

898453

WJ McMillan

1989

FIELD

NOTES

89/7/25  
FIELD TRIP - New Denver

- Mel De Bristy  
Chief Geol Sylvan Div

- Stewart Fraser  
Expln Geol.

- Steve Phillips Mine Super-  
intendent

Sandon / Carpenter Creek

Stocan series - R

- passed VICTOR MINE after  
Karlo turnoff

5 days/wk 110 fPD

zone dips  $30^{\circ}$  N

Tram on out / long haul  
4000 level

Hh zone // millhead now ~ 20 ounces Ag  
87-Pb 2n

Tryg Kathryn

Tom S. George Beaudoin

John Murray - Sheep Ck

Gunsteel Res → Nugget <sup>Mines</sup>

John Anderson }  
Dermot O'Connor } Wanda  
Fault

Jim Sevigny - Post-Doc

Calgary - Petrokrocker

Dennis Llewellyn <sup>of granites</sup>

Bob Roback - US Bossland

TOUR WITH George Beaudoin  
Office

Hope

Coronation

Wonderful

## Ore Types

defond gal - siderite

siderite - sphal - banded  
± deformed

galena folded locally

Bx+d zones

| siderite / sulphides

amint - qtz dol,

cocks comb siderite -

sphal veins - NOT  
deformed

Bx - Stocan clasts - cq

sphal / galena, m - cq siderite

- Some roby silver

" zeolite x ls

" pyrrhus "

PHOTOS -

Silvera Mill

2 Sandon

HOPE DUMP - several

# MESSAGE

to.

Bill

date.

8 time. 11:45

from M.

George Baudoin

of.

telephoned

returned your call

wants to see you

called to see you

please call

will call again

message.

mailing address:

General Delivery

New Denver BC VOG 150

home address:

812 Union St.

received by

New Denver BC VOG 150

**Hilroy**

358-2490

(June 12)

pink 46-501

yel. 46-502

## Overview

Veins along faults

Faults normal + slip SE?

Problem - no marker beds

NE veins  $\perp$  to fold axes  
NW bedding

E-W veins - not common

Dip  $30-40^\circ$  SE

Along RT / in subsidiary  
structures

Deform - brittle mainly

Hope dump - step 1

stop 2 ~ 6500' Carnation

E-W vein dip variable  
zone  
vein 1 ~ 100' wide here

Limy ex

Bxtd

vein

Bxtd

contact not exposed

View across Valley  
to PAYNE + ALLRIGHT<sup>MAC</sup>?  
deposits + a bunch  
of smaller showings



Bx - cq calcite cement  
local sheared, then  
galena veins

STEP 3 Valley again - WONDERFUL  
Sphal / wurtzite?  
gal bx

Sheep Ck Camp

E margin Kootenay Arc

Beds isoclinally folded

Fr pattern NE - has

veins.

• NE trending vein faults

Ppy dykes

granite at depth

Otrule Range 'Group'

Vert range 1400m

for vein areas

- single veins to 600 m depth

ore shoots -

705-90° dip

Veins - inches to 10'

minerals sporadic

Qtz - milky white - looks

like the quartzite

Cannot stamp on assay costs!

Spacing on plan -  $\approx 500'$

Each zone  $\approx 50K$  Tons

Each 5th one ~~seems to be bigger~~  
bigger.

RENO DEPOSIT -

Grades

Best with base metals -

esp. sphalerite

Qtz py gal sphal

Gold - 30µ

1,720,000 Tons produced

- 6th ranked camp in size

$\approx 750,000$  ounces Au

- some flat flats cut ore

Long section - one in upper  
Nugget or Reno (Reno Mine)  
one in west or flank

of folds

Steep plunge subparallel  
to bedding?

- Yellowstone 3rd level adit
- Queen Prop - drift ~2000' deep - drifted off end.

Core

Qtzite - local finely  
bedded to banded

Veins - some brown w/ strong  
carbonate with pyrite  
- blebby.

PHOTOS - Banded Qtzite  
- Qtz vein (spit)  
in Qtzite

Vein - with gal sphal  
epi py in quartz.

# ROSSLAND TOUR -

89/7/26

Group

Fm

Jurassic  
Upper

Nelson ~165Ma  
Intrusions

Toarcian

↑ ?

↑  
Hale

Toarcian

sedo (E)

Pleins.  
Senon

ROSSLAND  
Rossland  
Camp

Elise  
volcs

Hettangian

↓ ?

Ymir  
Camp  
(Silver)

Ymir/Archibald | sedo  
(Fossils)

Late R

Slocan

Dramatic E to W  
Facies changes

Pm

Karlo

Carbonif

Milford

Dev

Lardeau

deeper  
water

Salmo  
Blackhell

E

Laib  
Pb/Zn

Reeves - Badshot

Av sheep  
Ck

Truman - Mohican

Reno - Hemill

North  
American  
Rt

E margin of Ouesnelia

• not far removed from  
North America?

Orcuate zone - Rossland -

Roof pendants in Nelson to N

185 Ma intrusions post defunn?

DEFUN

~195 Ma Rossland

# East of Fruitvale

STOP 1 Archibald

coarsens upward

Fine argillites

↓

Turbidites

↓

up ↓

Lst cgl

(3-4% Lst)

avg ppy sills

mt Roberts Lst?

granitic clasts

Leucocratic felsite - plag Qtz Vx

196 Ma zircon  
in USA

W → E

Coarser → Finer

deeper water

Typical basal Elze

avg ppy + bxs

Jim - Lexington  
ppy? 200 Ma

In the west of USA

get coarser clastics at

top of Archibald / base of

Elise.



Second Relief - Hawkeye Res  
Tech interested?

MAJOR ACTIVITY | COMINCO -  
Grant Novakty

Antelope - Le Roi extension  
(Brinden Ventures)  
20 - 30000 lot drilling

Great Western Claims

Pacific Sentinel Field  
(Continental Gold)

Big package

Alpine - Cominco  
(Cove Res)

gold - mesothermal?

Corona  
Mt Kelly

Novanda

Champion Lakes area

Falconbridge

SW of Salmon

Mammoth Prop - to be drilled

Fermosa  
Referendum to all this

Going up Mt Kelly

STOP 2 Archibald Fm

10cm → lamination  
distal  
silty to sandy turbidites

soft sed deformation

load casts

rep ups

etc

- up Archibald Ck -

STOP 3 Pillow basalt

STOP 4 Basal Etane

unusual, well developed  
pillows

- above are tuffac. ssts

STOP 5

Top of Mt ~~Kelly~~ south of  
Lap Tuff Mt Kelly

Pyroclastic Bx

Andesitic compsn

PYROCLASTIC TUFFITE EPICLASTIC

Pyro. Bx

Tuffac  
silt, bx

Cgl ~~Bx~~  
Bx

Lap Tuff

Tuffac  
sst,  
siltstone

sst  
siltstone

Coarse Tuff  
Fine "

Tuffac  
shale

> 75%

25-75%

pyroclasts

↑  
consol  
then  
reworked

↑  
not even consolidated  
and eroded

STOP Plug XI Tuff +  
Felsic / Basaltic / Lap Tuff  
sed / int. /  
UPPER ELISE

\* Hall is locally unconf.  
but no major time break

STOP 6 Lunch

Went down road - volc ssk,  
pyroclastics - locally bedded

STOP 7 Hall argillite - clear / bed  
relationships  
Back to  
Fruitvale

To Champion Lakes road  
stop 8

Archibald Fm

argillites

metam  $\rightarrow$  garnet grade

- contact metam? or  
represents regional high gradient?

Between Trail & Bonnington  
plutons

(Formerly mapped as Elise)



# Roseland Camp, <sup>layer skarn? etc?</sup>

- MAIN BELT Cu Au garnet  
little gangue except well rock fragments  
Dump south of town

main values at contact between  
Roseland tip & Roseland Monz.

## Mayflower

py. gal sphal ag au (some)  
(south belt Minton)

C/R siltstones here but  
dump mat'l is aug. ppy.

• This vein cuts the

lamprophyte @ post 50 Ma  
? MINTON REMOBILIZED?

---

TRAIL PLUTON 160 Ma zircon

Mos. minton related to Trail Pluton

Rossland

Mining quiet because

veins seemed to die out

at depth.

John Anderson

Waneta Fault -

NA over Rossland

Stop 1 @ Line Volcs

Fault @ road / bridge Xing

Trend ~ NNE

steep NW or SE dip here

Wallace Ck Stock cuts fault

Fin + NAm rx (Pens?)

Plugs Waneta fault

Pond d'Oreille

Fault folded @ Titlicum Ck

S plunging -  $40^{\circ}$  SW

Charbonneau Ck

Fault E-W / dips S - gentle



Pend d'Oreille portion

~~Base~~ of Lincotons down dip

~~to~~ Due N - upper plate  
to north

Unit CS

Carboniferous slate

Stop 1 Amp Ppy

Basal Elise

schistosity - minor folds  
affect it - developed  
locally.

stop 2 - sheared Elise

stop 3 Wenatch fault

CS ~~unit~~  
~~zone~~

'North American' ?

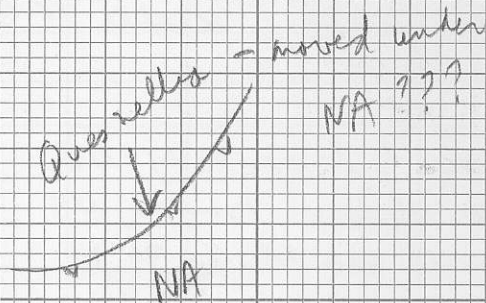
Quesnel / NA Contact ?

Test CS North American? <sup>probably</sup> not

- Tectonic fabrics  $\left\{ \begin{array}{l} \text{NA 2} \\ \text{Que. 1} \end{array} \right.$
- Search for Fossil

CS: overturned / Dips south /  
Homoclinal

In full contact with  
Laib?



- many down to E normal

faults - due to Champlain

Lks flt? - N-S trend.

stop 4

Rosstand Group - Archibald?

NOW HEADED INTO  
THE US

Bob Roback

stop 1

Upper plate Kettle R Dome.

phyllites Flagstaff Mtn  
Base of vx trends NE  
Dip NW gently ( $\sim 30^\circ$ )

Rosstand  
mt Roberts

Flagstaff  
phyll / Lst

Dev?

Ⓔ Lst

Structurally conformable

Rossland / Mt Roberts -  
unconformable

Mt Roberts / Flagstaff  
contact uncertain

Flagstaff - phyllites → gneiss  
+ 9 + 2 sites } N Am?  
Lst's - Turbidites?

Possibly Devonian

Mt Roberts

• lower Paleozoic - more highly strained

PPM

phyll / gneiss / granitoid  
150° clockwise folded

↓  
Lancet R • upper Paleozoic → Mesozoic  
gneiss, gneiss, lts, intruded by  
diabasic sills  
chert / volc debris Rossland  
post-erosion?

Flopstaff -  
Distal North American?

Mt Roberts -  
Shen is chert from?

Phel Semony - non-North American?

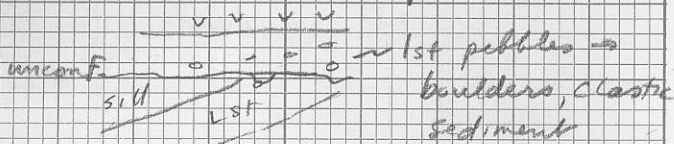
### CLIMBING RIDGE

Mt Roberts gray 1st

greenstone pills - locally  
X cutting @ low  $\phi$   
- microschists

- pre-unconformity?
- Rossland feeder?

Probably the unconf.



possibly the sill may be  
pre-unconformity



## BACK + ALONG ROAD

- Flagstaff ← 1k gray phyllites  
sandy, heavy graphitic layers  
at 200' level  
isoclinal folds + S1  
refolds - conjugate kinks  
+ mesoscopic folds
- Mt Roberts  
similar structural history

along slope  
Phyllite  
↓  
Flaggy 1st

Flagstaff

Clastic rocks above are  
Mt Roberts = Ovenshella

Lst with fabric below are  
Flapstaff? = N American  
\* strong tectonic fabric

Greenwood <sup>1910</sup> USA Hood Canyon Arc Rossland Merritt

Text. PENTICTON

Jurassic ROSSLAND

Triassic BROOKLYN  
(older than Nicola)

Lower  
FR SLOKAN

Rossland  
Basal  
Y.M.P.  
Ashcroft  
Nicola

Carbonif + Perm  
258 ± 10  
ATTWOOD  
↓ separated by  
FITs  
KNOB HILL

↑ Lowest T  
Pm  
Mt Roberts

Kaslo  
Mt Roberts

Cache Creek ↓

Flagstaff }  
3  
2  
1

Milford  
Dev-Miss uncon  
Lardean

Dev

↓  
Dev

?  
Schist  
Tenas Mary Ok  
Sequana/Grand Forks  
Gneiss

N.A. Mereson  
Rx

NEVILLE GROSSBY IN-  
VANCOUVER, B.C.



# GREENWOOD AREA

JIM FYLES

map 1500A Greenwood HW Little

1:50,000 scale

They have a roomful of material  
on the Phoenix Mine

Pre-Tert stacking of rx above  
the Gneiss domes then later  
extension.

Knob Hill Gp - chert + granitic  
some arg cgl minor ss  
serpentines @ base(?)  
+ diorites (258 Ma)

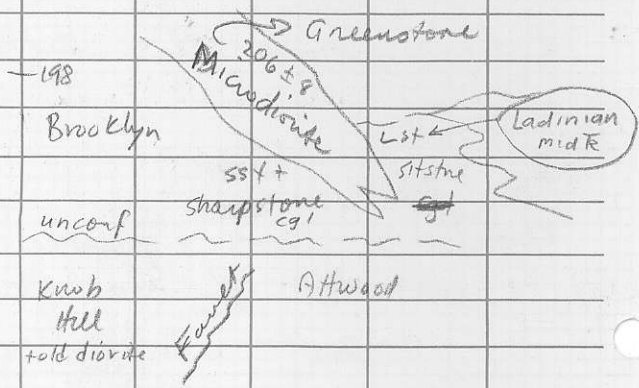
Mt Atwood Pinn  
Black arg some ss  
minor volc  
lime stone lenses

Eocene

Marron Volcs  
Kettle River

Nelson (148 ± 5) - K/Ar - may  
be older

Lexington Ppy (200) + Prec cores w  
Zircons



Faults  
Tenasille / Grand Forks Gneiss  
seg

L97

st/st/stne

sharp st ne cgl

several cycles

repeat

Jv on Little's map

problem: H<sub>2</sub>O age 206 Ma  
upper R

\* Cooper Creek stock - Dave Klepachai

post-intense tectonism

Zircon in 180's

\* Dyke cuts folds - mod. folded

189 Ma - vary to isoclinally

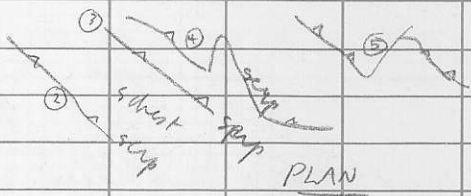
folded

o strain inhomogeneous

Stock 169 post Tectonic

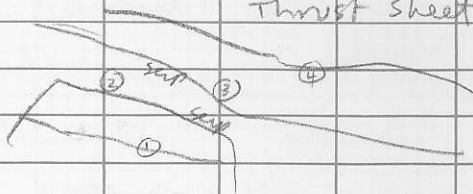
Granby R. Filt → south to  
Republic graben (w side)

Serpentines - thrust fault  
- above are metamorphics  
of unknown age



Section

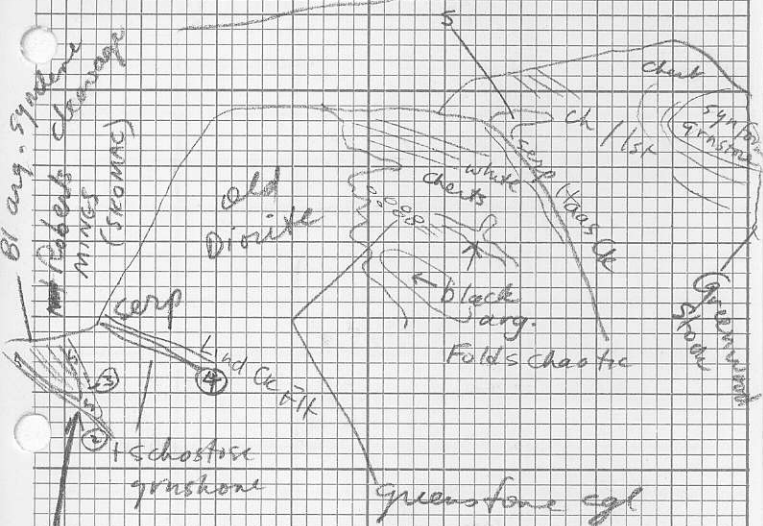
Thrust sheets



# Knob Hill

## Defend ophiolite?

2 PHOBS - FROM POTTER CR ROAD



TWO THRUST SHEETS  
HAVE COME TOGETHER (2)+(3)

Old Diorite

Little cells of Nelson or

amphibole variably

actually forms a Belt  
always serpentine-related

Roberts Mines

serp. related deposit  
qtz veins - silver

STOP 1 overview

olc is metam. Mt. Attwood

### TERT. FAULTING

steep dipping

STOP 2 Mt Attwood

Brooklyn

unconf

overlying 1st

interbeds

granite

serp

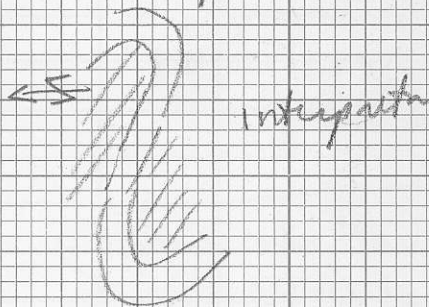
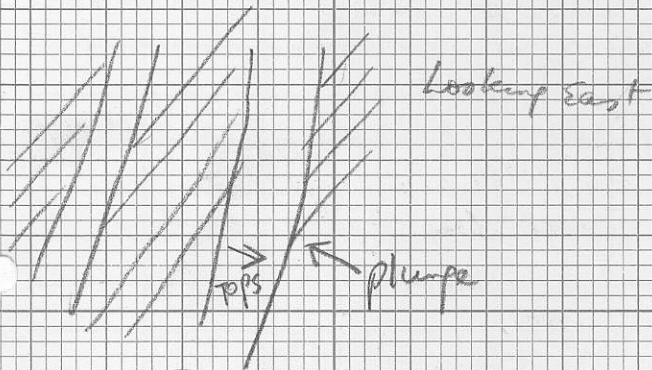
fet (Mt Attwood Fth)

Volc pyroclastic box is @ stop

Traversing toward up road

Greenstone - Brooklyn  
variably cleaved  
cleats more foliate

↓ gray 1st



STOP 3

Mt Attwood Pt

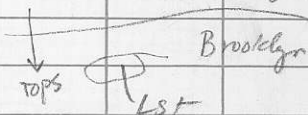
serpentine float

Mt Attwood arg in the

Brooklyn greenstone FW

View

shalestone  
cgl



Down section going up hill

- Fault truncates folds

ch old diorite  
P/M?

Mt Attwood  
Lst  
caps hill

serpent.

road  
siltstn  
sst

metam  
unit P/M

PHOTOS OF JIM + MARY  
MINOX



Blocks

check - massive, white, eg



old diorite



P/M Paleoz. Metam.

} Hanging  
wall

? Old Dio as blocks or sheared  
by the fault



Serpentinized - with many  
tectonic blocks enclosed.

Brooklyn ↓

Sharpstone conglomerate

- looks like a tectonic box

but is bedded

Calcareous veins, pods,  
matrix.

clasts - <sup>carbonate</sup> gypsum check  
(some)

old diorite P/M unit

NO serpentinites

matrix siltstone

? Serpentinites younger than

Brooklyn (OR) seap. not

around - faults younger -

when Brooklyn deposited.

- Now go BACK Through  
seap to PM unit

[ origin of sharp struclg

- high Energy, volc derived  
channel? dep sn →  
lower energy seps above.

Basal Brooklyn <sup>unconf.</sup> above

metam rx (PM)

origin of sharp strike eye

- volcanic pyroclastic
- active faults - debris off fault scarp

Man

Series A

'Thrusts'



okanogan

gneiss

Dome

offset on flts possibly 5-6  
miles eastward

KNOB HILL

Carboniferous OR Permian

SYLVESTER K-

is it a MANTO?

— LUNCH —

Back to main road

STOP

cherty beds

X1 lap tuff

LST

some Fossils

Rawhide shale grades up  
into sharpstone cgl

stop Pto Enix overview

Prodn

37

~~37~~ MT

0.6% Cu

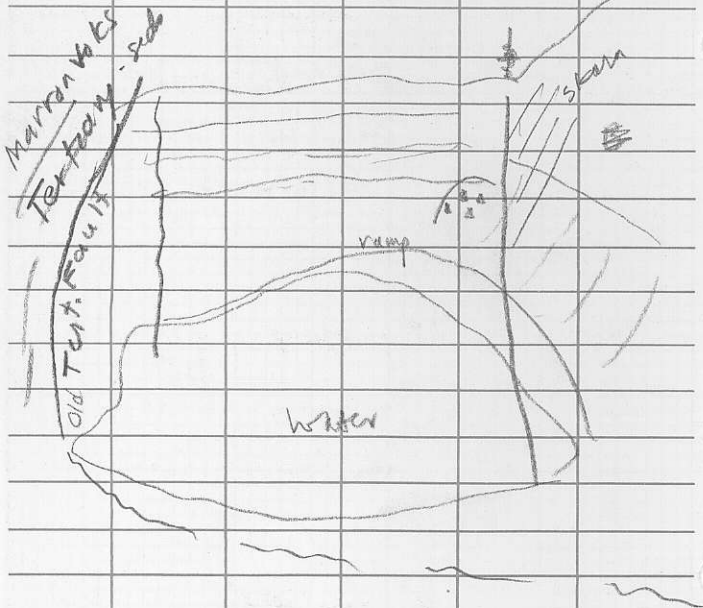
.03 ounces Au

PHOTO<sup>EN</sup>ENIX

Looking along stake  
into pit

Tops East (left)

N 20° E stake  
steep



Δ sharpstone cgl

Bottom of pit - Knob Hill

# Test Flts

3 sets

Trapdoor flts - latest

Big Test Flts - historic normal

One zone - several - note  
they

## Tertiary Faults

oldest East dip

next ~~W~~ dipping | BIG

youngest steep N-NE trending  
block flts - minor

---

6 panels of Brooklyn - all  
offset by low & Test extensional  
faults.

Gold values - good (better)  
to at N end of pit.

- Lookout in Tert Monz

- Parking lot  
upper sharpstone unit

section ↑

v/c

wispy lst - stemwinder

upper sharpstone

Brooklyn lsl

sy/venter 1c zone

o/c - ~~l~~ <sup>x1</sup> ~~l~~ <sup>l</sup> lapilli tuff  
epid. altered.



STOP

Providence Lk microdiorite  
pyrite veinlets

Brooklyn Lst / skarny  
tuffac siltstone

(Type section - Brooklyn  
Lst)

— STOP Brooklyn Puddingstone  
Lst clasts purple matrix

FROM AIRPLANE

Photo

Lower Arrow Lk - view east

Aloop Okenaga Lk - southward

Several near Hedley