

VALUE OF RESEARCH.

"The Road to Progress."

University and the Community.

At an address before the members of the Adelaide Rotary Club, on Friday, Professor R. W. Chapman (Professor of Engineering at the Adelaide University) drew attention to the value of the University in relation to the community, and the need for sustained research work.

Professor Chapman said that one of the questions they were concerned with at the University was how were they to make the university of greatest use to the community? It was from the community that the university received its nourishment. The university was recognised as a place where young people learned to fit themselves for a higher life in the community, and most parents were only too willing to obtain for their children that higher training that they themselves had not been able to get in their young days. We had now reached a stage when our teachers and professional men of the State had received their training at the university.

Graduates and Public Service.

Continuing, the professor said there were three matters which he particularly wished to mention. One was the Angas Scholarship, which was founded for the purpose of training engineers to develop the State. It involved a two years' course, during which the winners received experience in England. Since its foundation the scholarship had been awarded to 16 students, and only three of those men were now in South Australia—the remainder being distributed all over the world. They were the pick of the university graduates, and the country could not afford to lose them like that. (Applause.) Most of them would have been only too glad to come back to South Australia, provided they were assured of the likelihood of employment. The second matter he wished to mention was the public service. It was in the interests of the State to have in that service men of very high training, and what better recruiting ground could there be than the university? At present graduates received no encouragement to enter the service. Years spent at the university should be counted as years in the service, when it came to promotion. The third point was the value of the university men to industrial and commercial enterprises. Few people were alive to their value in this connection.

Research Work.

Professor Chapman, proceeding, said an aspect of university work that was not thought about enough was research work. Few persons realized what a great difference progress of discovery had made in the lives of the people. In Shakespeare's time, for example, furniture was a luxury and too dear, except for the very rich, and the floors they walked on were of stone. Perhaps the greatest difficulty with which the people of these times had had to contend was the means of communication and travel. Even Queen Elizabeth had had to go to the opening of her fifth Parliament in a springless carriage. (Laughter.) Now we had clothes in plenty, ships and railways, and all the modern fittings of civilization. The great difference in their lives and ours was due to the progress of discovery and research. That progress was going on at an ever accelerating rate, and we could not afford to neglect research unless we were content to remain one of the stagnant backwaters of mankind. Every department of a university must have the means for research. In support of this assertion he instanced the Waite bequest for the furtherance of agricultural research. They required the same sort of thing extended to every department. As commercial men they would ask, "Will this pay?" Of course, Australia could not afford to do as other big nations had done, but she could not afford to become stagnant. "We want to build a nation worthy of the grand old nation from which we sprang," concluded the professor, "and research is the one sure road to progress." (Applause.)

THE UNIVERSITY AND THE COMMUNITY.

ADDRESS BY PROFESSOR CHAPMAN.

On Friday, at the week's meeting of the Rotary Club, Professor R. W. Chapman, of the Adelaide University, delivered an instructive and interesting address on "The University and the Community." He said the University must be considered as a training ground for the young, to fit them for the battle of life, which in the present day made a heavy demand upon their mental equipment. In South Australia the public had shown practical sympathy by sending their children to receive the education that only the University could bestow. Wonderful self-sacrifice was manifested by many parents in the determination to enable their children to take advantage of educational facilities they themselves had never known. The Adelaide University had reached a stage when it could be said to have trained practically all the professional men of the younger generation in South Australia. Unfortunately, many of the most brilliant graduates had found no place at home for the utilisation of their talents, and especially had this been so with the holders of the Angas engineering scholarship, which had been awarded sixteen times. Only three of the successful students were in South Australia. The Public Service of the State numbered about 10 per cent. of the adult population, but comparatively few University graduates were in the Civil Service, except in the Education Department or as engineers. There was room for them in all departments.

The industrial and commercial community was not alive to the advantage of employing graduates. Many other countries found it paid to put highly-trained men in the big executive positions, and there was scope in South Australia for employing this type of men in the ordinary walks of life. Sir Robert Hadfield, the pioneer of manganese steel and other alloys, that had proved so valuable to industrial progress, had said the University was the centre of intellectual life in the community.

In referring to the progress of discovery and invention Professor Chapman said this was not due to the making of laws, but to the spread and application of higher education. There was a great need for greater facilities for research in every department. This could not be neglected unless they were content to remain as a stagnant backwater. They could not expect to advance on the same scale as Great Britain or America, but they must not neglect progress. They were seeking to found a young and vigorous nation, and the community would find it would pay to build up a self-reliant, resolute, and intelligent people by a patient acquirement of knowledge—the one sure way to progress.

ADVANCEMENT OF SCIENCE

Congress in Adelaide.

During the week beginning August 25, the seventeenth congress of the Australasian Association for the Advancement of Science will be held in Adelaide.

Arrangements have been made for a number of lectures, excursions, social entertainments, and so on. It is also possible that excursions to places of interest near to Adelaide will be organized for the week end, immediately preceding the opening of the sessions, but those arrangements will depend upon the wishes of visiting members, who will represent the other States and New Zealand. The following programme has been arranged to date:—

Monday, August 25.—Civic reception in the Town Hall, by the Lord Mayor of Adelaide (Mr. C. R. J. Glover), at noon; meeting of the general council in the afternoon and also short excursions; Presidential address by Sir John Monash in the Town Hall, at 8 p.m.

Tuesday.—Meetings of the association at the University, morning and afternoon, with the delivery of addresses by Presidents of sections. His Excellency the Governor (Sir Tom Bridges) will render a reception at Government House in the evening.

Wednesday.—Sectional meetings continued in the morning and afternoon. Some excursions arranged for the afternoon; public lecture by Mr. E. T. Fisk, on "Recent developments in wireless communication," at the Town Hall at 8 p.m.

Thursday.—Sectional meetings continued in the morning; reception by the General

President (Sir John Monash) in the afternoon; evening free for private hospitality. Friday.—Sectional meetings continued in the morning and afternoon, with some excursions; public lecture at the Town Hall, at 8 p.m. by a lecturer, whose name and subject will be announced later.

Saturday.—Final meetings of sections and general council; week-end excursions start. Information regarding membership and members' privileges is obtainable from the local secretary (Mr. L. Keith Ward), at the Department of Mines, Flinders street, Adelaide.

MEMORIAL TO MR. CHAPPLE.

A mural tablet in memory of Mr. Frederic Chapple was unveiled by his son (Dr. F. J. Chapple) at the Kent Town Methodist Church yesterday morning. The pastor (the Rev. Brian Wilberley) made references to the work of Mr. Chapple for the church and Prince Alfred College, and stated that the trustees had desired to perpetuate his memory with a tablet. The inscription was as follows:—"In memoriam—Frederic Chapple, B.A., B.Sc., C.M.G., aet. 78. Headmaster of Prince Alfred College, 1876-1914. An able educationist, a noble citizen, and a devoted Christian, whose unwavering fidelity to the service of this church during a period of 48 years was an inspiring example. He, being dead, yet speaketh. Erected by the trustees of the Kent Town Church." The choir, led by Mr. Parsons, sang the anthem, "Thou wilt give him perfect peace."

MAN ON THE LAND.

LUCERNE CROPS.

Requirements in Manuring.

In the course of an article in "The Journal of Agriculture on 'Manuring Lucerne Crops,' Professor A. J. Perkins (Director of Agriculture) remarked:—"In certain quarters there is a tendency to look upon lucerne as a crop, the life and productiveness of which can be almost indefinitely prolonged. The connection between this statement and manuring the crop, is the personal observation that many growers begin to think about manuring lucerne when, as a matter of fact, the more rational practice would be to root it up and replace it by some other crop. I do not wish to imply that these remarks necessarily apply to those seeking my advice in this special instance. It is worth emphasising, however, that under our condition of climate, well handled lucerne is at its maximum producing capacity in the second and third years of its growth, and that thereafter it declines slowly, year by year, and should generally be rooted up in its seventh or eighth year, if not sooner. It is, in fact, extremely rare to find 10-year-old lucerne that is really worth the water that is wasted upon it. It is probably true that from the viewpoint of the general grazier, who handles vast areas of low-unit value, a 10-year-old stand might still appear reasonably good; but, in the eyes of the competent irrigationist, it would do little better than cumber the ground. After all, irrigation water is costly material, and cannot be expected to show a profit except when returns within the neighbourhood of the maximum are possible. These remarks apply to lucerne fields that are cut regularly. Needless to add, if they are grazed to any extent, particularly by sheep, the profitable life of the crop will be all the shorter. All this is by way of introduction to the statement that, apart from cases of exceptional natural fertility, such as obtains on the reclaimed swamps of the Murray, it is idle to expect a long sequence of heavy cuts of lucerne, unless special precautions towards that end are taken from the very outset. This implies far more liberal use of manures than ordinary farming practices have accustomed us to. What in this connection do regular heavy cuts of lucerne require of the soil? These requirements may be summarised as follows:—(1) An adequate supply of organic matter; (2) a sufficiency of available lime; and (3) an abundance of available potash and phosphates.

Organic Matter.

Where ordinary cropping is concerned, organic matter is at times rather loosely thought of in terms of the available nitrogen, which it yields upon decomposition, or the exclusion of other factors of immense significance in general soil fertility. Its action on the mechanical condition of soils is invaluable; without it soils would be so much brick dust or loose sea sand. Its undermining influence on other soil constituents is both direct and indirect, and, finally, it represents a reservoir of food materials to the millions of useful bacteria which swarm in the surface layers

Mr. D. J. Sumner, the South Australia Rhodes Scholar, on June 21, won the pole jump for Oxford at Sandford Bridge, England, in the amateur athletic events, which some of the foremost amateur athletes in England took part. In the first place he tied with J. Campbell, of Cambridge University, but in the jump-off, secured first position. Mr. Sumner, who is only 23, has had a distinguished career. He started school at Mount Torren where he was the youngest member at the age of his class each year. At the age of nine he received a fourth-class certificate, and the fifth-class the year later. At the Blumberg District High School he secured the primary with five subjects, and the junior with six, and was awarded the Junior Exhibition Prize, being third on the list; it entitled him to three years' free tuition at the Adelaide High School. There he passed every class successfully, and in 1917 was awarded a Government Medical Bursary at the University. He was awarded the Elder prize at the University for two years in succession, and distinguished himself highly in examinations. Mr. Sumner from a boy was fond of football and cricket, and when at the Adelaide High School he became a tennis player, securing the singles and doubles championships in 1917. He was awarded the tennis Blue at the University in 1919-1920. In rowing he has taken part with distinction.

or cultivated soils. We know leguminous crops such as lucerne to take their nitrogen mainly from the air through the agency of symbiotic bacteria; and yet experience has long shown that they always thrive best in soils adequately stocked with organic matter; and we must infer that they benefit chiefly from some of the secondary functions of this substance. I am of opinion that the organic matter required, should be applied to the soil prior to seeding operations, and not subsequently to the establishment of the crop. If we handle our lucerne crop skilfully, we may count upon six to eight years of profitable returns. It would seem, therefore, to be worthy of soil preparation at least equal to that given to an annual crop such as wheat. Hence, I am of the opinion that the seeding of lucerne should be preceded by 10 to 12 months of carefully prepared and well-tilled bare fallow; and it is during the course of the preparation of this bare fallow that requisite quantities of farmyard manure should be carefully incorporated with the soil. This should take place in early winter, so that the inevitable weed seeds shall have ample time to germinate before the lucerne seed is sown. I suggest that the dressing, the effects of which will spread over six to eight years of intensive cropping, should be not less than 20 tons to the acre, and if this quantity is not available, then, as much as you can possibly lay hands on. Personally, I do not favour top dressings of stable manure to an established crop. I recognise, however, that if the pre-seed dressing should have been omitted, such top-dressings may prove financially satisfactory. In the circumstances, I would recommend their water application in shallow dressings at the rate of five tons to six tons annually.

Lime.

An adequacy of available lime is an absolute essential to permanent healthy growth in a lucerne crop, and, fortunately, most of our northern soils in which lucerne might be grown are usually very well stocked with lime. I had almost said that lucerne should not be sown in a soil inadequately supplied with lime. I recognise, however, that there are exceptional cases in which this might still be done with advantage, and for such cases I recommend the following treatment. The lime should be applied annually towards the end of winter and prior to the first summer irrigation at the rate of 4 cwt. to 5 cwt. to the acre of recently slaked lime, or double that amount of finely crushed limestone or carbonate of lime. The field might be given a touch of the weighted harrows subsequently to the application of the lime.

Potash.

Potash is supposed to be the mineral constituent peculiarly characteristic of most leguminous plants, and of lucerne in particular. Unfortunately it is to-day one of the most costly forms of manure on our markets, although, fortunately, there are few of our soils that are not already abundantly stocked with natural potash. The exceptions are the poorer lighter types of soils, particularly calcareous sands. But even here, if these light soils deficient in potash overlie a good heavy clay, a deep-rooted plant like lucerne will be able to satisfy all its requirements in the sub-soil. But, however abundant potash may be in a soil, it is of comparatively little avail, unless present in mobile and readily available form. Very frequently it is locked up in more or less insoluble com-