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December 27th, 1940.

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of the
ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 941.

Sink-and-Float Tests on a Sample of Gold Ore
from the Privateer Mine, Zeballos River Area,
Vancouver Island, British Columbia.

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Shipment:

One bag containing 65 pounds of gold ore was received on October 26th, 1940. The shipment was submitted by N. E. McConnell, Manager, Privateer Mine Limited, Zeballos, British Columbia.

Location of Property:

The property is located on Spud Creek, Zeballos River area, Cloyoquot mining division, Vancouver Island, British Columbia.

Character of the Ore:

While no polished sections from this shipment were prepared for microscopic examination, white and grey quartz were noticed along with pyrite and free gold. A complete examination of a former shipment of ore from this property is published in Report of Investigations No. 746 under date of March, 1938.

Sampling and Assaying:

Owing to the small size of the sample submitted and the coarse crushing used in the process, no sample was taken for assay.

Experimental Tests:

The ore was tested as to its suitability for treatment by the Huntington-Heberlein process. The object of the test was to determine whether or not it would be possible to reject a fraction of the rock that would be too low grade to repay milling costs.

Small-scale sink-and-float tests were conducted in pails under static conditions using as separating medium a substantially stable galena-water suspension, the same as would be used in the Huntington-Heberlein plant. The effective density of the separating medium is controlled

(Continued on next page)

(Experimental Tests, cont'd) -

by altering the water-solid ratio of the suspension.

The results of this test were unsatisfactory owing to the presence of free gold, resulting in erratic assays in the various fractions. This is clearly shown in the results recorded in the accompanying size-density analysis.

A glance at this table shows erratic assays in all sizes finer than 5/8th inch, and in the coarser sizes the grades appear to be low all the way through. This may suggest a somewhat remote possibility of rejecting a low-grade coarse fraction simply by screening on 5/8th inch after crushing to finer than 1 inch.

(See Size-Density Analysis
tabulation on next page)

SIZE-DENSITY ANALYSIS.

Size Fractions	-6+8 Mesh		-4+6 Mesh		-3+4 Mesh		-3/8" +3 Mesh		-1/2"+3/8"		-5/8"+1/2"		-3/4"+5/8"		-7/8"+3/4"	
DENSITY FRACTIONS	- W e i g h t P r o p o r t i o n s -															
	% :	% :	% :	% :	% :	% :	% :	% :	% :	% :	% :	% :	% :	% :	% :	% :
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Float @ 2.625	73.4	6.57	57.8	6.73	41.0	7.18	19.1	3.61	13.3	2.99	11.4	1.29	6.9	0.35	5.1	0.21
Float @ 2.65; sink @ 2.625	14.1	1.26	16.9	1.97	17.6	3.08	13.0	2.46	4.8	1.08	-	-	-	-	-	-
Float @ 2.675; sink @ 2.625	-	-	-	-	-	-	-	-	-	-	10.9	1.23	-	-	-	-
Float @ 2.675; sink @ 2.65	6.1	0.55	12.9	1.50	15.8	2.77	17.8	3.37	16.7	3.75	-	-	10.9	0.55	-	-
Sink @ 2.675	6.4	0.57	12.4	1.44	25.6	4.48	50.1	9.48	65.2	14.66	77.7	8.77	82.2	4.14	94.9	3.96
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Float @ 2.625	0.50		0.28		0.34		0.20		0.065		0.025		0.02		0.02	
Float @ 2.65; sink @ 2.625	1.77		0.55		0.38		0.40		0.02		-		-		-	
Float @ 2.675; sink @ 2.625	-		-		-		-		-		0.36		0.01		-	
Float @ 2.675; sink @ 2.65	1.80		0.30		0.11		0.22		0.18		-		-		-	
Sink @ 2.675	29.43		0.89		0.77		0.42		0.64		0.33		0.01		0.04	

Conclusions:

The results of this test indicate that this ore is not suitable for treatment by the sink-and-float process, owing largely to the presence of free gold which is liable to appear anywhere.

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