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LIME SAND AT KING ISLAND

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In 1951, I reported on the Lime Deposits of King Island and gave analyses and screen test results of lime sand from several areas on the West Coast, at the same time pointing out that there were many other hills either grassed or bare along practically the whole coast, composed of lime sand. Since that time the sand for use on Closer Settlement farms has been obtained from the Badger Box Creek Deposits. It has been found that the grade of this deposit is too low (my samples showed only 57% CaCO_3) and it has also been hoped to find some deposit closer to the farms. As the deposits are so widespread, it is largely a matter of locality, combined with careful testing, that will determine the most favourable to use.

The closest of these coast hills to the settlement is situated about three miles from the nearest farm. About five and a half miles along the Grassy Road from the intersection of the South Road, a new settlement road runs south. From this point also, an old road, which links the Grassy and South Roads, runs in a westerly direction. At 2.8 miles along this road the plain country over which it has been passing gives way to the first of the coast lime hills. This is on Grahams property and small blows are apparent here and there, where the grass cover has been removed. The road from the Grassy Road is very rough but can still be traversed by car and, although the surface would have to be improved, no major work should be necessary. Two culverts may have to be strengthened.

Where the lime sand is exposed to the air, it hardens and sometimes concretions of purer lime material are formed. The hard material is only a thin crust on the surface and in a few inches the sand is quite soft and free-running. The top two feet of the surface is a mixture of lime sand, humus and roots etc. and would have to be discarded but below this the material seems fairly constant.

Samples were taken by clearing the surface of an open blow, which had developed in the side of a steep hill.

The following results were obtained:-

Sample No.	Depth from surface	CaCO_3	MgCO_3	Al_2O_3 & Fe_2O_3	Acid Insol.
1	2' - 4'	66.8	3.1	1.6	26.7
2	4' - 6'	70.3	3.1	1.3	23.5
3	12' - 15'	68.7	3.1	1.2	25.2

It will be seen that the CaCO_3 content of nearly 70% is fairly constant and that the deposit contains about 25% of silica compared with 40% at the Badger Box.

A screen analysis of the samples showed:-

Sample No.	+ 44	+ 60	+ 100	- 100
1.	53.4	21.4	18.3	6.9
2.	52.6	22.0	19.0	6.4
3.	37.6	24.9	27.5	10.0

This sand is thus much coarser than that obtainable from the Badger Box or other coastal deposits previously sampled.

Another sample (Barnes') was taken, over three feet, from a small blow near the intersection of the Grassy and South Roads. Although this locality is about three miles further from the farms, no money would have to be spent on road works. The sample showed -

CaCO ₃	-	57.1%
MgCO ₃	-	2.5%
Fe ₂ O ₃	-	1.1%
Al ₂ O ₃	-	37.3%
Insol	-	

indicating that the grade is not as high as at Grahams deposit. However, it should be noted that the grain size is smaller, viz.,

+	44	-	17.8%
+	60	-	21.5%
+	100	-	45.7%
-	100	-	15.0%

These deposits at Graham's then, because of their closeness to the farms, the ease of obtaining the material and the higher grade, seems greatly preferable to those at present being obtained from the Badger Box, and, if it is not found that the larger grain size makes the time of availability too long, consideration should be given to their use.

Owing to the fact that the percentage of waste material, the acid insoluble, is not constant, it is further recommended that simple field tests should be regularly made to determine the percentage of this. An outline of this procedure is as follows -

A sample of about 20 pounds should be obtained vertically down the whole face. This should be quartered down (by continually mixing thoroughly, dividing the heap into four and taking opposite quarters) on a clean sheet until a sample of about 50 grams is obtained. This should be weighed and then placed in a beaker, covered with water and some dilute hydrochloric acid (about 1 of acid to 4 of water) poured in and gently mixed until all effervescence ceases. More acid should be added to be certain of this and the beaker covered during effervescence. The residue, which should be practically all silica, should then be filtered, dried thoroughly and weighed.

The first few samples should be checked by sending a portion of each to this Department (The Chief Chemist, Launceston) for analysis.

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The locations of these deposits can be seen on the following air photographs -

Graham's	Run 6	No. 20527
Barnes'	Run 5	No. 20450