UR1955/34-39 NOTES ON IRON ORE DEPOSITS IN TASMANIA.

1. BLYTHE RIVER HEMATITE DEPOSIT

(a) Location and Access

Situated on both banks of Blythe River, about five miles from its mouth, and some seven miles south-south-east from Burnie. Access is by motor road to within a short distance of the deposits.

(b) Literature

Published Reports

1894: A.Montgomery - Deposit of Iron Ore at Blythe River (Secretary for Mines Report, 1893-4).
1901: W.H. Twelvetrees - Blythe River Iron Ore Deposit (Secretary for Mines Report, 1901).
1919: W.H. Twelvetrees - Mineral Resources No.6, The Iron Ore Deposits of Tasmania.
1919: Boyd, Gibson and Young (Commonwealth Parliamentary Papers, House of Representatives, No. 164)

Typescript Reports (Unpublished)

1937: P.B. Nye - Blythe River Iron Deposits.

1939: W.G. Woolnough (Commonwealth Geological Adviser) - Examination of Iron Ore Deposits in Tasmania.

(c) The Deposit

This occurs in one main zone with a length of 65 chains over a width of 30 to 60 feet. It is known to occur from river level to a point 700 feet higher. The ore body consists of a zone of crushed and sheared quartzite, through which are scattered small disconnected lenses, containing hematite with varying proportions of silica.

(d) Development

The area was leased for nearly 20 years by the Blythe River Iron Mines Limited, but very little mining development was done to test the deposit. Mining works consist of five short adits, two small open cuts and a small number of trenches.

(e) Quality

A sampling campaign of the outcropping ore bodies and available underground works was undertaken by Messrs. Boyd, Gibson and Young for the Commonwealth Government in 1919. In all, 192 samples, together with a number of composite samples, were prepared and assayed. They concluded that it might be possible, in places, to mine ore of an average grade of 12% silica, but the gross quantity of this would be comparatively small and the mining and selecting costs prohibitive.

Nye concluded that the "quality of grade of the ore is certainly a doubtful point and it may be said that the proportion of high grade ore marketable in the deposit is small."

Average results of the better grade ore indicate an iron content of 63 per cent. and a silica content of 7 per cent. Some of the more siliceous

material assayed 44.63% iron and 32.8% silica.

(f) Quantity

Increased knowledge of these deposits led to a continued decrease in the estimates of quantity, viz:-

Montgomery, 1894	-	30,000,000 tons
Twelvetrees, 1901	-	17,291,000 tons
Boyd, Gibson and Young, 1919	-	8,834,000 tons
Nye, 1937	-	7,000,000 tons

Nye considered it "doubtful whether the deposit contains sufficient marketable ore to render it of economic importance". Woolnough concluded that there was "no justification for the belief that a major iron ore deposit exists in this locality".

2. TENTH LEGION MAGNETITE DEPOSITS

(a) Location and Access

This ironfield is situated five miles west of Zeehan at the foot of Mt. Agnew. Access is gained by way of the Zeehan-Trial Harbour road for four miles and then by foot track for a further distance of two miles.

(b) Literature

References to the deposits are made in the following departmental reports:-

Published Reports

1903: G.A. Waller - Report on the Iron and Zinc-lead Ore Deposits of the Comstock District.
1910: W.H. Twelvetrees and L.K. Ward - The Ore-Bodies of the Zeehan Field. (Geological Survey Bulletin No. 8)
1916: L.L. Waterhouse - The South Heemskirk Tin Field. (Geological Survey Bulletin No. 21)

Typescript Report (unpublished)

1940: F. Blake - Report on Magnetite Deposits in Comstock District.

(c) The Deposits

The iron deposits consist principally of magnetite with minor amounts of hematite and limonite. At least eleven small lenses occur in an area one mile in length by half a mile wide. The largest lens, the Tenth Legion, extends for 1700 feet with a width of 240 feet.

(d) Development

The area was held by Australian Iron and Steel Limited for about fifteen years and during this period seventeen adits were driven to test the various deposits.

(e) Quality

A series of 42 samples, representing sections across four lenses indicates that the ore is generally of high quality and consists essentially of iron (61.4 - 66.5%), with inconsiderable amounts of impurities

in the form of silica (0.46 - 4.2%), manganese (0.5 - 1.76%), phosphoric acid (0.03 - 0.05%), titanic oxide (0.03 - 0.06%), alumina (0.71 - 1.91%), lime (trace - 0.07%), magnesium oxide (0.73 - 2.3%), and sulphur (0.02 - 0.32%).

(f) Quantity

A total of 2,719,730 tons of high grade ore has been proved to exist above adit level in seven of the lenses. In addition considerable quantities of probable ore exist both in the developed lenses below adit levels, and in the several small undeveloped bodies.

3. RIO TINTO MAGNETITE DEPOSITS

(a) Location and Access

This iron-field is situated sixteen miles west of Wabatah in the vicinity of the upper reaches of Savage River. Access is obtained by way of the Waratah Highway, for a distance of 21 miles from Waratah towards Corinna. From this point a pack track penetrates the field in a distance of six miles.

(b) Literature

Published Reports

1903: W.H. Twelvetrees - Report on Mineral Fields Between Waratah and Long Plains.
1919: W.H. Twelvetrees and A.M. Reid - The Iron Ore Deposits of Tasmania (Mineral Resources No. 6)

Typescript Report (Unpublished)

1939: W.G. Woolnough (Commonwealth Geological Adviser) - Report on Examination of Iron Ore Deposits in Tasmania.

(c) The Deposits

These consist of five principal, disconnected, lentiqular bodies and several associated smaller bodies, extending along a zone over a distance of three miles. The two largest lenses extend for 2000 feet with widths of 100 feet and 50 feet respectively. Others are 1000 feet and 800 feet long and are 40 to 60 feet in thickness.

At the outcrop, along the ridge tops, the ore consists principally of magnetite and subordinately of hematite and limonite. In excavations, at comparatively shallow depths below the surface, a considerable amount of pyrites has been detected in association with the iron oxides. It is considered that the ore bodies have been oxidised at the outcrop to form an enriched magnetite ore near the surface.

(d) Development

Very little mining development has been undertaken on these ore-bodies apart from surface trenching on the outcrops. Only a few shallow shafts and adits have been excavated and some of these are not available for examination.

(e) Quality

Analyses of samples taken from surface outcrops only are available. These cannot be taken as representative of the ore bodies as a whole or the grade at depth.

In the 17 samples treated iron ranges from 63.1 - 69.5%, silica 0.38 - 1.73%, alumina 0.02 - 0.38%, phosphoric acid nil - 0.38%, sulphur 0.01 - 3.66% and manganese dioxide 2.37 (one sample).

(f) Quantity

In 1919 Reid estimated that the deposits, to a vertical depth of 300 feet, contained 20,000,000 tons of probable high grade ore.

This estimate must be treated with reserve as more recent knowledge indicates that pyrites is prevalent at no great depth below the outcrops.

4. MEREDITH RANGE DEPOSITS

(a) Location and Access

Situated at the western base of Meredith Range and Mt. Livingstone. Access is gained by way of Waratah Highway to a point 32 miles from Waratah, towards Corinna. From this locality the Rocky River track trends south-westerly to the area.

(b) Literature

The following unpublished report is the only one on the area:-

1924: A.M. Reid -- Preliminary Report on the Occurrence of Iron Ore at Meredith, Paradise, Rocky and Whyte Rivers.

(c) The Deposits

Iron deposits in the form of numerous lenses (possibly nine) occur along a north-south belt of country, six miles long and half a mile wide, crossing the Meredith, Paradise, Rocky and White Rivers. Actual dimensions of the lenses have not been determined. Iron minerals composing the deposits are magnetite, hematite and pyrite. Of these minerals magnetite only is of any economic value as an ore of iron. It occurs in direct association with the other minerals, as a rule in distinct lenses and not appreciably contaminated by pyrite or other minerals of an injurious character.

(d) Development

No surface or underground works have been undertaken on the deposits, except in places where pyritic bodies are known to occur.

(e) Quality

No determination of the general grade of the ore can be attempted.

The following summary of analyses of samples at several places along the outcrops indicates the grade of ore at surface:-

Ferrous oxide,	7.2 - 22.57%
Ferric oxide,	53.85 - 87.52%
Silica,	1.0 - 29.36%
Alumina,	1.78 - 6.04%
Iron Sulphide,	0.02 - 3.33%

(f) Quantity

Estimates of quantity have not been attempted for the deposits as a whole but the following figures convey an idea of the amount of ore available:-

Name of Ore-body	Actual Reserve (tons)	Potential Reserve (tons)	Possible Reserve
Meredith River) Duffer Creek)	428,570	1,285,710	Very considerable
Finlay Creek	-	-	Considerable
Tandy Creek	-	-	Considerable
South Branch	-	92,000	Considerable
Paradise River	-	-	Very considerable
Camp Prospect	-	-	Very considerable
Cataract Creek	-	-	Considerable
Rocky River) Nolan Creek)	471,430	522,000	Considerable
Rocky River Association	-	149,000	
	900,000	2,048,710	

5. HAMPSHIRE MAGNETITE DEPOSITS

(a) Location and Access

These deposits lie 4½ miles south-east of Hampshire Siding on Emu Bay Railway, which is about 16 miles south of Burnie. From the siding two miles of constructed road is followed by four miles of bush track to the vicinity of the deposits.

(b) The Deposits

Within an area of 90 acres, eleven or more narrow lenses of magnetite with subordinate limonite and hematite occur. As the thickness and extent of individual lenses have not been determined, estimates of quantity have not been possible. Underground exploration has not been undertaken and only a few surface cuts are available for inspection.

Analyses of surface material show the following ranges:-

Fe_2O_3,	70.38 - 95.5%
FeO,	1.05 - 22.63%
MnO,	0.5 - 1.58%
MgO,	0.07 - 0.57%
SiO_2,	1.0 - 2.2%
Al_2O_3,	1.22 - 4.6%

6. NELSON RIVER IRON DEPOSIT

(a) Location and Access

Nelson River is situated on the west coast fifteen miles south of Marrawah. Access is jeep track in a distance of 19 miles.

(b) The Deposit

This consists of a tabular body of magnetite and hematite extending for 2000 feet with an average width of 20 feet. With the exception of some superficial trenching at surface, the only mine opening is a short adit driven 40 feet below the outcrop, which penetrated the iron body for a distance of 4 feet. Quartz veins traverse the lode at frequent intervals.

The following figures indicate the range in ore grade at surface:-

Fe,	48.9 - 65.7%
SiO_2,	1.44 - 24.0%
Mn,	0.03 - 0.12%
P_2O_5,	0.01 - 0.08%
S,	0.01 - 0.03%

SUMMARY

Information on six potential iron ore fields have been compiled. Of these, The Tenth Legion deposit near Zeehan is the only one for which a moderate reserve of marketable iron ore has been proved to exist by recognised standards. For the remaining five deposits some large quantities of iron ore have been quoted with certain reservations. As these deposits have not been penetrated below the surface to any appreciable extent by prospecting methods, the quantities of iron ore indicated should be treated with reserve until such time as the general grade and continuity of the ore bodies are satisfactorily tested.

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