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# FIRST SOIL SURVEY IN AUSTRALIA COMPLETED AT RENMARK

## Best Cultural Methods To Get Best Commercial Results Described

### DANGER OF EXCESSIVE IRRIGATION

A BULLETIN, comprising the first report on the co-operative work on soils initiated in 1927 by the Council for Scientific and Industrial Research and the Waite Agricultural Research Institute of the University of Adelaide, has just been issued.

THE bulletin is an account of work carried on by Messrs. J. K. Taylor, B.A., M.Sc., and H. N. England, B.Sc., under the direction of Professor J. A. Prescott. It is confined to a discussion of the results of an examination of the soils of an irrigation area (Block E and Ralral) at Renmark.

It is of special interest as representing the first soil survey on modern lines ever carried out in Australia.

During recent years a considerable amount of attention has been given to the classification of soils, particularly from the point of view of the correlation of their chemical and mechanical properties with agricultural and horticultural experience, and such correlation must form the basis for any future survey work.

In selecting an area suitable for such a beginning, it was most natural that the closely settled and valuable irrigation areas should be selected.

For the more extensive areas, as in the wheat belt, somewhat different survey methods will no doubt be adopted. The extension of this work will be greatly facilitated by Mr. Harold Darling's recent gift of £10,000 for the establishment of a Soils Science Laboratory in Adelaide.

#### FOUR MAIN SOIL TYPES

The authors of the bulletin have classified the Renmark soils into four main types, and have explained why some are relatively unproductive, why some are susceptible to salting, why others are difficult to irrigate properly, and so on.

They have also put forward suggestions as to the best cultural methods to adopt on the various types in order to obtain the best commercial results.

The bulletin is illustrated by two maps, and the statistical data given forms a valuable permanent scientific record on which to base future advisory work in the area.

The four main types described are:—1, red sandy soils of great depth; 3, fairly light soil passing to drift sand at 4 ft.—the most productive and best land for horticulture; 5, heavier land than 3, with gypsum in the subsoil; 6, heavy clay soil, with much gypsum several feet thick starting at 3 and 4 ft.

The scientists say that irrigation in soil types 1 and 3 is easily overdone, and great care is necessary to ensure that the subsoil is not waterlogged continuously, as in the former type this invariably leads to salt accumulation, and in the latter to salt sometimes, but possibly more generally to a restricted root development.

Root development is quite unhampered in this soil except by general poorness in organic matter, necessitating continued building up with fertilizers and crop residues.

Type 3 waters quickly without danger of salt accumulation under normal circumstances. The underlying drift below 4 ft. absorbs excess water, and as the general country is flat there is little tendency to show seepage effects except where pockets of clay occur.

Type 5 is a wind-swept soil, and can be made absorptive by the use of gypsum and cultivation. Doubtless in time it will work into a state admitting of ready penetration of roots and water.

Type 6 soils do not allow ready percolation of water. Even when the surface is worked into fair condition by applications of gypsum the subsoil offers continued resistance.

It is safe to assume that no free water reaches the water table in these soils, and it is highly probable that a heavy watering does not reach beyond 4 ft.

While the limited penetration is ample for plant requirements, it must be bad in such soils, on account of the concentration of soluble salts, which naturally tend to be dangerously high.

#### WATER TABLE PUZZLE

Information is too scanty to make any suggestion other than to suppose that soil formation at levels deeper than those studied favour accumulation of water in pockets, and the borings made encountered such bodies of temporarily imprisoned water.

It is remarkable that the water table should be close to the top in light compared with heavy soils, unless this be merely during the period of adjustment following an excessive irrigation of the former, as the latter allow no free water to reach the water table.

Until observations are made throughout and entire year, no theory can be advanced concerning the permanent existence, fluctuation, or origin of the water table.

For this reason it is impossible to discuss the question of drainage.

The reason for the low concentration of soluble salts in type (3) soils is plainly the leaching action of each irrigation into

the huge body of underground water, in one case known to exceed 30 ft. in depth. Little, if any, leaching reach the water table in the heavy soils.

It is probable that where salt has accumulated in the heavy soils reclamation is not economically feasible.

As far as the water table is concerned no harm is likely to ensue while it stands at its present level, and there is no obvious means of lowering it by drainage.

Lighter irrigations on the easy watering soils with an heavier watering in the season to clear salt otherwise liable to accumulate, might have the effect of keeping the water table at its present level.

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### EDUCATION IN THE EAST

#### SIR ARCHIBALD STRONG'S IMPRESSIONS

Sir Archibald Strong, in response to a request from Lady Hore-Ruthven, at the annual meeting of the Victoria League yesterday, spoke on some of his experiences on his journey to attend the Conference on Education and Leisure at Vancouver a few months ago. Sir Archibald said he had visited China and Japan, and found the education there exceedingly interesting. In Hongkong he had the privilege of being the guest of the Vice-Chancellor of the University and also Governor of the colony (Sir Cecil Clementi). He was the type of man more than any other who helped to build up the Empire, and make it glorious and efficient. Sir Cecil had occupied rooms at Oxford with him, and his fellow-undergraduates used to regard him as a man marked out for high distinction. He was now, as well as Governor of Hongkong, one of the greatest Chinese scholars in the world. He had an extraordinary knowledge of the Chinese, and had also a great hold upon them. The Nationalist leaders at Hongkong were his close friends, and stayed with him as guests. Through his ascendancy Sir Cecil had done a great deal to secure peace and a closer relationship and understanding between China and Great Britain. He spent his holidays in China, instead of going to England to enjoy himself, and thus got to know the Chinese more intimately.

It was remarked that the University of Adelaide was the happiest in Australia. He would not say it was the most comfortable. The University of Hongkong, he thought, might be a little bit too happy, or too much happiness might manifest itself in a certain way. When degrees were being conferred the event was celebrated with a cannonade of crackers. He hoped that scheme would not be adopted in Adelaide, as they were happy enough without it. (Laughter.) In the Peking University there were English, American, and Australian teachers, but some of the teachers were occasionally depressed. If in endeavoring to maintain a high standard too many candidates failed, the matter was at once reported to the police. The candidates laid an information against the professor, who was summarily dealt with, and would as likely as not lose his chair. In Japan, if too many candidates failed, there was another danger in the disappointed students committing suicide. The greatest university in Japan was the Imperial University, and there he saw a perfectly constructed model of an Elizabethan Theatre, in which Shakespeare's plays were performed. He also saw there an excellent collection of European plays and prints, as well as a priceless collection of Japanese prints. The Imperial University was nearly destroyed by the earthquake, and Mr. Rockefeller, the American millionaire, immediately donated a million yen towards rebuilding it. That university now had one of the best libraries in the world, and he noticed that a good many books in the English section had been presented by the British nation.

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The following have been appointed members of the Advisory Council of Education:—Professors E. Harold Davies, J. McKellar Stewart, and Kerr Grant, the Revs. K. J. F. Bickersteth, and J. Hanrahan, Messrs. W. R. Bayly, W. H. Harvey, M.L.C., H. Lipson Hancock, A. H. Dobbie, F. Walsh, K. E. Bardolph, T. P. Howard, W. R. Birks and R. A. West, and Miss C. M. Ashworth.

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### GEOPHYSICAL EXPERT

#### DEATH OF DR. BIELER

Perth, July 25.

A telegram from Geraldton states that Dr. E. S. Bieler, Deputy Director of Imperial Geophysical Experimental Survey, died in a hospital to-day, after a brief illness. Dr. Bieler arrived in Geraldton on Tuesday morning to inspect geophysical research work there in regard to silver and lead deposits. He was then very ill with pneumonia and was removed to a hospital, but gradually sank.

Dr. Bieler was a native of Canada, where his relatives reside. He had spent a year in Australia testing the geophysical methods of discovering minerals and work undertaken by the Commonwealth Government and the Empire Marketing Board of Britain.

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### CHINESE EDUCATIONAL AFFAIRS

FROM Professor ARCHIBALD STRONG:—When discussing Chinese educational affairs in my speech to the Victoria League I referred not to "Peking University," but to "certain universities or colleges in Peking." The European, American, and Australian teachers in these colleges are men of high—often, indeed, of the highest—ability and integrity, a fact which makes the conditions under which they often labor all the more depressing to the onlooker. A good deal that I have recently seen and heard, not only in the East, but on the American continent, has convinced me that few more disastrous things can happen to a university than the subjection of its standards and general administration to external pressure or control.

music in Adelaide, four churches having benefited by his activities. His first appointment was to the Baptist Church, Norwood, when he was only 16. He subsequently went to the Tynte-street (North Adelaide) Church. After 19 years' service there he transferred to the Congregational Church in Brougham-place. In August, 1902, he joined the Pirie-street Methodist Church as organist, remaining there for 25 years. During his period of service at that church he collaborated with the Rev. Dr. Henry Howard in the writing of a cantata. The latter wrote the words, and Mr. Jones composed the music. The cantata was sung by a Methodist choir of 600 voices, the choristers coming from various parts of the State. Mr. Jones always maintained that the preaching of Dr. Howard had been an inspiration to him as a teacher. From 1917 until 1923 Mr. Jones was city organist, and he inaugurated a series of recitals which did much to raise the standard of music among the public. He had a preference for orchestral music, and he lost no chance of developing it. Visits to Europe and constant reading kept him in touch with progress abroad. His own work obtained international recognition. He took a practical interest in orchestral movements in Adelaide, and always found time to attend to their needs. He was conductor of the Adelaide Harmonic Society, which, during the nineties, produced Offenbach's "Grand Duchess" and other works. At one time he was grand organist of the Order of Freemasons, an honorary post conferred only on a distinguished musician. One of Mr. Jones's most pleasant memories was the first appearance of Dame Nellie Melba in public. It was a concert in Melbourne, at which he assisted.

As a teacher of music in Adelaide the career of Mr. Jones dated back to 1898, when he joined Mr. H. Riemann in the College of Music. That became the nucleus of the Elder Conservatorium, to which Messrs. Reimann and Jones went when the institution was opened. The latter resigned from the Conservatorium in 1927. During his long association with it he won the affection of students and everyone else with whom he was associated. Recently he had resided in Perth.

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### RESEARCH ON SOILS

#### First Modern Survey

Comprising the first report on the co-operative work on soils, initiated in 1927 by the Council for Scientific and Industrial Research, and the Waite Agricultural Research Institute of the University of Adelaide, a bulletin has been issued giving an account of the work done by Messrs. J. K. Taylor, B.A., M.Sc., and H. N. England, B.Sc., under the direction of Prof. J. A. Prescott.

The bulletin is confined to a discussion of the results of an examination of soils in an irrigation area at Renmark. This is of special interest as it is the first soil survey on modern lines made in Australia.

In recent years attention has been given to the classification of soils, particularly from the point of view of the correlation of their chemical and mechanical properties with agricultural and horticultural experience. It was pointed out that such correlation must form the basis for the interpretation of any future survey work. It was natural that for such a beginning the closely settled and valuable irrigation areas should be selected.

For the more extensive areas, as in the wheat belt, a somewhat different method of survey will no doubt be adopted. The extension of this work will be greatly facilitated by the recent gift of £10,000 by Mr. Harold Darling for the establishment of a Soils Science Laboratory in Adelaide.

Renmark soils have been classified into four main types, and reasons are given why some are relatively unproductive, others susceptible to salting, or difficult to irrigate properly. Suggestions are also put forward regarding the best cultural methods to adopt on the various types to obtain the best commercial results. The bulletin is illustrated by two maps, and the statistical data given forms a valuable permanent scientific record on which to base future advisory work in the area.

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### Students Who Kill Themselves When They Fail

SIR Archibald Strong at a meeting of the Victoria League yesterday, compared customs of Universities.

In Hongkong the advance of each candidate to receive his diploma was accompanied by a cannonade of loud crackers, he said.

In Peking European professors looked depressed, he said. Any student who failed, summoned his examiner before the police.

"In Japan an English teacher who fails scholars in an examination, may expect to find that the unsuccessful ones have committed hara-kiri on his doorstep," he said.