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REPORT ON TESTING OF BAUXITE NEAR CAMPBELL TOWN, TASMANIA

by

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Introductory remarks regarding situation, access and so on of these deposits is omitted as being unnecessary to this report.

Bauxite deposits on Rosedale, Meadowbank and Riccarton Estates at Campbell Town were tested by shaft sinking and boring during November, and December 1946. Earlier than this the Tasmanian Mines Department had sunk a number of shafts on the deposits, mainly at widely spaced intervals. The work undertaken by the Aluminium Commission mainly consisted of testing between the shafts sunk by the Mines Department, so that the interval between the points tested was reduced to 200 feet or less. A few of the old shafts were cleaned out and re-sampled.

A. Rosedale Estate.

This property lies about 3 miles north-west from Campbell Town on the north side of the Cressy road.

There are three separate bauxite areas of which No. 1 and 2 have been tested. No. 3 Area, is a small residual of insufficient area or thickness to be of any commercial significance. No. 1 Area, also, is small and No. 2 Area occupies a flat-topped ridge about half a mile long by 200 feet wide.

The Mines Department shafts were, for the most part, sunk from higher points on the gently undulating surface of the deposit, and consequently intersected a greater thickness of laterite (or bauxite) than the holes which were sunk between the existing shafts.

Results of both campaigns of testing are summarised in the following Tables.

Table I.

Shaft No.	Tasmanian Mines Department			Australian Aluminium Commission		
	thickness feet	Al_2O_3 in NaOH %	SiO_2 in NaOH %	thickness feet	Avail. Al_2O_3 %	Na_2O loss, cwt/ton Al_2O_3
1	6.3	23.3	7.9	5 feet sampled, not bauxite		
2	7.8	30.3	5.1	4	34.1	1.03
3	5.0	36.6	6.6	Not re-sampled.		
4	4.0	44.7	3.7	Not re-sampled.		
5	7.0	33.3	2.4*	Not re-sampled.		
6	6.2	28.8	5.5	1	36.5	1.44
7	4.5	44.7	3.8	3.5	43.0	0.65

*(Shaft 5). Some clay rejected from sample.

TABLE II.

FIGURES FOR SHAFTS SUNK BY ALUMINIUM COMMISSION.

Shaft or bore	Thickness Sampled	Thickness of Economic bauxite	Avail. Al_2O_3	Na_2O loss
R 1	5.5	Nil	-	-
R 2	Nil	-	-	-
R 3	13	3	31.6	1.03
R 4	Nil	-	-	-
R 5	22	Nil	-	-
R 6	10.5	Nil	-	-
R 7	4	Nil	-	-
R 8	4	Nil	-	-
R 9	24	Nil	-	-
R 10	19	Nil	-	-

No comment on these figures appears necessary. Of 17 shafts on No. 3 Area only four proved the presence of economic bauxite, and the maximum thickness revealed was only 4 feet.

B. Meadowbank Estate.

This property adjoins Rosedale on the east. There are five separate bauxite areas, but only one of them, No. 4, is large, being approximately the same areas as No. 2 Area on Rosedale Estate.

The Mines Department sank 10 shafts at intervals ranging from 560 feet to 210 feet on No. 4 Area, and a group of 20 shafts at intervals of 25 feet near the southern end of the same area.

Of the first 10 shafts only three were deemed by the Mines Department to be worth sampling. One of these three and two others were reopened and sampled by the Commission.

RESULTS:

TABLE III.

Shaft No.	Tasmanian Mines Department			Australian Aluminium Commission		
	Thickness Feet	Al_2O_3 in NaOH %	SiO_2 in NaOH %	Thickness Feet	Avail. Na_2O_3 %	Na_2O loss cwt/ton Al_2O_3
8	5	36.2	6.2	3 3	34.0 31.8	1.24) 1.33)
11		Not sampled		8	Bauxite nodules in red clay	
12		Not sampled		3	23,6	-
16	2.5	33.3	2.1	Not re-opened		
17	4.2	37.1	6.0	Not re-opened		

TABLE IV.

SHAFTS SUNK BY COMMISSION.

Shaft No.	Thickness Sampled feet	Thickness Economic bauxite feet	Avail. Al_2O_3 %	Na_2O loss cwt/ton Al_2O_3
M 1	3	Nil	-	-
M 2	4.5	4.5	33.5	0.75
M3	Nil	-	-	-
M 4	Nil	-	-	-
M 5	3.5	-	-	-
M 6	4	Nil	-	-
M 7	Nil	-	-	-
M 8	5	-	-	-

These results effectively dispose of Area No. 4 at Meadowbank as a potential source of bauxite. It is known that high grade bauxite occurs in Area 8, Meadowbank, but the deposit is very small and not likely to contain more than 1500 tons of bauxite per vertical foot.

C. Riccarton Estate.

The supposed bauxite deposits on Riccarton lie about 1½ miles north-east from Campbell Town.

The largest deposits, No. 13-14, both of which were tested, are characterised by the highly ferruginous nature of their outcrops (one sample - 34.6% Al_2O_3, 39.9% Fe_2O_3, 1.75% SiO_2) which are typical laterites.

The results of testing these two areas were most discouraging. Four shafts on No. 13 Area failed to penetrate bauxite except sparse nodules of highly ferruginous material embedded in red clay. Ten bores on No. 14 Area also failed to encounter any bauxite and all passed into kaolinized basalt at shallow depth.

Any bauxite which exists on Riccarton is confined to the comparatively limited outcrop areas and is highly ferruginous.

Analysis of three samples representative of a vertical succession on Area 15, Riccarton are not without interest.

TABLE V.

Sample	1/c	2/c	3/c
SiO_2	1.9	3.8	11.6
Al_2O_3	28.4	41.0	41.6
Fe_2O_3	43.0	21.7	13.4
TiO_2	4.5	8.7	8.3
Ing. loss	16.9	25.4	24.1
Avail. Al_2O_3	-	39.6	33.5
Na_2O loss cwt/ton Al_2O_3	-	0.45	2.95
Approx. vertical thickness, feet	4	3	3

1/c Ferruginous capping.
2/c Underlying light-brown soft bauxite.
3/c Soft bauxite showing basaltic texture.

D. Summary of results.

The testing carried out by the Commission has served to prove what was already indicated by the work of the Tasmanian Mines Department.

Bauxite of economic grade does not exist in sufficient quantity at Campbell Town to make the occurrences of commercial value.

Small patches of good ore may exist on Meadowbank in Areas 6, 7 and 8, but there is no reason as far as No. 6 and 7 are concerned to expect better results than those obtained on the areas tested already. As already mentioned Area 8 is very small.

The occurrences are fairly typical ferruginous laterites. In some instances migration of iron upwards to form the limonitic capping has left a narrow zone impoverished in iron and consequently enriched in alumina, (As at Area 15). The high-alumina zone appears to be not only thin, but very limited in horizontal extent, and not present on Rosedale or Meadowbank where the bauxite, such as there is, consists of highly aluminous nodules embedded in a clayey matrix.

It is not considered that any steps should be taken to acquire leases at Campbell Town over the areas tested.

MELBOURNE.
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