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THE SOIL.

Chemical Properties Expounded.

The second of a series of three University extension lectures on "The soil," was delivered by Professor A. J. Prescott, of the Waite Research Institute, at the Prince of Wales lecture room at the University on Tuesday night.

He said the lecture dealt particularly with the chemical properties of the soil necessary for the growth of plants. Important soil factors were adequate air space, water supply, suitable temperatures, plant foods, and an absence of injurious factors, and in addition, adequate root space. Most plants derived the greater part of their dry matter from the atmosphere. One series of organic compounds consisting of nitrogen was derived from the nitrogeneous compounds found in the soil. The air in the soil was of great importance to plants, as the roots would not function without an adequate air supply. Australians needed no reminder of the importance of water supply. The relationships between the yields of crop and the rainfall was sufficiently marked in South Australia. There was evidence that too much rain in the summer was not desirable from the point of view of the wheat producer. It was necessary to recognise that any given factor might limit the yield of a crop even if it were the only one that was not present in sufficient quantity. That principle was first realized by Liebig, the German chemist, who set out "the law of the minimum"—in England called the rule of limiting factors. The food of plants was derived from the following elements in the soil:—nitrogen, phosphorus, potassium, calcium, magnesium, iron, and sulphur. Other elements were possibly needed in small amounts, but when present to too great an extent might act as poisons. Dealing with the question of injurious factors, the lecturer said anything that might injure the plants must be absent, as in the case of boric acid. One of the commonest injurious factors was the presence of salt, which is known to the South Australian farmer as magnesia. The accumulation of injurious salts was nearly always associated with seepage. Under arid conditions the salts were leeched and accumulated at lower levels. The problem of drainage in lower levels was just as important as the problem of supplying irrigation water, and there was no doubt many serious difficulties had arisen in the Murray Valley in that connection. A cure for that soil alkalinity was discovered many years ago in California by the use of gypsum. The value of gypsum was recognised throughout the world in all irrigated settlements, but there were cases in California, Egypt, and elsewhere where gypsum had proved ineffective. In his first lecture he had pointed out how important the mechanical texture of the soil was to determine the sort of crop to be grown. Having decided the crop the chemical nature of the soil would determine what crop could be grown profitably. Practically all Australian soils were deficient in phosphates. They had some notable exceptions in the south-east, particularly the volcanic soil of Mount Gambier, and related areas. A chemical examination of the soil was an exceedingly complicated process. To analyse soil completely demanded the strongest means available to the service of the chemist. The soil chemist was still exercising a considerable amount of thought and time in devising methods which would give the information desired by farmers. By virtue of the large surface offered by the sum total of the particles of soil many important chemical fertilizers were retained and were not washed away by rain. That was of particular value in the cases of sulphate of ammonia, potassium, and phosphate fertilizers. In the case of nitrate the fertilizer was not retained and was easily washed away by rain. On that account nitrate fertilizers were generally applied to the growing crop. The earliest fertilizer was farmyard manure. It supplied not only the necessary foodstuff, but the required organic matter for improving the soil. The most important fertilizers were phosphate, potassium salts, nitrogeneous compounds. In Australia phosphates were extremely important. The effect of relatively small amounts in South Australia was so striking that they had attracted the attention of scientists throughout the world. The choice of phospatic fertilizer was important. Superphosphate was the most extensively used because of its water solubility, which made it valuable in dry country. In Germany and Italy attempts were being made to produce phosphates more cheaply from rock. The effect of fertilizer was frequently to change the balance of life. Such plants as clovers were encouraged so that the relative importance of grasses, clovers, and other herbage was changed. The vale of potassium salts was well known; but in Australia few instances had come to light where potassium fertilizers were of any value. In South Australia the effect had generally been a depressing one on the yield. Nitrogen was not usually employed for cereal crops in Australia on account of the fact that one-half the value of fallowing was that suitable nitrogeon compounds were acrumulated in the soil for the use of the following crops. Quick-growing crops like maize and sugar-cane and leaf crops like vegetables were generally in need of nitrogen. The problem of the supply of nitrogen compounds before the war was a serious one; but it had been solved by industrial chemists in a magnificent way. One of the most interesting properties of the soil was that of acidity or sourness. The South Australian farmer's definition of sourness was rather vague; but chemically it meant that the soil was deficient in lime. Potato scab and "takeall" were common to soil supplied with lime, while certain diseases on cabbages and sugar beet were common to soils deficient in lime. Certain crops tolerated soil acidity more readily than others. The form in which lime should be applied was generaliy a matter of eronomics rather than chemistry. Quick lime was the quickest in action, but in many cases carbonate of lime, if ground sufficiently fine, might be found to be of service. The use of gypsum or sulphate of lime was not as a corrective for soil sourness, but for lessening extreme soil alkilinity. With the present cost of labour throughout the world, farmers frequently found it advisable to grow crops suitable to their soil conditions rather than to purchase lime.

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THE UNIVERSITY JUBILEE.

More History Recalled.

Free Churchmen and Union College.

Principal Kiek writes:—We are all grateful to the Rev. F. Slaney Poole, M.A., for his interesting account in The Register of the establishment of our University. Unfortunately, it contains one serious error. Canon Poole states that the Methodists participated in the work of Union College, which is incorrect, while he makes no mention of the Congregationalists, who contributed very largely to the establishment and to the success of that institution. In connection with my forthcoming biography of the Rev. J. C. Kirby I have been fortunate enough to discover the official reports of Union College. I append the relevant extracts:—

"Union College was established in 1872, with a view to affording an opportunity for young men carrying on their education beyond the ordinary school course, and especially of providing the means of suitable training for those desirous of devoting themselves to the work of the Christian ministry. At a meeting in March of that year, attended by representatives from the Bapist Association, the Congregational Union, and the Presbytery of South Australia, arrangements were made for united action in the establishment of a college. A fair measure of pecuniary support was given by some of the wealthier members of those churches. In May classes were opened in mathematics and natural science, in English literature and classics, and in the Greek New Testament. The number of young men enrolling themselves far surpassed the most sanguine expectations. In the course of the year Mr. W. W. Hughes (Sir William Watson Hughes) offered to present the college with the munificent sum of £20,000, but the members of the council felt that so large an endowment and the attendance of so many students rendered it desirable that the basis of the college should be thoroughly altered. They therefore invited leading ministers and laymen of other denominations to discuss the subject (September 17, 1872). It was ultimately resolved that a university should be established in Adelaide, an association being formed for carrying that resolution into effect. Mr. Hughes's gift was, with his assent, transferred to that body, which at the commencement of the following session undertook all the secular classes, leaving to Union College the training of men for the Christian pastorate."

Free Church Participation.

I have slightly abbreviated the above record, but would add that a leading spirit in the whole movement was the Rev. Dr. Jefferis, of the Brougham Place Congregational Church. Sir Samuel Way, in an eloquent tribute paid to Mr. Jefferis (as he then was) on his departure to Sydney in 1877, spoke thus:—"Few will be inclined to moderate the value of the work he has done in connection with Union College. And I believe that, but for Mr. Jefferis, up to the present moment at all events, we should not have had any university at all. When Mr. W. W. Hughes projected his munificent endowment, it was intended for Union College, but Mr. Jefferis, with praiseworthy magnanimity, notwithstanding his close connection with that institution, made a suggestion which was adopted by Mr. Hughes, readily assented to by the authorities of Union College, and heartily co-operated with by the Bishop, Canon Farr, and others interested in the cause of higher education." I am informed, on the authority of my friend, the Rev. J. Robjohns, that in 1895 Dr. Jefferis was admitted to the "ad eundem" degree of LL.D. without the payment of any fees, in consideration of his great services to the University at the time of its inception. Another Congregationalist who rendered yeoman service in this connection was the Rev. W. Roby Fletcher, M.A., minister of Stow Church, and professor at the Union College. He was appointed professor at the University in logic and philosophy, and from 1836 to 1886 filled the office of Vice-Chancellor. The Jefferis Memorial Medal, awarded for proficiency in philosophy, and the Roby Fletcher Prize, awarded for proficiency in logic and psychology, serve to commemorate the services of these eminent Congregationalists.

The Religious Commemoration.

In conclusion, and speaking on behalf of many other graduates of the University, I desire to enquire, with all possible respect, why the religious service in connection with the forthcoming celebration of the jubilee is apparently to be of an exclusively Anglican character, seeing that the Anglican Church is entitled to no special privilege in this community, and that the University owes at least as much to the co-operation of non-episcopalians as to the service of members of the Anglican Church. The University is an institution of a strictly non-sectarian character, and this character should at all times be consistently maintained.

When asked if he were prepared to make an explanation concerning the decision of the University authorities to hold a "Cathedral service" on Sunday afternoon, August 15, in connection with the jubilee celebrations, the Chancellor (Sir George Murray) said he had no comment to make thereon. The Acting Vice-Chancellor (Professor Rennie) replied in a similar strain when approached. Several members of the University Council were also communicated with, but no information could be gleaned as to the intention of the council in respect to the service.

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ALLAN WILKIE FUND.

Support for the Movement

The Lady Mayoress (Mrs. Wallace Bruce) convened a meeting in the reception room, Town Hall, on Tuesday afternoon, to form a committee to further the Allan Wilkie appeal. The Lord Mayor (Mr. Wallace Bruce) took the chair, and on behalf of the Lady Mayoress expressed her appreciation of the presence of a large and interested gathering. He also acknowledged apologies for non-attendance from Miss Murray, Lady Duncan, Sir William Sowden, Mrs. C. W. Hayward, Mrs. Walker, Mrs. Simpson, Mrs. Benham, and Mrs. E. A. Brooks, who showed practical sympathy with the appeal by sending cheques. In the course of a warm commendation of the fund, the Lord Mayor said that those who had enjoyed the Shakespearean productions of Mr. Allan Wilkie were indebted to The Register for having brought the appeal before the public. The "man in the street" had commented on Mr. Wilkie's lack of foresight in not insuring his scenery and properties, but he would like to point out that for many years Mr. Wilkie had been struggling to present Shakespearean plays, and the financial strain made it absolutely impossible for him to insure, for the cost would have swallowed up his means of carrying on. The minimum amount required for the replacement of the wardrobe, properties, and so on, was approximately £4,000. In Victoria there had been a whole-hearted response to the appeal launched by the Hon. W. A. Watt, Professor Wallace, and the Lord Mayor (Sir William Brunton); and the total amount in sight in all the States was £2,500, so that only £1,500 was required to make up the desired sum.

Mr. Bruce then called upon Sir Archibald Strong to outline the objects of the meeting. Sir Archibald thanked the Lord Mayor and Lady Mayoress for their keen interest in the appeal. Speaking of Mr. Allan Wilkie, he said:—"I have known him ever since his arival in Australia. He is that very rare thing, a practical idealist. His sustained effort to popularize the plays of Shakespeare places his work in a special position among theatrical enterprises. In pursuit of his object Mr. Wilkie has made great sacrifices. Had he been content to produce melodrama, he would have been well-to-do to-day. Instead he chose to play Shakespeare day by day all over Australia, his ambition being to produce the 37 reputed Shakespearean plays, of which he has now staged 22. Many of them are not money-getters, and his continued production of them puts him on a special footing and gives him a special claim on our generosity. We feel under a direct personal obligation to Mr. Wilkie. Members of the teaching profession must be particularly grateful to him, for he has immensely quickened popular knowledge of Shakespeare. I know the effect on University students, and have had letters from more than one, expressing the keenest enthusiasm and the desire to help. In this appeal we are not conferring an obligation but liquidating a just debt for all he has done for us in the period he has been in Australia." (Applause.)

The Director of Education (Mr. W. T. McCoy, B.A.), in proposing that those present should form themselves into a committee, said they were not engaged in a charitable work, but to raise money to carry on an educational enterprise of much value. The work that Mr. Wilkie had done had had a wonderful effect in relation to the schools, and all members of any teaching staff should give their wholehearted support to the replacement movement. Two prominent members of his company were ex-teachers from South Australia.

Mr. S. Talbot Smith, M.A., and the Hon. P. McM. Glynn also spoke, and at the instance of Miss Muriel Farr it was decided to form a small executive. Finally the meeting agreed to collect subscriptions, which would be acknowledged through The Register, and a number of donations were handed in, which, with the cheques received by letter, totalled £33 17/6. Miss Rosetta Bennett, Childers Trustee Building, Grenfell street, as honorary treasurer.

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AN HISTORIC FAMILY.

Mrs. W. J. Kennedy (nee Bessie Beare) writes:—Tuesday is the ninetieth anniversary of the day on which my father, the late Thomas Hudson Beare, of Netley, Richmond, landed at Kingscote, Kangaroo Island, from the Duke of York, with his wife and family (one son and three daughters), and a sister, Miss Beare, who was married to Mr. Samuel Stephens by the captain. She was carried ashore by the sailors, and was the first white woman to land on Kangaroo Island. As it was his youngest little daughter's third birthday, one of the sailors carried her ashore while her parents were at breakfast. She was married some years after to the late Mr. G. Williams, solicitor, of Auburn and Quorn. A year after they landed, a fourth daughter was born. His wife died six weeks later, and was buried in a vault on the island. Shortly afterwards, the family came to the mainland, and settled at Netley, Richmond. In 1840 my father was married to my mother, Miss Lucy Bull, sister to J. W. Bull, and had nine children—six sons and three daughters. Four died in infancy. There are only two of the second family living—my brother, Professor Sir Thomas Hudson Beare, and myself, at present living with my youngest daughter, Mrs. L. G. Harrison, at The Gap, Narracoorte. When my father died in 1861, my mother was left with five young children, the eldest 16, and the youngest 2. My mother provided for and educated us herself, by music and school teaching. Two of my brothers became solicitors, one at Moonta and the other at Kadina. They both died in the prime of life. My brother the professor has to thank his mother for the good training she gave him as a lad, with the help of the late Mr. J. A. Hartley. My eldest sister, Mrs. R. H. Edmunds, passed away last year, in her eighty-first year. There are at present 28 grandchildren and over 200 great and great-great grandchildren.

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THE UNIVERSITY JUBILEE

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THE THANKSGIVING SERVICE.

To the Editor.

Sir—Is it too late for the University Council to reconsider its appointments for its forthcoming jubilee celebrations? Considerable dissatisfaction will be felt if only one thanksgiving service—and that of so exclusive a character as Adelaide has been led to expect from the Cathedral authorities—be provided for. The fixture made is the more surprising remembering the origin and history of our University. Since the names and memories many of its principal promoters and founders receive but a very dubious honour in the present arrangement, surely, some more worthy recognition of their labours could be made.—I am, Sir, &c.,

GRADUATE.