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
C. S. PARSONS, B.Sc., 2ND ENGINEER
H. C. MABEE, B.Sc., CHEMIST
R. J. TRAILL, ASST. CHEMIST
B. M. DERRY, MILLMAN

DEPARTMENT OF MINES
CANADA.

MINES BRANCH
EUGENE HAANEL, PH. D.
Director.

OTTAWA, April 25th, 1918.

Report of Ore Dressing & Metallurgical Laboratories

Test No. 78

Copper Ore from Ikeda Bay, B.C.

A shipment of 5 bags, 350 pounds of the ore was received on September 5th, 1917 from Mr. A. Ikeda, Ikeda Bay, B.C.

The ore consisted of Chalcopyrite in heavy dark gangue, associated with iron pyrites and magnetite. The ore contained silver and gold values.

An analysis of the sample was as follows:-

Copper	-	1.18 %
Silver	-	1.36 ozs. per ton
Gold	-	0.04 ozs. per ton

Oil flotation was the method of treatment adopted.

Test # 1

The ore was crushed to pass 50 mesh and concentrated in a set of Laboratory size Callow Cells. The test resulted in obtaining a concentrate running 11.46 % copper with a recovery of 86.00 % of the copper values assuming that it would be possible to recover 70 per cent of the content of the middlings.

The oil used in this test was a mixture containing 10 % coal tar, 50 % coal tar creosote and 40 % heavy hardwood creosote oil. The amount used was approximately 1.5 lbs. per

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ton. The condition of the pulp was neutral.

Test # 2

The sample was crushed to pass 80 mesh and floated as in test # 1. A concentrate was obtained running 11.00 % copper with a recovery of 90 %, assuming as in test # 1 that 70 % of the content of the middling is recoverable.

Test # 3

The sample was crushed to pass 100 mesh and floated as in the two previous tests.

This test resulted in a concentrate containing 7.55 % of copper and 0.25 ozs. of gold, with a recovery of 87.2 % of the copper and 95.5 % of the gold, assuming as before that 70 % of the content of the middling is recoverable.

Test # 4

This sample was crushed to pass 80 mesh and treated under the same conditions as in test # 3. A concentrate was obtained analysing 8.75 % copper and 0.30 ozs. of gold with a recovery of 92 per cent of the copper and 77.0 per cent of the gold.

Conclusions:- The results obtained in the above tests are tabulated in table number I. The assumption that 70 % of the values in the middlings are recoverable is fair and if anything a low estimate. In practice the middling would naturally be returned to the flotation circuit, or in some cases to the crushing circuit after dewatering.

These tests show a remarkably high extraction of both the copper and gold values and there is no doubt that in actual practice a higher grade concentrate could be obtained with a similar extraction.

The tests would also indicate that the ore should be crushed to around 80 mesh in order to obtain a high recovery of the gold but it is possible that large scale operation may prove that a coarser product can be successfully treated.

Table No. 1

Test No.	Mesh	Heads			Concentrates			Middlings			Tailings			Extraction assuming 70 % recovery of content of middling	
		Grams Wt.	Copper P.C.	Au Ozs.	Grams Wt.	Copper P.C.	Au Ozs.	Grams Wt.	Copper P.C.	Au Ozs.	Grams Wt.	Copper P.C.	Au Ozs.	Copper	Gold
1	50	1000	1.0	0.04	72	11.50	---	82.5	0.76	---	845.5	0.15	---	86	
2	80	1000	1.0	0.04	80	11.00	---	116.0	0.30	---	804.0	0.12	---	90	
3	100	1000	1.0	0.04	104	7.50	0.25	204.0	0.65	0.06	692.0	0.12	trace	87.0	95.5
4	80	1000	1.0	0.037	90	8.70	0.30	90.0	1.00	0.02	820.0	0.17	0.01	92.0	77.0