ECHO 7 - LEVEL MOUNTAIN GEOLOGY

leave out all parts ringed in blue pen

ROCK UNITS

leave out 671716

UNIT 1 - MASSIVE (DOME) RHYOLITE (Spec. HA82-7-2, 7-5, 7-7,)

This rock type is very uniform in appearance, fracturing and weathering. On fresh surfaces it is dark green, massive and very fine-grained, with few sanidine phenocrysts. It's fracture is roughly conchoidal. Within a few centimeters of it's weathered surfaces, it is characteristically brown (Spec leave out HA82-7-7) but otherwise unaltered. Only rarely is the massive rhyolite harder than a knife; this may be due to scratching grains off the specimen, rather than scratching across grains.

Talus from the massive rhyolite is heavily coated by manganese and iron oxides, and forms flat plates which may be fissile or blocky.

The massive rhyolite is both intrusive and extrusive. The small (eg 100m across) intrusive plugs, ~~that~~ recognized by their curved (cooling?) joints and their apparent cross-cutting of stratigraphy, ~~as~~ have flows associated with their tops. These flows extend for hundreds of meters. The rock is identical in flows and plugs, although the flows ~~ace~~ may be fissile, whereas the plugs usually are blockier-weathering.

The massive rhyolite is resistant to erosion; most hills and ridges are topped by massive rhyolite.

Spec. HA82-7-3 is from a black, glassy dike (tristantite?). These are rare, cutting the massive rhyolite ~~as~~ especially away from the main gossan.

UNIT 2 - FLOW RHYOLITE

Units 2 and 3 are not readily distinguished. The original justification for separating the flow "rhyolites" from the other felsic volcanics was Hamilton's (1979) thesis map, which distinguishes "rhyolit" from "ash flow tuff" and "trachyte and phonolit". Unit 2 comprises three fairly distinct flows, or groups of flows, in the region of Hamilton's "~~rhyolit~~" "commendite, rhyolite, phonolite flows" (UNIT 7B); UNIT 3 includes the remaining felsic volcanics.

leave out

FLOW 2a: (Spec. 73101, 73102, HA82-7-11, HA82-7-17, HA82-7-18)

The rocks of this group are all white or light grey. Feldspar phenocrysts are locally abundant. They can be vesicular or massive; some are brecciated (by flow?)

locally
Pyrite is abundant, disseminated in small fine cubes. (Deep weathering has removed most or all of it). (Spec. HA82-7-11), one of the few rocks in which pyrite was seen, also has sericitized feldspars, possibly indicating that the pyrite was introduced after the rhyolite flowed).

Rocks of this group are heavily fractured and are seldom found in outcrop. Their talus is abundant, however, and that is the source of the bright yellow and orange gossan. The yellow is due to the limonite (and possibly orpiment) with which all Flow 2a talus is coated. (and the orange appears to be due to realgar staining (Orpiment? - Spec. HA82-18; realgar? - Spec HA82-17). The orange staining is only local; the yellow staining occurs on all Flow 2a rocks.

No silicification or veining was observed except in one area ~~south~~ of at the south end of the gossan. Talus along 400 m of slope contains scattered pale blue-grey quartz stringers (in massive 2a) and ~~scattered~~ pale blue-grey qtz stringers and clear, colorless vuggy qtz ~~of~~ (in brecciated 2a). ~~Both~~ (Spec. ~~730~~ 73702).

FLOW 2b (Spec. HA82-7-10)

This green-and-white flow-banded rhyolite caps one ridge. It weathers similarly to the massive rhyolite, with manganese staining.

FLOW 2c (Spec. HA82-7-9)

This pale green, ~~mass~~ slightly vessicular, fine-grained rock covers a small area of the ridge south of Flow 2b. It is rusty-weathering.

UNIT 3 - TRACHYTE (Spec. HA82-7-1, 7-12, 7-13, 7-15, 7-16) 7-6

This unit covers all felsic volcanics except the massive rhyolite and those arbitrarily assigned to unit 2. Most are white or purple, and contain sanidine phenocrysts, but may be massive (HA82-7-13), vessicular (HA82-7-1), flow-banded (HA82-7-12) or agglomeratic (HA82-7-6). There are a great many types and they could not be easily subdivided

Typically, the trachyte is easily eroded and forms talus and felsenmeer of irregular, rough discs, ~~or~~ which are light-colored or slightly rusty.

An exception to the foregoing is provided by the a flow represented by

Specimen HA82-7-16, which is massive, dark green, with sanidine and nepheline phenocrysts, and is strongly resistant to erosion, with manganese-stained talus blocks.

Hamilton's "ash-flow tuffs" (eg. HA82-7-12 ?) could not be distinguished from the remainder of the trachytes.

UNIT 4 - VESSICULAR BASALT (Spec. HA82-7-8)

Thin beds of purple, very fine-grained vessicular basalt occur at the top of sequences of felsic flows, and underlying sedimentary conglomerates. Typically, they are very rusty, and moderately resistant to erosion.

UNIT 5 - CONGLOMERATE (Spec. HA82-7-14)

A few beds of conglomerate are present between volcanic flows. Rounded or subrounded volcanic clasts up to 40 cm. in diameter have an interstitial grey sandy or silty matrix. The conglomerates are poorly bedded, grading upward in to sandstone. They are generally poorly consolidated; talus is rare. They weather yellow.

STRUCTURE

No folding and only minor faulting were recognized.

The stratigraphy is complex. Several sequences of felsic volcanism (mainly flow) and topped by vessicular basalt and/or conglomerate must be present.

ECONOMIC POTENTIAL

Leave out

Nothing of any interest was seen outside the unit 2a rhyolite flows. Their high arsenic background (if the orange stain really is due to realgar) is encouraging. However, the only silicification seen covers ~~only~~ just a small area, and the grade of the stringers would have to be high to give a decent bulk grade.