

To

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From

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Subject

Unit 8a

Following is one of several possible interpretations of regional relationships of Unit 8a of Cry Lake map area which is host to sulphide mineralization at Kutcho Creek.

Unit 8a is said to consist of chert, argillite, argillaceous quartzite, greenstone, diorite, meta diorite, conglomerate and limestone. Unit 8a hosts Unit 8b, which consists of serpentized peridotite and locally meta andesite and meta diorite. 8a and 8b together are typical of the rock assemblage formed in oceanic basins, probably in this case a marginal or inter-arc ocean basin.

Unit 8, which Gabrielse (1962) tentatively correlates with 8a, occurs only northeast of Cassiar Batholith, it is of identical lithology and also hosts ultramafic masses. These rocks are the Sylvester Group and are considered Upper Devonian and Mississippian by Gabrielse. Tempelman-Kluit suggests a division of the Sylvester into a lower autochthonous unit of chert, argillite and acid volcanics and an upper (possibly younger) allochthonous unit of ultramafics, chert, argillite and mafic volcanics.

Distribution of ultramafics in the area of Map Unit 8a, southwest of Cassiar Batholith on the Cry Lake sheet, suggests a similar subdivision can be made into a lower unit which does not host ultramafics (autochthon) and an upper ultramafic bearing unit (allochthon).

Tempelman-Kluit (1976) has made a similar subdivision in the Pelly Mountains south of Anvil, where there is a miogeoclinal package of lower Paleozoic - lowest Mesozoic rocks which is overthrust by an upper(?) Paleozoic oceanic assemblage. Middle Mississippian strata beneath the overthrust oceanic plate consist of acid volcanics generally rich in sulphides and correlated by Tempelman-Kluit with the sulphide host rock at the MM claims. The Mississippian acid volcanic pile in the Pelly Mountains and similar rocks in Alaska (Totatlanika Schist) must be the "much-sought-after" proximal acid volcanic piles to which the Earn group (also Mississippian) rocks in the Anvil area are distal.

Applying the general principles suggested by Tempelman-Kluit to Unit 8a in Cry Lake map area suggests that there may be a sulphide bearing proximal or distal acid volcanic pile overthrust by an oceanic (ultramafic/mafic/chert/argillite) assemblage. Interestingly enough, the Kutcho Creek showings plot in the lower(?) non-ultramafic portion of Map Unit 8a.

The age of Unit 8a is an unknown but presumably the upper oceanic assemblage is bracketed between upper Devonian and middle Triassic and may include one of two assemblages, Devonian-Mississippian (Sylvester/Slide Mountain) or Permian-Pennsylvanian (Cache Creek).

... 2

In the case of Unit 8a, the upper oceanic assemblage is probably Permo-Pennsylvanian and the lower non-ultramafic assemblage may be part of the Permian Astika group (Richards (1976), Gabrielse and Dodds (1976)) exposed to the south in Toodoggone River and McConnell Creek map areas. The Astika group contains prominent acid volcanic members.

To summarize, in the western Cordillera there are two assemblages of oceanic rocks; upper Devonian(?) - Mississippian (Sylvester/Slide Mountain group) and Pennsylvanian-Permian (Cache Creek - Anvil Range, and Ramparts and Sicker(??) groups), each of which is associated (tectonically juxtaposed?) with a pulse of acid magmatism in the Mississippian (Totatlanika Schist, Pelly Mountain Volcanics, Milford group(?)) and the Permian (Astika group, rhyolitic members of Sicker(??), rhyolitic members of Ramparts group). Proximal and distal portions of the acid volcanic sequence are commonly mineralized and such mineralization may be worthy of careful investigation.



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- Gabrielse (1962): Geology of Cry Lake map area.
- Gabrielse, Dodds and Munsy (1976): Toodoggone Lake map area, G.S.C. Open File 300.
- Richards (1976): McConnell Creek map area, G.S.C. Paper 761A, p. 43-50.
- Tempelman-Kluit et al (1976): Stratigraphic and structural studies in the Pelly Mountains, Yukon Territory, G.S.C. Paper 761A, p. 9 - 106.