

SOUTH AUSTRALIAN RESULTS ALREADY

Agricultural Research

WORK OF THE WAITE INSTITUTE

Discoveries in Six Months

The most optimistic advocate of the Waite Agricultural Institute did not expect results from scientific research under Professor Richardson in a few months, but surprising as it may be, the Institute has already made several important discoveries which promise to have far-reaching effects upon agricultural and pastoral pursuits.

Although research work at the Waite Agricultural Institute has been in progress for only six months a discovery of a highly important nature has been made. The reputation of Professor A. E. V. Richardson stands so high as to obviate any need for a review of his career in this article. He is intensely interested in his work and exceptionally enthusiastic. Indeed, it is probably only these things, and his long vision, which have attracted him to the position, when probably more lucrative employment is open to him in Australia and other parts of the world. Research is necessarily a long process. The scientist engaged in such original work has generally no point to start from, and no object to aim at. The only thing he may know is that there is a problem to be solved, a disease to be diagnosed or the cause to be ascertained. Consequently it is almost impossible to avoid taking false trails at times, and disappointments are inevitable.

It is very satisfactory therefore to "The South Australian" that it is in

"Yes," said the pressman, "I think I know that stuff."

"Try a little on your hands," said Mr. Trumble, with a laugh.

The reporter knew enough about sulphuric acid to take the effect for granted, without a demonstration.

Professor Richardson procured a small flat glass tray, and on this he placed a little of the seed from the tin. "This," he said, "is the seed of Wallaby grass, one of the principal native grasses of Australia and New Zealand, and excellent fodder herbage."

Something to Marvel At

He poured the sulphuric acid upon the seed until the latter was completely immersed.

"You will not see much change for about a minute," remarked Mr. Trumble.

"You would expect to see the seed instantly destroyed," said Professor Richardson.

The pressman watched the liquor with the closest attention. Soon the frail husks of the seed began to turn to a dark color. Professor Richardson stirred the liquid slowly with a glass pestle, and displayed almost as

RESULTS ALREADY

(Continued)

much interest in the transformation which was taking place under his eyes as did the uninstructed layman.

In the course of two or three minutes the husks entirely disappeared and minute seeds remained in suspension in the liquid quite bare of their natural covering.

The Professor is an exceptionally interesting talker.

"It seems," he said, "that this covering, or shall we call it cocky-chaff, is provided by Nature so that the grass will not germinate with light rains, for in that case it would spring at any season of the year when rain fell upon it. Consequently Wallaby grass seed is difficult to germinate under artificial conditions, apart from the difficulty of sowing it. The trouble in getting the seed to strike is one of the principal factors militating against the sowing of pas-

toral lands with this grass. This experiment is as yet not complete. We have proved, however, that the sulphuric acid eats off the shell, and leaves the seed in its naked state like wheat or clover. We have also proved that although the husk is so quickly eaten away the seed does not in any way deteriorate by the action of the acid. Indeed, it seems to be improved, if only because of the removal of the husk."

Mr. Trumble came forward with a wet pad of felt, on which there were three rows of shooting grass.

"This," he said, "is Wallaby grass grown from seed treated with sulphuric acid. In the first row the seed was given five minutes' treatment, in the second row the seed was in the acid for 10 minutes, and the seed in the third row for 20 minutes."

In the first row every seed had germinated and the young plants were standing up strong and vigorous. In the second row there were some failures, and the growth was not so good. In the third row much of the seed appeared to have been destroyed.

"You will see," Professor Richardson remarked, "that by these tests we have ascertained the length of the period of treatment required. Five minutes' immersion gives the maximum benefit without any deleterious effect upon the seed."

Its Practical Application

This discovery was made only a fortnight ago, and is new to science. The next thing is to apply the knowledge gained to practical agriculture.

A method of treating the seed in the acid in large quantities has yet to be found, for the seed is light and floats, but already an idea has been evolved of forcing the seed down into the acid by covering it with a sieve of porcelain. Then the best method of washing after treatment to remove the acid must be ascertained so that this can be done on a large scale. It is the desire of the Institute to devise a scheme by which the seed can be treated, dried, and stored, so that if need be seed merchants could deal with it on a wholesale scale, and sell it to the land owners as required. With the chaff removed this seed would run through a drill when added to artificial manures.

The possibilities in this discovery made in the infancy of the Waite Institute are difficult to estimate.

What Might This Not Mean?

Excellent work has been done in the Pathological Laboratory in the direction of ascertaining the causes of plant diseases, and there again, a valuable discovery has already been made. There is an unknown disease of oats in the south of the State, and the Department of Agriculture asked the Waite Agricultural Institute to cooperate in carrying out the investigation. That was at the beginning of the present year. Mr. G. K. Samuel (Plant Pathologist) has done exceptionally good work in the study of this problem, and has discovered already that the disease is apparently due to a bacterium or two bacteria. He has isolated the bacteria and has cultures of them, and he is now at work in the South-East, endeavoring to discover a treatment for the cure of the disease. This may possibly take a long time, but the principal problem has been solved in the discovery and isolation of the bacteria.

As in the case of cancer, it is considered that once the cause is known the devising of a method of treatment of disease is certain. This is an exceptionally destructive disease, and

9.28.
oats have died by thousands of acres in the South-East every year.

Professor Richardson remarked, "There seems to be little doubt now from what Mr. Samuel has done that the disease is due to one or both of these bacteria."

Interesting to Farmers

Very interesting tests are being carried out at the Institute with the idea of ascertaining the best wheats to resist "take-all." The process is to sow wheats of the different varieties with straw having the "take-all" disease. The seed is sown in contact with the diseased straw.

There is a plot of ground devoted entirely to this experiment, and Professor Richardson took the pressman to it, and explained the work that is being done. It was noticeable that in all cases many of the plants had been killed by the disease, but a few had lived and were growing healthily as if entirely unaffected.

Tests will be made with these in successive years. But there is a curious point about the method of cultivation in this plot. In one case the soil was dug over and the seed was sown without any firming down of the earth. In another plot the soil was rolled and consolidated after the seed had been sown, and in the third plot the surface of the soil had been merely scratched and the seed put in.

Conditions of sowing in each case were similar in that all the seed was sown with diseased straw.

In the case in which the ground was only dug over very few of the plants had survived. Where the soil had been consolidated after being dug the effect was most marked in the large number of the plants and the strength and healthiness of the growth. Even where the ground had been scratched and the soil consolidated after sowing there was a better result than in the case in which no consolidation had

taken place. This in itself is an interesting point for farmers.

Smut in Wheat

In another bed experiments are being made with a view to the discovery of the best fungicide for the control of smut in wheat.

Here Mr. Samuel is growing wheat which has been pickled in copper carbonate and comparing the results with wheat pickled in formalin and blue-stone, the latter being the popular methods. These experiments may possibly lead to results of the utmost importance to agriculturists.

Manuring Grass Land

Driving over the beautiful Urrbrae estate, which looks a perfect picture with its growth of green grass interspersed by fallow and dotted with superb gum trees, one field was inspected which is a source of great satisfaction to Professor Richardson. This field was top dressed in strips with superphosphate 186 lb. to the acre, leaving between each manured strip an equal area of untreated land. The effect of the use of super on the natural grass was quite remarkable, and the contrast between the untreated and treated strips most striking. Where no manure had been used the herbage was stunted and poor looking, with almost an entire absence of noticeable clover and trefoil—valuable fodder grasses which grow over a large area of grazing land in the more favored localities of the State. Where manure had been used all the grasses were growing luxuriantly and it looked as if the carrying capacity of the land was increased three-fold. In all, 50 acres have been top-dressed in this way, and the same result has been obtained everywhere. No grass of any kind was sown.

It will be clear to any pastoralist that, if he can treble the carrying capacity of his pasture land at a cost of 9/- per acre, which is about the outlay on the land treated by Professor Richardson, this simple test may have the most remarkable results on the future of the pastoral industry.

A Useful Fence

When inspecting some tests in the germinating value of fodder grasses the pressman was conducted into a fenced enclosure. Professor Richardson said, "Here is an ornamental fence and also a very useful one. It serves the purpose of a fence, and you will notice it is composed of pipe, posts, and wires. The pipe is connected with the water system, and here you have an economic method of getting a nice fence and of reticulating water."

ARGUS. 19.8.25 (Melb)

SCHOOL OF FORESTRY.

POSITION OF VICTORIA.

Hesitation Causes Surprise.

The Minister for Home and Territories (Senator Pearce) replied yesterday to remarks made on Monday by the Victorian Minister for Forests (Mr. Richardson, M.L.C.) regarding the Commonwealth School of Forestry to be established at Canberra. Senator Pearce repeated his assertion that Victoria had not given any indication of its views and intentions in regard to the Commonwealth's suggestion. All that Victoria had done was to suggest that before any steps of a definite nature were taken by the Commonwealth Government, a conference of Ministers of Forests of the various States should be held in order that the question might be discussed from all points of view.

"I am unable to appreciate the reasons underlying that suggestion," said Senator Pearce. "The whole matter has already been the subject of a number of conferences, at which all aspects of the question have been exhaustively discussed. The necessity for a central school of forestry has been repeatedly affirmed. The scope of the school and the qualifications for entrance were laid down by the Interstate Forestry Conference of April, 1923, which also recommended that the school should be established in New South Wales. The Premiers' Conference of May, 1920, endorsed the principle of an Australian School and the proposals regarding its location and control. In January, 1921, a council of foresters met in Sydney, and recommended a definite site for the school, in a locality about 60 miles from where it is now proposed to establish the school, and in country where similar forest and climatic conditions prevail. Representatives of New South Wales, Victoria, South Australia, and Western Australia were present at that meeting.

"The Governments of New South Wales and Western Australia have intimated their intention of supporting the Commonwealth's proposals, and of nominating students for training at the school, and for subsequent absorption in their forestry services. All that is asked of the Victorian Government is to fall into line with these Governments. It is not asked to incur any financial liability in connection with the training of the students, and I find it difficult to understand why it should hesitate to participate in the benefits of the scheme."

Queensland Proposal Discounted.

PERTH, Tuesday.—The State conservator of forests (Mr. S. E. Kessell, referring to the Queensland proposal to send men to Oxford for training in forestry, said it would provide a leavening of skilled men, but it would produce a large number of half-trained men. An Australian school would give an opportunity of establishing a fully trained professional staff. A gum tree was a gum all the world over, but the eucalypt was a very different thing from the oak. The history of forestry in Australia up till recent years made very sorry reading. The only way to put it on a proper footing was to train men, and this was the proper function of the Commonwealth Government.

ARGUS. 19.8.25.

PROPOSED FORESTRY SCHOOL.

Ministers' Conference Suggested.

Before deciding on its stand regarding the Federal Ministry's proposal to establish an Australian forestry school at Canberra the Victorian Ministry is awaiting the decisions of the other States.

In making this announcement yesterday the Minister for Forests (Mr. Richardson) said that he was surprised at the statement of the Minister for Home and Territories (Senator Pearce) that Victoria was among the States that had not yet replied to the Federal Ministry's proposal. A letter had been sent to the Prime Minister (Mr. Bruce) supporting the suggestion that, before the States committed themselves to support the proposed school, a conference of the Ministers for Forests for all of the States should be held to discuss the question. No reply to that letter had been received. If most of the States favoured the establishment of such an institution he would bring the matter before Cabinet without delay, and he thought that it would be decided to fall into line with the other States.

Tasmania's Position.

HOBART, Monday.—Dealing to-day with statements made by the Minister for Home and Territories (Senator Pearce) concerning the failure of several of the States to nominate students to undergo a course at the Commonwealth Government's forestry school, the conservator of forests (Mr. L. G. Irby) said that so far Tasmania knew very little about the school, its working, and objectives, except in a very general way. Senator Pearce, in his statement, said that the Commonwealth forestry adviser (Mr. C. E. Lane-Poole) had visited all States with the exception of Tasmania. Mr. Irby said that more information was required before anything could be done.