89 Advertiser 26.10.22 Graduates' Assoc'n

✓ Register 21.10.22.

✗ A NOTABLE GEOLOGIST.

Prof. Howchin Retired from Public Library Board.

Professor Howchin, who vacated the Chair of geology and Palaeontology in 1920, in order that he might have more time to devote himself to private research, resigned his membership on the Public Library Board, on Friday afternoon, for the same purpose. He was appointed to the board in October, 1901. Mr. Howchin is a native of Norwich, England, and is a son of the manse. His education was received at the Academy, King's Lynn. When 19 years of age he went to the north of England, and was associated with scientific workers in the Newcastle district. He came to South Australia in 1881, having previously been elected a Fellow of the Geological Society of London. In 1883 he was elected a Fellow of the Royal Society of South Australia. In the following year he was made a member of the council, and in 1895-6 he was President of the society. Mr. Howchin has filled many positions. He was lecturer on mineralogy at the Adelaide School of Mines from 1899 until 1904. In 1907 he was awarded the Clarke Memorial Medal by the Royal Society of New South Wales, for "Researches in natural science," and the Ferdinand von Mueller Medal was given to him by the Australasian Association for the Advancement of Science, in 1913. To him belongs the distinction of having received the first honorary professorship conferred by the Adelaide University, and his investigations into geological matters in this State cover an exceedingly wide field. The President (Sir William Sowden), in expressing the board's regret at Mr. Howchin's retirement, assured him that upon his withdrawal from further co-operation in important work, which the board was privi-

PROFESSOR WALTER HOWCHIN, F.G.S.

leged to perform for the community, he might derive some little satisfaction from the knowledge that he possessed the confidence, the respect, and the esteem of every one of his fellow-members. The professor's great scientific knowledge, rendered all the more valuable by his keen business acumen, had been placed freely at the disposal of the board during the last 21 years, and his services as Chairman of the Museum committee had been most assiduous and constant. In a wider sphere his career had been distinguished by outstanding achievements, particularly in geological research, and the editorship of the proceedings of the Royal Society, as well as author of many scores of scientific pamphlets and several books, and for years a regular contributor to the press. Ever since his arrival in Australia he had been an active promoter of religious and philanthropic enterprises. It was pleasing to reflect that his retirement was made in circumstances of greatest cordiality, and that he was to be succeeded in the representation of the Royal Society on the board, by such an eminent scientific authority as Professor Wood-Jones, who had already won renown by the brilliancy of his work. The President could assure Professor Howchin of the deep regret at his departure, and expressed the hope that in the gloaming of his life his days might be serene and happy. Mr. B. S. Roach, a member of the board and of the Royal Society, said the professor's name was known all over the Commonwealth, particularly in connection with the geological action of ice. Opinions expressed by the professor, and strenuously opposed at the time, were now accepted by all geologists. He moved—"That this board expresses its high sense of the able services Professor Howchin has rendered as a member of this board during the past 21 years; and it especially commends the manner in which he has fulfilled the duties of Chairman of the Museum Committee, an office he has filled for 12 years. Mr. Gell seconded the motion, and Professor Howchin briefly replied. In thanking the speakers for their kindly words, he congratulated the board upon the appointment of Professor Wood-Jones, whose scientific knowledge, he said, should establish him as an invaluable member.

(Gold)

✓ Register 23.10.22

RHODES SCHOLARSHIP.

The Rhodes Scholarship Committee, which has been enlarged recently by the appointment of Messrs. H. Thomson and R. J. Rudall, met on Saturday morning to receive applications from candidates. There was a full attendance of members, those present being:—The Chief Justice (in the chair), Sir Joseph Verco, Professors Henderson and Darnley Naylor, and Messrs. J. R. Fowler, Thomson, and Rudall. Five applications were received, and December 9 was decided upon as the date for selection.

✓ Advertiser 21.10.22

EMBRYO DOCTORS.

NEARLY 900 IN SYDNEY UNIVERSITY.

Sydney, October 20.

This year there are 2,965 students in attendance at the University. This is a slight decline, as last year's total was 3,275. In 1920 the maximum figures were reached, viz., 3,356. Now there are too many students in the University for the relatively small lecturing staff available. There are 870 students studying medicine, but Professor Chapman does not think the medical school is overcrowded. Despite the fact that the medical examinations have been pretty severe of late years, medicine retains its old-time popularity.

NOBEL PRIZE
✓ Advertiser 24.10.22
Prof. W. L. Bragg

Professor W. L. Bragg, of Manchester University, who, together with his father, Sir William Bragg, was awarded the Nobel Prize for physics in 1915, recently delivered the lecture in Stockholm as prescribed by the statutes of the Nobel Institution.

Dr. Heaton's Tour.
✓ Advertiser 24.10.22

After a lecture tour through Eyre Peninsula, Dr. H. Heaton, returned to Adelaide on Sunday. He had an opportunity of seeing the Tod River Reservoir works, which are now practically completed. Dr. Heaton lectured at Tumby Bay on October 16, on "The Economic Outlook;" at Port Lincoln on Tuesday, on "Co-operation;" and at Cummins on October 18 on "The League of Nations and its work." He also spoke at Port Lincoln on Friday.

Advertiser 24.10.22
Engr. Student.

A DROWNING CASE.

Mr. Andrew Gilbert Wauchope (22), eldest son of Mr. J. F. Wauchope, of Kensington Park, was accidentally drowned at Frenchman's Creek, Lake Victoria, on Saturday last. A search for the body was made at the time without result, but it has since been recovered, and he is to be brought to Adelaide for burial to-

THE SOLAR ECLIPSE.

ADDRESS BY MR. DODWELL.

The Government Astronomer (Mr. G. F. Dodwell) delivered an address before members of the Graduates' Association at the Adelaide University on Wednesday evening on the total solar eclipse. He said the Americans had made great strides in astronomy in the last half-century. Their observatories and workers were leaders in many departments. Eclipse observations formed one branch of solar astronomy. Had facts hitherto unknown been discovered and theories confirmed, or discredited by observations during a total solar eclipse? The solar spectrum was a continuous ribbon of light of various shades of color crossed by many dark lines, which indicated the presence between the observer and the photosphere of cooler gases, which absorbed their specific light. The absorption could not be caused by the earth's atmosphere, for those lines indicated among others the elements sodium and iron, and others which, like them, were not in a gaseous state in the earth's envelope of air. The absorbing layer surrounding the photosphere was called the reversing layer. One saw immediately that if that could be seen without the brilliant photosphere there would be bright lines exactly replacing the dark (Fraunhofer) lines. At the total solar eclipse in 1870 Young placed the slit of his spectroscope tangent to the sun's limb, and at the moment of totality the encircling layer suddenly gave the bright lines where an instant earlier the dark ones had been. Since that historic verification the "flash" spectrum had been photographed at nearly every eclipse of the sun, and from its duration and the known rate at which the moon apparently travelled across the sun's disc, it was found that the thickness of the reversing envelope was 500 or 600 miles. The effect of pressure on an absorbing gas was to shift the dark lines slightly towards the red end of the spectrum. It was surprising to find that the pressure of that solar envelope, calculated from the displacement, could not be more than five or six times that of the earth's atmosphere at sea level. It was probable that the great surface gravity of the sun was partly offset by light pressure and electrical repulsion. By comparing the positions of those spectral lines and those produced in laboratory experiments with various elements, the chemical constitution of the absorbing reversing layer was ascertained. Many terrestrial elements had thus been identified, and, as that layer was constantly receiving material from above and below, and therefore had a composition like that of the remainder of the sun, that supported the conclusion that the sun and earth had had a common origin. The absence of heavy metals, such as gold and mercury, common on the earth, might be due to some so-called elements being really compounds which were broken up by the peculiar conditions in the sun, and therefore would not give their characteristic spectra, or they might be present, and giving their characteristic spectra, which, however, the presence of the other elements, with their own spectra suppressed. Or, again, they might be so heavy that they sank below the level of the reversing layer.

On the whole Mitchell's photographs of the flash spectrum and St. John's conclusions from the Doppler-Fizeau effect showed that the lighter elements reached higher altitudes, and the heavier ones remained at lower levels, the striking exception being calcium, which, though heavy, went right up into the chromosphere, even as high as hydrogen. A very interesting element there was helium, the new and remarkable "sun" substance, whose existence was first suspected through Sir Norman Lockyer and Dr. Frankland, observing a bright yellow line in the solar spectrum near the two sodium lines. It was present all through the chromosphere, and gave a bright line during a total eclipse, but, unlike other elements, no dark line when traversed by the photosphere light. It was first discovered on earth by Ramsay examining the spectrum of the mineral cleveite, and was now well known as a product of disintegration of the radio-active substances, made specially interesting to Australians through Professors Sir William Bragg and Sir Ernest Rutherford's work. Coronium was another interesting "new" element. The beautiful pearly corona which had never been seen except during a total eclipse of the sun, gave out three kinds of light—(1) A small amount which gave, though faintly, the Fraunhofer lines, and was polarised, and therefore must be reflected light; (2) white light, which must be from incandescent solid or liquid particles; (3) a bright line spectrum, which must, of course, be from an incandescent gas and whose most conspicuous line was the green, and was due to the element, coronium. Lately that had been found in the highest part of the earth's atmosphere, and it was called geo-coro-nium. Professor Nicholson had shown that if they imagined an atom of negatively charged electrons circulating about a positively charged nucleus, so that the whole was neutral when the number of electrons was five, the oscillations of which it was capable for different numbers of circulating electrons, would produce the spectrum of coronium; and if the whole were neutral when the number of electrons was 4, those oscillations would reproduce the spectrum of a gaseous nebula. Here they saw a clue to the maze of the structure of terrestrial chemical elements, stretching out to great universes.

Questions of electricity and magnetism, and of the action of gravitation on light rays, and of the inter-relation of all forces, the great theory of relativity were investigated during a total solar eclipse, the last perhaps being the most burning question of the time. The plates taken at Wallal and Cordillo, and that honed at Goondiwindi, were expected to give no undecided answer. At the 1919 eclipse some of the plates showed the exact deflection of the light from the stars caused by the sun's gravitational field predicted by Einstein. When the Wallal, Cordillo Downs, and Goondiwindi plates were all measured up and compared with the comparison plates taken some months before or some months after the eclipse, that might or might not be confirmed. Another astronomical test of the Einstein theory, namely, the amount of shift of the solar spectral lines towards the red end was as yet indeterminate. The theory, however, gave a satisfactory explanation of the perturbation of Mercury's orbit. The new theory involved the disappearance of the working hypothesis of the ether of space.

When working at various times in the far north and Central Australia, he had found very favorable conditions for astronomical work—clear atmosphere, absence of cloud and moisture, great visibility, and absence of obstacles to the view. Captain White and other travellers had also commented on those conditions. For stellar photography and the much-needed solar work in the Southern Hemisphere there could be no better place. He could confidently recommend Alice Springs as a suitable site and he honed a movement to "push forward the frontier of human knowledge" by establishing a Central Australian Observatory would be one result of the South Australian Solar Eclipse Expedition of 1922.

Professor Kerr Grant spoke of interesting incidents on the journey of the expedition into the interior, mentioning the large number of kangaroos seen (40 or 50 at a time), flocks of emus, the aborigines, rarely met with except at the stations, where they were very useful; the vegetation; the enormous number of sheep on the runs, for instance, 80,000 at Cordillo Downs, and the immense area of the runs over which the sheep were scattered; and the difficulties of transport, mainly with camels and donkeys, though for people motor cars were convenient. Professor Woolnough, who came across country from Sydney, could testify that the Ford could go anywhere, even climbing up a sandhill, at an angle of 45 degrees—with everyone pushing behind. At Cordillo Downs, the eclipse station had, as they knew, apparatus for receiving wireless time signals from Adelaide, and incidentally messages travelling by the radio service. One member of the expedition had heard at Cordillo Bordeaux talking to Ireland. The advantages for the reception and transmission of messages were exceedingly good in the interior. They also heard the Melbourne wireless concerts broadcasted. The wireless ceased during the total phase of the eclipse. Lieutenant Bowen, a Commonwealth officer, and Mr. Thrum took charge of the wireless apparatus. Professor Woolnough brought along the sending outfit, which was remarkably successful and kept the expedition in touch with Adelaide. Another interesting phenomenon was the shadow bands. The whole set moved rapidly, but each band slowly, like a row of people walking on a quickly moving platform. The time and direction of these bands were observed to be different at all three stations—Wallal, in the west, Cordillo Central, and Goondiwindi, in the east, and again different on the very edge of the umbra at Nappamerrie. This complicated phenomena required further investigation.

Dr. W. G. Duffield, of Reading University, moved a vote of thanks and congratulated the South Australian eclipse expedition. He mentioned the need for a great solar observatory in Australia to study many problems, such as the everyday solar radiations and the predictions of seasons of rain or drought and hot or cold weather.

Dr. Lendon seconded the vote, which was heartily carried, and the president added a few words of congratulation.