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To-- MR. MORTLOCK:

MEMORANDA AND EXTRACTS FROM MY REPORT ON THE
"RIO TINTO" IRON ORE DEPOSITS, SAVAGE RIVER,

TASMANIA

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SOUTHERN LEASES:

Trenching- "The surface iron indication is almost valueless for estimation or even for an opinion of the deposits. On lease 9324 Trench No. 1 extended, a hole was put down through a strong cemented surface which, after one foot of cement, went into large size roll iron. At 10 feet the iron was completely out by clay, and a jumper hole was put down another 10 feet in clay. This cement iron with adjacent roll iron and irony soil extended over a width of 270 feet, and complete trenching over the whole width exposed only a 6 ft. lode of iron over this distance of comparatively strong surface iron indications!".....

"These narrow lodes offering less resistance to surface action, have shed a tremendous amount of lode iron which has in places become cemented together to form a hard surface crust varying from a few inches up to 12 feet in depth and giving the surface appearance of a more extensive deposit than actually exists.

Memo:-- The foregoing illustrates to a greater or lesser degree practically the whole surface indications at the Rio Tinto Deposits - the lodes number up to 7 in number in places most are narrow - the large surface aspect was due to denudation spreading the ore over a large surface with little depth.

Shaft Sinking: "The shaft is down 17'6", having passed through 1 inch of cemented iron on the surface, then 14'6" of large size disjointed boulder formation with sedimentary clay deposited in the crevices, and then 2 ft. of schistose-rock comes in and is still in the sink."

Memo:-- The foregoing shews the misleading appearance of the surface iron. Actually what looked like a solid lode, cemented hard to solid rock on the surface, proved to be but a denuded ore bedded and overlying cementy rock.

"No. 1 Shaft - Lease 9324 - On Trench No. 4 marked "C" on plan, approximately in the centre of the main ore lens towards the northern end of the main southern ore bodies.

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The shaft went through boulder iron to 8', after a cemented top, when irony soil came in for 1'6" to a depth of 9'6". Then a distinct 3'0" layer of sedimentary clay to 12'6" when ore was again struck. There was an indication of sulphur at 15', but it disappeared, but the last shot fired in the shaft exposed a distinct make of primary ore, which is highly sulphidic at a depth of 18'0".

Memo:-- The first part of this shaft showed the irregular deposit as illustrated in the first extract quoted - first hard cement iron having the appearance of solid ore body, then the denuded boulder, then clay sedimented before the boulder denudation, then the coming in of the primary ore, that is the real lode, which had not been greatly influenced by surface oxidation, with a result of high sulphur ore. The assay of this ore is as follows:--

<u>Fe</u>	<u>Mn</u>	<u>P</u>	<u>S</u>
56.9	Trace	.03	4.1

I consider this ore to be illustrative of the real lode deposit - The sulphur definitely eliminates the ore as commercial.

Tunnelling: No. 3 Tunnel - Lease 9326. "This tunnel was started direct into a cliff in outcrop. Sulphur showed throughout the area"..... "The ore appears to be mostly primary".....

Assays taken from this tunnel:--

	<u>At 20' from Mouth</u>	<u>25' from mouth</u>	<u>67' from mouth</u>	<u>60' from mouth a 4" band of Pyrites</u>
Fe	60.7	58.2	59.5	52.8
Mn	Trace	Trace	Trace	Trace
P	.04	.05	.21	.63
S	6.7	6.5	4.7,	31.3

Memo:-- This tunnel was driven into a cliff which was obviously a wall of the lode. The position was picked originally to test the width of the lode or lens at this section as there was a face of iron ore cliff about 40' or 50' almost vertical with the cemented iron surface rising to a height of 118' over a width of 267'.

This tunnel therefore was penetrating the original lode at say a minimum depth of say 50', and the fact that sulphur showed strongly and on highly pyritic patches throughout the tunnel, proves along with the other prospecting that the ore deposit is sulphidic.

The above extracts are taken from my report dealing with the Southern leases.

NORTHERN LEASES:

Trenching- The trenching on the Northern Leases was done prior to the date at which I was at the Rio Tinto. The trenches mainly passed through the usual pebble and gravel iron which was worn, and indicated the denuding action which formed them.

Practically all prospecting work was done by me on the Southern end, which was the approach end of the proposed railway. I consider the Northern end offers the better facility for backs in open cut work, as the ridge is stronger, but I have no doubt but that the leases would be intersected by the rock as proved by the extensive trenching on the Southern Leases.

Shaft Sinking- "No. 1 Shaft North Lease 9316" on the trench on the crest of the main ridge that runs at about the same altitude through the 3 centre leases and is approximately on the centre of the main ore bodies of the Northern Leases.

"The shaft went through a cemented top which appeared solid, but which made into a layer of very large sized angular boulders. This formation only went to 6' depth, and smaller iron clean with worn pebbles and soil continued to 10'. From 10' to 16' the ore was very dirty. The crevices of all the iron ore were filled with clay sediment"....

Memo:-- This shaft did not go down to the actual lode formation by the time operations cleared but I have no doubt but that the primary sulphidic ore would be the ore type underlying.

Tunnelling - No fresh tunnelling was done on these Northern Leases - old tunnels were examined.

"The ore so far exposed in Nos. 2 and 3 Tunnels and on old tunnel dumps on the Savage River shows the oxide composition to be practically magnetic at depth below surface oxidation, and to be carrying pyrites. The sulphur is excessive in all the underground ore that has been met with".....

"In addition to the results obtained in the Company's workings, examination of a tunnel about one-third to half a mile north of the Company's leases showed ore of a definitely pyritic nature".....

Assay: --

<u>Fe</u>	<u>Mn</u>	<u>P</u>	<u>S</u>
58.8	Trace	.03	5.0

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Memo:-- The ore from the tunnels which would strike the primary ore at depth are all sulphidic.

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Summary. Extracts:

"The ore appears free from Sulphur down to a depth where the surface water has been passing through".....

"There is no doubt that the actual lode is of sulphidic character".

memo:-- The depth of the overlying desulphurized ore would vary, but at a prominent section of the deposit, adjoining iron ore cliffs, distinctly primary ore from the actual lode under the denuded and bedded ore was struck at 18' depth.

In my estimates, which were based on the series section of small to fair size lenses which were shown to exist on the Southern Leases by the extensive trenching, I calculated that there was a tonnage to a depth of 20' of 1,838,000 tons. This shallow depth and tonnage are, of course, out of the question for mining, and in any case the presence of primary sulphide eliminates the Rio Tinto ore from any commercial value.

E. NOEL GOODE. (Sgd.)