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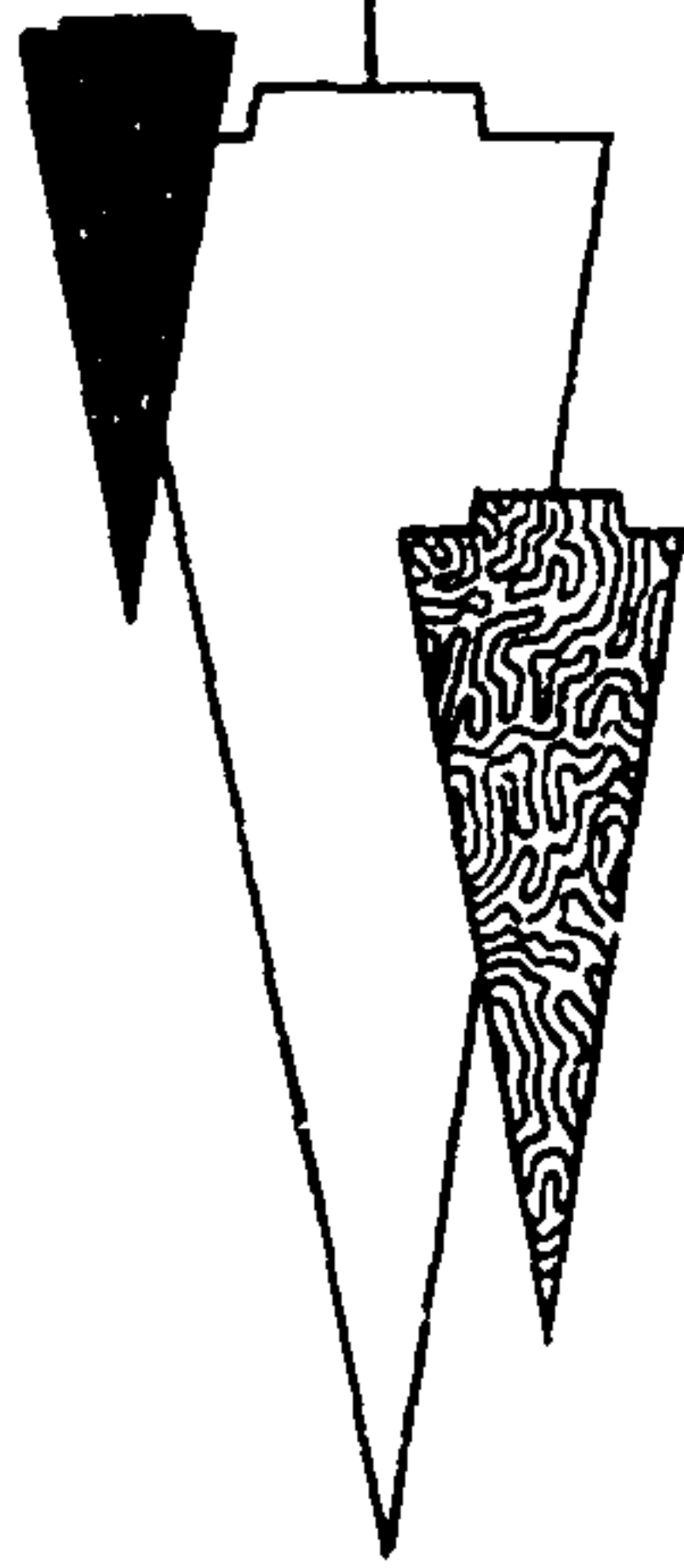
CANADIAN

Javelin

LIMITED

PELLETIZING TEST
JULIAN ORE
DRAVO LABORATORY, PITTSBURGH, PA.

January 21, 1963
D. Knowles



#286

PELLETIZING TEST
JULIAN ORE
DRAVO LABORATORY, PITTSBURGH,
PENNSYLVANIA.

January 21st, 1963.

Memorandum re.

PELLETIZING TEST
JULIAN ORE
DRAVO LABORATORY, PITTSBURGH, PA.

January 21, 1963

Ore Material

Approximately 1000# of concentrates from the Julian deposit made from the Lakefield and O.R.F. tests.

Procedure

The concentrates were ground in a small ball mill such that the ground product should be approximately 82% minus 325 mesh. Screen size determination not made yet. This was mixed with 1/2% Bentonite and balled in the Dravo-Luigi disc. About 600# of green pellets were made.

Green Pellets

1/2% Bentonite
8.2% Moisture
7.6# Average of ten pellets - wet compressive strength
131#/ft.³ Bulk density
Withstood 10 drops from 18 inches

Two batches of pellets were fired on January 21 in the pellet firing furnace. The firing procedure used was exactly the same as that developed for the Wabush and Carol ores. The charge is about 70# in a wire basket consisting of 12" of green pellets resting on a 4" bed of fired pellets. Old Wabush pellets were used for the 4" hearth layer on the first run.

<u>Firing Pattern</u>	<u>Minutes</u>	<u>Inches H₂O Pressure</u>	<u>Temperature</u>
Up draft drying	5	16	400° F
Down draft drying	1 1/2	20	400
Down draft drying	1 1/2	20	600
Pre-heat	2	20	1800
Firing period	10	20	2450
After fire	2	20	1800
Cooling - 1st run	11	20	to room
- 2d run	11 2/3	16	to room
	33		Room to 2400 to room

Fired bulk density - 128#/ft.³
 Production rate Run I - 2.24 long tons /ft.² /day
 Run II - 2.60 " " " "
Tumbler test - 200 revolutions in ASTM coke tumbler

	<u>Run I</u>	<u>Run II</u>
+ 3/8"	85.5%	
+ 1/4"	96.2%	Not tested
+ 1/3"	98.0	at this time
- 28 mesh	1.6	

<u>Screen size of fired pellets</u>	<u>Run I</u>	<u>Run II</u>
+ 1/2"	2.7	16.3
+ 3/8"	95.1	97.4
+ 1/4"	99.4	99.7
+ 1/8"	99.6	99.2

Compression test - 10 pellets from various parts of the bed

Pounds required to break fired pellet

	<u>Run I</u>	<u>Run II</u>
Top layer	740 average of 10	770 average of 10
Middle layer	950	1230
Bottom layer	<u>1065</u>	<u>1105</u>
Average	913	1035

The Dravo people were well pleased with the results and expressed a little surprise that such excellent results were obtained on new ore the first time. They suggested that the superior strength achieved might be due to some overgrinding.

There is enough ground and unfired green pellets left to produce at least one more batch and possibly another. They await our instructions regarding this.

In that the behavior pattern of this Julian material was virtually identical with that of the Wabush and Carol concentrates, they feel they are in a position to proceed into the plant design stage.

Analysis of the concentrates and pellets are attached.

D. Knowles

ANALYSIS - JULIAN PELLETT TEST - DRAVO - JANUARY 1963

	By	Fe	Mn	P	Insol	S	Al ₂ O ₃	CaO	M _g O	TiO ₂
Julian Conc.	ORF	65.6	0.08		5.7		0.30			
"	"	"	Lerch	65.24	0.13		5.98		0.33	
"	"	DRAVO	Lerch	65.48	0.10		5.78		0.31	
Ground Conc.										
DRAVO	Lerch	65.08	0.12		6.23		0.11			
Pellets-DRAVO	Lerch	6535	0.12	0.002	5.25 5.55 <i>rx</i>	0.005	0.42	0.02	0.02	0.04
	DRAVO	Lerch	6510	0.15	6.01		0.47			
Wabush Pellets	Lerch	6632	1.21	0.003	3.12	0.007	0.24	0.03	0.03	0.06