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The Centenary of the death of Henri Becquerel

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Editorial Notes

Our Radiology History Committee was founded way back in 1987. I hope everyone likes this issue of 'The Invisible Light' in this our 21st Birthday Year. There are four good articles for you to read. Do please consider getting involved in our committee and do contact me if you are interested. I would be delighted to include any of your articles in the next issue of 'The Invisible Light.' Please send me any material that you have. This journal is also available on-line to members. If you wish to receive it in that way please contact Jean Barrett at jean.barrett@ntlworld.com

This year 2008 is the centenary year of the death of Henri Becquerel who discovered natural radioactivity and was joint Nobel laureate with Marie and Pierre. The painting on the front cover was painted by the talented young artist Katie Golding www.artist-katiegolding.co.uk katiegolding@aol.com. The painting will be on our stand at UKRC so please come and visit us and have a chat and see the painting.

There is to be a British Society for the History of Radiology One day Conference entitled "Xamining Radiology History" to be held at St Mary's Conference Centre, Sheffield (10-00am - 4-00pm) on Saturday 11 the October 2008. Details will follow.

The Annual Lecture of the BSHR was given on February 25th 2008 at the British Institute of Radiology. Our speaker was Mrs Elizabeth Beckman to a most appreciative audience. Liz Beckman is past-President of the BIR and a trustee of the BSHR. Her theme was "Sir Godfrey Hounsfield -the man behind imaging for the 21st Century." Drawing on her personal knowledge of Sir Godfrey she described the man and his work. We learnt of his early inventions going back to childhood and his working ways and achievements. It was a fascinating insight into the man who made so many recent developments possible.

Adrian

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Tuesday, 13th May 2008

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X-RAY THERAPY AND THE EARLY YEARS, 1902-1907
BSc History of Medicine Mini-Project

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Introduction:

The aim of this mini-dissertation is to document some of the interesting and previously never researched events that took place within the field of X-Ray therapy between 1902 and 1907. I propose to discuss the use of X-Rays in therapy from a qualified medical practitioners' perspective and in particular I would like to raise awareness of the problems that were associated with X-Ray use between 1902 and 1907. I also hope to address the question as to how these difficulties arose, and what was done in an attempt to overcome them.

This period is historically significant, as the events during this era have enabled us to benefit from many of the state of the art diagnostic machines that we currently have in radiology. It has had great implications on medicine, in particular CT and MRI scanners allow medical professionals to detect the smallest signs of localised pathology, however X-Rays are still the most widely used form of radiographic imaging today. Discussing the therapeutic uses of X-Rays during this period serves to exemplify an important problem at this time, of introducing new technology to medicine, as this period was the dawn of the Laboratory Medicine era. My dissertation also incorporates some of the issues faced by doctors seeking to define the boundary between quackery and legitimate medicine. It is interesting to note that during this period, there was no legislation governing the use of the X-Rays, hence anyone could use them for therapeutic or diagnostic purposes.

In choosing this topic to research, I have faced a challenge, partly because there is so little secondary literature published on this topic and because of unforeseen circumstances[1]. Even textbooks documenting a thorough history of X-Rays, including works by B.H. Kevles[2] & E.H Burrows[3], lack information on the therapeutic uses. I believe and shall argue that the reason for this lack of secondary literature is due to the following obstacles that have prevented historians from publishing work on this subject:

(1) The primary source material available is sparse and in places contradictory. There are no serious historical accounts and the primary sources that are available are limited to journals; this does not allow access to a wider range of information.

(2) The story itself of how and why medical professionals were reluctant to accept the new technology of X-Rays is a complicated one. Between 1902-1907 the border between legitimate medical practice and quackery was ill-defined, and as we shall see, doctors themselves who wished to use X-Rays therapeutically lived in fear of being likened to quacks.

(3) Another barrier for research is the innumerable list of ailments that were once treated by X-Rays[4], as it would be very difficult to document them all within the context of a dissertation. Today we use X-Rays to treat cancers and the use of radiation to treat anything else would be regarded as dangerous. Therefore

[1] Imperial College Library unfortunately relocated the journals that I required to Swindon. I was also unable to gain access to the archives held at the British Institute of Radiology, as their archivist was absent for some weeks.
[2] B.H. Kevles, Naked To the Bone, 1997.
[3] E.H. Burrows, Pioneers and Early Years, a History of British Radiology, 1986.
[4] Reginald Morton, Treatment By Roentgen And Radium Rays. British Medical Journal, 1904

the medical historian is unable to make a direct comparison between the diseases treated by X-rays 100 years ago and the current ailments that warrant X-Ray therapy.

(4) The published secondary literature on the history of X-Rays has centred on visualisation. After all, it was the phenomenon of being able to see through the human body that captivated doctors and historians alike, and it must be remembered that the therapeutic effects of the X-Rays were discovered as a result of the diagnostic uses. The diagnostic use of the X-rays was the driving force behind their popularity.

Therapeutic Uses of X-Rays:

In this section I plan to discuss some of the diseases once treated by X-Rays, with reference to key pioneering doctors at the time. I also aim to exemplify the varying personal beliefs regarding the efficacy of X-rays.

Reginald Morton was the medical officer in charge of the Electrical Department, London Hospital. At the hospital he was appointed Electro-Therapeutist and he had a particular interest in the treatment of his patients. He is well known as one of the key figures who introduced deep X-Ray therapy into Britain after the end of the First World War[3]. His position at this hospital tells us that he was not only a fully qualified medical practitioner, but also someone who possessed the knowledge on how an X-Ray machine should be used. In his article in the British Medical Journal (BMJ) in 1904[4], he talks about the diseases which he has successfully treated with application of X-Rays. In particular he mentions Lupus, Rodent Ulcer (nowadays this is termed superficial skin carcinoma) and Cancer. His views can be taken to represent those of the typical, well qualified doctor at the time. In treating Lupus, Morton claimed that he had successfully treated many cases using X-Rays. He reported that X-Rays were more efficacious than the older method of Finsen Light Therapy since a smaller number of applications were required, and the whole affected area could be treated in one go. By this time it was generally well established that X-Rays could successfully treat Rodent Ulcer and Morton's beliefs are no exception: 'In short, a cure formerly was the rare exception, whereas now under X-Ray treatment a cure is the almost invariable rule' [4].

It was dramatic effects, such as those pictured below, that initially created the huge wave of optimism and unrealistic belief that X-Ray therapy could be utilised for every possible ailment.

X-Ray therapy of recurrent sarcoma (1901) [5]
Left: Recurrent tumour before therapy.
Right: Lesion healed 11 months after the beginning of treatment.

[5] Ronald L. Eisenburg, Radiology, An Illustrated History, 1992.

X-Ray treatment of lupus of the face (1898) [5]
Left: Before treatment
Right: After 17 treatments of 15 minutes each over 2 months.

Morton believed that cancers were best treated surgically, but should a patient refuse this treatment, then X-Ray therapy was the next most efficient form of treatment. He also thought that X-Rays had a particular applicability after initial surgery to remove a cancerous growth. In this context, Morton believed that such therapy would prevent its recurrence.

Malcolm Morris was a Consultant Surgeon of the Skin Department at St Mary's Hospital, London. He was widely known and well respected for his work in dermatology, along with TB and public health. After his death in 1924, the Malcolm Morris memorial fund was set up to provide an annual lecture on the preventative aspects of public health and dermatology[6]. Morris's work dates before Morton's extensive observations. In an article for the BMJ in 1903[7], Morris discussed his opinions on the therapeutic uses of X-Rays to treat Lupus, Rodent Ulcer and Cancer. In contrast to Morton's view, Morris felt that he had better fruitions treating Lupus using the Finsen Light Method. He reserved X-Ray therapy for the most severe and ulcerative cases of Lupus. Similarly, in treating Rodent Ulcers, Morris again preferred to utilise Finsen Light Therapy initially as a means of breaking down the skin growth. He would then apply the X-Rays[7].

However, it is important to note that many other doctors held beliefs that contrasted with both Morris and Morton. One such doctor was Leslie Roberts who also practiced in London. Roberts believed that X-Ray therapy did not afford any marked superiority over the old fashioned methods of treating Lupus[8].

I have compared different doctors' rationales for using X-rays to illustrate the lack of any regulation or set guidelines for treating diseases. It was an imperfect art that inevitably led to many accidents.

In 1902, S. Ernest Dore published an article in the BMJ that argued that it was 'Important not to overestimate the possibilities of the light treatment and that its chief advantage lay…not in its reliability but in the excellence of its effects from a cosmetic standpoint'[9].

It is plain to see that Doctors disagreed over the efficacy of X-Rays in the treatment of certain diseases. This evidence serves to illustrate my earlier observation that a lot of the primary source material is contradictory in nature. Malcolm Morris made a sensible comment in 1903 stating that: 'It must be remembered that our whole experience covers a period of only three years, too short a time for the definitive cure of diseases so refractory to all other methods of treatment' [7]. So it is no wonder that there was so much disagreement amongst Doctors, X-Ray therapy between 1902-1907 was still a novel and indiscriminate idea.

According to Malcolm Morris, one of the dilemmas that X-Ray therapy faced was the possibility that it might be 'enveloped in a miasmatic vapour of quackery' as a result of the sensational exaggeration within the daily newspapers. He argued that sufferers were being deceived about the ability of X-Rays to treat all sorts of ailments. He said the risk was that physicians who used X-Rays were themselves in danger of being likened to a quack[7]. In order to stop this and prevent the positive potential of X-Ray therapy from being discredited, Morris argued that it was essential for all Doctors utilising X-rays to pool their results. By adopting this recommendation, Doctors would be able to gain substantial data regarding the successes and failures

[6] Anon a. Fifty Years Of Dermatology. : A Malcolm Morris Memorial Lecture, The Lancet, 1929.
[7] Malcolm Morris & S. Ernest Dore, The X Rays In The Treatment of Lupus, Rodent Ulcers, And Other Skin Diseases. British Medical Journal, 1903.
[8] Stopford Taylor, The X Rays in Cancer, British Medical Journal, 1902.
[9] B. A. G. Brooke, A Discussion of Radiography "X" Ray Treatment. The High Frequency Method, And Light Treatment. British Medical Journal, 1902.

of X-Ray therapy. He states: 'A method should not be condemned because applied improperly and in unsuitable cases, it fails.' [7]

It seems apparent that the use of X-Rays by quacks and their outrageous claims jeopardised the use of X-Ray therapy by the medically qualified. In the same year as Morris (1903), H. Lewis Jones remarked that: 'Any discredit which has been attached to the cancer-curing impostors of the past will deservedly be ours unless we are particularly careful to keep rigidly within the bounds of observed facts'[10]. This highlighted the importance of doctors sharing information with one another and by doing so, only treating diseases known to respond to X-Ray therapy.

There was a distinct lack of any regulation or guidelines governing the use of X-Ray therapy. One particular problem when using X-Rays was a lack of relevant knowledge. Very few operators understood the nature of X-Rays. As such, no thought was given to the idea of dosing and measuring the amount of radiation that had been administered. In addition, the debates over soft versus hard X-Ray tubes or whether or not to induce a degree of X-Ray dermatitis contributed to the inconsistency of their use. According to H. Lewis Jones, 'No one knew' [10]. All these technicalities were a matter of opinion, not of fact. In essence, this meant that humans were treated as guinea pigs in testing this new phenomenon. The idea of a clinical trial as we know it today was not in existence.

From 1902 onwards, the use of X-Rays and medical electricity in general was being commercialised. Numerous drug companies and other institutes under various titles were appearing in London. They could freely advertise in the lay press and were allowed to treat anyone that requested their services. They employed laymen to carry out the X-Ray therapy. These laymen possessed no medical qualifications – a frequent and well documented problem at this time[4]. According to Reginald Morton even a child could use an X-Ray machine: 'I think we have the instrument maker to thank in great measure – that all that is necessary is to buy a more or less elaborate outfit and learn to work the switches (!)' [4].

It is no surprise that without regulation, patients were injured due to improper use of the X-Rays. Many legal cases appear in the Lancet and BMJ. In a case documented in the Lancet, 1906, a patient tried to claim damages against an X-Ray operator after he suffered from X-Ray burns on the soles of his feet. The patient believed that the X-Ray device had been placed too close to his feet. The operator had received the treatment instructions from the doctor and followed them explicitly. In this case, the Judge ruled that it was the Doctor's responsibility to see that the X-Rays were properly administered, and not the operators[11]. This scenario whereby the doctor gave instructions to a layman on how to administer the X-Rays was not uncommon.

In an article within the Medico-ethical section of the BMJ in 1908, it was expressed that an unqualified man could be allowed to take charge of and work the X-Ray apparatus. However, under no circumstances would he be allowed to undertake treatment of disease except under direct medical supervision[12].

By 1906, attempts were being made to introduce formal legislation that would prevent the unqualified man from using X-Rays therapeutically[13]. A Lancet article (1906) states that this action stemmed from the discovery that X-Rays could cause atrophy of the testicle and ovary in rabbits. More importantly it was discovered that those people who worked constantly with the rays were, after prolonged exposure, rendered sterile. This property of the X-rays touched on a very important social question of the time, and served as a powerful argument in favour of the contention that the use of X-Rays should be restricted to the medical professional alone. This article also informs us that some of Britain's continental neighbours had by this stage also made it illegal for non qualified people to use X-Rays, and efforts were being made to introduce a Bill in France[13].

The British Electro-Therapeutic Society was founded on 13th December 1901 by a group of doctors[14]. The Society's ambition was to act as a medium for providing its members with up-to-date information on the progresses in the field of electro-therapeutics, both at home and abroad. Unqualified persons that encroached upon this field were taken very seriously by the Society[15]. In 1906, the Society's strong influence inevitably led to a proposal whereby the therapeutic use of X-Rays should be confined to medical practitioners or dental surgeons. It was proposed that this agreement should be made by Act of Parliament to remove the grave social and public danger of unlicensed X-Ray use. This danger had already been

[10] H Lewis Jones. Subsection of Electrotherapeutics, The Treatment of Malignant Diseases By Electrical Methods, The Lancet, 1903.
[11] Anon b. Medico-legal & Medico-ethical Section, Liability of X Ray Operator, The British Medical Journal, 1906
[12] Anon c. Medico-ethical Section, Unqualified radiographers. The British Medical Journal, 1908.
[13] Anon d. The Legal Conditions For The Use of The X Rays. The Lancet, 1906.
[14] Chrisholm Williams, The British Electro-therapeutic Society, The British Medical Journal, 1901.

[15] Anon e. British Electro-Therapeutic Society, The Present and Future of Electro-Therapeutics, The Lancet, 1902,

recognised in 1905 by countries such as France. In Paris, the Académie de Medicine was of the opinion that X-Ray use by unqualified people constituted an illegal act.[16 & 17]

In the BMJ, 1906, M. Gariel[17] made a comment with regard to the notion that X-Ray practice should be made illegal for those not medically qualified. He was well aware that most doctors did not know enough about the subject. In defence of the X-Ray physicists, who he claimed were 'the pioneers and teachers of the medical profession', he said 'by taking away their right to practice radiology, there is a risk of placing these methods in the hands of men who have received no special education'. He concluded by saying that it was infinitely easier for a doctor to become a 'radiotherapeutist' than for a physicist to acquire clinical knowledge. So the physicist was neither friend nor foe to the medical professional; the doctor needed the physicist's expertise on the X-Rays.

In February 1907, in recognition of the absence of any standard of radioactivity, The Roentgen Society appointed their own society named 'The Standards Committee' in an attempt to produce guidelines for doctors to follow[18].

Although many doctors knew little about X-Rays, they recognised this gap within their knowledge. For this reason they used to refer their patients requiring X-Ray treatment to someone who did know how to use them. One such gentleman who specialised in X-Ray therapy was Chrisholm Williams. In his article in the Lancet, 1906[19], he expressed his frustration with certain surgeons who failed to refer their patients with inoperable cancers to an X-Ray specialist for potential life saving treatment. These surgeons would often tell their patients 'nothing more can be done' or that 'the X-Rays can do no good in cancer'. It would appear most of these assertions were made by the older school of surgeon. In these cases, patients were not referred for X-Ray therapy purely on the grounds that these surgeons knew so little about X-Rays.

It is interesting to note that in these instances, it was not the X-Ray practitioner who was posing a danger to the patient. Instead, it was the medically qualified surgeon. We can see that at this time, there was a spectrum of X-Ray knowledge amongst healthcare workers; you had the doctor who knew nothing about X-Rays and the X-Ray physicist who knew nothing about medicine. The quacks new nothing about either X-Rays or medicine and finally you had a few doctors that did know about X-Ray therapy; the newly emerging 'Radiotherapists'.

An article in the Journal of the Roentgen Society, 1906[20], provides an example of a doctor who was more dangerous than the unqualified instrument maker that carried out the X-Ray therapy. The doctor in this case referred a patient to the surgical instrument maker along with his instructions on the number and duration of X-Ray applications. However, before long the patient complained of painful inflammation around the treatment area; indications of an X-Ray burn. Consequently the patient (with the support of the doctor) brought an action against the instrument maker for 'careless application'. In examination the doctor contended that he was quite ignorant of technical details such as coils or tubes or proper distances from the patient. He stated that these were matters for the instrument maker.

It was not until 1906 that X-Ray therapy no longer appeared to be a matter of opinion; 'their indiscriminate use was coming home to everyone'. Their application according to the Journal of the Roentgen Society had 'advanced beyond their experimental stage' [20]. The publication of 'The Uses of the Roentgen Rays In General Practice' (1906) led to a more general employment of X-Rays within the medical profession[21]. By 1906 it would appear that X-Rays had passed beyond the stages of the initial hype and experimentation. Guidelines were being introduced and the dangers/limitations of X-Rays were becoming well known, along with the obvious advantages.

Conclusion:
In summary, my research has shown me that the therapeutic use of X-Rays was more of an art than a science. Hundreds of claims were being made about miraculous cures of previously incurable ailments. Unlike today, X-Rays were used to treat anything, and most of the time it was down to the practising doctor's experience as to whether a benefit could be achieved from the use of X-Ray therapy. Anyone could use the X-Rays to treat diseases and there was no minimal educational standard to achieve before you were entitled to use them. Indeed, most people who used them had no knowledge regarding their action. No legislation or guidelines existed, making their application very haphazard. Quacks jeopardised the implementation of X-Rays for use by doctors, as well as the lives of their patients. It was not just Quacks

[16] Anon f. Special Correspondence – Paris, Special Commission Appointed to Consider the Application of Roentgen Rays by Unqualified Persons, The British Medical Journal, Vol 1, 1905,
[17] Anon g. Special Correspondence – Paris, The Legal Conditions of The Medical Use of The Roentgen Rays, The British Medical Journal, 1906.
[18] Letter to the Röntgen Society from C. Vernon Boys (President of the Röntgen Society), The Journal of The Röntgen Society, 1907.
[19] Chisholm Williams, Cancer And X Ray Treatment, The Lancet, 1906.
[20] Anon h. Notes Section, Discussing The Therapeutic Value of The X Rays, The Journal of The Röntgen Society, 1906.
[21] Anon i. Notes of Books, The Journal of The Röntgen Society, 1907, Page 77.

and other laymen that possessed insufficient knowledge on X-Rays; it was certain members of the medical profession as well.

This dissertation has raised awareness to just a few of the problems that doctors faced when administering X-Ray therapy. It is clear to see that X-Ray therapy between 1902-1907, was very different to today's practice of radiotherapy. The lack of legislation allowed X-Rays to be accessed by anyone and everyone. This created a whole market of X-Ray practitioners.

The discovery of X-Rays was an important contributor to laboratory medicine. Strictly speaking however, X-Rays were a form of medicine from the laboratory rather than laboratory medicine; the latter involving human tissue samples being sent to the laboratory for analysis. During this period lots of new technologies were being introduced into medical practice. These technologies were not always well received and doctors were reluctant to engage with them, mainly because they believed that it would infringe upon their medical expertise and autonomy.

Doctors and scientists have learnt to perfect the art of X-Ray therapy. The medical profession is now fully aware of the concept of X-Ray dosing and has the ability to control it. This is partly due to new technical apparatus and a comprehensive knowledge of how to use it. In 1902, X-Ray equipment was basic, temperamental and challenging to operate. The application of the X-Rays for diagnostic purposes was (and still is) easier than therapy. In addition, it is easier to identify the levels of safe exposure in diagnostic radiology since the radiographic image is to hand.

The medical profession has learned from the mistakes and problems that have been highlighted in this work. In particular the introduction of new diagnostic and therapeutic technologies is a lot stricter. Nowadays there is widespread use of clinical trials, but this was something that was still to be implemented in 1902. In effect, the introduction of X-Rays was experimental and each patient was used as a human guinea pig. Very little was actually known about the physical nature of the X-Rays before their implementation. This contrasts markedly with current practices, nowadays approval of new technologies requires a detailed and in depth knowledge of the underlying science. Furthermore, the damaging effects of X-rays are now fully understood, but during the period that has been discussed the idea of genetic damage was unheard of.

Currently, we are in the age of techno-medicine and have a huge number of technologies and apparatus created specifically by medical scientists. But if we go back one hundred years, the only contemporary technology from the physics lab was the Electrocardiogram. However, this was not on a par with the X-Ray; it was less invasive, its use was obvious, and more importantly its actions could be explained. This could explain the awe and wonderment that surrounded the use of X-Rays.

As there is so little secondary literature published on this topic, my findings are new. Current secondary literature tends to brush over or completely fail to mention X-Ray therapeutics and its initial struggle to gain the title in medicine that it rightly possesses. After all, the diagnostic use of the X-Rays was the driving force behind them; therapeutic uses were a secondary factor. In the Introduction I detailed some of the factors that have hindered historians in the documenting of the therapeutic use of X-Rays. Undoubtedly, the biggest obstacle for research in this field is the lack of good sources that do not contradict themselves.

The sources that I used were journals, namely the British Medical Journal, The Lancet and The Journal of the Roentgen Society. Given no secondary sources and my time limitation, I investigated the topic by going to these key journals of legitimate medical press. The main advantage of such sources is the fact that they have been written by medical professionals with the intended readership of fellow medical professionals. For this reason, I can be assured that their content is accurate and representing a true medical account of what happened. But on the other hand it is only giving me one side of the story; that of the medical professional. Therefore, it is likely that some of its content may be biased towards the side of the doctor. As such, these journals may have marginalised the views of the X-Ray operators that were employed to deliver the X-Ray therapy. It would be interesting to try and document some of their thoughts.

My approach to researching this topic had the advantage (and equally the disadvantage) of being very wide-scope. I initially started researching with only the broad title of X-Ray therapy and my project content is purely based upon what limited primary source material there is available. Using this broad approach to research has allowed me to identify key pieces of evidence which many historians, to date, have overlooked. However at the same time, I have not been able to focus on one key event in the history of X-Ray therapy and analyse it in detail.

This dissertation could be supplemented by accessing relevant newspaper advertisements advocating X-Ray quackery, since this was a substantial field at the time. References to quackery in the Journals that I have accessed are few and far between. This could be attributed to the fact that these journals are all professional medical journals that would, invariably, have wanted to keep documentation of quackery to a minimum. Other sources likely to bear fruit would be personal accounts, patient diaries and hospital records.

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Start of the “Radium Story”

BY Richard F. Mould manorroadsouthport@yahoo.co.uk
"This brief description of the start of radium therapy was the synopsis of a lecture given by Richard F. Mould on 13 February 2008 at the Medical University of Vienna"

16th Century St. Joachimstal, Pitchblende & Mountain Sickness
The “Radium Story” could be said to have started in the 16th century in St. Joachimstal and the mountain range between Saxony & Bohemia, the ore mountains. They were famous for their silver mines: the waste material was black and termed pechblende [pitchblende] by the miners because it was thought to bring bad luck as it spoiled the silver mineral mining seams. The mines were also well known due to the death of the miners at an unusually early age: mountain sickness as noted by Paracelsus (1493-1591). This was not recognised as radiation-induced lung cancer until the 20th century. St. Joachimstal was the source of the pitchblende used by Marie & Pierre Curie to discover polonium & radium in 1898. The Maria Theresa silver thalers were produced from these mines and named for the town, with the word thaler becoming the origin of the word dollar.

Colorado Carnotite, American Vanadium & Radium Chemical Companies
The uranium mineral pitchblende is found in many countries, including the USA, but mostly in insufficient quantities to have made mining a commercially profitable venture. In 1899 the uranium mineral carnotite was discovered in Colorado, albeit with a very low uranium content compared to pitchblende but it was not until the founding of the Standard Chemical Company (SCC) & its sales offshoot the Radium Chemical Company, of Pittsburgh, that American radium production became commercially viable. Previously, radium supplies for the USA had to be purchased from Europe. The SCC was founded as a result of the efforts of the two Flannery brothers, James (1848-1920) and Joseph (1867-1920) who were initially undertakers, then founded the American Vanadium Company in 1904 and finally the SCC in 1911. Earlier attempts in the USA by Stephen Lockwood (1874-1971) and the Welsh-Loftus Uranium & Rand Metals Company in 1904 had failed. His transportation of carnotite from Colorado & Utah by rail link to the processing/refining plant in Buffalo, New York, was 4828 km. Donkeys [burros] were used to transport the ores from the mine, up and down steep mountainsides, to the railhead.

Pitchblende & Other Uranium Ores: Belgian Congo, USA & Canada
Pitchblende is black and as the early textbooks on radium did not publish in colour, it is usually imagined that when pitchblende was mined the results looked like lumps of coal. However, pitchblende is mixed with several other multicoloured uranium minerals and it is only the black veins which are the pitchblende: as can be seen from a mining sample in the 1920s from the Belgian Congo and the Union Minière du Haut Katanga (UMHK). Uranium minerals are named after several scientists: for example, cuprosklodowskite for Marie Sklodowska-Curie (1867-1934) and rutherfordite for Ernest Rutherford (1871-1937). It was the UHMK and the Katangan pitchblende deposits which put out of business the American radium companies and the earlier operations in France and Germany. Although mining by Eldorado Gold Mines Ltd., near Great Bear Lake in the early 1930s and the discovery of pitchblende deposits produced a profitable radium business in Canada.

Radium Mining & Refining & Cost/Gram of Radium
The reason why the company in Paris of Armet de Lisle (1853-1926) and the Chininfabrik Braunschweig [later Buchler] Company in Brunswick whose chemist was Friedrich Giesel (1853-1927) were able to process and refine pitchblende and produce radium sources as early as 1899 was that both de Lisle & Giesel were quinine production chemists and the radium production requirements were similar in part to those required for quinine production. In 1902 the cost per gram of radium was US$ 3,000 but this had risen to US$ 150,000 by 1914. The high cost and relatively limited availability of radium sources in the first ~ 15 years of the 20th century explains in part the infrequent use of radium brachytherapy during this period. Another factor was that the initial enthusiasm for radium being a magic bullet in the treatment of cancer, had evaporated.

Afterloading, Crossfire & Experiments 1899-1904 and Patient Treatments from 1901
Many technical developments, which we would recognise in 21st century brachytherapy, had been proposed by 1904. For example, Hermann Strebel (1868-1943) of Munich in 1903 defined and implemented the principle of afterloading and the principle of crossfire. Many different types of experiments with radium were also undertaken during the five years 1899-1904 ….. with no radiation protection. These included burning radium salt to determine its colour (carmine); studying the effects of radium on anthrax, tuberculosis, diphtheria, cholera, typhoid & rabies; placing radium tubes on the back of an electric torpedo fish in the Naples Aquarium to see if paralysis of the fish occurred; and irradiating cheap colourless diamonds to try and turn them into fancy coloured diamonds which could be sold at a large profit. The William Crookes (1832-1919) green diamond, now in the Natural History Museum, London, is an example. The allocation of priorities for first clinical use of radium surface brachytherapy is difficult to assign. This involves for instance, the underlying idea for the use of radium for therapy [and also for diagnosis as an alternative to X-rays], its actual use for a non-malignant condition and its actual use for the treatment of cancer. Claimants include scientists, physicians and surgeons from France, Germany, Russia and the USA.

Applicator Design & the First Radium Bomb
Gynaecological radium applicators were first designed in ~ 1904, by Louis Wickham (1861-1913) & Paul Degrais (1874-1954) of St. Louis Hospital, Paris. They were remarkable in that the vaginal & uterine parts of the applicator were fixed to each other and were not unattached [hence requiring gauze packing to keep them in their correction position]. Apart from the Munich pin-and-plate applicators of the 1920s, it was to be the 1950s with the development of the original Gilbert Fletcher (1911-1992) radium applicators before vaginal & uterine applicators were again routinely fixed to each other. The first radium bomb to be thus termed, was not a teletherapy machine but a gynaecological applicator developed in 1917 at Memorial Hospital, New York. Its name bomb was devised as an analogy with the World War I hand grenades and was 37 mm in diameter. Unusually, the radiation protection design features involved not lead but mercury.

Radium Dosimetry
The first attempts at developing scientific methods for radium brachytherapy dosimetry did not occur until the 1920s, with the work at Memorial Hospital, New York, of Edith Quimby (1891-1982). Although as early as 1913 theoretical calculations of the dose distribution surrounding radon [radium] sources of simple geometrical shape [line, sphere, annulus, cylinder] in air were being published and these continued, culminating in the mid-1930s Manchester system of dosage. However, it was only in the 1930s that users worldwide eventually realised that a non-uniform distribution of radium sources on the surface of a planar applicator created a uniform dose distribution at the treating distance [usually 0.5 cm or 1.0 cm]. Prior to that, as can be seen for example, from photographs of patients with facial radium applicators [with sources uniformly distributed], the reverse was believed to be true.

Radium Fantasies
Radium has been the subject of many fantasies and the words radium and radon were also used for marketing purposes in the early years: for example radium bread, radium razor blades, radium shoe polish and radon bulbs to replace soda for a drink of whisky & radioactivity! Radium has also been used in the name of dance and song titles, such as the Radium Two-Step march, and My Radium Girl which was sung in the 1915 Ziegfeld Follies in New York. However, perhaps the most interesting misuse of radium [and pitchblende] is in novels of the time when the Wright Brothers made their successful air flight in 1903 and the two new events were often linked: flying & radium. The book titles are most intriguing and include The Radium Seekers or the Wonderful Black Nugget [1905] and The Island of 30 Coffins [1919] by Maurice Leblanc [the author of the Arsène Lupin novels] and The Diamond as Big as The Ritz by F. Scott Fitzgerald [1922]. Many of these novels involved a detective like Sherlock Holmes who searches for missing/stolen radium. One such detective is Dick in La Course Au Radium [1909] who has many interesting travels, including to San Francisco and to the Kremlin in Moscow.

The first Argentinean radiological journal

Alfredo Buzzi and César Gotta

In this year 2007 two Argentinean radiological anniversaries are celebrated: the 90th. anniversary of the foundation of the Argentine Society of Radiology (Sociedad Argentina de Radiología, SAR), in 1917, and the 70th. anniversary of the appearance of the first radiological journal (1937).

Indeed, in December, 1937, appeared "*Roentgen*", the official organ of the SAR and the first regular publication on radiology and related disciplines in Argentina. Eduardo Lanari, Carlos Niseggi, Federico Vierheller and Pedro Sívori were in charge of the Scientific Direction of the journal.

As a kind of recognition, we intent in this article an historical analysis of the first paper published in "*Roentgen*". The title is "Results of the bronchographic study in black-cardiacs" ("Resultados del estudio broncográfico en los cardíacos negros"). It occupies 8 pages, and it has 4 bronchographic images. There is no bibliography. The authors are Mariano Castex (Full Professor of Internal Medicine, Chief of Service in the Hospital de Clinicas, and member of the National Academy of Medicine), Eduardo Capdehourat (staff physician in Castex's service and future president of the Argentine Medical Association), and Egidio Mazzei (young physician of the same Service and future Full Professor of the University of Buenos Aires and President of the National Academy of Medicine). None of them were radiologists.

This paper studies an entity that has lost its name ("black-cardiac") with a method that has fallen in disuse (bronchography). Far from generating discouragement, this represents a challenge from the historical point of view. The effort should be dedicated to read this work with the eyes of 1937, and with the perspective of the 70 years of advances in medical knowledge that lapsed from then on.

Bronchography has fallen in disuse. Today the diagnosis of bronchial pathology rests in methodologies that didn't exist in those days. Also, the term "black-cardiac" has fallen in disuse too, but the historical evolution of this concept is more interesting that the disappearance of bronchography. This entity was described by an Argentinean physician, Abel Ayerza (1861-1918). It is also known as "Ayerza's disease", and those who suffer it are known as "Ayerza´s black-cardiacs".

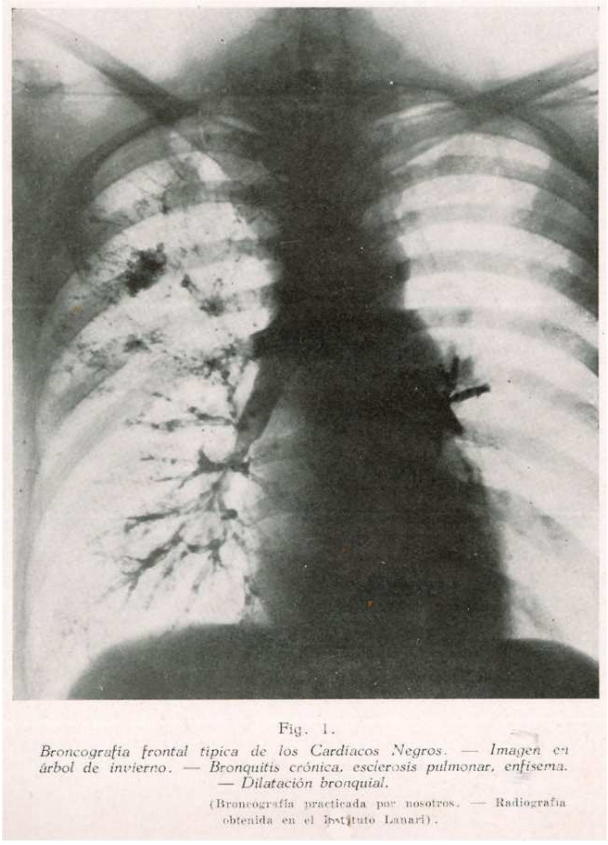

Fig. 1.

Broncografía frontal típica de los Cardíacos Negros. — Imagen en árbol de invierno. — Bronquitis crónica, esclerosis pulmonar, enfisema. — Dilatación bronquial.

(Broncografía practicada por nosotros. — Radiografía obtenida en el Instituto Lanari).

Figure: Broncoggraphy: "black-cardiac"

Abel Ayerza was born in Buenos Aires in 1861, son of Toribio Ayerza and Adelina Zabala. His father was a Basque physician graduated in the University of Montpellier, that received his medical education in Paris with Armand Trousseau and Gabriel Andral. He emigrated to Argentina because of political troubles. Abel Ayerza studied in the School of Medicine of the University of Buenos Aires. He travelled to Europe to improve his knowledge. In Paris, he attended the services of Jean-Martin Charcot, Joseph Jules Babinski, Pierre Charles Édouard Potain and Sigismond Jaccoud. In Paris he acquired an unbeatable clinical training. He learned the details of the neurological exam with Charcot and Babinski, and next to Potain the secrets of cardiopulmonary auscultation. Jaccoud taught him nosology, and introduced him to the cultivation of the Cartesian clarity in reasoning and speech, so dear for the French school. When he returned to Buenos Aires, Ayerza was appointed Chief of Clinic and Associated Professor of Internal Medicine in the University of Buenos Aires.

Those who knew Ayerza described him as a tall, slender, fine and elegant man, with a straight nose, thin lips, a strong glance and a clear front. He subdued his students with the excellence of his personality, for the care with which he examined his patients, and for the accuracy of his diagnoses. He possessed a precision that no other physician of his times showed, and it is not surprising that his fame as a clinician and as a university professor spread quickly. He taught internal medicine at the patients´ bedside.

In 1897 he was appointed Full Professor of Internal Medicine, reaching to the maximum educational hierarchy at 37 years-old. He died in 1918, when he was 57 years-old. Among his disciples, Arrillaga, Castex, Escudero, Martini, Sicardi, Staffieri, and Waldorp should be mentioned. All of them were distinguished clinicians and professors.

Through his description of the "black-cardiacs", Ayerza was on of the first in making Argentine medicine known to the world. This classic description was made in a lecture on August 20th, 1901, when he presented the clinical picture of an native man with right cardiac insufficiency, cyanosis and dyspnea, that he denominated "black-cardiac". One of his disciples, Pedro Escudero (father of Argentine Nutrition) described it in one of his publications: "*Ayerza introduced a patient with antecedents of chronic cough, a red wine colour in his face and the extremities, congestion of lung bases, generalized edema, 112 pulsations per second, olyguria, 15 cm. of arterial tension measured by the Potain´s manometer. The percussion, very difficult because of the emphysema, showed an almost normal heart size. With these data Ayerza differentiated his patient from other known cases, and he called it ´black-cardiac´. What got Ayerza´s attention was the particular cardiac failure, whose characteristics were the following: history of chronic cough and bronchitis as the initial cause of the disease, right ventricular hypertrophy, marked cyanosis, and a state of chronic cardiac failure. He called this clinical picture "black-cardiac" to specify its two fundamental symptoms: the intense cyanosis and the cardiac failure*."

This original description is considered by many authors the beginning of Argentinean cardiology. Ayerza never published his observations (in fact, he wrote and publish a few papers), but one of his disciples, Francisco Arrillaga did it in 1912 as his doctoral thesis: "Secondary sclerosis of the pulmonary artery (black-cardiacs)." ("Esclerosis secundaria de la arteria pulmonary (cardíacos negros)"). In his thesis, Arrillaga presented 11 clinical observations, four of them with autopsy. The first one corresponds with all probability to Ayerza`s original case, since the date of admittance and death coincide with those of the historical class.

The "black-cardiacs" syndrome was intensely discussed among the physicians of that time. It belongs to the Argentinean medical school the merit of having dedicated eagerly to the study of this question (between 1925 and 1935 many papers were written by Rafael Bullrich, Luis Solari, Luis Ayerza, Pedro Escudero, Isaac Berconsky, Francisco Arrillaga, Domingo Bracchetto Brian, Andrés Bianchi, Tulio Martini, Camilo Patiño Mayer, Alberto Taquini, Bernardo Houssay, Pedro Cossio, Eduardo Capdehourat, Mariano Castex, among others).

Nevertheless, it was always in debate the nature of the entity. In the introduction of his book published in 1942, Juan Raúl Goyena (Full Professor of Internal Medicine of the University of Buenos Aires), entitled "Black Cardiacs", wrote: "*The necessity to establish the significance of the clinical, anatomical and nosological picture of the patients known as ´black-cardiacs´ is the purpose that has guided us to write the following pages*". Goyena continues: "*Ayerza´s concept remained so confused that four ´Ayerza´s diseases´ were described!*". This was written 41 years after Ayerza´s original description.

Pedro Escudero found for the first time in 1905 sclerosis of the pulmonary artery in a "black-cardiac", identifying that it is always secondary to a chronic lung process. Ayerza had always sustained that pulmonary sclerosis perturbed lung circulation, but he did not give any explanation. After the discovery of pulmonary sclerosis in these patients by Escudero, Ayerza explained that this sclerosis was secondary to the lung pathologic process. In this way, in 1912 Ayerza together with his disciple Arrillaga sustained that it was a pulmonary artery affection secondary to a lung pathologic process, stating that what pruduced the symptoms was the pulmonary artery disease along with its effect in the right heart, and not the lung disease itself. In 1916, Patiño Mayer published two papers on the topic, sustaining that although the sclerosis and the atheroma of the pulmonary artery are known from the times of Ambrosio Paré (1614), the description of the clinical picture of sclerosis secondary to a chronic lung process was made by Ayerza. Most of the Argentinean and foreign authors agreed to this theory.

However, in 1922 Arrillaga changed his opinion, and sustained that the anatomical substratum is the primitive sclerosis of the pulmonary artery of syphilitic etiology, and that the lesion of the lung is not necessary nor indispensable to constitute the clinical picture of Ayerza´s disease. Arrillaga assured that "*with that lesion of the pulmonary artery alone we have the picture of a ´black-cardiac´.*" In 1919 Aldred Scott Warthin, a North American venerologist, confirmed this fact in a patient in which he made the clinical diagnosis of Ayerza´s disease (´black-heart syndrome´), and found syphilitic lung lesions in the autopsy. Arrillaga supported his theory presenting seven new cases between 1924 and 1927. However, Oscar Brenner, a pathologist from Birmingham who recapitulated all the published cases and added a hundred more, published many papers that discredited the syphilitic theory of Arrillaga. But neither Brenner nor his successors proposed an alternative theory to explain this disease. In other countries many publications also appeared: in 1930, Charles Achard observed in France a case of this syndrome ("*le syndrome des cardiaques noirs*") as a sequel of an intoxication for war gas.

Arrillaga´s theory of syphilitic primary pulmonary artery sclerosis as the origin of Ayerza´s disease without the need of a lung lesion suggests a primary pulmonary hypertension. The first description of primary pulmonary hypertension appeared in 1865, when Klob reported the findings in the autopsy of a patient who died after developing marked edema in the ankles. He found marked hardness of the pulmonary artery branches with localized arteriosclerosis, without the classical heart pathology. In 1891 the German physician Ernst Romberg, from Leipzig, published a similar description of a patient who had suffered progressive dyspnea, and a bluish colour in her skin. The autopsy revealed high degree sclerosis of the pulmonary arteries with right heart hypertrophy, but no lung disease that might have caused the condition. Romberg diagnosed the disorder as a syphilitic pulmonary arteritis.

The solution of this problem came with the introduction of a new technique to measure intracardiac pressures. Cardiac catheterization was devised by a young German surgeon, Werner Forssmann, who in 1929 introduced himself a catheter through a vein of the forearm to the heart, and

obtained an x-ray. The next step was the work of André Frédéric Cournand, a French physician emigrated to the United States. There, under the direction of Dickinson Richards, in the Hospital of the University of Columbia (New York) he designed catheters with manometers to measure intracardiac pressures. He obtained the first measurement of the pulmonary arterial pressure in humans. Forssmann, Cournand and Richards shared the Nobel Prize for Medicine in 1956. Cardiac catheterization demonstrated that pulmonary artery arteriosclerosis is not an indispensable component of pulmonary hypertension, but rather, in fact, is its final consequence. The primary dysfunction are spasm and hypertrophy of the walls of the small pulmonary arteries. Right ventricular hypertrophy and insufficiency are consequence of the excessive work of pumping blood toward an increased lung resistance. Finally, in 1952, the North American physician David Dresdale identified hemodinamically idiopatic pulmonary hypertension, and gave it its name.

Pedro Escudero gave in 1911 a third explanation, sustaining that in the "black-cardiacs" there is an association between two different diseases, that when they existed separately don't produced the clinical picture of Ayerza´s disease: bronchial syphilis and sclerosis obliterans of the pulmonary artery.

The concept that prevailed is the original of Ayerza: the clinical picture of the "black-cardiacs" is originated by sclerosis of the pulmonary artery secondary to a chronic lung disease. It is important to mention that sclerosis of the pulmonary artery secondary to lung lesions is known since Vieussens in 1706, and it was well described by Louis in 1858. Today we name this entity "cor pulmonale."

Radiological findings in these patients include extensive broncho-pulmonary lesions, hilar enlargement with increased density, thickening of the bronchial walls, signs of emphysema, and pleural thickening. Cardiac enlargement is also present, with a prominent left middle arch. Radioscopic exam shows reduction of pulmonary expansion, and the "dancing hiliar sign."

The paper of Castex, Capdehourat and Mazzei published in the first number of "*Roentgen*" is focused to stress the bronchial lesions as an unavoidable antecedent of advanced disease. The value of this paper resides in that is the first publication on the bronchographic study of these patients.

The clinical description is made with great clarity and still maintains its value after 70 years. The normal bronchographic findings are described, as well as the elementary bronchographic syndromes, following the classic analogy with the trees: the "summer tree", with abundant foliage, of the normal exam, and the "winter tree", with more limbs than foliage, in bronchial pathology. The aspect of bronchiectasis is also described. The technique used is not mentioned. As it is stated at the end of the paper, the x-rays were obtained in the Institute of Radiology of the Hospital de Clínicas, with the collaboration of its Director, Dr Eduardo Lanari, and of Juan A. Aguirre.

The complete original paper could be find in the web page Sociedad Argentina de Radiología, at http://www.sar.org.ar/historia/rar.shtml.

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Eve Curie-Labouisse 1904-2007

By Richard F. Mould

This brief illustrated biography of Eve Curie-Labouisse was written following her death in October 2007 at the age of 102 years. She led a brilliant and multi-faceted life, some of which such as her involvement in the higher echelons of French politics before the fall of France in 1940, are now virtually forgotten. Unlike her mother Marie and her sister Irène & brother-in-law Frédéric Joliot-Curie, she was never the subject of a biography. Moreover, in the biographies of Marie Curie, Eve receives relatively little mention. Material concerning her life is therefore rather scattered, often found in now obscure publications. This current article attempts to bring together the various major strands of her interesting life which began so long ago in the year 1904. It also includes a spectrum of her photographs taken over a century from ~ 1906 to 2005.

Key words: Eve Curie, Henry Labouisse, Marie Curie, World War II, UNICEF, radium

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Eve Denise Curie was born 6 December 1904 in Paris to Pierre Curie (1859-1906) & Maria Sklodowska-Curie (1867-1934). She died 22 October 2007 at her home in New York. Her elder and only sister was Irène Joliot-Curie (1897-1956) who with her husband Frédéric Joliot-Curie (1900-1958) was awarded a Nobel Prize for Chemistry in 1935: the third Nobel of the Curie family. The first was in 1903 for Physics, awarded to Pierre & Marie Curie and Henri Becquerel (1852-1908) in 1903 and the second was in 1911 for Chemistry, awarded to Marie Curie alone. In 1954 she married Henry Richardson Labouisse (1904-1987) who was later the American Ambassador to Greece and from 1965-1982 the Executive Director of UNICEF. In 1979 he accepted the Nobel Peace Prize on behalf of UNICEF. Eve Curie is mostly remembered as the author of her mother's biography Madame Curie [1] which was first published in 1937 and since reprinted in many editions and many languages. Eventually she settled in the USA and became an American citizen in 1958. These are the better known facts relating to Eve Curie, but do not do justice to this fascinating lady.

Her life can probably be said to fall into seven periods, although some will overlap. Childhood in Paris with some holidays in Poland; youth as a pianist, music critic and journalist; the years immediately following Marie Curie's death when she wrote Madame Curie; the years in Paris just before WWII; escape to London, lecture tours of the USA, working with the Free French and her Journey Among Warriors; work with NATO after WWII; marriage and UNICEF. These times, in chronological order, are used as the framework for this biography.

Early Years in Paris & Zakopane

One of the earliest photographs of Eve is Figure 1 when she was about two-years old with her sister Irène.

Figure 1. Paris 1905

Figures 2-4 are taken in the garden of her home in Paris. The Sklodowski family often took holidays in Zakopane in the Tatra mountains and in 1899 Pierre Curie joined them on his first visit to Poland. About a decade later Eve was also on holiday in Zakopane and was taught to ride on a pony, Figure 5. She looks a very determined little girl and indeed must still have possessed this trait of determination when one considers the major efforts needed for her World War II travels [2] starting in November 1941 and taking in Cairo, Moscow, Tehran & Calcutta. Figure 6 shows Eve in 1914 with mountains visible in the background which are probably the Tatras. She was later to return several times to Poland, after the end of World War II, mainly for celebrations relating to the Warsaw Radium Institute. Her last Polish visit was in 1999.

Figure 2. Paris 1907

Figure 3. Paris 1908

Figure 4. Paris 1908

Figure 5. Zakopane 1911

Figure 6. Probably Zakopane 1914

America 1921

n a visit organised by the American journalist Mrs William Brown 'Missy' Meloney in 1921 Eve and Irène accompanied their mother to the USA on the White Star liner Olympic (the sister ship of the Titanic) on the deck of which Figure 7 was taken. They embarked at Cherbourg and disembarked at New York and the visit lasted from 11 May to 28 June. On 20 May they visited the White House meeting President & Mrs Harding, and later also visited Chicago, Pittsburgh (where the Standard Chemical Company & Radium Chemical Company was situated) and sight-seeing the Grand Canyon and the Niagara Falls. The main reason for this visit was to collect 1 gram of radium destined for the Institut du Radium in Paris. The cost of the radium was US$ 100,000 and the dedication plaque on the mahogany lead-lined box containing the 1 gram is seen in Figure 7. The box remains to this day in the museum of the Institut du Radium … but without the radium!

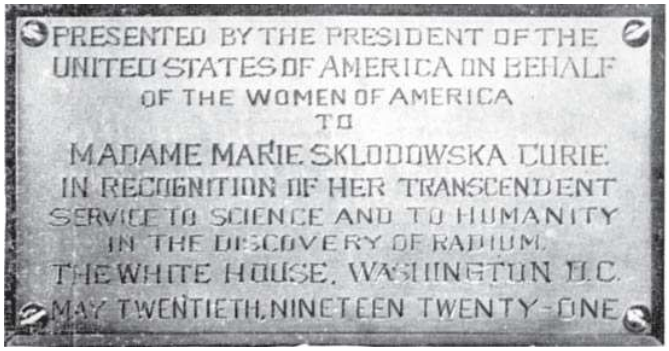

Figure 7. On the liner Olympic in New York, May 1921. From left to right: Mrs William Brown Meloney, Irène Curie, Marie Curie & Eve Curie. The dedication plaque: from the June 1921 issue of the Radium Chemical Company's house journal Radium, which featured the story of producing the 1 gram of radium.

Radium

Although interested in radium and its uses in medicine, Eve Curie seldom wrote on radium. In her book Madame Curie [1] she describes the discovery of radium and her only other publication on the subject was in 1950 in the British Journal of Radiology [3]. She ended this paper with the following paragraph.

"Up to the last months of her life, such familiar miracles as the accurate measurement of the radioactivity of a speck of matter, or the clear observation of an atomic bombardment would draw from her, every time, a sigh of satisfaction and put a light of gaiety in her very soft, grey eyes. And she would whisper to herself the little exclamation that came so often to her lips: "Ah, what a pretty phenomenon!"".

Science & philosophy graduate, concert pianist & music critic & journalist.

Eve graduated with honours with two degrees from the Sévigné Collège: in science and in philosophy. She also studied the piano for many years and in 1925 performed her first concert in Paris. She later performed for concerts, both in Paris and in provincial French cities, and in Belgium, Figure 8. It is also recorded by Susan Quinn [4] quoting from one of Marie Curie's notebooks that her daughter Eve at the age of six had "astonishing musical abilities" and in an entry dated 9 June 1911 the following commentary mentioning Ignacy Jan Paderewski. "Eve is presented to Paderewski; she plays "Marlborough" and "Il pleut, il pleut bergère". Paderewski thinks that she has exceptional ability … I felt great emotion in hearing these words from the mouth of the great pianist and musician." Marie supported her by buying a grand piano and finding good teachers but in the Curie home science was always placed above the arts. This is emphasised by Quinn [4] in her comment that "Eve felt in retrospect that her mother didn't understand the intensity of training for a concert career, encouraging her to get a general education first".

Eve Curie also wrote in the 1920s and 1930s as a music critic (under a pseudonym) for the weekly publication Candide. In addition she translated and adapted the 1927 American play Spread Eagle, written by George S. Brooks & Walter B. Lister for stage production in France in 1932. It enjoyed a long run under the name 145 Wall Street [5]. It was also during these two decades that Eve was "considered to have been one of the most beautiful women in Paris" [6]. That this is no idle comment can be seen from the photograph in Figure 9 which is from an issue of the magazine Match. Earlier in May 1921 in the New York Daily News she was complimented by being called "Eve of the radium eyes".

Figure 8. With her grand piano in the 1920s. A Washington Post article on 7 May 1926 was entitled Curie's Daughter Seeks Music Career.

Le Miroir du Monde 1931

Eve Curie has never been mentioned as having written articles on submarines, gliders and bullrings, but nevertheless this is exactly what she did in 1931 for the magazine Le Miroir du Monde which published issues, related to topics of current interest. All were very well illustrated.

Table I. Le Miroir du Monde issues in 1931 which were written by Eve Curie

No.53. pp.293-296. 07 March. Wilkins ira-t'il au pôle en sous-marin {Will Wilkins reach the North Pole by submarine?}
No.70. pp. 14-17. 04 July Les merveilles du voi à voile {The wonders of flight sailing}
No.74. pp. 127-120. 01 August La nouvelle Plaza de Torres de Madrid {The new Plaza de Torres in Madrid}

On 23 August 1931 the submarine Nautilus arrived in Arctic waters only 600 miles from the Pole. Captain Sir George Hubert Wilkins (an Australian explorer) and his crew had by then travelled some 5,000 km lasting over several months. Many problems were encountered. The submarine eventually dived under an approximately 1 metre thick ice flow but then found the only way of returning to the surface of the Arctic sea was to back the submarine out the way it entered. Wilkins later reported that "The noise of the ice scraping along the top of the vessel was terrifying. It sounded as though the whole superstructure was being demolished". Eve Curie's full title for her March 1931 article mirrored the title for a Jules Verne novel (as she states in her text): 200 Leagues Under The Ice. Will Wilkins reach the North Pole by submarine? The journey started at New York, and then via London, Bergen, Tromso, the Pole, Alaska and back to New York via San Francisco and the Panama Canal.

Flight Sailing refers to gliders and described the first successful flight from France (Saint Inglevert) to England (Lympne) across the English Channel, by the Canadian Lissant Beardmore. Photographs were included of different types of glider design from Austria and Germany, including a set of wings attached to the pilot standing at the top of a hill. Madrid's bullring is the largest in Spain and was inaugurated on 17 June 1931 with the project having started in 1918. It opened with a charity bullfight held to a sell out capacity, and was attended by the President of the Spanish Republic. The bullring is decorated with tiles representing all Spanish provinces, has a capacity of almost 25,000.

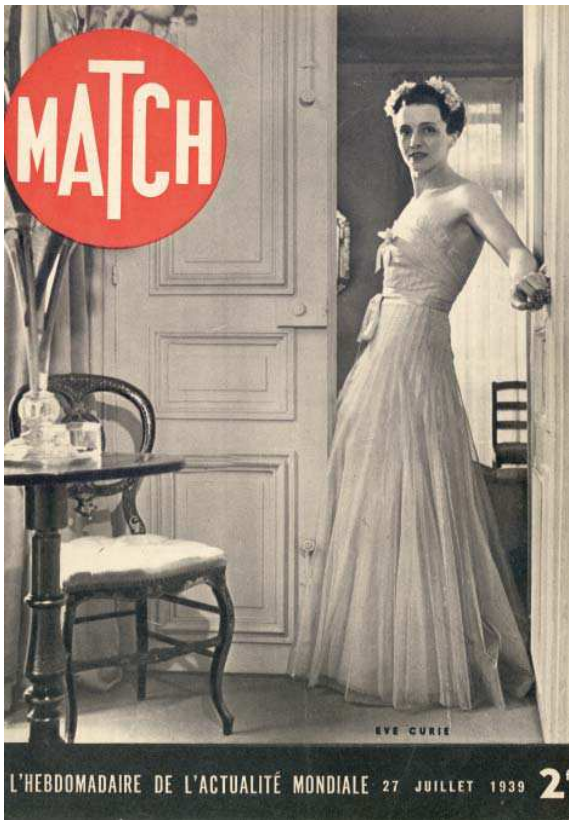

Figure 9. Cover of Match for 27 July 1939

145 Wall Street 1932

One could hardly imagine a different scenario than Spread Eagle [5] when compared to Madame Curie [1]. This Broadway play, set in the late 1920s was teed 'a drama and a fiction for patriots' and was premiered at the Martin Bock Theatre, New York City on 4 April 1927: with its run ending in June 1927 after ~ 80 performances. It concerns an unscrupulous New York tycoon Martin Henderson, and his personal assistant Joe Cobb an ex-Corporal Machine-Gunner from World War I. One of Henderson's investments is the Spread Eagle Mining Company in Mexico. The political situation in Mexico is unstable and Henderson sets out to foment a revolution by bank rolling with US$ 600,000 the Mexican General De Castro. In addition he employs the son of an ex-President of the USA, Charles Parkman, sending him to the worst trouble spot. Henderson's plan is for Parkman to be killed in the uprising, thus ensuring the intervention of American troops and restoring the profitability of his Spread Eagle Mining Company. Parkman is apparently killed but is later found alive but injured. He marries Henderson's only daughter and Joe Cobb sickened by Henderson's double-dealing leaves his employ and rejoins the US Army as a private soldier. Henderson, though, does not receive his just deserts. Eve Curie's French version, 145 Wall Street, was premiered on 25 October 1932 at the Théatre du Gymnase in the Boulevard Bonne-Nouvelle. The 42-page La Petite Illustration [5] would have been on sale at the Théatre and contains the complete play, including photographs of five scenes. The front cover (Figure 10) of La Petite Illustration is the advertising poster for the play.

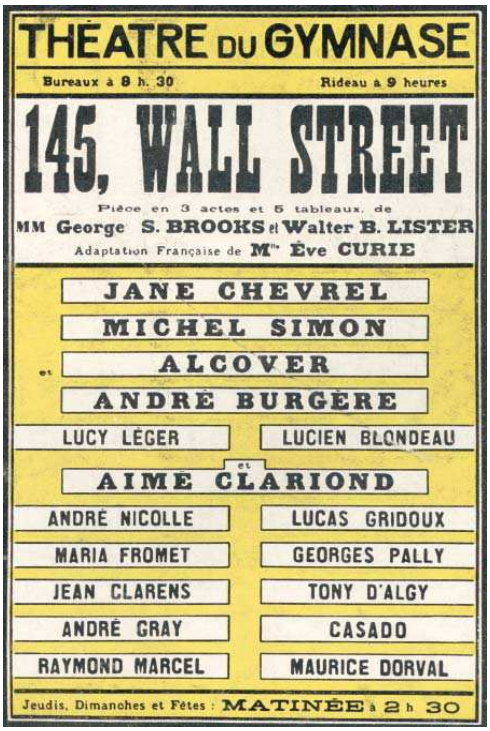

Figure 10. Theatre poster [5]

Madame Curie 1937

Her book Madame Curie [1] was to make Eve Curie an internationally acclaimed author. It was adapted in 1943 by Metro-Goldwyn-Meyer with Greer Garson playing the part of Marie Curie and Walter Pidgeon the part of Pierre Curie. Mrs Franklin D. Roosevelt said "I have read it with great thrill. The simplicity and beauty of the style and the understanding and love for her mother are in themselves wonderful". Madame Curie also won the American National Book Award for non-fiction. Other publications arose out of her work during World War II [2, 7-9] and after the war ended she was the co-publisher of the newspaper Paris-Presse for the period 1945-1949.

Figure 11. New York 1939 Figure 12. New York 1940

Figure 12. New York 1940

Fall of France 1940
Eve Curie had influence among several of France's politicians and played an important, if not very well known role, just before the fall of France in June 1940 [10]. Prime Minister Reynaud was in a quandary when he learnt that Britain could not send a substantial number of aircraft to France. Because of this, Marshal Pétain commented to Reynaud "Well, there is nothing left but to make peace. If you do not want to do it, you can hand over (the government) to me". Reynaud refused and determined to telephone the American President Franklin D. Roosevelt. In this, not only was Reynaud assisted by the US Ambassador William Bullitt, but also by Eve Curie. The archives of the Quai d'Orsay show that a first draft of the subsequent letter from Reynaud to Roosevelt was written by Eve Curie with Roland de Margerie, Reynaud's liaison with the Foreign Ministry. Eve Curie later wrote to President Roosevelt on 26 November 1942 [11] "I wish – oh so much – that you could address my compatriots again, in the same straightforward way that you used on the first day (of the invasion) in your own sincere French words … Your voice can be a guide, a rallying point … You can show them the way … ".

In addition, she also wrote patriotic articles in various magazines, such as in the May 1940 issue of the Atlantic [9] and the March 1941 [12] and September 1943 [13] issues of Coronet. In the latter the seven biographies were of men she had met and written about in her Journey Among Warriors [2], Georges Catroux, Wladislaw Anders, Esipov, Chou En-Lai, Claire Chennault, Jawaharlal Nehru and Archibald Wavell. Of these, the least well known to history is Esipov who was a Russian carpenter turned leader of a successful partisan group.

London & America 1940 & 1941
In May 1941 the Vichy French collaborationist government revoked her French citizenship and confiscated her house [14]. Eve Curie then left Paris for London on 11 June 1940 and was one of 1,300 on a British cargo boat, the Madura, which could normally accommodate only 180 passengers. The were strafed by German aircraft as they left the French coast at Bordeaux. In London she worked for the Free French, lunched with Winston Churchill at Chequers, travelled to Scotland to meet General Sikorski and Polish Army units, and was appointed as Head of the Women's Division of the Commissariat of Information by Jean Giraudoux who had become the French Information Minister.

During 1941 Eleanor Roosevelt hosted a dinner at The White House for Eve Curie who then launched one of her tours across the USA on the topic of French Women and the War [9, 15], beginning in Kalamazoo, Michigan [5]. She became the spokesperson for the women of France during World War II and her most well recorded quote of this period was "Peace will not come soon, and it will not come at all while the Hitler regime remains in Germany because the French are determined that when this war ends there will be no more fighting in Europe for a long time", Figure 13 [15].

Figure 13. Front cover of Time Magazine, 12 February 1940. Neither her mother nor her sister were ever featured on a Time Magazine front cover. Eve Curie's quote below her photograph is "All the men and women of genius are with us" [12]

NATO & marriage
Eve served in Europe with the women's division of General De Gaulle's fighting French after returning from her Journey Among Warriors tour. Her war work was then followed in 1952-1954 by an appointment as a Special Adviser to the Secretary-General of the North Atlantic Treaty Organisation (NATO). On 19 November 1954 she married Henry Labouisse. They had met in 1951 while he was working in Paris on the Economic Cooperation Administration (ECA) staff and she was working at NATO. It was also in the 1950s that an anecdote illustrates a rather wicked sense of humour. She once asked a reporter who asked for an interview "You are not mixing me up with my sister by any chance?" pointing out that she was the only member of the Curie family not to have won a Nobel Prize!

Journey Among Warriors
Eve Curie on 10 November 1941 left the Pan American Airways base at La Guardia Field, New York, as a "Special War Correspondent" in a transatlantic Clipper for a world tour sponsored by Allied Newspapers and by the Herald Tribune Syndicate, out of which arose her book Journey Among Warriors [2], Figure 13

and Figure 14. The book was divided into five parts containing 26 chapters, Table II. These chapter titles and the time line in Table III clearly show the vast extent of her journey.

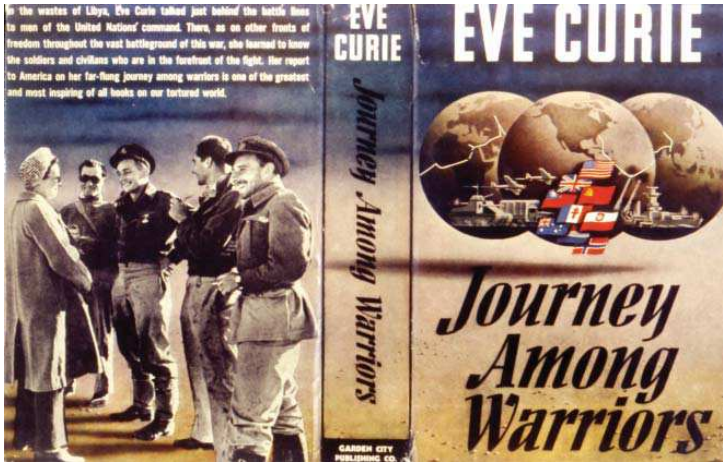

Figure 14. Dust jacket of Journey Among Warriors. Except for a map inside the front & back covers of the book, these are the only illustrations [2].

In 1942 she featured, because of Journey Among Warriors, on card number 105 of "a series of educational cards which come wrapped in packages of War Gum", copyrighted by Gum Inc., of Philadelphia. On the reverse side to the artist's (not very good!) drawing of her seated next to a Sheikh, with palm trees, soldiers and a battleship and two planes in the background, is the following text beneath the legend "Eve Curie, De Gaullist Worker". "The famous daughter of the discoverer of radium is now a tireless worker for the Fighting French. Last year as a sort of emissary without portfolio, she travelled by American plane across Africa, the only white woman in the Libyan front area. She saw the black enemies of the Swastika, the West African volunteers and the Sudanese marching and drilling in the glaring sun. One evening she sat in Nigeria with the Emir of Kano who rules two million people. She spoke of her journey. He said slowly: "When I was a small boy we were told that in order to find wisdom we had to go to China and not any farther. But with the American planes there is no place to go and remain. They have made the world everywhere the same!" These words of wisdom from this powerful ruler who recognizes the far-flung influence of America were cheering to Mlle. Curie, who also admires America." The gum card also encouraged people to "Buy War Bonds and Stamps for Victory".

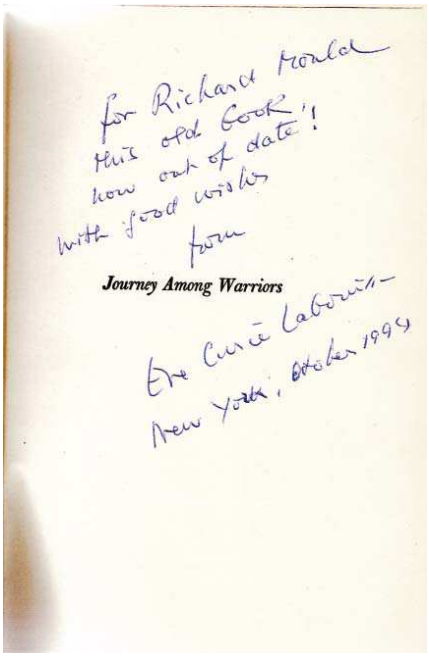

Figure 15. Eve Curie's comment on 1994 about her "old book" [2]

The Price of Freedom

Before her Journey Among Warriors, Eve Curie had on 9 April 1940 at the Astor Hotel at a luncheon of the American Bookseller's Association and the New York Herald Tribune, presented a lecture entitled The Price of Freedom [8] which was later published and emphasised her viewpoints on France and the war, Figure 16. The New York Herald Tribune included the following text in an editorial. "It is not always easy to discover the reasons for a great speech. There must be an audience, able and ready to respond. There must be a speaker at once inspired and inspiring. To these must be added an extra spark … capable of touching off the mysterious power that is eloquence. Some such combination of events clearly surrounded Eve Curie … Those who attended the … luncheon … in the shadow of the news from Norway – are still talking of her stirring presence and poignancy of her voice. But the inspiration of the moment unmistakably carried over to the printed text. Her winged words deserve to endure as an example of right and moving speech … Those Americans who know and love their Paris, will be especially touched by her straightforward narrative. Yet the philosophy implicit in her thought, like the beauty of her words, stands above place or person. A serene and brave woman spoke her faith. No one could listen without taking heart and wisdom."

Table II. The 26 chapter titles of "Journey Among Warriors" [2]

Africa	1. We will carry you to Nigeria. 2. Miles and miles of nothing. 3. The Western desert. 4. Cairo & Pearl Harbor. The Near East 5. The Free French in the Levant. 6. Tehran: a center of war communications.
Russia	7. North to the Russian winter. 8. Everyone works in Kubyshev. 9. The war came close to Moscow. 10. Nazi corpses in the snow. 11. We like working 11 hours. 12. Liberated Tula and the home of Tolstoy. 13. Millions of Russian men are falling. 14. The Führer was not right. 15. We will get to Poland.
Asia	16. Flying to the Far East. 17. The dead city of Rangoon. 18. China prepares for her destiny. 19. Young men and old machines. 20. A round of calls. 21. A great Chinese family. 22. Bengal waits. 23. Nehru and Cripps. 24. Britain in India and General Wavell. 25. Mr Gandhi and the Cripps proposals.
Back to America	26. "The Americans have arrived".

Not only the Herald Tribune but also Eleanor Roosevelt in two of her weekly columns, My Day, had words to say about Eve Curie [16] (see also Table III). For 18 February 1940: "Mlle Curie has been in the Middle West, and shortly she will start on a long lecture trip which will take her to the West Coast. She has lived in England ever since she left France and I think there must be moments when our mentality in this country must seem like an unreal dream to her. There is no use denying that seeing the bombs drop, even if they do not hit you, puts a different perspective on life." For 25 May 1942: "It is always a joy to have Mlle Curie here and it was extremely interesting to glean from her some of the impressions of the various countries she has visited on her extraordinary trip. She has a map on which she has traced her journeys, and someone at lunch yesterday, on looking over it, remarked 'She has outdistanced you many times.' Mlle Curie has certainly in both mileage and in the variety and interest of her travels. One looks at this chic, well-groomed delicate French woman and marvels at the calm with which she must have faced many dangerous moments, and is proud of women!"

Air travel 1941

Air travel 66 years ago was of course very different from today and her description of her preparation for the first leg of her journey makes fascinating reading. "I had not gone to bed that night and had spent my time kneeling on the floor of my Manhattan hotel room, between a scale, meant to weigh my luggage, and my two travelling bags, made of soft canvas, from which I eliminated one by one the heaviest items. The 44 pounds allowed were only 35 pounds once my typewriter was deducted. The 35 became 29 after I had taken into account my papers, stationery, and the thick Anglo-French dictionary with which I could not part … 29 pounds! In the old days I had sometimes taken more than that to go on a weekend in Wiltshire or on Long Island. Now the 29 pounds had to do for several months, for the heat of Africa and India as well as for the Moscow winter … A taxi had taken me to La Guardia airport around 4 am with my typewriter and my two bags. I had put my heaviest clothes on, from sweaters to sheep-lined boots, so that the scales of Pan American Airways should be indulgent with my luggage. I had kept on my arm (a classical trick of all Clipper passengers) the three coats that would take care of all weathers … I was leaving for the equator and dressed for Alaska" [2].

PanAm "Capetown Clipper"

The Pan American Clippers were the largest aircraft to be built before Jumbos. Eve Curie mentions [2] that her plane was the Capetown Clipper, that hers was the maiden flight by any Clipper from the USA to the west coast of Africa via Brasil and the south Atlantic and that there were no passengers, only US Government, military and PanAm personnel and she "had the status of a clandestine passenger". A search of the Internet shows that only 28 Clippers were built, all given names, the first in October 1931 and the last (classified either as a Boeing B-314 or Clipper) in August 1941. This was the Capetown Clipper, No. NC-118612, Figure 17, and Eve Curie's flight in November 1941 was this Clipper's maiden flight to any destination. In 1942 it was sold to the US Army Air Force and then in the same year to the US Navy. In 1947 it was finally sold to the airline American International Airways but collided with a boat in October of that year and had to be sunk at sea by the US Coastguard as a hazard to shipping.

Time line 1940-1942
Table III gives a time line for January 1940 to May 1942 which clearly shows the large number of important personages met by Eve Curie and the cities through which she travelled 1941-1942. This was surely a unique travelogue amongst WWII war correspondents.

UNICEF
Eve Curie's husband, Henry Richardson Labouisse was the Executive Director of UNICEF for 17 years from 1965. During these years Eve was known as the "First Lady of UNICEF" and played a very active role in the organisation, Figure 19. She travelled with her husband to advocate for children and to provide support and encouragement to UNICEF staff in remote and difficult locations [17]. She has been described in the same vein on many occasions over the last 40 years, for example in The Times of India on 10 November 1966 when a short biography was entitled Santa Claus to the World's Children.

The New York Times
Eve Curie was the subject of some 20 articles in the New York Times (NYT) between 19 April 1939 and 28 August 1961. The first NYT article {Cancer Committee Honors Eve Curie. She Gets Clement Cleveland Medal at Dinner Here for Biography of Mother} focuses on Madame Curie [1]. A photograph of the medal presentation is included (see Figure 11) stating that its award at the New York City Cancer Committee dinner was for 'Distinguished service to public education on cancer control'. A group of NYT articles then appeared in 1940 and were devoted to World War II. In January 1940 there was Eve Curie Outlines French Wives' Job. Women Carry on for Men at Home, She Asserts – Visits Mayor at City Hall {19 January: the visit was to Mayor La Guardia}. The next day, 20 January, the headline was Cultural War Aim Seen by Eve Curie. France and Finland Fight, She Says, to Defend Spiritual Values Tyrants Destroy. This NYT article refers to a luncheon given at the Astor Hotel {the venue also in April 1940 [8], see Figure 16) during a symposium on The Arts and America at which 1,500 were present, including the actor and singer Paul Robeson.

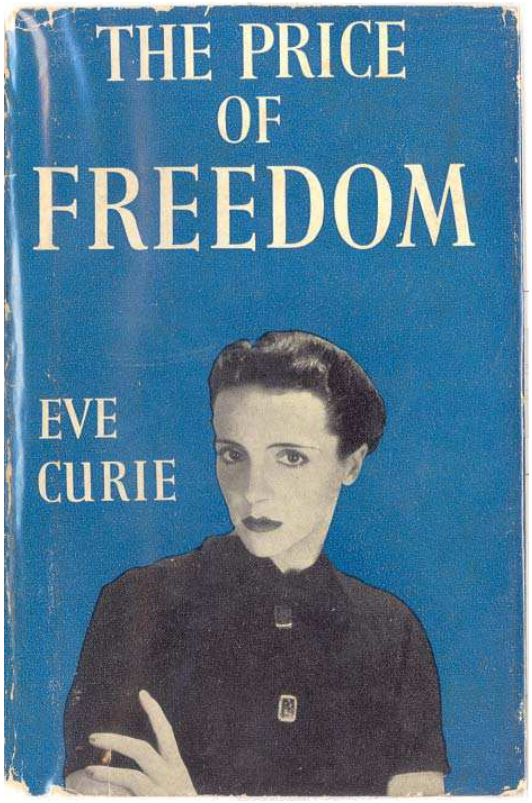

Figure 16. Front cover of the 32-page booklet of her 9 April 1940 lecture in New York [8]

Table III. Time line: January 1940 to May 1942 [2, 13]

1940	18 January Arrives in New York aboard the Italian liner Vulcania for her US lecture tour. 02 February Invited by Eleanor Roosevelt for dinner & to stay the night at the White House. 12 February Features on the front cover of Time Magazine. Late April Returns to Paris from her US lecture tour. 10 May Hitler attacks Holland & Belgium 10 June Italy declares war on France & Britain. 17 June Leaves Bordeaux as a refugee on the British cargo ship Madura. 20 June Arrives in Falmouth harbour & takes the train to London. 16 June French Premier Reynaud arrested & imprisoned for the remainder of the war. 18 June Hitler enters Paris. 07 August Winston Churchill's declaration establishing status of Free French movement.
1941	02 January Leaves for USA on the liner Excambion for a lecture tour of USA & Canada. Mid-February Invited by Eleanor Roosevelt to the White House. 10 November Leaves La Guardia, New York, on board PanAm Capetown Clipper. 13 November Arrives in Bathurst, Gambia after a stopover in Belém, Brasil 14 November Arrives in Lagos, Nigeria. 16 November Failure of British commando raid on General Erwin Rommel's HQ. 18 November Leaves on a BOAC Lockheed Lodestar across Chad to Khartoum, Sudan. 21 November Travels in a Sunderland flying boat to Cairo via Wadi Halfa on the Nile. 22 November Meets Air Marshall Tedder, Oliver Lyttelton & Randolph Churchill. 23 November Flies with Randolph Churchill to near the Libyan border & the front lines. 07 December Japan attacks Pearl Harbour. 10 December HMS Prince of Wales & HMS Repulse sunk east of Malaya.

	10 December By Egyptian airliner to Beirut, Lebanon. 13 December Visits Damascus & meets President Taggedine el Hassani of Syria. 15 December Drives from Damascus to Sea of Galilee & Nazareth to Jerusalem. 06 December By plane across the Trans-Jordan desert & Iraq to the British airbase Habbaniya. 17 December By plane to Tehran to meet the Shah of Persia. 25 December Hong Kong falls to the Japanese.
1942	06 January Arrives in Moscow when the fighting is only 80 miles distant. 11 January Attends an Orthodox church service in Kubyshev (formerly named Samara). 15 January Driven to the village of Mikhailovka, retaken from the Nazis only two days earlier. 18 January Meets Leo Tolstoy's grandniece & visits Tolstoy estate Yasnaya Polyana. 26 January Flies Moscow to Kuybshev & then continues to Tehran. 26 January Tehran via Trans-Iranian railway & flying boat to northern India. 08 February By flying boat to Calcutta. 13 February Flies to Lashio, Burma on a Chinese National Airways plane going to Chungking. 15 February Singapore falls to the Japanese. February By train from Mandalay to Rangoon, (carriage marked Mlle Curie-Lady-Keep Clean). February Train to Mandalay & then Lashio and then flight to Chungking, China. February Meets Chou En-lai & Madame Sun Yat-sen. 10 March Meets Chiang Kai-Shek's second wife, the youngest of three Soong sisters. February Meets the American Colonel Claire Chennault, the organiser of the Flying Tigers. February Flies from Chungking to Calcutta. March Meets Jawaharlal Nehru, Mahatma Gandhi & Mohammed Ali Jinnah. March Meets General Sir Archibald Wavell, British C-in-C India. 29 March Attends Sir Stafford Cripps' Conference where Indian self-government was offered. 23 May Returns to the USA after travelling 40,828 miles.

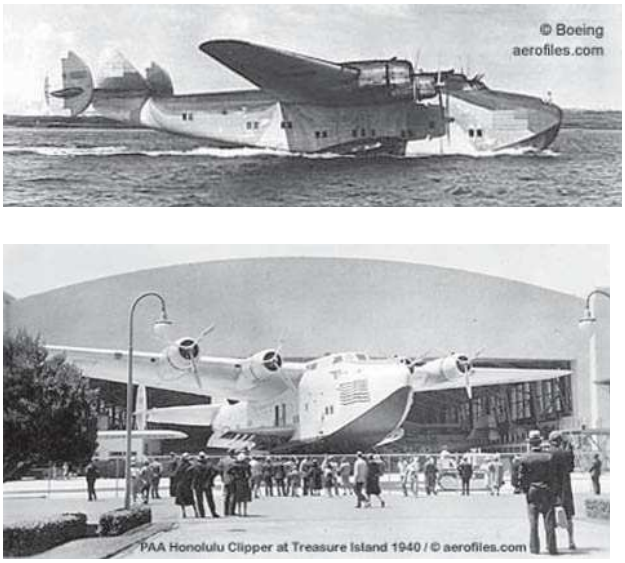

Figure 17. (Top) PanAm Capetown Clipper built by Boeing in 1941: length 106' 0", span 152' 0". (Bottom) PanAm Honolulu Clipper, built by Boeing 1939. Its huge size can be judged from the size of the people in this photograph which was taken at the 1940 World's Fair.

For the third successive day, 21 January 1940, the NYT carried a headline about Eve Curie: French Woman Here on Lecture Tour, Has Flair for Clothes but Dresses Simply, and includes her photograph (Figure 12) with the caption Mlle Curie in a New Schiaparelli. This is expanded in the paragraph "She is dressed by Schiaparelli, whose essentially modern mode suits her superbly, and she will take with her on this second trip (to the US) a complete wardrobe from this wittiest of Paris couturiers". She is also described as a "gifted playwright, an actress of talent, a witty lecturer, handsome, charming and forceful". The NYT reporter was Kathleen Cannell who transmitted the piece "By Clipper to the New York Times". Exactly one year later, 21 January 1941, Eve Curie again rated a headline in the NYT (Eve Curie Ironic on 'Aid' to Britain) and gave an interview on the Excambion (an "American Export liner") when it arrived in the USA. Eve Curie had arrived to give a lecture tour and was critical of the level of American help to Britain's war effort, emphasising Britain's need for more ships. She talked about her broadcasts to the French at the BBC in London and 'form cards distributed for communication within France'. Eve stated that she had examined some 400-500 of these cards and gave the following as an example. The words originally printed on the card are capitalised and the writer completed the card by filling in the blanks. In a small space reserved for "Further Comment" the card read "Long Liver France! Slave today free tomorrow". It was signed "A good Frenchman, somewhere in France".

English aviation in GOOD HEALTH
German aviation GRAVELY ILL
Would like to see Hitler KILLED and Mussolini PRISONER
British Admiralty WITHOUT NEWS OF Italian Navy
Occupation troops too fond of FOOD
All the French people listen to your NEWS
Hope has COME BACK
Hitler wants to GO TO London August 15

Asked what had been the principal theme of her BBC talks she replied "I only tried to tell all of them what I saw – it is not lost. England can win". Two NYT reports followed on 30 and 31 January 1941 and concentrated on the Vichy Government rescinding her French nationality. The first headline was Vichy Official Scores Mlle Curie's Talks. Calls Opposition to Sending of Food to France Criminal (which was a distorted view of what she really said about food for France). The second was Mlle Curie Expands Views of Blockade. Rebuked by Vichy, she says Issue is up to Britain.

Then on 2 April 1941 there was Eve Curie Pleased for Aid to Britain. England's Fall would Doom France and Leave U.S. Alone, She Declares and on 4 May 1941 Eve Curie Punished for Opposing Vichy. Two years later, on 9 May 1943 her Journey Among Warriors is reviewed under the legend The Battlefronts of Freedom with the NYT publishing the photograph which appears on the cover of her book (see Figure 14). Later that May she received the Walt Whitman Society of America award for 1942-1943 for her book, jointly with Wendell Willkie's One World.

It was to be five more years 29 March 1948 & 1 April 1948 before Eve Curie was again mentioned in the NYT. This visit was for the purpose of receiving US$ 10,000 for cancer research (American-made laboratory equipment for Dr Antoine Lacassagne, Medical Director of the Institut du Radium, Paris). The cheque was presented in Philadelphia at a meeting of the American Cancer Society. Figure 18 was taken at this dinner. The remaining NYT press cuttings (19 and 20 November 1954) about Eve Curie relate to her marriage to Henry Labouisse, which was held on 19 November 1954 at the Protestant Episcopal Church of the Holy Trinity, 316 East 88th Street, New York. Then six years later on 28 August 1961 the NYT has the headline Career Woman Turns to Housewifery: as Official's Wife She Sees New Role as Full-Time Job. The final NYT notice is her obituary [6] on 25 October 2007: almost 70 years after she was first accorded a headline in the NYT.

Figure 18. Philadelphia 1948

The Panthéon, Paris 1995

The three photographs in Figure 20 were taken at the Panthéon in Paris on 20 April 1995, Eve Curie is seen far right walking next to President François Mitterand of France who is next to President Lech Walewsa of Poland. This was the ceremony when the coffins of Pierre and Marie Curie were reinterred in the Panthéon from their initial resting place in Sceaux. The coffins were carried by soldiers of the Republican Guard. It was appropriate that the ceremony closed with the playing of a nocturne written by Poland's most famous composer, Frederic Chopin. The row of young people standing by the two coffins are holding polystyrene cutouts relating to the work of the Curies. Far right can be seen Po for polonium, a red cylinder (this was meant to represent an atom!) and β.

Warsaw 1999

Eve Curie's final visit to Poland was in 1999, where as with many earlier visit, she went to the Warsaw Radium Institute, Figure 21. Officer of the French Legion of Honour 2005 On 13 July 2005 she attended UNICEF House in New York for an award ceremony with the UNICEF Director Ann M. Veneman and France's Ambassador to the United Nations, Jean-Marc de la Sablière, to be made an Officer of the French Legion of Honour Figure 22. The Ambassador decorated her with the medal in recognition of her commitment to "freedom, dignity, development and the well-being of children". He continued: "This is a very important event. Eve Curie Labouisse is the daughter of Marie Curie and she is a very modern and independent woman. A woman who has had an outstanding life. During the Second World War, she had been very brave and fought with the Forces Françaises Libre and then she was a journalist, a war correspondent, and she was honoured with the Croix de Guerre in 1944."

Figure 19. Eve Curie and Henry Labouisse arriving at Warsaw airport, 1967

Figure 20. Reinterrment of Pierre & Marie Curie, the Panthéon, April 1995

Irène & Eve

No biography of Eve Curie is complete without just a few words about the two sisters. The differences, one a scientist and one drawn more toward cultural pursuits, one like her mother not interested in clothes, and one very interested in Paris fashions have been recorded many times. So what is relatively unknown? They were seldom photographed together except when very young, as in Figure 1, or during the 1921 visit to the USA, as in Figure 7. However, a rare photograph of the two of them, which is not found in the archives of the Musée Curie in Paris or those of the Maria Sklodowska-Curie Museum in Warsaw, was located in the July 1939 issue of Match which feature Eve on the front cover, Figure 23. This photograph is undated but describes the girls as being on the 'steps to their mother's laboratory': this would have been in the Rue Cuvier. Eve is seen in both Figure 1 and Figure 23 holding her toy Teddy Bear.

Match included four pages of photographs under the title Madame Curie et Ses Filles with the last two being devoted to Irène and Eve with the respective headings Irène, Ministre, Prix Nobel, Mère de Famille and Eve a Vous Son Talent au Cute Filial. Three photographs of Eve are included, one on a beach, one at

a formal dinner in the USA in 1939, and a most unusual one probably never published elsewhere, showing her mending a puncture on a bicycle … no doubt posed at the request of Match!

Figure 23. Irène and Eve ~ 1910-1911

The political views of the sisters were also very different, and well known, with Irène (and her husband Frédéric Joliot-Curie) being left-wing and pro-Soviet Union whereas Eve was pro-American. This is illustrated by an article in the New York Times of 29 March 1948 (Eve Curie Arrives for Cancer Drive). Irène had been in the USA since 18 March but was admitted only after an overnight detention on Ellis Island. 'Mlle Curie said that she was amazed when she learnt of her sister's detention. Asked whether she attached any significance to the fact that she and not her sister, was invited to the dinner at Philadelphia, Mlle Curie replied that she had not made the invitations. She added that while she and her sister "lead very different lives" she would be delighted if her sister were there.' However, the Warsaw Museum records show that only Eve attended the dinner.

Figure 21. At the Warsaw Radium Institute in 1999. The building in the photograph behind her right shoulder is the Radium Institute shortly after its opening in 1932

Personal reflections, New York 1994

In October 1994 I had the great pleasure of Eve Curie inviting me to her home in Sutton Place, near the United Nations in Lower Manhattan. By then she was approaching 90 years of age: but looked 30 years younger, and her memory was still razor sharp. Looking to find a word to describe her I can only use "sparkling". She was most kind, giving me inscribed copies of her two books [1, 2] and one abiding memory of my visit was her telling me that she almost handed back her publisher's advance for Madame Curie and hence almost never wrote the book. What a loss that would have been. She was a truly remarkable woman and does not deserve her sometimes historical placement by those who know no better, behind Marie, Pierre & Irène, but should definitely be on the same level as her mother, father & sister.

Figure 22. 12 July 2005 at UNICEF House, New York, after being made an Officer of the Légion d'Honneur. (Copyright UNICEF HQ05-0895 Nicole Toutounji UNICEF Headquarters)

Acknowledgements
The early photographs of Eve Curie used in this biography were acquired over the years from Malgorzata Sobieszczak-Marciniak, Director of the Maria Sklodowska-Curie Museum in Freta Street, Warsaw. I am also most grateful to Joel & Anne Lubenau for assistance with the research relating to the USA for this biography, to Adrian Thomas for assistance with locating some of the publications by Eve Curie and also the 1942 Gum Inc., trade card, Rose Marie Pratt for searching the archives of the New York Times and Mark van Braak for helpful IT advice. I would also like to acknowledge Nowotwory's Editor-in-Chief, Professor Edward Towpik for his continued support in encouraging the publishing of material relating to The Curie Family and to radium: including the Nowotwory Memorial Issue for Marie Curie, published on the centenary (1998) of the discovery of radium [18], a biography of Pierre Curie, published on the centenary (2006) of his death [19] and the Nowotwory Supplement Radium History Mosaic, published in the year (2007) of the 75th anniversary of the founding of the Warsaw Radium Institute [20]. Finally, and most importantly I would like to say how much I valued the opportunity to meet Eve Curie in October 1994 and to be able to realise at first hand what a fascinating lady she was, even at the age of almost 90.

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British Society for the History of Medicine
Congress September 2009 in Belfast

The 23rd Congress will be in Belfast in September 2009, Wed 2nd Sept to Sat 5th Sept. The Congress will be held at Stranmillis University College, a college of Queen's University Belfast. Stranmillis was founded in 1922 to provide state funded teacher training but now provides other courses and a conference centre.
Hosts will be The Ulster Society for the History of Medicine(USHM) with the support and cooperation of the Centre for the History of Medicine in Ireland(CHOMI), medical historians at the University of Ulster, which is a partnership with University College Dublin.
With this in mind, the conference, as well as encouraging presentations from other aspects of the history of medicine, will showcase work in Irish history of medicine. The staff at CHOMI will be participating and will present the results of their recent research to the conference.

Those working on any aspects of Irish medical history are particularly encouraged to come forward with their suggestions for papers for 2009. The main themes of the conference will be:

- Irish medical history
- Exploration and medicine overseas
- Medical biography
- Medical specialties
- Epidemic diseases
- Miscellaneous
- There will also be a section devoted to students researching the history of medicine.

Those with proposals for a paper should submit them, before 31st January 2009, in the form of an abstract of no more than 250 words outlining the main points and conclusions of the presentation with a few key references. Once your abstract is approved, you will be notified and participation in the Conference will then require the receipt of the completed registration form, and payment of the Conference fee.

Please also submit a brief biography which will appear in the book of abstracts. As a record of the conference photographs will be taken of those who present papers.

A form for printing or email submission is in Preliminary notice with call for abstracts (Word document).
Please send completed forms to:
Professor Greta Jones, Centre for the History of Medicine, University of Ulster at Jordanstown, Shore Rd, Newtownabbey, County Antrim, Northern Ireland BT37 OQB
Abstracts can be submitted electronically to Professor Greta Jones at michael.liffey@ucd.ie.

Bookings for the Congress will open on 1 September 2008.

Contact at USHM:
Dr Ethna O'Gorman
Office of Archives, King Edward Building
Royal Victoria Hospital
Grosvenor Road
Belfast BT12 6BL
Email ethna@ushm.co.uk
or contact the chairman of USHM, Dr Robert Montgomery, of Queens University Belfast,
robertm1712@btinternet.com

Interesting Web sites

MoD admits: old war planes contaminated Dalgety Bay
http://www.sundayherald.com/news/heraldnews/display.var.2192975.0.mod_admits_old_war_planes_contaminated_dalgety_bay.php
Sunday Herald reports

The article "Radiation from buried remains of scrapped equipment puts residents at higher risk of cancer" was written by Rob Edwards who writes that "Homes in Dalgety Bay, Fife, have been contaminated by military radioactive waste in breach of safety limits, putting the health of residents at risk. A new survey for the Ministry of Defence (MoD), seen by the Sunday Herald, reveals that the gardens of up to nine houses could be polluted with high levels of radium-226 from old warplanes. The MoD is now coming under growing pressure to dig out the contamination, for which it has previously denied responsibility. It is also being asked by the Scottish government's green watchdog to clean up the foreshore at Dalgety Bay, which is suspected of being even more polluted. Dalgety Bay was the site of Donibristle airfield, where many aircraft were dismantled at the end of the second world war. The dials in the planes were coated with luminous, radioactive radium so that they could be read at night."

"William Hunter and the Art and Science of Eighteenth-Century Collecting"
Conference: 3-5 September 2008

A conference organised by the Hunterian and the University of Glasgow History of Art Department which will explore Dr William Hunter's role and place as a collector in eighteenth-century Europe.

Wednesday 3 September - Hunterian Art Gallery
4.00. Registration/ coffee/tea; 4.30- 5.30 Keynote speaker: t.b.c.
5.45-7.00 Reception, Hunterian Art Gallery. Curators Peter Black and Anne Dulau give tours of exhibitions.

Thursday 4 September- Hunterian Museum. Session 1: European private collections.
Speakers include: Mikael Ahlund (Nationalmuseum, Stockholm); Heiner Krellig (Berliner Schlosser); Guillaume Faroult (Louvre); Kim Sloan (Francis Finlay Curator of the Enlightenment Gallery, British Museum)

Session 2: Medical 'men' as collectors and medical collections:
Stuart McDonald (IBLS - Neuroscience & Biomedical Systems, University of Glasgow); Peter Black (Curator, Hunterian Art Gallery); Starr Douglas (Leverhulme Scholar, University of Glasgow); Simon Chaplin (Director of the Museum and Special Collections at the Royal College of Surgeons)

Friday 5 September - Hunterian Museum. Session 3: 18th Century museums and collections: Architecture, Interiors and Display.
Helen McCormack (David Carritt Scholar, University of Glasgow); Clare Haynes
(School of World Art Studies and Museology, University of East Anglia); Geoff Hancock (Curator of Entomology, Hunterian Museum); Tom Tolley (History of Art Department, University of Edinburgh).

Session 4: 'A centre of instruction and enlightenment': Hunter and his collections:
David Weston (Keeper, Glasgow University Library Special Collections) Hunter's library
2.30 Donal Bateson (Curator of Coins & Medals, Hunterian Museum); Nick Pearce (History of Art Department, University of Glasgow); John Faithfull (Curator of Mineralogy, Hunterian Museum)

For further information contact Geoff Hancock
Telephone: 0141 330 2194
Email: G.Hancock@museum.gla.ac.uk
www.hunterian.gla.ac.uk

And finally: Betty Boop

From Jamie Brown:
I saw this picture and thought you would like it.
http://www.panopticist.com/graphics/betty_boop_skeleton.jpg