I hope you like this issue of The Invisible Light. Apologies for the delay since the last issue. Do please send me material for inclusion. The next issue will contain two radiographic articles written by Noreen and Muriel Chesney. Please let me know if you wish so submit an article. We would be delighted to receive your papers.

Do please consider presenting a paper in Dundee at The British Society for the History of Medicine in 2007. I want the session on Radiation Medicine to be a success!

Adrian

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The RHHCT web site is to be found at: www.rhhct.org.uk
A memorial event for the late Professor Sir Joseph Rotblat CCMG DSc FRS (1908-2005) was held at the Royal Society on the 9th December 2005 and was supported by The British Pugwash Trust & The Pugwash Conferences on Science and World Affairs. The purpose of the Pugwash Conferences is to bring together, from around the world, influential scholars and public figures concerned with reducing the danger of armed conflict and seeking cooperative solutions for global problems. AMKT attended as the BIR representative. Joseph Rotblat was BIR President in 1971-2. Pugwash has set up a special fund to make possible the deposition of the archives of Joseph Rotblat at Churchill College Cambridge. This will make the legacy of Joseph Rotblat available at Cambridge and also worldwide electronically. If you wish to contribute, cheques payable to ‘British Pugwash Trust (Nobel)’ can be sent to: Joseph Rotblat Archive Fund, Pugwash Conferences, Ground Floor Flat, 63A Great Russell Street, London WC1B 3BJ.

The British Society for the History of Medicine - 2007 Congress in Dundee:  
http://www.bshm.org.uk

The 22nd Congress of the BSHM will be held in Dundee 5-8 September 2007. It will be held at West Park Centre in Dundee and it is organised by the Scottish Society of the History of Medicine. It will incorporate a joint session on 6 September with University of Dundee Medical School to celebrate 40 years since the establishment of Dundee as a separate University. The chairman of the organising group is Dr David Wright, 20 Lennox Row, Edinburgh EH5 3JW, email dr.david.wright@virgin.net

Topics for the meeting include the history of Occupational Medicine, Exploration Medicine, Radiation Medicine, and Military Medicine. They are putting together a programme of papers (oral presentations or posters) on these topics, and they would also welcome papers on other subjects. The contact for submission of papers is Professor JAW Wildsmith, Department of Anaesthesia, Ninewells Hospital, Dundee DD1 9SY, email j.a.w.wildsmith@dundee.ac.uk

Do consider presenting a paper for the Radiation Medicine session.

Recent historical books and papers:

Science and Technology in Medicine: An Illustrated Account Based on Ninety-Nine Landmark Publications from Five Centuries  
Andras Gedeon  
Hardcover 580 pages (December 31, 2005)  
Publisher: Springer-Verlag New York Inc.  
Language: English ISBN: 0387278745

The history and evolution of the fields of science and medicine are symbiotically linked and thus are mutually dependent. Discoveries in one domain have allowed for progress in the other, and it is nearly impossible to study one area in isolation. The influence of science and technologic discoveries on medicine has profoundly impacted the way physicians practice and has resulted in an
extended life expectancy and quality of life that our ancestors never dreamed possible. “Science and Technology in Medicine” is a collection of 99 essays based on landmark publications that have appeared in the medical literature over the past 500 years. Each essay includes a summary of the article or chapter; text and images reproduced directly from the original source; a short biography of the author(s); and a discussion about the significance of the discovery and its subsequent influence on later developments. Original material by the likes of Durer, Bernoulli, Doppler, Pasteur, Trendelenburg, Curie and Roentgen offers readers a rare glimpse at publications housed in archives around the world, beautifully reproduced in one fascinating volume.

**Readings in Historical Metallurgy**

“I have the pleasure to inform you that volume one of my series Readings in Historical Metallurgy has just been published. It is entitled Changing Technology in Extractive Metallurgy. Best regards, Fathi Habashi”

Professor Emeritus of Extractive Metallurgy
Department of Mining, Metallurgical, and Materials Engineering
Laval University, Quebec City, Canada G1K 7P4
(418) 656-7269, Fax: (418) 656-5343
Fathi.Habashi@arul.ulaval.ca
http://pages.infinit.net/habashi/
Home address: 800 rue Alain, Apt. 504
Sainte Foy, Quebec City, Canada G1X 4E7
(418) 651-5774
Editor, Handbook of Extractive Metallurgy (4 volumes)
“When I get a little money I buy books; and if any is left I buy food and clothes”. Erasmus (1467-1536)

This book is a supplement to the author’s book A History of Metallurgy which he edited in 1994. In the present work he records the changes in the metallurgical unit operations that took place over the centuries. Any metallurgist who does not grasp the historical background of his profession, its relation to the chemical industry, and its connection to today’s technology is missing a great deal in his or her education. The book is in 800 pages, illustrated by 500 Figures many of them in colour, contains over 165 biographical notes of the scientists and engineers who contributed to this endeavour, and selected references in each chapter for further reading.

ISBN 2-922686-02-7
Published Mach 2006

Published by Métallurgie Extractive Québec
Distributed by Laval University Bookstore: Pavillon Maurice Pollack, Quebec City, Canada G1K 7P4
Can $95 + Postage
Frank Harrison and the First Dental Radiographs

By Peter Hirschmann

It is uncertain who took the first dental radiograph, but the honours are most fairly shared between the Germans Koenig and Walkhoff, Frank Harrison in Britain and C Edmund Kells in New Orleans, all of whom were producing crude but recognisable dental ‘skiagrams’ in the late winter and early spring of 1896. However, credit for the first published report clearly goes to Frank Harrison (Figure 1).

Frank Harrison was born in Sheffield in August 1859, the son of a dentist, Joseph Harrison. He was educated in Sheffield and received his medical and dental training in Sheffield and Edinburgh and at the Charing Cross Hospital in London, obtaining the Licentiate in Dental Surgery from Edinburgh in 1881 and the Membership of the Royal College of Surgeons of England in 1883. He returned to Sheffield and entered practice with his father and subsequently with James Allen. He died suddenly after an operation in May 1912, leaving a widow and four children.

Harrison had a distinguished career in which he made a unique contribution to the development of dentistry in his home city. He was instrumental in the formation of the Dental Department at the Sheffield Royal Hospital and in establishing the School of Dental Surgery in 1898. Towards the end of his career he became particularly interested in the state of children’s teeth and in one of his last acts was successful in persuading the local politicians to set up a school dental clinic.

As an expert photographer and active researcher, he was placed to see the potential for dentistry of what was then termed the ‘new photography’. A preliminary announcement in May of his paper to the Annual Meeting of the Midland Counties Branch of the British Dental Association on June 26 1896 was followed in September by a fuller description. Two years later he spoke to the Microscopical Section at the Annual Meeting of the British Dental Association.

The September 1896 paper gives an insight into the trials and tribulations of this pioneer dental radiologist, in Harrison’s own words ‘a scientific obstacle race.’ He describes his problems obtaining a suitable generator and X-ray tube. Directing the beam correctly was also an initial difficulty. He constructed a stent in order to retain the film in the mouth. Exposure times varied between ten and 40 minutes and he describes at some length the radiation burn on the side of the face sustained by his assistant in his experiments. He also reports he has constructed a cryptoscope but his screen failed to fluoresce. Despite all these difficulties he is positive as to the potential of X-rays in dental practice (Figure 2).

Harrison’s contribution to dental radiology, as with the man himself, remained virtually forgotten until Professor Keith Horner was asked to contribute to the RCR’s Roentgen Centenary Symposium. It was therefore fitting, if coincidental,
that nine year’s later, on July 15 2005, Professor Horner, as President of the British Society of Dental and Maxillofacial Radiology, unveiled a blue plaque, sponsored by the Society, at 297 Glossop Road, Sheffield where Harrison had once practiced. (Figure 3)

Figure 1. Frank Harrison (1859-1912). A photograph published in 1901 in Sheffield at the opening of the 20th century; contemporary biographies by SO Addy and WT Pike.

Figure 2. Radiographs taken by Frank Harrison in 1896.

Figure 2. Radiographs taken by Frank Harrison in 1896. 2
Figure 3. Blue plaque commemorating the achievements of Frank Harrison on his former surgery at 297, Glossop Road, Sheffield.

Acknowledgement: I am grateful to Dr V E Rushton, Senior Lecturer in Oral and Maxillofacial Imaging, University of Manchester Dental School, for the loan of her biographical material on Frank Harrison.

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References

4. Harrison F The ‘X’ Rays in the Practice of Dental Surgery J Br Dent Assoc 1896 17: 624-8
5. Dental Record 1898 18: 320
More Curie Medals and coins

The above is a 62 X 46 mm (2 ½ X 1 ¾ inch) 85 gram (3.0) uniface Bronze Art Deco Medal/Plaquette originally produced in 1935 in memorial to the late physicists Pierre (1859-1906) and Marie Curie (1867-1934). It was sculpted by Ovide Yencesse (1869-1947) and produced by the Monnaie de Paris. This particular example is a modern re-strike and is still scarce. Bronze, uniface plaque, 62x46mm, splendid re-strike in mint condition, edge marked bronze with horn (Paris Mint).

France, 1935, “PIERRE ET MARIE CURIE”.
Ref. M.1026, Catalogue Général Illustré de la Monnaie de Paris #3.

Pierre & Marie Curie San Marino (50 Lire coin) 1984 uncirculated.


Obv. effigy of Marie Curie.
In legend: her signature and dates of her birth and her death: 1867-1934. On right-hand side, the year of the centenary of her birth: 1967.
Rev. composition evoking the famous success of Pierre and Marie Curie in 1898, the insulation of polonium, then radium: the luminescent crucible containing radium in solution.


MARIA CURIE SKLODOWSKA BRONZE MEDAL
BRONZE MEDAL

SIZE: 50 mm
WEIGHT: 58 grams
SIGNED BY: KUNES

Frederick Melville 1891-1954
A response to a question.

“I note that on your website, you have made mention to a frederick melville, who was a relative of mine and secretary of the royal society of radiographers in the 1920's. We are researching his life and work and would be very interested if you have any more information or details of his life you could share with us.”

Dear S

How very interesting that you should write. Frederick Melville was Secretary to the Society of Radiographers and retired in 1954. He was Secretary from 1927-1954. There is a photograph of him in the history of the Society written by Ian Moodie. George F Westlake had been Honorary Secretary from the foundation of the Society in 1920 until 1927.

Frederick Melville was an interesting man. I assume you have seen his bookplate? I have a copy. It’s rather macabre and depicts death as the grim reaper grinning at us through an old X-ray (Coolidge) tube. In the background are a Crooke’s tube and a water cooled Metalix X-ray tube. The early X-rays could be frightening and revealed the skeleton otherwise only seen in the graveyard, battlefield or operating table. The artist was ARL Browne. I have reproduced to bookplate in the current BIR News (British Institute of Radiology).
Melville’s home was at Staplehurst in Kent and the Society’s office moved there for the duration of WW2. Kenneth C Denley was appointed Assistant Secretary to Melville in 1946 and took over on Melville’s retirement in 1954 and remained the Secretary until 1976. Melville died on September 21st 1954 (his 64th birthday). You may be interested to know that there was a memorial service for Melville at St Peter’s Church, Vere Street on the 6th October 1955.

Melville was born on September 21st 1891 and in WW1 worked in France with the French Red Cross. Then worked in the War Office X-ray offices until 1923. He moved to University College London where he was head of the X-ray Department under the famous anatomists Sir Grafton Elliott Smith and Prof H A Harris. I have recently acquired from the Society and College of Radiographers a collection of interesting radiographs made by Melville during this period. From 1927-1937 he was part-time Honorary Secretary to the Society and because of increasing demands he became the full time General Secretary in 1937. Melville worked very hard for the Society of Radiographers. The membership in 1927 was about 350 and by 1954 it had grown to over 6000. This was in no small part due to his efforts and radiographers today have cause to be very grateful to Frederick Melville.

The current Chief Executive Officer of The Society and College of Radiographers is Richard Evans. The Society of Radiographers represents more than 90 per cent of the diagnostic and therapeutic radiographers in the UK. It is responsible for their professional, educational, public and workplace interests. As has been shown, it is one of the oldest and most experienced radiography organizations in the world.

I hope this helps
Best wishes

Interesting Web Sites

"X-FRUIT".: Dr. Werner Schuster

http://www.dr-schuster.at/x-art/uk/index_uk.html
http://www.dr-schuster.at/x-art/index.html

“The idea to the first atypical x-ray photographs arose just before the invitation to the presentation of a new mammography appliance in 2002. The sharpness or the maximum resolution could be shown at a 28 centimetres long piece of frozen fish (mammography picture) after many attempts. A year later I tried to x-ray various different objects. This resulted in a complete series of pictures “X - FRUITS : Photos taken without a camera” two years later.”

All x-rays were taken conventionally, the size of the negative was 18x24 cm or 24x30 cm. The negatives were digitized with a precision scanner (100 MB) and
printed with a high end-printer after working on them and fixed to an aluminium plate.

"How to Help Heal the Harmful Effects Caused by Exposure to Radiation or Radioactive Dusts"

“Documentation on the Medical, Homeopathic, Nutritional and Naturopathic Ways to Do it.
Dear Radiation Sufferer, You are not crazy to be worried about radiation …”
http://www.RadiationDetox.com/

This US site gives an insight into those who promote a fear of radiation. Worth a look.

Lord Kelvin
http://zapatopi.net/lordkelvin.html

My son found this website devoted to Lord Kelvin. Quite amazing – and who said that physicists were not interesting!

“KELVIN IS LORD!! ALL PRAISE THE LORD KELVIN!! Only The One, True Lord KELVIN Can Conserve You From Entropy!”

"Who is the Lord Kelvin? Perhaps you have asked yourself this as you have heard others speak of Him. Well, I have good news for you: the Lord Kelvin loves you and wishes to conserve you from Entropy. "Now, slow down a minute buddy! I don't quite understand what all THIS means!" You are, no doubt, wanting to say to me. That's OK, for I was once like you and didn't know about the Lord, the one true Lord Kelvin. Let me tell you about our Lord, for He is your Lord as He is mine: the Lord Kelvin chose to come among us as a Man so that He may give us His teachings. He didn't have to, He chose to! He did this because He loves us, for we are His Creation. As is our Universe. The Lord Kelvin created it all. For He is more than just the Man that moved among us, He is the Lord of Our Universe, the Second Wrangler who is also the Senior Wrangler! The Sublime Mystery that is the
Lord Kelvin transcends our ability to grasp, but all we need to know is that He LOVES us and wants the best for His Children.”

Joseph Exall Greenhill

The following letter was received:

I am researching my Great Grand Father Joseph Exall Greenhill and I have been in contact with the Wellcome Library for the History & Understanding of Medicine. They suggested that they contact you if have any information or other suggestion to further my research.

I have attached his Obituary notice and high lighted in blue about his involvement in X-Ray in late 1800’s till his death in 1907. Most like due exposure to the radiation the machine was giving.

I have a copy of a book he co-author with David Walsh “The Röntgen rays in medical work” in 1897.

We have copy one of his full body x-ray which we were told to be first full body x-ray of a human body. If that’s true or not, how we to know. My wife and I were in England last October and November and I left a copy of this X-Ray with the Hackney Achieves.

Joseph was born 1840, the five child of Alfred and Sarah Greenhill at Rolvenden, Kent. All the Children were put into The Tenterden Union Workhouse as their mother died in 1845. Later Joseph while living in Tenterden he was a teacher assistant and later moved to London. As we now know, his involvement in helping set up the London Hospital and Kingsland Hospital X-ray section, is there any further information on record any where.

Thank you if you can further my research.

Yours sincerely
Hugh Greenhill
Farrell Flat.
South Australia.

I replied:

It is interesting to note that Joseph Exall Greenhill cooperated with David Walsh in his well known book “The Röntgen rays in medical work” (1897). He contributed a section on “Electrical apparatus and methods.” In the second edition (1899) Walsh states that he has been ‘deprived of the valuable help of My Greenhill.’

His father was Alfred Greenhill & his mother was Rachel Greenhill (born in approx 1815 in Tenterden). There were 4 children from this union: Mary Greenhill (born
approx 1834), Elizabeth Greenhill (born approx 1836), Alfred Greenhill (born approx 1838) and lastly Joseph Exall Greenhill (born approx 1840). The family is recorded as living in Rolvenden Village on the 1841 census, no address being given.


I checked in the 1907 volume of the Journal of the Röntgen Society and can find no reference to him. I am not aware that he was ever a member of the Röntgen Society. I am also not aware that he was an X-ray Martyr – he is certainly not one of the names on the memorial erected in the grounds of St Georges Hospital in Hamburg.

If anyone has any more information about Joseph Exall Greenhill then please pass it to me and I will send it to Hugh Greenhill.

The obituary notice of Joseph Exall Greenhill.

Copied from the “Hackney and Kingsland Gazette” dated July 31st 1907 at the Hackney Archives on October 25th 2005.

The scholastic and scientific world is the poorer for the death of Mr. J. E. Greenhill of 116 Downs Park Road Clapton. The deceased gentleman was the founder of Vermont College, which immediately adjoins his late residence and he acted as the principal for something like thirty-five years. Processing every qualification for the post no one was more beloved and hundreds of young men, scattered over all parts of the globe, owe their success today to the excellent tuition, which they received at his hands, and to the admirable example, which he set them. One of his former pupils, now in the missionary field has placed it on record that though he had heard and read many sermons, the finest he had ever known was to be found in the life story of Mr. Greenhill. An atmosphere of integrity permeated his very being and influenced all with whom he came in contact.

He had a veritable passion for sciences and he was never happier than when engaged in working out some scientific problem. Many of the cleverest inventions of the day, attributed to and patented by others have emanated from his brain and his work and studies have aroused the interest of leading scientists. The ingenious mechanism of the phonograph was one of the practical outcomes of his experiments. It is recalled how, in the time of Prof’ Fawcett, a conversation was held at Morley Hall, at which one of Mr. Greenhill’s phonographs was introduced and completely outrivaled in point of sound the latest product of Edison. In fact, it may be said that the fidelity with which the
human voice is reproduced was to a very large extent rendered possible by the inventive genius of Mr. Greenhill. He was also driving his own motorcar long before any similar vehicle had been placed on the market. The deceased gentleman was one of the best scientific lecturers in London for popular audiences, and his discourses were always exceedingly well illustrated with demonstrations, the most difficult, which seldom met with other than complete success. He was personally acquainted with Marconi, and he made wireless telegraphy a subject of special study and experiment. He was also one of the greatest authorities on radiography the joint author of the principal medical book on the question. It was he who started the X-Ray Dept at the London Hospital and he who rendered valuable services in the same direction at the Metropolitan Hospital, Kingsland. To illustrate his kindness of heart it may be mentioned that on one occasion a man in humble circumstances informed him that his wife, who was suffering from cancer of the breast, found the pain much relieved by the application of X-Rays. Mr. Greenhill at once interested himself in the case, and showed his practical sympathy by allowing the woman to come to him two or three times a week for treatment. Mean while he was continuing his experiments in radiography, introducing all kinds of improvements on which he worked close up to the time of his death. He was considered an equally good authority on “Light and Sound” which led him into investigations concerning “Musical Pitch” on which he frequently lectured to musicians and others. An interesting fact regarding Mr. Greenhill’s experiments was that most of the instruments, which he used, were of his own manufacture. He was, in short, a scientist who worked for the love of science, and not for pecuniary gain. Such a great fascination did it have for him that scarcely any thing would induce him to leave his experiments, his meals having frequently to be taken to him. Mr. Greenhill possessed a unique collection of stone axe heads and fossils recovered from the Thames Valley, besides many other antiquarian relics, and his name is mentioned in the biography of John Leech, of Punch, who on one occasion came down and inspected his collection. He also made several valuable contributions to the British and other museums. As regards his personal character, one cannot speak to highly, he was kind hearted, almost to a fault and his urbanity and gentleness endeared him to all. For many years he was a Freemason. He was especially sympathetic towards charitable institutions, being at all times willing to assist a deserving object and for a considerable time he was closely identified with the Blind School in Warwick Road, Upper Clapton, whilst the number of people whom he has helped in various ways is legion. Mr. Greenhill was taken suddenly ill on Friday last, Dr. Norman Jeans was called in, and in conjunction with Dr. Durbridge, a relative of the family, did everything possible for him, but he gradually sank and died on Sunday morning, the cause of death being exhaustion following embolism. The deceased gentleman was 67 years of age and leaves a wife, a family of five and a large circle of friends to mourn his loss. The funeral takes place this afternoon at Abney Park Cemetery, the interment being fixed for 3 o’clock.
The British Society for the History of Radiology had a very busy stand at UKRCC in Birmingham this year. We had many visitors to the stand. The main theme was Miss KC Clark. The main pictures at the stand showed Miss Clark at different periods of her life and some of her associated work. Also on display were two early editions of her book and the brand new edition. We showed some images from our Francis Bacon Lecture in February as well as several books about Francis Bacon. His association with Katy Clark’s books “Positioning in Radiography” was described.
We also showed some of the work of Dominique Zerroug who has examined the works of some of the old masters and using positions of the models shown related them to the positions and radiographs shown in “Kitty Clark”
It was a small stand, but packed with information. Staffed by Adrian Thomas (Chairman of BSHR) Jean Barrett (Secretary) and member Margaret Boniface, we were able to describe the various exhibits to our visitors.
Included in the exhibits was Miss Kathleen Clark’s Passport (described below). The History session of the Conference attracted a small but interested audience. Introducing the speakers Dr. Adrian Thomas gave a quote: “X-Rays were invented by God and discovered by Roentgen!” He outlined the development of the British Society for the History of Radiology, and the importance of History and hoped more people would become interested in it.
Information was given on the Museums of Radiology: The German Roentgen Museum (which is re-opening in October this year), the Belgian Museum of Radiology in Brussels and the museum in Palermo, Italy.
There is to be a session on Radiation Medicine at the British Society of the History of Medicine and members were encouraged to present papers.
Adrian’s current interest include: the life of KC Clark, Godfrey Hounsfield and the EMI scanner, an ongoing interest in Madame Curie, Florence Stoney, collecting Radiology ephemera, and promoting links with organisations to increase the profile of Radiology History. A “pipedream” .... perhaps a British Museum of Radiology History?

Our first speaker, Mr Tom Sorahan of the University of Birmingham gave a lecture entitled “Truth is the daughter of time”
This described the work of the late Professor Alice Stewart and the studies in which she had been involved:
1. Epidemiology studies: 1950-1990 - studies of Industrial medicine problems
2. The Oxford survey of childhood cancers.
4. Re-analyses of the Japanese survivors of the atomic bombs.

The speaker had been involved with her on some studies, and felt she had made a valuable contribution in these studies - a great deal due to her personality she always seemed to be in opposition to the authorities.
The next speaker Bob Arnott from the University of Birmingham. Bob asked why history is important to the modern doctor. The 1993 General Medical Council recommended a curriculum with history as an integral part. He described the setting up of the course in Birmingham and feels the modules give an extra dimension to student life. He feels history offers new professionalism and promotes a healthy scepticism. It was hoped that all Medical schools would be taking this on board in the future.

Our final speakers, Stephen Gelding from the University of Oxford and Liz Beckman of Landmark, gave a lively and entertaining presentation reviewing the impact of Sir Godfrey Hounsfield and the EMI Scanner; it was a joint view from science and medicine. It was felt that without the work of Godfrey Hounsfield the development of NMR MRI and PET would not be at the present stage. From the first images produced the ‘WOW’ factor was described from both in the clinical and science viewpoint. Both speakers obviously had great respect for the person and for their subject. Excellent slides were shown of people, places, equipment and scans which all added to the presentation.

With 3D Virtual Reality now approaching - where are we going in imaging?

Hazel Harries-Jones, President of the college of Radiographers, visiting the BSHM stand at UKRC and talking to Adrian Thomas.
Jean Barrett, Adrian Thomas and Margaret Boniface at the BSHM stand at UKRC.

MISS KATHLEEN CLARA CLARK’S PASSPORT.

Kindly loaned to us by Miss Marion Frank. This was the source of great interest on the stand at UKRC exhibition. Of course it was one of the old large blue ones with which many of us were familiar. The first page has the signature of Anthony Eden at that time Foreign Secretary, later to be Prime Minister. Page 2 has the “cancelled” stamp across the middle and states “British Subject by birth.”