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GOLDEN, B.C.
Mining Recorder

OCT 25 1948

GOLDEN, M. D.

Alfred R. Allen

GEOLOGICAL ENGINEER

Silver Giant Mine,
Spillimachene, B.C.,
October 22, 1948.

Siscoe Gold Mines Limited,
Spillimachene, B.C.

Dear Sirs:

Herewith is my report on the Geology of the Mineral Claims Blue Bell No.1, Blue Bell No.2, Blue Bell No.3, Blue Bell No.4, Blue Bell No.5 Fraction, Blue Bell No.6, Blue Bell No.7 Fraction, Blue Bell No.8, Silver Bell No.4, Silver Bell No.5 Fraction, Silver Bell No.6, Silver Bell No.7 Fraction, and Silver Bell No.8 Fraction.

Included with the report is a geological map No. 3-C and two cross sections A-B and C-D.

Yours very truly,

Alfred R. Allen



Alfred R. Allen

GEOLOGICAL ENGINEER

Silver Giant Mines,
Spillimachene, B.C.,
October 22, 1948.

Siscoe Gold Mines Limited,
Spillimachene, B.C.

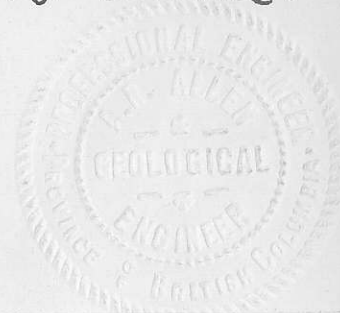
Dear Sirs:

The expenditures for the geological survey of
the Blue Bell mineral claims No. 1 to 8 and the Silver Bell
mineral claims No. 4 to 8 were as follows:-

Alfred R. Allen	- Fees Sept. 19th to Oct. 21st inclusive -----	\$ 1,155.00
Trefor Jones	- Experienced Surveyor's as- sistant, Wages Sept. 27th to Oct. 3rd inclusive - 7 days -----	105.00 ?
Richard Wainwright	- Assistant, Oct. 5 to 16th inclusive - 11 days -----	110.00 ?
		<hr/>
		\$ 1,370.00

Yours very truly,

Alfred R. Allen.



Alfred R. Allen
GEOLOGICAL ENGINEER

I, ALFRED ROY ALLEN, of 4850 Connaught Drive, in
the City of Vancouver, in the Province of British Columbia,
MAKE OATH AND SAY AS FOLLOWS:-

1. That the assessment account herein contained in
respect of Blue Bell mineral claims No. 1 to 8 and
the Silver Bell mineral claims No. 4 to 8 is true
and correct.

DATED at Vancouver, B. C. this 22nd day of October,
A. D. 1948.

SWORN BEFORE ME at the City of)
Vancouver, in the Province of)
British Columbia, this 22nd day)
of October, A. D. 1948.)

Alfred R. Allen

[Signature]
A Commissioner for taking affidavits
within British Columbia.

Yours very truly,



REPORT OF GEOLOGICAL SURVEY

MINERAL CLAIMS

BLUE BELL No.1, BLUE BELL No.2, BLUE BELL No.3,
BLUE BELL No.4, BLUE BELL No.5 FRACTION, BLUE
BELL No.6, BLUE BELL No.7 FRACTION, BLUE BELL
No.8.

SILVER BELL No.4, SILVER BELL No.5 FRACTION,
SILVER BELL No.6, SILVER BELL No.7 FRACTION,
AND SILVER BELL No.8 FRACTION.

GOLDEN MINING DIVISION

B. C.

BY

Alfred R. Allen

SEPTEMBER 19 TO OCTOBER 21

1948

SILVER GIANT MINE LOCATION

7 Miles West of Spillimachene B. C.

50° 116°N.E.

REPORT OF GEOLOGY

BLUE BELL No.1, BLUE BELL No.2, BLUE BELL No.3,
BLUE BELL No.4, BLUE BELL No.5 FRACTION, BLUE
BELL No.6, BLUE BELL No.7 FRACTION, BLUE BELL
No.8, SILVER BELL No.4, SILVER BELL No.5 FRACTION,
SILVER BELL No.6, SILVER BELL No.7 FRACTION,
SILVER BELL No.8 FRACTION, MINERAL CLAIMS.

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Plan No. 3-C

Sections A-B and C-D To accompany map 3-C

A. INTRODUCTION

The Blue Bell mineral claims No.1 to 8 and the Silver Bell mineral claims No.4 to 8 were surveyed by the writer September 19th to October 21st inclusive, 1948.

Traverses throughout the area were made using chain and transit, chain and Brunton compass, and pace and Brunton Compass. The chain and transit surveying was done by the writer with the able help of Mr. Trefor Jones, an experienced surveyor's assistant, and for the chain and Brunton compass work the writer was assisted efficiently by Mr. Richard Wainwright.

B. OWNERSHIP, LOCATION, AND AREA

The Blue Bell and Silver Bell mineral claims are held by location by Silver Giant Mines Ltd., 707-850 West Hastings St., Vancouver, B.C.

The mineral claims adjoin Crown Grant mineral claims and located claims held by the above named company. The mine camp is 7.8 miles from the Canadian Pacific Railway station of Spillimacheen B.C. by road. The property lies in the northeast quadrant of the quadrelateral the southeast corner of which is $50^{\circ} - 116^{\circ}$.

The thirteen unsurveyed mineral claims cover an L-shaped area of about 650 acres to the west and north of the Silver Giant Mine.

C. CONCLUSIONS

The survey resulted in the acquisition of valuable information pertaining to the stratigraphy of the Horsethief and Goodsir formations, and the location and character of the major thrust fault and synclinal A-symmetrical fold.

No evidence was acquired to indicate that valuable mineral assemblages occur within the boundaries of any of the thirteen mineral claims.

D. GEOLOGY

1. General

The survey enabled the writer to continue the study of the local geology in a well exposed area containing several of the "keys" to the stratigraphic and structural problems. This area lies west and north of the Venus, Mars, Juno, Joe, Silver Bell group of mineral claims which were surveyed during May and June of 1947.

2. Stratigraphy

Two formations outcrop within the map-area, namely the Horsethief of Pre Cambrian age and the Goodsir of Middle to Upper Cambrian age.

a) Horsethief Formation

The rocks of the Horsethief are predominantly siliceous. Within the area the formation has been divided into seven members. The formation has a fairly uniform strike northwest and steep southwest to vertical dip, except adjacent to the major fault where the strata are highly folded and trend in general east-west. Shearing parallel to the major fault is evident in all members of the formation.

Numerous white quartz veins cut most of the formation, particularly the competent arkose and quartzite members. Little or no sulphides have been observed in these, but in some there is calcite and, or, siderite.

No. 1 Member: Predominantly Dark Green Arkose

This zone is the lowest in the series, and is composed of dark green arkosic grit and conglomerate. Within the map-area it is over 1,200 feet thick, and outcrops on the Blue Bell No.1 and No.2 mineral claims. The grit is composed of small grains of glassy quartz in a matrix of dark green argillaceous material. The rock is sheared and numerous small flakes of white mica, along with rusty weathered specks, occur throughout the matrix. The conglomerate is composed of a gritty groundmass similar to that described above, containing semi-rounded pebbles and well rounded pebbles of glassy light grey quartz and light grey feldspar, along with a few pebbles colored red, green, brown, and purple. The beds are a few inches to several feet thick and in many there is a distinct gradation from coarse pebbles at the base to fine-grained grit at the top.

Throughout the member there are a few narrow zones of dark banded argillites.

No.2 Member: Purple Argillite

Overlying the green arkose is a 150 foot band of purple argillite. This band outcrops on the Blue Bell No.1 and No.2 claims. The argillite is quite siliceous, and under a 10-power glass it has a sandy appearance. Scattered grains of quartz and tiny opaque grains that may be feldspar occur throughout it along with numerous very small flakes of white mica. The rock

is highly sheared but bedding planes are recognizable.

No.3 Members: Predominantly Brown Arkose

Overlying the purple argillite there is a zone about 700 feet thick of predominantly brown arkose grit and conglomerate, similar to the rock of No.1 member except for the color.

No.4 Member: Predominantly Grey Arkose

The brown arkose grades into a zone of predominantly grey arkosic grit and conglomerate similar to member No.1 and 3 except for the color.

No.5 Member: Predominantly dark Banded Argillite

The zone of dark colored argillites is about 1,200 feet thick. It is through this member that all the adit tunnels of the Silver Giant Mine pass before intersecting the ore zone. These rocks are highly sheared, banded, dark green, grey, brown, and black argillite, with some interbeds of quartzite. Where the major thrust fault intersects the argillite member, the rocks contain an abundance of white mica, and, in places may be termed phyllite. Throughout the fault area there are irregular veins of white quartz cutting the argillite, similar to those which occur chiefly in the arkosic members.

No.6 Member: Light Colored Quartzite

Overlying the argillite member is a zone 1,000 feet or thicker of light colored quartzite. The predominant colors are cream, light grey, pink and light purple. The quartzite is chiefly fine-grained, but some of the beds are gritty. Within the quartzite one lense-like bed, over 100 feet long, of dark purple grit outcrops on the Blue Bell No.6 mineral claim. Also

there are two, similarly shaped zones of buff weathered limey-quartzite near the top of the member. The quartzite appears to grade into progressively more limey strata until it passes into the overlying limestone member.

No.7 Member: Brown Weathered Limestone

The limestone member outcrops on a small hill near the thrust fault on the Blue Bell No.6 mineral claim. It is composed of gritty siliceous limestone, argillaceous limestone, and fine-grained light grey limestone. The limestone is weathered buff to cinnamon-brown. The argillaceous limestone was noted in one 10-foot zone, and is composed of thin-bedded rock dark brown, grey, green and black in color. The limestone is cut by the major thrust fault and is sheared, folded, and in places brecciated.

Off the map-area, the limestone is overlain by light colored quartzite.

(b) Goodsir Formation

The rocks comprising the Goodsir formation are chiefly limestone, limestone breccia, conglomerate, and argillite.

Limestone

The Limestone occurs in massive beds up to 30 feet thick throughout the entire formation, but most abundant within the upper 1,100 feet. The rock is dark grey, fine-grained, light blue-grey weathering. In contrast, a thin-bedded zone of limestone, which appears to be persistent, is termed the Erin member of the formation. This thin-bedded, fine-grained, siliceous light colored limestone occurs interbedded with argillite. The weathered surface of the limestone contains groove-like depressions.

Limestone Breccia

Within some of the thick limestone beds, lenses of limestone breccia lie parallel to the bedding plane. Some thinner beds are composed wholly of limestone breccia. The breccia is made up of angular fragments of dark grey, light grey weathered limestone. Some of the fragments are banded. The matrix is composed of dark grey, light grey weathered limestone, and many of the fragments are discernable on the weathered surface only.

Limestone Conglomerate

The conglomerate is composed of dark grey, light grey weathered, limestone pebbles in a matrix of light colored argillite or limestone. The pebbles and cobbles of this conglomerate have been flattened by compressive forces. Toward the northwestern boundary of the map-area, near the north boundary of the Blue Bell mineral claim, where the conglomerate is cut by the major thrust fault, the pebbles are greatly elongated so as to resemble bedding. There, also, the rock is folded into numerous A-symmetrical tiny folds, with small calcite-filled fissures along the axial planes of many.

Argillite

Throughout most of the formation, and particularly near the base, there are beds of black, grey, green, brown, and reddish brown thin-bedded argillite.

3. Structure

(a) General

Two structural features dominate the geology of the area, namely the major thrust fault and the A-symmetrical synclinal fold.

(b) The Major Thrust Fault

The fault is a major break in the sedimentary strata which strikes north 45 degrees west and dips 45 degrees southwest. The vertical displacement has been estimated to be over 10,000 feet, bringing the Pre Cambrian Horsethief formation into contact with the middle to Upper Cambrian Goodsir formation. On the hanging wall of the fault the brown limestone of the Horsethief formation is folded, brecciated, and in places sheared. On the foot wall the conglomerate of the Goodsir formation is intensely dragfolded. The limestone pebbles are flattened so as to resemble bedding, and the impure limestone matrix is stained red. Within these highly colored contorted rocks appears, in miniature, a demonstration of one of the early phases in the ancient period of faulting and folding. These minor folds are, like the major structure, A-symmetrical in shape, and the axial plane of many has been fractured, crumpled, and displaced, and in the fractured zones white calcite has been deposited.

The Horsethief formation is sheared parallel to the major thrust fault, but in the Goodsir formation the shearing appears to be parallel to the fold axis. The numerous small and irregular quartz veins in the Horsethief formation, and calcite veins in the Goodsir formation, are quite likely tension fractures that have been filled by circulating ground waters at relatively low temperatures and pressures.

(c) The A-symmetrical Synclinal Fold

The Goodsir formation has been folded into a A-symmetrical syncline, the axis of which strikes north 50 to 60 degrees west, and dips 60 to 70 degrees southwest. The entire structure plunges 10 to 15 degrees to the northwest. The southwest limb of the

syncline is vertical to overturned and the northeast limb dips 50 degrees and less to the southwest. The axis of the fold outcrops and may be best observed on the Blue Bell No.8, and near the southwest corner of the Silver Bell No.8 Fraction mineral claim. Numerous minor folds occur along the axis of the major fold.

E. TOPOGRAPHY

The map-area lies on the steep southwest slope of Jubilee mountain and extends onto the broad valley of the Spillimachene river.

The relation between the geology and the topography is demonstrated in the following instances:-

Where the major thrust fault outcrops, particularly near the northeast corner of the Blue Bell No.6 mineral claim, there is a deep depression on a ridge, and a deep gulley down a side-hill.

On the broad floor of the Spillimachene valley there are long, northwesterly tending ridges composed of coarse siliceous arkose conglomerate, that has been more resistant to the agencies of erosion than the intervening softer strata.

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G. REFERENCES

Report of the Minister of Mines of B.C., 1895, 1898, 1907, 1908, 1923, 1926, 1927, 1928, 1930.

Report of the Zinc Commission, 1906.

Report No.1, Department of Mines, Non-Metallic Investigation, April, 1932.

Report to the Golden Giant Mines, Ltd., by Lewis Hind, Victoria, B.C., August 25, 1909.

Report to the Golden Giant Mines, Ltd., by Rush J. White, Mining Engineer, Wallace, Idaho, March, 1924.

Reports to Pacific Mines and Petroleum Development Co. Ltd., by J.L. Parker, Mining Engineer, November 1929 and November 1930.

Reports to Pacific Mines and Petroleum Development Co. Ltd., by F. Eichelberger.

Memorandum re Diamond Drilling Giant Mine in 1926, by A.W. Davis, Mining Engineer, December 4, 1928.

Evans, Geological Survey Summary Report, Part AII.

Mining and Marketing of Barite, U.S. Dept. of Interior, Bureau of Mines, Information Circular 7345, May 1946.

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THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF MINES
VICTORIA

December 2nd 1949.

Gold Commissioner,
Golden, B. C.

Dear Mr. Carling:

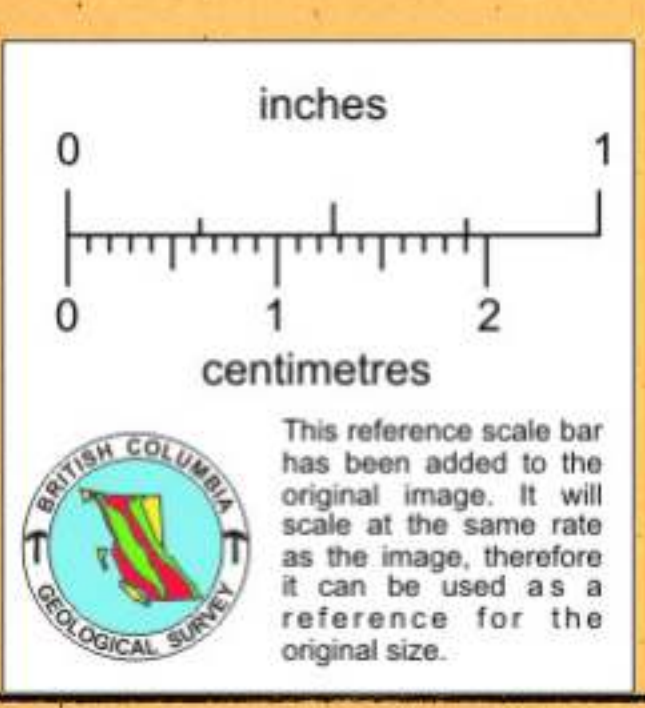
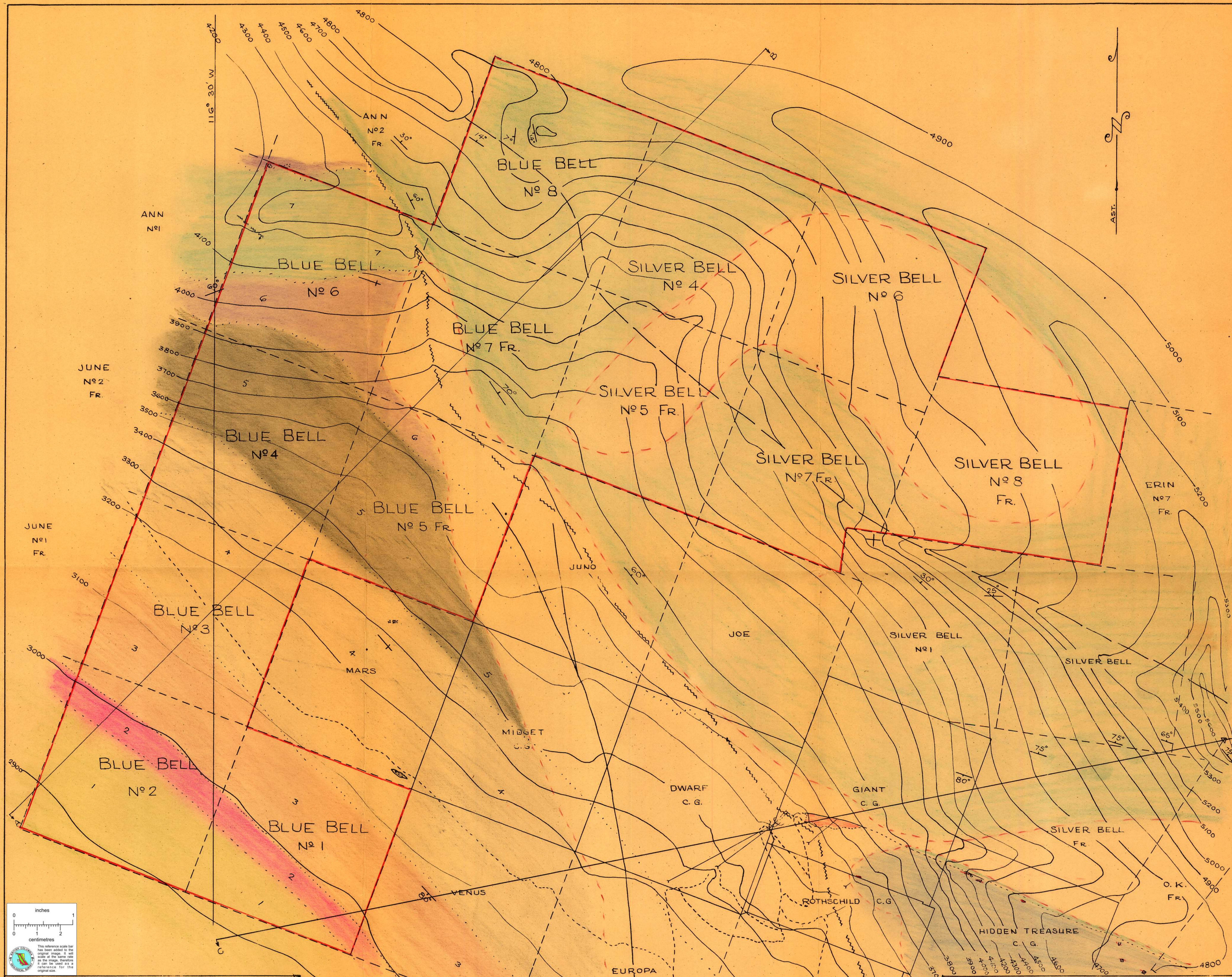
Re: Geological Report by A.R.Allen
"Blue Bell 1-8" (13/155-13/162 Oct)
"Silver Bell 4-8" (13/150-13/154 Oct)

I am forwarding to your address, under separate cover and by registered mail, a copy of A.R.Allen's report on the above noted mineral claims. It should be placed in your files and be dealt with in exactly the same way as any other affidavit of work made to you under the terms of the Mineral Act. In other words it is open to investigation to the public free of charge at any time during office hours.

Yours truly,

A. M. McEachy
Chief Gold Commissioner.

PJM/lid



LEGEND

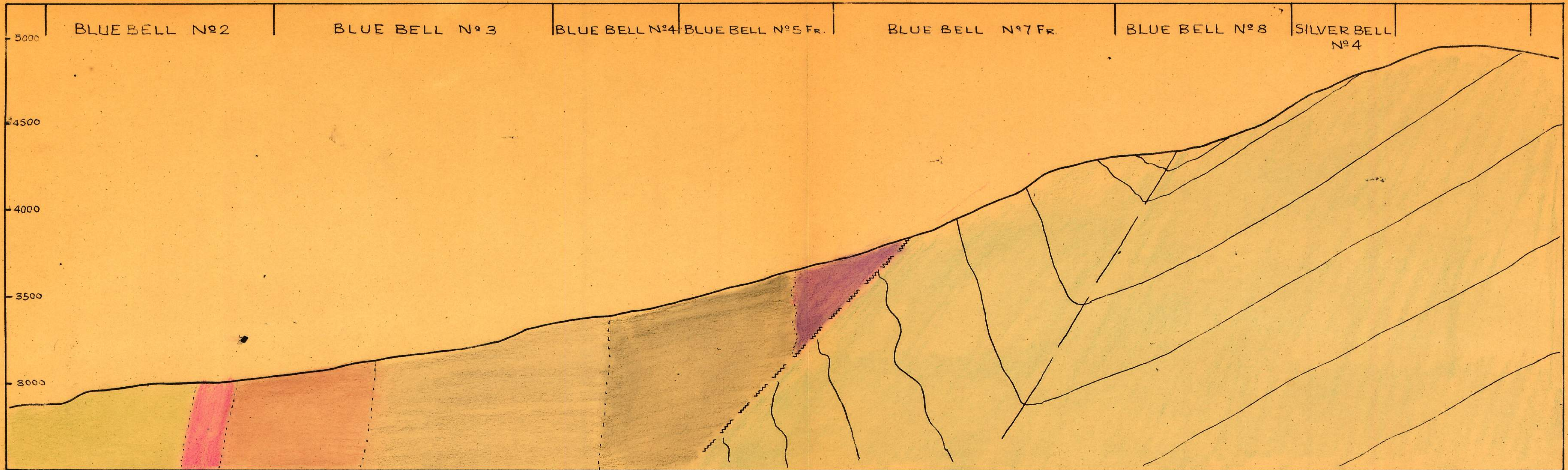
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CREEK	OTTERTAIL	8
CONTOURS		
SURVEYED CLAIMS		
UNSURVEYED CLAIMS		
LAKE		
TUNNELS		
SHAFT		
OPEN PIT		
FORMATIONAL CONTACT		
FOLD AXIS		
FAULT		
ATTITUDE		
	MANY OUTCROPS	7
	FEW OUTCROPS	6
		5
		4
		3
		2
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NOTE:
 All colored portions of the mineral claims on this plan contain numerous outcrops observed on the ground.

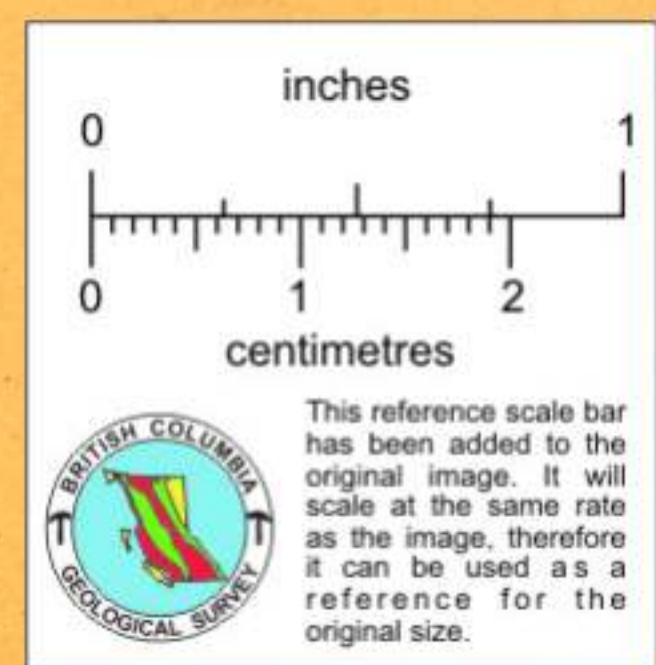
Note copied 30 Nov 48 from map submitted by A. Allen R.P.E. Nov. 24/48 H.S.

SILVER GIANT MINES LTD.
GEOLOGY
 OF
 BLUE BELL MINERAL CLAIMS
 NO 1, 2, 3 AND SILVER BELL
 MINERAL CLAIMS NO 4 TO NO 8
 OCTOBER 1948 NO 3-C
 SCALE 1" = 500'

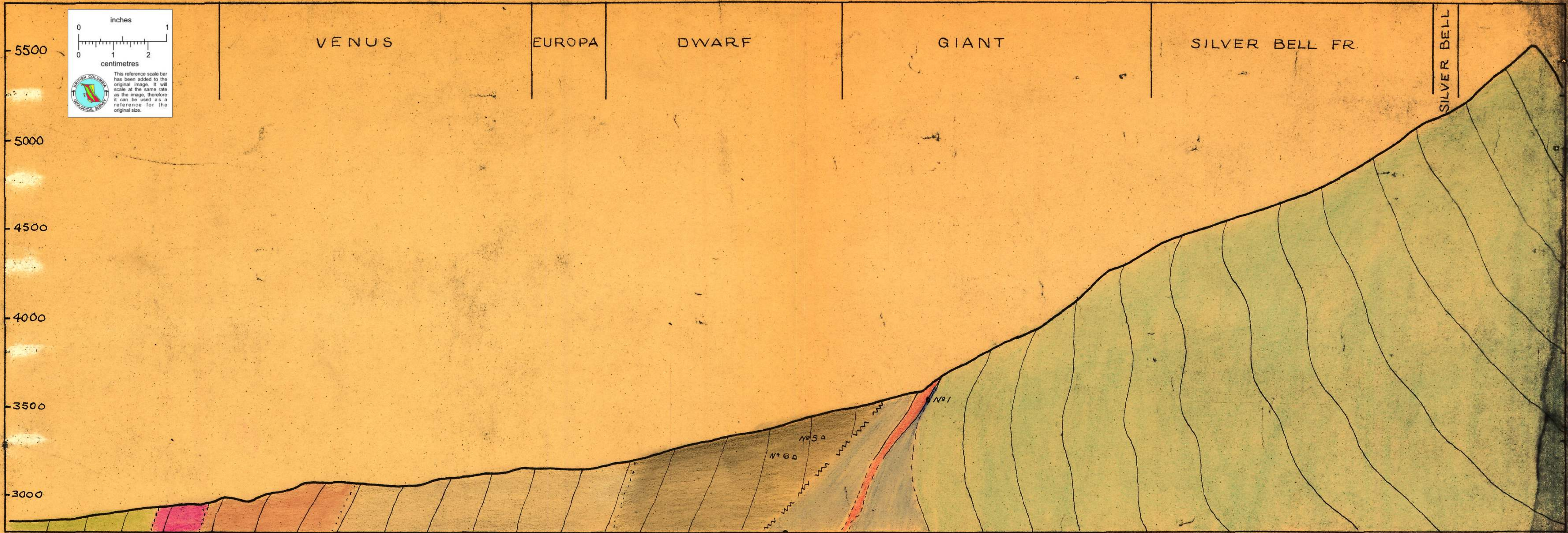
Alfred H. Allen
 R.P.E.



SECTION A-B



ARRIEN Oct 1948
To accompany Geol. MAP.



SECTION C-D

AR Allen June 47
 To Accompany Geological Map