieve--placing new elements in the Periodic Table. While the chemical properties of the two new elements were completely dissimilar, they both had strong radioactivity. Since the Municipal School storeroom would be inadequate to the task, the Curies moved their lab to an abandoned shed across the school courtyard. The shed, formerly a medical school dissecting room, was poorly outfitted and ventilated. It was not weathertight. She succeeded in separating the radium from the barium only with tremendous difficulty -- which would become central in the romantic legend of her life. She had to treat very large quantities of pitchblende, a ton of which the Curies received as a donation from the Austrian government. The Austrians hoped she would find a use for a mineral their mines yielded as a waste byproduct. Luckily some help was available for the tedious labor of treating the pitchblende. The firm would later make a handsome profit by marketing these radium salts for medical and other uses. The "miserable old shed" where radium was isolated. For reasons that would not be fully understood until the concept of radioactive decay was developed, Marie never succeeded in isolating polonium, which has a half-life of only days.

Chapter 5 : Marie Curie - Biographical - theinnatdunvilla.com

Dr. Marie Curie is known to the world as the scientist who discovered radioactive metals such as radium and polonium. Curie was a Polish physicist and chemist who lived between She was born Maria Sklodowski in Warsaw, Poland, the youngest of five children.

She would later appear at the American Museum of Natural History, where an exhibit commemorated her discovery of radium. Dozens more colleges and universities, including Yale, Wellesley and the University of Chicago, conferred honors on her. The marquee event of her six-week U. That was because she was a pioneer, an outlier, unique for the newness and immensity of her achievements. But it was also because of her sex. Curie worked during a great age of innovation, but proper women of her time were thought to be too sentimental to perform objective science. She would forever be considered a bit strange, not just a great scientist but a great woman scientist. This year marks the th anniversary of her second Nobel Prize, the first time anyone had achieved such a feat. Curie has always been a fascinating character, the subject of books and plays and movies, and this anniversary has prompted several new works about her. Her mother died of tuberculosis when Marie was 10 years old. Marie worked as a governess until, at 24, she had saved enough money and purchased a train ticket to Paris, where she gravitated to the Latin Quarter and enrolled at the Sorbonne. She immersed herself in French and math and made ends meet cleaning glassware in university labs. She rationed her intake of food until, on more than one occasion, she collapsed of weakness. Science thrilled her, and she earned a degree in physics in and another in mathematics the following year. In , she met Pierre Curie, a year-old physicist at a French technical college who had been studying crystals and magnetism. More than a decade before, he and his brother Jacques had discovered piezoelectricity, the electric charge produced in solid materials under pressure. For the occasion, Marie donned a blue cotton dress, one practical enough to wear in the laboratory after the ceremony. A difficult pregnancy had forced Marie to spend less time in the lab just as she was gathering data for a doctoral thesis. By the time her second daughter, Eve, was born in , Marie had grown accustomed to the disdain of colleagues who thought she spent too much time in the lab and not enough in the nursery. Georges Sagnac, a friend and collaborator, eventually confronted her. In labs across Europe, scientists were studying new and surprising phenomena. Henri Becquerel was noting the emission of a different kind of mysterious rays, those from uranium salts. Thomson discovered negatively charged particles, which we now know as electrons and which we now know are the source of X-rays. At first, she and other scientists were baffled about the source of the high-energy emissions. She wondered whether the emitted rays were violating a basic law of thermodynamics: Finally, she posited a daring hypothesis: The rays emitted might be a basic property of uranium atoms, which we now know to be subatomic particles released as the atoms decay. Her theory had radical implications. Trish Baisden, a senior chemist at the Lawrence Livermore National Laboratory, describes it as a shocking proposal: It further meant that atoms are not necessarily stable. The device allowed her to measure extremely low electrical currents in air near mineral samples that contained uranium. She soon repeated the experiment with thorium, which behaved in similar ways. But she was puzzled by data that showed that the intensity of the radiation emitted by uranium and thorium was greater than expected based on the amounts of the elements she knew to be in her samples. Five months later, she identified a second element, which the world came to know as radium. Marie extracted pure radium salts from pitchblende, a highly radioactive ore obtained from mines in Bohemia. The extraction required tons of the substance, which she dissolved in cauldrons of acid before obtaining barium sulphate and other alkalines, which she then purified and converted into chlorides. The separation of radium from the alkalines required thousands of tedious crystallizations. Working in a dilapidated shed with broken windows and poor ventilation, she nonetheless was able to make sensitive measurements. It is remarkable, says Baisden, that Curie calculated the atomic weight of radium so accurately given such deplorable conditions. Both, too, were resistant to the suggestion that their research materials caused their ailments. In , Curie became the first woman in France to earn a PhD in physics. Professors who reviewed her doctoral thesis, which was about radiation, declared that it was the greatest single contribution to science ever written. Rumors of a Nobel

Prize began to circulate, but some members of the French Academy of Sciences attributed the brilliance of the work not to Marie, but to her co-workers. These skeptics began to lobby quietly for the prize to be split between Becquerel and Pierre. But Pierre insisted to influential people on the Nobel committee that Marie had originated their research, conceived experiments and generated theories about the nature of radioactivity. Both Curies shared the Nobel Prize in physics with Becquerel in It was the first Nobel to be awarded to a woman. Moreover, the notion that Marie was a mere helpmeet to Pierreâ€"one of the more persistent myths about herâ€"was an opinion widely held, judging from published and unpublished comments by other scientists and observers. Marie was not promoted. Pierre hired more assistants and made Marie the official head of the laboratory, freeing her to conduct experiments and for the first time, be paid for it. The most successful collaboration between a husband and wife in the history of science ended suddenly on April 19, , when Pierre, apparently lost in thought, walked into traffic on the rue Dauphine and was killed instantly by an onrushing carriage. Hundreds of peopleâ€"students, artists, photographers, celebritiesâ€"lined up outside the university on November 5, , hoping to attend her first lecture. She gave no outward sign of mourning. She began by summarizing the recent breakthroughs in physics research. In , she published a page treatise on radioactivity. Neither Curie nor Langevin discussed their relationship with outsiders. The front-page coverage of the scandal threatened to overshadow another news story later that year: This one, in chemistry, was for the discovery of polonium and radium. In her acceptance speech in Stockholm, she paid tribute to her husband but also made clear that her work was independent from his, spelling out their separate contributions and describing the discoveries she had made after his death. At the end of , Curie became very ill. She had an operation to remove lesions from her uterus and kidney, followed by a long recovery. In , she began to travel again and return to science. In March of that year, Einstein paid her an extended visit, and later she opened and headed a new research facility in Warsaw. As she was setting up a second institute, in Paris, World War I broke out. She outfitted 18 portable X-ray stations that could treat wounded soldiers on the front lines. She sometimes operated and repaired the machines herself, and established more permanent X-ray posts during the war. Eve became a journalist and wrote the definitive biography, Madame Curie, published in It was another record: And once the tabloids moved on from the Langevin scandal, her image as a homewrecker faded. But there were deliberate efforts to shape her story. Meloney learned that the Curies had never patented the process for purifying radium. As a result, other scientists and U. Curie was now unable to afford the element she had discovered. American women would be inspired to give to Curie, Meloney figured, only if her image as a scientistâ€"which stereotypically suggested someone dispassionate, even severeâ€"could be softened. Meloney also persuaded editor friends at other newspapers and magazines to emphasize the same image. Curie understood that radium might be useful in the clinic, but she had no direct role in using it for medical treatments. Meloney invited Curie to the United States. Curie, who disliked travel and attention, agreed to come to thank Meloney and those who had contributed to the cause. And how I should be very grateful to arrange for my voyage with the minimum of publicity. As it wore on, Curie became exhausted and asked to cancel events, or at least not have to speak at them. She appeared aloof and sometimes refused to shake hands with admirers. She did not appear to be the kindly maternal figure that Meloney had made her out to be. She carried the gram of radium home to Paris in a vial handed to her by President Harding at the White House. She worked in her laboratory until her death. When Curie died, at age 66 in , journalists echoed the image popularized by Meloney. She embodied in her person all the simpler, homelier and yet most perfect virtues of womanhood. The physicist Rosalyn Yalow, in an essay she wrote at the time of winning her own Nobel Prize in for research involving radioactive compounds, said that Curie was her inspiration. Biographers attempted to depict the brilliance and complexity of this outsize character. A new play, Radiance, written by the actor and director Alan Alda, focuses on her relationships with Pierre and Langevin as well as her science. A new graphic novel, Radioactive: It has a glow-in-the-dark cover. The Hidden History of Women in Science.

Chapter 6 : Curies isolate radium - HISTORY

** A copy of Remarks of the President in Presenting to Madam Curie a Gift of Radium from the American People was*

also published on page three of the Evening Star, (Washington D.C.) on May 21, "President Presenting Radium Lauds Work of Madame Curie".

Chapter 7 : Curie School | Just another WordPress site

When Marie Curie came to the United States for the first time, in May , she had already discovered the elements radium and polonium, coined the term "radio-active" and won the Nobel Prize.

Chapter 8 : Marie Curie - Research Breakthroughs ()

Marie Curie discovered radioactivity, and, together with her husband Pierre, the radioactive elements polonium and radium, while working with the mineral pitchblende.

Chapter 9 : Marie Curie and The Science of Radioactivity

Marie Curie was a physicist and chemist and a pioneer in the study of radiation. She and her husband, Pierre, discovered the elements polonium and radium.