PROGRESS REPORT

on

Eastern Area of Britannia

826131

J. B. Thurber

October 1952

Britannia Beach, B. C.,
October 28th, 1952.

Mr. A. T. Smith,
Chief Engineer,
Britannia Mining and Smelting Co., Limited,
BRITANNIA BEACH, B. C.

Dear Sir:

Herewith is my report together with maps on the Eastern Area of Britannia.

Contrary to former beliefs this area was found to contain distinct economic possibilities.

Structures were found which can be utilized as reliable projections.

The hanging wall border east from No. 8 Mine to the east part of the area is very favourable. It is upon this border that the cross fold structure from the footwall area should be projected.

The exact location of the footwall border is impossible to locate as it is buried beneath glacial drift. However three miles east of Victoria and on the footwall, a good showing of Bluff type ore was found.

Respectfully submitted,

J. B. Thurber

J. B. Thurber

Britannia Beach, B. C.,
October 30th, 1952.

Mr. T. M. Waterland,
Mine Superintendent,
Britannia Mining and Smelting Co., Limited,
BRITANNIA BEACH, B. C.

Dear Sir:

Enclosed herewith is a report by Mr. J. B. Thurber on his findings this summer in the Eastern Area of Britannia.

In 1948 a conception of ore deposition was brought out whereby the footwall was no longer the only favourable horizon for location of ore-bodies, thus the whole shear zone from Howe Sound to Seymour Creek became open ground. During the past field season, Mr. Thurber has made a geological reconnaissance of the area east of Victoria Mine to Seymour Creek and his report summarizes a change in the conception of the geology of the area. It is now known that there are several easterly plunging folds and cross faults each presenting the possibility of harbouring an ore-body. In fact, five mineral occurrences were located.

The area now needs to be thoroughly prospected and the showings developed by trenching and diamond drilling. There is no doubt that this is a lively area. The target for further exploration has been defined and the job of proving up ore lies ahead.

This is the first report of exploration work done at Britannia this season and it is very gratifying to note that our confidence in the Britannia Area has been substantiated. This year exploration work was confined to areas in close proximity to our known ore-bodies and this report validates our decision to stay at home instead of spreading ourselves very thin throughout B. C. Mr. Thurber has done a fine piece of work.

Yours truly,

A. T. Smith

A. T. Smith
Chief Engineer.

PROGRESS REPORT ON THE EASTERN AREA OF BRITANNIA

October 1952

INTRODUCTION

Location

The Eastern Area of Britannia extends from the Winston Fraction mineral claim easterly to the Bank of Vancouver claim. The north-south limits were determined by favourable structural conditions as found in the field. Ref. Geological Map, Eastern Section Britannia, Scale 1" = 400'.

Access to the area is accomplished by ascending Victoria Shaft and then travelling on foot. The logging grade from Victoria to Fairwest is in good condition; from there a pack horse trail joins the Hoodie grade which extends to the eastern portion of the area.

The country from the Fly claim east lies in the Greater Vancouver Watershed.

Size of Area

The area covered was 42 claims and fractions comprising some 1,300 acres. Several reconnaissance control traverses were run but are not included in the above.

Purpose of Investigation

This investigation was conducted to determine in the shortest possible time whether the Eastern Area of Britannia possessed any economic possibilities.

Method of Investigation

The methods utilized were twofold:

1. Search for favourable structures, detailed geological mapping, 1" = 400' and 1" = 40'.

2. Search for evidences of mineralization within these structures, detailed prospecting.

Geological mapping 1" = 400' was utilized until a fold, fault or some other favourable structure was found. This structure was then closely prospected for mineralization. It is interesting to note that all places in this area where a favourable structure was located, close prospecting yielded evidences of mineralization, some showings being strong.

INTRODUCTION (Cont'd)

Acknowledgments

Messrs. J. Minions and H. Migand rendered efficient assistance in the field. Information on the mine area was kindly supplied by A. Killin, Chief Geologist.

Summary and Recommendations

The orebodies at Britannia have been localized at the junction of a large north-east trending fold and a north-west trending shear zone. The shear zone complex is rimmed by narrow borders of favourable rocks in which the ore bodies occur. Within these borders and due mainly to intersections of shear planes with the bedding also to drag folding, favourable orebearing structures were formed. The dominant structural control is an east plunging set of cross folds formed on the back of the north-east folds. These folds govern the pinching of the Fairview, Empress and Victoria ore at depth, and control the disposition of the ore in the other mines. The careful plotting of these features on the footwall and their projection to the hanging wall border will indicate where ore should be expected at depth in the footwall and also at what horizon on the hanging wall. Ref. Trend Line Map, Scale 1" = 1000', and Illustration I.

East from Victoria the rocks are cut by a spray of north-east trending thrust faults which throw the east side up and to the north. These faults occur in the vicinity of axial planes of large folds. Several interesting mineral showings have been found in this area. Enough structural work has been done this summer to definitely state that the area is one of better than average possibilities. Of necessity, the area was gone over rapidly.

It is recommended:

1. That all structures be projected from the footwall onto the hanging wall border i.e. that from the Winston Fraction to No. 8 to see if there is any possibility of an orebody somewhere between 4100 and the showing on the Winston Fraction.

2. The faulted footwall and the less faulted hanging wall should be prospected carefully for possible occurrences of mineral.

3. The most eastern showing representing the lowest mineralization could be geophysically prospected by gravitational methods, it should be trenched.

4. Detailed geological mapping should be continued to see if any further favourable structures could be located and also to try and obtain a more complete picture of a very complex area.

INTRODUCTION (Cont'd)

5. As the footwall border is buried beneath glacial drift a geophysical or geochemical survey will probably be the only method for exploring it.

Geography

Relief and Elevations:

The elevation of the collar of Victoria Shaft is 2500 feet, that of Furry-Clipper divide is 3030 feet. The highest point on Furry ridge is 5146 feet. The valley walls are covered to a height of 200 feet with glacial material which forms 20 to 30 degree slopes. Above this, the walls steepen to 45 to 60 degree cliffs and the travelling is extremely slow especially while trying to do geology.

Drainage:

The western part of the area is drained by west flowing Furry Creek which occupies a glacial valley. The abrupt right angled turn in the vicinity of the mouth of Empress Creek is thought to be controlled by a fault. The tributaries usually cascade down to the morainal material whence they enter Furry Creek at a much less grade.

The eastern portion of the area is drained by east flowing Clipper Creek and south flowing Seymour Creek. Both occupy glacial valleys but are believed to reflect structural control. Ref. Trend Line Map, Scale 1" = 2000'.

Vegetation:

The bottoms of the valleys and to an elevation of two hundred feet above them, the ground is covered by a dense growth of devil's club, salmon berry bushes, blueberry bushes, slide alder, etc., which make travelling exceedingly difficult. Above this, the underbrush thins out to berry bushes only, which provide good hand holds when climbing the steep slopes.

The northern side hill between Victoria and Fairwest has been logged. From Cyrtina Creek to the divide on the north side is an excellent stand of yellow cedar. Elsewhere in the area trees typical of the coast are represented.

Rock Exposures:

In such a steep country the percentage rock exposure is only 15 percent. The lower glacial material contains few outcrops, the steep sidehills while providing the most exposures are in many places covered with a veneer of humus and needles. The tops of the ridges exhibit few outcrops. It was by following streams that best exposures were found.

STRUCTURAL GEOLOGY

As the rock types have been described by many previous writers and since this report is concerned mainly with ore possibilities, rock types will only be mentioned in their specific connection with favourable structures.

History of Structural Control of Britannia Orebodies

As many geologists and engineers have contributed to the theories of ore control at Britannia, it is necessary to critically analyse each to see:

1. Has it stood up over a period of time?
2. Has it found any new ore?
3. Can it be utilized with confidence in projecting up to one-half a mile or more in a new area?

1900-Brewer-Belt of schist in volcanic rocks, mineralization replaced silicified portions of the schist. Remarks - These views have persisted to the present time and are still true.

1906-Leroy-The faulting and brecciation prior to deposition of the ore prepared in part the necessary channels for the solutions. Remarks - This idea also persists to the present.

1913-McConnel-Considers Britannia a roof pendant in the Coast Range Intrusives. Mineralized zone at Britannia seven miles long and one-half mile wide. The crushed eruptive is economically the most important rock. Thinks chlorite mottles may be sheared amygdaloids thus forming good channel-ways. Recognized difference between Bluff and Fairview ore. Remarks - Ideas persist to present, amygdaloidal flows probably are not the most important channels.

1918-Schofield-Named Goat Mountain and Britannia Formations. Thought the host rocks for ore bodies were intrusive sills. Shear zone extends from Daisy Claim to at least the Reggie Claim. Shear zone at Empress changes from 140 degrees to 170 degrees and at the Victoria changes back to 140 degrees. Mineralization confined to the shear zone at irregular intervals. Orebodies of Jane and Fairview occur where there is a decided change in strike of the shear zone. Remarks - Schofield was wrong on his age of the Goat Mountain Formation and it is hard to understand why he called the green mottled schist a sheared intrusive when all earlier writers said it was volcanic. His other ideas persist.

1922-Schofield-

1. The Bluff, Fairview, Empress and Victoria Mines are in the same shear zone whose general direction is N 75 degrees W to N 70 degrees W. The shear planes dip 70 degrees to the South.

STRUCTURAL GEOLOGY (Cont'd)

2. The orebodies of these mines are restricted to this shear zone.

3. The green schist generally mottled as in the Fairview is the most favourable rock for mineralization.

4. Bluff, Fairview, Empress and Victoria are structurally similar. The ore-bearing green schist in each mine comes to a point or nose to the west.

5. This nose has a hanging wall and footwall of slate. The nose of the Bluff-Fairview plunges or pitches at an angle of 30 to 45 degrees southwest.

6. Plunge or pitch of Empress and Victoria mines cannot be determined from present state of development.

7. The ore and rock inn the nose is usually siliceous.

8. All mines have a footwall of same belt of slates followed from the Jane to Victoria.

9. Bluff and Fairview are structurally linked so that the pitch of the Bluff governs to a large extent the pitch of the mineralization in the Fairview veins.

10. From an examination of the cross sections of the Fairview Mine, it can be seen that the ore-bodies are usually strong where the slate footwall dips 45 to 60 degrees south and diminishes where the footwall approaches vertically. Also where the footwall is vertical the shear zone is narrow and intensity of shearing greater. The size of the hanging-wall dikes also diminishes where the shear zone is narrow. Hence there is an apparent relationship among the size of the ore-bodies, the intensity of shearing and the size of the hanging wall dikes. Thinks the rocks at depth will flatten causing the Fairview to repeat.

11. There is nothing in the character or association of the ore minerals or gangue which point to the possibility that the ores of the Britannia Mines should not continue at depth.

12. All mines have the same footwall of slate. This footwall should be traced eastwards from the Victoria as carefully as possible since the commercial ore bodies are more frequent close to the footwall.

13. The ore increases in grade as the nose of the deposit is approached, or in other words to the west.

STRUCTURAL GEOLOGY (Cont'd)

Schofield states that:

1. All veins in the Fairview, Empress and Victoria Mines which strike north 70 degrees west are related to the sheer zone.

2. The east-west fissure veins in the Fairview are related to folding. Some of the largest orebodies of Britannia occur at the intersections of the two systems of fissuring.

3. Localizing Structures: -

(a) Intersections of shear zone and east-west fissures.

(b) Along footwall of hanging wall dikes.

(c) Inverted trough of slates over Bluff Orebody.

(d) Between Bluff and Empress on 1500 not favourable because of steepness of footwall slates.

(e) On the Ash mining claim he says the shear zone exposed is in the hanging wall while the ore bodies are restricted in large measure to the footwall. (No. 8 was not discovered until later).

Remarks - The period 1900-1922 has yielded the basis for structural control of ore body theory at Britannia which has influenced all geological thinking sice that time.

1925-James-Completed the first areal geological map of the district and this has been used as a basis since then. He differs with Schofield on the age of the Britannia Formation.

1932-Ebbutt-Believes that the orebodies were formed by drag folding along a footwall thrust fault; this idea has persisted to the present.

1941-Ball-Wrote a report on the Britannia Mine but adds little to the geological picture.

1948-Irvine-Relates the No. 8 to the same thrust fault which Ebbutt has related to the other orebodies.

Condensing all those reports into facts bearing on positive localizing factors for orebodies, we have:-

1. The orebodies occur in silicified portions of a green mottled schist, fragmental rock or tuffs.

STRUCTURAL GEOLOGY (Cont'd)

2. These orebodies are localized on the hanging wall side of a thrust fault in drag folds.

3. The walls are sericitic schist or some other incompetent rock.

4. The ore bottoms where the footwall turns from 45 to 60 degrees to vertical.

5. The Bluff is localized by an inverted trough of slates.

6. The No. 8 is localized near the intersection of the main thrust and the hanging wall of a lens of green mottled schist.

7. The shear zone takes a pronounced swing at the Empress.

Remarks - Prior to the studies which led to the re-examination of the whole Britannia zone, these theories had never been critically examined nor utilized to ascertain if they can be used as infallible guides to finding ore.

Past search for ore has concerned itself in looking for favourable rock types, their alteration equivalents and the chances of hitting some mineralization. In itself this is good practice, but in a large area it is costly doing elemination drilling unless one can pinpoint the drilling by reliable structural projection.

Structural control has to be sharp enough so that one can direct exploration close to the target. In other words, the tectonics of the whole district have to be known before the ore controls can be found. This study resolves itself into two parts -

1. To build up the geological framework with sharp structural elements which received the ore.

2. To assemble all possible evidence as to where in this framework orebodies are to be expected.

Any ore localizing theory not based on facts will be drastic and costly.

PRESENT ORE LOCALIZING THEORY

1. All ore-bodies are found either on the hanging wall or footwall borders of the shear zone complex and also in its nose.

PRESENT ORE LOCALIZING THEORY (Cont'd)

2. The structures were formed at the intersection of a north-west trending shear zone and a major north-east fold.

3. In the eastern area the north-east folds have been broken along their crests by north-east thrust faults which are pre-mineral and influence the disposition of the favourable structures.

4. Maximum open spaces were formed where east plunging cross folds were formed on the back of the north-east folds.

5. Other controls mentioned by earlier writers are contacts, a slate cape, the gouge of pre-mineral faults, and pre-mineral dikes. Locally these are applicable but cannot be utilized in a broad sense.

Taking the No. 8 as an example and analysing its environment, one finds:

1. A blind ore-body.

2. 1000 feet of non-commercial siliceous pyritic cap on top of the ore.

In prospecting for the No. 8 type of blind orebody, one has to look for favourable structures. The No. 8 body is cut by post-ore pebble dikes which carry hematite, quartz and other minerals in small amounts characteristic of the orebody. These dikes are liable to be found on surface above the siliceous capping in totally barren ground. They are always indicative of an orebody below. A gravity meter survey is the only one recommended to test such a situation. It will be appreciated that extreme detailed work is necessary to find this evidence. As the No. 8 type rocks plunge west and apex east, correct structural work is necessary to lead a person over totally barren ground to look for evidence of a hidden ore-body. These dikes when buried under overburden may possibly be picked up by geochemical methods. It is believed worth a try.

As the barren zone is cut off by erosion a siliceous pyritic zone with negligible values would be exposed on surface. It is to be noted that 99 percent of all mining men would turn No. 8 down at both these stages of development.

In this second stage, silicification, structure, pyritization, presence of pebble dike formation would be evidence of a better than average chance of an orebody below. Any geophysical method applicable would indicate an orebody at depth at this stage of development.

PRESENT ORE LOCALIZING THEORY (Cont'd)

As in most glaciated areas many surface features are totally swept away or covered by overburden and the geologist has to be ever on the alert for the smallest clue in order to find a hidden ore-body.

The above example is cited to show that other factors besides just assay values are necessary to find mines today, especially since most showings have been looked over many times, witness Kerr-Addison, Quemont, Lake Shore, East Sullivan, to cite a few which had such poor surface showings they were turned down by all examining engineers and geologists. If the structure around them had been appreciated, they would have been mines long before they were.

Schofield pointed out in 1922, "From an examination of the cross sections of the Fairview Mine, it can be seen that the ore-bodies are usually strong where the slate footwall dips 45-60 degrees to the south and diminish in size where the footwall approaches vertically".

From an examination of a structure contour map of Victoria Line and a rapid perusal of sections of other mines, this relationship still holds. These are the east plunging folds that were formed on the back of the large north-east fold.

Those features which are regarded today as significant in ore-finding at Britannia are:

Surface:-

1. Careful mapping and prospecting of hanging wall and footwall borders of shear zone complex.

2. Recognition of favourable folded or faulted structures.

3. Presence of pebble dikes even in barren ground.

4. Siliceous rusty capping even though non-commercial containing pebble dikes.

5. Utilization of geophysical or geochemical methods dictated by structure.

Underground:-

1. Projection of sharp structural features.

STRUCTURAL HISTORY OF DEVELOPMENT OF BRITANNIA ORE BODIES

1. Close folding development of north-east fold axis.

2. Development of shear zone, intersection of shear planes with bedding provided V-like structures apexing to the west.

3. Development of east plunging folds.

4. Axial plane faults.

5. Thrust faulting in the eastern area.

6. Period of mineralization, mineralization utilized shear zone and thrust faults as channelways, concentrated in V-like structures where these intersected an east plunging fold.

7. Formation of pebble dikes.

8. Minor faulting.

SHOWINGS FOUND IN THE EASTERN AREA OF BRITANNIA

General

In the eastern area of Britannia there are several north-east trending folds. All those folds have been cut by axial plane faults. These faults have been the loci of later thrust faulting, the apparent offset on the footwall side being greater than that on the hanging wall side. These faults are located in a spray-like form and would come together in a point 6000 - 7000 feet south of the Chicago calim. How they were formed is questionable; two or three possibilities suggest themselves, but it is not the purpose of this paper to discuss them here. Ref. Geological Map of Eastern Section of Britannia - Scale 1" - 400'.

No. 1 Showing

On the No. 1 or Banner Creek showing, the bedding and shearing form V-like structures apexing west. Incompetent tuffs form the walls while siliceous firm fragmentals and tuffs form the central mass and contain the mineralization. The mass is cut by a series of north-east trending tension cracks. These cracks have 1/8" - 1/2" stringers of massive black sphalerite and some chalcopyrite. Between the fractures, the rock is replaced by red sphalerite, pyrite, galena and chalcopyrite. The mineralized zone is 1000 feet long and up to 25 feet wide. It is cut by one angling diorite dike 60 feet wide and a 2 foot basalt dike.

SHOWINGS FOUND IN THE EASTERN AREA OF BRITANNIA (Cont'd)

Conclusions: This showing is structurally similar to No. 8. As the formations apex to the west of the showing they must plunge down to the No. 8 country. This means that the whole hanging wall plate should be investigated as it is entirely possible that projection of the east plunging folds from the footwall to this area could yield a similar ore-body above the 4100 Level. The argillites lie a similar distance to the hanging wall of this body as they do in the No. 8 country. Ref. Longitudinal Section, Hanging Wall Section - Scale 1" = 1000'.

	Width	Au.	Ag.	Cu.	Zn.
West End	3'	tr.	0.08	tr.	1.20
Stringer	1'	tr.	0.14	tr.	4.50
Centre	15'	tr.	0.05	tr.	1.00
East Centre	10'	tr.	0.10	0.10	1.50

No. 2 Showing

This showing occurs in the south-east corner of the Hunter's Rest claim. The rocks on the hanging wall are silicified fragmentals and those on the footwall are sheared sericitic rocks. Adjoining the silicified fragmentals on the south are tuffs. The structure is a broad fold cut at its axis by a fault. The orebody is offset 40 feet to the north on the east side. The fault contains gouge seams.

The showing itself is a very strong siliceous zone 100' wide in places and so far traced 300 feet. It contains magnetite both massive and in grains, some chalcopyrite, and sphalerite, fair amounts of pyrite and isolated patches of galena. It is interesting to note megascopically that the galena occurs in fractures cutting the zone.

The gangue minerals are quartz and chlorite. The usual assemblage of high temperature minerals is totally lacking here. The quartz and chlorite occur identically the same as in any of the other ore-bodies. One is led to only once conclusion and that is that this showing is a moderate temperature one.

Conclusions: Structurally this showing is similar to others in the mine area. Mineralogically it is different; its depth temperature conditions seem to indicate conditions similar to the other bodies.

Its regional structural setting indicates that it must have been formed at a higher elevation than most of the other ore bodies.

SHOWINGS FOUND IN THE EASTERN AREA OF BRITANNIA (Cont'd)

Perusing the geological literature it was found that there are cases of magnetite being formed at long distances from intrusives and at low temperatures. Once magnetite is formed it is very difficult to replace; quoting directly from U.S. G.S. Prof. Paper 148, Leadville, Colorado, "Magnetite when once formed was evidently very resistant to resorption by the solution below the transition temperature or to replacement by the minerals that could crystallize below that temperature". P. 203.

Between the No. 1 and No. 2 showings occur two faults, one a north-west trending one, the other a north-east one. The amount of displacement on the north-west one is not known. It has been found in two places on the south-east side of Furry Creek. Ref. Longitudinal Section, Hanging Wall Section - Scale 1" - 1000'.

	Width	Fe.
Centre	15'	22.00%

No. 3 Showing

Occurs on the Ash claim in the hanging wall area of the shear zone complex. The rocks are sheared tuffs and silicified fragmentals. The structure is a broad fold. Mineralization occurs as 1/8" to 1" fractures in both rocks which contain coarse pyrite and high grade chalcopyrite in a gangue of quartz. Two thousand feet west of this showing is the Reggie Tunnel which was sampled by Schofield years ago.

This showing lies in the Vancouver Watershed. Ref. Longitudinal Section Hanging Wall Section, scale 1" - 1000'.

	Au.	Ag.	Cu.	Zn.
Character Sample	tr.	0.34	9.10	tr.

No. 4 Showing

This showing occurs in the footwall area of the shear zone complex on Cyrtina Creek. It is the only place from Victoria to the divide where the footwall series is exposed and here for only a short distance. At this place a narrow sheared tuff band is mineralized with good chalcopyrite. The other rocks are highly silicified and contain much pyrite. Some sphalerite occurs with the chalcopyrite.

It is suggested that the buried footwall could be prospected by some geochemical or geophysical method. Ref. Longitudinal Section, Footwall Section - Scale 1" - 1000'.

SHOWINGS FOUND IN THE EASTERN AREA OF BRITANNIA (Cont'd)

No. 5 Showing

This showing occurs in a broad fold on the footwall of the shear zone complex. An axial plane fault occurs here.

The rocks consist of a sheared and silicified zone of tuffs and mottled fragmentals. The surface expression comprises a rusty gossan zone 40 feet wide within which occurs stringers and blobs of tan and dark coloured sphalerite with some chalcopyrite. The ore resembles the Bluff type.

No work has been done on this showing but it appears to be a highly favourable one. Ref. Longitudinal Section, Footwall Section - Scale 1" - 1000'.

It is recommended that trenching be done here.

	Width	Au.	Ag.	Cu.	Zn.
West of Fault	10'	tr.	0.05	tr.	2.00
West of Fault	6"	tr.	0.25	0.20	10.60
East of Fault	Grab	tr.	0.10	tr.	6.40
East of Fault	4'	tr.	0.25	tr.	4.30
East of Fault	4'	tr.	0.07	0.56	5.00

Bank of Vancouver Claim

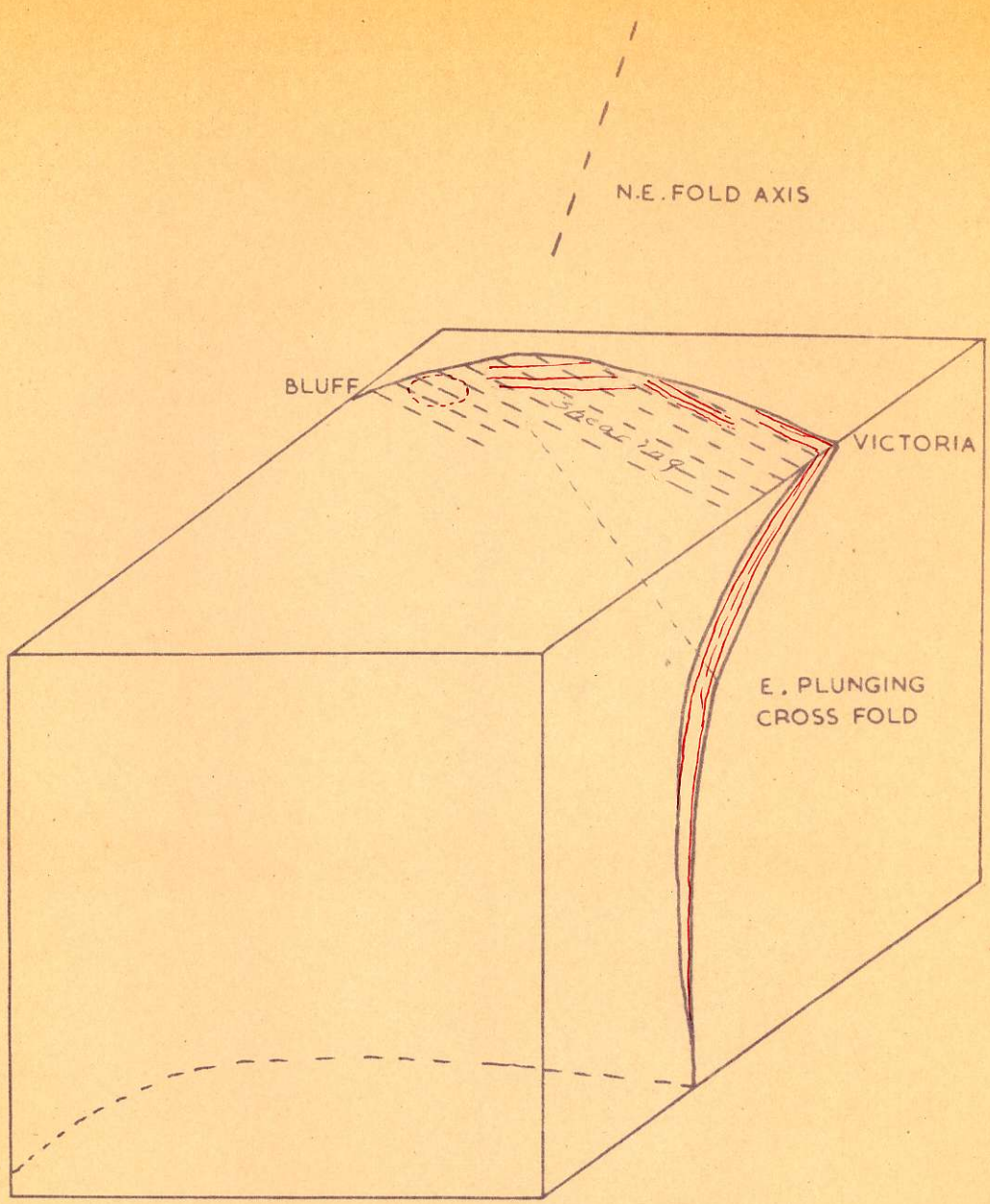
This claim was visited for the express purpose -

1. Of observing the granodiorite contact.
2. Of noting the assemblage of minerals associated with the deposits.

Limited observations on Seymour Creek indicated that the granite trends in a north-south direction with a steep dip to the west. Observations on similar structure on Furry Creek and between there and the Beach shows trends of North 50 degrees West and dip south parallel to that of the roof pendant. Although this evidence is not conclusive it is suggestive that some of the granitoid rocks are conformable to the regional structure and must have been emplaced as sill-like bodies. In other words proximity to any instrusive-like body does not mean the cutting off of the rocks at shallow depths.

Associated with the copper mineralization on these claims is crystalline magnetite, secondary biotite and actinolite. There are none of these high temperature gangue minerals present in No. 1 Showing. Ref. Trend Line Map, Scale 1" - 2000'.

No 2?



STRUCTURAL CONTROL DIAGRAM

J B T 1952

MAPS AND ILLUSTRATIONS

1. Trend-Line Map, Howe Sound - Seymour Creek, Scale 1" - 2000'.

2. Longitudinal Section, Footwall Area, Howe Sound - Seymour Creek, Scale 1" - 1000'.

3. Longitudinal Section, Hanging Wall Area, Howe Sound - Seymour Creek, Scale 1" - 1000'.

4. Geological Map of Eastern Section at Britannia, Scale 1" - 400'.

5. Cross Fold Diagram.

2 ft Well mineralized replacement "pod"

E2

E1

E3

No 2 Open Cut

10'@0.44

10'@1.42

E

East replacement Contact.

D3

D2

D1

Approximate position of cliffe face

4'@3.10

No.1 open Cut.

8'@3.70

5'@3.20

8'@2.40

2'@0.30

3'@ Tr.

C2

N mag.

Oxidized Zone with disseminated min.

C

B4

West replacement Contact.

B3

B2

A2

Upper South Tunnel

No.3 open Cut

Scattered min. in cliffe face here.

Approximate position of cliffe face.

Lower South Tunnel

LEGEND

"Light Granite" - Granodiorite

"Dark Granite" - Diorite

Overburden

2.00 Sample & Assay - Copper Only

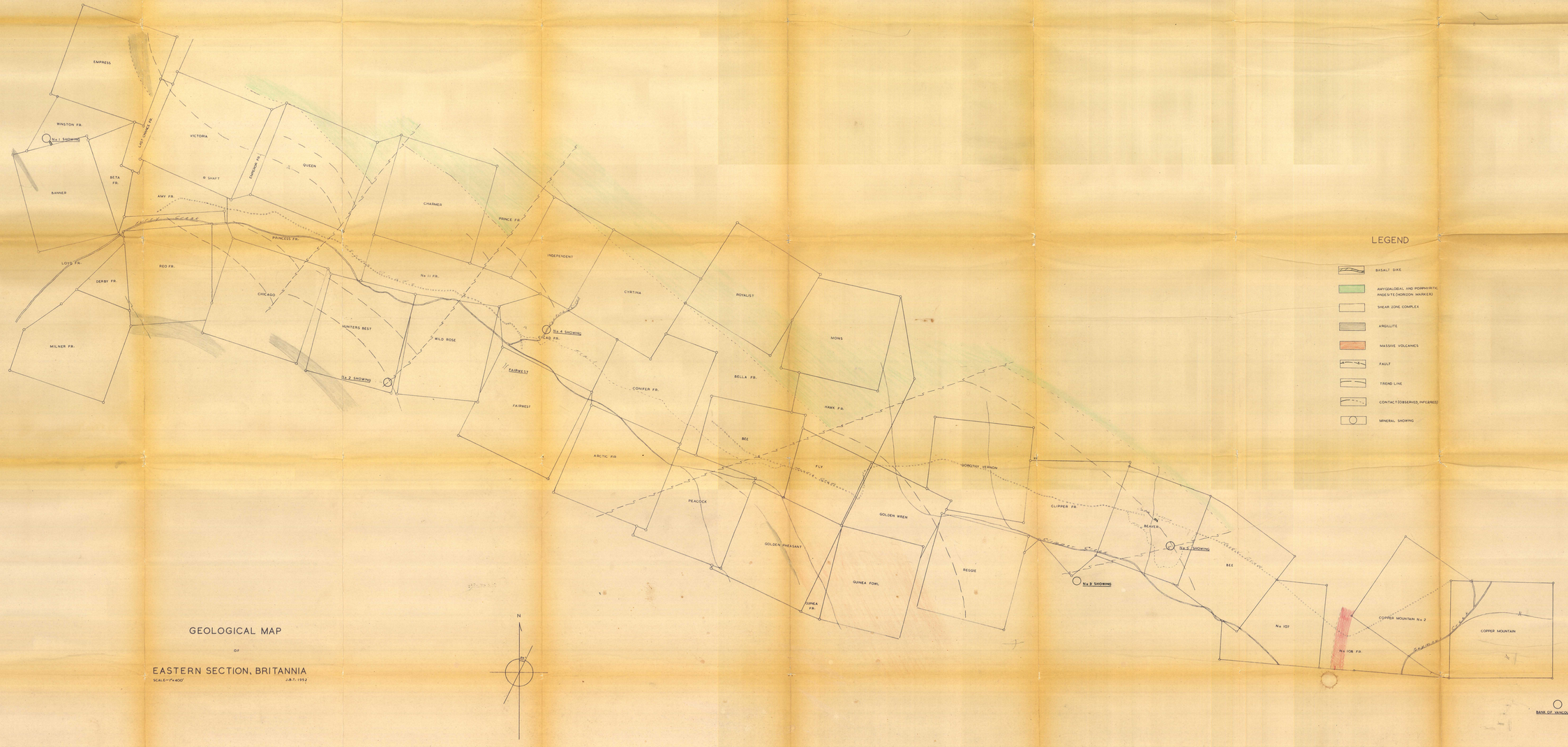
BANK OF VANCOUVER & COPPER MOUNTAIN MINERAL CLAIMS

SOUTH SLIDE AREA WORKINGS

Scale 1 in = 40 Ft

Dec 1953

G.D.M.



GEOLOGICAL MAP

OF

EASTERN SECTION, BRITANNIA

SCALE—1"=400'

J.B.T. 1952