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Notes on
Possibilities of Developing the
Five-Mile Copper Nickel Field.

The copper nickel deposits of this field are lenticular bodies of solid sulphides containing pyrrhotite, pentlandite, chalcopyrite and pyrite. A number of ore-bodies have been located and more or less opened up. These have generally been small, having lengths ranging from 50 to possibly 400 feet, widths ranging up to 10 feet. At one mine the ore extended to a depth of 120 feet where it gave place to a cellular quartz pyrite lode. A diamond drill hole proved another ore body to extend to 100 feet vertical depth.

Thus mining operations have not extended to any great depth up till the present and it cannot be said that any large tonnage has been developed. The first essential factor in this field is therefore prospecting and development work in order to prove whether sufficient quantities of ore exist to warrant the erection of mining and treatment plants.

This work should include:

1. Proving the extensions in length and depth of the known ore bodies by surface trenching, drilling and underground development work.

2. Prospecting for other ore bodies between most northerly and southerly ones that are known.

3. Prospecting for other bodies to the north and south of the known bodies.

Prospecting

Prospecting could be carried out by trenching and shaft-sinking. If water is encountered at shallow depth and the surface of the land is generally flat either pumping plants would have to be installed, or the work carried out when adjacent workings are being opened and drained.

Drilling

As the geological relations of the ore-bodies, i.e. in, or near the western wall of a narrow basic dyke, are known, the conditions are favourable for proving the extension of known bodies or the discovery of others by drilling.

A favourable feature is that the ore consists of solid sulphides and thus some idea of the value can be obtained from the cores.

The unfavourable feature is that the ore-bodies are short and lenticular and easily missed.

Underground Development

Underground developmental work would eventually have to be carried out to prove the quantity and grade

of the ore in the field.

Mr. S. Nixon put forward the following scheme, with the suggestions as to depths of shafts, lengths of drives etc. and costs.

"Cuni North Shaft (75 deep at present)

Sinking	125'	£500
Driving North	825'	1237
South	500'	750

Melbourne Copper Nickel or Vaudeau Shaft (127' deep)

Sinking	100'	£400
Driving North	600'	900
South	500'	750

Cunie South Shaft (75' deep at present)

Sinking	125'	£500
Driving North	500'	750
South	500'	750
Crosscutting West	100'	150

Crosscutting

10 crosscuts of 100' £1500

Rising

5 rises of 200' £1500 "

The above represents a fairly complete scheme for testing the field. Naturally it would have to be modified in accordance with the results obtained during the course of the work, e.g. it is probable that the length of the drives might be reduced. Further some surface trenching and shallow shaft sinking should also be included in the scheme.

The prices given above are approximate but should be somewhere near the figure.

The total cost of the above is approximately £10,000.

Capital expenditure for Equipment

Mr. Nixon estimates it would require approximately £1000 to equip each of the shafts with electric motor, electric hoist, transformer and transmission line making a total of £3000. These would have to be modified if power other than electric had to be utilised.

First Work to be Performed

As a result of the geophysical surveys, recent prospecting and drilling, and comparatively recent development work, it would appear that the first work should be carried out at the northern end of the field near the Dundas Cuni North Shaft. Two ore-bodies have been proved to exist and offer the best possibilities of development and proving of tonnage.

This part of the work would involve:

Expenditure on equipment, say,	£1,500
Development (as above)	£2,500
Trenching and prospecting shafts	£200 - £500
Representing a total of £4,200 to	£4,500

The prospecting of the country to the north and north-east of the most northern ore-body should be included in this part of the work.

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