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Editorial Notes

Welcome to the new issue of the RHHCT Journal and I hope it contains something of interest to all. I thought it appropriate to change the name to Journal since it has become rather more than a simple newsletter. If you have an article or any comments to contribute then please contact me. I am particularly interested in an article on radiotherapy for the web site. I hope to produce the next newsletter in time for IOS 2000. It is interesting to realise that next year we will be saying that the discovery of X-rays was in the century before last! The year 1895 will suddenly appear further away.

Robert George, the Regional Secretary for Asia/Australasia for ISRRT has written a most interesting article on Adelaide and the Braggs (father William and son Lawrence) and their X-ray activities. It is worth noting that Sir William Bragg gave the Mackenzie Davidson Memorial Lecture in 1934 and was made an Honorary Member of the British Institute of Radiology in 1918. Sir Lawrence Bragg gave the Silvanus Thompson Memorial Lecture in 1955.

The piece on *Early Spiritualism and the Early Investigators* by Angela Howard was only included in this newsletter after some thought. The value of the piece is that it shows aspects of the personalities of two pioneer physicists in X-rays, Sir William Crookes (Honorary Member BIR 1897) and Sir Oliver Lodge (Honorary Member BIR 1899) that readers may not have come across. Our chairman Ian Isherwood is a keen fan of the great detective Sherlock Holmes and he may find the references to Sir Arthur Conan Doyle of interest. Ian has made the observation that X-rays were never used in any of the Sherlock Holmes stories which as he points out is curious considering the keen interest that Conan Doyle had in contemporary scientific developments.

I had an enjoyable couple of days at the Wellcome Trust in Euston Road for a symposium " A Healthy Heritage: Collecting for the future of medical history" earlier

this year. The conference was stimulating and made me think about what should be kept for posterity and why. Modern medicine is producing so much material and information that only a fraction can be kept for posterity. Dr Tilli Tansey gave a stimulating talk at the conference on what should be kept for posterity and this is printed in The Lancet 1999; 354:1811-12 as *"The dustbin of history, and why so much of modern medicine should end up there"*. I recommend that everyone interested in medical history should read and consider this article carefully. The full text of the presentations at the Wellcome conference will be mounted on the Wellcome Trust web site at http://www.wellcome.ac.uk/en/1/hompre.html

This journal is also published on the Internet and can be found on the RHHCT web site. Please visit the RHHCT web sit and let me have your comments.

And finally best wishes to all for 2000 and for the millennium. The next major celebration is February 10th 2023 for the 100th anniversary of the death of Röntgen followed by the 200th anniversary of the birth of Röntgen and 150th anniversary of the discovery of X-rays in 2045. I hope to see 2023 personally but I am less sure of 2045!

Adrian Thomas

100 YEARS OF X-RAYS - *"THE SOUTH AUSTRALIAN CONNECTION"*

ROBERT GEORGE F.I.R., (Practice Manager, Dr. Jones and Partners- Adelaide)

(an abridged version of a paper given at Bathurst in 1996 to commemorate the first x-rays taken in New South Wales in July 1896 - which they incorrectly understood were the first taken in Australia!)

Roentgen's discovery of x-rays on the 8th November 1895 is well documented and has been the subject of numerous articles and displays in the lead up to and celebration of this momentous event in the history of Medical Science and Physics both in Australia and internationally. The specific introduction of the use of x-rays to South Australia is a fascinating story with important international ramifications.

The news of Roentgen's discovery came to Australia via a cable transmitted over the Overland Telegraph from Darwin to Adelaide soon after the announcement overseas at the end of January 1896 . Co-incidentally, the son-in-law of Charles (later Sir Charles) Todd, the South Australian Postmaster General and Royal Astronomer and founder of the Overland Telegraph was William Henry Bragg, Professor of Physics and Mathematical Physics at the University of Adelaide. Bragg had taken up this Post in 1886 and married Todd's daughter Gwendoline in 1889 .

On receiving news of the discovery, Bragg set out to replicate Roentgen's work using similar apparatus, but also had made a specifically designed "x-ray tube". This was hand blown by Bragg's laboratory assistant, Arthur Rogers. This tube still exists in the University's Physics Museum and was part of South Australia's Roentgen Centenary display. It is also interesting to note that Arthur Rogers taught glass blowing to Sir Mark Oliphant, the internationally recognised Physicist and former Governor of South Australia, and in 1927, Rogers helped Sir Mark to make his first experimental apparatus. Sir Mark, now 94 years old, was the special guest at the Centenary Dinner and Exhibition Opening. He still clearly recalls Rogers and of course Bragg whom he knew at Cambridge University.

Bragg's initial x-ray tube was not very reliable, and it was Mr. Samuel Barbour, the senior manufacturing chemist with F.H.Faulding, the South Australian pharmaceutical company which celebrated their 150th Anniversary in 1996, and which provided Bragg with two commercially manufactured x-ray tubes Mr. Barbour brought back from a visit to England in late April 1896.

The dates at this time are confusing but it is well documented that Professor Bragg produced several x-ray photographs at about this time, including that of a hand, as recorded in the S.A.Register of the time. These also included the neck of the wife of his assistant Rogers, a rat, and, most significantly, the elbow of his son William Lawrence Bragg aged 5, who had fallen from his tricycle and injured his elbow.

Lawrence Bragg's son, Dr.Stephen Bragg a retired engineer at Cambridge University clearly recalls his father describing the x-ray examination of his elbow which he remembers as being before his 6th. Birthday in early May :
"***I well remember my father's first experiments with X-ray tubes ... I think I must have been among the first to be employed as a patient ... The flickering greenish light, crackling and the smell of ozone were sufficiently terrifying to impress the incident clearly in a child's mind.***"

Showing a degree of entrepreneurial flair, Professor Bragg even staged a public demonstration of x-rays in the Library of the University on June 18th 1896 in the presence of Adelaide society including the Governor and Lady Buxton. This event was recorded in "The Register", the Adelaide Newspaper of the time. This event has been commemorated by the unveiling of a plaque in the Library by the Chancellor Mr. Bill Scammell, the grandson of the founder of F.H. Faulding, importer of the tubes used in the original demonstration, who left the Company to work as a Radiographer himself in the early days.

Bragg's original demonstration included a Radiograph of his own hand with a coin under the ring finger in an attempt to replicate Roentgen's films of his wife's and the anatomist von Kolliker's hands. He also apparently produced a film with the word Roentgen in wire recorded on the film, which showed some entrepreneurial flair.

So great was the reaction to Bragg's first public demonstration that a second was arranged which needed transferring to the Adelaide Town Hall to cope with the number of people wishing to attend.

The Bragg's story does not end here, this is merely the beginning. Young Lawrence Bragg entered Adelaide University at age 15, something of a very gifted child. He studied Mathematics and Physics with his father and, on the family's return to England, Lawrence and William Bragg continued their work with x-rays in the field of crystallography which was their interest in Adelaide. Their joint work was eventually recognised when in 1915, they were jointly awarded the Nobel Prize for Physics for X-ray Crystallography. Both were later knighted, and Sir William Bragg became director of the famous Cavendish Laboratories in 1937, and was a President of the Royal Society.

The Bragg's research at Cambridge later provided the foundation for the work of Crick and Watson who used it in the study of the structure of DNA and were also subsequently awarded the Nobel Prize for medicine in 1962 .

Sir Lawrence Bragg, born in Adelaide, was arguably the first clinically radiographed patient in Australia. He was, and still is, the youngest Nobel Laureate as well as being the first Australian awarded the Nobel Prize.

Whilst in Adelaide the Braggs lived mainly on East Terrace in the house now occupied by The Public Schools Club. There is an excellent history of the Braggs- The Bragg Family in Adelaide by John Jenkin.

In the Roentgen Museum in Remscheid-Lennep, in the University of W✧rzburg Centenary Exhibition, and at the Bragg's own Exhibition at the Royal Institution in London, their work is remembered and acknowledged.

In Adelaide, after the Braggs return to Cambridge, Dr.Charles Todd, son of Sir Charles Todd and Professor Bragg's' brother-in-law, used one of the first medical x-ray apparatus installations in Adelaide in conjunction with his former stablehand and later chauffeur, Charles Marshall.

Charles Marshall, born in 1874 the first acknowledged Radiographer in South Australia was working as a radiographer in 1898 and still taking films in 1956 at The Queen Elizabeth Hospital.. He became the first Chairman of the South Australian Branch of the Australian Institute of Radiography..

Whilst the roles of Lyle of Melbourne , Filmer of Newcastle and of course Father Slattery of Bathust are well known and have even been recognised by Australia Post, the role of William Henry Bragg has not received the recognition it should, particularly in the eastern States.

Whilst sitting in the quiet solitude of Roentgen's house in Lennep reading excerpts from some of the 10,000 books on Physics and Science in their library, it is interesting to note the numerous references to the Braggs and their enormously significant research. All Australians should remember the very significant contribution both the Braggs have made to science, generated by their interest in Röntgen 's great discovery of the 8th November 1895.

If you are travelling to England or Germany you are encouraged to visit the Röntgen Museum, in Remscheid-Lennep near Cologne where, as an Australian you will

receive a very warm welcome. Also, consider visiting Roentgen's original laboratory in W✧rzburg, a beautiful city not far from Heidelberg or The Royal Institution in London where the work of the Braggs is highlighted in their own display.

WILLIAM HENRY BRAGG & WILLIAM LAWRENCE BRAGG

INTERNATIONALLY RECOGNISED SOUTH AUSTRALIAN PIONEERS IN X-RAY BASED SCIENCES

In January 1896 the world was stunned to hear of the discovery by Wilhelm Röntgen of x-rays, powerful invisible rays which could penetrate the human body and record on film the structures within. Amongst the earliest pioneers in the world to use this technique was William Henry Bragg, Professor of Physics at the University of Adelaide. Professor Bragg was possibly the first in Australia to radiograph a patient, and carried out these experiments with equipment made in the University, Some of this equipment is still preserved and displayed in the Physics Department.

Professor Bragg went on to hold public demonstrations of x-ray techniques in the University and also the Town Hall. of these demonstrations were recorded in "The Register" of the time. Invited guests included the Governor and his wife. Pictures of the images taken at the time still exist. One of Professor Bragg's earliest patients was his four year old son, William Lawrence Bragg, who fractured his elbow falling from a tricycle in March 1896. His personal memory of this examination is well documented and somewhat frightening.

Professor Bragg's wife, Gwendoline, was the daughter of Sir Charles Todd, founder of the overland telegraph. Sir Charles Todd laid the foundation stone of the Bragg's family home on East Terrace on the 9th September 1899. This house, designed and built by William Henry Bragg is now the Public Schools Club and celebrates its centenary in September this year.

Professor Bragg and his son Lawrence, who later joined him as a physicist in the Physics Department of the University of Adelaide, moved to England and among other notable appointments took up positions at Cambridge University in the internationally renowned Cavendish Laboratories.

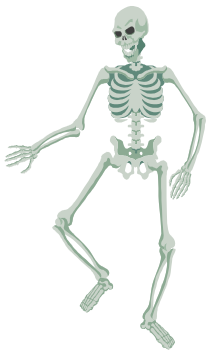
In 1915 the Bragg's were jointly awarded the Nobel Prize for Physics for their work with X-ray Crystallography . Lawrence is the first Australian and the youngest recipient ever of the Nobel Prize.

Both of the Bragg's were subsequently knighted for services to science, were heads of the Cavendish Laboratory and Presidents of the Royal Society and Royal Institution . Adelaide can be justifiably proud of these two internationally renowned physicists and their significant contributions to science.

In November 1995, a medallion linking Röntgen's discovery of x-rays and W.H.Bragg's experiments in Adelaide was struck and in 1996 a plaque

commemorating the public demonstrations was unveiled in the Mitchell Library at the University of Adelaide.

In September 1999, a Dinner was held at the Public Schools Club to mark the Centenary of the laying of the foundation stone of the house built by Professor Bragg overlooking the parklands of Adelaide. This was an opportunity to publicly recognise the contribution of this father and son to science.



Early Spiritualism and the Eminent Investigators
Angela Howard.

(Angela Howard is the Clerk to Bardfield Quaker Meeting, in Essex, England.)

Arthur Conan Doyle (1859-1930)
British writer. Qualified as a doctor and practised at Southsea, 1882-90; Later he travelled to the Arctic and on the W. coast of Africa. During the Boer War was senior physician of field hospital in S. Africa. Knighted in 1902. His first book "A Study in Scarlet" appeared in 1887 and other books followed including "The Lost World" (1912)
William Crookes (1832-1919)
Elected a Fellow of the Royal Society in 1863, he received from this body a Gold Medal in 1875, the Davy Medal in 1888, and the Sir Joseph Copley Royal Medal in 1904. Knighted by Queen Victoria in 1897 and awarded the Order of Merit in 1910. At various times he was President of the Royal Society, the Chemical Society, the Institution of Electrical Engineers, etc.
Oliver Lodge (1851-1940)
British physicist. Prof. of Physics at Liverpool 1881-1900, and principal of Birmingham University 1900-19. His place in physics rests chiefly on his researches in radiation, and the relation between matter and ether. His investigations on the Hertzian waves led him to invent a coherer, which he used to accomplish wireless telegraphy. He pub. Pioneers of Science (1893), Atoms and Rays (1923); Relativity (1925); and many other works. He was a prominent psychical researcher and wrote Raymond (1916)' and The Reality of a Spiritual World (1930). Received a knighthood.
Frederick Myers (1843-1901)
F.W.H. Myers, English poet and essayist, became classical lecturer at Trinity College, Cambridge, in 1865. In 1882, together with Professor Henry Sidgwick, Sir William Barrett and Edmund Gurney, he founded the Society for Psychical Research He wrote

many books on Psychical Research including the classic, "Human Personality and its Survival of Bodily Death".(Introduction to "The Road to Immortality" through Geraldine Cummins.)

A notable group of early researchers was based upon the University of Cambridge The group consisted of: Mrs Coombe Tennant, a J.P. and the first woman delegate from Britain to the League of Nations; Mrs. Helen Salter; and Mrs. Holland who lived mostly in India and sent her messages from there. These four women were sensitives, or mediums. The Cambridge scholars were: the philosopher, Professor Henry Sidgwick; a Classical scholar, Professor A.W. Verrall; Mrs Verrall, a classical lecturer at Newnham, Frederick Myers; Professor Butcher; and Mrs. Nora Sidgwick, the first Principal of Newnham College. Also members of the group were Gerald Balfour; and Arthur Balfour, Prime Minister, (President of the Society for Psychical Research and a brother of Nora Sidgwick.).

Recently I happened upon Sir Arthur Conan Doyle's two volume "History of Spiritualism". It is not commonly known that the creator of Sherlock Holmes was a dedicated proponent and leader of Spiritualism for many years. He is a wise and genial companion in the fascinating , wonderful, and often weird, world of the early years of the phenomena. I find myself wanting to quote paragraph after paragraph from his book because he expresses himself so well. The mediums of the time, their gifts and work, the experiments carried out on them, the general stir and excitement that the emergence of the phenomena created in the second half of the last century are vividly described.

It is surprising to realise that many of the best scientific brains in Victorian England, and indeed in Europe and America, were either engaged in research on psychic matters or at least taking a close interest.

.The carnage of the First World War meant that almost every family in the country sustained a loss. Spiritualism was very popular and many people felt that relatives were easily preyed upon by mediums. Conan Doyle and his friend, Oliver Lodge, each lost a son and it was said that they came to Spiritualism through these tragedies and that perhaps grief lessened their critical faculties. Both emphatically denied this.

Lodge was involved in psychical research for more than thirty years before the death of his son, Raymond, as his many contributions to the Proceedings of the Society for Psychical Research (founded in 1882) show. It took him a very long time to come to a hypothesis of survival, later confirmed by communications from Raymond. Conan Doyle's investigations went back as far as 1886. However, after the death of his son in 1916, his determination to spread the message of Spiritualism strengthened and he and his wife (who was a medium) travelled to Australia, New Zealand, America and Canada "upon missions of instruction". The decision to write "The History of Spiritualism" was also taken at this time.

I can imagine that the Quakers of this period would have wanted to steer well clear of the subject. From the time the phenomena began to be reported, the Churches, the scientific establishment and the newspapers ("The Times" being particularly vitriolic) thundered their disbelief and disapproval. The happenings were bizarre and theatrical and were ridiculed mercilessly. What had these tappings, rappings, sudden

appearances of fruit and flowers, playing of musical instruments, materialisation of strange beings, talk of Red Indian guides, cabinets and ectoplasm to do with anything sensible and serious? It was all so obviously open to fraud and emotionalism.

Conan Doyle wrote: "The opponents of psychic truth having upon their side the clergy of the various churches, organised science, and the huge inert bulk of material mankind, had the lay Press at their command, with the result that everything that was in its favour was suppressed or contorted, and everything which could tell against it was given the widest publicity".

Oliver Lodge was for many years a personal friend of Professor Charles Richet, the physiologist. They were also colleagues in psychical research.

"To Richet, survival seemed an impossible hypothesis since it was in complete contradiction to the field of evidence known to him as a physiologist. He consistently thought that in the extra-sensory field the evidence was impossible and absurd, but that it happened. He constantly saw it happen. As to survival, he says:

'I find myself unable to adopt it. Nevertheless I oppose it half-heartedly, for I am quite unable to bring forward any wholly satisfactory counter-theory'…….

For Richet, the current was entirely set against survival both because of his physiological training and because of his background beliefs. To Lodge, neither of these difficulties existed. To Lodge, the physicist, survival was not an inharmonious concept, and certainly not ridiculous as it seemed to Richet." ("History of Spiritualism")

After his own death Lodge emphatically declared:

"We have split up life into two parts far too drastically. We have drawn a line, and we must gradually erase that line. We have talked about the spiritual life and the earth life or the physical life. The two are one and we must make them one again There is no line, there is no line at all. Man has drawn a line and it must be erased, and it will take some time to erase it completely, but we must work towards that. We must do that in the same way that we must erase - shall we call it? National boundaries, national boundaries and limitations, racial ones. All these must go, and especially the boundary that we have, quite unnecessarily, erected between what we now call our two worlds, which are one. It is only one world. There is only one world and we must take down these…… barriers of illusion that compelled us to think there must be two, because through our limitations and ignorance we are unable to look over the self-erected barrier, or to look through it. It must come down. It is your work, it is our work" ("Living On").

William Crookes, a man of unswerving intellectual honesty, began his researches into psychic phenomena, as did so many others, believing the whole matter might prove to be a trick. His scientific brethren held the same view and were delighted at the course he adopted. One writer said: "If men like Mr. Crookes grapple with the subject ..... we shall soon know how much to believe."

Crookes was already familiar with the mental phenomena and seems to have accepted

them. From 1870-74 he experimented at his own home on an almost daily basis with a young medium Florence Cook. (She later became Florence Corner and continued to exhibit remarkable powers throughout her life. Her sister, Kate, was similarly gifted.) At the age of 15, Florence already possessed strong psychic powers and she placed herself under the protection of Mrs. Crookes, offering to be tested under any conditions which might be imposed.

Like so many mediums of her time, Florence was subjected to rigorous investigation. Prior to seances mediums were stripped and searched by a small group of their own sex before being dressed in special clothes in which nothing could be concealed. They were often tied in an effort to render them incapable of trickery. In the case of Florence Cook it is reported that her hair was nailed to the floor. Florence was able to produce ectoplasm which built up into the figure of a young woman, Katie King, who walked about fully clothed and independent of the medium and was able to converse with the sitters. She was photographed by Crookes 44 times. He also cut off a lock of her hair, took her pulse rate, noted her height, weight, skin colour, etc. These were all totally different to the physical appearance and measurements of Florence Cook.

In full light ectoplasmic manifestations melt away "like a wax doll melting before a fire." On one occasion and with her full agreement, a strong light was shone on Katie King as an experiment and this is exactly what happened.

In addition to the Katie King manifestation, raps were produced, objects moved through the air, appeared and disappeared, changed their size and weight, and musical instruments were played.

Crookes honestly and fearlessly reported his findings in his "Journal" which caused the greatest possible commotion. Conan Doyle writes:

"A few of the larger spirits, men like Russel Wallace, Lord Rayleigh, the young and rising physicist William Barrett, Cromwell Varley, and others had their former views confirmed, or were encouraged to advance upon a new path of knowledge. There was a fiercely intolerant party, however, headed by Carpenter, the physiologist, who derided the matter and were ready to impute anything from lunacy to fraud to their illustrious colleague. Organised science came badly out of the matter. In his published account Crookes gave the letters in which he asked Stokes, the Secretary of the Royal Society, to come down and see the phenomena with his own eyes. By his refusal to do so, Stokes placed himself in exactly the same position as those cardinals who would not look at the moons of Jupiter through Galileo's telescope. Material science when faced with a new problem, showed itself to be just as bigoted as mediaeval theology." ("History of Spiritualism")

The violence of the opposition and the timidity of those who might have supported him did alarm Crookes and he felt his scientific position to be in danger. He was in his forties, his prime, with much valuable scientific work still to do. He refused to have his article republished and he would not circulate the wonderful photographs in which the materialised Katie King stood arm-in-arm with himself.

However, in 1917, just two years before his death, he said: "I have never had any occasion to change my mind on the subject. I am perfectly satisfied with what I have

said in earlier days. It is quite true that a connection has been set up between this world and the next."("History of Spiritualism")

In reply to the question whether Spiritualism had not killed the old materialism of the scientists, he added: "I think it has. It has at least convinced the great majority of people, who know anything about the subject, of the existence of the next world."

A complaint made against Spiritualism is that the messages received from communicators are often banal and uninteresting. If the continuing personalities can see even a little more than we can, why do they not pass us a few jewels of enlightenment?.

The simple answer to that question is that they do, and always have done If one attends the average Spiritualist Church on a Sunday evening the service should include an address given by a medium on the philosophy of Spiritualism. This will vary very much in quality depending on the understanding and powers of expression of the medium and the interest of the congregation. Most people attending Spiritualist Churches seem to come primarily for "the message" and not the philosophy. They wish, not unnaturally, to be assured that their loved ones who have passed over are truly continuing to live and be concerned for their well being. Communicants often do seem to be able to see, or think that they see, a little further ahead than those of us still on Earth. They reassure that future conditions for their Earthly relative or friend will improve, or promise closeness and support if times are going to be hard. Beyond that and the expressions of love and empathy which can be very strengthening, whether in good times or bad, the average communicant does not go. Partly it is a question of time. There is usually a throng of communicants waiting in the wings. The feeling is that there is telephone box in the next life with a crowd of people outside banging on the window! If we listened to them a little more often we might hear more.

Frederick Myers is an example of a being who gave immensely valuable teaching and philosophy while on Earth, and continued to do so from the next life. His Earthly works include the classic, "Human Personality and its Survival of Bodily Death". From the next life he communicated "The Road to Immortality" through Geraldine Cummins. Those who knew him recognised the personality and style of Myers in the posthumous writings but interestingly and unsurprisingly Myers' views had been changed and modified somewhat by his new surroundings and his new knowledge, the book being communicated over the period 1924-31, over twenty years after his passing..

Geraldine Cummins was an exceptionally gifted automatist, through whom about fifty personalities communicated.. She was herself a writer of plays, of a novel, and of psychic works. Automatic writing is a psychic gift which gives a particularly clear method of communication because the communicator seems to be able almost to dictate his or her words which are then written down at high speed by the medium in trance. Myers has a brilliant mind, and a deep almost obsessive interest in describing the next stages of life as minutely and lucidly as he can. As a life-long psychical researcher when on Earth, he knew the best method of getting his message through and he found the best medium for his purposes. This is the process at work as described to Miss Cummins's friend and co-worker, Miss E.B.Gibbes:

"The method employed by Miss Cummins in order to obtain the writings……is as follows. She sits at a table, covers her eyes with her left hand and concentrates on 'stillness'. She describes the result of such concentration in these words:

'" …. And soon I am in a condition of half-sleep, a kind of dream-state that yet, in its peculiar way, has more illumination than one's waking state. I have at times distinctly the sensation of a dreamer who has no conscious creative control over the ideas that are being formulated in words. I am a mere listener, and through my stillness and passivity I lend my aid to the stranger who is speaking. It is hard to put such a psychological condition into words. I have the consciousness that my brain is being used by a stranger all the time. It is just as if an endless telegram is being tapped out on it. The great speed of the writing suggests actual dictation, as though some already prepared essay were being read out to my brain. But something more than the faculty of amanuensis seems to be required. Whatever intelligence is operating, it may use my subconscious mind as an interpreter, may communicate in the language of thoughts or images and not of words …..'

"…..It may be of interest to describe the manner in which the …communications actually appeared on the paper. The writing of the name 'Frederic Myers' would be followed by 'good morning' or 'good evening, ladies'. A little friendly conversation would then take place and the request be made that the final sentences of the last essay be read aloud. The heading to the next chapter would then appear on the paper, a line being drawn firmly underneath it. The contents of each chapter in question quickly followed…. If the 'psychic power' gave out, the writing would break off in the middle or at the end of a phrase. The actual writing is much larger than Miss Cummins's normal calligraphy and there is no division between the words . Generally speaking, the paragraphing and punctuation have to be inserted later." (Geraldine Cummins, "The Road to Immortality")

Review of

MEANDERINGS IN MEDICAL PHYSICS

- A personal account of hospital physics by
J E ROBERTS

The last thing I would normally want to read about on my holiday is Medical Physics as that topic fills the majority of my waking moments during the other weeks of the year. However, this book appeared to be fairly light-hearted and so I did manage to read it without any regrets or disruptions to the enjoyment of my time away in Ireland which has to say something. John Roberts was Professor of Physics Applied to Medicine at the Middlesex Hospital Medical School from 1946 until his retirement in the early 1970's, having started his medical physics career at the Cancer Hospital in South Kensington in 1932. Sadly he died at the age of 91 in 1998 shortly before the book was completed but the assistance of some of his contemporaries enabled it to be finished for publication.

This book is not a true autobiography and "meanderings" is certainly an apt description. Neither is it a literary work, written at times more in the style of how one imagines Professor Roberts might have written a laboratory notebook but, nevertheless, it is very easy to digest. The period covers the growth of medical physics in the UK from a group of about 10 (including Sidney Russ and Val Mayneord) in the thirties through to the formation of the Hospital Physicists Association in 1943 (JR was one of the 53 founding members) at which point the profession began to be widely recognised. Quite understandably, much of the book is centred on developments and personalities connected with the Middlesex Hospital but there are also large sections devoted to overseas contacts. John Roberts travelled widely by ship before the days of the jet plane which meant spending weeks away to participate in an international conference. Visits to North America and the Far East are covered in some detail as are his attendance at the 4th and 5th International Congresses in Radiology in 1934 (Zurich) and 1937 (Chicago). I was fascinated to learn that both of these reputable meetings in the not-so-distant past held sessions on "mitogenic radiations" - strange emissions from biological reactions at cellular or molecular level, the very existence of which were rightly doubted by many of the attendees!

Later in his career, John travelled extensively in the Middle East and Asia as an adviser to countries trying to establish their own medical physics infrastructure. The frustrations associated with these endeavours are made clear to the reader. Some of these overseas exploits are a little disjointed in their presentation but this may be due to the author's death before completing the book. They do not really detract from the content.

Many of the other topics touched upon will have a much more familiar ring to the ear of the medical physicist of the 1990's such as searching for lost sources, repairing x-ray machines (with improvisation), and working late into the evening. The primitive nature of the equipment available in the 1930's compared to that used today, particularly for measurements, is clearly evident. The associated hazards would make any RPA or safety officer's hair turn grey at the thought of them. Imagine trying to find a lost Radium needle on a rubbish dump with a gold leaf electroscope! It is also interesting to note that it is those same departments that received substantial investment in the early post-war years that have continued to play a lead role in the development of medical physics to the end of the century. Some visions do pay off.

The main reason that I found the book so interesting was because it leads up to and covers the period when I was just commencing my own career in the 1960's. Although I personally never met John Roberts, many of the persons mentioned in his meanderings were familiar figures of the day who at the time one didn't quite appreciate in terms of the contribution they were making to the profession and allied areas, pioneers such as Spiers, Johns, Gray and Windeyer to pick just a few. It is also refreshing to be reminded of some of the other big names that one had grown up to respect but of whom we hear less these days, such as Quimby, Parker, Sievert, Failla and Braestrup. There are many other significant figures that are mentioned as well as some name dropping of famous persons from other walks of life such as Don Bradman and Harry Truman.

The book is almost totally centred on radiological physics, with radiotherapy having the most coverage although there is a chapter on nuclear medicine. It is interesting to read of the way in which the difficult decision was taken to separate out nuclear medicine as a school department in its own right from the department of physics and thus create the Institute of Nuclear Medicine in 1961. I'm sure this will be of interest to those working in this field who have experienced similar dilemmas.

I would certainly recommend this book to any medical physicist or professional from any of the radiological sciences who began their career in the middle part of this century (or earlier) if they wished to be reminded of those exciting times. For those of younger years, I'm sure many would find the contents enlightening and help them understand where the medical physics profession has come from and so in turn enable them to have a clearer vision for the future. It would also be a worthwhile addition to any medical physics or radiology library.

John E Saunders
Director of Medical Physics
Guy's & St Thomas' Hospital Trust

28 September 1999

Interesting Web Sites

The following web sites may be of interest to readers:

The National Museum of Science and Industry. This can be found at www.nmsi.ac.uk and leads to the web sites for the Science Museum in London, The National Museum of Photography, Film and Television in Bradford and the National Railway Museum in York. The National Museum of Photography, Film and Television site is still being developed but is worth visiting.

History Today. This is an excellent site related to the excellent history magazine History Today. It may be found at www.historytoday.com . Very well worth a visit and to add to your list of favourites.

A History of Photography. This web site devoted to the history of photography rather strangely has no pictures. However anything that you need related to the early years of photography can be found at www.kbnet.co.uk/rleggat/photo . This is a quite excellent site and very detailed containing all that you may need to know on the history of photography. It has been created by Dr Robert Leggat and details the history of photography from its beginnings until the 1920s.

Albert Einstein – Image and Impact. This brilliant site has been put together by the American Institute of Physics and is to be found at www.aip.org/history/einstein . There are many photographs and quotations. Learn all about Uncle Albert!

The Nobel Prizes.

This is the Nobel Institute web site found at www.nobel.se/prize and is excellent. There is an easily searchable index with photographs of the Nobel Laureates, the reason for the prize, the acceptance speech or biography.

Of interest to radiologists are the following:

Physics 1901: Wilhelm Conrad Röntgen (1845-1923) "in recognition of the extraordinary services he has rendered by the discovery of the remarkable rays subsequently named after him". His presentation speech by C T Odhner is reprinted.
Physics 1903: Antoine Henri Becquerel (1852-1908) "in recognition of the extraordinary services he has rendered by his discovery of spontaneous radioactivity". Marie Curie (1867-1934) and Pierre Curie (1859-1906) "in recognition of the extraordinary services they have rendered by their joint researches on the radiation phenomena discovered by Professor Henri Becquerel". There are biographies of Pierre and Marie Curie and Henri Becquerel and a wonderful long essay on Pierre and Marie Curie with many pictures.
Chemistry 1911: Marie Curie (1867-1934) "in recognition of her services to the advancement of chemistry by the discovery of the elements of radium and polonium, by the isolation of radium and the study of the nature and compounds of this remarkable element".
Chemistry 1935: Frédéric Joliot and Irène Joliot-Curie "in recognition of their synthesis of new radioactive elements".
Physiology or Medicine 1949: Egas Moniz (1874-1955) This was "for his discovery of the therapeutic value of leucotomy in certain psychoses" and not for his pioneer work in angiography. There is a short biography and some references to his work on cerebral tumours.
Physiology or Medicine 1979: Alan Cormack (1924-1998) and Sir Godfrey Hounsfield (1919-) "for the development of computer assisted tomography". There is the press release on the EMI scanner and two brief autobiographies of Alan Cormack and Sir Godfrey with pictures. Well worth reading.