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CONSULTING MINING AND METALLURGICAL ENGINEERS

VANCOUVER BLOCK

VANCOUVER, B.C.

*original sent to London
15th Aug 1928
H.L.*

82N/3E

82K/14E

82KNW094.

R E P O R T

ON

THE

ALPHA GROUP OF MINERAL CLAIMS

Located at the head of the Middle Fork of the
SPILLIMACHENE RIVER, EAST KOOTENAY DISTRICT

BRITISH COLUMBIA.

R. H. Stewart, H. L. Batten and Associates,
Consulting Mining and Metallurgical Engineers.

Per

H. L. Batten

Vancouver, B. C.
August 15, 1928.

PROPERTY FILE

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Alpha Group.

CONCLUSION.

Our conclusion^s drawn from a personal examination of the Alpha Group, located at the head of the Middle Fork of the Spillimachene River, East Kootenay District, British Columbia, are as follows-

1. The property has not demonstrated merit that warrants a decision to proceed with intensive development.
2. The property has possibilities that prohibit condemning the operation.
3. Although the property has possibilities that warrant further investigation the operation should be considered and controlled with extreme conservatism.
4. Although we recommend further investigation we must state our opinion that we consider it more probable that further investigation will result unfavourably than that the results of further investigation will be favourable. If this report were prepared for possible purchasers we should recommend that no expense be incurred. As the report is prepared for owners of the property we recommend that the possibilities of the property warrant further investigation on the small scale we suggest.
5. It is not possible, with the property in its present state, to express a final opinion that would be dependable. We realize that owners wish to be advised whether they are justified in proceeding with the development of the property or whether they should refuse to incur any further expenditure on the property. Our recommendations are expressed below. We regret the lack of definiteness of our conclusions but the condition of the property does not warrant more definite statements.

CONTINUATION OF LETTER TO

Alpha Group.

6. Transportation conditions and operating conditions generally are such that the property should prove one of outstanding merit to warrant development and equipment for production. To date the property does not show indications of proving one of outstanding merit. These difficulties, though a very important consideration, do not justify rejection of the property.

The main possibilities of the property are as follows-

1. The possible occurrence of minable shoots of silver lead ore in the mineralized veins striking north west-south east (magnetic) where some structural feature has caused local enlargement or (and) enrichment of these veins.

We do not think the chance of the veins making ore where unaffected by other fractures warrants expenditure and we observed no evidence to indicate that local enlargement or enrichment of these veins has been caused by local features, but this is a possibility that should receive further investigation.

2. The possible occurrence of minable gold values in a system of veins that have not been adequately explored or investigated. That gold values do occur in these veins may be considered proven but the only samples available are vitiated by oxidation and residual enrichment of the surface, so that the probable grade of these veins is indeterminable. Further exploration should be carried out to determine the chances of finding, within these veins, minable pyritic ore shoots.

CONTINUATION OF LETTER TO

Alpha Group.RECOMMENDATION.

We recommend that four hand miners, a shift boss and cook be employed, for about two months next summer, in performing the following work, under the direction of a competent engineer with an assayer as assistant.

1. Expose for systematic sampling the three larger mineralized quartz veins showing in the Alpha basin. Sink pits at the intersections with other fractures and explore generally with a view to determining whether or not there are local enlargements and enrichments of these veins, or both, that would give minable ore-shoots.
2. Strip and blast off the outcrop from other quartz veins that may carry payable gold values, and prepare these veins for systematic sampling.
3. Make what trails are necessary and remove snow where required to allow a thorough study of veins occurring on the ridge on the Alpha M. C. and on the west slope of the mountain.

With the assistance of this work a decision could be reached whether the property should be rejected or if further work were justified. If the north west veins in the Alpha basin were shown to have good possibilities we should recommend drilling them the next season. At least five of these veins occur in a zone about 400 feet in width. Ordinarily we should not recommend drilling veins of this type but we do in this case on account of the difficulties of transportation and because there are several of these veins in a narrow zone. Only after payable tonnage has been indicated by drilling should expense be incurred in providing transportation by the Beaver River route. Supplies and men for the above two season's work should be shipped to the property via the Spillimachene River trail, and no expenditure should be permitted except that tending directly to prove or disprove the possibilities of the property.

Supplies should be shipped from the Columbia River about the middle of June and these supplies, and the men, should arrive at the property not later than the first of July. Arrangements should be made for the Government to clear out the trail before shipping supplies.

We estimate the cost of the first year's work at a total of from \$7500 to \$10,000.

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Alpha Group.

We must emphasize the importance of a very careful study of the geology of the area. The following points should receive particularly careful study-

1. The areal geology generally, noting the formations in which the more promising veins occur, eliminating the probably barren formations, and carefully mapping any intrusives.
2. The various systems of fracturing, their correlation and relative ages and the characters of the veins occurring in the various systems of fracturing.
3. Extreme care should be exercised to avoid salting of gold samples by inclusion of oxidized and residually enriched outcrop.

R. H. STEWART, H. L. BATTEN AND ASSOCIATES

CONSULTING MINING AND METALLURGICAL ENGINEERS

VANCOUVER BLOCK

VANCOUVER, B. C.

Alpha Group.

PROPERTY

The property consists of five claims of 52 acres each, namely the Alpha (L6785), Alpha No. 2 (L5113), Omega (L6786), Omega No. 2 (L6787), and the Pictou, one Fractional Mineral Claim, the Alpha Fraction (L5100) of 10.68 acres and two old locations with extra-lateral rights, the Standby and Maud S Mineral Claims. ^{82KNW191(14E)} ^{82KNW094} ^{82KNW094(14E)}

The claims are Crown Granted and we are informed that taxes are paid up to date. Titles have not been checked by the writer.

The recording office for the claims is Golden, British Columbia.

LOCATION.

The property is located at the head of the Middle Fork of Spillimachene River, a tributary of the Columbia River. This stream has its source in the Purcell Mountains, separating the Duncan River-Kootenay Lake valley from the Columbia River valley. The Spillimachene empties into the Columbia at Spillimachene, about 20 miles south of Golden, B. C..

The property covers the height of land between the head of the middle fork of Spillimachene and Bennison Creek, which flows into the Duncan River. The Maud S, Standby and the east half of

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the Alpha mineral claims are on the Spillimachene slope and the west half of the Alpha, the Alpha Fraction, the Alpha No. 2, the Omega and the Omega No. 2 are on the Bennison Creek slope, the property covering a peak of the Purcell mountains (Mount Boston) which is about 9000 feet in height. This peak is about in the middle of the Alpha mineral claim.

TRANSPORTATION.

The property can be reached either from the Columbia River or from the Duncan River sides. At the present time the more suitable route is from the Columbia River by trails leaving Carbonate (or McMurdo), Parsons or Spillimachene following the Spillimachene up to the property, a distance of about 31 miles.

The writer went in by the trail from Carbonate, a point on the Columbia River 17 miles south of Golden. The railway station is McMurdo on the Kootenay Central Railway. This trail crosses two divides before reaching the middle fork of the Spillimachene and is totally unsuitable as a location for a road. It is not a suitable location for a pack trail but it is not a difficult trail for a lightly loaded train. This trail has not been used much lately. There are many windfalls across it and it is badly overgrown with brush.

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Alpha Group.

Twelve to fifteen hours travelling are required to reach the property with a pack train from Carbonate.

An alternative route from the Columbia River is by the Ruth Vermont waggon road from Spillimachene to the middle fork thence by trail to the property. This route will be preferable when the Ruth-Vermont road is in shape for truck haulage as though the total distance is a little greater the distance to be packed over would be less. When horses have to be taken in from the Columbia River there is little to be gained by using this road.

To reach the property from the Duncan River side would require construction of about five miles of trail to join up a trail constructed from the property to Duncan River with a Government constructed trail up Beaver River from Bear Creek, a station on the Canadian Pacific Railway. The writer has not inspected this trail up the Beaver River but it apparently follows an easy grade and as this section is included in the Glacier National Park the trail will probably be well maintained by the Government. This is the route that has been recommended for use to reach the Alpha by various observers and if this trail were completed it would provide a more suitable route than from the Columbia River. This trail

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would cross the height of land between the Beaver River and the Duncan River but this is a low pass and offers little difficulty. The most difficult part of the trail would be from the property to the Duncan River, but, were the property producing, this section would be spanned by an aerial tram. The total distance from Bear Creek to the property by this route would be about 30 miles.

It must be conceded that the transportation problems to be faced in operating this property are a very severe handicap to the operation and considerably more study of these problems is required before a solution might be suggested. While these problems are extremely difficult and will increase the cost of operation and capital expenditure required the difficulties are not insurmountable and would not be justification for condemnation of the operation.

A preliminary consideration of the transportation problems leads the writer to the belief that the suggestion of previous observers that the Beaver River route should be utilized is correct, when the decision has been made seriously to develop the property. At the present time, however, there is not justification for the expenditure required to complete the trail and institute travel by this route and the question should receive much more study and consideration before a final route be decided on.

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Alpha Group.

For the present, and to perform the work that the writer recommends, the route from Parsons or Carbonate should be used. The cost of packing in supplies by this route will be from five to seven and one-half cents per pound. The trail requires cleaning out but arrangements can be made for this to be done at Government expense. For the small amount of preliminary work recommended the total cost of transportation of men and supplies will not be a serious factor. If and when larger scale operations are decided on improved transportation facilities must be provided but there will be ample time for a serious study of the problems while the preliminary work is being performed.

CONTINUATION OF LETTER TO

Alpha Group.GEOLOGY AND DEPOSITS.

In the short time at our disposal on the property detailed study of the geology would have been an impossibility and no attempt was made to do more than obtain a general idea of the geology, sufficient for a consideration of the economic possibilities of the deposits.

The areal geology has been somewhat fully described in a report by E. A. Haggren and several other observers have considered and described the geology but adequate study has not been given this matter yet.

Described shortly the deposits are mineralized quartz veins occurring in the Pre-Cambrian rocks of the Purcell Range. There are at least three systems of quartz veins, the veins of each system having a fairly uniform strike and dip. These veins are best developed in a belt of quartz porphyry schist. The strike of the schist is about east-west (magnetic) and the dip averages about 65 degrees north. Going south the quartz porphyry schist becomes more schisted and altered, grading into a mica schist. Both the quartz porphyry schist and the mica schist are intensely pyritized. The pyrite is oxidized and these rocks are plentifully speckled with brown limonite. In the foot (south) of the schist belt is an intrusion of diorite. It is probably this diorite intrusion that has been the cause of the development of schistosity and of the fracturing in which the veins occur.

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Alpha Group.

The diorite is also probably the source of the mineralizing solutions. The country was once capped with quartzite (probably the Aldrich quartzite) but this formation has been largely eroded and now there are only remnants remaining, near the property, on the higher peaks. It is very unlikely that economic deposits will occur outside the schist belt.

At least three main lines of fracturing have occurred and this fracturing controls the deposits. This fracturing has permitted the development of the following systems of quartz veins-

1. Veins striking east-west (magnetic) and dipping about 65 degrees north. In strike these veins follow the schistosity. In dip they usually follow the schistosity but occasionally break across the schistosity. This system is best observed in the cliffs at the north end of the Maud S and in the basin above the cliffs on the Alpha M. C.. The system is very strongly developed. There are at least ten of these veins in a belt about four hundred feet in width, the veins ranging from one foot to three or four feet in width. There are also numerous stringers belonging to this system. The widths are very irregular, the veins pinching and swelling both in strike and dip.

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Alpha Group.

This system of veins must be classed as definitely non-commercial. The writer was informed that there were instances of good mineralization of these veins near their intersections with veins of system No. 2 but ^{we} were able to see no such case. If there are cases of important mineralization in this system of veins the exposures are under a patch of snow that covers part of the area where these veins are exposed. As the principal outcrops of these veins are in the lately glaciated area in the basin above the cliffs, and in the face of the cliffs, these veins are well exposed for examination. The writer observed only one spot in these veins where there was a very little galena. As far as our personal observation goes these veins are, to all intents and purposes, barren. There is a considerable amount of iron oxide showing along the margins of these veins. A sample of this oxide selected from along the margin assayed 0.01 ozs. gold

A composite chip sample along about 50 feet of the principal vein of this system assayed only Trace of gold.

While these veins may, definitely, be eliminated as possible sources of ore they may, possibly, be important as structural features in controlling the flow of mineralizing solutions in the veins of system No. 2 and may, in places, have been a feature in causing the localization of ore shoots.

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2. Veins striking N 30 to 40 degrees west (magnetic) and dipping about 65 degrees south west. These veins are consistently well mineralized with galena, some sphalerite and a little copper. This system of veins is a possible source of ore and it is on the strength of this system that the writer recommends further investigation of this property.

One of these veins is exposed in a shaft and cut on the Maud S claim at an elevation of about 7800 feet. This vein is from 12 to 15 inches in width and is heavily mineralized with galena, sphalerite and some grey copper. The strike is N 30 degrees west and the dip is 60 to 65 degrees south west. A sample of sorted ore from this vein assayed gold 0.04 ozs., silver 25.8 ozs., lead, 43.2%, zinc 4.7%, copper 0.2%. To obtain ore similar to that represented by above sample would require a sorting factor of about 3 to 1.

A sample of selected sphalerite from the cut on this vein assayed gold 0.02 ozs., silver 0.3 ozs., zinc 63.9%. This sample is not representative of a commercial product but was taken to determine the associations of the gold and silver values. These samples show that the silver is associated with the galena and also with the copper. Our sampling shows the relation of silver to lead, in these veins, to be slightly over one-half ounce silver to each one percent lead.

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Alpha Group.

This is low grade mineralization. In one sample, carrying 1.6% copper we got 36 ozs. silver with 42.6% lead, showing the association of silver with copper. However, the amount of copper present in these veins is small and cannot be counted on appreciably to affect the grade.

Another of these veins occurs just off the property west of the Standby claim but striking towards the Maud S claim. The exposure of this vein was under a bank of snow at the time of our visit. We were informed that this vein showed good grade ore. It belongs to this system of veins and there is no doubt that the mineralization will be similar to the other veins of this system that we were able to examine. A sample composed of a number of specimens from this vein assayed gold 0.45 ozs., silver 10.7 ozs., lead 16.0%, zinc 4.2%, copper 0.1%. The material composing this sample was partially oxidized, which probably accounts for the increased gold values. A sample of rusty honey-combed quartz chipped from the outcrop of this vein assayed gold 0.56 ozs.. From the material composing this sample at least 20% of the original constituents (probably sulphides) had been leached and the comparatively low gold values in the enriched residue indicates that the gold values in the unaltered vein would be very low and of no great importance commercially.

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In the basin above the cliffs, at an elevation of about 8300 feet, or about 500 feet vertically above the above described exposures, veins of this system are well exposed intersecting the veins of system No. 1.

In a zone about 400 feet in width there are at least five of these veins. The width of these veins varies from 6 inches to two feet, with local swells to 3 feet in width. The following samples are indicative of what may be expected from these veins:-

Across 24ⁿ - gold 0.02 ozs., silver 7.6 ozs., lead 14.2%,
zinc 3.1%, copper 0.2%.

Across 24ⁿ - gold 0.04 ozs., silver 12.7 ozs., lead 24.4%, zinc
2.8%, copper 0.1%.

Across 30ⁿ - gold 0.06 ozs., silver 7.1 ozs., lead 9.2%,
zinc 1.9%, copper trace.

Across 12ⁿ - well mineralized streak in centre of 3' vein -
gold 0.04 ozs., silver 5.2 ozs., lead 11.1%,
zinc 1.8%, copper nil.

A sample of selected ore (sorting factor about 3 or 4 to 1)
assayed gold 0.21 ozs., silver 36.0 ozs., lead 42.6%, zinc 4.6%,
copper 1.6% (Note presence of copper and increased silver)

Another sample of selected ore, sorting factor about 4 to 1,
assayed gold 0.11 ozs., silver 30.9 ozs., lead 70.4%, zinc 3.4%,
copper 0.5%.

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Selected specimens of clean galena selected to be as free of copper and zinc as possible assayed gold 0.01, silver 38.9 ozs., lead 80.4%, zinc 31.%, copper nil.

Where these veins intersect the veins of system No. 1 they are usually enlarged to about 2 to 4 feet in width and are more heavily mineralized, but we noted no exposure indicating the presence of an economic ore shoot. Where these veins are unaffected by any structural feature, that is just the straight vein, they would not be economic under the conditions of operation at this property. Their economic possibilities are dependent upon some structural feature causing enlargement and enrichment. If these mineralized veins are later than the non-commercial veins they intersect one would look for shoots at or near the intersections. Evidence as to the relative ages of the vein systems is conflicting. In some instances the east-west veins cut and fault the north-west (mineralized) veins and in other cases the reverse is true. In at least one instance both veins are faulted at an intersection. In other cases the mineralized vein butts against the east-west vein, is enlarged at the contact but does not persist through the older (in this case) vein. The east-west (non-commercial) vein fracturing is more definite and persistent than the fracturing controlling the north west-south east (mineralized) veins.

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The east-west veins are very persistent but the north west veins will often persist for 150 to 200 feet and then pinch out, and open up again in a short distance.

It appears likely that both systems of fracturing were opened before the injection of quartz occurred and that the veins were formed practically at the same time. Why one series should be well mineralized and the other practically barren the writer is not prepared, definitely, to state. It is possible that after the vein fractures were filled with quartz a later fracturing reopened the north west veins and mineral was injected. The veins in the basin on the Alpha have this appearance, the sulphides being largely confined to a streak down the middle of the vein, the margins being, usually, only slightly mineralized. On the other hand the veins of this system exposed on the Maud S do not show this characteristic, the sulphides appearing to have been deposited contemporaneously with the quartz.

The structure should receive more detailed study as the economic possibilities of these veins is dependent of the localization of ore shoots. The possibilities are there but nothing more than the possibilities have, so far, been demonstrated.

3. On the Maud S and Standby are a series of veins striking north-south (magnetic) with a vertical dip. Two of these veins were observed, both about 12" in width. One of these veins was

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fairly well mineralized, the other showed no mineral. There may be other veins of this system which have economic possibilities but we regard veins of this system rather as structural features to be considered as affecting the veins of system No. 2.

In addition to the above well defined systems there are large quartz veins that are sparingly mineralized with pyrite and might develop into gold producers, though we consider this very doubtful. There is the rusty outcrop of one such vein just off the property west of the Maud S claim. A sample of the rusty honeycombed outcrop assayed gold 3.24 ozs., silver 16.4 ozs.. This vein, and others of this system if they occur, certainly warrant exploration and careful sampling but to obtain reliable results it is necessary to open up such veins and get below the oxidized outcrop. Residual enrichment renders outcrop sampling entirely misleading. As a note here we should remark that consideration of earlier reports on this property, in conjunction with our personal observations, leads us to the belief that many of the high gold samples reported are totally misleading through failure to realize the vitiating effects of residual enrichment on gold samples taken from the outcrops of veins. At the time these properties were worked this fact does not appear to have been appreciated as on a property nearby an amalgamating mill was built which could extract only a very small percentage of the gold even from the oxidized and enriched outcrop. It is our opinion that the veins considered gold bearing will be found to be too low grade

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to be worked economically when the enriched outcrops are knocked off. The gold is present only in association with sulphides, usually pyrite, and the amount of sulphides visible in the vein is indicative of the gold values present. The writer obtained gold values where oxidation and residual enrichment were obvious. When fresh unoxidized material was sampled the gold values were very low. We must record, however, that while our opinion is definitely against the likelihood of economic gold producing veins being developed on this property there is the possibility of such veins being developed and this is a possibility that should receive due consideration and investigation.

The "International" systems of veins are described as though they are not exposed on the property they are well exposed on the International claim nearby, they may extend into this property, and they throw some light on the vein systems exposed on the property.

On the International claim are two well defined systems of veins. The better defined and more obvious are large persistent quartz veins striking with the schistosity which, here, is north west-south east. These veins are, as far as we could see, barren and are similar (but larger) to the east-west veins on the Alpha. Crossing these veins (or veindykes) are smaller mineralized veins striking north-south (magnetic). One of these cross veins is exposed in a pit and small tunnel. It is about 12" in width and is heavily mineralized with galen and pyrite. Sorted

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ore from the dump assayed gold 3.20 ozs., silver 11.2 ozs., lead 15.6%, zinc 4.1%, copper 0.1%.

Quartz, from this vein, selected free of visible sulphides assayed gold 0.01 ozs.

Another similar vein is exposed in a small shaft about 300 feet further west. This vein is about 12" inwidth, carries very little galena but is heavily mineralized with iron. A sample of the iron sulphides from this shaft assayed gold 2.25 ozs., silver 0.3 ozs.

The occurrence of good gold values in these veins is particularly interesting and may be attributed to the increased amount of pyrite in the veins. These cross veins probably belong to system No. 2 of the Alpha but the veins on the Alpha carry very little pyrite and only very low gold values. The difference in mineralization is probably due to distance from the diorite intrusive, the International cross veins being nearer the intrusive and carrying higher temperature, more pyritic mineralization than those on the Alpha.

Where these gold bearing cross veins intersect the larger barren veins gold values occur, apparently, in the larger vein but these values should be attributed entirely to the cross vein. At the intersections residual gold becomes scattered over the outcrop of the larger vein and this has probably misled observers to the belief that shoots are developed in the larger vein.

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The larger veins are definitely non-commercial. The cross veins are small, but they are persistent, and they have the possibility of developing economic ore shoots. The possibilities of local enlargement and enrichment through structural features apply to the International cross veins equally with those on the Alpha.

On the Alpha claim and on the Alpha No. 1 are a large number of quartz veins that could not be examined as the exposures are inaccessible. The "Kimpton Tunnel" was driven, as a cross-cut for over 900 feet to intersect the downward continuation of these veins. They do not go down to the depth of this tunnel. These veins occur as gash veins in an overlying formation. There is a great deal of float available for examination from these veins and from a study of this float we conclude it is extremely unlikely that these veins are of economic importance.

On the Bennison Creek slope quartz veins are plentifully developed but most of them are barren. One well mineralized vein, of the cross vein series, was reported to us but it was impossible for us to examine this exposure on account of snow on the peak. This exposure is reported to be about 100 feet below the ridge, on the western slope of the mountain. Mineralized cross veins do occur on this slope as we noted float from such veins but were unable to examine any in place. We were informed, also, that work on the western side of the property had shown the presence of a gold bearing quartz vein. Our remarks

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above, relative to gold veins in this section will apply to any such veins in this section of the property.

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Alpha Group.WORKINGS.

There are no workings on the property that, now, are of any value, except a possible later use that might be made of the "Kimpton Tunnel" by continuing it through the mountain to hole the west slope. This tunnel would then be of use for transportation purposes and, possibly, for prospecting veins on the west half of the Alpha claim.

Some years ago, when the Kimpton Tunnel was driven, a considerable amount of work was done on the west slope. The positions of the portals of two tunnels can now be seen but the sites are almost obliterated by rock slides. The trails that were made at this time, to reach the workings, have been carried away, to a great extent, by slides and one can now travel on the west slope only with great difficulty and considerable danger.

The main trail, from the property down to the Duncan River valley, mostly remains, but in two places sections have been carried away by rock slides. These two slides are dangerous and must now be crossed to reach the camp and the old workings. The writer did not examine the old camp site, as there was no object in doing so.

On the east slope the shaft and cut on the Maud S claim are still open. Several tunnels reported as having been driven to intersect another mineralized vein have caved. A tunnel

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on the Alpha, driven on the largest quartz vein showing in the bluffs is blocked by a large boulder that would require to be blasted out to gain access to this tunnel.

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Alpha Group.GENERAL.

There is water for domestic purposes fairly well distributed on the property. Timber would require to be hauled up to the property.

Safe camp sites can be easily selected on the eastern slope, On the western slope the old camp site is about the only safe site available, and it is located a long way away from where the work should be carried out.

It is our conclusion that the camps should be on the western slope but that, eventually, transportation would be via the Beaver River. The Kimpton tunnel could be completed and provide connection. Fuel for domestic purposes would require to be hauled up to the camps.

Water for power purposes is available only from the main streams, the Duncan, Beaver and Spillimachene Rivers. The nearest power site would be at least five miles away from the workings.

Living conditions on this property would be unpleasant and operating conditions would be extremely difficult owing to the serious transportation problems and climatic conditions. The greater part of the property is covered with snow for from nine

List of Assays from the Alpha Group of Mineral Claims.

1. Sorted ore from mineralized vein exposed in shaft and cut on the Maud S M. C.. The vein is 12" to 15" in width. To obtain ore such as is represented by sample would require sorting the vein material about 3 : 1.
Gold 0.04 ozs., Silver 25.8 ozs., Lead 43.2%, zinc 4.7%, Copper 0.2%.

(About 10 tons of above material sorted and stored on dump).

2. Specimens of clean sphalerite sorted out from ore from above cut.
Gold 0.02 ozs., Silver 0.3 ozs., Zinc 63.9%.

(Only a small amount of this material sorted out)

3. Specimens of rusty honeycombed quartz from outcrop of well mineralized cross vein, off the property, west of the Maud S.
Gold 0.56 ozs.

4. Specimens of rusty honeycombed quartz from vein outcrop below vein of Sample 3. The strike of this vein is not definitely determinable as only the one outcrop was exposed. The strike is probably about east-west (magnetic) and though the exposure is off the property the vein probably runs into the property. The vein is 4' to 5' in width. Value of this sample indicates presence of gold, not average value as material residually enriched.
Gold 3.24 ozs., Silver 16.4 ozs.

5. Sorted ore from dump at cut and tunnel on the International M. C. Quartz heavily mineralized with pyrite and galena.
Gold 3.20 ozs., Silver 11.2 ozs., Lead 15.6%, Zinc 4.1%, Copper 0.1%.

6. Specimens of quartz from vein of Sample 5, picked free of visible sulphides.
Gold 0.01 ozs..

7. Sorted pyrite from cross vein parallel to and about 300 feet west of vein of Samples 5 and 6.
Gold 2.25 ozs., Silver 0.3 ozs..

8. Cut across 24" mineralized cross vein in Alpha Basin.
Gold 0.02 ozs., Silver 7.6 ozs., Lead 14.2%, Zinc 3.1%, Copper 0.2%.

9. Cut across 24", same vein as Sample 8 but 45' S 30 E from Sample 8.
Gold 0.04 ozs., Silver 12.7 ozs., Lead 24.4%, Zinc 2.8%, Copper 0.1%.

10. Selected ore from small pit on cross vein at Sample 9. Sorting factor about 4 : 1. Gold 0.21 ozs., Silver 36.0 ozs., Lead 42.6%, Zinc 4.6%, Copper 1.6%.
11. Selected ore from vein at Sample 8. Sorting factor about 4 : 1. Gold 0.11 ozs., Silver 30.9 ozs., Lead 70.4%, Zinc 3.4%, Copper 0.5%.
12. Cut across 30" vein, 15' north west of Sample 8. Gold 0.06 ozs., Silver 7.1 ozs., Lead 9.2%, Zinc, 1.9%, Copper Trace.
13. Cut across 12" mineralized streak in centre of 3' vein, 25' north of Sample 12. Gold 0.04 ozs., Silver 5.2 ozs., Lead 11.1%, Zinc 1.8%, Copper None.
14. Specimens of clean galena selected to be as free as possible of Copper and Zinc. Gold 0.01 ozs., Silver 38.9 ozs., Lead 80.4%, Zinc 3.1%, Copper None.
15. Specimens of ore from north west vein west of the Maud S Mineral Claim. Collected by Mr. Haggren. Gold 0.45 ozs., Silver 10.7 ozs., Lead 16.0%, Zinc 4.2%, Copper 0.1%.
16. Quartz showing no visible sulphides from well mineralized cross vein in Alpha basin. Gold 0.01 ozs..
17. Composite chip sample from a length of about 50 feet of 3' quartz vein striking east-west (magnetic) in Alpha basin Gold Trace.
18. Selected sample of quartz with limonate from margin of quartz vein striking east-west (magnetic) in Alpha basin. Gold 0.01 ozs..