

Java.

Java was one of the most interesting and important territories for tropical agriculture. No other tropical country could show such a wide range of products as such a high standard of intensive cultivation. The Dutch Government maintained a large department of agriculture with strong scientific branches, but in addition there were many private agricultural research institutes for each of the important estate crops. Almost every form and size of research institution existed, from those supported by public funds for the benefit of the whole community to the highly specialised research station maintained by a group of companies for the purpose of increasing the profits on the capital engaged in the industry. The famous sugar research station at Pusocoran, in Eastern Java, afforded a fine illustration of the manner in which a scientific research station could assist an industry. The sugar growers taxed themselves to the extent of 8/4 per acre—£114,000 per annum to provide funds for agricultural research. Since the establishment of this station the area under sugar in Java had been doubled, and the yield per acre increased by 60 per cent., so that the total output of sugar has been more than trebled.

Other Research.

In the United States, Canada, and South Africa stupendous sums had been provided for agricultural research and education. One of the outstanding results of scientific wheat-breeding in Canada had been the production by Dr. Saunders of the Dominion Experiment Farm of Marquis Wheat. That variety, a prolific early maturing wheat of good quality, had practically superseded all other varieties in Canada, and the spring wheat region of the United States. Canadian authorities estimated that the production of that one variety had resulted in an annual increase of 20 million bushels in the spring wheat areas of Canada, or approximately £5,000,000 per annum. That was a very handsome return for the expenditure incurred in agricultural research.

Two striking contributions from the United States were the discovery of the Babeck test for butter-fat, known to all dairymen, and the discovery that certain species of parasites were conveyors of tick fever in cattle—a discovery known to all medical men.

In South Africa the losses of cattle, sheep, and horses through disease had previously been enormous, but during recent years they had been almost entirely eliminated by the work carried out at the Animal Research Institute near Pretoria. The discovery of the causes and methods of control of virulent diseases of stock formerly prevalent in South Africa had enabled the pastoral industry to be placed upon a sound economic basis. It was estimated that the work of the Animal Research Institute near Pretoria had resulted in a saving of millions sterling per annum to the pastoral industry of South Africa, and had paid for the whole cost of agricultural education and research since the inception of the Union.

In every progressive country in the world it was recognised that research and education in agriculture was a fundamental necessity for sound progress, because they inevitably led to more efficient production, higher economic levels, and increased production from the land. The establishment of a comprehensive system of agricultural research and education must form the basis of any permanent scheme for agricultural development and advancement. Every bushel per acre added to the South Australian wheat harvest would bring in annually £600,000 more wealth. The total losses due to take-all and other fungoid diseases probably exceeded £750,000 per annum. There was one marked difference between Australia and other countries, in the general attitude towards agriculture. Countries like the United States, Canada, South Africa, Denmark, Japan, and Germany not only believed that agriculture was the basis of the country's wealth, but they translated that belief into action and expressed it in legislation. Those nations thought in terms of agriculture. The result was expressed in two ways:—(1) By liberal financial support for research and education. (2) By the adoption of long-range policies for steady, continuous development over long periods.

The phenomenal results which had been obtained in other countries by the application of science to agriculture would not be achieved in Australia until the same investment of funds was made for research and education as other countries had made, nor without the same strong belief in the ultimate outcome of the investment.

CROP PRODUCTION.

THE LAW OF DIMINISHING RETURNS.

Under the auspices of the South Australian branch of the Economic Society of Australia and New Zealand, a lecture was delivered in the Prince of Wales Theatre of the University on Monday evening by Professor J. A. Prescott (Waite Professor of Agricultural Chemistry) on "The law of diminishing returns and crop production." The lecture was illustrated with lantern slides. The chair was occupied by the Minister of Agriculture (Hon. J. Cowan), who said it was a pleasure to be identified with the work now being carried on so thoroughly and efficiently by Professor Prescott. Anybody visiting the Waite Agricultural Institute must be impressed by the work of Dr. Richardson and those associated with him. South Australia at one time was looked upon as the leading State in the matter of research work and scientific methods relating to agriculture, but Victoria subsequently took that credit. South Australia's turn, however, had come again, and with their agricultural research institute and colleges, they would undoubtedly see a great development in the industry. The professors now engaged in the work would assist very much in that direction. (Applause.)

The lecturer said the law of diminishing returns of the political economists owed its origin to the discussions that centred round the corn laws in 1814 and 1815. In its early form it stated that with the increase in the population of a country where the area to be developed was limited, the additional labor bestowed on any given area tended to be accompanied by a diminution in the returns for that additional labor expended. In a country such as Australia, where the development of agriculture was actively proceeding, there must be many parallels to the position in England after the Napoleonic Wars, but there was this very fundamental difference—in 1815, agricultural science as they now know it was non-existent, but there was already to be noted an awakening of scientific interest in the problems of agriculture. The discussion of the political economists was in itself evidence of this. In Australia they had had nearly a century of agricultural experiment to guide them, and so were able to postpone as long as possible that point where the law of diminishing returns began to exert its influence. Even from the view of the political economist they had hardly yet reached the point of saturation, and the development of new areas in this State was still controlled to a certain extent by the absence of transport facilities and by the absence of suitable stock and domestic water supplies rather than by the fertility of the soil, which was implied by the original law. The amount of additional capital needed for the development of water supplies on Eyre Peninsula, the development of irrigation on the River Murray, or the draining of the South-East, might well be worth consideration from the orthodox point of view, and were typical of the problems which originally gave rise to the formulation of the law he was discussing.

In order to find illustrations of the law under review, he had examined all the readily available records of field experiments conducted in Australia in which increasing doses of fertiliser or limiting factor had been recorded. He had selected for discussion experiments on the manuring of wheat and on the irrigation and manuring of lucern. He had attempted to find a relationship between rainfall and yield in many of these recorded experiments, and although there was a very high degree of correlation between the "useful" rain and yield in the Roseworthy experiments, the relationship was not sufficiently precise to express graphically. Similarly the relationship between rainfall and yield in any given year in the various counties in the State of South Australia were not sufficiently closely related to be capable of precise formulation, but only of generalised correlation. It was interesting to note that in their experimental work with superphosphate they were, in fact, varying at least two factors simultaneously. The plant nutrient they were interested in was monocalcium phosphate, but they were employing, in addition, proportional quantities of calcium sulphate (gypsum), which was known to have beneficial effects in certain circumstances, both from the point of view of the sulphur nutrition of crops and of its improving effects on general soil conditions. The separation of these two distinct factors was one which might be suggested for future investigation.

In conclusion the lecturer drew attention to an application of the law of diminishing returns in the study of the economics of crop production. He showed a diagram representing the profits calculated from the Rothamsted wheat yields in times of high and low prices. This diagram illustrated the dictum of Lawes that "high farming is no remedy for low prices." He had calculated for the South Australian data at Roseworthy the returns per acre at various prices per bushel, using the latest estimates available for the general cost of production. The most profitable application of superphosphate varied with the price of wheat from 1 1/2 to 2 cwt. per acre. He had had the opportunity at times of discussing the mathematical aspect of the law of diminishing returns with Mr. R. E. Fisher, the statistician at Rothamsted. Given a sufficient number of points, the mathematician could draw a curve from the known laws of errors which would represent the mean relationship between the yield of crop and the variable factor. Such experimental information would need the planning of special experiments, and it was hoped that before long opportunities would arise for the correct formulation of the law of diminishing returns as applied to the data of agricultural experiments.

Dr. Brown is a native of Mintaro, where he was born in 1868. He was educated at St. John's College, Cambridge, and took double first-class honours in the Law, Tripos. In the same year he won several important distinctions, and then headed the list in the examination for the degree of Doctor of Laws at the University of Dublin. Dr. Brown is the author of "The New Democracy" (for which the University of Dublin conferred upon him the high honour of D.Litt.). "The Study of Law," "The Austrian Theory of New Democracy," and "The Underlying Principles of Modern Legislation." His degrees are M.A., LL.D. (Cantab), LL.D., D.Litt. (Dublin). He was called to the Bar at the Middle Temple in 1891. He was professor of law and modern history at the University of Tasmania from 1893 to 1900, and then for 12 months filled the Chair of Constitutional Law and History at University College, London, and for the five subsequent years was Professor of Comparative Law at the University College of Wales. He succeeded Sir John Gordon as Chairman of the Commonwealth Sugar Commission when His Honor resigned in 1912. In 1906 he was appointed to the Chair of Law at the Adelaide University, an appointment he filled with eminent success. He resigned his professorship in 1916, when he was appointed to the Presidency of the Industrial Court. At that time he was also appointed Chairman of the Foodstuffs Commission, and the Prices Regulation Commission. From May 1 to October 31, 1923, Dr. Brown visited England for health reasons. He was also appointed to the Chairmanship of the Gas Commission about two years ago, the Act requiring that the President of the Industrial Board should occupy that position. Dr. Brown has always been a frequent contributor to well-known publications in all parts of the world.

DR. JETHRO BROWN.

Resignation Proffered.

Rumours current in the city on Tuesday regarding the resignation of the President of the Industrial Court (Dr. Jethro Brown) were confirmed soon after the House of Assembly met in the afternoon. Mr. Anthony asked the Minister for Industry (Hon. H. Homburg) whether it was true that the doctor had resigned. The Minister, in replying, quoted portions of a letter he had received from Dr. Brown. It read:—

"I find that the work of the Industrial Court and the Board of Industry in my present state of health is such that I very much regret that I must ask the Government to accept my resignation as President of the Industrial Court, and President of the Board of Industry."



DR. JETHRO BROWN.

Mr. Homburg added that he was sure the House regretted the necessity for the resignation of Dr. Brown. He subsequently stated that he was sorry on behalf of the Government to hear of the doctor's unfortunate illness.

Dr. Brown has not been in good health for some time. The President of the Industrial Court has many duties to fulfil. Apart from the jurisdiction of the Court to deal with matters submitted to it, he may, whenever in his opinion it is desirable in the public interest to do so, deal with industrial matters and disputes and summon all parties to attend conferences. When Dr. Brown was admitted to the South Australian Bar in 1912 the then Chief Justice (Sir Samuel Way) said he could not remember a member of the Bar, either here or in England, whose student career had been marked by higher achievements.

A Distinguished Career.

Dr. Brown is a native of Mintaro, where he was born in 1868. He was educated at St. John's College, Cambridge, and took double first-class honours in the Law, Tripos. In the same year he won several important distinctions, and then headed the list in the examination for the degree of Doctor of Laws at the University of Dublin. Dr. Brown is the author of "The New Democracy" (for which the University of Dublin conferred upon him the high honour of D.Litt.). "The Study of Law," "The Austrian Theory of New Democracy," and "The Underlying Principles of Modern Legislation." His degrees are M.A., LL.D. (Cantab), LL.D., D.Litt. (Dublin). He was called to the Bar at the Middle Temple in 1891. He was professor of law and modern history at the University of Tasmania from 1893 to 1900, and then for 12 months filled the Chair of Constitutional Law and History at University College, London, and for the five subsequent years was Professor of Comparative Law at the University College of Wales. He succeeded Sir John Gordon as Chairman of the Commonwealth Sugar Commission when His Honor resigned in 1912. In 1906 he was appointed to the Chair of Law at the Adelaide University, an appointment he filled with eminent success. He resigned his professorship in 1916, when he was appointed to the Presidency of the Industrial Court. At that time he was also appointed Chairman of the Foodstuffs Commission, and the Prices Regulation Commission. From May 1 to October 31, 1923, Dr. Brown visited England for health reasons. He was also appointed to the Chairmanship of the Gas Commission about two years ago, the Act requiring that the President of the Industrial Board should occupy that position. Dr. Brown has always been a frequent contributor to well-known publications in all parts of the world.

Retirement Regretted.

The Secretary of the Employers' Federation (Mr. G. Hebbert Boykett) said the retirement of Dr. Jethro Brown was to be regretted, especially as it was through ill health. He had appeared before Dr. Brown as advocate for the Employers' Federation on a number of occasions, and also met him in conferences between representatives of employers and employees, over which he presided, and always found him gentlemanly, competent, and highly courteous.

Mr. R. Frisby Smith, Secretary of the Law Society of South Australia, said that as a jurist Dr. Brown had served South Australia faithfully and well for many years, while many men in the profession to-day would remember him with kindly feelings as their professor and lecturer at the University of Adelaide. He had a world-wide reputation as a text-book writer, particularly on matters touching the principles of law and legislation. As President of the Industrial Court he conscientiously endeavoured to settle many of the industrial problems which had arisen in South Australia. It was to be regretted that ill-health, the result of his arduous labours, had necessitated his retirement from the Bench.

The President of the South Australian Labour Party (Mr. J. J. Daly) said the resignation of His Honor Mr. President Brown created a vacancy in the Industrial Court Judiciary which would be extremely difficult to fill. He possessed such exceptional qualifications for the office that his loss might be justly described as a national calamity. Arbitration was of vital importance to the nation, but it was difficult to find men who, while appreciating its importance, were prepared to use their talents towards its advancement. South Australia was privileged to have a man—a jurist and economist—who stood out as probably the foremost Judge in the Commonwealth Industrial Judiciary. His close attention to duty and his unswerving loyalty to his cause had apparently—temporarily he hoped—undermined his health. Mr. Daly said his sincere wish was that, relieved from the responsibilities of office, he would soon regain his former health and vigour, and that in the very near future he would be found laying down those sound progressive principles which had been up to now quoted with approval by wage-fixing tribunals in every part of the British Empire, and of America.

The secretary of the Trades and Labour Council (Mr. T. P. Howard) said he regretted to hear of the resignation of Dr. Brown. The learned Judge at all times had performed his duties as President of the Industrial Court in a most able manner. His judgments were literary gems which had been commented on all over the world. In his opinion, Dr. Brown was the most able Arbitration Judge in the southern hemisphere. His judgments would stand as monuments to his wonderful talent. All things considered, it would be difficult to find a man of the same ability, both as a lawyer and an author. He hoped that the illness of the doctor would be of short duration, and that he would live many years to enjoy the rewards of his labours. No doubt his illness had been brought about by his strenuous work in the Court.

The Police Case.

Dr. Brown's retirement will cause a temporary dislocation of business in the Industrial Court, for it is understood that his own list contained about 16 enquiries. Among them was the Police Association application, which was begun in June, and about which there have been several conferences. On Tuesday The Registrar (Mr. C. G. D. Bowen) had a consultation with the Deputy President (Dr. T. Hewitson) respecting the disposal of these cases, and the police case was discussed. It is stated, in the presence of Mr. J. J. Daly (advocate for the Police Association) and a representative of the department, that arrangements will be finalized during this week for the further hearing of the police application and other cases.

Mr. S. C. G. Wright, who has often appeared in the Industrial Court as an advocate for the employers, in a tribute to the work of the President said he very much regretted that the health of Dr. Brown was such as to necessitate his resignation from the Bench. No one but those who had practised in the Court could know how exacting was a Judge's work, nor how they appreciate the monumental task achieved by Dr. Brown since his elevation to the Presidency. Not only had his superior learning influenced the course of industrial relations in this State, but it had also received recognition in other countries.

SEEING THROUGH SOLIDS.

The Powers of Radium.

Professor Stanton Hicks gave the third extension lecture of his series on "The discovery of matter" at the University of Adelaide on Tuesday evening. He said the understanding of the relationship between ether and ponderable matter was greatly facilitated by experiments in electricity in high vacuum. From certain phenomena observed under such conditions it had been deduced that there must be "something" in a complete vacuum that conveyed the current from one end of a tube to the other. That something had been called by Professor Goldstein the