810847

8 February, 1962.

# ATLIN MINING DISTRICT
# PLACER

## INTRODUCTION

A study of an existing creek flowing into the North end of Surprise Lake was conducted by Mr. John Olsen and I in September, 1961.

The purpose of this survey was to establish, if possible, the existence of an "old channel" gold bearing enough to warrant a preliminary ground survey and culminating in a profitable hydraulic placer mining operation. This was proposed to me by Mr. Olsen through his observation and association of the district through the years.

## SOURCES OF DATA

### (a) Field

No actual field surveys of the probable placer was taken since the snow conditions and lateness of the season would have hampered any useful traverses that could have been made.

### (b) Material

In view of the above, the only survey conducted was from a review of all possible existing material as set down by the B.C. 1900-1936 Annual Reports and memoirs by J.C. Guillam "Report on the Atlin Mining District, British Columbia" Geological Survey of Can. Ann. Rep., Vol. XII Pt. B 1899, D.D. Cairns "Portions of the Atlin District, B.C." Sum. Rep. Geol. Survey, Dept. of Mines, 1910.

## GENERAL GEOLOGY

### Extracts Regional Topography

It would appear that the general concensus by examining Geologists of the Cordillean that planation did occur in different areas, as it did in the Atlin area.

D.D. Cairnes Planation Taku area coast range batholith thought to be Jurassic after the jura-cretaceous (Laberge beds deposited). Portion of the Yukon Plateau reducted to condition of slight relief in pre-glacial time then uplifted.

Investigations by different Geologists do not entirely agree with these geological dates.

Cairnes precludes by investigation that the long circuitous route (present) was instead shorter and tended to show the district was drained into the Pacific.

Brooks, A.H. Geography and Geol. of Alaska Prot. paper No. 45-US Geol. Survey 1906 P. 294 - it is possible that the area now occupied by the Coast Range existed as a range of residual hills while the plateau region to the East was a pene plain.

Cairnes states that his field evidence indicates that both provinces were at least maturely eroded and that the Yukon attained a condition of old age and that the mountain plateau region was synchronously uplifed and that the axis of the coast range which had been a locus of previous disturbances was uplifted higher than the adjoining belt to the East. Also, the uplift of the coast range was very gradual which is indicated by the fact that several rivers that flowed into the Pacific across that part of the region maintained their courses.

## GOLD SERIES ATLIN

### Actinolite Slates

J.C. Gwillam Part B, Annual Report, Vol. XII p. 19B - 20B. These occur principally to the North of Pine Creek about the basins of Birch, Boulder and Ruby Creeks. They are not apparent to the South of Pine Creek. Their position appears to be close to the contact of the Gold series with the Granites and they lie between it and the Dunite, Serpentine, etc. The structure is more or less banded, but never slate like. The fracture or jointage give angular blocks. Above the forks of Birch Creek they have a well defined East-West strike and to the South on Birch and Boulder these rocks have supplied the coarse gold of the streams. They have some low grade mineral veins and outcrops of quartz, together with some patches of the peculiar granular and friable limestone.

### Gold Series

Characteristic rock masses which form basins of productive gold-bearing creeks - the chief rock of this series is a certain magnesian form, a later and partially divitrified green stone and two varieties of slate.

The magnesian rocks are dunite (peridotite) magnesite and serpentine. The slates are biotite and actinolite. They are probably palaozoic and related to the cherty quartzites. The magnesian rocks represent ancient volcanic intrusives. Some of them may be of palaozoic age.

The green stones are younger than the other members of the series. They appear to be later than the Surprise Lake granite which has broken up these other members.

In the valley of Pine Creek there are numerous dykes and some areas of diorite associated principally with serpentine and dunite. The diorite may be related in origin to the green stones, the latter representing the rocks cooled at the surface. This group of rocks in itself largely is not entirely of igneous origin. It has undergone much fissuring and mineralization due to the intrusion of later igneous masses such as the granite of Surprise Lake and the green stones. There are strong well defined fissure veins crossing the actinolite slates and the green stones. These contain quartz and the sulphides of iron, lead and copper and are not of high value in gold or silver. Some large irregular masses of barren looking quartz also occur and another set of mineralized bands or veins which contain mixed quartz and magnesite with gold values therein.

The magnesian members of the gold series appear to resemble the rocks of the Moosehide series (#R.G. McConnel, Klondike District)

#Note:

The actinolite slates related in a sense to the gold series occurring North of Pine Creek about the basin of Birch, Boulder and Ruby Creeks by the fact that much well defined fissure veins crossing the slates and mineralized with quartz, sulphides of iron, lead and copper, etc. with not too much gold or silver do not appear too frequently South of Pine Creek, but are considered the ones that carried the coarse gold to the North.

Ruby Creek J.C. Gwillam, Vol. XII, p. 41-42B

Ruby Creek lies fourteen and a half miles East of Atlin Lake from the North side. Its source, seven miles back from Surprise Lake, is from a number of remarkably deep, rather flat bottom valleys which penetrate some of the diorite, actinolite slates and serpentine of the gold series. The valley downward from these upper tributaries has not an even grade. It has been filled in to some extent by a basait flow, through which the present creek has cut a deep narrow canyon, from anology with Birch and Boulder Creeks. These also drain basins in rocks of the gold series. The middle portion of Ruby Creek should have paying placers. This portion of the creek is overlain by basait. A mountain of scoria, evidently an old volcano, lies on the Western range of this valley and the Surprise Lake granites occupy. the Eastern range near the mouth but the upper portion has been deeply eroded in rocks of the Gold series.

"Commercial"

Cracker Creek 1932 (?) B.C. Annual Report

This creek flows into the Northerly end of Surprise Lake on the West side and is the next largest creek on this side of Surprise Lake above Ruby Creek. The creek has a steep gradient from Surprise Lake, at elevation 3,025 to the top of the canyon at elevation 3,500 about two miles above Surprise Lake. Beyond this creek trough it shows a flatter gradient with a bend South and has

in its source several tributaries draining from small lakes on the divide between Surprise Lake Valley and Fourth of July Creek. In the lower area high benches to about 3,500 feet elevation flank both banks. The attitude of the granite rim at the top end of the canyon indicates the possibility of an old channel behind and South-Easterly of this rim, skirting and possibly paralelling the canyon rock on that side. At the top end of the canyon an old drainage tunnel was excavated in an attempt to cross cut towards the presumed old channel .

At the lower or North-Easterly end of the canyon, three men working on a lay from Paul Eggert of Atlin are continuing an old tunnel located on the right bank in an attempt to tap the old channel South of the canyon.

The camp is situated at elevation 3,250 and portal of tunnel at about 3,200. The face xxx being worked was heading S, 45° E (Mag) in a high rim.

The opinion of the writer was that the face was considerably too far East and to the left of the projection of a probable old channel (he stated the ground consisted of inter statified fine sands and gravels with some clay layer's representing probably interglacial water action of moderate flowage. He considered the ground well worth prospecting).

## Continuation

Drifting operations were continued on this creek by Olsen and Broten on a lay from Paul Eggert of Atlin. It is interesting to note that the face heading S, 45° East (Mag) in high rim and referred to before in the 1932 B.C. Annual Report as appearing to far East and to the left of the projection of the probable old channel, was continued and broke through this rim. The rim dips about 10° East and a recovery of coarse gold was made at the break through.

Great credit is due these operators for having continued this cross-cut in the face of what appeared to be unfavourable conditions.

At the point where gold was encountered on the South rim, values were reported to be about $3.00 to the car (about 10 cubic feet) in sluicing this material about 3 oz. of course gold was recovered with the biggest nugget weighing 10 d.w.t. It is planned to drift along this rim with the objective of encountering bed-rock which is estimated to be about ten feet below the present tunnel floor.

REMARKS

It might be interesting to note that these men were working under difficult circumstances, transportation and financialwise. They were finally forced to separate and find work to finance further development, however, they never did get together again to resume their exploration. From the data that I have been able to gather, it is quite understandable since this operation requires much more capital than is usually available by a small group of prospectors. The values in royalties in the 1903 B.C. Annual Report show a total of 14,832 ounces or $232,995.50 per annum output.

By 1904 the annual output was expected to be from $300,000.00 to $450,000.00.

A total of $2,995,000.00 had been mined in 1904, prior to the end of the season.

It might also be interesting to note that Boulder and Ruby Creeks were exceedingly rich. Since Ruby is associated with the gold series, it would follow that Cracker Creek could be classed with this gold productive series.

Further to this, as was indicated to me by people who worked with Jim Eastman on Ruby Creek that he precluded that Cracker Creek could have been the original channel of Ruby Creek. It would appear that this was his direction in exploration work when he sunk a shaft through the Basalts with a view to drifting on the right hand limit towards Cracker Creek depression. The location of this shaft was the last building site on Ruby Creek.

Unfortunately, Mr. Eastman died on completion of the shaft before any drifting was carried out. The backing for this company by a Mr. Caufman of Eastern Canada was withdrawn on the death of Mr. Eastman, although it is my understanding that a Mr. Neil Forbes did drift on the left limit of the creek from this shaft but was unsuccessful in this attempt to find the channel.

CONCLUSION

It is my belief that a program entailing a detailed ground survey by a qualified hydraulics engineer with a view to setting up a profitable placer hydraulic operation would be well justified. The preliminary survey need not exceed $5,000.00. The total expenditure by date of operation would probably require $150,000 - $200,000 since this operation could well run into ten years or more. It might also be noted that on Cracker Creek the gradient, water and tailings disposal all seem to be favourable.

L.A. PATNODE