

Bill McMillan / Don MacIntyre / Vic Preto / JUL 04 1990
Rena Smyth June 25

Ted Faulkner / (Cordie P.) / Matsuda
T. Seno

Xerox please
* to be circulated

Monthly Report - Nation Lakes Project - May 1990

→ M. Milligan

May 15 = Mineral deposits shortcourse, Vancouver.
JMT gave talk on "Carbonate-hosted deposits" 885727

May 16-19 - G.A.C.
KB gave talk on "Cinneca-Intermontane boundary"
KB, JMT co-chaired regional geology session.

May 19-21 Field trip: Alkalinic porphyry copper-gold in B.C.
(Copper Mt, Afton/Ajax, Mt Falley, Mt. Milligan) : KB, JMT

May 22-27 KB, JMT traversing near Heidi Lake

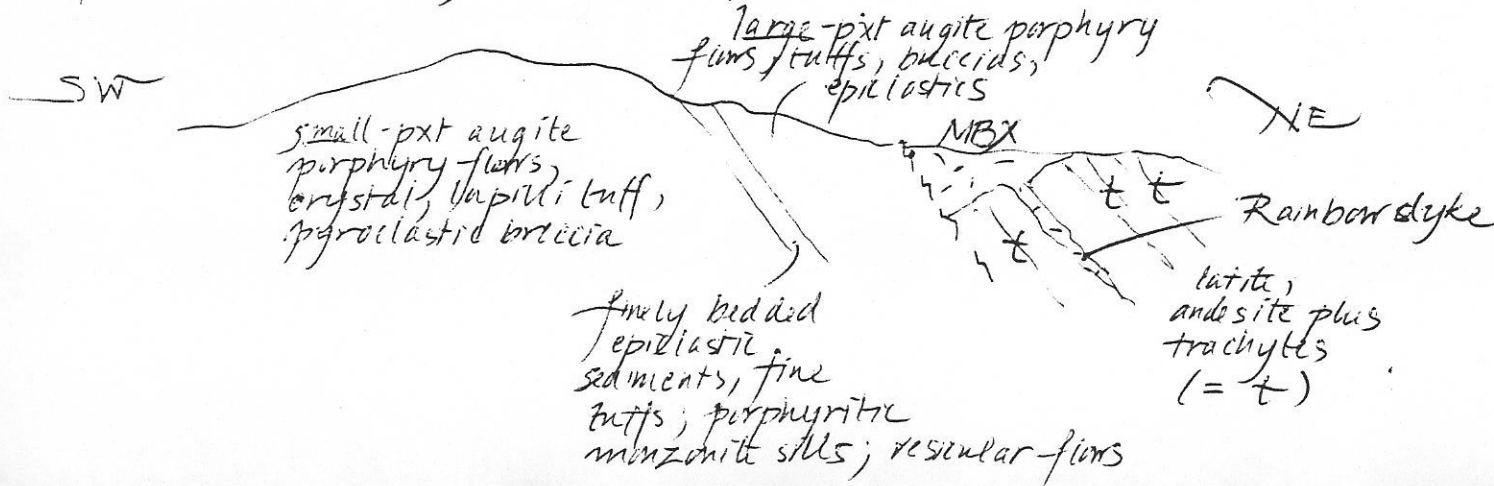
May 28 - June 2 Flycamps JMT with Reliance
Geological on Continental Ground west of Mt Milligan; KB and Mary Maclean at Heidi Lake.

Geological Summary

1. Stratigraphy.

Near Mt Milligan deposit, stratigraphy strikes NW, dips NE, faces NE (lots of top indicators in epiclastic/distal pyroclastic deposits).

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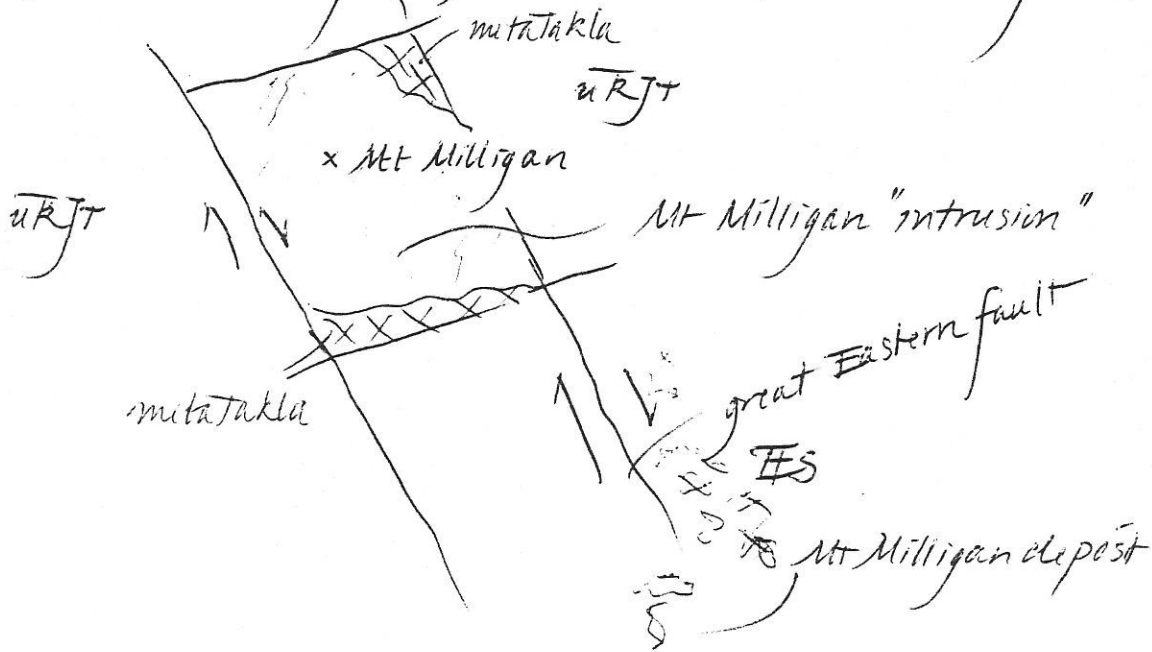
The trachytes at the highest stratigraphic level may have an equivalent exposed NE of Mt Milligan. (See 1:50 comp.)
A tephritic trachyte lapilli buff there, stratigraphically above augite porphyries. Thus this "favorable" unit is extensive.

Structure

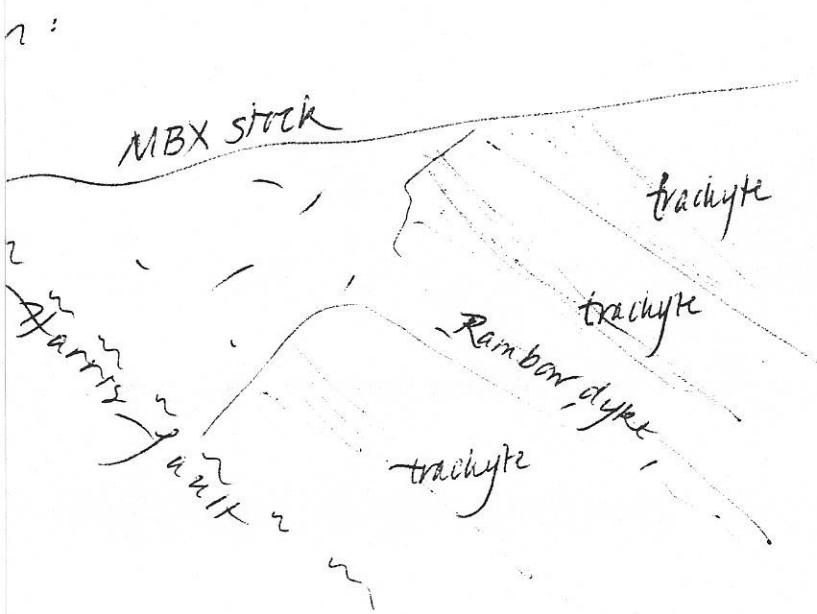
The area around Mt Milligan is transected by a number of late faults with large displacements. Drilling east of the deposit has collared in Eocene (?) sediments and Triassic (?) black calcareous slate/sargillite. Based on these stratigraphic anomalies both Mark R. and Vic Preto hypothesize an Eocene graben east of the deposit; with which we concur. The Great Eastern fault in core is an extensive zone of shearing and shattering. It bounds the Eocene basin to the west.

The coarse grained plutonic body that cores the summit of Mt. Milligan has proved to be a real surprise. It is not a stock. It has no intrusive contacts. It is well-foliated with pegmatite stringers along the foliation. Its contact with Taki volcanic in the low lands west of Mt Milligan is a zone of mylonite and foliated clay gouge that involves quartz-feldspar porphyry dykes identical to "post ore" dykes in the deposit. This zone is more than 200 meters wide and trends northwesterly. Lineations plunge gently to the SE. This is probably a transcurent fault. The whole Mt Milligan scenario fits

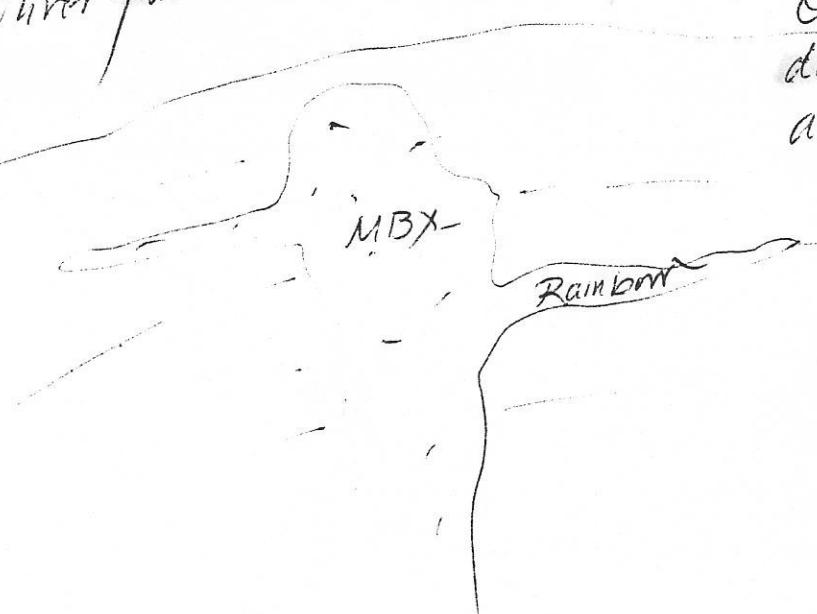
Bert Struik's picture of the southern Wolvember Complex: square basement uplifts bounded by NW dextral faults and HE extensional faults!



The northern and southern edges of the Mt Milligan body are in contact with a zone of regionally metamorphosed, highly foliated biotite and actinolite-chlorite schists that look like meta Takla - colored purple on 1:50K map. Bill: what does the Nicola horst look like? Do you think these are comparable?? We will show you these relationships when you come up. Cool stuff, but very perplexing.



This, now-famous, cross-section of the
 deposit strongly suggests a vertical stock
 on its side along with the enclosing
 graphy, cut off and displaced by unknown
 in unknown directions by the Harris
 River faults.



Original section shows
 domed stratigraphy,
 and laccolith-like
 shape of Rainbow
 dyke. Did
 delamination around it
 focus GG-zone
 mineralization?

topic of discussion with the on-site geologists
the 66- and MBX-zones are two parts
mineralised system, or whether 66-zone
was an earlier event. Brian
points out that the Rainbow fault offsets
in the 66, but is filled by the
dyke. This relationship supports the
idea.

- Mt Milligan

Four own observations plus discussions with
geologists give the following criteria for
connaissance. I solicit further ideas.

Basic alteration is difficult to recognize, as
d, dark green augite porphyries stain
on!

exminated sulfides seem to be the most

dyke intrusions must be present. We recognize
-undersaturated (monzonitic) and silica-
quartz-porphyrific varieties. Only the
of interest; the quartz porphyries
"post-mineral".

the "MBX interval" with its trachytes is not
to be of crucial significance to mineralisation,
may be: for instance a paleotopographic
- into which the shallow-level, cogenetic (?)

MBX and Southern Star stocks were emplaced. If
so, tracing out of this interval regionally is an
important concern.

Cheers to all; congratulations on the
new MDA money.

We're thinking about an informal information-
sharing session with the various industry types
up here in early August. I've discussed it with
people at Mt. Milligan and also with Bruce
Madu so far. I'll keep you posted.

Jo Anne