

J.P.V.MADSEN AUSTRALIAN TROVE PRESS ARTICLES 1900-1955.

Prepared by : R.W.Madsen July 2022.

INTRODUCTION.

The digitized files of Australian newspapers can be accessed (up to 1955) in Trove using the Advanced Search which in the case of searches for the phrases “J P V Madsen”, “DR J P V Madsen”, “Professor J P V Madsen” & “Sir John Madsen” gives some 600 results including 300 for “Sir John Madsen”. The following 87 articles have been chosen to reflect new information not previously evident especially dates & travel details (eg. As a passenger to England by the RMS Austral leaving Sydney on 27 September, 1901). The earliest references starting in 1895 are to exam results which are not included here & the later period which is included ends in 1954 with the URSI Assembly in 1952 & the Academy of Science in 1954 as some of the subsequent articles relate to the CSIRO Advisory Council, NATA & also Philips dealt with elsewhere, but are not numerous.

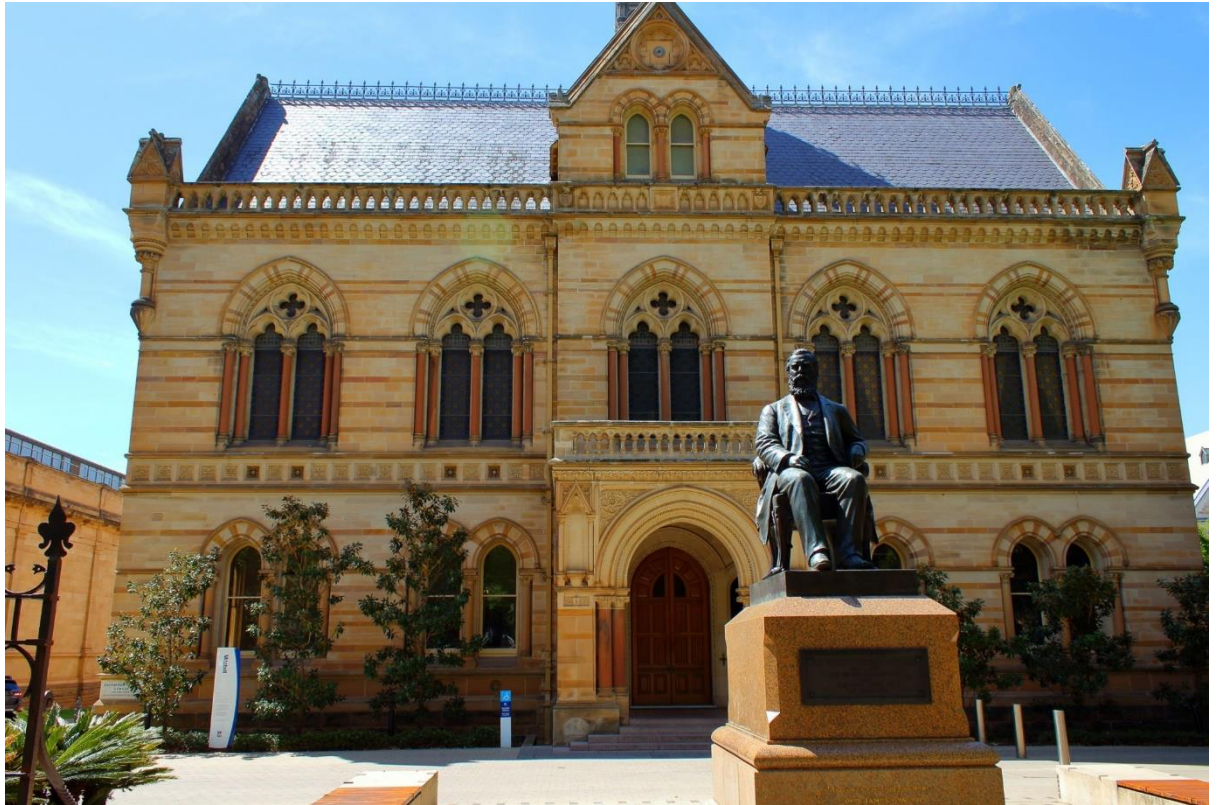
Of considerable interest is the reporting in the Daily Telegraph, Sydney on Friday 13 January 1911 of a demonstration on “The Scattering of the Beta Rays of Radium” headlined as “Radium’s Beta Rays-Atoms like solar Systems-Beta rays the comets” This discourse was 2 months before Rutherford’s announcement in Manchester of his theory of the nuclear atom which was advised to JPVM by Rutherford in his letter of 8 March, 1911. It appears that the press article was based on a presentation at the Physics Section of ANZAAS XIII held in Sydney (identified in the Congress Handbook as Physics .14. “ The Scattering of Cathode Rays” on Thursday 12 January 1911.by Dr J P V Madsen , only read but not published in the Handbook).[see attached transcript at the end of this document].

Of interest in Adelaide in January 1907 was JPVM’s role as one of two Hon General Secretaries for the ANZAAS meeting, his inclusion in the presentation of the Royal Levee in 1901 & in Sydney in 1910 his recommendation for a State Radium Bank to minimize the very high expense of Radium. In Brisbane in October 1935 JPVM & daughter Phyllis arrived by the Manoora for the Macrossan Lecture delivered over two nights & they also went to Toowoomba before returning on the Duntroon.

1. The Adelaide University.

(The Advertiser, Adelaide, 29 April 1901)

Mr J P V Madsen BSc, BE (Sydney) appointed Lecturer on Mathematics, Physics & Electrical Engineering.



2. University of Sydney.

(Daily Telegraph, 7 May 1901)

J P V Madsen resigns as Instructor of Drawing on appointment to Adelaide University.



The University of Sydney Great Hall.

3. The University of Adelaide.

(The Advertiser, Adelaide. 3 June 1901).

Application by Mr J P V Madsen BSc (Sydney) for admission “ad eundem gradum” were approved.

4. Military. The NSW Corps of Engineers.

(Daily Telegraph 22 July 1901).

Lt. J P V Madsen BE, BSc of the field companies, after service as a supernumary for about 11 months had very reluctantly resigned due to his transfer to Adelaide University.



5. Passengers by the Austral.

(SMH, Sat 27 September, 1902)

The following have booked passages by the RMS Austral which sails at noon today for London (via Naples, Marseilles)-Mr J P V Madsen.

6. Royal Levee at Government House- a brilliant display.

(Register, Thurs 11 July 1901).

Respects (ie. shook hands) were paid to His Royal Highness the Duke of Cornwall. J P V Madsen listed in attendance of some 600 men. The Royal Yacht “Ophir” carrying the Duke (later King George V) & Duchess sailed into Port Adelaide however were taken off by the tug “Euro” to meet the schedule.



7. The Governor General- Levee and Dinner party at Government House.

(The Express & Telegraph, Wed 7 May 1902).

The Earl of Hopetoun held a Levee at Government House at 4.30 pm on Tuesday afternoon with similar arrangements to the Royal Tour last year. The total number of gentlemen who attended was 643 including J P V Madsen.

8. The Levee.

(Express & Telegraph, Tues 14 November 1905)

Sir George Le Harte held a Levee at noon & J PV Madsen was in attendance.

9. The University of Adelaide.

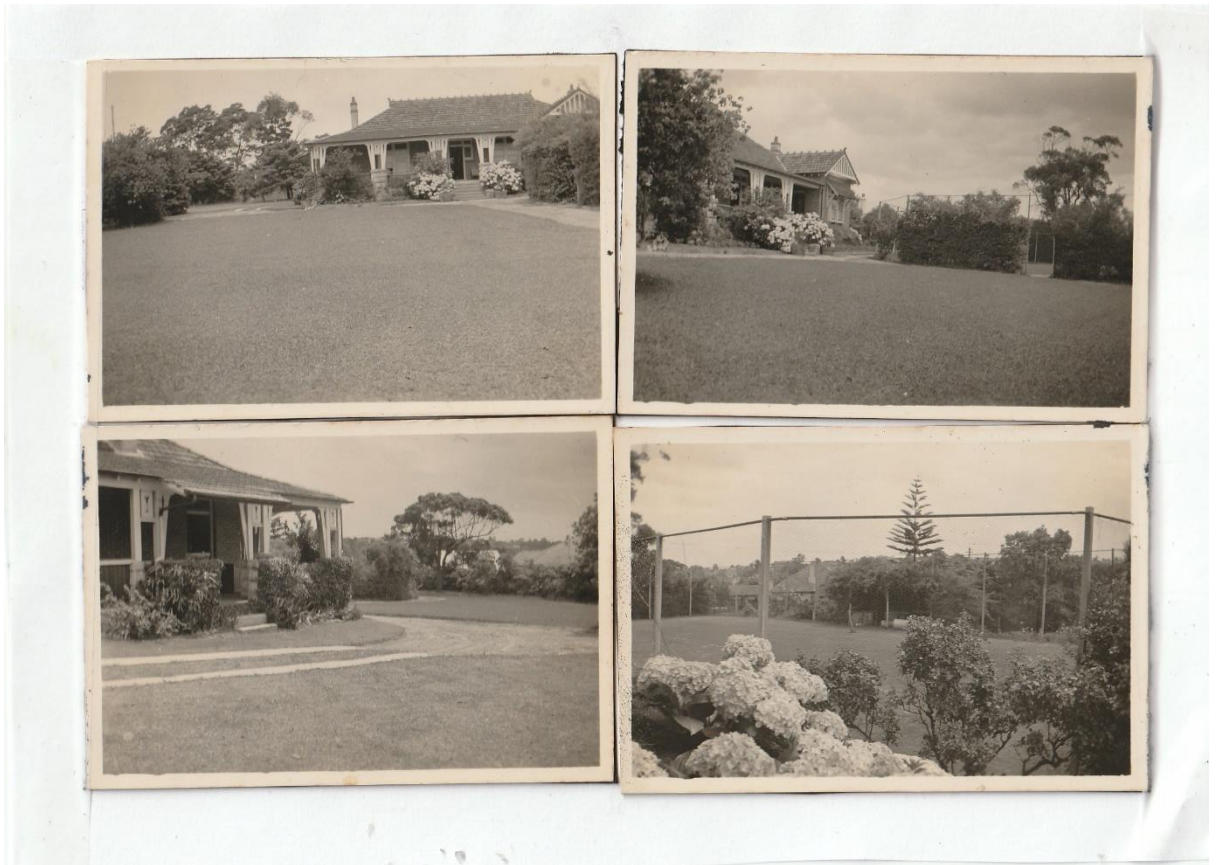
(The Register, 29 September 1902).

The Council resolved to give Mr J P V Madsen BSc, BE the title & status of Lecturer of Electrical Engineering.

10. Lawn Tennis.

(Evening Journal Thursday 16 April 1903)

In 6 matches JPVM & partners won at tennis.



JPVM built a grass tennis court at his "Talawa" home in Roseville.

11. Teachers Conference- Conversations at the University.

(The Advertiser Wed 6 July 1904).

In the Electrical Engineering Department experiments were carried out under the direction of Mr J P V Madsen. The process of electric welding of $\frac{1}{4}$ inch steel rod was shown by heating with heavy alternating current from a transformer. Also the "floating ring of copper" to illustrate the fundamental principles of all induction motors.

12. Family Notices- Marriages.

(SMH Tues 20 September 1904)

MADSEN-MOLESWORTH: August 24, 1904 at St Stephens Newtown, John P V Madsen eldest son of H F Madsen of Hesselmed, Newtown & Maud Foster Molesworth 3rd daughter of E W Molesworth, Atherstone ,Newtown.



St Stephens Anglican Church, Newtown.

13. Births.

(The Express & Telegraph Sat 17 June 1905)

MADSEN: on 1st of June at "Na Vale" North East Road, Medindie, the wife of J P V Madsen-a son.

14. Society Gossip.

(The Critic, Adelaide Wed 5 November 1905).

Mr & Mrs J P V Madsen, Medindie, accompanied by Miss R J Barnes (Nurse) are leaving Adelaide the 1st week of December for Sydney where they will be guests of Mrs E W Molesworth.

There is a further reference that "Mrs J Madsen will be returning to Sydney shortly- she has spent an enjoyable time with her daughter in law, Mrs J P V Madsen of Medindie. (Evidently the reference should have been to Mrs H F Madsen)

15. Births.

(Observer, Sat 23 May 1908)

MADSEN: on 22nd April at "Na Vale", North East Road, Medindie, Mrs J P V Madsen -a daughter.

16. Births.

(Daily Telegraph, Thurs 12 Jan 1911).

January 8 at her residence, Victoria Street, Roseville, the wife of Dr J P V Madsen- a son (stillborn).

17. Family Notices.

(Telegraph October 5, 1916)

MADSEN-September 30, the wife of J PV Madsen-a son.

18. Lawn Tennis

(The Advertiser Adelaide Friday 17 April 1903).

J P V Madsen in doubles won his match.

19. University Sports.

(Register Sat 17 August 1907)

A happy crowd at Adelaide Oval on Friday afternoon for the Adelaide University Athletic Club events. J P V Madsen listed as a "Time Keeper".

20. School of Mines Electrical Classes.

(The Register, Adelaide 31 January 1905)

Mr E S Molden appointed instructor in Electrical Engineering instructing 1st & 2nd year students & Mr J P V Madsen to take 3rd year.

21. The School of Mines.

(The Express & Telegraph, 3 April 1906)

J P V Madsen elected to a committee of the School of Mines to make recommendations.

22. Association for Advancement of Science.

(The Register Adelaide, 11 May, 1906).

General Secretaries for the Adelaide Meeting are J P V Madsen BSc & W Howchin.

23. The Science Congress.

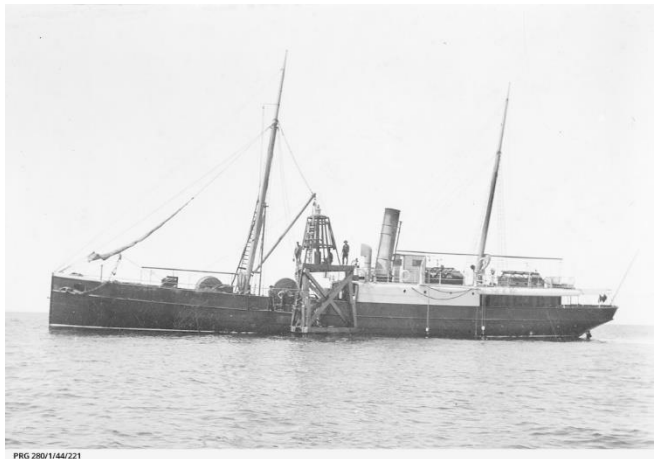
(The Express & Telegraph. Adelaide Tues 8 January 1907).

As General Secretary JPVM was busy all day attending to numerous wants of the visitors & arranging outings & other entertainments.(The Congress opened on Monday 7th).

24. Science Congress.

(The Register, Thurs 31 January 1907)

J P V Madsen as Secretary of the Australasian Association for the Advancement of Science forwarded a copy of a resolution of the Council which was a hearty vote of thanks to the President & staff of the Marine Harbour board for putting a steamer at the disposal of the Association for a 3 day trip in the Gulf.



Appears that the steamer was the “ SS Governor Musgrave.”

25. Well organized Congress.

(The Register, Wed 9 January 1907).

Much of the credit for the general arrangements are due to the honorary Secretaries, W Howchin & J P V Madsen.

26. New Motive Power- Startling prediction. (London)

(Adelaide Advertiser Sat 3 Nov 1906).

Mr J P V Madsen Lecturer in Electrical Engineering laughingly said “there seems to be much Jules Verne about the whole thing- there are several important experiments being carried out in England “ but on the whole JPVM disinclined to believe that any “new” motive power has been discovered.

27. Seismograph Wanted- favourable reply to deputation.

(The Register, 25 June 1906)

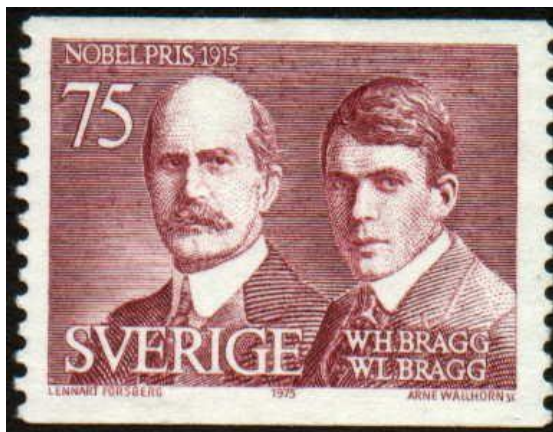
Mr J P V Madsen as one of the joint Secretaries of the AAAS mentioned that the body had recently passed a resolution advocating the establishment of seismographs in all capital cities of the states. (San Francisco April 18-21 1906, 7.9 earthquake measurement).



28. Royal Society.

(Advertise Adelaide 2 October 1907)

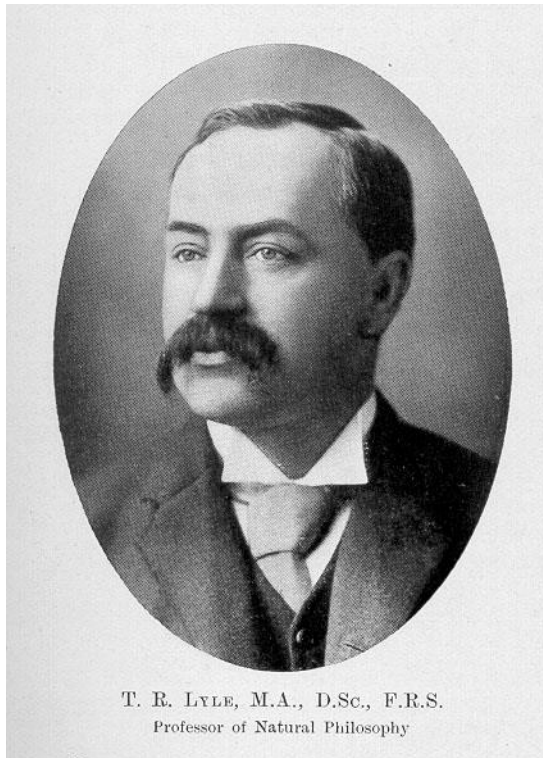
Professor W H Bragg presented a paper "Secondary radiation due to Beta rays" assisted in the preparation by J P V Madsen.



29. University of Adelaide.

(Advertiser 3 December 1907).

Professor Lyle (Melbourne) & Professor Pollock (Sydney) examiners for the DSc degree reported that the thesis by J P V Madsen was a meritorious work. (Both Irish born & FRS)



30. Personal.

(The SMH Thurs 19 Dec 1907)

J P V Madsen yesterday at Adelaide University was admitted to the degree of DSc. "Mr Madsen carried out laborious & intricate research into certain phenomena of radio activity which has been considered of such high merit to give him the distinction conferred".

31. Free Seats

(Evening News Sydney, Thurs 19 Dec 1907)

At Adelaide University yesterday Mr J P V Madsen a graduate of Sydney University was admitted to the degree of Doctor of Science.

32. Royal Society.

(The Advertiser Adelaide, Wed 8 April 1908)

J P V Madsen read a paper (DSc thesis) on " The Ionisation remaining after removal of the ionizing agent".

33. Royal Society.

(The Advertiser Adelaide, Wed 8 July 1908).

An address on "Secondary Gamma Rays" illustrated by diagrams was delivered by Dr Madsen.

34. University of Sydney.

(SMH Tues 8 September 1908)

Mr J P V Madsen DSc (Adelaide) BSc, BE (Sydney) appointed to the P N Russell lectureship in Electrical Engineering from the commencement of the 1909 academic year.



35. Royal Society of South Australia.

(The Advertiser Adelaide 7 April 1909).

A paper delivered by Mr J P V Madsen DSc on “Scattering of Beta rays of Radium”.

36. Royal Society NSW.

(Daily Telegraph Friday 16 July 1909).

On July 15 Dr J P V Madsen delivered the 2nd of popular lectures on radioactivity with lantern slides & was very well attended. The lecture dealt with getting inside the atom.

37. State Radium Bank.-An Investigators opinion- Valuable work.

(SMH Mon 13 June 1910).

J P V Madsen was reported: “I think a State Radium Bank is an excellent idea for the reason that Radium is extremely expensive & could be used much more economically in that way than if it were simply bought by different people for their particular use. Radium cannot displace surgery & considerable care is required in the use of Radium. There are established Radium Banks in London, Paris, New York & Vienna.”.

38. Astronomy & Physics-Experiments with Radium.

(SMH Friday 13 January 1911)

Paper read by Dr J P V Madsen on the “Scattering of Beta rays of Radium”.

39. Radium Beta Rays: Atoms like Solar Systems- Beta rays the comets.

(Daily Telegraph Friday 13 January 1911).

J P V Madsen gave a lengthy discussion of the nature of the atom as a solar system & the role of the beta particles as comets.[Appears to be based on a paper by JPVM to the Physics Section of XIII ANZAAS held in Sydney].(This article is very significant as it gives some idea of the approach JPVM was considering by constructing polar diagrams for atoms of aluminium, silver & gold. This “Solar” discussion was followed by receipt of Rutherford’s letter dated March 8,1911 the day after his announcement of his theory of the nuclear atom). [See the attached transcript in full].

40. University Extension Lecture. (i)

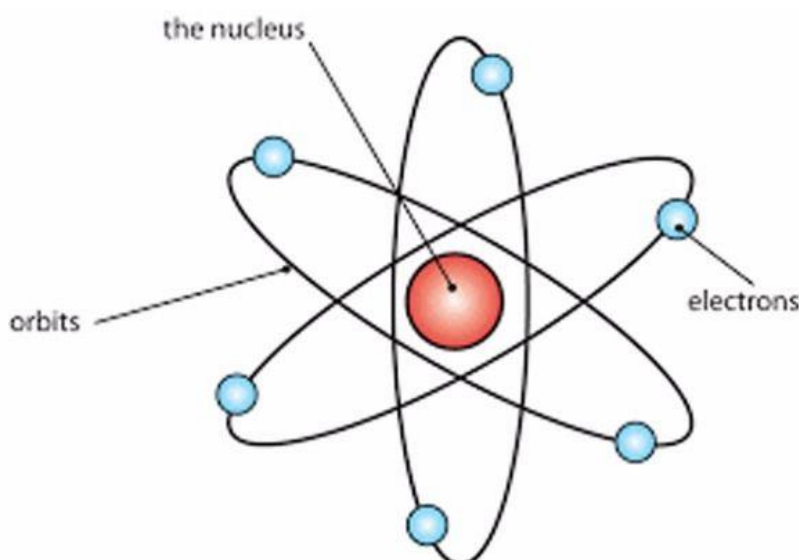
(SMH Thurs 6 July 1911).

J P V Madsen gave a lecture on “Electricity & its applications”.

University Extension Lecture on Radium. (ii).

(Newcastle Morning Herald, Friday July 28, 1911)

At the Newcastle School of Arts Dr J P V Madsen of Sydney University referred to the solar system & then likened the molecules & atoms to that system but reproduced on an infinitesimal scale. The properties of Radium were described with electrons being emitted.



Rutherford's Model Of An Atom

41. Progress of Electricity.

(Bundaberg Mail, Wed 24 June 1914)

The Presidential Address to the NSW Electrical Association was reported.

42. (i) Electrical Association Inter-State merging.

(Telegraph Sat 14 Nov, 1914).

The Electrical Association of NSW merged into the newly formed Electrical Association of Australia. Dr J P V Madsen the retiring President occupied the Chair of a Special meeting.

(ii) The War Chest Funds-Engineers Give Help. Roseville Camp Display Draws Big Crowd.

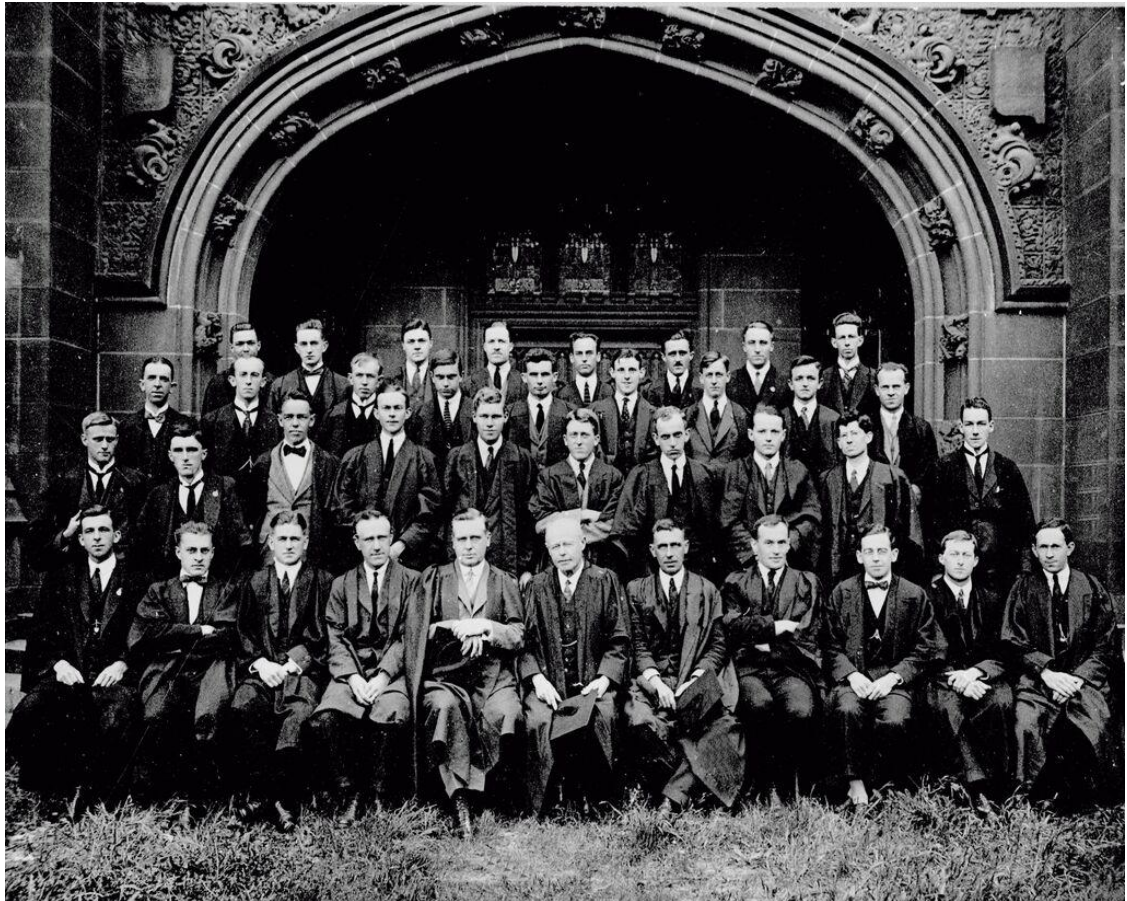
(Sunday Times, Sun 2 Dec 1917)

Yesterday it cost 1 shilling to enter the Roseville Camp. An estimated attendance of 8,000 watched the Demonstration by the Australian Engineers in aid of the War Chest Fund. The attraction of the evening was a mock trench raid. The Display was under the direction of Major Madsen, Capt Brasche & 5 others.

43. New Chair filled, Electrical Engineering, Dr J P V Madsen Appointed.

(Daily Telegraph, Tuesday 17 August 1920).

Few will disagree with his appointment for he has long been recognized as one of the University's coming men- the Department today as the leading school of its kind in this continent whose graduates invariably attain distinction at other universities where they may study afterwards. (1921 Fourth Year Engineering students).



44. University Radio Club.

(SMH Wed 13 August 1924).

A General Meeting of the newly formed Sydney University Radio Club held & elected J P V Madsen as 1st President. The Club has constructed an aerial between the Union & Geology School & a wireless concert was given yesterday afternoon in the Union in the lunch hour.

45. Madsen's Interim Report.

(Morning Bulletin, Rockhampton Tues 18 Nov 1924)

A special meeting of Rockhampton City Council yesterday afternoon to consider the report by Dr J P V Madsen appointed to investigate the Council's electrical undertaking. Unanimously decided that "Dr Madsen be asked to carry out the work in terms of the resolution passed by the Council & also the letter of instruction received by him".

46. (i)Wireless Research- Australian Board Proposed.

(Telegraph Brisbane Tues 23 Nov 1926)

A Wireless Research Board has been formed in CSIR with J P V Madsen as Chairman.

(ii)Men & Women

(The Sun Mon 5 March 1928)

Mr J P V Madsen Professor of Electrical Engineering returned by the Ville d 'Amiens today from a tour abroad.(Messageries Maritimes steamer).

47. Precision Standards.

(Labor Daily Sydney, Mon 16 July 1928)

Following upon the reading of a paper on "Australian Standards" by J P V Madsen to the Institution of Engineers.

48. Joint Meeting in 2 Capital Cities-Marvels of Telephony.

(SMH Wed 27 March 1929).

The Institution of Engineers Australia electrical engineers branch met at P N Russell School at Sydney University & in Melbourne at the Allied Societies Trust Building, Collins Street. Liaison was established between the 2 by carrier wave telephone system by Post Office engineers & STC equipment. 2 carrier channels were provided at each end, 1 for transmission & 1 for receiving & at 8.00 pm they were declared open. The Sydney Chairman Prof J P V Madsen returned the greetings to Melbourne & moved that Mr Harvey in Melbourne take the Chair. (JPVM in centre)

51. Delegates to Science Congress.

(SMH 16 August 1932)

The 21st biennial meeting of ANZAAS is to open tomorrow & J P V Madsen is to attend.

52. Australian researches.-Professor Madsen's view.

(SMH Thurs 29 August 1935)

Considerable progress has been made in the last 18 months with work involving Edward Appleton & D F Martyn.

53. University Notes.

(Telegraph, Brisbane Friday 25 October 1935)

Professor J P V Madsen will arrive in Brisbane on Monday morning to deliver the 1935 Macrossan Lectures on Tuesday & Thursday at the Teachers Conference Hall, Elizabeth Street at 8.00 pm on the subject for the lectures "The Ionosphere & its influence on the propagation of radio waves".

54. Brilliant Student- J A Madsen BSc

(SMH Wed 27 March 1929)

Mr J A Madsen, son of Professor P V Madsen of Electrical Engineering Dept Sydney University sailed for America last week & has been awarded the University Medal & 1st class honours at graduation in Mechanical & Electrical Engineering.

55. Mrs M F Madsen.

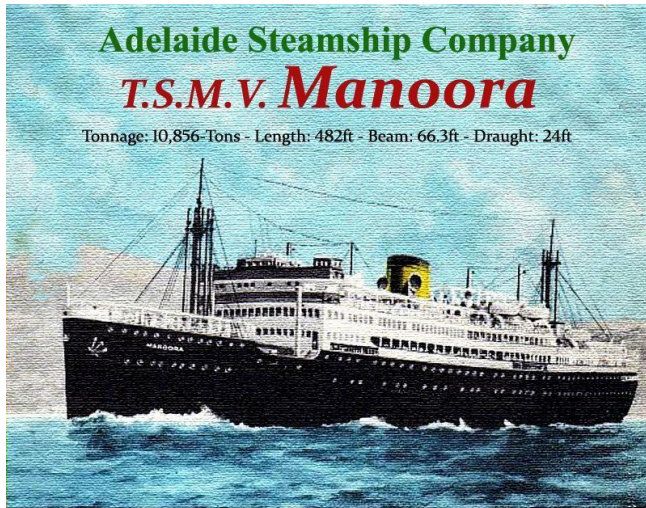
(SMH Friday 6 May 1932).

The remains of Mrs Maud Foster Madsen of Roseville & wife of Professor John P V Madsen of Sydney University were cremated at Rookwood Crematorium on Wednesday. The funeral was attended by members of the University Senate, Professorial Board & many personal friends & relatives. She was interested in social & charitable work. Her father, Mr E W Molesworth represented Newtown in the parliament & representatives of the legal & learned professions attended.

56. Interest in charity-visitor from Sydney.

(Courier Mail, Tues 29 October 1935)

Phyllis Madsen & her father Professor J P V Madsen arrived on the Manoora before breakfast yesterday & were driven to Lennons via New Farm Park. J P V M to deliver the Macrossan Lectures. Miss Madsen is keenly interested in charity work (Sydney Day Nursery Association-6 branches; 900 children from 5 weeks to 4 years looked after each month), also a member of the Roseville branch of the Red Cross Association. 1st visit to Brisbane & hopes to visit Toowoomba before returning on the Duntroon on November 5.



57. Supper Party.

(Telegraph Brisbane, Friday 1 November 1935)

At the conclusion of the 2nd Macrossan Lecture last night Professor J P V Madsen & his daughter Phyllis entertained several guests at supper at Lennons. Guests included Sir Henry Barraclough (President Institution of Engineers) & Prof Parnell. Visitors intend leaving on Tuesday for Sydney by the Duntroon.

58. Physicists in Conference.

(Argus Thurs 28 May 1936).

Meeting held on Tuesday dealing with researches in the upper atmosphere.

59. Radio Probes Discovery-300 miles over the Earth.

(Telegraph Wed 27 May 1936)

J P V Madsen explained the "Ionosphere Layer" with particular interest at 120 miles over the Earth.

60. New Pilots needed to guide way through "Progress".

(Newcastle Sun, Sat 12 September 1936)

(Further to a BA Meeting in Blackpool). A new class of experts to deal with the crucial impact of science on society was suggested by Professor J P V Madsen.

61. Radio Phenomena-Reflection of rays.

(West Australian, Thursday 14 January 1937)

Prof J P V Madsen at the Physics & Astronomy Section of ANZAAS in Auckland delivered his Presidential Address.

62. National Scheme for research standardization.-Big expenditure.

(Daily Telegraph Sydney, Tues 23 March 1937)

The establishment of a National Standards Laboratory in 3 years which will cost 80,000 pounds to build. The CSIR Committee consists of : Sir George Julius, ACD Rivett, Sir Henry Barraclough, Prof J P V Madsen, AEV Richardson & Prof O U VonWiller.

63. News in Brief.

(Labor Daily, Mon 6 December 1937).

An address by Professor J P V Madsen at the Institution of Engineers Conference to be held in Sydney during Australia's 150 anniversary celebration.

64. Engineers Conference in Sydney-500 Delegates from all parts of the World-Big agenda.

(Labor Daily Fri 25 March 1938).

The Sydney conference presentation of papers at Science House. Functions on Thursday include a paper by Prof J P V Madsen on Electrical Engineering & a report by D M Myers on the mechanical solution of mathematical problems.

65. Steps for Standards Laboratory.- State Committee appointed.

(The Advertiser Adelaide, Tues 30 May 1939)

The National Laboratories committee of CSIR with Prof J P V Madsen -new Standards Laboratory to be built at Sydney University.



66. Physicists here next week-Institute Congress.

(The Herald Melbourne Sat 19 August 1939).

40-50 of Australia's leading physicists to attend the Congress of the Australian branch of the Institute of Physics at Melbourne University on Tuesday. The Congress will begin with a session on Radio Research delivered by Prof J P V Madsen & D F Martyn. Prof Laby to talk on Rutherford.

67. River Model.

(Examiner Launceston, Friday 1 September 1939)

Prof J P V Madsen pleased to undertake certain research work to develop suitable electrical control equipment for the hydraulic model of the Tamar River being constructed by the Launceston Marine Board.

68. Personal.

(Daily Advertiser Wagga, Mon 30 Sept 1940)

Engagement of Dorothy May, youngest daughter of P L Edwardes of Wagga to Roger Cecil youngest son of Professor J P V Madsen of Roseville.

69. 6 Knights- Birthday Honours.

(Argus Thurs 12 June 1941)

Prof J P V Madsen, Sydney.

70. Knights daughter.

(Daily Telegraph, Thurs 12 June 1941).

Miss P M Madsen said I don't know whether he is in London or Washington. Lt Roger Madsen of the AIF is overseas, John Madsen of Killara.

71. Secrets of Radio Location.

(Smiths Weekly, 27 September 1941)

Students at Sydney University responding to the call for radio location personnel- fitting that Sydney University is doing this considering Prof J P V Madsen's work in collaboration with the Scottish Watson Watt. (Bawdsey Chain Home Receive Station 1936)



72. Sir John Madsen returns (Radio Location work).

(SMH Wed 10 December 1941).

Sir John Madsen returned to Sydney from England yesterday. Sir John left for Melbourne last night to confer with the Federal Government.

73. Obituary Dr C S Molesworth.

(Murrumbidgee Irrigator Fri 26 Feb 1943)

Dr Cecil Molesworth who died in Camden Hospital conducted a practice from his residence 5 years ago & was the medical officer looking after the welfare of students at the Yanco Ag. High School. He served with the Light Horse in Palestine during the last War. He is survived by 2 brothers & 3 sisters. Is predeceased by the wife of Sir John Madsen.

74. For London Conferences.

(SMH Wed 9 March 1946)

Delegates to London for the Science Conference are announced & include Sir David Rivett & Sir John Madsen.

75. Empire Study of Nuclear Energy.

(Townsville Daily Bulletin, Fri 16 August 1946)

Sir David Rivett & Sir John Madsen (Chairman ANRC- Aust. National Research Council) returned on Wednesday by Qantas airliner after attending 3 scientific conferences in London.



Sir David Rivett.

76. Scientists for India-A mission of goodwill.

(The Age, Mon 22 Dec 1947).

Sir John Madsen will lead an Australian Scientific Mission at the end of the year to India to attend the Indian Science Congress at Patna & visit the main centres of India & will return about the end of February. Mission includes JPVM, Sir Kerr Grant (Physics-Adelaide), Prof J A Prescott (Adelaide-Waite Institute), R G Thomas (CSIR) & Mr G Gresford (CSIR-Secy).

Image below is Prof Kerr Grant of the Adelaide University Physics Dept-early electrocardiograph.



Nick Both & Kerr Grant (on right) with an early Electrocardiograph machine

77. Four Scientists from India.

(SMH Tues 22 Feb. 1949)

4 Indian scientists arrived yesterday for 6 weeks & were met at Sydney by Sir John Madsen.

78. Personal.

(West Australian, Thurs 24 June 1948).

Sir John Madsen, Chairman of NATA was entertained by the President of the Chamber of Manufactures (Mr J F Ledger) at the Esplanade Hotel for an informal gathering. Sir John will inspect the wood distillation & charcoal iron plant at Wundowie this morning & return to



Sydney on Saturday. (Charcoal Iron Blast Furnace 1952 for pig iron).

79. Engineers to expand.

(Daily Telegraph, Fri 7 Jan 1949).

Philips Australia has increased Issued Capital from 300,000 pounds to 800,000 pounds from existing shareholders for work at Hendon. Sir John Madsen has joined the Board.

80. Businessmen for overseas.

(Sun, 7 April 1950).

Sir Ernest Fisk of EMI is sailing for England on RMS Orion on Tuesday. Other well known personalities include Sir John Madsen a Director of Philips Australia.



81. Returning to Sydney.

(The Advertiser Adelaide, Mon 4 Sept. 1950)

Sir John Madsen is returning to Sydney in the Orantes from a trip to Europe.

82. Sir John Madsen returns to Sydney by air today.

(Advertiser Adelaide Wed 14 March 1951)

The return was from Adelaide with Philips.

83. Big Social Round for URSI wives.

(SMH Thurs 14 August 1952)

Phyllis Madsen, daughter of Sir John Madsen is photographed at a social gathering organized for the wives of URSI delegates.

84. No Japanese Invited-Radio Assembly Decision

(SMH Thurs 14 August 1952).

The Chairman of the Australian URSI Committee, Sir John Madsen, said that Japanese scientists had not been invited to attend the URSI Assembly in Sydney. (90 Japanese papers had been submitted & circulated & 16 to be read). After careful consideration by the Committee it was thought inadvisable to invite Japanese representatives to the Assembly in Australia until normal formal arrangements had been established for a Japanese Embassy in Australia.

85. Academy Elects 64 Fellows.

(SMH Sat 19 June 1954).

64 Fellows have been elected to the Australian Academy of Science which received a Royal Charter from the Queen during her visit to Canberra last February.-Sir John Madsen Emeritus Professor of Electrical Engineering, Sydney University was admitted.

SCATTERING OF RADIUM BETA PARTICLES & THE “SOLAR” STRUCTURE OF THE ATOM- JANUARY 1911.

(Transcript by R. W. Madsen- July 2022)

INTRODUCTION.

This is a transcript from Trove of a report in the Sydney Daily Telegraph on Friday 13 January 1911, apparently based on a paper read by Dr J P V Madsen to the Physics Section of AAAS XIII held in Sydney. This material has apparently been overlooked in the works of JPVM & is significant in that the analogy of the atom structure to the solar system with the electrons being “comets” was described 2 months before Rutherford’s announcement in Manchester on 7 March 1911 of his nuclear atom.

In the AAAS Handbook for 1911 in Section A Physics paper number 14 by Dr J PV Madsen is listed for Thursday 12th January on “The Scattering of Cathode Rays” paper 14, but does not appear to be printed in the Handbook so the press articles in The Telegraph & SMH are probably the only remaining record of what was said.

Radium’s Beta Rays-Atoms like Solar systems-Beta rays the Comets.

(The Daily Telegraph, Sydney, Friday 13 January 1911)

A demonstration on “The Scattering of the Beta Rays of Radium” was given before the Physics Section by Dr J P V Madsen, P N Russell Lecturer in Electrical Engineering of the Sydney University.

Introducing his subject, Dr Madsen stated that the discovery of the beta rays emitted from Radium was made almost simultaneously in 1899 in Germany, France & Austria. It was subsequently found that these rays carried a negative charge of electricity and moved at a high velocity, that they were subject to deflection in a magnetic field, produce fluorescence & photographic action & could penetrate considerable thickness of matter & that when such matter was gaseous, measurable ionization was produced as a result of their passage. The rays proceeding from Radium could by the aid of a magnetic field could be spread out into a spectrum. This showed that rays of different velocities were present. They were identified as being similar to the cathode rays observed in a discharge tube in that they carried the same amount of electrical charge and were of approximately the same mass but moved generally with far greater velocity. The absorption of these rays by matter has been the subject of much investigation. The Laws of absorption appeared at first to be very simple, approximating to the well known exponential form which would result from each ray being brought to rest as the result of a single definite collision. In this case the number of rays stopped in a small thickness of matter would be proportional to the thickness, the total number of rays projected & a quantity known as “the absorption coefficient” of each material. One half millimetre of glass, mica or aluminium absorbs about the same number of rays as a sheet of lead of one ninth the thickness & all these screens would absorb about 50 percent of the bundle of rays falling on them..

This simple theory of absorption, however said Dr Madsen has been found lacking in many respects & fails to explain many observations. Experiments by Crowther at Cambridge & by the author show clearly that for very thin screens of material in fact an appreciable absorption has been effected with scattering taking place. In the case of elements of large atomic weight a considerable number of rays are found to be completely turned back.

Experiments by other investigators showed that although turned back, these rays have lost very little energy & move at very nearly their original speed. In the case of lighter atoms the number of rays

turned back is not so great. About each atom we might in fact describe diagrams showing the number of rays deflected in any given direction when the different atoms were placed in the path of the same bundle of beta rays.

From many experiments which have been performed in recent years, continued the Lecturer, it is possible to form some picture of the structure of the atom. The atom would appear to be similar in some respects to a solar system the centre or nuclei being electrons possessing some form of orbital motion, their negative charge being compensated for by corresponding positive charges occupying the whole extent of the atom or else concentrated in individual masses, small compared to the size of the whole atom, but large compared to the electrons. The passing of a beta ray through such a system with a given velocity would be similar to the movement of a comet. Such comets proceeding into a solar system with a given velocity are deflected more the nearer they approach any one of the centres of the system. In the special case when the approach is very close, the collisions may result in the complete absorption of the comet. In general however a large number of comets passing at random through the system will suffer little deflections; a smaller number will have their direction of motion almost reversed.

For any one system or atom it should be possible to construct a polar diagram to represent these effects. The present investigation has enabled portions of such diagrams to be drawn in the case of the atoms of aluminium, silver & gold. It has also been possible to show that apparently a measurable deflection of the incident Beta rays can occur without the atom being in any way damaged as the result. Very frequently the atom will be disturbed that it ejects a slow speed electron, thus giving rise to the well known phenomenon of ionization.

The scattering power of the atoms of some substances which can be obtained in sufficiently thin sheets has also been obtained. In the case of the rays which have been deflected from their original direction of motion by only small amounts, the number of such rays scattered from a uniform bundle appears for atoms, which vary in atomic weight over a large range, to be proportional to the product of the atom's weight & its square root for any element.