Advertiser 8.3.23

SCIENTIFIC FARMING

SOUTH AUSTRALIA AND WHEAT-BREEDING.

The scientific development of farming during recent years has been astounding, and it is gratifying to know that South Australia has not lagged behind in this important work. In the opinion of Mr. Eric S. West, M.Sc., who was awarded the Lowrie Scholarship for Agricultural Research two years ago, South Australia has done splendid work in connection with wheat breeding. Mr. West, who returned from London by the Jervis Bay on Wednesday, received his first training at the Roseworthy Agricultural College, and matriculated at the Adelaide University, where he obtained the degree of B.Sc., having made a special study of botany, physics, and chemistry, agricultural chemistry, mineralogy, and organic chemistry. Having been awarded the Lowrie Scholarship he went to continue his studies at the University of California, where he obtained his M.Sc. degree.

"I took up the study of the alkali question in regard to irrigated areas for my research work," said Mr. West, in conversation with a representative of "The Advertiser." "In California there are vast irrigated areas in which conditions of soil, &c., are very much akin to our River Murray settlements. The two great dangers of irrigation are the rising of the water-table, and the accumulation of salt or alkali as they call it in America. In California thousands of acres have been laid waste and although we have had little experience of the trouble on the Murray areas, it is an ever present danger, and should be carefully guarded against. As regards the fruit from our irrigation settlements I saw nothing to beat it in

Mr. E. S. West.

California, and very little that could equal it. Right through America I saw neither peaches, nor apricots which could compare with our own. The famous Californian oranges are much smaller than our Renmark Navels, but they are of nice quality, and probably market all the more readily because of their smaller size. The average irrigation area held in California ranges in size from 15 to 50 acres, off which a good living can be made. Against this, however, there are enormous holdings of land held by foreign companies, very frequently with English capital, on which hundreds of men are employed.

"The dairying industry is very important in California also, and here and throughout America I found that the dairy cattle were, generally speaking, superior to our own. The Holstein-Friesian type was that mostly favored, and they would look at nothing else but Hereford for beef. American dairy farmers are most up-to-date in their methods. They are great believers in herd testing, and in most places the farmers of the district co-operated to purchase a really good stud bull. The system of co-operation and science applied to more than dairying, for it was common among farmers and fruitgrowers. Throughout America there was a keen scientific interest in farming, and farmers' sons everywhere were eager to go to the great agricultural colleges in every State. The State also took a great interest in the farming community, and in many cases expert advisers in the housewives' section were sent out by the Government. The installation of telephone services in nearly every district lessened the isolation of farm life a great deal, as did the frequent systems of co-operation among farmers in the purchase of small elevators to handle their grain. In California and Oregon, they are going over to the bulk handling of wheat, and railway trucks and steamboat holds are being rapidly converted for the purpose. Elsewhere the system is already in force." In Minneapolis, as in Australia, said Mr. West, if certain climatic conditions arose when the wheat was in the car stage, the chances of rust developing were about equal. They were tackling the rust question now. It was astounding to see the money that was spent on agriculture. At the Cornell College of Agriculture, New York State, they had outlined a building programme of a million dollars. A model dairy, which would include laboratories, &c., accounted for three-quarters of a million dollars.

Mr. West went across America by motor car, travelling from San Francisco to New York. "My main object," he said, "was to study agricultural conditions, so I adopted a zig-zag route covering 6,500 miles and occupying 3½ months. I went from San Francisco to Denver City, which is really set in an arid waste and is another triumph for irrigation methods. Salt Lake City is a wonderful example of what can be done in this way, for it also is in a desert. Only the co-operation of the Mormons in their early days could ever have achieved such results. In Minneapolis I saw an elevator capable of handling 2½ million bushels of wheat while a smaller one stores three-quarters of a million bushels, and there is a mill which will handle a million bushels. This gives them a storage capacity of 4,000,000 bushels. In eight hours they can unload 150,000 bushels. Bulk handling prevails in the state of Minnesota, and this accounts for the huge buildings. I went on to Chicago, where I visited the great wheat pits in the Board of Trade. There are four 'pits' for the wheat brokers, and the noise made by them is so great that a system of signs has been evolved, and in this way a deal worth millions of dollars may be conducted. From Chicago I went to Canada, and then to New York state, where I visited the great Cornell Agricultural College at Ithaca.

"Corn is the principal crop in America, and the land is cropped in this rotation—corn, corn, oats, and clover. All the manure is given to the corn, and the object is to replace the nitrogen in the soil. The corn is mostly used for feeding stock. Hogs may be put in to eat it down, or it may be stripped and husked. Kansas is in the great winter wheat belt, and for fifty years they have cropped and cropped the land with wheat, against all accepted theories, and are still getting a fair return. I visited many agricultural colleges and research centres in California, Kansas, and Iowa, besides the colleges at St. Paul (Minnesota) and Maddigan (Wisconsin), and in every case they were splendidly staffed and equipped. In California I studied with Professor C. B. Lipman, an authority on soil chemistry and bacteriology. In England I studied with Professor Biffen (Cambridge), an expert on plant-breeding, and at Rotherhamstead I visited the famous experimental station. At Aberystwith, Wales, remarkable work in plant-breeding is being done. At Svalof, in Sweden, I went over the most famous plant-breeding station in the world, and my only regret was that I could not speak the language of those splendid men in charge. Svalof was originally a private station; it is now State-owned. As a result of the research work carried out there the area under wheat cultivation in Sweden has been greatly increased. Seed-testing originated in Denmark, but there is now a splendid station at Cambridge for the purpose."

In Mr. West's opinion Denmark is the most efficiently farmed country in the world. Scientific farming is thoroughly understood and practised throughout the country. The main breeds of cattle are Danish Reds and Holsteins, and the dairies are up-to-date models of scientific efficiency. Their pigs are mostly of Danish breed, crossed with Yorkshire, and the result is excellent. Co-operative methods have been largely employed in Denmark, and to a lesser degree State aid has been available. Mr. West had also a high opinion of the Scottish farmer, who was a thoroughly practical man as a rule. With regard to Australian problems of irrigation and farming, Mr. West stated that there was room for wonderful development, and this would bring in turn the problem of marketing. For instance, with regard to dried fruit, it was nearly a year old before it reached the great English Christmas market. That was only one of the marketing problems, but he had no doubt they would be successfully solved. As regarded scientific farming, South Australia held a worthy place. The name of Farrow was honored among wheat breeders, and excellent work had been accomplished in this direction. It was only necessary now to apply the scientific facts of farming to everyday farm work in this State to achieve great results.

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Register 9.3.23.

A GIFFORD LECTURESHIP.

Honour has been conferred upon the University of Adelaide by the invitation to Professor W. Mitchell, M.A., D.Sc., its Vice-Chancellor, and Hughes Professor of Philosophy, from the University of Aberdeen, to deliver the Gifford lectures there in 1924 and 1925. There is the same lectureship at each of the four Scottish universities. The Gifford bequest establishing it is of quite a picturesque character. The late Lord Gifford left £80,000 for the purpose, viz., £25,000 to Edinburgh, 20,000 each to Glasgow and Aberdeen, and £15,000 to St. Andrews. The present lecturer at Edinburgh is M. Bergson, and at Glasgow Lord Balfour. Lord (then Mr.) Balfour was also lecturer at Glasgow for two years before the outbreak of the war, and published his lectures—on Theism—while the conflict was being raged. In the testamentary deed executed by Lord Gifford the purpose of his bequest is particularly declared to be—"Promoting, advancing, teaching, and diffusing the study of natural theology," in the widest sense of the term; in other words, "the knowledge of God, the Infinite, the All, the First and Only Cause, the One and the Sole Substance, the knowledge of His nature and attributes, the knowledge of the relations which men and the whole universe bear to Him, the knowledge of the nature and foundation of ethics or morals, and of all obligations and duties thence arising." It is stipulated that the lecturers need not belong to any religious denomination, and that they sign no test. They are appointed for two years, and may be twice re-appointed for another term of two years. The lecturer selects his topic, and gives ten lectures on it each of his two years. Then he has to publish them. The main obligation, indeed, is to publish, not to read, the lectures. In connection with the Aberdeen University, Professor Ernest W. Hobson, Sc.D. (Cantab.), F.R.S., &c., was the Gifford lecturer for 1921-22, and his immediate predecessors were respectively Mr. Clement C. J. Webb, M.A. (Oxford University), and Professor William Ritchie Sorley, Litt.D., LL.D. (Cambridge University). At Edinburgh M. Bergson is to be succeeded by Baron von Hugel, and altogether there have been several foreigners (as well as Professors James and Royce, from Harvard) in the lectureship. Otherwise all are from Great Britain.

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Professor Mitchell, Vice-Chancellor of the University of Adelaide, in referring yesterday to his appointment as Gifford Lecturer at the Aberdeen University, Scotland, said Lord Gifford was one of the judges of the Supreme Court—the Court of Session—in Scotland. At his death in 1887 he bequeathed the sum of £80,000 for the purpose of establishing a lectureship at each of the four Scottish Universities. The lecturer selected his own topic within a range so wide that it was hard to define. In the deed, Lord Gifford set it out in language that showed the characteristic Scotch predilection: "The knowledge of God, the Infinite, the All, the First and Only Cause, the One and Sole Substance, the knowledge of His nature and attributes, the knowledge of the nature and foundation of ethics or morals, and of all obligations and duties thence arising." The deed also assigned the choice of the lecturer in every case to the Senatus, which consisted of the professors. What they had usually done had been to select a man who would look towards the universal topic from the frontiers of his particular subject. "Perhaps," remarked Professor Mitchell, "a third or a fourth of the appointments have gone to professional philosophers, but there is variety enough. The present lecturer at Glasgow is Lord Balfour, at Edinburgh Bergson, who is to be followed by von Huegel, while at Aberdeen there is a pure mathematician, E. W. Hobson. I do not know who is at St. Andrew's—we have not its calendar. The lecturer is appointed for a term of two years and has to give ten lectures on his topic one year and another ten the next. But his main obligation is to publish them all. Hence there is already quite a library. Perhaps the course that excited most interest was the one given by William James, of Harvard, at Edinburgh. Most, however, are too heavy for anything like popular interest. Three of the Aberdeen courses are known to students of philosophy here: Ward's 'Naturalism and Agnosticism', Driesch's 'Science and Philosophy of the Organism', and Pringle-Pattison's 'The Idea of God'. My own invitation is from Aberdeen, and the dates I have got by cable are 1924 and 1925. That would not interfere very much with my work here, for the lectures could fall within the long vacations. But it was not for this that the council released me from my chair, and I shall have to drop the active part that I ought to take in securing funds for the Union Building, which is also to be the University memorial of our men who fell in the war. If only the new grounds for the Agricultural Society were ready, and the site of an acre for the Union definitely fixed, the campaign which Professor Henderson has inaugurated so well might actually be completed this year, and the student life of the University begin its new career with our jubilee."

Register 4.3.23

VISITING ENGINEERS.

Furniture Factory and Tramways Inspected.

Members of the Conference of the Institution of Engineers, Australia, spent Thursday visiting Pengelley's furniture factory at Edwardstown, the power station of the Municipal Tramways Trust at Port Adelaide, and the car depot at Hackney, followed by a tramway excursion to Henley Beach. Two parties went out in the morning. One, led by Professor R. W. Chapman and Mr. R. E. Jackson, caught a train to Edwardstown, where they were met by Mr. E. M. Mathias (manager of Messrs. A. Pengelley & Co.), and Mr. J. H. Morrish, and conducted over the extensive manufactory of the company. Refreshments were provided, and thanks were tendered to the firm. The other party caught the 8.48 train to Port Adelaide, and boarded a launch supplied by the South Australian Harbours Board. The Trust's power station was reached shortly before 10 o'clock, and after a tour of inspection and morning tea, the visitors returned to the city in time for lunch. This tour was conducted by Mr. W. G. T. Goodman (chief engineer and general manager of the Trust). The car depot was visited early in the afternoon, after which Mr. Goodman placed a special tram at the disposal of members for a trip to Henley Beach, where afternoon tea was provided at the kiosk. Mr. Goodman was complimented on the tramway system, and warmly thanked for his courtesy.

SOUTH AUSTRALIAN WATER SUPPLY.

On Thursday evening the South Australian Hydraulic Engineer (Mr. C. A. Bayer) addressed members on "The water supply of South Australia." The lecture was delivered at the Institute Lecture Room, North terrace.

The Chairman (Professor Chapman) said that the supply of water was one of the most important problems confronting the engineering profession. When it was realized that more than 83 per cent. of South Australia had a rainfall of less than 10 inches a year, it would be seen how vital was the question of supplying water to the dry and arid regions.

Mr. Bayer commenced his address by taking his audience back to the days when Adelaide's water supply was obtained by boiling water from the Torrens, and afterwards by means of a small pumping plant. Thornton Park, he said, was the first reservoir constructed for the city of Adelaide. Originally it held 142 million gallons. This reservoir was completed in 1860, and six years later the supply was extended to the principal streets of Port Adelaide. Hope Valley was in use in 1872. The rapid extension of the city, and the introduction of deep drainage made another reservoir necessary, and Happy Valley was constructed in 1891. Mr. Bayer described the difficulties experienced in the construction of the Happy Valley tunnel, which, he said, was more than three miles long. He also dealt with other aspects of the constructional work. Millbrook, commenced in 1913 and completed in 1917, he explained, discharged 250 million gallons in 24 hours. The measurements and methods of construction of this reservoir, which will be visited by members to-day, were explained exhaustively. Mr. Bayer said that the water supply systems of the State extended from Port Augusta in the north to Willunga in the south. The Tod River scheme would serve an enormous area. Other schemes outside the metropolitan area were touched upon by the lecturer, who declared that the area of supply of country lands in South Australia represented the biggest system in the world. The total mains laid for this purpose were 3,176 miles, and the area comprised in the various systems was 7,753 square miles.

The lecturer, whose remarks were profusely illustrated by lantern slides, was thanked by the meeting.

the State. Two things are needed—needed