

20th April, 1933.

MEMORANDUM:

Senator the Hon. A.J. McLachlan,
Minister in charge of Development,
CANBERRA.

The Hon. C. R. James,
Minister for Mines,
TASMANIA.

The Copper Nickel Resources of
the West Coast of Tasmania.

Under instructions we have studied the possibilities of an economic exploitation of the Copper Nickel deposits at the Five-Mile and elsewhere in the West Coast area of Tasmania.

The first necessity is a thorough review by the staff of the Department of Mines of the proved probable and possible tonnages of ores containing nickel.

At the present moment certain incomplete information is available regarding:

- (1) Lenses of high grade copper nickel sulphides occurring on the contact or in the basic dykes in the Five-Mile district North of and distant from Zeehan about 5 miles.
- (2) Apparently low grade serpentine deposits on the shores of Trial Harbour upon which apparently little work has been done.

The lenses of sulphide ore at the Five-Mile so far as is known at present extend over a length of approximately two miles.

These lenses of ore, averaging 3 feet wide and varying in length from 100 to 400 feet, have been located and partially developed.

In the Lease No. 10853/M worked by the Melbourne Copper Nickel Company, a lens yielded in 1914, 2776 tons which was shipped as mined with profit to the Company. The advent of the Great War in 1914 put an end to the working of these ore bodies as the material was sold to Germany.

The Dundas Cuni Company, Lease No. 10272/M worked another lens of ore during the same period extracting 1189 tons which was also sold to German buyers.

In 1929-30 the Copper Nickel Company No Liability mined ore from Lease No. 10935/M the tonnage of which

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is not available, but the Departmental records show that the gross nickel content amounted to 203 tons. The ore as mined was shipped overseas.

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Little is known of the continuation of these ore bodies at depth except in the case of the ore body worked by the Melbourne Copper Nickel Company, the values disappearing at 122 feet from the surface, the minerals giving place to barren quartz.

A close calculation regarding quantity of this copper nickel ore in the known lenses, containing on an average 8 to 10 nickel and 4 to 5 copper with small quantities of gold and platinum, leads us to the conclusion that this tonnage would not exceed 15,000 to 20,000 tons.

Further trenching and possibly geophysical survey work is necessary on the line of contact of the basic dykes in this district to determine whether further lenses exist.

A review of the possibilities of the nickel bearing serpentine at Trial Harbour is desirable in order to indicate whether this large deposit justifies further mining investigation in the hope of developing a further source of nickel bearing ore.

We are of opinion that present tonnage in sight on the West Coast does not justify the erection of any large scale mining or metallurgical treatment plant and we would recommend:-

- (1) That the Geological Survey on the lines indicated above, should be undertaken as early as possible.
- (2) That simultaneously laboratory investigations should be instituted to determine whether the copper and nickel values in the ore at the Five-Mile can be separated by selective flotation into nickel-rich and copper-rich concentrates for sale or further treatment. If such experiments should be successful further investigation may show that the nickel concentrate may be treated by roasting and electrolysis to yield metallic nickel.

We have no knowledge of the market in high grade nickel concentrates in Europe or elsewhere and enquiries should be made through Australia House, or by parties interested in these deposits to ascertain the facts in this connection. Obviously the considerable expenditure involved in the production of metallic nickel from nickel bearing concentrates would be unjustified unless the tonnages available are greater than at present known.

Amalgamation of the interests at present held by lessees at the Five-Mile appears to be the necessary preliminary to any serious work as recommended in this report, because of the limited size of the individual ore-bodies. We recommend that this amalgamation should be a condition precedent to any action by the Government.

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to the Commonwealth Government.

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