Register 15.8.22

STUDENTS OF THE HEAVENS

Astronomers at Work.

Mr. G. F. Dodwell's Impressions

The progress of the world owes much to scientists. Working unostentatiously and faithfully, much of their valuable work is never known to the public. Some of the keenest brains of the world are hidden in some more or less forgotten laboratory, but the learning which emanates from them improves the world in many respects, and, incidentally, increases our knowledge of scientific problems. Many of the leading students of the heavens assembled in Rome recently to attend the International Geodetic Conference, and the representative of South Australia was the Government Astronomer (Mr. G. F. Dodwell). He was accompanied by his wife, and they returned to Adelaide on Sunday after an absence of five months. Mr. Dodwell speaks highly of the hospitality they received in many countries, and declared that the tour had been most beneficial to him in many respects. No doubt, the result of his trip will be made manifest at the Adelaide Observatory. Mr. Dodwell also represented the Commonwealth at the conference, and, together with Dr. Baldwin and Father Pigot, appeared in behalf of the Australian Council of Research.

—The Work Done.—

When seen on Monday afternoon, Mr. Dodwell was looking in the best of health, and he expressed pleasure at his return to Adelaide. However, he will not be in the city long, as on Friday he will leave to take charge of the South Australian party which will watch the eclipse of the sun at Cordillo Downs next month. Referring to his work in Rome, he said that reports of the work done, and discussion of methods, and future programmes, and an exhibition of instruments (in particular a fine magnetic set, from the Magnetic Department of the Carnegie Institute at Washington) made important contributions to the scientific work of the world. The Geodetic and Geographical and Astronomical Conferences were held simultaneously in Rome, and the inaugural ceremony was held in the historic capitol, the guests being welcomed by the Mayor of Rome. The King of Italy and his son, the Crown Prince, attended the distinguished gathering. On the closing day the Pope held a reception of the conference at the Vatican, and spoke of the elevating influence of astronomy. The members of the conference later visited the Vatican Observatory. The Accademia dei Lincei (Italian Academy of Science) was the home of the conference. There were many important committees, and each one had a busy and fruitful time. Among the subjects dealt with by them were the sun's heat, electricity magnetism as affecting the globe, earthquakes, volcanoes, tidal movements of land and sea, charting the ocean, the examination of its floor, marine life at different depths and regions, effect on the compass needle of atmospheric and polar disturbances.

—In Other Lands.—

Mr. Dodwell, in answer to questions, said the Australian representatives took part in the discussions and committee work. To the Geodetic Union he presented his report on the recent boundary (129th meridian) determination, which was effected by means of direct wireless time signals round the world. It was the first of its kind yet made. In an illustrated lecture he gave particulars of the important work which was the defining of the boundary between South Australia and Western Australia, at the Roman University Institute of Physics. At that gathering Professor Turner exhibited the completed parts of the new photographic chart and catalogue of the sky in which Australia had been allotted her share of work. It would comprise three zones. The conference visited the beautiful city of Florence, and in the Galileo Museum the delegates saw the first astronomical telescope, which had been made and used by Galileo, and also the first thermometer and barometers, those made by Torricelli. Mr. Dodwell said he visited the powerful radio station at Lyons which had sent the special time signals for the boundary work. He then proceeded to the Paris Observatory. With the professors he discussed the work associated with the forthcoming eclipse. He was presented by the Observatory Director and by Gen. Ferrie (head of the French Radio Service) at a meeting of the French Academy of Sciences. The President of the meeting referred to the co-operation between Australia and France in the determination of the boundary line. Gen. Ferrie later showed Mr. Dodwell over the famous Eiffel Tower Radio Station.

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—At Greenwich Observatory.—

A move was then made to England, and Mr. Dodwell spent most of his time in an appropriate atmosphere. He was nearly always at the Greenwich Observatory. He finished the computations regarding the fixing of the boundary, and the 129th meridian is now accurately settled. The Australian representatives attended the centenary celebrations of the Royal Astronomical Society, and the American and Japanese delegates were also present. At that gathering Sir Frank Dyson was honoured for his able direction of the Greenwich Observatory and for his research in the motion of stars. After leaving England Mr. and Mrs. Dodwell visited the United States and inspected the Washington Naval Observatory and the Carnegie Magnetic Department, and other similar establishments, including the famous Lick Observatory in California. Mr. Dodwell gained much valuable information in America, and was particularly impressed with the thoroughness in which the Americans undertook the study of astronomy. He will present to the Commonwealth and State Governments a report of the tour.

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The Graduates' Association of the University of Adelaide invite all graduates, undergraduates, and others who may be interested, to attend the meeting to be held in the Prince of Wales Theatre at 12.30 to-day, when an address will be delivered by Professor Meredith Atkinson on "Universities and National Reconstruction."

Mail 12.8.22.

The Adelaide University Sports Association has issued invitations to the University Oval on Wednesday, August 16, and Tuesday, August 22, on the occasion of the annual inter-'varsity football and lacrosse matches.

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Mr. Frank D. Harris, a well-known Adelaide solicitor, died at his home, John's road, Prospect, on Monday. He took his LL.B. degree at the University of Adelaide in 1886.

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EUROPE AND ENLIGHTENMENT.

THE BACKWARDNESS OF AUSTRALIA.

That public opinion in Australia is stodgy, and that even among the best informed there is in many cases an inadequate grasp of international affairs, was a view expressed by Professor Meredith Atkinson, of Melbourne, in an address delivered at the Prince of Wales Theatre (University) on Tuesday morning, under the auspices of the Graduates' Association. The subject was "Universities and National Reconstruction," and the speaker, who was introduced by Professor Brailsford Robertson, dealt in eloquent and impressive terms with the aftermath of the war in Europe, and the plight of the intellectual classes in the stricken countries. The Vice-Chancellor (Professor Mitchell) presided over an influential gathering.

Professor Atkinson said he was anxious to draw comparisons between the conditions prevailing in Central Europe and those in our own land. He proceeded by means of anecdotes concerning what he had seen to describe the patience and heroism with which many cultured men and women in the Central European countries were facing dreadful privations. These groups of intellectuals were to be regarded as the hope of their generation. In Austria, Russia, and elsewhere he had seen erstwhile professors of learning forced to grope in the gutters and refuse bins for scraps of food. Yet one generation could provide only a small proportion of people of the type to which these belonged. They were the only hope of civilisation, but thousands of the best had been killed or starved by scoundrels of the revolution. Signs of hope, fortunately, were not wanting. In Czecho-Slavokia and in Russia a great religious and intellectual revival was proceeding, and in Germany the "new youth" movement was sweeping like a refreshing wave through the universities and schools. Great Britain was teeming with enlightened efforts of all kinds. It was, indeed, the home and refuge of the enlightened forces of Europe. (Applause.) He looked upon Great Britain as the centre of universal brotherhood, to help forward national reconstruction. In striking contrast to these developments was the backwardness of Australia in the newer intellectual movement. They were not lacking in distinguished men of science, and their students overseas achieved splendid results, but the people of the Commonwealth generally appeared to be too sordidly comfortable and remote. There was no cure for such a condition of affairs but cultured education and the inspiration of the ideal of international brotherhood. (Applause.)

As one reason for the apathy or lack of knowledge to which he had referred, the speaker said the cable news that filtered through to the Commonwealth was not sufficiently enlightening in regard to what was going on in Europe, but he did not blame the Australian press in that connection, and eulogised in the warmest terms the support given by it to intellectual and philanthropic movements generally.

On the motion of Professor Davies, seconded by Professor Darnley Naylor, a vote of thanks to Professor Atkinson was carried by acclamation.

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MUSIC EXAMINATIONS.

From EDWARD HOWARD, Angas-street:—Recently three letters appeared under my name referring to "Music Examinations." As no reply was made copies of the letters were sent to the University Council for the reasons given in the letter which accompanied them, a copy of which, with the University Council's reply thereto, I enclose for publication, that all those interested may see how the matter stands. The circular, dated May 12, 1922, to which exception was taken by me, was issued from "The University of Adelaide," and was signed by the Director of the Conservatorium in his position as "Chairman, Music Examinations' Board." Correspondence relating to the other matter referred to appeared in your issue of December 27, 1905, and until now no favorable opportunity has arisen for the vindication of the attitude then assumed by me.

Our correspondent wrote to the Council of the University on July 16, as follows:—"For the reasons stated hereunder I beg to lay before you the accompanying letters. First, because I think you should know they have been published, that the statements therein have not been contradicted or even criticised, and that I am personally prepared to substantiate them. Second, because I hope they may help to demonstrate the need for a readjustment in the working of the Conservatorium, which would do away with the unfortunate undercurrent of antagonism between what has been described as "North-terrace" and the outside profession. Judging by the council's attitude towards the teachers' memorial in 1898, and towards myself in 1905, when I withdrew my senior candidates from the examination conducted at the Conservatorium by the Associated Board under the auspices of the University, redress for the main issue seems hopeless under present conditions; therefore I do not ask for it. But, as regards the strictures passed upon myself by the council in 1905, I take the present opportunity of demonstrating the rightness of my attitude on that occasion, as the source of the friction is the same on all three occasions. Your secretary wrote:—'My council consider that in causelessly inducing your advanced candidates not to present themselves for examination, you have done them and yourself a great injustice.' And again, 'Your aspersions on the conduct of the examinations and of the Director of the Conservatorium are wholly unjustifiable.' The secretary of the Associated Board in London to whom I submitted all the correspondence, including the above, wrote to me on February 5, 1907, as follows:—'Under the arrangement between the board and the University of Adelaide, that certain difficulties might and did occur, can easily be understood, especially in view of the somewhat anomalous position of the Conservatorium in relation both to the University and the outside teachers. I can assure you, however, that any such prevailing irregularity will be strictly guarded against when the examinations are held in South Australia by the board alone, and that you need not fear any repetition of the difficulties you experienced in 1905.' Please allow me here to say that I cast no 'aspersions on the Director of the Conservatorium.' The expression I used was 'objectionable circumstances,' to which phrase I still adhere, and which the letter from the secretary of the Associated Board justifies. Therefore, I am still of opinion that I was perfectly justified in withdrawing my candidates, and that their examination fees should not have been retained."

On August 1, the Registrar, Mr. Chas. R. Hodge, replied to Mr. Howard:—"Your letter of the 16th ultimo, together with copies of letters written by you to the press, in regard to the Elder Conservatorium and the Public Examinations in Music, was considered by my council at its meeting on Friday last. In reply I am directed to inform you:—1. That the Public Examinations in Music are not local, but federal, that they are not under the auspices of this University, but of the combined Universities of Australia, together with the State Conservatorium of New South Wales. 2. That the existence of the examinations or their support has nothing whatever to do with the Elder Conservatorium, and that no funds derived from them are used for the maintenance of the Conservatorium. 3. That the Elder Conservatorium has its own examinations for its own students, and as an institution does not enter candidates for the examinations of the Australian Music Examinations Board.

On August 5, Mr. Howard wrote to Mr. Hodge:—"I beg to acknowledge your letter of the 1st inst., and to thank your council for its reply defining the relationship of the Australian Music Examinations Board to the Adelaide University and the Elder Conservatorium.

Advertiser 17.8.22

THE CORDILLO DOWNS EXPEDITION.

The Government Astronomer (Mr. G. F. Dodwell) expects to leave to-morrow for Cordillo Downs to observe the total eclipse of the sun there on September 21, taking with him the balance of the scientific equipment, which includes a supply of special photographic plates, each measuring 17 inches by 14, which have been received from America since Messrs. A. L. Kennedy and A. G. Appleby left for the interior some weeks ago. These plates are for use in taking pictures of the sun's corona. As viewed by people in Adelaide, Mr. Dodwell said the eclipse will begin at 2.22 p.m., attain its maximum phase (with three-quarters of the sun's disc obscured) at 3.32 p.m., and end at 4.36 p.m. Mr. Dodwell said spectators in Adelaide would have a rather better view of the phenomenon than those in Perth or Melbourne, but would see a little less of it than Sydney people. The Cordillo Downs party, in addition to Messrs. Dodwell, Kennedy, and Appleby, would include Professor Kerr Grant (who expected to leave Adelaide next week), Mr. E. A. Thrum (University), and Messrs. M. B. Ive and H. R. Adamson, of the Beltana Pastoral Company. It was possible that the Surveyor-General (Mr. T. E. Day) or a member of his staff would join the expedition, in order to give assistance in running a meridian line and making latitude and longitude determinations, &c. A programme to be adhered to by each member of the party had been drawn up, and after the instruments sent by the Lick and Allagheny Observatories were set up and tested, drill would be systematically carried out, so that every man would be familiar with his duties and able to discharge them with the greatest possible rapidity during the four minutes of totality. Special importance was being attached to the photography of stars, in order to test the Einstein theory, also to coronographs, which in conjunction with the pictures taken of the eclipse in other parts would indicate changes of structure and throw light on the nature of the corona. There would also be tests of photometric intensity, in addition to a special programme of magnetic observations outlined by the Carnegie Magnetic Department, meteorological observations, and the reception of wireless signals in relation to the ionisation of the sun's rays.

SIR WILLIAM BRAGG AND THE SECRET OF THE ATOM.

A scientific correspondent of the London "Daily Mail" thus writes:—"I have just spent a morning with Sir William Bragg, who, in his physical laboratory at University College, is studying one of the big scientific problems of the day, the secret of Nature's methods of building up with her tiny bricks—the atoms—the substances on which the life of the nations of the future will depend. Under Sir William Bragg's guidance work of the most far-reaching importance is going on, work which may help to probe the secret of the synthetic chemistry of to-morrow, and will lead to enormous progress in many industries. Sir William has used the X-rays as his means of laying bare the innermost structure of a substance, and from the results he has obtained he has been able to build up remarkable models showing the positions of the atoms in the crystal structure of which most things are built up. Even leather and celluloses, said Sir William, have proved to be crystalline in structure. Sometimes in a manufacturing process the crystals break down, when their disappearance is revealed by the X-rays. In this way analyses of industrial processes, such as the manufacture of glass or porcelain have been followed out in a few hours, whereas months of patient experiment might formerly have revealed nothing. Sir William Bragg builds up large models of the atoms in a crystal like a miniature building of reinforced concrete. First a number of vertical wires are set in a wooden base, spaced apart according to the positions revealed by the rays. Then, using little balls of modelling clay of different size and color, representing the atoms, he builds up the model. A special type of X-ray tube has been invented for this work. One of these was in operation when I saw Sir William, its extraordinarily high vacuum being maintained during the exposure of the photographic plate by means of an air pump. For three hours the process of bombarding the crystals with X-rays had to be continued. The plate would then be taken from its dark chamber and developed, when a few parallel lines would appear in the photograph. The spacing of these lines shows just how the atoms are spaced out, lying on different planes in the crystals, and from these measurements the atomic structure would be duplicated on a scale many thousands of millions of times greater. The applications of this wonderful science, Sir William explained, are as yet hardly begun; but complicated chemical processes and phenomena have been explained through experiments made at the college that have had a direct and valuable bearing on industrial work."