

STATE BANK BUILDING.

MATERIAL TESTED.

As the result of allegations made that inferior material, notably quarry sand, was being used in connection with the State Bank building in Pirie-street, tests have been made at the instance of the contractors (Messrs. Muller & Muller) of concrete blocks at the engineering testing laboratory at the University of Adelaide.

The contractors stated on Monday that these blocks were made on the job with the material concerning which complaints had been lodged. A representative of the City Council was present.

The blocks were seven days old, branded May 27, 4 p.m.; mixture 1, 1 1/2, 3, and were 6 in. by 6 in. by 12 in. high. Each block had an area of 36 square inches. Block No. 1 had a breaking load of 66,970 lb., with a compressive strength of 2,091 lb. to the square inch; No. 2, 97,620 and 2,712; and No. 3, 94,000 and 2,628. The blocks were set top and bottom in plaster to ensure an even bearing. The result of the test was signed by Professor R. W. Chapman and dated June 9. Three blocks 32 days old were also submitted. These were the same as those for which the seven days' tests were reported on June 9. Each block had a breaking load of 100,000 lb., with a compressive strength of more than 2,778 lb. to the square inch, and each block went beyond the capacity of the machine without failure. These reports were dated June 29, and were also signed by Professor Chapman.



Mr. G. D. Mudie

who has been appointed town clerk and surveyor of Hindmarsh. He was educated at Kyre College (now Scotch College) and has a Bachelor of Engineering degree of Adelaide University and a Fellowship Diploma of the South Australian School of Mines. Mr. Mudie, who is a son of Mr. H. M. Mudie (formerly manager of the Savings Bank of South Australia) is a member of the South Australian Caledonian Society.

FREE CHURCHMEN PROTEST

University Celebrations in St. Peter's Cathedral

ALLEGED PREFERENCE FOR ANGLICANS

In the programme issued for the forthcoming jubilee celebrations of the University of Adelaide it is stated that there will be a "Cathedral service" on Sunday afternoon, August 15.

This has not met with the approval of members of some denominations other than the Church of England. The action was this morning described as sectarian and unwarranted.

"In view of the non-sectarian character of the University and the fact that its foundation was due largely to the munificence of leading non-Episcopalians like the late Dr. James Jefferis, it seems extraordinary that the council of the University should contemplate a celebration which is apparently to be limited, so far as participation is concerned, to Anglicans," said Principal E. S. Kiek, M.A., B.D. (Principal of Parkin College).

"The action of the council has caused much surprise and even indignation among members of the non-Episcopal churches, especially those who are graduates of the University," he added.

"As chairman of the Congregational Union I desire to enter a protest against the action of the University Council in arranging to celebrate the jubilee of the University at St. Peter's Cathedral," stated the Rev. A. C. Stevens, M.A. (chairman of the Congregational Union).

No State Church

"I take it for granted that there is no question that the Bishop would prohibit leading Free Churchmen from taking part in that service. The University has thus identified itself with a particular section of the church, and both the Roman Catholic people and the Free Churches have a legitimate grievance. Representations have been unofficially made to the University authorities, and we have been told that they are following the precedent of Melbourne University. This is undoubtedly a bad one. There is no State Church in Australia, and the University has no right to discriminate in giving preference officially to one or other religious body.

"If any religious section should have the pre-eminence in South Australia it should be the Free Churches, which constituted Union College at the time of the foundation of the University.

Democracy Passed Over

"The University," Mr. Stevens proceeded, "owes its foundation to the authorities of Union College, who diverted a huge financial donation from their own funds to the foundation of the University of Adelaide. The best way for the University to get over this undoubted difficulty and to act in a fair and democratic manner is to arrange for simultaneous services in the Roman Catholic Cathedral, the Anglican Cathedral, and a united service for Free Churchmen in the Adelaide Town Hall."

"As a member of the University Senate I was surprised when I got my programme to see that such a service had been arranged," said the Rev. A. C. Hill (secretary of the Baptist Union).

"There is no State church in Australia, and it seems wrong to cut off from the service other denominations. I should think that a general service to include all sects should have been arranged. The action is sectarian, and there is no reason for it in a State University."

Not Sectarian Celebration

"It is obvious that the jubilee of the University should not be merely a sectarian celebration," remarked the Rev. L. N. Beurie (minister of the North Adelaide Baptist Church).

"The assistance rendered in the founding of the University by Free Church authorities has been gratefully acknowledged hitherto. It is not impossible to make the service a united one. I trust that it will not be a purely Anglican service, and that Dr. A. N. Thomas (Bishop of Adelaide) will see his way to associate with it members of those churches which contributed to the foundation of the University."

The Rev. Brian Wibberley, Mus. Bac. (president of the Methodist Conference) said that it would not be becoming of him to make a statement. Prof. E. H. Rennie (acting Vice-Chancellor of the University and chairman of the celebration committee) declined to offer any comment.

His first lecture 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 often determine if the crop could be grown profitably or not. 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. The soil chemist was still exercising a considerable amount of thought and time in devising methods which would give the information desired by farmers. The chemical properties were interesting and important. The soil was an absorptive power for fertilisers and various substances. By virtue of the large surface offered by the sum total of the particles, many important chemical fertilisers were retained, and were not washed away by rain. That was of particular value in the case of sulphate of ammonia, potassium, and phosphate fertilisers. In the case of nitrate the fertiliser was not retained, and was easily washed away by rain. On that account, nitrate fertilisers were generally applied to the growing crop. The earliest fertiliser was farmyard manure. It supplied not only the necessary foodstuff, but the required organic matter for improving the soil. The most important fertilisers were phosphate, potassium salts, and nitrogen compounds, on account of the deficiency of those three important elements in the soil. In Australia phosphates were extremely important. The effect of relatively small amounts of phosphate in South Australia was so striking that it had attracted the attention of scientists throughout the world. Superphosphate was the most extensively used fertiliser 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 phosphate. The effects of phosphate on pasture 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 value of potassium salts was well known, but in Australia few instances had come to light where potassium fertilisers 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 following was thus suitable nitrogen compounds were accumulated 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. In the matter of fertilisers an important law, which had been established, was the law of diminishing returns. Generally speaking, it was the first hundredweight applied to the crop which produced the largest yield. The second and third produced progressively smaller yields.

The lecturer said 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. Quicklime was the quickest in action, but in many cases carbonate of lime, if ground sufficiently fine, might be found to be of service. The ideal soil was that which was suitably supplied with lime compounds. With the present cost of labor throughout the world, farmers frequently found it advisable to grow crops suitable to their soil conditions, rather than to purchase lime. An interesting modern test for soil acidity was devised by Professor Chamberlain of Leeds University. A small quantity of soil was shaken up with a reagent, which was a five per cent. solution of potassium salicylate. Acid soils developed a reddish color, whereas alkali soils generally developed no color at all, but if they did it was a yellowish one. The test was of value to the practical man, for he could determine in a short time whether his soil was in need of lime or not.

THE SOIL.

LECTURE ON CHEMICAL PROPERTIES.

The second of a series of three lectures on "The soil; from the physical, chemical, and biological points of view," was delivered by Professor J. A. Prescott (Waite Research Institute), at the University on Tuesday night. Professor Darnley Naylor presided.

Professor Prescott said the lecture dealt with the chemical properties of the soil, which were necessary for the growth of plants. Soil factors, which were important in that connection, were adequate air space, water supply, suitable temperatures, plant foods, and the absence of injurious factors, and, in addition, adequate root space. The air in the soil was of great importance to the plants, as the roots would not function unless an adequate air supply was present. If the soil was waterlogged, any oxygen in the water was soon used up, and plants, with the possible exception of rice, lost their health rapidly. The next item to be considered was water supply. The relationship between the yields of crops and the rainfall was sufficiently marked in South Australia. There was a certain factor in it, which was to be considered, and that was whether summer rains were desirable or otherwise. There was evidence that too much rain in the summer was not desirable from the point of view of the wheat producer. The food of the plants was derived from the following elements in the soil:—Nitrogen, phosphorus, potassium, calcium, magnesium, iron, and sulphur. There were other elements which were possibly needed in small amounts, but when they were present to too great an extent they 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 was known to the South Australian farmer as magnesia. Generally speaking, magnesia was found to consist mainly of salts of sodium. The most dreaded was black alkali, which was associated with the presence of sodium carbonate. The accumulation of injurious salts was nearly always connected with seepage. Under arid conditions the salts were leached and accumulated at lower levels. The problems of drainage in irrigation settlements were just as important as the problems of applying irrigation water, and there was no doubt many serious difficulties had arisen in the Murray Valley in that connection. A cure for soil alkalinity was discovered many years ago in California by the use of

FIFTY YEARS AGO.

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It is understood that the Rev. John Davidson has resigned the charge of Chalmers Church, owing to his duties in connection with the Adelaide University absorbing so much of his time and attention. Arrangements have been entered into to secure a minister from Scotland, and in the meantime Mr. Davidson will carry on his ministerial duties.

The Vice-Chancellor of the Adelaide University (Professor W. Mitchell), who went to Scotland to deliver Gifford lectures at the University of Aberdeen, and who reached Sydney by the Aorangi on Friday, is expected to return to Adelaide during the next two or three days. Professor Mitchell also visited the McGill University in Montreal, Canada, and the Hart House, an adjunct of the University.