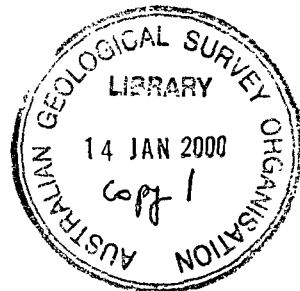


RECORD 1946/2

PRELIMINARY REPORT ON THE RESULTS OF TESTING BAUXITE DEPOSITS
AT OUSE, TASMANIA

by

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DEPARTMENT OF SUPPLY AND SHIPPING

Mineral Resources Survey Branch

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Report No.1946/2.

1. INTRODUCTION

This report deals with all the known bauxite deposits at Ouse including one occurrence on Cleveland Estate, but it must be pointed out that the tonnage figures quoted have been calculated from incomplete data for all deposits other than No.2.

Eleven of twelve deposits near Ouse have been or are being tested by boring and shaft-sinking; one on Cleveland Estate has been tested by shallow pits and one on Lawrenny Estate is regarded as too small to be worth testing. This remark also applies to the deposit belonging to the group near Ouse which has not been tested.

II. SITUATION, ACCESS, WATER, POWER, FUEL, ETC.

Ouse is a small town on the Lyell Highway 55½ miles north-west from Hobart. The nearest railway station is Macquarie Plains, 25 miles by road from Ouse. The principal bauxite deposit, No. 2, is 3¼ miles by road north-west from Ouse and from this point a group of disconnected deposits forms an irregular line to a point about 1½ miles south-east from the town.

Ample water is available from the River Ouse and could be taken from a point one mile from the eastern edge of No. 2 deposit.

Power lines from Tarrabah Hydro-electric station to Boyer and Hobart straddle the line of bauxite deposits. The River Ouse offers opportunity of hydro-electric generation a few miles upstream (north) from the town.

The Langloh (Hamilton) Coal Mine is situated about 10 miles by road from No. 2 bauxite deposit.

Limestone is available at a distance of 26 miles, and hardwood timber can be procured from mills near Ellendale, about 15 miles to the south.

III. NOTES ON GEOLOGY WITH REFERENCE TO BAUXITE.

The following succession is exposed in a comparatively confined area around the bauxite deposits.

Recent:	Alluvium; soil, clay, sand, gravel.
Recent or Pleistocene:)	Gravels; coarse gravels and boulders on old river terraces, about 10 ft. thick.
Tertiary:	(Basalt (Sand & clay, hard sandy and ferruginous bands. (Basalt (Sand and clay with bands of concretionary (ironstone containing leaf impressions.
Tertiary ?	Bauxite
Trias.Jura ?	Dolerite (diabase) sills and dykes.

Triassic) Felspathic sandstone (Coal measures)
) Sandstone (Ross series).

The bauxite invariably rests on weathered dolerite but may be separated from it by clay of uncertain origin but not improbably residual from weathering of dolerite. In many instances, the bauxite may be observed passing into clayey weathered dolerite with the granular texture of the parent rock (dolerite) well preserved in the bauxite. Passing upward the bauxite generally loses the doleritic texture, becoming sub-pisolitic, and finally gives way to a capping of hard pisolitic bauxite resulting from chemical deposition. Some shafts on No.2 Area have disclosed a sharp line of demarcation separating the bauxite from the dolerite. In such cases the parent material of the bauxite has been laid down on an exposed land surface and subsequent bauxitization has not penetrated the underlying dolerite.

Most of the bauxite is exposed at the surface or covered by thin red clayey soil containing fragments of bauxite. Weathering has opened the joints of the outcropping bauxite with the result that in places the surface to a depth of one or two feet consists of bauxite boulders embedded in red or brown clay which constitutes from 10 to 50 per cent of this upper layer.

On the eastern fringes of the deposits the bauxite passes under Tertiary sediments consisting almost wholly of clay with concretionary ironstone boulders and, uncommonly, thin seams of lignite. Over the southern deposits the overburden contains narrow bands of sand and sandy clay.

IV. SUMMARY OF RESERVES

D E P O S I T		Tons	% Al_2O_3	% Insol
No. in D.R.D's Report.	Name			
1	Glen Dhu	5,000	x	x
2	Gladfield	505,000	41.1	5.8
3	"	Nil.	x	x
4	"	Nil.	-	-
5	"	Nil.	-	-
6	Leintwardine	10,000	x	x
7	"	Nil.	-	-
8	"	52,000	x	x
9	"	23,000	x	x
10	Lachlan Vale	19,000	x	x
11	" "	50,000 ^o	x	x
12	" "	83,000 ^o	x	x
	Lawrenny	Very small	-	-
	Cleveland	Very small	-	-
Total:		742,000		

x Insufficient assay results available.

^o Drilling still in progress, estimate made on incomplete figures only.

V. BRIEF DESCRIPTIONS OF INDIVIDUAL DEPOSITS

- A. No. 1, Glen Dhu, mainly consists of residual boulders lying in clayey soil over weathered dolerite. A limited area of solid bauxite could be quarried to yield about 5,000 tons.
- B. No. 2, Gladfield. The largest deposit in the area. This has been tested by 73 shafts sunk by the Tasmanian Mines Dept. and 85 bores and 24 pits sunk during the present investigation.

The bauxite has an average thickness of 9 feet with a maximum of 18 feet. The body dips to the east at about $6\frac{1}{2}^{\circ}$ and at the south-eastern quarter passes under Tertiary clays with lignite. The outcrop has a maximum length of 2,400 feet from west-northwest to east-southeast and maximum width from north to south of 1,500 feet. The outline is irregular and the body is divided into a large central section constricted to a width of 300 feet from west to east in the middle, and smaller western and south - eastern sections.

The tonnages in each block or section have been calculated separately, the large central section being divided into two blocks, viz. Northern and Central.

The results of calculation using a factor of 1.6 tons per cubic yard of bauxite in situ (Dickinson, 1943) are :-

1. Northern Block

Line	Tons	Al ₂ O ₃ %	Insol %	Tons	Al ₂ O ₃ %	Insol %
600N	6,200	38.3	8.2			
500N	18,700	40.9	7.3			
400N	30,800	40.3	6.5			
300N	52,100	41.7	5.0			
200N	62,000	41.8	6.1			
100N	33,300	40.5	6.1			
00	15,800	41.6	6.9			
	218,900	41.45	6.1	218,900	41.45	6.1

2. Central Block

100S	20,200	41.6	5.4			
200S	33,900	40.9	7.0			
300S	46,100	40.4	4.8			
400S	39,000	41.1	4.6			
500S	27,300	39.1	5.1			
600S	9,600	38.8	6.2			
	176,100	40.5	5.4	176,100	40.5	5.4

3. Southeastern Block

500S	5,300	47.4	8.6			
600S	18,500	40.5	4.7			
700S	25,500	42.0	6.1			
800S	9,500	39.6	8.1			
900S	5,900	-	-			
	64,700	41.6	6.2	64,700	41.6	6.2

4. Western Block

100N	5,300					
00	13,000					
100S	1,500					
	19,800			19,800	40	6
Total "solid" bauxite				479,500	41.1	5.9

Total "solid" bauxite 479,500 41.1 5.9

5. Recoverable bauxite present as boulders immediately above the solid bauxite.

Northern Block	13,800 tons			
Central "	6,000 "			
Southeastern "	2,700 "			
Western "	1,000 "			
	23,500 "	23,500	41.7 ⁺	4.7 ⁺
		503,000	41.1	5.8

6. Line 700N outside Gladfield Estate approx. 2,000

505,000 41.1 5.8

+ Average of 14 analyses of hard pisolitic bauxite.

- C. Nos. 3, 4, 5, Gladfield. It is considered that none of these deposits would yield any useful tonnage of bauxite.

Nos. 3 & 4 were tested by drilling and it was found that they consisted essentially of scattered residual boulders lying in soil on weathered dolerite.

No. 3 deposit may extend somewhat to the south under grey soil but any such extension cannot be large, being limited by outcropping dolerite.

No. 5 deposit is very small in area and is surrounded by dolerite. No drilling was done on this deposit.

- D. No. 6. Leintwardine. 10,000 tons. Erosion of this deposit is in a fairly advanced stage and it was found that a large area of the apparently solid outcrop consisted of residual boulders. It is estimated from the results of boring that about 10,000 tons of bauxite could be won. The grade will not be known until assay results come to hand.

- E. No. 7. Leintwardine. Three bores were put down on the north-eastern, eastern and southern sides of this small outcrop. The bores indicated that the body does not extend under the Tertiary clay. Bore No. 1 was drilled on a site tested by resistivity methods and confirmed the negative result then indicated.

- F. No. 8 Leintwardine. 52,000 tons. This body of bauxite extends in an easterly direction beneath soil and Tertiary clay. The bauxite is rather dense with well preserved doleritic texture and at its lower limit passes into clayey weathered dolerite. Analyses of two samples from bore 9 which penetrated the bauxite beneath soil and clay cover yielded -

Thickness feet		Al ₂ O ₃ %	Insol %
From	To		
5'	- 7'	43.7	13.4
7'	- 10'	47.5	8.5

No other analyses are available yet.

- G. No. 9 Leintwardine. 23,000 tons. The outcrop of this body is approximately circular in plan and is surrounded by outcropping dolerite. The maximum thickness penetrated near the southern edge of the body is 7 feet.

- H. No. 10 Lachlan Vale. 19,000 tons. No. 10 deposit occurs as a narrow lenticular outcrop about 400 feet long by 50 feet wide striking north-west. It dips north-east at 17° passing under cover of Tertiary clay. Three bores revealed thicknesses of 9.5, 9.5 and 3 feet respectively under 20 feet of overburden, and a shaft near the outcrop passed through 14 feet of bauxite.

A fourth bore at a point 170 feet north-east of the outcrop was abandoned at a depth of 29 feet without striking bauxite. Estimated tonnage is 19,000, but the grade is not yet known.

- I. No. 11. Lachlan Vale. Boring on this deposit was not complete at 22/12/45, but a tonnage of 50,000 was indicated at that stage. The body is similar to No. 10 with which it is connected.
- J. No. 12. Lachlan Vale. Only three bores had been sunk on this deposit prior to the Christmas holidays. The results of these bores considered together with results of shaft-sinking by the State Mines Department showed an average thickness of bauxite of 12 feet with maximum of 20 feet beneath overburden averaging 7 feet with maximum thickness of 18 feet. The bauxite dips into the slope of the hill like that in No. 10 and 11 deposits and further boring will disclose thicker overburden. So far, testing has indicated the presence of 83,000 tons of bauxite.

CANBERRA.
18th January, 1946.

(H. B. Owen)
Geologist.