

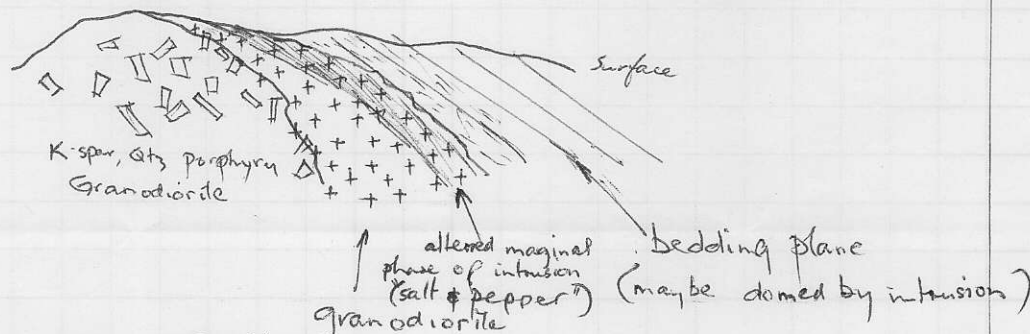
CAM STEPHEN.

August 5 1969.

TWIN GROUP
Progress Memo:

After a few days of mapping it seems the gross geology is relatively uncomplicated and represents a volcanic sequence (of various rock types), intruded by a complex igneous body. It is almost text-book.

In ~~the~~ section the idealized situation is this: - (I think)



Section:
(looking South from say, "gossan")

Now, working on this scheme, Newt and I thoroughly bashed the hill to the west of camp today (Aug 5th) with a view to finding out just how much copper can be squeezed out of the fractures. As a result I am unconvinced of the mine capacity. Certainly there are areas in the sequence (regardless of texture, granularity, or relative acidity) of perhaps as high as 0.5% Cu over say, a cubic yard of rock. However as to the rest I could not really suggest its grade. Of course, a reliable method of sampling has to be devised and here I admit incompetence.

At first I was convinced of the assistance that would be provided by a magnetometer survey. Now I am not so sure. On the north "gossan slope" (from which Sam got the samples that were assayed) iron oxide is mostly Magnetite but on the south area

west of camp there is much "earthy" hematite. This, at least in part, is from specular hematite and therefore not ^{merely} superficial (from pyrite in a highly ~~oxidized~~ oxidizing environment like this). This is to say, there may not be the same correspondence between magnetite and CPY on the south as the north. I am still trying to get the implications of this (apart from geophysical) straight in my mind.

Certainly, a line-rich horizon in the sequence would be welcome. There is so much copper and hydrothermal activity over such a wide area that we could be pretty reckless were there a carbonate body around. I recognize that you have appreciated this fact from the first day. (This acid bottle is now almost dry.)

The south slope has much rust as a result of weathering of pyrite throughout an east-west shear zone (or series of lesser zones) in which the country rock is often severely kaolinized. The break down of the K-spar in this zone is sufficient to ~~provide~~ provide the K needed to form the bright yellow jarosite as well as the usual "rusty" goethite type limonite. The whole zone is now pretty bare of copper and this fact suggests that the zone is ~~post~~ post copper sulfide stage. What do you reckon?

As for the remainder of the mapping; I feel that I can finish the job (with this view in mind: - produce an "accurate" outcrop distribution map and bash one hell of a lot of rock looking for CPY) by Aug 15th & move as before on Aug 16th.

The chip sample was taken on the south slope, over a distance of 4' along a near vertical fracture which strikes nearly right angles to N60° (the supposed strike of the sequence).

Col. Haniel (Party chief)