# 110

# GEOLOGICAL REPORT

## ALTA CLAIM GROUP

(ALTA NO. 1, ALTA NOS. 3 - 8 LOCATED CLAIMS AND QUEEN OF SHEBA, KING SOLOMON AND SPRINGFIELD MINERAL LEASES)

## BEAVERDELL AREA

GRAND FORKS MINING DIVISION, B. C.

Penticton one degree quadrilateral; 24 miles east of Penticton and 3 miles north - northeast of Beaverdell; centre east of 49° - 119°. (Sheet 82 E : SW)

by

M. C. Robinson, P. Eng., P. Geol. Calgary, Alberta December 16, 1965

for

King Resources Company, Calgary, Alberta

on behalf of

King Resources Company and Mr. O. V. Burkinshaw, owners.

Work completed during period

October 1st and December 15th, 1965.

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#### BEAVERDELL AREA

#### GRAND FORKS MINING DIVISION, B. C.

#### INTRODUCTION

#### General Statement

The following report is concerned with the geology and metallic mineral potential of the Alta group of ten claims located some three miles north - northeast of the town of Beaverdell in the Grand Forks Mining Division, British Columbia (Figures 1, 2).

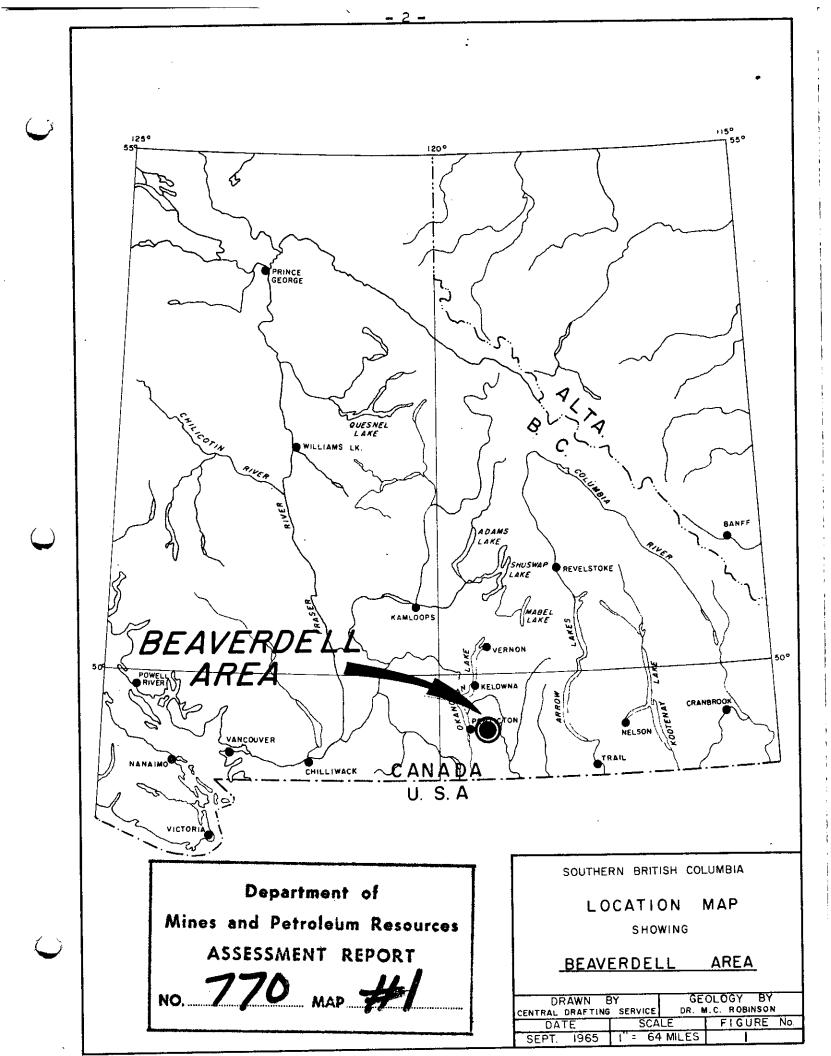
The report is based upon field and office work conducted by the writer and assistants during the period October 1st to December 15th, 1965.

The cost of the work involved herein is to be applied against certain assessment work due on the claims in April and May, 1966.

## Location, Extent and Title

The Alta group of ten claims is located approximately three miles north - northeast of the town of Beaverdell in the Grand Forks Mining Division in central southern British Columbia (Figures 1, 2). The claims cover a part of the southeastern flank of King Solomon mountain which lies between Beaverdell Creek and the Westkettle river (Figure 2).

The group is made up of three Crown-grant mineral leases and seven located mineral claims. The leases cover the King Solomon (L3126), the Queen of Sheba (L3127) and the Springfield (L2947) claims. They are said to have been applied for by Mr. Fred Poznikoff of Grand Forks, B. C. in February of 1965. Mr. Poznikoff was acting in this matter as agent for Mr. O. V. Burkinshaw of Quinalta Petroleums Ltd. of Calgary, Alberta for the leases are registered in Mr. Burkinshaw's name. Mineral base M206 covers the three crown-grant leases and was issued on May 26th, 1965.



The located mineral claims include Alta No. 1 and Alta Nos. 3 - 8. They were staked on March 27th, 1965 by Mr. P. W. Chernoff in the company of Messrs. J. H. Chernoff and F. Poznikoff, all of Grand Forks, B. C. Mr. P. W. Chernoff acted as agent for Mr. O. V. Burkinshaw in the staking. The claims were recorded on April 2nd, 1965. The location lines of the claims are less than 1,500 feet in length (Figure 3).

#### Access

The claims lie on the southeastern slope of King Solomon mountain which separates the Beaverdell Creek and Westkettle river drainage valley (Figure 2). Access to the claims is provided by combined highway and bush road routes leading northerly from Beaverdell. A provincial highway extends from Rock Creek to Kelowna through Beaverdell and is followed northerly from Beaverdell to a junction at a point one mile north of the town (Figure 2). From that junction, the southeasternmost claims are most readily reached by proceeding approximately two miles northeasterly along a good gravelled road which follows the valley of Beaverdell Creek. Logging roads and skid trails leading westerly from the Beaverdell Creek road provide some additional access to southeastern and eastern claims of the group (Figure 3).

The western and central parts of the claim group are most easily reached by proceeding northwesterly along the provincial highway from the above junction for a distance of two miles. From that point, a network of logging roads leads easterly onto Alta group ground.

Beaverdell is located on the above provincial highway which connects Rock Creek on the south trans-provincial highway No. 3 with Kelowna in the Okanagan valley on highway No. 97. Rock Creek is thirtyone miles to the south of Beaverdell and Kelowna is fifty-six miles to the north - northwest by highway. At present, a good proportion of the Rock Creek - Kelowna highway is paved and an active highway completion program is in progress.

The Kettle Valley branch of the Canadian Pacific Railway follows along the west side of the Westkettle river valley in which Beaverdell is situated (Figure 2).

## Topography, Vegetation, Water

As noted previously, claims of the Alta group are situated on the southeastern slope of King Solomon mountain.

The eastern and southeastern parts of the group lie for the most part along a moderately to very steep slope which falls southeasterly into the valley of Beaverdell Creek (Figure 3). The southeasternmost corner of the group extends into the relatively broad, flat and partially swampy valley of Beaverdell Creek.

The western and northwestern parts of the group cover flat to gently rolling terrain located above the break in slope down to Beaverdell Creek. Elevation on the property ranges from some 2,650 feet in the valley of Beaverdell Creek through 3,700 feet at the top of the valley wall to a maximum of some 3,850 feet in the higher parts of the gently rolling terrain.

The steep southeasterly slope to Beaverdell Creek is topped at its south end on the Springfield and King Solomon claims by prominent vertical cliffs as much as 200 feet high. Extensive talus fans are present below the cliffs. The balance of the slope averages some 30 to 35 degrees in dip. Prominent gulleys are locally present.

The claim area is forested. The bulk of the upper gently rolling area and much of the southeastern slope is open forest with soil and grass cover and comparatively little underbrush or other small growth. Timber varieties include pine, spruce, tamarack and balsam. Jack pine, willow and other dense small tree growth is present in low areas on the upper gently rolling area, in gulleys cutting the southeastern slope and at the base of the southeastern slope in and near the Beaverdell Creek valley floor.

Exposures of bedrock are excellent in cliff areas and are fair to good on local ridges and promontories on the southeasterly slope. In addition, exposures are fair to good in cuts along the Beaverdell Creek valley road and along logging roads which traverse the claims. Otherwise, outcrop is generally poor. However, soil cover is very thin over much of the area examined and therefore reliable bedrock character determinations can very often be made through examination of float.

Water, except for spring run-off is present only in Beaverdell Creek and in swampy areas flanking the creek. Accordingly, water for drilling or mining purposes must either be pumped or transported.

#### Climate

The climate of the area is moderate. Monthly average temperatures vary between approximate limits of 20 degrees Fahrenheit in February to 60 degrees in July. Annual precipitation amounts to some 12 to 15 inches. Snowfall aggregates approximately 45 inches.

#### History

The history of Alta group claims is virtually undocumented. However, the claims are situated in the general area of the Beaverdell silver-lead-zinc mining camp and it is therefore likely that activity on the claims more or less paralleled that in the productive area a few miles south near Beaverdell (Figure 2).

The history of mining in the Beaverdell area dates from the late 1850's at which time prospectors were attracted to the area through the discovery of placer gold. Lode or bedrock mining activity was initiated in the 1880's. Several properties have been discovered and worked intermittently between that time and the present. The principal current operation is that of Highland Bell Mines Ltd. immediately east of Beaverdell. Available information indicates that the Queen of Sheba, King Solomon and Springfield crown-granted claims were staked and worked to a limited degree in the 1890's and early 1900's. The locator and operator took ill after conducting a certain amount of work and later died. No subsequent work appears to have been done although the claims were held until 1965, by the estate of the original owner and operator. It is said that the estate has, on several occasions, been approached with attractive offers on the claims but refused to deal.

The adjoining ground now covered by the Alta claims has been staked on several occasions by local trappers and prospectors, largely since 1930. Little work of consequence has been done on this ground.

It is reported that no production has yet been obtained from the subject claims.

#### Previous Investigations

The present writer and those associated with the Alta group are not aware of any existing reports which describe the subject ground. It is, however, stated that the claims have been examined in recent decades so that such reports may have been prepared in the past.

The area covered by the claims is included in the Geological Survey of Canada Beaverdell Map Area reported on by L. Reinecke in 1915 (Geol. Surv. Canada Memoir 79 and accompanying Map No. 37A). Reinecke describes several ore deposits and mineral showings in the general Beaverdell area but does not mention the Queen of Sheba, King Solomon or Springfield although some work had been done and some showings found on those claims prior to the time of his investigation.

The claim area is also included in Geological Survey of Canada Map 15-1961 prepared by H. W. Little. Little has accepted Reinecke's mapping in the area.

#### Present Work

The program of work upon which this report is based included:

- (1) general reconnaisance of the area.
- (2) surveying of control lines through the claim area(Figure 3).
- (3) cruising with the aid of assistants the areas adjoining control lines in order to locate areas of outcrop, old workings, etc. (Figure 4).
- (4) mapping and inspection of outcrops, old workings, surface cuts, etc. (Figures 3, 4, 5, 6).
- (5) preparation of the present report and maps covering the above.

The subject work was conducted during the period October 1st and December 15th, 1965.

# Cost to Date of Present Work

The cost to date of the work upon which this report and accompanying maps are based is detailed below.

# Item

· Cost

# Manpower

Geologist - M. C. Robinson - total 9 days @ \$125.00/day \$	1,125.00	*
Draftsman - E. R. Becker		
- total 36 hours @ \$5.00/hour	180.00	
Technical Assistants - drafting		
- total 27 hours @ \$2.50/hour	67.50	
Field Assistants - J. G. Brown and A. O. Rich - contract including vehicle,		
subsistence, etc. 38 hours @ \$10.00/hour	380.00	

# Expense

Travel				132.48
Other - hotel,	meals,	supplies,	etc.	262.40

TOTAL HEREIN

\$ 2,147.38

includes typing, etc.

#### GENERAL GEOLOGY

# Regional Setting

The regional setting of claims of the Alta group is presented on Geological Survey of Canada Map No. 37A (Reinecke, 1915). The report which accompanies the map G. S. C. Memoir No. 79, provides a good deal of information in connection with bedrock types.

Regionally, the claims are situated in an area of volcanic and sedimentary rocks which have been intruded by granitic material. The volcanic and sedimentary assemblage has been named the Wallace group by Reinecke and has been assigned a questionable Jurassic age. Little (G.S.C. Map 15-1961) refers the same rocks to the Anarchist group to which he has assigned a Permian and/or Triassic age. The granitic rocks form a part of Reinecke's Westkettle batholith of questionable Jurassic age. Little has referred to them as a part of a far more regional igneous complex which he designates as Nelson Plutonic Rocks and towhich he assigns a questionable Cretaceous age.

Locally, on Alta ground, Reinecke shows a northwesterly oriented wedge of undivided greenstone and sediments of the Wallace group contained within and flanked by granitic rocks of the Westkettle batholith. Little has reproduced Reinecke's work on his map.

Reinecke implies that the above wedge of Wallace group rocks is underlain at a reasonable shallow depth by intrusive granitic rocks. Otherwise, he presents no useful structural information.

#### Local Geology

#### Introductory Statement

The writer's observations on and adjoining Alta group ground confirm in a general sense the distribution of the major bedrock units mapped by Reinecke. However, some modification in contact positions and some further subdivision of intrusive bedrock types was found to be possible (Figure 4).

The bedrock units mapped are as follows:

# I. Intrusive Rocks

- A. Granitic rocks
- B. Granitic border phase
- C. Minor intrusives

#### II. Volcanic and sedimentary rocks

An attempt was made to subdivide the sequence of volcanic and sedimentary rocks into individual members of specific lithologic types. This proved to be impossible with the map scale employed. It is entirely possible, however, that such subdivision of the volcanic and sedimentary member can be effected on a larger scale and local map basis.

# Granitic Rocks

Granitic rocks underlie most of the Springdale crown-grant lease on the south of the Alta group and they are also present beneath the bulk of the area covered by Alta Nos. 3 - 8 located mineral claims (Figure 4).

The principal intrusive rock type is a medium and even grained fairly fresh quartz diorite. The rock has a normal flecked or speckled granitic texture with approximately 20 percent black to dark green mafic minerals and 80 percent light grey to white minerals including feldspars and minor quartz. For the most part, individual grains vary in maximum dimension between limits of 1/8 and 1/4 inch. Biotite is the principal mafic mineral and it constitutes approximately 75 percent of the darker The remainder of that fraction is made up of grains mineral fraction. Feldspar makes up 60 to 70 percent and quartz and needles of hornblende. 30 to 40 percent of the lighter coloured mineral fraction. Reinecke (1915 - pg. 42) states that the plagioclase feldspar labradorite makes up almost the entire feldspar fraction with a very small proportion of orthoclase accounting for the remainder.

Local variants of the granitic rock type are present and include gneissic and fine to very fine grained phases. The gneissic material displays poorly to fairly well developed foliation of the mafic minerals. It was observed most commonly along or near the contact between the granitic rocks and the volcanic and sedimentary rocks of the Wallace group. For the most part, it is a medium-grained rock which appears to be slightly darker in over-all colour than the even-grained quartz diorite. The fine to very fine-grained granitic material is also most commonly seen near the Wallace group contact but local outcrops and float of the rock type were also observed in the main granitic area. The rock possesses a darker cast than the medium-grained quartz diorite. There is some suggestion that the rock type represents granitized inclusions of Wallace group or other rocks.

## Granitic Border Phase

A light-coloured granitic border phase of varying thickness was observed along the contact between the granitic rocks and the volcanic and sedimentary rocks of the Wallace group. The rocks of the border phase vary substantially in composition and grain. The principal types are medium to coarse grained quartz-feldspar pegmatite and fine to very finegrained aplite. Both types are virtually devoid of mafic minerals and are therefore very light in colour. Grains and masses of white to translucent quartz and of pink to orange feldspar in varying proportions make up the pegmatitic rock type. Individual grains reach a maximum dimension of three-quarters of an inch to one inch. The aplitic material is white in colour and possesses a fine sugary texture.

# Minor Intrusives

Minor intrusives of granitic composition are present in both the granitic and volcanic-sedimentary terrain. Thin, tabular to irregular dikes of light coloured medium-grained pegmatite and aplite similar to the border phase material cut both the quartz-diorite and rocks of the Wallace group. Darker coloured andesite intrusives, some containing abundant needles of hornblende, were also seen to cut both major bedrock units.

## Volcanic and Sedimentary Rocks

The bulk of the area mapped as volcanic and sedimentary rocks is underlain by greenstones of varying colour, composition, texture and degree of metamorphism. The remainder of the area is underlain by silicified and metamorphosed limestone and by what appear to be bleached, silicified and altered, in part laminated, very dense and fine grained sedimentary rocks. The greenstones occupy the central and northern part of the volcanicsedimentary area and the limestones and altered sediments (?) are present only in the southwestern and southern part of the area. This general arrangement of rock types suggests on the basis of Reinecke's regional work which places the limestone at the base of the Wallace group that rocks of the group have been tilted with the oldest rocks towards the south or southwest and with bedding tops facing northward.

Local, small outcrops of crystalline limestone were observed on the Springfield claim and to the west of Alta No. 3 claim. The rock is white in colour and medium in grain. Scattered grains of a green silicate are locally present. The texture varies from fairly even-grained to foliate. The foliation observed strikes north-northwesterly and dips steeply to the southwest. It is believed to be the result of metamorphism.

Laminated, dense, fine grained sedimentary (?) rocks were also observed on the Springfield claim and to the west of Alta No. 3 claim. For the most part, they are light grey to light buff in colour and much of the material resembles a bleached and altered, hard, very fine to fine-grained quartzite. Some of the material is finely laminated in bands 1/8 to 1/2 inch in thickness. The banding is very wavy in detail and certain bands have a strewn out or boldinage appearance. These facts suggest that the rock has been highly contorted. In other outcrops, the lamination is more regular or planar with less evidence of deformation. In some outcrops on the Springfield claim, the rocks have been intimately invaded by sills and irregular bodies of granitic material and they have been bleached, silicified and thermally altered.

The greenstones vary in colour from medium to dark greenish grey to light to medium green. For the most part, they are very fine to fine in grain although some types possess a flecked, tuffaceous appearance and others contain small, dark green crystals. The bulk of the material is foliated to schistose and it has been highly contorted. The rocks are of apparent volcanic origin.

#### STRUCTURAL GEOLOGY

Comparatively little was determined in connection with the general structure of the area mapped, largely because of the lack of reliable structural attitudes.

As noted previously, the wedge of volcanic and sedimentary (Wallace) rocks on Alta ground forms a part of a large inclusion of such rocks in the granitic rocks of the Westkettle batholith. Those, attitudes which are considered to be reliable suggest that the rocks within the wedge strike northnorthwesterly and dip steeply. The general arrangement of rock types within the wedge suggests on regional grounds that the oldest rocks lie along the south westerly flank of the wedge and that bedding and other tops face northerly for the most part. Undoubtedly, however, there has been much internal folding and crumpling with consequent local reversal of the normal direction in which the tops face.

All bedrock types are jointed and fractured along planes of varying orientation. In addition, minor slips and shears, some containing lenses, veinlets and veins of quartz are present in all bedrock types. No evidence of major faulting was, however, determined,

#### ECONOMIC GEOLOGY

#### Introductory Statement

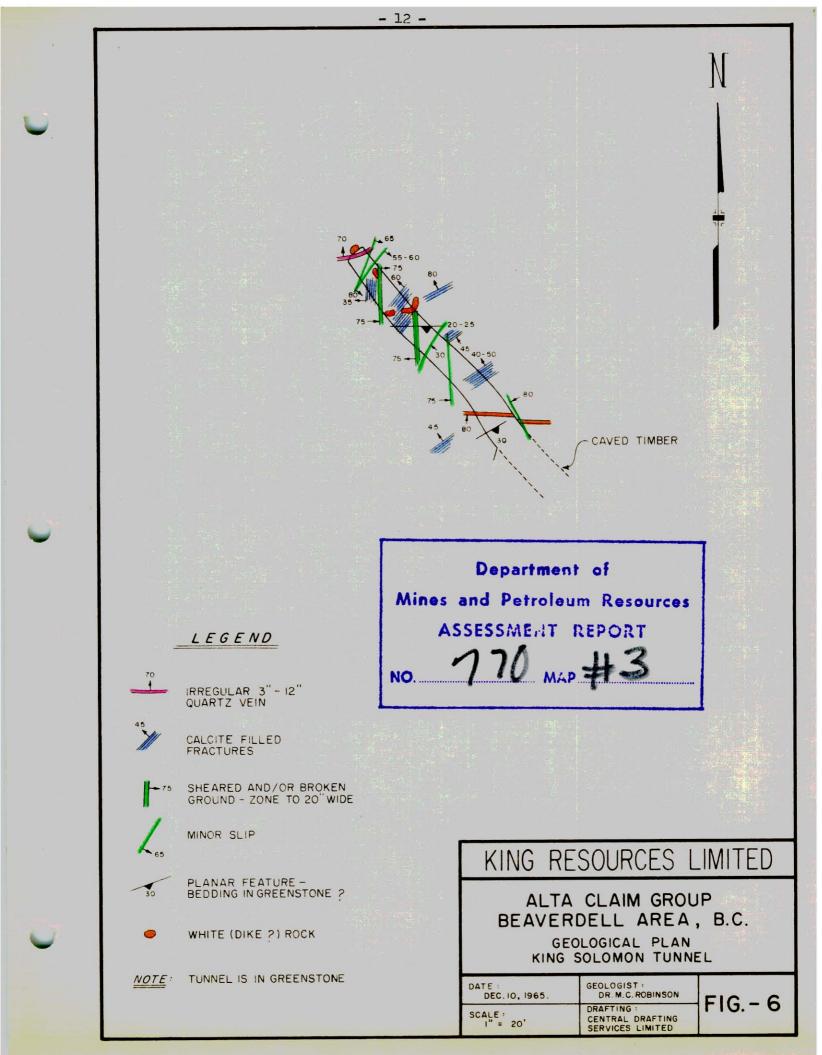
The crown leases and located claims of the Alta group were obtained by Mr. O. V. Burkinshaw on the basis of a reported showing of galena on King Solomon ground and on the basis of a geological concept which suggested that shear zones carrying silver-lead-zinc ore of the Beaverdell camp type might be present along or near the granitic contact which is present beneach the claims.

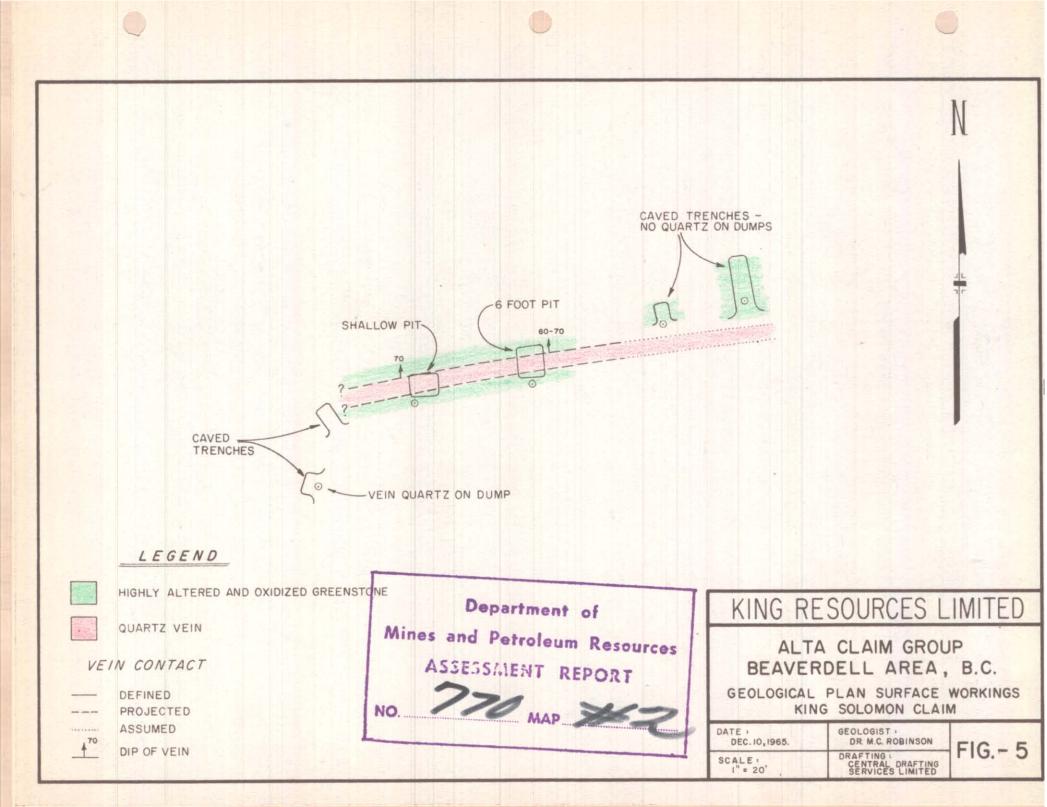
The reported showing of galena on the King Solomon was said to be in the vicinity of the King Solomon tunnel (Figure 4). It was said to be some 18 inches in width.

The present writer could find no record of shipments from the crown leases involved in the Alta group and no galena showing was located in the field. The only mineralization found was in the form of lenses, veinlets and veins of milky white quartz some of which contain sparsely scattered grains and masses of pyrite.

#### Workings

Workings on the Alta Group include a short tunnel, a pit, and surface cuts on the King Solomon claim (Figures 4, 5, 6). In addition, a cut was located on open ground between the King Solomon and Alta No. 4 claim. Vague evidence of old surface cuts was found on the Springfield claim but no underground workings were located in spite of a diligent search. This is somewhat curious in the sense that the Springfield is the oldest of the former crown-grants and therefore it might be expected to have been worked underground.





## King Solomon Quartz Vein

The King Solomon quartz vein is exposed in a series of cuts and a pit on the southeast corner of the King Solomon crown lease (Figures 4, 5). The vein strikes approximately north 75 degrees east and dips at 70 degrees towards the north. The vein is four feet thick, has its walls in greenstone and is composed almost entirely of milky white, in part iron stained and vuggy quartz. The vein is sheeted parallel to its walls. It contains sparsely disseminated grains, crystals and small masses of pyrite as its only sulphide. The deposit is of no apparent economic interest.

A lenticular vein of barren, white quartz up to 18 inches in width is exposed in a road cut at the southeast corner of the King Solomon claim (Figure 4). It lies on strike of the above quartz vein but dips irregularly and steeply towards the south. The two showings may, however, be contained within the same zone.

The King Solomon tunnel was driven northwesterly towards but did not reach the quartz vein exposed in the surface cuts and pit (Figures 4, 6). There are only some 30 to 40 feet of backs above the tunnel where it would intersect the vein. The tunnel was driven in jointed, fractured and altered greenstone. An irregular, lenticular three to twelve inch vein of quartz is present near the face of the tunnel. Otherwise, no evidence of mineralization was observed other than thin calcite filled fractures (Figure 6). A curious, white, sugary textured rock is present in irregular to tabular bodies in the tunnel and is probably intrusive aplite.

## Other Quartz Veins

Other thin and somewhat irregular and discontinuous pods, lenses, veinlets and veins of quartz are exposed elsewhere in granitic and volcanic-sedimentary terrain on and adjoining Alta group ground. A few of these contain sparsely distributed grains and masses of pyrite as their only sulphide.

# CONCLUSIONS

The writer's examination and mapping of the Alta group of claims revealed no evidence of economic sulphide mineralization.

The fact that no workings were located on the Springfield claim is puzzling because it was the first of the crown-grants staked in the area. Accordingly, the claim should in 1966 be thoroughly prospected for evidence of workings and mineralization. If none are found, the ground should be dropped.

Hobensen Mr. C.L

