REG. also ADV. 20.4.27

WAITE INSTITUTE.

GIFT BY MR. JOHN MELROSE.

£10,000 for Research.

For laboratory research in the interests of agriculture. Mr. John Melrose, of Ulooloo, has generously presented the Waite Institute with £10,000.

At a special meeting of the council of the University on Monday, the Chancellor read a letter from Mr. John Melrose, of Ulooloo, to the following effect:—"As it is my desire to help research in connection with problems of any and every nature associated with the land, my gift of £10,000 is a contribution towards the building of a chemical laboratory at the Waite Agricultural Research Institute. My old friend, the late Peter Waite, evidently saw that in the near future applied science would be more necessary than it had been in the past. I want to help along the good start he gave to research work on the above lines."

The council accepted the gift with much gratification and asked the Chancellor to convey to Mr. Melrose its hearty thanks for his generaus support of the national work now being undertaken at the Waite Institue.

The University has been assisted by many fine gifts for research in agriculture, but the great need at the institute has been a series of suitable buildings for laboratories, which are at present temporarily housed in outbuildings ill-adapted for the purpose. Mr. Melrose's gift now enables the council to proceed at once with the erection of the principal section of the chemical laboratories, so urgently required, and thus provide accommodation for the main researches at present being undertaken and contemplated; these are, plant pathology, soil studies, including soil-borne diseases of cereals, pasture research, and plant genetics, including the production of new varieties resistant to disease. In addition to Mr. Melrose's donation, other assistance will be received for the laboratories; the Empire Marketing Board in contributing £3,000 in relation to pasture research (including mineral deficiencies of pastures), and the council for Scientific and Industrial Research has agreed to provide another £3,000 towards the building in relation to soil problems, and pastures research.

The new building will be called the "John Melrose Laboratory."

Leading Sheep Breeder.

One of the leading pastoralists in the State, Mr. John Melrose, is a member of a family prominent in the sheep raising industry of South Australia. He is the third son of the late Mr. George Melrose, and brother of Messrs. R. T. and Alex. Melrose. Educated at Prince Alfred College, he spent a year in gaining experience in a mercantile office, and then went to Franklin Harbour, and assisted in the management of Wangaraleedini Station, until the end of 1883. Early in 1884 he went to Ulooloo, which had just been purchased from Dr. Stephens, to manage for his father. Upon the death of Mr. George Melrose, he purchased in 1894, Ulooloo, from the trustees of the estate. Three years later he acquired, in conjunction with the late Mr. Henry Dutton, the North Booborowie Estate, and flocks. With that fine stud, and with other purchases from all parts of Australia, and in England, he has built up a magnificent flock, the supervision of which has kept him at the Ulooloo Station during the greater part of his life. Mr. Melrose has large holdings in Western Australia. He is a widower, and has two children. The son is Mr. A. J. Melrose, of Kadlunga Station, Mintaro.

ADV. 21.4.27

THE UNIVERSITY UNION BUILDING.

The proposal for the construction of a University Union Building was discussed at a recent meeting of students, when a report on the efforts of the appeal committee was submitted by Messrs. C. T. Madigan and A. G. Price, and Dr. F. S. Hone. It was stated that about 70 persons had promised to contribute a sum amounting to approximately £230 during the next three years. The students present agreed to submit to a voluntary levy of not less than £1 a year.

ADV. 20.4.27

A GENEROUS GIFT.

The Waite Institute of Agricultural Research owed its inception to the munificence of a public-spirited pastoralist who was deeply impressed with the necessity of applying science to the promotion of the primary producing interests in this State. The University of Adelaide now acknowledges with gratitude a generous gift by Mr. John Melrose which will greatly assist in the extension of the valuable work already undertaken by the Institute. His donation of £10,000 towards the establishment of chemical laboratories closely follows an intimation by the State Government that as part of its agricultural policy financial support will be extended to the Institute to enable it to develop its research activities in such directions as the solution of chemical and soil problems and the improvement of wheat breeding. The Institute is now co-operating with the Federal Council of Scientific and Industrial Research, and a closer relation is to be established between it and the Department of Agriculture in the State, so that its services may be the more readily utilised in connection with the "greater production campaign." The Empire Marketing Board is giving £3,000 in aid of pasture research, and the Council for Scientific and Industrial Research promises £3,000 to assist in the investigation of soil and pasture problems.. All this indicates progress of a gratifying character. Mr. Melrose's contribution towards the establishment of chemical laboratories will further advance the good work by providing additional and much-needed facilities for scientific investigation. The benefits to be derived from chemical research will not be limited to any one branch of primary production, but will be shared by farmers, pastoralists, and others whose livelihood is obtained directly from the soil. At the Graziers' Conference recently held in Adelaide the delegates had an opportunity of observing what is being done at the Waite Institute, and they were agreed not only as to its usefulness, but on the desirableness of expanding the activities of the institution in various ways. It is not only in its application to agriculture that scientific research promises an increase of production. The methods of the grazing industry as well as of farming and dairying are likely to be improved with the acquisition of new knowledge. Sir Graham Waddell has expressed the opinion that for the development of pastoral enterprise in Australia scientific investigation and practical work should proceed simultaneously. The man who is getting his experience from actual practice in opening up the back country may appear at first glance to have little concern in the laboratory studies of the soil expert and the agricultural chemist, but there is a point at which their different lines must meet, and then, as Sir Graham Waddell put it, "big things may happen." Professor Brailsford Robertson and other authorities recently indicated several fields of research that may be cultivated with advantage, such as the analysis of soils, plant pathology, and the lack in certain fodders of necessary mineral or nitrogenous elements which may be supplied by the supplementary growing of other plants that contain them. This is the barest indication of the class of problems to which chemical enquiry may be directed, and Mr. Melrose's gift is deeply appreciated by the University because it will better equip the Waite Institute for such valuable investigations.

ADV. 21.4.27

ECONOMIC SOCIETY OF AUSTRALIA.

Professor Prescott (Waite professor of agricultural chemistry), who is lecturing before the South Australian branch of the Economic Society of Australia and New Zealand at the University on Monday, has announced a change in the title of his lecture to "Agricultural Experiments and the Law of Diminishing Returns." The Minister for Agriculture will occupy the chair. The Director of Agriculture (Professor Perkins), in a recent communication to the branches of the Agricultural Bureau, urged an increase in rural production to diminish the financial stringency. This has stimulated interest in the law of diminishing returns, which Professor Prescott will expound. Tickets (from the assistant hon. secretary, Box M., University) may be obtained. Failing possession of a ticket visitors may be franked in by members.

ADV. 20.4.27

AGRICULTURAL RESEARCH.

PROFESSOR RICHARDSON GOING TO LONDON.

Melbourne, July 19.

Senator McLachlan (Assistant Minister) announced to-day that the Director of the Waite Institute in Adelaide (Professor A. E. V. Richardson) would be leaving Australia shortly to attend the Imperial Conference for the co-ordination of agricultural research in London next October

Professor Richardson.

as the Commonwealth delegate. Professor Richardson, who was a member of the executive committee for scientific and industrial research, was, he said, particularly capable of representing Australia, owing to his long experience in the Victorian Agricultural Department and the University of Melbourne, as well as at the Waite Institute in Adelaide. A great amount of information was being taken to the conference by Professor Richardson, and it was expected that he would give particular attention to the negotiations between the Empire Marketing Board and the Council for Scientific and Industrial Research respecting the participation of the former in wide researches of Imperial interests initiated in the Commonwealth by the latter.

ADV. 20.4.27

"THE DISCOVERY OF MATTER."

SECOND LECTURE BY PROFESSOR HICKS.

The second of a series of three lectures on "The Discovery of Matter" was delivered by Professor C. Stanton Hicks at the Adelaide University on Tuesday evening.

The speaker likened the discovery of the spectrum to a flank attack in military tactics, for by its use Nature had been suddenly surprised in an unsuspected quarter. The beginning of the new method was in the early part of the sixteenth century, when Kepler recorded a definite play of colors when sunlight was passed through a glass prism. It was 150 years later that Isaac Newton showed that a beam of sunlight from a hole in the shutter of his window, when passed through a glass prism, was split up into a band of colors which were arranged in a definite order without a break in the succession. The lecturer gave a biographical sketch of Newton, and said that after another 140 years W. H. Wollaston of Cambridge, repeated Newton's experiments, using a slit instead of a hole to transmit the beam of light. Von Fraunhofer, examining Wollaston's spectrum by means of a telescope, found an enormous number of dark lines, and mapped out 576 of them. He died about a century ago without having discovered their cause. The work of Brewster, in 1822, and Herschel, in 1823, led to the discovery that if a piece of colored glass were placed in the path of a beam of light before it passed through the prism, the light, after passing through the prism, would be deficient in all colors except that of the glass. That was to say, the colored glass would absorb all the remaining colors and leave only one. It was soon noted that the luminous lines in the spectra of certain flames corresponded with some of the dark lines worked by Fraunhofer. In 1849 Foucault attempted to increase the yellow in the solar spectrum by focussing sunlight on a powerful yellow electric arc light, which was then examined by means of a spectroscope. To his amazement the yellow was not only not enhanced, but completely obliterated. Had he known that the yellow lines in the experiment were due to the elements of sodium he would have solved the mystery of Fraunhofer's lines. Stokes made the correct guess in 1857, but Kirchhoff, in 1859, proved it experimentally. His discovery was comparable in importance with that of the law of gravitation. Bunsen was shortly afterwards able to show that every element in a gaseous state had its characteristic spectrum, so when Fraunhofer's dark lines were considered in that condition it was seen that they were caused by the light from the sun passing through the incandescent atmosphere of that body. It had been possible to deduce the presence of some 40 elements in the sun's atmosphere and the presence of an element unknown to the earth was noticed in the sun's spectrum by Sir Norman Lockyer, who termed it helium. Thirty years later it was discovered on the earth. The effect of the temperature of the luminous element had a great effect on the nature of its spectrum, showing up a number of lines in place of single lines. The theory of the spectrum was based upon the hypothesis that every ray of light was propagated by a kind of vibratory, or undulatory motion through the all pervading ether of space—the ether being a necessary hypothesis to assist in picturing the mechanism of such propagation. The velocity of light was 200,000 miles a second, and the number of waves a second determined the color of the light. The modern view of the atom was that it was like a miniature planetary system, in which the particles revolved in orbits about a central unit like a sun. A study of atomic structure by means of the spectroscope was then seen to be most complex. Sommerfield had recently been able to calculate upon certain assumptions as to the structure of the atom—a type of perturbation in lines due to magnetic influence. There were many reasons for believing that carbon was a very complex atom. If the materials of which living protoplasm were made were analysed, it would be found that the principal constituents were sodium and potassium chlorides as well as sodium and potassium combined with phosphorus and sulphur; and carbon as well as small amounts of calcium magnesium and iron. There might be a trace of silica. Professor R. J. Jeanes had recently given his opinion that the physical conditions under which life was possible formed only a tiny fraction of the range of physical condition which existed in the universe as a whole. There could be no life where atoms could never became joined together. Primeval matter must go on transforming itself in radiation for millions of years to produce an infinitesmal amount of the inert ash on which life could exist. Even then that residue of ash could not be too hot or too cold, otherwise life would be impossible. It was difficult to imagine life of any high order except on planets warmed by a sun, and even after a star had lived its life of millions of years, the calculated chance was about 100,000 to one against its being a sun surrounded by planets. In every respect—time, space, and physical conditions—life was limited to an almost inconceivably small corner of the universe. What then was life? Was it the final climax towards which the whole creation moved, for which millions of years of transformation of matter in uninhabited stars and nebulae had been only an extravagant preparation? Or was it a mere accidental and possibly quite unimportant by-product of nature's processes which had some other and more stupendous end in view? Or throwing humility aside, was it the only reality, which created, instead of being created by, colossal masses of stars and nebulae through almost inconceivably long vistas of astronomical time?

REG. 20.4.27

THE MYSTERY OF MATTER.

Prof. Stanton Hicks's Lecture.

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92