



INSECTPROOF GLASSHOUSES at Waite Research Institute used in experiments.

specially constructed insect-proof glass-houses, and the tomato growers inspected them.

At the conclusion of the visit Mr. J. Donaldson and Mr. L. J. Wicks, on behalf of the visiting producers expressed their thanks. The party was organised by Mr. W. J. Kimber, secretary of the South Australian Fruitgrowers and Market Gardeners' Association.

REG. 21 9-27 FIFTY YEARS AGO.

From The Register, Wednesday, September 19, 1877.

Mr. David Nook... in the House of Assembly on Wednesday, October 3:— "That in the opinion of this House the Government ought to take early steps for making a thorough geological survey of this province."—In accordance with a resolution of the House of Assembly passed on the motion of Mr. J. J. Duncan, a return of the number of live stock imported into, and exported from, the province during the year December 31, 1876, has been laid before Parliament. During that year the imports were as follows:—Cattle.—By sea, 22; across the border, 4,449; total, 4,471. Sheep.—By sea, 18; across the border, 29,641; total, 29,659. The exports were:—Cattle.—By sea, 13; across the border, 250; total, 272. Sheep.—By sea, 75; across the border, 1,076; total, 1,151.—The Council of Education have resolved on the motion of Mr. J. L. Parsons to appoint a board of examiners, consisting of two inspectors, the Principal of the Training School, and a professor of the Adelaide University to conduct the examination of teachers and candidates for positions under the council.

NEWS 22-9-27

NUTRITION LABORATORY

Building at University

A contract has been let to Fricker Bros., Croydon, for the building of a nutrition laboratory for the Commonwealth Council of Scientific and Industrial Research in the grounds of Adelaide University. The building will abut on the bowling green on Victoria Drive, and will measure 110 ft. by 60 ft. It will comprise two stories, and will be constructed in brick with cement dressings and red tiled roof to harmonise with the scheme of the buildings adopted by the University Council for the Victoria Drive frontage of the University. The contract sum is £10,314, but this does not include laboratory fittings. The building will be used for research work on the nutritive values of various foods for stock. It is expected that it will take 10 months to erect. The architects are Messrs. Woods, Bagot, Jory, & Laybourne-Smith, Richards Building, Currie street.

REG. 24 9-27

ENCOURAGING RESEARCH.

Competent scientific investigators are being invited by the Commonwealth authorities to submit applications for grants to the trustees of the research fund of £100,000 created last year by the Federal Parliament. Under the terms of the Science and Industry Endowment Act it is provided that the income from the investment of this sum shall be applied to provide assistance (1) to people engaged in scientific research, and (2) in the training of students in scientific research. The trustees of the fund are the executive committee of the council for Scientific and Industrial Research. A large portion of the income for the present year has already been expended in providing for the training of a number of Australian graduates who are at present working under scientific leaders in Great Britain, the United States, and New Zealand. If their work warrants it, these graduates will later be appointed to the technical staff of the council. It is expected that for some years the major portion of the income will be required for assisting research students, though the amount used in this way should gradually decrease. For the present year, it was ascertained on Friday, the sum of £1,200 has been set aside by the trustees to assist people engaged in scientific research. It is believed, though the individual grants must necessarily be rather small, that many experienced scientific workers would welcome aid in obtaining equipment and in meeting other costs of research. Grants will be made only to investigators of proved capacity. The merit of each proposed line of research will be judged independently of any applied significance which it may possess. Applications should be sent to the secretary to the trustees endowment fund, Albert street, East Melbourne.

"SPOTTED WILT"

DEVASTATING DISEASE IN TOMATOES.

ITS CAUSE DISCOVERED.

A TRIUMPH OF SCIENTIFIC RESEARCH.

Through the discovery by Mr. H. A. Pittman, of the Scientific and Industrial Research Council, that spotted wilt in tomatoes is caused and transmitted by a species of thrip, the way has been opened for the discovery of curative and preventive measures.

When interviewed yesterday afternoon in connection with the exhibit of plant virus diseases now being displayed by the Waite Institute at the wild flower show at the Town Hall, Mr. H. A. Pittman, an officer of the Commonwealth Council for Scientific and Industrial Research, and discoverer of the insect vector of the "spotted wilt" disease of tomatoes, said:—

"We are trying at the Waite Institute, in the insect-proof glasshouse, erected by the Council for Scientific and Industrial Research, to investigate the cause, method of transmission, and, if possible, the con-



Mr. H. A. Pittman.

trol of the spotted wilt disease of tomatoes. This disease is the most serious to which the tomato is subject, causing considerable loss annually to the tomato-growers throughout the Commonwealth. The disease differs from the great majority of plant diseases in that it does not appear to be caused by any fungal or bacterial parasite. Indeed, the cause of the disease would appear to be so small as to be invisible, even with the highest powers of the microscope. That is to say, spotted wilt is, in all probability, a virus disease; virus diseases being infectious, or experimentally-transmissible diseases, induced by causal agents so small as to be ultra-microscopic. Virus diseases are well known among animals. For example, we have measles, infantile paralysis, hydrophobia, and trench fever in man; and in animals, swine fever, hog cholera, dog distemper, vaccine, and a number of others. In none of these diseases have any demonstrable casual organisms ever been found, and the consensus of opinion amongst pathologists is that the parasites causing these diseases are ultra-microscopic.

"Among plants the best known virus diseases are the bunchy top disease of bananas, curly top of sugar beets, aster yellows, peach yellows, little peach and peach rosette, the various mosaic diseases of the potato, tomato, and tobacco, and apparently also the spotted wilt disease of tomatoes. The most outstanding characteristic of the majority of these plant virus diseases is that, in many cases, if a diseased plant be crushed up and the sap injected into healthy plants, the healthy plants will, in all probability, contract the disease, and show symptoms within 21 days. All attempts to transmit spotted wilt in this way, however, have failed, and experiments conducted at

the Waite Institute have shown that there is a very little likelihood of the disease being transmitted through the agency of the seed or soil. Attempts to transmit the disease to healthy plants by means of aphids, leafhoppers, red spiders, and white fly have also failed, although large numbers of insects and plants were used, and all the insects experimented with were first fed for considerable periods on diseased plants before being transferred to the healthy seedlings."

After months of effort, however, Mr. Pittman has discovered that the spotted wilt disease is transmitted from plant to plant by means of a small species of leaf-sucking thrips, known as the onion or rose thrips (thrips tabaci).

Some of the plants in which the disease has been induced by means of the onion thrips are to be seen at the flower show, alongside other plants of the same age grown under identical conditions as controls on to which no thrips were placed. The contrast is exceedingly marked, and all tomato growers are advised to visit the flower show at the Town Hall and see the remarkable results of Mr. Pittman's experiments. Several other virus diseases of tobacco, the tomato, and the potato are also exhibited.

REG. 27-9-27

TIME PAYMENT.

Discussed by Economic Society.

Instalment finance, or consumer credit, or time payment, was discussed at a meeting of the Economic Society, held at the University of Adelaide, on Monday night.

There was a large attendance in the Prince of Wales Lecture Theatre, The Hon. W. Hannaford, M.L.C., presided.

449 Per Cent. Interest.

Mr. Gavin Lucas, of the Australian Mutual Provident Society, in discussing the subject from a general viewpoint, including that of the banker, said time payment was as old as the hills, and life assurance companies were among the worst offenders. Merchants bought on bills, and sold to customers on credit. Land and motor car sales followed the same principle. At one time the possession of a car was considered to be an evidence of wealth; now it was often evidence of a big liability. The interest made by some cash order companies amounted to 229 per cent., and in one case investigated by the Commonwealth Statistician was 449 per cent. A careful man, who budgetted his finance, could safely mortgage three-quarters of his income and come out at the end of a year with a comfortable little balance, having enjoyed luxuries and necessities. On the contrary, there was the spendthrift. The importer said he must have time payment for himself and for his customers, while the manufacturer said time payment was ruining him. America was supposed to be a horrible example of time payment. It was said that a man would mortgage his house to buy a car, mortgage the car to buy a garage, and pledge the garage for running costs. Probably a saturation point must be reached, and it seemed to him that there must be a final crash. If the system encouraged thrift it should be fostered, but if it encouraged extravagance it was harmful. The house to house canvass for cash orders induced useless, extravagant buying. The discount of up to 15 per cent. which the cash order companies received from the traders would be passed on to the consumer in increased prices. The great point was whether the purchase was a wasting asset. What was good for America might not naturally be good for Australia, as a debtor nation, with less purchasing power, only a primary producer, subject to droughts, and the price of her products fixed abroad.

Intelligent Operation.

Mr. F. J. Cole, managing director of S. A. Cheney (South Australia), Limited, read a paper for Mr. H. A. Wheeler, of S. A. Cheney (Victoria), Limited, dealing with the subject from the distributor's point of view. It stated that the hire purchase system applied to the motor car business had so developed in five or six years that it probably determined three out of every four sales. Its advantages mainly applied to persons of moderate means. There were disadvantages and dangers in it; but the advantages so far as motor cars were concerned were the cultivation of ambition and thrift, healthy out of doors, strengthening of family ties, and a big increase in the pleasure of living. The handling of hire purchase business called for prudence in the interest of the dealer, the finance company, and the client. At present repossession were not a serious item, and losses were negligible; but if as the result of competition a large amount of orders were booked on low deposits and long terms with inadequate investigation of prospective clients, there would be a crop of losses and consequent injury all round.

ADV. 21 9-27

SCIENTIFIC RESEARCH.

MR. JULIUS'S INVESTIGATIONS

LONDON, September 20.

Mr. G. A. Julius, chairman of the Commonwealth Research Council in London, has returned after spending seven weeks in the Provinces and Scotland, inspecting the agricultural research stations. He pays tributes to the work of two wool research institutes at Leeds, one conducted by the university, and both Government subsidised, and will hold a conference with them at the end of the month with a view to Australian affiliation. Dr. A. E. V. Richardson, Director of the Waite Agricultural School at Adelaide, will also attend. Everywhere Mr. Julius found the research workers anxious to know what Australia was doing, and glad to know it had taken up agricultural research so thoroughly.

ADV. 22-9-27

PLANT DISEASES.

A CENSUS TO BE PREPARED.

Melbourne, September 21.

The question of crown gall, or hairy foot, in apple orchards occupied the time of delegates at the final session of the inter-State conference of plant pathologists to-day. Professor T. G. Osborn presided and delegates were present from all the States. It was stated that the appearance of crown gall, or hairy foot, had caused concern among growers. Consignments of apple trees worked on Northern Spy stock had been rejected at the Queensland border owing to the alleged presence of the disease, but Victorian pathologists were convinced that no disease was present.

A plant disease census will be prepared, indicating the distribution and severity of plant diseases throughout the Commonwealth.