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## SOLAR RESEARCH.

### New Federal Observatory.

### Valuable Scientific Work.

The recent decision of the Federal Government to equip and maintain a solar observatory at Mount Stromlo, near Canberra, has aroused much interest in scientific circles, for this will mean the completion around the earth of the chain of such institutions, and will greatly assist the International Solar Union to carry out the very important work it has in hand.

What is described as one of the biggest things Australia has yet done in the realms of scientific research will be the outcome of the recent determination of the Federal Cabinet to equip and maintain a solar research observatory at Mount Stromlo, in Federal territory, situated about seven miles from Canberra. The new institution will work in conjunction with the International Solar Union, which has observatories all over the world, and which has utilitarian as well as scientific ambitions, which it is hoped will be achieved when the chain is completed by the beginning of work near the Federal capital. One of the important objects—especially so to Australia, the country of periodical droughts—is to endeavour to ascertain the connection between the sun and the seasons. It is explained that the sun is entirely responsible for our weather, and that there are fluctuations in its activities; and it is desired that we should learn how those fluctuations are connected with the variations in the seasons. The results will be followed with great interest, and especially so by South Australians, and the gratifying decision of the Federal Government is the result of many years of work by an Adelaide man—Professor W. G. Duffield, D.Sc., now attached to University College, Reading, England. He was born in Adelaide, and was educated at St. Peter's College and the Adelaide University, where he gained the Angas Engineering Scholarship, and then went to Trinity College, Cambridge. He took his degree of Doctor of Science at Manchester, where he was a research fellow for some years. He worked in Sir Arthur Schuster's laboratory, and subsequently joined the staff at the Reading University College, where he has been for 10 years. Towards the end of last year the professor returned to Australia for a holiday, and since then he has brought to a successful conclusion a work begun 16 years ago. He will return to England in a month or two. Dr. Duffield is now in Adelaide, and was seen recently by a representative of The Register concerning the work to be done at Mount Stromlo.

#### Story of Negotiations.

Speaking of the origination and fulfilment of the idea, the professor said:—"In England in 1907, after I had been at a meeting of the International Solar Union, and had been impressed by the fact that there was a gap in the chain of observatories around the earth, and that the sun could not be observed for all the 24 hours of the day—which was part of the union's idea—it occurred to me that Australia held a position in longitude which would enable the gap to be filled, as it occupied a place nearly midway between India and America, both of which countries were provided with observatories for solar research. It was clear, therefore, that if an observatory could be established out here, the scheme could be carried out in its entirety. In the first instance I wrote to Professor Bragg, who sent the letter on to the then Government Astronomer of the Adelaide Observatory. A reply was received that there were no facilities for undertaking such work there, and that funds would be required from the Federal authorities if the idea were to be carried out. Then, having first obtained the support of the Royal Society, the British Association for the Advancement of Science, the Smithsonian Institute of Washington, and various bodies, I wrote on the matter to the Prime Minister of Australia. The reply to that was that no provision for astronomical work had been made in the Commonwealth organization, that inquiries had been made whether any of the State observatories could undertake the work, and

that no funds were available. I came out to Australia in 1908, and a solar physics committee of the Australasian Association for the Advancement of Science was formed. Further representations were made to the Government, which went as far as to offer pound for pound for any subscriptions which might be raised for the purposes of an observatory. A public meeting took place in the Melbourne Town Hall. It was presided over by the then Governor-General (Lord Dudley), and there were present Federal and State politicians and representatives of all the Australian universities and observatories. As a result of the meeting and the resolutions passed the late Mr. A. Deakin, then Prime Minister, offered a suitable site for solar work in Federal territory, but said he wished the initial sum for the observatory to be forthcoming from private individuals. Donations of a telescope from Mr. Oddie, a 9-in. Grubb refractor of excellent quality and a 6-in. reflector from the trustees of the estate of the late Lord Farnham, were made available immediately, and subscriptions amounting to roughly £1,500 were placed at our disposal. Matters were then held up for a time, but the Oddie telescope was eventually put up at Mount Stromlo, and a temporary observatory was conducted by Mr. Barrachi and the staff of the Melbourne Observatory over a period of 15 months. Mr. Barrachi reported that the site was suitable for the work, and, in 1914, when the British Association met out here, a deputation of overseas astronomers waited on the then Prime Minister and urged that the work should be consummated. War having broken out, the Prime Minister felt unable to meet the wishes of the deputation; but it was promised that, when times were more favourable, the apparatus would be installed at Canberra and observations conducted. I returned to Australia at the end of last year, and brought the matter again before the Federal authorities, and was delighted to find that the new Minister for Home and Territories (Sr. Pearce), and the prominent officials of his department, were most sympathetic towards the scheme. As the result of the Minister's representations to Cabinet, the observatory will be established within the next two or three months.

#### Work to be Undertaken.

"The Government is going to be entirely responsible for the buildings and equipment, and the residences for the director, his assistants, and the mechanics, and for a research fellow, who is to be attached to the establishment. The last named is to be selected from one of the Australian universities, and it is to be hoped that the appointment will be made annually so that there will always be a young man attached to the staff. The Astronomer Royal of Greenwich, Professor Turner, of Oxford, and I have been appointed to act as a selection committee to choose the director of the new observatory, and it is certain that he will have to be obtained from abroad. On his way out to Australia he will be given the opportunity to visit Continental observatories and the Wilson Solar Observatory (California). The initial cost will be about £3,500 a year, and a suitable sum will be made available for equipment. One of the features of the new establishment is that it will be easily accessible by road. It is about seven and a half miles from Canberra, and is situated about 2,600 ft. above sea level. An ample area has been set aside for the buildings and grounds. The work of the observatory officials will be to undertake the study of the sun and allied astrophysical and spectroscopic investigations. I am quite sure that great scientific benefits will be achieved. The idea of associating a fellow from one of the Australian universities with the undertaking is splendid, for it will mean that each year a young graduate, after having completed his course, will be given 12 months' research work. This should result in the various State observatories being able to obtain subsequently the services of the best men. The salary for the director will be £1,250 a year and a residence, and the members of the selection committee are now communicating by cable as to the appointment."

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## THE ROYAL SOCIETY.

A meeting of the Royal Society was held at the Institute, North terrace, City, on Tuesday evening, when the President (Dr. R. H. Pallen) occupied the chair.

Mr. A. M. Lea exhibited a drawer of beautiful timber-boring moths, mostly from Queensland, also a curious centipede-like creature, known as peripatus. Mr. Edwin Ashby showed paintings of rare Australian wild flowers, painted by his daughter.

The following papers were read:—"Australian Lepidoptera, Order Polyplacophora," by Mr. Edwin Ashby. The paper dealt with a primitive group of Chitons, represented in Australian seas by five species, all of which have been recorded from this State. Two are deep water forms, obtained only by dredging, one only having been found at about 800 feet. They all have the usual eight separate plates fitted together, like a coat of mail, and all are ornamented with beautiful sculpture of various designs, as if the work had been done with a graver's tool by an artist of extraordinary skill. "The Structure and Action of Striated Muscle Fibre," by Dr. O. W. Tiegs. "On the Path and Velocity of the Excitatory Impulse within Striated Muscle Fibres," by Dr. O. W. Tiegs. The author discovered new facts with regard to muscle fibres, which disproved previously accepted theories. "Fauna and Flora of Nuyt's Archipelago, No. 9: 'The Birds of Pearson Island,'" by Dr. J. B. Cleland. Professor Cleland drew attention to the birds and their parasites, and their occurrence on the adjacent mainland. "The External Character of Pouch Embryo of Marsupials, No. 5: Phascocartus, omnivorus." The animal is the well-known native or teddy bear, and the author referred to the interesting fact that the toilet fingers of Australian marsupials were suited to the length of the hair on the animal. The hair of the teddy bear is very long, and its toilet digits were correspondingly long.

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### Prince Alfred College.

Prince Alfred College stands well back in its extensive grounds on Dequetteville terrace, and has the added advantage of an outlook across the park. The main building, in Tudor style, has four floors in the central portion and two in each wing. The college was established under the Wesleyan Methodist denomination. The land was purchased in 1865. The foundation stone was laid by H.R.H. the Duke of Edinburgh on November 5, 1867. Mr. S. Fiddian, the first head master, enrolled 83 pupils in January, 1866, and taught them in Pirie Street Lecture Hall, until the opening of the college on July 10, 1869. In 1871 Mr. Fiddian was succeeded by Mr. J. A. Hartley, B.A., B.Sc., who relinquished the head mastership in December, 1914, after 39 years service. Mr. W. R. Bayly, who succeeded him, had been a master in the college from 1883 to 1909, when he left to become head master of Geelong College, in Victoria. He returned to South Australia as head master of Prince Alfred College in 1915, and has everything concerning the welfare of the school very much at heart. In 1911 the college was augmented by the purchase of an adjoining property—the old home of Mr. Alexander Dowie—and a preparatory department was established which had become an important feature. Started with 23 pupils, in charge of Mr. J. R. Robertson, the excellence of the work done won such approval as necessitated additional buildings. There is now accommodation for 100 boys, who work under the most approved modern conditions. The new building is designed somewhat in bungalow style, with three classrooms and a large roofed-in outer court. This preparatory school is under the excellent supervision of Mr. W. S. Gilbert. There is ample playground space, apart from the big school. Prince Alfred College has shared in the insistent demand for secondary education, which has become so much intensified since the war. For some years the governing body has been planning to extend the accommodation. These plans are now maturing in the erection of a large block of buildings, which will give much additional room in every department of school life, while taking little from the open space, which counts for so much. The school has at all times most heartily encouraged physical exercises. There have been successive additions to the building. The Waterhouse wing (named after Mr. T. G. Waterhouse) in 1877, and the Colton wing in 1881; also a science hall, opened in 1891. Up to this stage the buildings had cost £30,000. There is a large gymnasium and a chemical laboratory.

The "memorial" block, now in progress of erection, is at the north end of the original building, and a little further back. Being on a hill, it will have two stories

in front and three at the back, the basement being underground only at one end. There is to be an open court in the centre, surrounded by balconies. The ground floor will be devoted to teaching—there are to be eight new classrooms—and the upper story and basement are for the domestic side, the lower floors being given up to the use of the boys apart from school, and including dressing rooms for sports, a "tuck shop," and so on. The best way to understand something of this school, whose influence has been so great in moulding the character of many South Australians, is to begin at the beginning, and glance at the smaller boys at work in their airy classrooms, or at play in the roomy grounds. This sense of plenty of room is striking after the public schools. On the other hand, there is less of colour decoration. It is thought by some people that overmuch learning through sight weakens the power of imagination and concentration. Going back to the main building, it is impossible to forget the influence that the sense of open space must have. In the classrooms of the older scholars there are pictures, mainly good photographs of famous buildings of the past—"Something that the boys will never see for themselves," as Mr. Bayly says. But the real centre of school life is the central hall. One glance at the honour rolls explains why Mr. Bayly is chary about mentioning names of successful scholars—there are so many. Scholarships have been given by many people, notably by Sir John Colton, Sir Thomas Elder, Mr. John Dunn, jun., Miss Colton, Messrs. Wills, Longbottom, Robb, Malpas, Grassy, and others. In addition to awards within



MR. W. R. BAYLY,  
Head Master of Prince Alfred College.

the school there are a number of endowments awarded by the school of the Old Collegians' Association, which is a most active body, with a membership of 1,000. There are honour rolls on the walls of the central hall, giving long, long lists of names of those who have won scholarships, or succeeded in various examinations. No wonder Mr. Bayly does not care to pick out a few. Several masters are commemorated by tablets. Sidney Albert Vane, M.A. (mathematical master, 1887-1901), Samuel Churchward, B.A., Lond. (second master, 1847-1890), and Joseph Trevelyan Sumter, B.A. ("associated with this college, and master for 24 years"). There is a bronze bust of the former head with this inscription, "Frederic Chapple, C.M.G., B.A., B.Sc., for 39 years ending December, 1914, head master of Prince Alfred College. This tablet and bust were placed here by his old scholars to keep his long and faithful service in honoured memory." There are sketches by Mr. J. H. Chinner, and a painting and shield presented by Mr. James Ashton among the decorations of the hall. Also a picture of the Gallipoli landing, presented by Sir Henry Galway. A roll of honour to the old scholars who took part in the South African War, 1899 to 1902, includes well-known names, among them that of Capt. F. M. Rowell. A brass tablet records a scholarship foundation "In memory of Reginald Argyle Davey, R.N.V.R., H.M.S. Campania, who lost his life in the North Sea, September 8, 1916, aged 19 years and 11 months." A companion panel records another scholarship in memory of his father, Mr. Arnold F. Davey, by his brother. There is no large Roll of Honour to those who served in the Great War as yet. That is to find a place in the memorial block.