

JUL 04 1990

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Legend for Preliminary Mt Milligan map
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June 3 1990.

Mt. Milligan plutonic - metamorphic complex



equigranular, also porphyritic
medium-grained intrusive rocks:
granodiorite, monzonite, quartz monzonite
(Hogem batholith equivalents?)



metamorphosed Takla Group equivalents:
chlorite-actinolite and biotite schist,
mylonite.

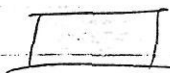
Takla Group



augite porphyry lapilli tuff, crystal
tuff, pyroclastic breccia and flows.



tuffs (trachyte?), epiclastic sediments,
vesicular trachyte flows, argillite
and porphyritic intrusions.

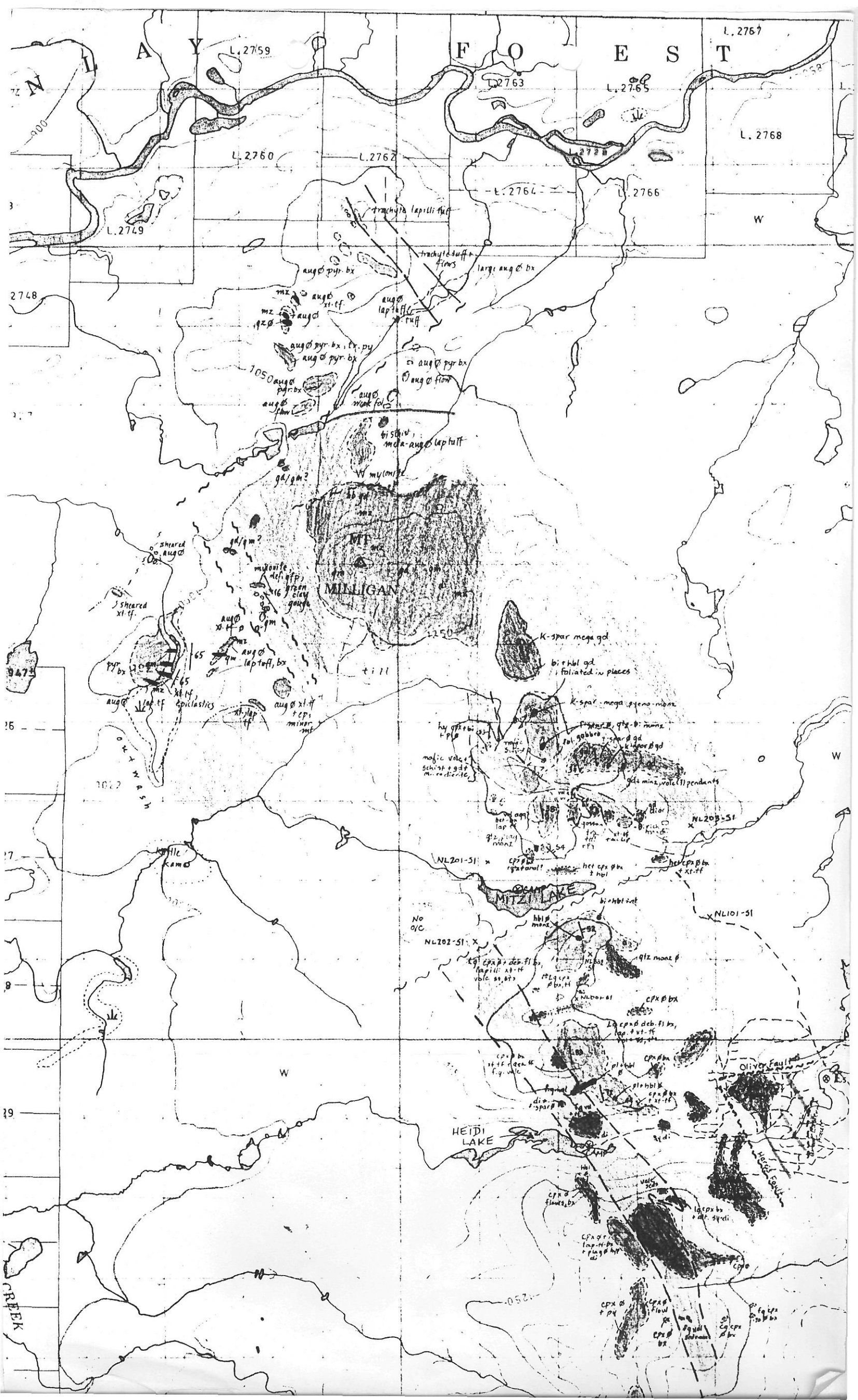


trachyte lapilli tuff and flows.

High level intrusions



e.g. MBX, Southern Star.



Mr. MILLIGAN "Show & Tell" - Apr. 24/90

→ new brochure (see files)
To Date: ~ 560 holes = 40,000 ft.
- 4500 ft x 3500 ft x 1500 ft.

Est. prod. @ US\$ 140 per oz Au + .34 \$/lb Cu
Net out @ US\$ 45/oz Au

Pit: 1 1/2 mile long x 1 mile wide x 1300 ft deep

Est. Operating Costs @ \$4.50/ton

Reserves: ~ 6.35 m oz Au

QUESTIONS

- ① Source of water? - (A) ~ 5 miles to east
- ② Court Case? - (A) Discovery completed, trial ^{Nov. 5th} 12 wks.
- ③ Budget for '90? - (A) \$7.1 million plus \$2.8 mill = \$10 million
- ④ Deleterious elements in conc. ? - (A) none
- ⑤ Mineable Reserves ? - (A) 330 m tons
- ⑥ Geological Reserves ? - (A) 440 m tons
- ⑦ Suspect a 3rd 'suitor'? - (A) Yes - buyer of ~ 5% of stock

~ 17% of Canada's gold reserves

~ 20% of Canada's copper reserves

VGS.

ACTION:

VGS

FILE NO: MT Mulligan

To: V.A. Preto, T.G. Schroeter, M. Rebagliati

From: Ted Faulkner

RE: First impressions, Mt. Milligan whole-rock analyses

- = Of 12 pulps, 5 that ended up at our lab were not ones selected by Mark (Fax factor?) however, these 5 were quite varied, so we have analyses for: 3 diorite dykes, 1 trachyte dyke, 3 monzonites, 2 flows, 2 fragmentals and 1 porphyry.
- = assorted 2 component and 3 components plots were tried:
 - MgO vs CaO - all except the diorites plot in the "altered" field - no surprise, as all had high LOI (average = 5.17%). Due to CO₂? (calcite?)
 - CaO vs SiO₂ - tended to reflect this alteration, as samples generally depleted in Ca relative to "subalkaline" field.
 - MgO vs SiO₂ - 8 of 12 are "subalkaline" (not particularly enriched in Mg).
 - Na₂O vs SiO₂ - 8 of 12 are "subalkaline".
 - Total Alkalis vs SiO₂ - all except the diorite dykes are "alkaline" using either Kuno's or McDonald & Katsura's fields.
 - Total Fe as FeO vs SiO₂ - most plot at the low iron end of. UK shoshonites of Spence (? has the iron gone into the ore minerals).
 - Al₂O₃ vs SiO₂ - varying enrichment of Al₂O₃ (cf. UK shoshonites of Spence).
 - AFM - most plot in "calcalkaline" field.
 - TiO₂/MnO/P₂O₅ - most plot in "calcalkaline" or "ocean island basalt" fields.
- = Two of the "monzonites" are not monzonites. One (#65654) is closer to syenite, the other (#69543) is closer to syenodiorite or even syenogabbro (? alteration effects).
- = Bottom Line: as a suite (the diorite dykes excepted) plots were similar (but not closely so) to UK shoshonites of Spence (1985) i.e.

(Mt. Milligan whole rock analyses - page 2.)

similarities:

SiO₂ range 49.7 to 56.8 %

high K₂O/Na₂O ratio (average = 1.94)

Low TiO₂ (average = 0.59 %)

high Al₂O₃ (average = 14.65 %)

differences:

not as high in CaO and MgO as most of Spence's samples.

not as high in Fe relative to SiO₂ as most of Spence's samples.

= Comments: - A worth-while first pass, but not enough samples (esp. flows and fragmentals) for detailed characterization of setting by this means.

- Enough similarities (and differences) to suggest a more elaborate study of this kind would be interesting, especially if samples for which ~~petrographies~~ ~~are~~ available were included.

- Qu. for Mark: Is DeLong doing any whole-rock work for his thesis?

cheers

Ted