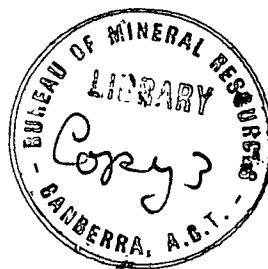


COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF SUPPLY AND DEVELOPMENT.
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

~~REPORT No.~~
RECORDS 1950/24



THE BAUXITE RESOURCES OF VICTORIA

by

H.B. Owen

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CANBERRA.

14th August, 1950.

INTRODUCTION & SUMMARY

With the exception of an apparently isolated occurrence at Gelliondale, bauxite is known to occur only within an area of 250 square miles lying to the south of the Gippsland railway in the County of Buln Buln. The village of Boolarra which is 75 miles east-south-east from Melbourne is centrally placed in this area, and all known bauxite deposits of commercial significance are within six miles of one or the other of the two branch lines which connect Mirboo North and Thorpdale to the main railway.

The results of the joint investigation conducted by the Mineral Resources Survey, the Victorian Mines Department and Sulphates Pty Ltd. in 1942-43 have been published in a Bulletin (Raggatt, Owen and Hille, 1945) to which reference should be made for further details than are repeated here.

Towards the end of 1946 the Australian Aluminium Production Commission began an examination of several bauxite deposits in the same region. Concurrently a geological reconnaissance of a wide area was conducted in a search for additional occurrences.

The following table of reserves incorporates both the earlier results taken from the work cited, and brought up to date in the light of more recent information, and the later results obtained during the course of the Aluminium Commission's prospecting operations during 1946 and 1947. Many small deposits examined during the second campaign are omitted from this summary but are described in the text.

All the deposits described in Bulletin 14 are listed in the table below and are numbered from 1 to 22 in the same order as that used previously, and also are distinguished on the accompanying locality plan by the same reference numbers. The new or previously unreported occurrences are numbered herein and on the plan from 23 onwards.

The proved reserves have been calculated to dry ore and are not reported as moist ore in situ as had been done previously. Following the example of Bulletin 14 the table is divided into two sections; the first sets out the more important deposits in which the reserves have been measured by systematic sub-surface exploration, and the second section shows less important or alienated deposits some of which have not been tested in detail, or have been explored by hand-boring only.

SUMMARY OF RESERVES

Section 1

No.	Deposit	Measured Reserves	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	TiO ₂	Av. Al ₂ O ₃	Na ₂ O loss
		Long tons dry ore	%	%	%	%	%	cwt.
1	Napier's No. 1	188,000	(6.0 5.0)	50.0 55.0	10.0 5.2	6.0 5.4	- (X)	-
2	Greenwood's	43,400	7.3	50.0	8.8	6.0	-	-
3	The Pines							
	I. Watkins (1)	206,900	10.1	51.6	5.4	5.3	-	-
	II. Napier's No. 2	17,000	10.0	50.8	7.6	4.8	-	-
4	Boolarra							
	I. Sulphates	46,600	5.0	53.0	6.5	4.5	-	-
	II. Orgill's	47,100	5.0	52.5	6.5	4.5	-	-

- (1) Data incomplete.
- (2) Estimates by Sulphates Ltd.
- (3) Erroneously shown in Bull. 14, P. 19 "100,000 tons or more".

GENERAL GEOLOGY.

Stratigraphy.

The succession known in the area covered by the locality map is as follows :-

Quaternary:	Recent	Alluvium	Clay, sand, gravel
Late or Post Tertiary:		Torrent Gravels	Gravel and sand
	Middle Miocene?	Yallourn Formation	Sand, clay, lignite.
Tertiary:	Lower Miocene) or Oligocene	Older Volcanics	{Bauxite Basalt & basaltic tuff Sand, clay, lignite
Mesozoic :	Jurassic	Wonthaggi	Sandstone, mudstone
		Coal Measures	black coal
Palaeozoic :	Ordovician	Lancefieldian	Quartzite, slate, chert.

During the examination in detail of very many bauxite occurrences in Gippsland the writer has not seen any bauxite which indubitably is overlain by volcanics, and it is considered that all the bauxites in the region occur at the one horizon above the Older Volcanics. At Napier's No. 1 deposit near Mirboo North several bores revealed quartz grit interposed between bauxite and kaolinized basalt and it is now considered that the relatively thin bands of bauxite overlying the grit, are lenses of detrital bauxite interstratified with Tertiary sediments. The evidence in favour of this view is strong. At Napier's No. 1 deposit the coarse sediments inferior to bauxite and immediately overlying weathered volcanics lie at the lowest level at which bauxite was encountered, and the small lenses of rubbly bauxite contain admixed quartz grit. There is ample evidence of the partial erosion of bauxite before deposition of the overlying sands, clay and lignite. Such erosion of the bauxite provides an adequate source of detrital material for deposition at lower levels, in the same manner as lenses of detrital bauxite were interstratified with Tertiary sand and gravel at the Arkansas bauxite deposits (Mead, 1915, pp. 33-37).

Structure. After the deposition of the beds of the Yallourn Formation strong faulting resulted in the development of troughs in which are preserved great thicknesses of Tertiary sediments including a maximum thickness of 780 feet of lignite in the Latrobe Valley.

A minor trough extends south-westerly from Morwell to Boolarra and is occupied by the Morwell River. At Boolarra this trough contains 800 feet of sediments including 350 feet of lignite and lignitic clay, overlying basalt.

Present day topography is largely a reflection of the major fault structure. On the downthrown side greater or lesser thicknesses of Tertiary rocks, both sedimentary and volcanic, have been preserved as indicated in the preceding paragraph. On the upthrown sides of the major faults the higher ground has been denuded of Tertiary formations and the Jurassic bedrock is exposed. The approximate positions of the major faults in the region are shown on the locality plan.

Adjustments along these fault lines have taken place through numerous parallel and branching faults which are reflected in the post Mesozoic formations by steep mono-clinal warping with widespread small scale fracturing rather than by large dislocations.

The significance of the faulting with reference to the bauxite is two-fold. First the area has been divided into blocks with the result that bauxite is found over a wide range of elevations between 500 and 1200 feet above sea level, and secondly, bodies of bauxite which occur near the major disturbances may be at high angles, and divided by small normal faults with, usually, throws of a few feet at the most. Such faults have provided loci for secondary chemical activity within the bauxite with deleterious effect on the ore. In many instances this secondary activity has resulted in the conversion of gibbsite to halloysite. Somewhat similar resiliation of bauxite has been observed in Arkansas and described by Goldman and Tracey (1946).

DESCRIPTION OF INDIVIDUAL DEPOSITS

No. 23 Wallace's.

Situation. This deposit occurs in Allotment 93, Parish of Allambee East, $4\frac{1}{2}$ miles by road south-south-west from the rail-head at Thorpdale. Access to the deposit is difficult as it lies at the bottom of a steep sided valley and is approached by a descent of approximately 350 feet in a distance of 700 yards south from the Dingley Dell road.

The creek on which the bauxite is situated flows south-westerly to join the western branch of the Darwin River at a point $\frac{1}{4}$ mile downstream from the village of Allambee South.

The outcrop occurs at an elevation of about 670 feet above sea level and extends along the right bank of the creek for a distance of 350 feet. As defined by boring and shaft-sinking the body occupies a roughly rectangular area 150 feet wide by 350 feet long. It has a gentle south-easterly dip towards the creek and consequently is overlain by relatively shallow overburden consisting mainly of soil and low grade weathered bauxite along the north-western margin. The bauxite rests on basalt which is exposed in the water course and was encountered in shafts and bores.

Geology. Bores sunk to the north of the body and at a higher elevation passed through sand, sandy clay and gravel into kaolinized basalt. The crest of the hill along which Dingley Dell road runs is occupied by volcanic soil giving an immediate but erroneous impression that the sandy beds and bauxite are overlain by basalt.

Reserves. Testing of the deposit revealed a maximum thickness of 17.5 feet of ore and an average thickness for the whole body of 13.7 feet. Overburden thickness ranges between 2.5 and 12.8 feet averaging about 6 feet, equivalent to a total volume of 10,000 cubic yards.

The composition of the economic ore is unusual for the Gippsland deposits in that the silica content is low and the ferric oxide figure relatively high.

Analyses of samples from two shafts are quoted to illustrate the composition of the bauxite. The first is the highest grade bauxite encountered and the second represents material excluded from the reserves on account of the low alumina content.

Depth Feet		SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	TiO ₂ %	Ign. Loss %	Avail. Al ₂ O ₃ %	Na ₂ O loss %
Shaft: 2008/210E								
0 to 3	Soil							
3 "	5 Hard ferruginous	1.5	47.8	20.1	4.2	26.2	46.3	0.38
5 "	9 bauxite	0.95	46.2	22.6	3.9	26.1	45.1	0.16
9 "	13 do.	0.75	48.7	20.2	3.8	27.3	47.8	0.13
13 "	17 Soft brown bauxite with seams of	0.80	50.9	15.9	4.1	28.0	49.0	0.25
17 "	20 amorphous gibbsite.	1.10	52.4	15.3	3.2	27.6	51.2	0.16
20 "	22 Not sampled - under water							
22	Kaolinized basalt							

Shaft: 3008/00								
0 "	5 Soil and detrital bauxite					Not sampled		
5 "	7 Ferruginous bauxite	5.0	35.2	32.5	4.7	22.6	32.0	1.21
7 "	9.5 do.	4.3	32.2	39.5	3.9	20.6	29.7	-
9.5 "	12.5 do.	2.3	43.7	25.2	4.4	25.0	42.7	0.52
12.5 "	19 Not sampled - under water							
19	Kaolinized basalt							

Total reserves proved in the deposit amount to 27,000 tons of dry ore containing:

3.7% SiO₂; 50.2% Al₂O₃; 14.2% Fe₂O₃; 4.5% TiO₂ and 47.3%

Available Al₂ O₃ . The average soda loss figure is 0.59 cwt.

Na₂O per ton of available alumina.

Deposit 24. Walker's

Small separate bodies of bauxite form inconspicuous outcrops in the central and northern parts of Allotment 26D, Parish of Budgerie, at 5½ and 6 miles by road east-south-east from Yinnar railway station.

The more important of the six known occurrences in the locality including one in Allotment 28 lie in the eastern side of a valley deeply incised into the Older Basalt by a branch of Belbrook Creek.

The northern-most outcrop is a narrow, nearly horizontal, band of bauxite trending north-westerly along the contours of the valley side for a distance of 330 feet. The outcrop lies at an elevation of approximately 700 feet above sea level and is from 70 to 90 feet above the creek channel.

The topographic slope westerly from the bauxite to the creek is very steep, with an average drop of 4 feet in 7, but above the outcrop the rise to the east is only 1 in 8.

Boring along a line parallel to the outcrop 120 feet north-east from it showed that the bauxite thins to the north-east and lies on a basalt surface which dips north-easterly at about 14 degrees.

The southern bauxite occurrence in Allotment 23D makes a poor showing at the surface as a discontinuous line of boulders strewn along the basalt-sedimentary contact for a distance of 1200 feet.

Sub-surface testing showed that this occurrence consisted of three small detached bodies of bauxite probably separated from each other by small faults.

The northern-most of these three bodies outcrops at an elevation of about 730 feet above sea level on the eastern slope of the valley in a position analogous position to that of the first body described. The bauxite lies on an apparently irregular surface of weathered basalt with a mean dip to the east-south-east of about 17 degrees. This feature brings the bauxite beneath more than 50 feet of overburden at 130 feet from the outcrop. The maximum thickness of economic bauxite in the deposit is 19 feet.

The central body outcrops at slightly higher elevation than its northern counterpart and has a maximum thickness of only 9.5 feet, but it has a shallower dip to the east-north-east of about 10 degrees and consequently lies under shallower overburden.

The southern body lies in a shallow trough in the basalt surface which plunges to the north-west at about 5 degrees. Boring showed that economic bauxite was limited to an area measuring 200 feet long by a maximum width of 80 feet.

The usual geological succession was encountered in the deeper bores of which the following logs are typical.

Bore 5, Northern Outcrop.

Feet		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	Ign. Loss
		%	%	%	%
0 to 1	Soil				
1 "	7 Yellow Sandy clay				
7 "	36 Yellow sand				
36 "	52 Orange sand				
52 "	55 Grey clay				
55 "	60 Brown clay				
60 "	62 Bauxite and clay	-	-	-	16.1
62 "	65 Ferruginous bauxite	1.6	36.8	32.9	22.0
65 "	68 ditto.	2.4	35.4	36.2	21.3
68 "	71 Clay	-	-	-	12.8
71 "	72 Soft clayey bauxite	-	-	-	17.2
72 "	75 Basaltic clay				

Feet		SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	Ign. loss %
Bore 3, Southern Outcrop.					
0 to 2	Soil and sand				
2 " 4	Sandy clay				
4 " 14	Clay				
14 " 46	White sand				
46 " 50	Lignitic clay				
50 to 54	Lignite				
54 " 60	Clay				
60 " 62	Clay and nodules of bauxite				
62 " 68	Basaltic clay				

Reserves of Bauxite proved in Allotment 26D, Parish of Budgeree in the area referred to as "No. 24 deposit - Walker's" are summarized as follows :-

Body	Long tons (dry ore)	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	TiO ₂ %	Avail. Al ₂ O ₃ %	Na ₂ O loss cwt.	Overburden cubic yds.
Northern	22,500	4.8	48.2	16.5	5.8	43.6	0.97	33,000
Southern North	13,000	5.2	46.4	17.5	5.5	42.8	1.07	27,000
Centre	6,500	6.5	49.6	11.0	6.0	44.8	1.19	8,300
South	5,000	3.6	45.7	17.9	6.6	42.7	0.90	7,000
Total	47,000	5.0	46.6	16.1	5.8	43.4	1.02	75,300

No. 25 Deposit Peel's.

A small outcrop of light coloured bauxite in Allotment 19, Parish of Yinnar and lying half a mile to the west of another small occurrence in Allotment 23 appeared likely to represent a fairly extensive body, but drilling revealed it to have a maximum length of only 500 feet by an average width of about 100 feet.

The bauxite contained in this deposit is siliceous and fairly ferruginous and therefore unlikely to be attractive for any commercial purpose. One bore log with analyses of bauxite is given:-

Feet		SiO_2	Al_2O_3	Fe_2O_3	TiO_2	Ign. loss	Avail. Al_2O_3
		%	%	%	%	%	%
0 to 1	Soil						
1 "	39 Sand with ferruginous staining						
39 "	41 Red and grey clay						
41 "	43 Pink bauxite	29.4	43.1	5.1	3.4	20.1	34.4
43 "	47 ditto.	14.3	49.1	8.3	4.8	24.2	40.1
47 "	51 Red bauxite	9.6	47.0	18.4	4.4	20.7	38.0
51 "	55 ditto.	8.6	46.2	18.3	4.4	23.0	41.2
55 "	57 Red clay-like bauxite	6.9	43.8	22.1	4.1	23.0	37.4
57 "	58 Grey basaltic clay						

Reserves of siliceous bauxite proved in this deposit total 36,000 tons of the following composition:-

11.5 per cent SiO_2 ; 43.8 per cent Al_2O_3 ; 16.1 per cent Fe_2O_3 ; 4.9 per cent TiO_2 , with 33.0 per cent available Al_2O_3 .

The average thickness of overburden is 23½ feet and the total volume of overburden is 58,000 cubic yards.

No. 26 Deposit - Jeeralang.

Small scattered outcrops of bauxite and halloysite occurring about the margins of an area of about 40 acres of Upper Tertiary sediments in Allotment 4, Parish of Jeeralang were explored by shaft-sinking which revealed the presence of three small separate bodies of bauxite and not a continuous sheet. For convenience the three bodies are referred to as A, B and C and their relative positions are : B lies 1100 feet south of A, and C lies 800 feet east of B.

The resources of useful bauxite are much reduced by contamination by halloysite which in many instances raises the silica content to more than 15 per cent. However, notwithstanding the small reserves of ore and relatively poor grade the area, which lies high up the eastern scarp of the Boolarra trough, is of interest in that it affords an illustration of the disturbed conditions in proximity to the major fault zones. Bodies A and B and a small remnant 1200 feet north-east of A are sub-horizontal and lie at approximately similar elevations, but C, which is 800 feet east of, and 130 feet above B, dips north at 50 to 60 degrees. The eastern edge of body C lies 300 feet west of the faulted boundary between the Older Volcanics and Jurassic sandstone.

Total reserves of ore of economic grade are given in the following table :-

Reserves - Economic Grade

Body	Long Tons dry ore	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	TiO ₂ %	Avail. Al ₂ O ₃ %	Na ₂ O loss cwt.	Overburden cubic yds.
A.	16,000	8.2	52.2	6.5	5.3	44.8	1.61	13,000
B.	10,000	7.0	50.2	7.0	7.0	44.4	1.44	21,000
C.	2,000 ⁽¹⁾	7.3	53.5	3.8	6.1	47.0	1.80	3,000
	28,000	7.8	51.7	6.5	6.0	44.7	1.55	37,000

(1) To depth of 30 feet down the dip.

Inclusion of appreciable quantities of siliceous bauxite will not effect a reduction in iron content.

No. 27 Deposit. Prosper Valley.

Bauxite of good quality outcrops on the boundary between Allotments 14F and 15A, Parish of Budgerie, 4 miles by road south-east from Boolarra.

The exposure occurs in the bank of a short steep tributary to the Morwell River and lies at an approximate elevation of 400 feet above sea level. The usual stratigraphic succession is in evidence; Jurassic sandstone overlain by basalt is exposed in the river bank 400 yards south of the bauxite outcrop and at about 40 feet lower elevation. The bauxite which rests on the basalt is overlain by grey clay under sand.

The log of the deepest shaft sunk on the deposit is :-

Feet	Description	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	TiO ₂ %	Avail. Al ₂ O ₃ %
0 to 2	Soil					
2 "	5 Sand and clay					
5 "	22 Coarse brown sand					
22 "	34 Fine brown sand					
34 "	45 Grey clay					
45 "	47 Soft, grey bauxite	5.2	54.7	6.1	7.0	48.9
47 "	50 Bauxite passing to clay	12.0	45.2	14.4	4.9	35.1
50 "	52 Kaolinized basalt	-	-	-	-	-

The bauxite has a maximum thickness of 12 feet near the outcrop and dips at 15 degrees in a northerly direction into the steeply rising ground. Not only does the bauxite thus pass under an increasing thickness of overburden but the body also thins out and depreciates in grade down the dip.

Easily accessible bauxite of fair grade underlies a

strip no more than 50 feet wide by 200 feet long and amounts to 6,000 long tons. A further 2,000 tons of somewhat lower grade could be obtained by removal of double the amount of overburden.

Reserves are shown in the table below :-

No. 27 Deposit, Prosper Valley

Reserves of Bauxite

Tons.	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	TiO ₂ %	Avail. Al ₂ O ₃ %	Na ₂ O loss cwt.	Overburden cubic yds.
6,000 OR 8,000	6.5 7.0	52.2 51.4	7.6 8.2	6.0 6.0	47.1 45.8	1.4 1.6	4,000 8,000

Minor Occurrences.

During the course of the search in the area numerous small occurrences of bauxite were found or reported by local residents. Of these eight were tested by pit-sinking or boring and the remainder were rejected by surface inspection only.

As none of these occurrences contained useful quantities of bauxite the descriptions of them which follow have been compressed to a statement setting out the locality of each and such brief remarks as appear desirable. The eight which were tested below the surface are described first.

No. on Plan.	Parish	Allotment No.	Remarks.
-	Mirboo	148a	Bauxite outcrops at base of post-Volcanic sediments 1 mile east of Mirboo North, but hand-boring showed that it did not extend as much as 100 feet from outcrop.
28	do.	-	Timber Reserve, 3 miles south of Boolarra. As above, shafts and bores showed very limited extent of bauxite beyond visible traces.
30	Yinnar	9	Only broken bauxite in slump revealed by pit sinking.
29	Budgerie	10H	Machine bores and shafts revealed small separate bodies of grey bauxite containing about 12 per cent SiO ₂ .
-	do		South end of Mill Track, 1 mile ^{south} of the 24 area. Hand bores intersected thin clayey bauxite.
-	Jeeralang	7	Adjoining No. 26 Deposit. A very limited body with maximum thickness 8 feet and averaging 21 per cent SiO ₂ .
31	Traralgon	38, 38a, 40 & 42 Of A.	A narrow outcrop of bauxite striking east and west and capping a ridge was found to dip north at 50 degrees and average 17 per cent SiO ₂ , 49 per

No. on Plan	Parish	Allotment No.	Remarks.
31	Traralgon (cont.)		cent Al_2O_3 .
32	do.	40c & 58a	A thin body of bauxite, with maximum thickness of 3 feet was intersected by shafts and found to be dipping east at 25 degrees and intersected by numerous small faults.
-	Allambee East	44a	Very limited exposure surrounded by basaltic soil.
-	Narracan South	26	Bauxite occurs in slump but none found <u>in situ</u> at this locality which is 3 miles north-east of Nahoo. Access is difficult.
-	do.	120a	A small quarry has been opened in bauxite on the north bank of the Little Morwell River about $\frac{1}{2}$ mile west of Boolarra. The bauxite is faulted and contaminated with clay.
-	Mirboo		The presence of traces of bauxite was noted in Allotments 37 (1 mile south-east of Mirboo North), 50 and 142a (1 to 2 miles north of No. 22 area) and 20A and 131 ($\frac{1}{2}$ to 1 mile south of No. 12 area).
33	Yinnar	22	Bauxite of apparently high grade outcrops at $\frac{1}{4}$ mile north-east of No. 25 area in a position inaccessible to wheeled vehicles. The body is probably small.
-	do.	25	Traces of bauxite were found about 100 feet below the crest of a steep hill $1\frac{1}{2}$ miles south-west from No. 25 area.
-	Budgerie	14	Bauxite is exposed at $\frac{1}{2}$ mile west of Prosper Valley deposit on a very steep slope in the Morwell River Valley and dips into the rising ground.
-	do.	27	Bauxite occurs $\frac{1}{2}$ mile north of the No. 2 deposit in a deep gully very difficult of access. The deposit is very limited in extent and is probably of detrital origin.
-	Traralgon	30	A flat topped hill near Giants Chair is capped with residual boulders and fragments of bauxite. This is the only known deposit in the area which lacks a cover of post-Volcanic sediments; it is nevertheless of no commercial value.

Gelliondale.

Ferruginous bauxite occurs near Gelliondale in the Parish of Alberton west, County of Buln Buln at half a mile north-east of the Gelliondale railway station and 8 miles south-west from Yarram.

Gelliondale is situated on the coastal plain and is about 26 miles south-east from Boolarra.

The bauxite overlies basalt with which it forms a low rounded hill rising to about 40 feet above plain level. An area of approximately 600 feet by 100 feet is occupied by massive ferruginous bauxite without overburden. A quarry opened near the centre of the outcrop discloses a thickness of 6 feet of bauxite and it is believed that the maximum thickness of the body is not likely to exceed 10 feet.

Where exposed in the quarry face the bauxite consists of light brown, hard ferruginous concretions. Hollow shells of hard black and red hematite and limonite one inch thick and as much as 12 inches in diameter, enclose soft light brown and grey bauxite.

It is considered that the deposit contains reserves of the order of 10,000 tons, and the bauxite is much contaminated with sandy soil and clay introduced from the surface into the joints.

Unfortunately samples which were collected went astray in transit to the laboratory and no analyses are available.

DESCRIPTION OF THE BAUXITE

Colour.

The bauxite has a wide range in colour being commonly brown, pink or buff, but dark-red, white, grey and bluish-grey varieties are known. The greyish bauxite usually occurs at depth and has a higher iron and higher silica content than the pink or brownish varieties, the high iron figures usually are due to the presence of siderite and rarely pyrite.

Bauxite which is light grey or contains whitish patches at its outcrop is usually contaminated with halloysite and consequently siliceous, but light pink or buff varieties are usually low in silica.

Texture.

In the hand specimen, or in the wider view presented by a quarry face, the appearance of the bauxite ranges from a fine and apparently textureless earth to a nodular type in which blocks of hard gibbsitic material are set in a matrix of finer material.

Some quarry faces afford apparent evidence of stratification and this has been confirmed by the examination of thin sections (Raggatt, et al., 1945, pp. 27, 44 & 49). It must be stressed that the stratification is so poorly shown that it is not evident to the eye except in large exposures such as quarry faces.

Bauxite at Tamborine Mountain, Queensland also exhibits an apparent stratification although it is clearly derived from massive basalt. Also, published photographs (Mead, 1915, Goldman & Tracey, 1946) appear to show equally good evidence of "stratification" in the bauxite of Arkansas which is derived from massive nepheline syenite. Therefore it is not unreasonable to suggest that at least some of the supposed "stratification" seen in Victorian basalt bodies is misleading and that some, if not the greater part, of the bauxite in Gippsland is derived from basalt and not from pyroclastic material.

Chemical composition.

Analyses of various types of bauxite are given below all examples are taken from No. 24 area in the Parish of Budgerie. Analyses 2 to 8 represent a vertical succession of samples from the same bore. No. 1 analysis is of pink nodular bauxite from the upper surface of a nearby deposit.

No.	1	2	3	4	5	6	7	8
Depth from ground surface in feet	6.5-9	54-57	57-60	60-63	63-66	66-69	69-72	72-73.
Depth from surface of bauxite body in feet	0-2.5	3-6	6-9	9-12	12-15	15-18	18-21	21-22.
SiO ₂ %	2.3	6.7	1.2	1.5	1.1	2.7	2.9	6.4
Al ₂ O ₃ %	49.6	48.3	45.3	44.0	47.0	45.1	41.8	42.2
Fe ₂ O ₃ %	14.1	20.9	19.0	24.1	17.2	14.7	10.1	13.1
FeO %	-	0.04	3.05	0.9	2.8	5.3	11.6	9.2
CO ₂ %	-	0.11	1.94	0.8	1.7	3.4	6.9	5.7
CaO %	-	nil	nil	nil	nil	nil	0.3	nil
TiO ₂ %	5.5	6.2	6.3	6.0	4.9	5.2	5.3	5.6
H ₂ O %	27.3	17.9	23.2	22.5	25.1	21.5	21.3	16.9
Avail. Al ₂ O ₃ %	47.0	43.0	43.8	42.6	46.0	41.9	38.8	35.5
<ol style="list-style-type: none"> 1. Pink nodular bauxite 2. Red bauxite 3. Brown bauxite 4. Red bauxite 5. Brown bauxite containing siderite. 6. ditto. 7. ditto. 8. ditto. (Sample contaminated with underlying basaltic clay) 								

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H.B. Owen
Senior Geologist

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Bauxite Deposits

Boolarra Area, South Gippsland, Victoria

1 in = 1 mile.

Bauxite deposits shown ... 32
 Major faults ... D U
 Jurassic sandstone etc ...

• Giant's Chair

