

Brief Notes on JPVM and various Nobel Prize Winners.

(Prepared by R W Madsen 9/6/2014)

J. J Thomson. Discovered electron 1897. (1906 Nobel Prize in Physics).

JPVM's involvement with JJT concerns the "plum pudding" model of the atom which had an assumption about scattering of beta (electron) particles.

"Thomson's multiple-scattering theory, moreover, was challenged regarding beta particle encounters, its area of special competence: John Madsen, in Australia, obtained data on beta deflections that suggested that this type of scattering was done in a single collision" (Lawrence Badash in America). (J L Heilbron, also in America, has classified JPVM's result as "of exceptional importance.")

R W Home deals with this matter quite fully (p7) and he also states that "Madsen's results directly contradicted this assumption (by Thomson)".

Marie Curie. Discovered radium 1898. (1903 Nobel Prize in Physics, 1911 Nobel Prize in Chemistry).

JPVM's experiments in Adelaide were based on radium. JPVM stated that at the time he was getting good results, whereas in England, radium was thought to have been "all played out".

Ernest Rutherford. For work on radioactivity. (1908 Nobel Prize in Chemistry).

Bragg drew JPVM's results to Rutherford's attention and ER wrote to JPVM on 8/3/1911 as follows:

"the theory of small scattering as developed by JJ Thomson is fairly correct as far as it goes, but it takes no account of large scattering which we know from your work, and that of Geiger and Marsden on the alpha particles, must always be present."

"I had intended to test my theory by experiments with beta rays along very similar lines to that which I understand you are doing. I shall be glad, however to leave the matter to you if you will be able to get through the work in a reasonable time. I shall be very glad to hear from you how your results are going."

R W Home (p9) states that "Madsen did not succeed in taking advantage of Rutherford's generosity. Though he was optimistic that with the new batch of radium he had received from Bragg he would quickly be able to complete his investigation, he had found that his results did not fall into place as easily as he expected. In the end the problem defeated him and he did not publish anything."

Rutherford visited Sydney in 1928 and JPVM had him for dinner at Roseville to no doubt discuss the formation of the RRB. JPVM arranged for ER to be on a selection panel in London for the appointment of 3 research workers to come out to Australia. I think the other members of the panel were Tizard and Appleton.

(Neils Bohr was awarded the 1922 Nobel Prize in Physics for work on atomic structure but I think it should have at least been awarded jointly with ER).

W H Bragg. Analysis of crystal structure by X-rays. (1915 Nobel Prize in Physics. Jointly with WLB.)

Collaborator and friend at Adelaide. On return to England maintained a correspondence with JPVM and informed ER of JPVM's experiment about beta particle scattering. (See R W Home).

In 1941 JPVM stayed with WHB at the Royal Institution in Albermarle Street for 4-5 months while working on Scientific Liaison activities.

W L Bragg. Analysis of crystal structure by X-rays. (1915 Nobel Prize in Physics. Jointly with WHB.)

Was at Adelaide University from age 16 between 1905-1908 studying Maths ,Physics and Chemistry.

JPVM most likely WLB's lecturer & examiner in either maths or physics in 1908.

In 1941 JPVM spent a weekend in Cambridge and WLB showed him around the Cavendish.

Edward Appleton. For knowledge of the Ionosphere. (1947 Nobel Prize in Physics.)

In 1928 when JPVM was setting up the RRB he visited England and arranged with Appleton to obtain his research programme being conducted in the northern hemisphere and also the selection of 3 research workers to come to Australia. See Fred White's paper to the Royal Society in 1975 titled "Early work in Australia, New Zealand and Halley Stewart Laboratory, London."

An early major success of the RRB, concerned work carried out by Dr. A L Green who had come out from England following work with Appleton on the existence of the E & F regions of the upper atmosphere. He carried out a polarizing experiment using the 2BL transmitter in Sydney with his own receiving equipment at Jervis Bay, south of Sydney. In 1930 Green confirmed the prediction of Appleton and Ratcliffe that the polarization of the downcoming waves in the southern hemisphere would be right handed when the downcoming waves travelled in the opposite direction to the earth's field.

Appleton came to Sydney in 1952 for the URSI meeting and JPVM invited him for dinner at Roseville.

Patrick M. S. Blackett. For investigation of cosmic rays.(1948 Nobel Prize in Physics).

In 1941 whilst in England, JPVM was in contact with Blackett concerning Operations Research and he arranged for the transfer of the technique back to Australia.

Bernard Katz. For work on nerve biochemistry. (1970 Nobel Prize in medicine or physiology.)

Katz was originally a German Jew who fled Germany in 1935 and went to England and then on to Australia having been awarded a scholarship in Sydney. In 1941 he became a naturalised Australian and in 1942 he joined the RAAF. In October 1942-March 1943 he was in charge of a LW/AW radar station on Goodenough Island in New Guinea and from mid 1943 to Autumn 1945 was doing research work on radar transponders at the Radiophysics Laboratory in Sydney. He returned to England after the war.

Charles G Barkla. X-ray Spectroscopy. (1917 Nobel Prize in Physics).

JPVM and Bragg published a paper in 1907 which was reprinted in London in October which set out WHB's hypothesis that X-rays were a neutral pair but Barkla disagreed and a lot of correspondence in Nature followed including a letter from JPVM ,however the editor of Nature put a footnote which stated that the correspondence (from JPVM) must cease.

Guglielmo Marconi (b.1874 d.1937) For contributions to the development of wireless telegraphy. (1909 Nobel prize in Physics).

On 13th July 1927, Ernest Fisk (MD of AWA) wrote a letter of introduction to F G Kellaway MD of Marconi's Wireless Telegraph Co in The Strand London for JPVM to meet Mr Marconi & Mr Franklin. The letter was addressed to JPVM at Cabin No 1, SS "Cephee" Wharf No 20, Jones Bay, Sydney but was never delivered & was forwarded to JPVM with an apology on 31 March 1928 after his return to Australia. What transpired with Marconi's in London at this stage is not known. (Marconi's Nobel Prize was shared with Karl Ferdinand Braun).