

BOYLE CONCESSION

This property is comprised of all the ground included in the Klondike Valley water shed, extending from Bonanza to the mouth of Hunker Creek.

The total area inclosed by its boundaries is approximately forty-five square miles.

The Klondike River Flat includes about eight square miles of the total areas. The remaining thirty-seven square miles lies along the borders and to the summits of the Valley.

EQUIPMENT

The ground of the Valley near the mouth of Bear Creek is being mined by a seven foot Marion Dredge. The dredge is operated by electricity, generated by a Westinghouse Steam Turbine, driving a 400 K.W. Westinghouse Generator.

This dredge has been in operation since August 15th, 1905. (Details of operation appended).

SEASON:

The length of season it is possible to operate the dredge has been found by the dredge operating on this property, extends from May 10th to 20th, to October 10th to 20th, or a total of 150 to 165 days each year.

BEDROCK

The bedrock over the whole of the area prospected, is the Micaceous Schist, common in the Klondike District. It varies in hardness or surface decomposition in the different parts of the property. The bedrock, where exposed in the shafts, while not thoroughly decomposed, is sufficiently broken down to the depth at which it carries values, so that all can be handled by a dredge, without over-taxing a heavy machine.

GENERAL CHARACTER GRAVEL

The entire valley of the Klondike, from prospect holes

sunk, is found to carry a stratum of well washed river gravel overlying bedrock. The gravel stratum is overlain, over the greater portion of the area, by a black sediment locally known as "Muck."

All the ground is frozen where the surface is covered by muck or timber. A small percentage of the river valley, including the recent bars of the river, is not covered by muck or trees. These areas are not frozen to any extent.

Prospect holes have failed to show presence of any large boulders that would interfere with ordinary dredging operation.

That portion of the Concession, which lies on the hills along the left limit of the Valley, encloses an ancient channel. This channel is parallel with the Klondike Valley, and was, in all probability, the ancient course of the present river system. This ancient channel has never been mined. Prospecting that has been done on it, has failed to locate sufficient pay to justify working. This gravel deposit was not considered in this examination. The gravel of the valley alone was sampled.

SOURCES OF GOLD ENRICHMENT

The ground of the Klondike, in addition to gold it has carried generally from above the upper line of the property, has been enriched on the property by gold thrown out into the Valley by the old "White Channel" of Bonanza Creek; also to certain extent, by the present Bonanza Creek on the lower end.

At the mouth of Bear Creek, near the center of the tract, it has been enriched by the Bear Creek flow of ancient and modern channels.

At the upper end, it should have been enriched by Hunker Creek and the ancient Hunker Creek Channel. Prospecting has failed to locate this pay channel on the Klondike Valley.

PLAN OF SAMPLING

The plan of sampling followed in this examination, was to

lay out the lines across the Klondike Valley, so as to cross-cut the direction of the stream lines of the Klondike Channels. The location of the lines were placed below the points of local enrichment referred to above.

Attached hereto, is found a general plan showing the location of lines of holes. The prospect samples were taken both by shafts and drills. Shafts were used in preference to drills wherever it was possible with the available equipment.

On the following pages will be found lists of prospect results in each line of holes, also a separate report of each hole.

Comparison Prospect & Recovery Value, as shown by the Canadian-Klondike Company, Dredge Operation.

Recovery value compares favorably with prospect value shown by a drill, where the drilling has been done in thawed ground. There is no difference from prospect and operating recoveries over this ground, than has been found in California practice. In California practice, the recovery, in most instances, is about 75% to 85% of the average of drill results over areas which do not show variation of values. If the high values per yard shown by a few holes are reduced or not considered in the averages, the recovery value more nearly approximates prospect value. The prospect holes dredged in 1905 by the Canadian Klondike Co. were not sufficient in number to give an average of the ground worked.

In the case of the season's dredging, 1906, of the Canadian Klondike Co., shown on one of the following pages, the prospect value over the area dredged is, 38.3¢ per cubic yard; the recovery value is 35.7¢. If holes of a value three times the average value are not taken into account in the averages, the prospect value is reduced to 31.1¢ per cubic yard.

The prospect value holes dredged in 1907 average 44¢. The recovery value over the same area is 50.4¢. The recovery value, compared with the prospect value, of drill holes put down in frozen ground, has not been tested by an actual dredging

work. The measured volume of material recovered from the drill hole is much greater than the estimated volume, and also much greater than measured volume of thawed holes. Consequently, it is probable that the average of prospect values in frozen ground will be greater than recovery values by actual mining.

COSTS OF DREDGING

The actual cost of dredging operation of the Canadian Klondike Company, for the year 1906, is given on one of the following pages. The total of charges amount to 26.6¢ per cubic yard, - this cost to be materially reduced by water power, larger installation, etc. , as follows:-

	<u>Canadian Klondike Cost</u> <u>per cubic yard - cents.</u>	<u>Estimated</u> <u>Reduced Cost - cents.</u>
Power,	7.11	2.00
Dredge Operation,	4.83	4.83
Drill Operation,	3.76	2.00
General work,	4.25	4.25
<u>Management.</u>	<u>6.67</u>	<u>2.00</u>
Totals,	26.62	15.08

The cost of dredging in frozen ground covered by muck is much higher than the above estimated cost.

The estimated cost of handling and stripping frozen ground under ordinary conditions will be 30 - 40¢ per cubic yard.

PAY OUTLINED

The lines of Holes "C" and "D", below the mouth of Hunker, failed to locate any pay channel. The lines of Hole "B", midway between Bear Creek and the lower line of the property, also failed to locate pay.

BLOCK "A"

The lines of holes in the vicinity of Bear Creek, show some holes containing values sufficient to pay a profit over working expenses in thawed ground. This ground is not all thawed,

Block A - North 1/2

Recalculation

Area and depth as shown
Equals

$$1,632,593 \text{ Cub yds} @ 54.8^{\circ} = 894,660.96$$

$$\begin{array}{r} 192,228 \\ \hline 1,086,888 \\ 1,273, \end{array}$$

but could be thawed at a very small cost, for the reason that the ground is not over-lain by any great depth of muck. The frost is held in the ground, by being covered by dense growth of trees and underbrush, and also by fine sand, which prevents the frost from going out of the ground during the summer months.

BLOCK "A" - SOUTH HALF.

No.	Depth.	Value.	Depth x Value.
32	38	18.	684.0
34	31	3.0	93.
35	24	26.0	624.
36	27	47.7	1287.9
37	24	37.5	900.
38	27	69.0	1863.
39	31	2.0	62.
40	29	29.0	841.
41	28	24.0	672.
42	30	15.	450.
43	26.5	11.3	299.5
44	27	11.	297.0
45	38.5	7.	269.5
46	29.	4.	116.
47	28	18.	504.
48	25	3.2	80.
49	28	9.6	268.8
50	24	10.	240.
51	28	24.7	691.6
52	27	5.5	148.5
53	45	42.5	1912.5
54	29	3.1	89.9
55	25.5	42.3	1078.65
56	24	18.6	446.4
57	33	2.7	89.1
58	44	19.	836.
59	33	77.3	2550.9
60	32	5.6	179.2
61	29	45.6	1322.4
62	23	4.	92.
63	27	5.5	148.5
64	26	7.	182.
65	33	8.0	264.
66	25.5	6.0	153.
67	23	6.5	149.5
68	24	117.5	2820.
69	23	19.5	448.5
70	25	5.9	147.5
71	27	4.4	118.8
72	27	9.	243.
73	25	4.8	120.
74	22	12.	264.
75	28	14.	392.
76	25	32.4	810.
77	26	5.7	148.2
78	26	5.7	148.2
79	30.5	14.7	448.35
47	1330.50		25994.30

Area -1,032,500
sq. ft.

Average Depth,
28.3 ft.

Av. Val. per
cu. yd. 19.5¢

28.4

17.7

BLOCK "A"

--- North Half ---

No.	Depth.	Value.	D X V
30	41	65.	2665.
31	41	28.5	1168.5
19	43	17.0	731.
20	42	174. -90	7308. - 3780
21	34	35.0	1190.
22	38	47.0	1786.
23	38	140. -90	5320. - 3420
24	28	22.	616.
11	33.5	95.5	3199.3 - Y.G.Co. Hole.
9	338.5		23983.80
			18555.80

Area, ... 1,175,000 sq. ft.

Average Depth..... 37.6 feet.

Average Value per Cu. yd..... 70.9¢
54.8

SUMMARY

Block.	Area.	Value.	A. X V.
N. 1/2	1,175,000	70.9¢	83,307,500
S. 1/2	1,032,500	19.5¢	20,133,750
	2,207,500		103,441,250

Average Value Block "A".....46.9¢

Block	Area	Depth	A. X D.
N. 1/2	1,175,000	37.6	44,180,000
S. 1/2	1,032,500	28.3	29,219,750
	2,207,500		73,399,750

Average depth Block "A".....33.2

SUMMARY (CON'TD)

<u>Sq.ft.</u>	<u>Area.</u>	<u>Depth.</u>	<u>Cu.Yds.</u>	<u>Val.per</u> <u>Cu.Yd.</u>	<u>Net over</u> <u>15¢ per cu.yd.</u>
2,207,500		33.2	2,714,000	46.9	31.9¢

Gross value of block.....\$1,273,000
 Net Value over 15¢ working cost..... \$866,000
 Net value over 26.6¢ " " \$551,000

BLOCK "B"

This block is a portion of the ground included in the description of Block "A". It would require more work preparatory to dredging; consequently, the working cost is estimated at 5¢ greater per cubic yard, or a total of 20¢.

<u>No.</u>	<u>Depth.</u>	<u>Value.</u>	<u>D. X V.</u>
5	28	29.6	828.8
4	29	18.8	545.2
11	33	6.1	201.3
3	31	63.5	1968.5 Y.G.Co.Line H.
12	31	86.4	2678.4
2	35	8.0	280.
1	40	16.1	644.
6	34	23.1	785.4
5	27	9.5	256.5
4	37.5	14.2	532.5 Y.G.Co.Line E.
3	44	20.6	906.4
2	34	21.3	724.2
32	38	18.0	684.0
73	25	4.8	120.0
72	27	9.	243.
70	25	5.9	147.5
69	23	19.5	448.5 Can+Klon.
68	24	117.5	2820.0
54	29	3.1	899.0
19	594.5		15713.2

576/128932 22 9
 114
 149

Sq. ft. Area.	Depth.	Cu.yds.	Gross val. per yd.	Net over 20¢ working cost.
3,795,000	31.3	4,400,000	26.4	6.4

Gross value Block.....\$1,161,000

Net value Block "B" 20¢ working co st, \$281,000

Net loss block "B"..26.6¢.working.cost, \$ 8,800.

BLOCK "C"

The block of ground (Block "C") shown on general plan near the lower end of the Concession, differs in character from the Block "A" referred to above. This Block ("C") of ground is all frozen from surface to bedrock. The average depth is 29 feet, of which an average of 10 feet is muck.

The depth of the ground and probably the over-burden, or muck, increases as the pay channel approaches the face of the Klondike Hill (commonly known as "Lennon's Hill"), where the "White Channel" Breaks off into the present Klondike Valley.

This muck can only be removed at a great expense, on account of lack of sufficient grade and water for ground sluicing.

The only possibly way to work this block of ground with a dredge, would be to first sluice off the muck by water from the Klondike, and return the muck in suspension to the river. Water for this work could be pumped, or delivered by a ditch about five miles long from the Klondike. The water, after being delivered on the ground, would not do effective work without put under pressure. After the water had broken down the muck, it would not carry it off on the grade of the surface, but would need to be given an artificial grade, by a re-pumping to sufficient height to deliver it to the Klondike on a grade of about 1%. All of the material and water used would need to be raised 15 feet above the

surface to attain this grade.

This method of stripping, which is the only plausible one which presents itself, would be very expensive, as it necessitates a double handling of all material, and requires an extraordinary amount of power for pumping purposes.

An installation capable of handling one thousand yards per day of this muck, or over-burden, would require 400 H.P. to deliver water, break-down and carry off the material to the river. Over the area of this block, the depth of muck is approximately one-third the total depth; consequently, the machinery and equipment, which will strip 1000 cubic yards in twenty-four hours, will strip sufficient area to keep a dredge in operation digging 2000 yards in 24 hours.

The cost per cubic yard of operating a stripping plant of above capacity, (assuming cost of electric power at \$10.00 per H.P. per month), could be roughly estimated at 30¢ per cubic yard of material handled.

BLOCK "C"

No.	Depth.	Value	D. X V.	
208	30	29	870	
207	31	38	1178	
206	30	53	1590	Can. Klon.
205	34	46	1564	
204	38	10	380	
5	26	35.9	933.4	
4	27	5.8	156.6	
3	24	86.4	2073.6	Y.C.Co. Line A.
2	29	29.3	849.7	
1	24.5	19.5	477.8	
16	293.5		10073.1	

Sq. ft. Area.	Depth.	Cu. Yds.	Value per cu. yd.
3,787,500	29.4 ft.	4,124,000	34.3¢

Gross value Block "C".....\$1,414,500

The working cost of ground of this character so nearly estimates the prospective value (34.3¢), that the value of the Block is considered as nil.

Summary of Yardage and Net Values

Block	Depth	Cu.Yds.	Val per cu.yd.	Gross Val.	Working cost.	Net. Value
"A"	33.2	2714000	46.9	1,273,000	15¢	\$866,000.
"B"	31.3	4,400000	26.4	1,161,000	20¢	281,000/
"C"	29.4	4,124000	34.3	1,414,500	34.3¢	-----
Totals -		11,238,000		3,838,500		\$1,147,000.

"A LINE"

NO	DEPTH	SHAFT OR DRILL HOLE	VALUE PER CUBIC YARD
A 1	24 1/2	Shaft	19.5
A 2	29	Drill Hole	29.3
A 3	24 1/4	Shaft	86.4
A 4	27 1/4	"	5.8
A 5	26	Drill Hole	35.9
A 6	26 1/2	Shaft	1.9
A 7	32	"	(Not Completed)
A 8	31	Drill Hole	
A 9	22	" "	3.
A 10	24	" "	1.
A 11	32	" "	2.7
A 12	29	" "	10.7

This line of holes cross cuts the Klondike
Valley 3500 feet above the Lower Line of the Concession.

"B LINE"

NO	DEPTH	SHAFT OR DRILL HOLE	VALUE PER CUBIC YARD
B 3	39 1/2	Shaft	2.8 ¢
B 4	26	"	15.5
B 5	25 2/3'	"	1.1
B 6	25 5/6'	"	16.4
B 8	24	Drill Hole	7.1
B 9	23	Drill Hole	17.5
B 10	25	" "	4.8
B 11	19	" "	8.0 (Approximately)
B 12	22	" "	8.9
B 13	25	" "	1.2
B 14	25	" "	10.4
B 15	22 1/2	" "	1.2
B 16	18	" "	8.0

This line of holes cross cuts the Klondike Valley midway between Bear Creek and the Lower Line of the Concession and follows the course of the Y. G. Company power transmission line.

"C LINE"

NO	DEPTH	SHAFT OR DRILL HOLE	VALUE PER CUBIC YARD
C 1	34	Shaft	5.5 ¢
C 2	37	"	.56
C 4	45 1/2	"	1.2
C 6	30 1/2	"	.8
C 8	36	"	6.2
C 10	31	"	7.

This line of holes is located midway between Bear Creek and Hunker Creek.

"D LINE"

NO	DEPTH	SHAFT OR DRILL HOLE	VALUE PER CUBIC YARD
D 1	50	Shaft	1. [¢]
D 2	59	"	1.5
D 4	62	"	2.
D 6	Abandoned		
D 8	45 1/2	"	1.3
D 10	39	"	.6
D 12	32	"	.37

This line of holes is located 3000 feet below
Mouth of Hunker Creek.

"E" LINE

NO	DEPTH	SHAFT OR DRILL HOLE	VALUE PER CUBIC YARD
E 1	36	Drill Hole	12.5 ¢
E 2	34	" "	21.3
E 3	44	" "	20.8
E 4	37 1/2	" "	14.2
E 5	27	" "	9.5
E 6	34	" "	23.1
E 7	24 1/2	" "	4.7
E 9	24	" "	2.3
E 10	29	" "	1.6
E 11	33	" "	95.5

This line of holes cross cut the Klondike 3000 feet below the dredge workings at Bear Creek.

"F" LINE

NO	DEPTH	SHAFT OR DRILL HOLE	VALUE PER CUBIC YARD
F 1	31	Drill Hole	3.2 ¢
F 2	32	" "	10.
F 3	27	" "	12.2
F 4	39	" "	4.4
F 5	25	" "	1.8
F 6	26	" "	3.8
F 7	27	" "	6.1
F 8	26	" "	32.7
F 9	30	" "	7.
F 11	28	" "	10.5
F 12	32	" "	5.2
F 13	26	" "	2.3
F 14	24	" "	6.7
F 15	19	" "	64.5
F 16	17	" "	2.7

This line of holes cross cut the Klondike
Valley 1200 Feet above the Lower Line of the Boyle Conces-
sion.

"G" LINE

NO	DEPTH	SHAFT DRILL HOLE	VALUE PER CUBIC YARD.
G 1	30	Drill Hole	63.2 ¢
G 2	30	" "	4.5 ¢

These holes are located near the Klondike River
at the Lower Line of the Concession.

"H" LINE

NO	DEPTH	SHAFT DRILL HOLE	VALUE PER CUBIC YARD
H 1	40	Drill Hole	18.1 δ
H 2	38	" "	8.
H 3	31	" "	63.5
H 4	29	" "	18.8
H 5	28	" "	20.8
H 6	28 1/2	" "	2.7
H 7	33	" "	5.5
H 8	27	" "	10.9
H 9	27	" "	1.7
H 10	23	" "	1.7
H 11	33	" "	8.1
H 12	31	" "	88.4

This line of holes cross-cut the Klondike Valley 1200 feet below line "E" and 3200 feet below dredge workings at Bear Creek.



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