

COPY of REPORT MADE BY MR. E.A. Haggen

Engineer to the Company

March 8th, 1927.

Gentlemen:

In accordance with your instructions I visited the Albany Mining property and have to report as follows:-

Mr. Angus McLeod, superintendent, met me at Stewart on the morning of Feb. 22nd. After he had completed some business he had to attend to, we started for the Mine, going by sleigh to the Dunwell Mill which is the western terminal of the Glacier Creek Trail. From the Dunwill Mill we proceeded on snowshoes. There had just been a fall of wet, soft snow. This made travelling so heavy that I was obliged to rest at the Mimico Cabin for a time and as we had left Stewart without taking any food with us Mr. McLeod went to the Albany Camp and sent me down some tea and sandwiches. The last part of the trail is very steep, and climbing was so difficult under the weather conditions experienced that it was about 11 p.m. before we reached camp.

On the morning of Feb. 23rd., I went down to the Thompson Tunnel, on the East bank of Glacier Creek (South Fork), where the development work is being carried on and made a thorough examination of the mine. Since my last visit Mr. McLeod had out and graded a trail from the main trail to the Thompson tunnel to provide a ready means of access from the camp to the work for the convenience of the miners, and for the use of the pack train in delivering mine supplies and building material at the site of the Thompson tunnel. This trail is about 1000 ft. in length.

At the Thompson Tunnel the timbering at the portal had been extended for a distance of about twenty feet, cribbed and covered with brush for the protection and comfort of the workmen. On the west side of the tunnel portal a good blacksmith shop has been built of a dimension of about 18 ft. x 10 ft. and fitted with forge, and on the west side of the blacksmith shop a change room and dining room for the miners has been provided. Both buildings were constructed from material at the camp. They are dry and weather proof. The dining room is provided with a heater and affords comfortable accomodation for the workmen. Mr. McLeod informed me that he placed these buildings in their present position as a safeguard against the tunnel being blocked by snowslides which Mr. Wathine informed him came down the mountain side opposite and were liable to smother the workmen in the tunnel. So far no slides have been experienced although the worst of the winter is now over, and I do not believe that there is the slightest danger of that kind as the hillside opposite the tunnel is well timbered and a ridge separates the steep part of the mountain subject to slides from the west Bank of Glacier Creek opposite the tunnel, diverting the slides down the deep canyon of Gulch Creek which comes into Glacier Creek some 300 to 400 ft. below the site of the tunnel. The site of the Thompson Tunnel appears to be well adapted in every way as the present main entry of the mine, the tunnel being absolutely dry, and opening into a clear basin in which there is sufficient room for a power-house, ore dumps, machine shop and the necessary adjanets to an operating mine. Quite a large space can be reclaimed here by blasting and removing a few boulders on the west side of the creek at the foot of the falls; building a crib work to protect the ore dumps; and levelling it up with the waste rock from the underground development in the mine.

At the time of my visit the tunnel had been driven to a point about 80 ft. from the portal; that is 60 ft. of new work had been carried out since beginning the extension of the tunnel. The tunnel has been driven on the McLeod Vein - a vein of which we had no knowledge before this work was undertaken beyond the fact that there was an absolutely unproven vein of similar strike and dip. Mr. McLeod crosscut this vein at a point about 30 ft. from the portal of the tunnel, and finding it carry 3½ ft. of ore of an average value of \$34.06 per ton, he decided to stick to it; although he was also under the impression that it must be the Copland Vein, which he had been instructed to develop. Where crosscut the vein

was 6 ft. in width. Within the next five feet the value became as low as \$4.30 per ton; but this was due to the tunnel being run out into the footwall: whereas the best ore was on the hanging wall. On changing the course of the tunnel back into the hanging wall the values again came in within the next five feet. The vein widened to 8ft. and was found to be mineralized throughout its entire width. At the present time the tunnel is all in ore. While at the mine I went down every morning to see the result of the previous night's shot-firing and the ore was daily showing a decided improvement. The face of the tunnel showed clean ore of a width of from 10 in. to a ft., and the rest of the vein was entirely filled with ore of milling grade.

Two miners are employed single-jacking on day-shift. They break down from two to 6 tons of ore a day - say an average of 4 tons per day. Up to the time of my visit about 240 tons of ore had been mined and put in the dump, which was practically all ore. On its dip the McLeod Vein extends at least 125 ft. above the level of the tunnel. Allowing for 50ft. toward the surface which should not be mined, there is being proved up about 40 tons a day of probable ore. My estimate of the values on the assays and sampling is \$18.20 per ton. There is therefore, on the dump:-

240 tons X \$18.20 - an ore value of	\$ 4,389.60
<u>2,400</u> " " " - probable ore	<u>43,896.00</u>
2,640 tons probable ore developed	\$48,285.60

The ore dump extends 42 ½ ft. from the portal of the tunnel and the car track is laid almost from the face of the tunnel to the end of the dump.

The ground stands well and it has not been necessary to do any timbering: but in some places the roof is slate, and the footwell appears to be limestone, so that the McLeod Vein appears to be a contact vein between slate and lime. Considerable calcite is now appearing with the ore - a favorable indication for ore deposition and probably accounting for the better grade of the ore.

It had been my intention to change the work to the original plan and instruct McLeod to go back to within about 60 ft. from the portal of the tunnel and crosscut to the Copland Vein; then drift on that, as it is the richest vein and would yield a good proportion of shipping ore to send to the smelter as soon as the trail is in shape to admit of transportation. The McLeod Vein is looking so well, and the present work is proving up the value of the property in so encouraging a manner, that I deemed it best to let the work go on as it is; though as soon as the mine crew can be increased the Copland Vein is in my opinion the one to which development should be directed as soon as possible.

The continuation of the Thompson Tunnel on the McLeod Vein is doing valuable development, as it is not only proving that vein on its strike of about 750 ft. on the company's property, but gives an ultimate depth on that vein of about 1000 ft. on its dip. Then, from that tunnel the Leckie Vein can be developed by crosscut as well as other veins on the west side of the south fork of Glacier Creek.

At about 50 ft. from the portal of the tunnel No. 2 cross vein on the Copland vein system has been crosscut, so that by following this vein with a drift the Copland vein will be reached within a distance of 60 to 80 ft., and the work will be in ore all the way.

This No. 2. cross vein looks very promising. It is well mineralized with a character of ore different from that of the McLeod and Copland veins. Mr. James Lydden, an old timer in the camp, informs me that he did the work of driving the Thompson Tunnel for Mr. Ike Thompson, and that a sample he took from this cross vein gave a return of \$110 in gold. Mr. Lydden is a very reliable man.

The desirability of installing a compressor and using power drills as soon as possible is forcibly illustrated by the work in the Thompson Tunnel. By hand labor the holes drilled the single-jacking are short, and where there is so much mineral the explosives used have a tendency to blow out the mineral in the hole instead of breaking the rock. The explosive used, 60%, is too strong for this work in any case. 50% dynamite would give better results but no stock of that grade is maintained by the explosives company at Stewart. By using air drills deep holes could be driven and these would break up a large amount of rock at every round. It is safe to say that instead of doing a foot a day as now, the tunnel could be driven by air drills at the rate of ten feet a day with the same amount of labor.

The explosive stocked at Stewart is of poor quality - a matter I am taking up with the explosives company. The mining companies are so much dissatisfied with it that they propose arranging for the importation of explosives of foreign manufacture and paying the extra duty on them rather than continue the use of an inferior and unsatisfactory article.

Some difficulty has been experienced with the drill steel on account of the inferior quality of the blacksmith coal sent in. It is high in sulphur and makes the drill steel brittle, causing loss of time on the part of the miners and entailing much more labor than necessary in sharpening the steel.

The cost of the Thompson Tunnel is about \$25 a foot as compared with \$22 under contract.

At the camp I found everything going along well and harmoniously. The men are all willing and ready to help each other and do anything they can in the interest of the company. Mr. McLeod and Mr. H. Upton do the cooking, but the miners take a hand at when necessary. Mr. McLeod sharpens the steel for the miners. Mr. Upton attends to mucking out the tunnel, handling from two to eight carloads of ore a day. Operates the forge blast, and makes himself generally useful about the camp. When any of the men go out to Stewart they pack back fresh meat. On the trip I made with Mr. McLeod he packed in 18 lb. meat besides other supplies. The camp is very comfortable, but accommodation is so limited that Mr. McLeod has to sleep on a mattress on the rafters, the space available on the ground floor being taken up by three beds. The nights I was there Mr. Upton gave me his bed and had to sleep up on the rafters.

Before I left Vancouver Mr. Copland suggested ascertaining whether the mine crew could be doubled so as to enable the development of the Copland Vein to proceed simultaneously with the McLeod Vein. You will see from what I have stated that there is no accommodation in the camp for more men at present: though Mr. McLeod suggested room could be made by putting up a temporary building for the cook stove and dining table. I would not advise any expenditure on the present camp. It is too far away from the work and entails a loss to the company of half an hour per day per man and upwards in traveling between the camp and the work.

On Feb. 24th Mr. McLeod and I went up towards the head of the south fork to ascertain the midwinter conditions of water supply, and how far the site of the dam might be affected by snowslides. We found plenty of water in the creek for present mine purposes, though it is probable that when a large increase in power is required, as for a mill, storage reservoirs will have to be built to conserve some of the summer surplus flow for winter use. The water could be heard roaring in the canyon below. The conditions at the site for the dam were favorable. Here the creek is naturally confined by a big green-stone dyke which crosses the channel and through which the creek has cut an outlet. A temporary dam sufficient to meet the requirements of the mine for the coming year can be built at small expense by using the walls of the dyke as abutments. There is absolutely no danger of the works being damaged by slides, as opposite the dam site is a projecting ridge which throws the slides north and south clear of the dam site. We made the trip on snowshoes, and it was an agreeable surprise to find conditions so favorable.

I cannot speak too highly of the manner in which Mr. McLeod and the company's employes have carried out their work. It has everywhere been well and creditably done, and has earned for both the company and the mine a high reputation in that district. Mr. McLeod informs me he has to leave the end of March to arrange for starting the season's work on his own properties on Marmot River; and that the Albany Mining Co. must have someone ready to take his place by that time. Consequently I saw Mr. Thomas and he said he might be able to take it on subject to your approval: but he could not give me a definite answer then, though promising to let me know as soon as possible. If you cannot get him I suggest W. Irwin, who is one of the best mine superintendents in that country, though a more expensive man.

I have now the honor of making the following suggestions and estimates for the coming season's work:-

Clearing west channel of creek and cribbing east side to protect ore dumps, buildings, and provide dumping and building accommodation at Portal of Thompson Tunnel. This work should be done just as soon as possible before the spring show as it cannot be done in high water. Estimated cost, \$250.00.

Trails- We cannot get anywhere till better trail accommodation is provided. I have applied to the Provincial Government for a grant of \$3000. to complete the trail and bridge the south forth to give first-class trail access to the Albany property. I have also asked that the Company be allowed to do the work subject to the approval of the Government Engineer, and that the refund to the company be made on his certificate. This is the first work to be done.

The company will require to make a new trail to the site of the new camp and to the site of the dam for water power; also on the west side of the creek to enable a thorough exploration to be made of the veins over there; and concerning which we have had favorable reports. Cost of these works will be \$250.00.

Larger accommodation must be provided for the mine crew. At present the Company is liable to prosecution by the Inspector of Mines for requiring its employee to eat and sleep in the same building. I suggest that a new camp be constructed on a site well adapted to the purpose, being comparatively level and close to the Thompson Tunnel, proposed mill site. This new camp will consist of a kitchen, dining room and store room in one building, and sleeping accommodation, reading room and bathroom in the other. The space between the buildings should be roofed in to provide for storage of firewooe, washroom, and shelter from snow in winter. The new camp will include proper sanitary appliances, another matter in

which the company is at present a transgressor against the Mine Inspection Regulations. I suggest that these buildings, and in fact all other improvements, be constructed of a temporary character, costing as little as possible consistent with providing official and comfortable accommodation, so as to leave as much money as possible in the Treasury available for mine development, on the success of which the future of the company entirely depends. Limit expenditures as far as possible to productive work, and that alone, without any frills or favors to anybody, but looking only to the company receiving the best possible value for its expenditure. I estimate the cost of the new camp at \$1,500.00.

Power Development: This to consist of a timber and rock dam at the head of the falls: with wood stave pipe to power-house, and small branch line to supply water to the new camp: clearing site for pipe line; flood gates; power house; air compressor; five air drills; turbine wheel; air motor for mine haulage; small electric light plant and storage battery; tubing and piping; cold storage for camp; circular saw. Estimate cost \$6,000.

Sundries, estimated at \$1,500, including powder ~~margarine~~ <sup>margarine</sup>.

This makes \$10,000 that will be required to place the mine in shape for active development during the coming season. Mine development will depend on funds available over this \$10,000. I suggest that before beginning the season's work you have a budget made out covering the various expenditures - office, overhead, engineering, travelling, general etc., and require you employee to confine their expenditures strictly thereto. The success of a mining enterprise depends as much on business-like administration and economy in expenditures as on anything else.

Climatic conditions at the mine are more favorable than expected. The depth of snow at the mine is from five to six feet. There is very little ice about, indicating a comparatively mild winter climate. During the coming summer a thorough exploration should be made of the company's property with a view to getting some definite information about as many of the veins and ore bodies as possible. If I should be remaining with the company as its engineer you may have the use of my engineering instruments and assay plant, saving the company any expenditures on these.

With an increase of the mine crew, provision will have to be made for a blacksmith and cook.

Herewith please find plan showing the new work done this winter.

As I understand the company has disposed of all its share capital, permit me to suggest that the capital of the company be increased. My reason for this is that it would be in the company's interest to secure more ground along the strike of its principal veins: and while I have seen nothing in neighbouring properties worth purchasing at present, the development of the Albany is going to be watched by its neighbours. The McLeod Vein for instance, has not been known to outcrop anywhere. With its strength and persistency it undoubtedly extends into neighbouring property, where it could not be found as an outcrop owing to the dense covering of timber, vegetation and glacial drift. It is quite likely that some, if not all the neighbouring owners would be willing to accept shares in the Albany Mining Co. for their property, and I would suggest buying on no other terms than shares. L. & L. Glacier I know want to amalgamate with Albany and have been advised that is their only chance of success by their engineer. I have not seen the property but understand it is interesting, and they claim they can trace a good vein (they say it is the Copland Vein) right through to their Property

Arrangements should be made to get the season's work started the end of this month to get full advantage of the best weather and have everything in shape for getting out ore by sleighs the coming winter as well as having matters sufficiently well in hand that the best results may be obtained from next winter's development, when the property should be in shape to determine your policy regarding a mill.

Yours sincerely,

E. A. Haggren

P. S. - Mr. Mirkill is proceeding with the crown granting of the property and I enclose copy of Portland Canal Miner carrying the necessary notices of application for certificate of Improvements. The Dunwell Mining Co. now have their mill on Glacier Creek running. It has a capacity of 100 tons a day. Mr. H. H. Stewart, General Manager of the company, asked me to show him samples of Albany ore. I showed him some from the McLeod Vein. He replied "That is Dunwell ore". I told him it was not, and he remarked he could see no difference between them. He then asked me about the values and on giving him that information he said it was practically the same as Dunwell ore they were putting through their mills.