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ALL OFFICIAL CORRESPONDENCE
SHOULD BE ADDRESSED TO THE DIRECTOR.

DIVISION OF ORE DRESSING AND
METALLURGY

G. C. MACKENZIE, B.SC., CHIEF OF DIVISION
W. B. TIMM, B.SC., 1ST ENGINEER
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H. C. MABEE, B.SC., CHEMIST
R. J. TRAILL, ASST. CHEMIST
B. M. DERRY, MILLMAN



MINES BRANCH

EUGENE HAANEL, PH. D.
Director.

OTTAWA, Ont., June 4th, 1918.

Report of Ore Dressing and Metallurgical Laboratories.

Test No. 88

Concentration Tests on Pyrite Ore.

A shipment of 3 bags of Pyrite Ore was received on April 9 th, 1918, from Robert Gamble, Esq., Ottawa, Ont.

This ore was obtained from the surface showings and was much oxidized. The pyrite was finely crystalline. Very little gangue material was present. The object of the test was to raise the sulphur content to a commercial grade.

As the pyrite present was finely crystalline, tests were made on the ore crushed to different meshes and the ore concentrated on tables.

It was crushed to 10 mesh and sampled.

Weight Received -----460 pounds.

Analysis-----S-----20.93%

Fe-----52.90%

Cu-----Trace.

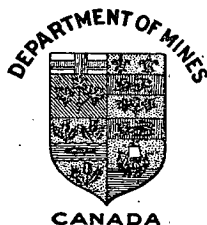
It was divided into 4 lots by means of the Jones Riffled Sampler. One lot was left at 10 mesh. Another lot was crushed to pass 20 mesh, and another to pass 30 mesh, and another to 40 mesh.

Each lot was concentrated separately on an Overstrom table and the products weighed and analysed. The results of the tests are contained in the following table.

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"2"

OTTAWA, Ont., June 4th, 1918.

Crude Ore		Concentration Products.				Handling
Mesh	Weight	Product	Weight	Analysis		and Slime Loss
	Lbs.		Lbs.	% S.	% Fe.	Lbs.
		Concentrates	69	22.62	54.00	
10 Mesh	113	Middlings	5	22.54	53.60	14
		Tailings	25	17.16	51.60	
		Concentrates	30.5	23.52		
20 Mesh	110.5	Middlings	30	23.20		24
		Tailings	26	19.67	52.00	
		Concentrates	31.5	25.22		
30 Mesh	115	Middlings	41.5	23.10		26.5
		Tailings	15.5	17.23		
		Concentrates	27	26.00		
40 Mesh	113.5	Middlings	37.5	23.92		31.5
		Tailings	17.5	17.98		

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"3"

OTTAWA, Ont., June 4th, 1918.

Summary and Conclusion:-

This ore taken from the surface showings and is much oxidized so that it contains all the oxidation products from the sulphide to the oxide and were it not for this oxidization would be practically a pure sulphide containing Fe- 46.6% S.- 53.4%. A very pure pyrite ore, requiring no concentration should be obtained at depth or after the oxidization zone had been penetrated.

Table concentration improved the grade slightly, as there is a small difference in the gravity of the sulphide and the oxide; more of the sulphide reporting in the concentrates and more of the oxide in the tailings.

A separation could be made by magnetic concentration and by Oil Flotation but this would not be permissible on account of the fineness of the concentrate produced.

The copper content is too low to be of any commercial value, only a trace being found in the head sample.