

except in cases of foolish extremes, the financial risk involved in his purchase system was small. The late purchase system was good for everybody. It needed to be intelligently operated. It needed a standard of living was raised, ambition was stirred, thrift cultivated, and for labour increased. Land, he promoted, small businesses were helped to operate efficiently and economically, rural dwellers were relieved from monotony, and competition was minimized. The dangers to be avoided were—The tendency to buy beyond present capacity and future prospects, and unsafe risks as a result of price fluctuations, or otherwise. The time would come when it would be necessary for the public distributors to cooperate with the small producers to stop the foolish trading some people indulged in.

A discussion followed.

Sir Josiah Symon

Next Tuesday Sir Josiah Symon will attain his eighty-first year. The eminent barrister was born at West Scotland. At 15 he was dux of the high school at Stirling, and later attended the Free Church Training College, Edinburgh. Before he was 20 he arrived in South Australia and was articled to his cousin, Mr. Traill, and was articled to Mount Gambier, Southland, and then leader of the South Australian bar, heard of the young man's legal skill and persuaded him to come to Adelaide and complete his articles in his office. Five years after landing in his colony he was called to the bar. Mr. Symon (afterward Sir Samuel) Way thereupon took him into partnership, and it was not long before the younger lawyer rose to first rank and became the brilliant leader of the legal profession in this State.

Apart from his long years of his State service in the courts, which gave him an Australian reputation, Sir Josiah was

DIMINISHING RETURNS

LAW FOR AGRICULTURE

Lessons From Experiments

By Prof. A. J. Prescott, Acting Director of Waite Agricultural Research Institute

In a State which is anxiously seeking methods of increasing returns it is somewhat depressing at first sight to learn that the political economists have developed a law of diminishing returns for special application to agriculture.

The law is an old one and owes its origin to the ideas of the Malthusian school of economists when discussing the corn laws as long as 1814 and 1815. In its original form it simply stated that when the area to be developed in a country is limited, the additional labor or capital necessary to produce any further increase in the crop becomes greater and greater.

A full understanding of the law later showed, however, that the point at which

then the second addition, but cases where law of diminishing returns holds throughout seem to be more common.

A large number of Australian experiments, particularly with superphosphates, on wheat, on Victoria, and South Australia, afford illustrations of this law. The maximum average crop under the experimental conditions of fertility can be calculated to be in the neighborhood of 27.7 bushels.

The most profitable dressing of superphosphate with superphosphate at 45 tons and wheat at 4 1/2 bushels is 1.34 cwt. with wheat at 5 1/2 per bushel it is 1.29 cwt. and with wheat at 6 it is 1.27 cwt. Similar results are obtained in the case of other experiments. At Werribee, in Victoria, wheat at 5 1/2 the most profitable dressing of superphosphate yields an average increase of 2.54 cwt.

Another interesting illustration of the law is afforded by experiments on the effect of lucerne at Werribee. Lucerne with no yield at all, a rainfall of 16 in. and no irrigation, the yield of lucerne has been found to be 200 cwt. an acre with a yield of 100 cwt. when the rainfall and irrigation was freely supplied in all about 45 in.

Each successive inch of water produces a smaller increase in yield than the preceding inch, and from a mathematical standpoint it is not possible to predict the amount of irrigation water in the most profitable manner.

REG. 27-9-27

The Rev. and Mrs. R. K. S. Adams have arrived at Singapore. They entered into residence there at St. Andrew's College on Monday. Mrs. Adams recently resigned his position as a member of the teaching staff at St. Peter's College, Adelaide, having been appointed housemaster at St. Andrew's College.

REG. 27-9-27

FIFTY YEARS AGO.

From The Register, Tuesday, September 25, 1877.

Messrs. Colton and Fowler, the trustees of the South Australian Commercial Travellers' Association, have given their sanction to the committee for the purchase of a perpetual free scholarship in the Adelaide University, the object being to secure the education of the son or daughter of any member of the association.

MAIL 24-9-27

The Chief Justice

Sir George Murray, Chief Justice and Governor of South Australia will celebrate his sixty-fourth birthday to-day. Sir George, who is a member, and inherited wealth, resides at Murray Park, Maitell, where he was born. His father, the late Alexander Borthwick Murray, M.L.C., was a member of the House of Murray Park in the early days.

After winning the South Australian scholarship at Adelaide University in his seventh year, he went to Trinity College, Cambridge, where he was bracketed senior in the law tripos and



SIR JOSIAH SYMON

a prominent personality in the National Convention that framed the Commonwealth Constitution. Afterward in the Adelaide and rendered great national service during his 13 years of senatorship. Twice he topped the senate poll in his State.

Sir Josiah's entry into Parliament goes back 40 years. When the late Mr. Justice Buxley retired from the Morgan Ministry on March 10, 1881, Sir William Morgan selected Josiah Henry Symon to fill the vacant portfolio of Attorney-General.

That was a month before the general elections, but Mr. Symon, although not then a member of Parliament, was eminent in his profession, and he was chosen the following month for Sturt. He took his seat in the House of Assembly on the same day as Sir Lancelot Stirling (now President of the Legislative Council) was sworn in as member for Mount Barker.

Sir Josiah held his portfolio for three and a half months, until the Ministry which had been nearly three years in power went out of office. He sat for Sturt for six years. Not until Australian Federation 16 years later was he again in Parliament. An ardent Federalist and stalwart champion of State rights, in the Convention of 1897-8 he was returned triumphantly to the first Commonwealth Parliament, and represented his State for nearly 13 years in the Senate. For about 12 months he was Federal Attorney-General.

NEWS 27-9-27

University Examination Fees

"Hard-up Scholar." Brinkworth:—As a scholar sitting for the forthcoming University examinations I was surprised to learn how much the fees had been raised. As far as I can see all that is needed is money for the payment of paper, superintendence, and perhaps the hire of chairs and benches. This should not require more than 8/ from each student.

What happens to the other 21/ 10/ and the 10/ from leaving and leaving honors? Could any authority inform me?

(Mr. F. W. Eardley (Registrar of Adelaide University) stated that the figures quoted were by no means representative of the cost of conducting an examination. Examiners had to be paid. Surplus funds of public examinations in general education were paid into the general account of all examinations. The surplus from musical examinations was earmarked for the encouragement of musical education.)

SIR GEORGE MURRAY

At some 20 years later he took the LL.M. degree at Cambridge. Mr. Murray had graduated in Adelaide, and won a high place in his profession.

In May, 1812, he was raised to the Supreme Court Bench, the first South Australian born to be so honored, as he was the first graduate of Adelaide University to be appointed King's Counsel.

Upon the death of Sir Samuel Way he and Chief Justice, his Honor was appointed to succeed his old chief. In the same year he was appointed an Associate of the Governor and Counsel as Lieutenant-Governor. In 1824 he was the United

LIME FOR AGRICULTURE

Prof. J. A. Prescott, M.Sc., Acting Director of Waite Research Institute.

This increasing effort would be required can be postponed, but not indelibly. By the increase in human knowledge and by improvements in field practice.

At present we have the advantage of nearly a century of scientific investigation to guide us, the first field experiments of which we have any record being conducted in Alcester by Boussingault about 1834.

The political economist had concerned himself mainly with the problems of land, labor, and capital, but the earliest experiments on the manuring of wheat at Rothamsted showed that the law of diminishing returns could be applied equally well to problems of manuring.



PROF. J. A. PRESCOTT, M.Sc.

The first attempt to explain the effect of a fertilizer on a crop was that made by the famous chemist, Liebig. He assumed that the yield of the crop was exactly proportional to the amount of plant food supplied by the fertilizer. Liebig's experience proved that not to be the case. He was able to emphasize one important factor, however, which became known as the Law of the Minimum, and which was closely related to the conception of limiting factors introduced much more recently by British botanists.

According to these ideas, the yield of a crop or the growth of a plant is not determined altogether by the amount present of any given nutrient factor, but by the least factor which is present in the minimum amount.

As an example we may take the case of lucerne. Without irrigation the application of superphosphate will increase the yield up to a certain point only, as then quoted were by no means representative of the cost of conducting an examination. Examiners had to be paid. Surplus funds of public examinations in general education were paid into the general account of all examinations. The surplus from musical examinations was earmarked for the encouragement of musical education.)

Effect of Fertilisers

In the now famous Broadbalk wheat experiment the average yield of the first eight years (1841-1882) showed that with an unmanured yield of 18.3 bushels the first 43 lb. of nitrogen as ammonium salts gave an increase of 15.3 bushels, while each successive equal dose gave increases of only 8.5, 1.9, and 0.5 bushels.

Returning to Australia he performed work for various firms and was joint author of the book "The Soil of Victoria." As State Agricultural Chemist, Mr. Jeffers has conducted much analytical and experimental work for Roseworthy, Victoria, taking the place of Mr. Jeffers, the Agricultural Bureau, and for farmers. He has investigated soil, water, fodder, for the best method of growing lucerne, fruit, and wine, and stock.

Limiting Factors of Growth

In the same way the growth of a crop may be limited by rainfall in one district and by temperature in another, or even the same crop may be limited in its growth by different factors at different times of year.

Sir John Howell, of Rothamsted, has pointed out cases in the Rothamsted experiments where the first addition of fertilizer gives a greater increase in yield

NEWS 27-9-27

USE MORE LIME

Advocacy of Chemist

RESEARCH AT ROSEWORTHY

"I believe the future will see a great increase in the use of agricultural lime, limestone, marl, and gypsum in our soils," declares Mr. J. T. Jeffers, State Agricultural Chemist and lecturer at Werribee, Victoria.

"The limiting factor for crop production is moisture," he continued. "We cannot increase our rainfall, but we can conserve the moisture in the soil by procuring a good mulch."

Lime, he continued, was the best material to procure this in our heavier soils. Local deposits of lime rubble and marl should be used to a much greater extent than at present.

Born in Sydney in 1881, Mr. Jeffers was educated in Britain, Prince Alfred College, Adelaide, the University of Adelaide, and Roseworthy College. He graduated as a Bachelor of Agricultural Science. He is also an associate of the British and Australian Institute of Chemistry.

Experience in Other States

Following his academic education, Mr. Jeffers spent two years wheat and sheep farming at Timbarra. As the land was too new he migrated to Western Australia, where he spent three years as an assistant Government Agricultural Chemist and Analyst. His next move was to Queensland, where he was two years as an assistant Agricultural Chemist, and year instructor in chemistry and botany at the Gatton Agricultural College in the northern State.

When he came to Australia he did a large amount of work in chemistry for the British Government in England.

Returning to Australia he performed work for various firms and was joint author of the book "The Soil of Victoria." As State Agricultural Chemist, Mr. Jeffers has conducted much analytical and experimental work for Roseworthy, Victoria, taking the place of Mr. Jeffers, the Agricultural Bureau, and for farmers. He has investigated soil, water, fodder, for the best method of growing lucerne, fruit, and wine, and stock.

Patent Work

The work of research chemist is a task of long and continuous experiments. In tending over three years Mr. Jeffers has been taking the place of Mr. Jeffers, the Agricultural Bureau, and for farmers. He has investigated soil, water, fodder, for the best method of growing lucerne, fruit, and wine, and stock.

"Picking wheat is another problem of which the State Agricultural Chemist at Werribee has been working. He has established a series of trials, and has ascertained that the old web limestone method of picking wheat is a serious loss of picking wheat. Copper and iron and small iron are better picking agencies.

"Hundreds of thousands of pounds have been spent on opening up new lands in the soil is deficient in nitrogen and organic matter beside being burdened with superfluity of salt.

"The energies of the Roseworthy staff are being devoted to solving the problem.