FILE COPY

OTTAWA

July 5th, 1941.

REPORT

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1045.

Concentration of Magnetite from the Bessemer Mine, Hastings County, Ontario.

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BUREAU OF MINES
DIVISION OF METALLIC MINERALS ORE DRESSING AND
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Concentration of Magnetite from the Bessemer Mine, Hastings County, Ontario.

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Shipment:

Approximately 5 tons of iron ore were received on March 30th, 1941, from the Bessemer Mine, Hastings county, Ontario. This lot was forwarded by the Frobisher Exploration Company Limited, Toronto, Ontario.

Experimental Procedure:

The shipment was crushed -5 mesh and sampled. Analysis showed the following:

			Per cent
Iron	(Fe)	123	52.40
Sulphur	(S)	6,78	0.23
Phosphorus	(P)	ÉSP	0.016
Silica	$($10_2)$	679	12,38
Manganese	(Mm)	***	0.08

The lot was fed to a ball mill in closed circuit with a screen. The screen undersize was concentrated on a Roche magnetic separator. The middling from this operation was dewatered in a Dorr classifier and returned to the ball mill. Three different screens were used in the grinding circuit to note the grade of concentrate obtained from various finenesses of grind.

Results:

13 x 3 (MESH) SCREEN.

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	0	Weight,	6	Assay, Fe,
Mesh	8	per	8	per
	0	cent	Ş S	COLL
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+ 14	0 9	1.3)		52.59
- 14 + 35	0	37.0)		
- 35 + 48	e e	11.7		55,61
- 48 + 65	ņ G	10.0		57.83
- 65 +100	e n	8.9		62.46
-1 OO	0	31,1		64.88
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Feed - 52.40 per cent Fe.

Concentrate - 61.45 " "

Tailing - 5.09 " "

Ratio of Concentration - 1.2:1.

(Experimental Procedure, contid) -

1.6 x 5 (MESE) SCREEN.

Screen	Test	on Co	ncentrate.
		7 8	Weight,
Mesh		9	per
		8	cent
		9	
	÷ 20	0	5.0
- 20	4 S8	8	15.4
- 28	+ 35	\$	12.7
- 35	÷ 48	9	11.3
- 48	+ 65	0	9,9
- 65	+100	9	8.7
-2.00		e 0	37.0
	1710 7	8 Section	200 0
erentikutiseljuvensky mer	Total	e Alexandra de la company de la company La company de la company de	100.0

Results:

Food - 52.40 per cent Fo.

Concentrate - 63.45 " "

Tailing - 5.93 " "

Ratio of Concentration - 1,2:1,

24-MESH SCREEN.

Screen Analysis of Concentrate. Weight, : Assay, Fe, Mesh per per : cont cent: 3 52,59 + 35 0 5 .2 -35 + 48 0 9.6 55,61 -48 + 65 11.7 57.83 -65 *100 13.0 62,46 <u>60</u> -100 64.88 Total CHRISTIA STRUMS (DANASSINAS)

Ratio of Concentration - 1.2:1.

Conclusions:

This ore apparently requires to be ground approximately -14 mesh to obtain a concentrate over 60 per cent iron. A recovery of 85.3 per cent of the weight of feed as concentrate is indicated.

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AKA; GB.