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SURFACE EXPLORATION
FOR THE
KLONDIKE MOTHERLODE

January, 1960

Surface Exploration

For The Klondike Motherlode

Report by GORDON R. HILCHEY, P.Eng.

There are reasons to believe that there are major lode gold deposits in the Klondike Area which have not been discovered as yet but which can be found with a relatively small exploration program.

- (1) The enormous placer production.
- (2) The extra-ordinary richness of the placers.
- (3) The small local areas which must be the source of the gold.
- (4) The difficulties of lode prospecting by hand-methods which can be overcome with machinery.

Location

The Klondike Placer Area lies in a belt 18 miles wide and extending south-east from Dawson City for 40 miles. The rich placer gold deposits of Bonanza Creek were discovered in August, 1896 and placer production from the area has been continuous since then.

Past Production

The total placer gold production of the Klondike Area has been estimated at about 10 million oz. of fine gold. Of this amount, about 6 million oz. (over \$200 million @ \$35.00 gold) came from Bonanza Creek and its tributary, Eldorado Creek. To date the lode production has been trivial although there is strong evidence for the existance of lodes.

Sources of the Placer Gold

Most of the placer gold must have been derived from two major local source areas -- a hill on the Bonanza-Eldorado divide and the Dome at the head of Hunker, Dominion, Sulphur and Quartz Creeks. There may have been two or three additional minor source areas.

The evidence for these local sources of the gold is:

- (1) The placer gold is generally coarser and rougher at the head of the creeks.
- (2) Only a few of the tributary streams near the headwaters of the producing creeks carry gold. These are usually short, steep, narrow gulches or "pups". The gold found in them is invariably rough, usually coarse, and often with attached quartz, all indicating a nearby source.
- (3) There are variations in the fineness of gold from one creek to the next, which indicates several different sources. For example: Eldorado Creek gold averages \$27.48 per crude oz. Bonanza Creek gold above Eldorado ran \$29.28 to \$29.91 but below Eldorado the value dropped to \$27.56 to \$28.00. Dominion Creek gold above Gold Run Creek averaged \$27.83 and below Gold Run Creek \$30.63. Gold Run Creek itself averaged \$30.63 or better.

These variations indicate several local sources for the gold ---- sources with varying amounts of silver resulting in different fineness of gold.

Lode Claims

The lode claims of the Lone Star group were staked many years ago at the head of Victoria gulch, a headwaters tributary of Bonanza Creek. Claims have also been staked on the ridge between Upper Hunker and Gold Bottom Creeks, on the ridge between Dominion Mountain and The Dome, and elsewhere in the area. On some of these claims, quartz carrying free gold has been found. These properties have been held by poorly financed local companies and exploration has been limited to shallow work on one or two veins. Most of the work has been done on the small Lone Star group.

The most significant published information obtained is quoted in the "Mining Industry of Yukon, 1935", (G.S.C., Memoir 193) and refers particularly to the Lone Star group, but probably applies elsewhere. Two sets of veins have been distinguished: large pegmatitic quartz veins which carry an insignificant amount of gold and later, narrower veins carrying small amounts of pyrite and galena with free gold and yielding high assays. Little work on the lode properties of the area has been done since that time. Indeed, (considering the greatness of the placer production), a relatively small amount of work has been done on lode properties of the Klondike compared with other camps.

Prospecting

The prospecting for lode deposits in the Klondike area is not easy. The area is one of mature topography and little rock exposure with a residual soil several feet in depth. On the lower slopes of the hills, vegetation consists largely of poplar, birch and spruce. On the higher parts of the hills, above timber-line, vegetation is commonly dwarf-birch up to 4 ft. high. The actual surface of the ground is usually completely covered with moss and tundra and permanently frozen from the grass roots down. All these conditions combine to make the prospecting of rock outcrops and the search for float by hand-methods a difficult and tedious process. This is probably the reason why important lode gold discoveries have not yet been made. Modern bull-dozers and transportation allow an easy attack to the prospecting problem which has not been attempted heretofore.

Recommendations

The following program is recommended for finding the mother-lode source of the Klondike Gold:

On the basis of placer production and the size of the potential source area, the Bonanza-Eldorado divide should be given first consideration. The following program is recommended:

- (1) Acquisition of the property by staking all open ground (about 100 claims) and optioning the Lone Star group.
- (2) Bulldozer trenching of the hillsides.
- (3) Sampling of the trenches. Recovery of free gold by rocking and examination of the quartz float for visible gold and other minerals.
- (4) Correlation of the results followed by more stripping to locate the lode source(s).

Cost estimate

A rough cost estimate of the above program is based on a five-month season, using one D-8 bulldozer on one shift.

Acquisition of the property, assuming that the Lone Star group can be optioned with no cash (or almost no cash) down	\$ 5,000.00
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Exploration:

Bulldozer stripping	\$30,000.00	
Sampling, supervision, miscellaneous, supplies and equipment, transportation, etc. (camps would not be required)	<u>17,500.00</u>	<u>47,500.00</u>
Total -		<u><u>\$52,500.00</u></u>

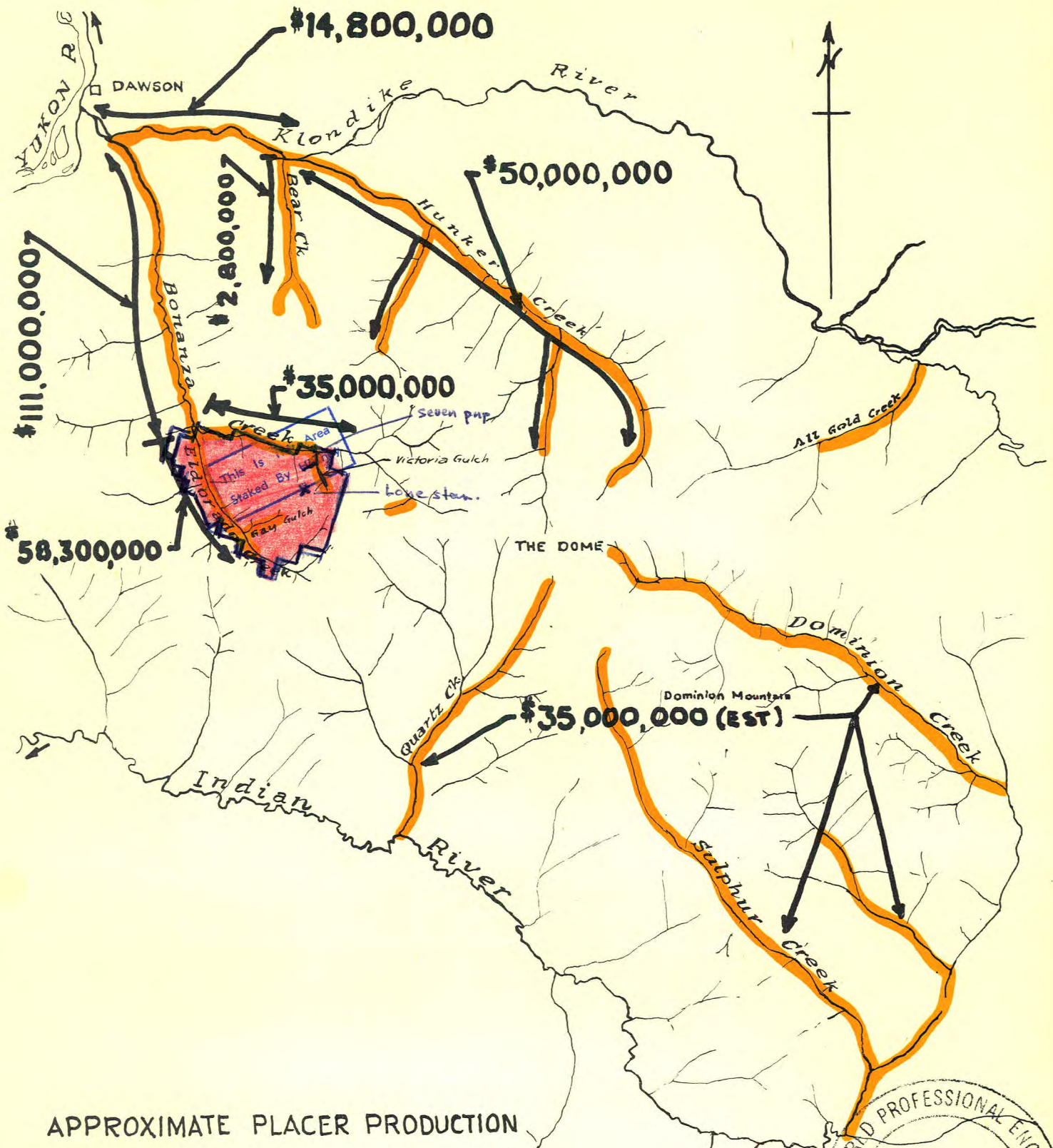
Conclusion

I have worked throughout the camp and I consider this a very promising exploration venture. The prize may be, indeed, fabulous and the cost of finding it very modest. I recommend proceeding immediately with the program outlined above.

Respectfully submitted,

Gordon R. Hilchey, P. Eng.



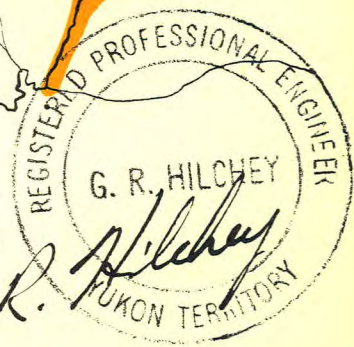


APPROXIMATE PLACER PRODUCTION

(GOLD VALUED @ \$35⁰⁰/oz)

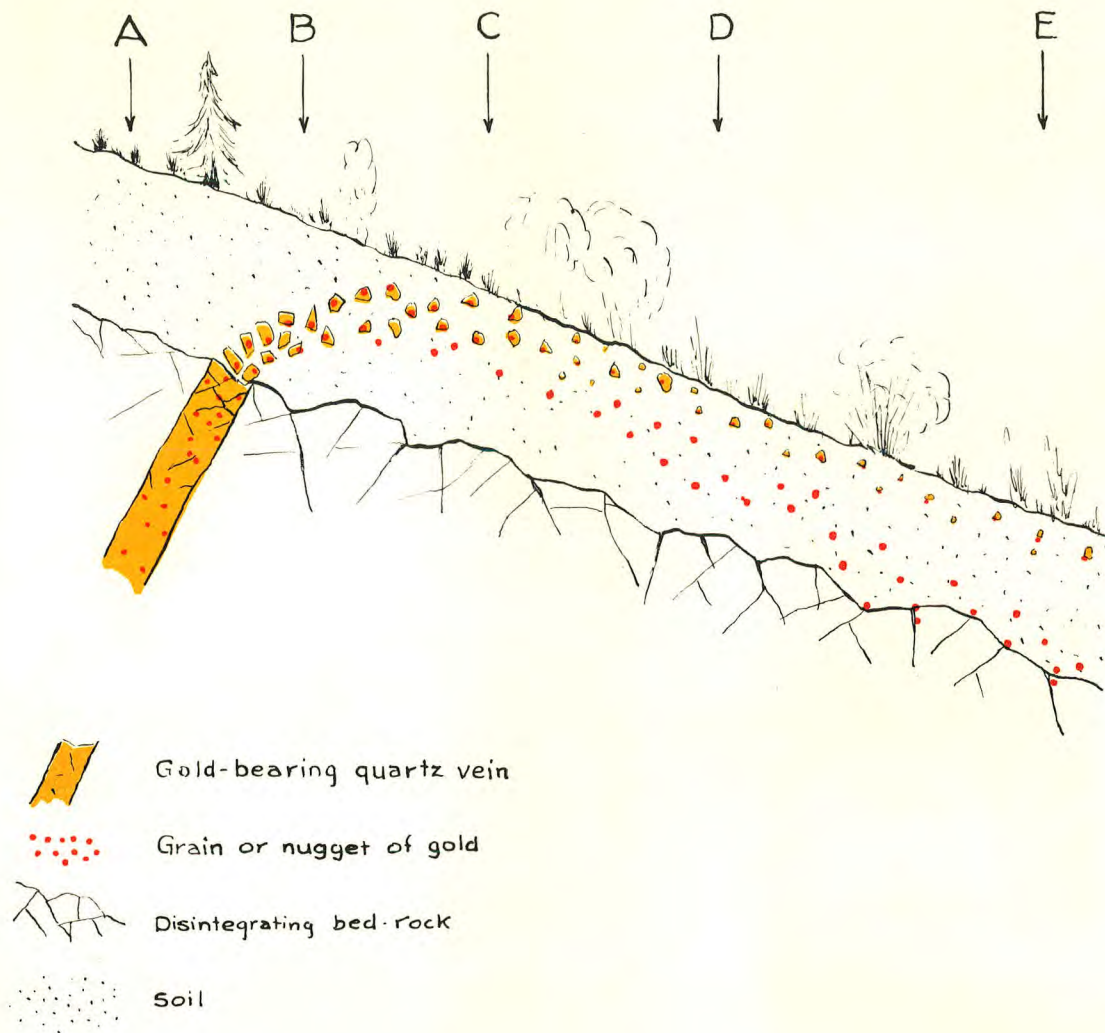
KLONDIKE AREA

Scale: 1 inch = 4 miles



G. R. Hilchey

GRH. Jan '60

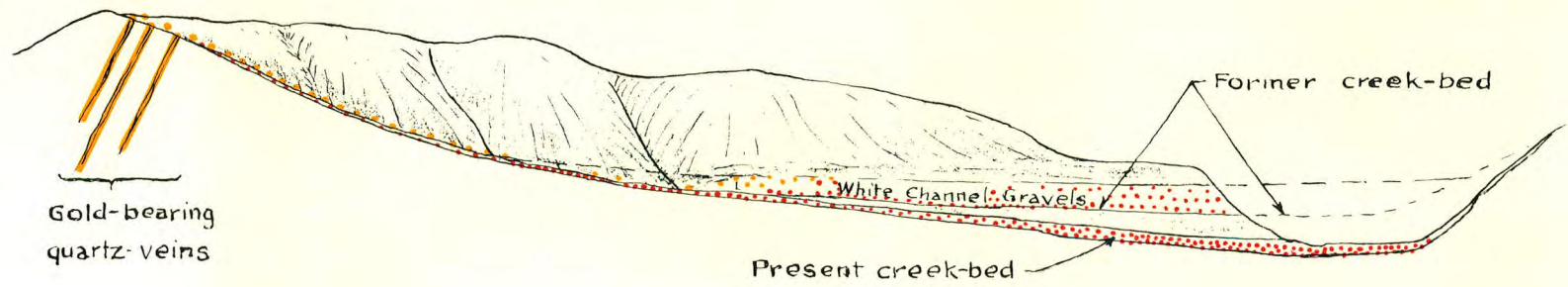




- E - Very little quartz float - Nuggets on or near bedrock.
- D - Small pieces of gold-bearing quartz near surface nuggets down to bedrock surface.
- C - Coarser pieces of gold-quartz - some nuggets - more nearer the surface.
- B - Abundant pieces of gold-bearing quartz.
- A - No gold or gold-bearing quartz.

DIAGRAM SHOWING THE
 DISINTEGRATION OF A GOLD-BEARING QUARTZ VEIN
 BY WEATHERING AND DOWN-HILL CREEP

REGISTERED PROFESSIONAL ENGINEER
 G. R. HILCHEY
 G. R. Hilchey
 KONA TERRITORY

G.R.H. - Jan. 1960



-  Gold-bearing quartz
-  Gold dust and nuggets

SECTION OF CREEK
 SHOWING FORMATION OF
 HIGH LEVEL (WHITE CHANNEL) AND CREEK PLACERS


 REGISTERED PROFESSIONAL ENGINEER
 G. R. HILCHEY
 YUKON TERRITORY
 G.R.H. Jan. '60

BEAR CREEK



BONANZA
CREEK



HYDRAULIC MINING OPERATIONS
ON WHITE CHANNEL GRAVELS.

ELDORADO
CREEK



HUNKER
CREEK ←



→ DAWSON CITY

LOVETT HILL AND MOUTH OF BONANZA CREEK
View looking south across the valley of the Klondike river.

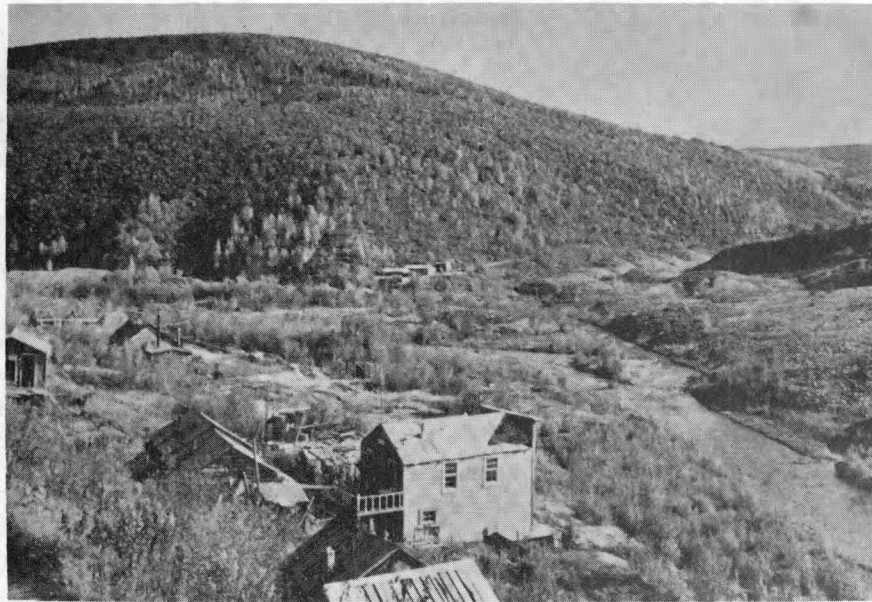
This photograph shows the general topography of the Klondike area. Practically all the valley bottom area shown in this picture has been dredged for gold.

ELDORADO
CREEK

Most of the gold in Bonanza
and Eldorado Creeks came off
of this hill. This is the area
recommended for exploration.

Approximate
base of
white
channel.

UPPER
BONANZA
CREEK



GRAND FORKS, BONANZA CREEK.

This photograph, looking south, shows the
topography and vegetation in the area, which
is the subject of this report.