RED MOUNTAIN MINI-SYMPOSIUM

VANCOUVER
MARCH 3, 1994

INTRODUCTION

- Bob Anderson
- opportunity to share costs and work with Lac
- poster presentation and article in Current Research

Charlie Greig

Geological Setting of the Cambria Icefield and Red Mountain

- main objective to provide a better stratigraphic setting of the deposit
- aim to understand Red Mountain structural control
- probably an Early Jurassic mineralizing event
- related spatially and temporally to Gold Stick intrusions
- emplaced into host rocks which were not completely lithified

- look for intrusions but also stratigraphic host
- In the Hazelton Gp, probably the Upper Hazelton
- doesn't correlate well to other areas
- less Bowser Basin lithologies in the area than previously suggested
- Mt Pattello to Cambria icefield
- worked with a Zac minerals employee for whole summer
- genetically related to Gold Slide intrusion
- used Dihedral Consultants 1:20,000 scale map of part of the icefield
- used some of work by George Hanser of GSC and Jed Grove
- regional structure is Bitter Creek structure between Jurassic sediments to west and volcanics to east
- Gold Slide intrusions are irregular, lobate and sometimes detached portions
- suggests host rocks not completely lithified

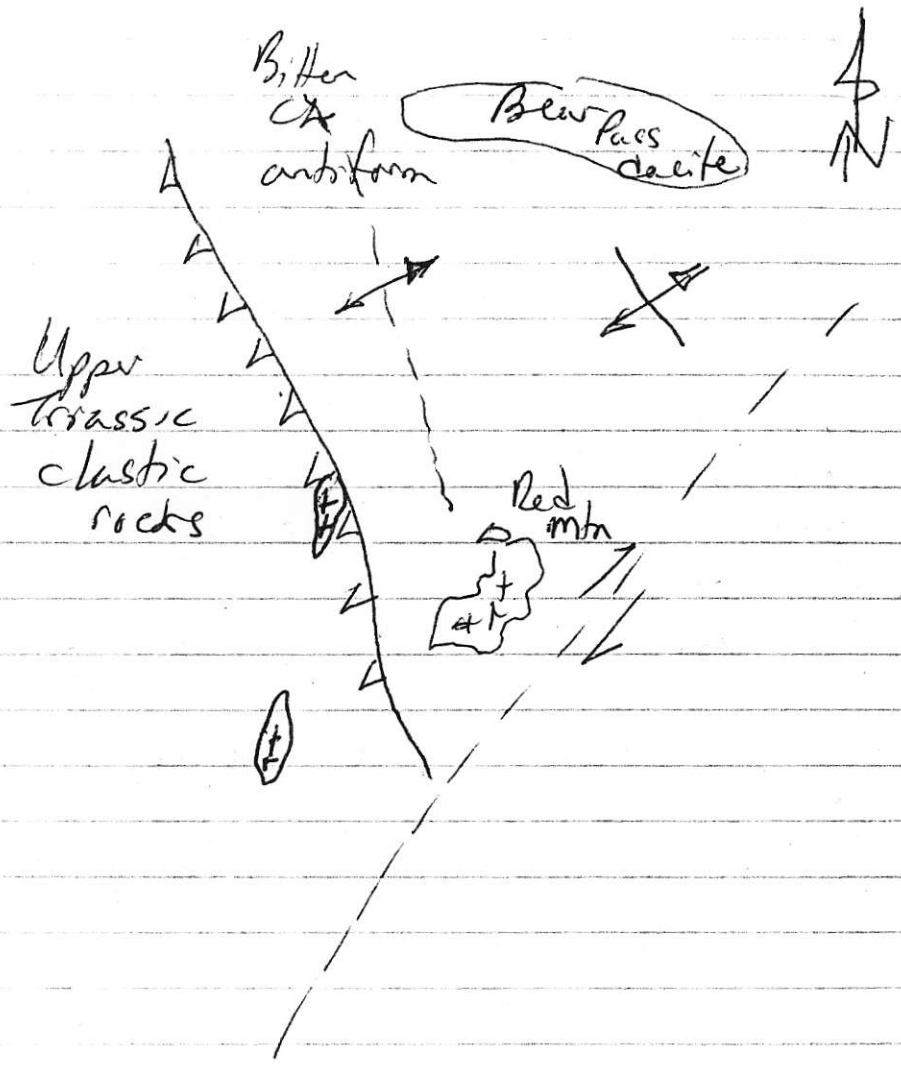
- breccias with fragments of tuff or sometimes intrusive in tuffaceous matrix

GOLD SLIDE INTRUSIONS
- Ø to seriate textured plutons with hornblende, minor biotite and weakly alkalic composition
- deformed, sometimes quite strongly
- deformation suggests ductility some times
- alteration of intrusions seems to predate deformation

- debris flow conglomerates in the Hazelton have pyritic fragments which appear to have been mineralized before incorporation into debris flow

- Oo believes mineralization was Early Jurassic

- cuspate antiform at Bitter Lk, thickly layered volcanic rocks, less deformed
- on either side more folding, faulting and sediments



Upper Triassic

clastic Rks – was called Jurassic by Grover and Hanson
– have macrofossils

- Upper Triassic rocks strongly deformed
- structural deformation pre-Tertiary, probably Cretaceous age

Fossil control

STRATIGRAPHY

- Triassic have lots of overturned folds
- difficult part of stratigraphy is Hazelton
- in Bear Pass a thick, homogeneous unit with lack of strata
- no stratigraphic sequence identified
- see many facies changes with felsic units lensing out into small ~~be~~ sediment basins
- identified some primary deformational features (loading, ...)
- Bear Pass — thick lithic dacite-andesite tuff - can look like a basalt
  - very poorly stratified - 3 to 4,000 thick
- significant rhyolite and basalts interlayered (Betty Ck? equivalents)
- bimodal volcanism is well defined in Cambria glacier area

fossil control?

- maroon tuffaceous sands, conglomerate with cross-bedding - classic Betty Creek
- some pyroxene-bearing basalts
- in pyroxene-bearing sequence get hyaloclastite associated with crystal tuffs
- hornblende-feldspar phyric unit, mildly alkalic, & good flows, in Red Mtn area
- rhyolites equivalent to Mt Dillworth high in the section
- dated rhyolite near Kitsault Lake (~195–199) also dated by Rod as well
- have some fossil constraints Toarcian to Lower Kimmeridgian
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- noted some basaltic pillows near Bear Glacier
- believes he can follow mafic volcanics from Bear Pass to Mt Gladstone to Red Mtn
- discussion of several other sections

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- at Red Mtn left rocks to Lac
- well-bedded tuffaceous or reworked tuffs near upper contact of Gold Stream intrusion
- near lower contact of intrusion in conglomerate
- has questions about correlation with stratigraphy to north
- Betty Creek may be best
- can correlate clastic rocks at the top

QUESTION

① Could the Bear Ck anticline be a growth fault? Rod Kirkham

- Charlie said it may be an antiform ~~bec~~ which formed on an earlier structure

② Paul Lhotka asked about a possible east-trending antiform following Bear Pass?

- Charlie didn't see it, but will check

Geology of Red Mountain Deposit

Hans Smit

- reviewed history quickly
- No exploration lower down in 1960's including 4 holes around the Lac Camp

Resource - end of 92
2.5 m tonnes @ 12.8 gm/T gold and 38.1 gm/T silver

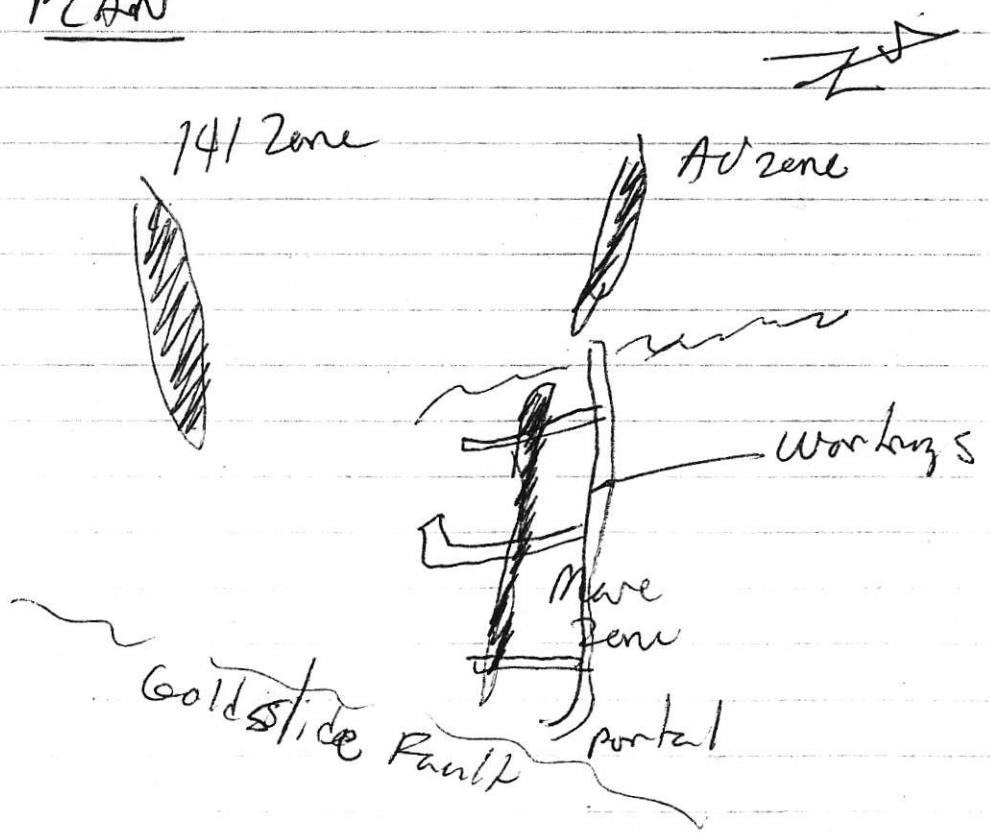
- by late 1993 58,582 metres + 2,000 metres later in year
- principally underlain by layered rocks, tuffs, calcareous sediments
- volcaniclastics are crystal tuffs, some flows, some sig. units of questionable origin
- Gold Slide is a sheeted dyke swarm of intrusions,
- probably a multi-phase intrusion
- one 200 M.A. K-Ar date from intrusion
- intruded by a Tertiary stock at base of canyon with No

- two stages of folding
- work on upper part of Cirque, including Mare zone
- Mare strikes NW, SW dipping
- 400,000 ounces resource
- to NW offset to AV zone by Rock fault
- at depth is Gold Slide Fault
- have Hillside Porphyry - more seriate and can grade into tuffs
- best mineralization developed in the Hillside Porphyry
- high grade, porphyry-style mineralization
- veinlets, veins, dissemnations, breccia textures
- breccia dykes
- high level intrusion into ~~not~~ completely lithified sediments
- relationship between Hillside and Gold Slide intrusion not understood
- Hillside ~~intru~~ porphyry may have actually been earlier
- Qtz ~~po~~ feldspar porphyry with 1-3% qtz eyes seems to cut mineralization or may be more massive and so

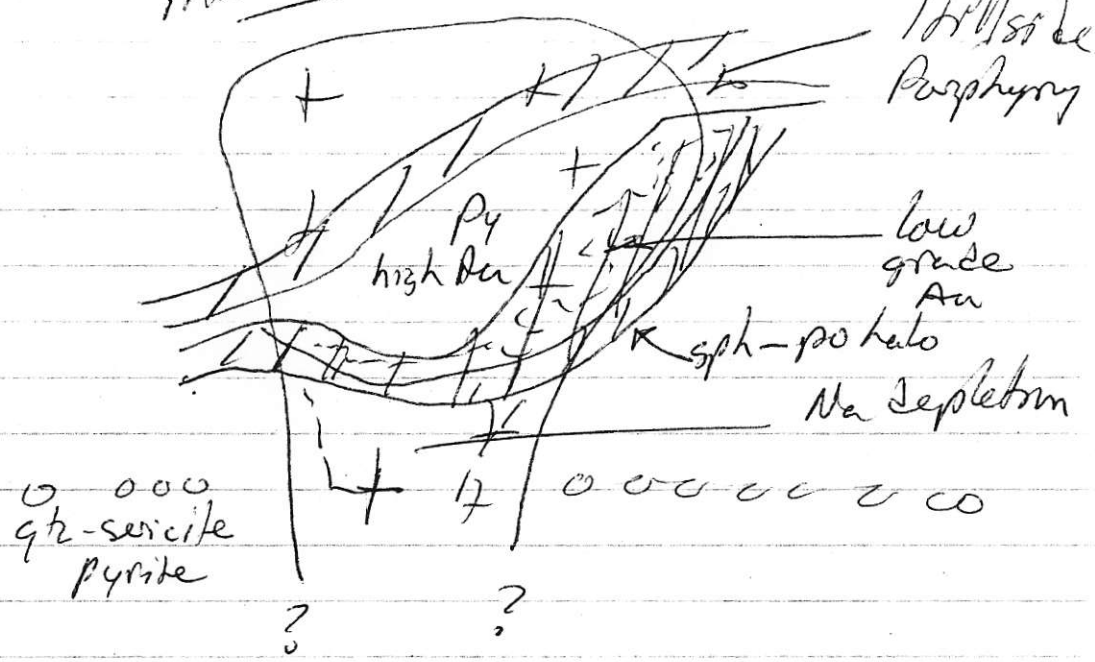
unmineralized

-main 94 drill target will be AV zone

PLAN



(11) IDEALIZED SECTION
MODEL ZONE



qtz-ser-py
HFP
} top breccia explosive

whole mtn undercut by complex of intrusions

qtz-sr-py-gypsum
HFP

epidote-chlorite
HFP
Cut Mo mineralized

- tourmaline breccias, axinite veins (usually above ore)
- some green mica - vanadium

- 3-30 gm associated with pyrite
- lot of sphalerite in places
- early mineralization low in gold
- late structures with calcite are occassionally high grade

- anomalous gold at 100 to 200 m above ~~Goldstrike~~ Goldstrike intrusions for 2 km along strike
- pyrrhotite stable higher in section, pyrite stable lower
- can get gold in pyrrhotite but gold usually starts in pyrite zone
- lots of tellurides such as hessite

① Age of QFP? unknown, might be older and unreceptive to mineralization

② analagous deposits?
- shallow subaqueous sediments with worm tubes
- SW pacific ~~not~~ examples with

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intrusive and coeval volcanic activity and carbonate-rich rocks

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(3) controls on mineralization
- structural control on high grade zones
- broad alteration zones with py-po are difficult to (mask) work with in finding small high grade zones

(4) ? about lobate margins to intrusions
- seen then
- some hyaloclastite on margins

(5) sphalerite! - good correlation with Au - galena rare and on late structures

Future Plans for Red Mountain

Dave Caused

- description of development and environmental studies
- surveyed claims so could go to mining lease

FUTURE

- 350 m on Main zone decline immediately so can work on AV zone
- surface drilling planned
- will submit Mine Development Process proposal soon
- upgrade 8 km forestry road, build a new road to foot of tram line (~10 km?)
- avalanche area — major problem
- study of doing a road into Eiquet at Red Mtn showed very expensive, but not very useable
- 2.4 km tram line planned
- could have used a low level adit, slows schedule and "environmental problem"

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Milling Alternatives

- driven by tailings disposal problem
- using Westmin mill attractive in terms of capital costs — would be 120 trucks a day
- the other option is to put mill in Mtn
- tailing pond options are
  1. Roosevelt Ck (won't work)
  2. Cirque with dam where camp is
  3. Alpine lake, probably Kitsault Lake "40 km away" use a tailings line across glaciers

Mining Methods

- long hole stoping

Stewart

- 700 people now
- could be next mine
- created 120 direct jobs in summer 93

Westoy for feasability study and exploring for more ore

Questions

(1) & Metallurgy
- Garfield MacVeigh responded
- lot of work on Mare Zone
- 89-92% recoveries, leaches well
- very fine grind
- tellurides there, but not a major part of system
- varying telluride content may have some impact on recoveries

(2) Assay Cutoff - will be using assay cutoffs but can distinguish ore

(3) Zinc recovery? - no plans yet
- outside ore zones for Au

(4) Cutoff grade 3g/t Au