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TROUT.

**821958**

Tr R02      Hornblende Andesite

The matrix in this rock is dominated by a dense aggregate of flow-aligned plagioclase microlites in the .4 to .7 mm range. Individual plagioclase laths are well-formed. The plagioclase is andesine ( intermediate composition ). Phenocrysts include reddish brown oxyhornblende and lesser plagioclase. The hornblendes have thick Fe-oxide rims; some are completely engulfed by Fe-oxide. Original magnetite and/or ilmenite in the matrix is altered to ragged Ti-oxide. Alteration of the dominant plagioclase is minimal. Minor sericite + Fe-oxide mixtures occur interstitially.

Tr R03 Rhyolite flow breccia

This rock is uneven textured and fragmental, but it is very different from the explosion breccias (R07, R15) and from the crystal lithic tuff ( R04 ). In it, ragged spherulitic fragments occur in a matrix of probably identical composition. The irregular, "swirly" margins of the clasts suggest brecciation during flow after extrusion but before cooling of the rhyolite. There are sparse, small round quartz eyes. The spherulites are the most distinctive feature of this rock.

Masses of secondary sericite have swamped the matrix. This looks like strong alteration; however it should be remembered that this rock was originally glass-rich, and thus easily altered. Fine hair veinlets of quartz form a network. They are composed of very small anhedral grains. Again, the siliceous, glassy nature of the original rock would favor this sort of development.

Tr R04      Crystal lithic tuff

This rock contains abundant small fragments surrounded by an extremely fine grained, probably originally fragmental matrix. The fragments fall into three categories:

- 1) Ash. Most diagnostic but not most abundant, these fragments exhibit the curving and wispy morphologies typical of lapilli.
- 2) Crystal fragments. These include biotite and plagioclase but not quartz. I therefore tentatively infer a dacitic source, although the degree of alteration is too great to give a certain assignment. One apatite was seen.
- 3) Lithic fragments. These are highly altered.

There is no directionality to the rock as a whole, and no preferential flattening of the ash clasts; therefore this is an unwelded tuff.

Sericite is very abundant, forming dense masses in matrix and clasts. Calcite patches are common in some of the plagioclase and lithic clasts. The presence of calcite points to propylitic, rather than more intense phyllic alteration. " Fizzing" rocks in the field might be a useful tool. Some of the mica is slightly green in thin section. This may be celadonite.

Tr R06 Polymict explosion breccia

This rock consists of a closely packed mass of fragments of contrasting lithologies, separated by small amounts of matrix. The matrix consists mostly of very finely milled clastic material, with minor secondary silica. Most of the silicification, however, preceded this particular brecciation event ( see (3) under Fragment Types ).

Fragment Types

1) Andesite. These are most abundant. They exhibit a variety of specific matrix textures, which indicate incorporation in the breccia of different flows or at least parts of flows. Two of the most contrasting matrix textures are a) very fine grained flow-aligned plagioclase and b) almost glassy. Most of the andesite fragments are porphyritic with plagioclase phenocrysts.

2) Silicified or vein clasts. These exhibit a cherty, chalcedonic texture. Some of them may contain relict plagioclase phenocrysts(?)

3) Plutonic, hypabyssal. This fragment consists of coarse plagioclase, quartz and one sericitized biotite plate. All grains are anhedral. The rock is inequigranular. Average grainsize is .2 mm. No comparable plutonic rocks have been mapped on the surface in the vicinity of the Trout claims. This fragment must have been derived either from an older ( pre-Eocene ) substrate, or from an underlying magma chamber that fed Eocene volcanic activity.

Tr R07 Polymict explosion breccia,  
"Main Zone"

This rock is the host to the highest gold values so far discovered on the property. It consists of andesite and other lithic fragments, closely packed together and separated by two distinct sorts of matrix. The earlier matrix is composed of extremely finely milled fragmental material. The later matrix, which replaces the other, consists of finely banded quartz, chalcedony and adularia. The fragment margins are rounded and in some cases appear to have been "pared down to fit" each other. This, like the replacement of the fragmental matrix, suggests a stage of solution that preceded deposition of the banded quartz/adularia.

Fragment Types (see sketch)

1) Andesite. Matrix very fine grained; Sparse 3-5 mm plagioclase phenocrysts. Matrix strongly sericite-hematite altered.

2) Andesite. Matrix is flow-aligned plagioclase microlites. Small vesicles. Euhedral magnetite, ilmenite altered to hematite.

3),4) Andesite. Like (1) but less sericitized. Phenocrysts fresh, matrix contains abundant Ti-oxide but not the abundant red, earthy hematite of (1). Quartz vein adheres to (4), predates brecciation.

5) Andesite. Porphyritic, dense with unoriented phenocrysts 3 mm on down; abundant Fe-oxide clumps. Strong clay/sericite after plagioclase.

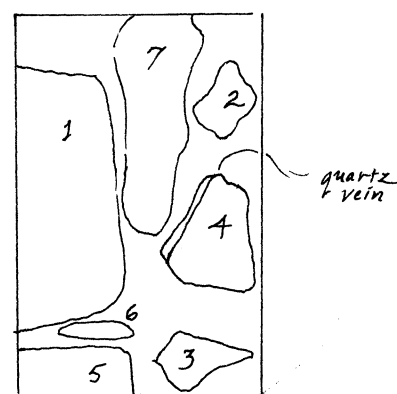
6) Andesite. Glassy with abundant round vesicles ( very small ).

7) Hypabyssal felsic plutonic rock, very altered. An aggregate of quartz and sericite with sparse plagioclase phenocrysts. The texture suggested by the secondary assemblage here is in strong contrast to the andesites.

The edges of the fragments are rounded and in some places embayed. The coexistence of fragments of differing textures and degrees of alteration, and in particular the presence of (7), in total lithologic contrast to the predominant andesites, suggests considerable mechanical mixing during emplacement. This was not apparent in field observations.

The fragmental matrix contains small, recognizable bits, including one microcline shard; it also contains submicroscopic material.

The vein matrix shows a distinct sequence beginning with chalcedony next to the fragments and ending with a somewhat coarser aggregate of euhedral quartz and adularia in the center. There are multiple bands in between.



Tr R10 Highly altered hypabyssal plutonic rock?

This rock is rather enigmatic, even in thin section, due to the high degree of alteration and in-place brecciation, that have done their best to obscure the original fabric. My best guess is that it was a hypabyssal felsic plutonic rock like fragment (7) in Tr R07. In places one can make out a pattern of small, rounded anhedral quartz grains surrounded by thin selvages of sericite. The texture overall, though, is very patchy and irregular. Secondary quartz occurs in clumps and, rarely, in veinlets. Sericite forms irregularly-distributed dense patches. Secondary brownish green biotite forms fine grained patches identical to the sericite. There are square pyrite and possibly arsenopyrite molds; the latter are parallelograms in two dimensions. A few aggregates of open-space-filling, partly euhedral quartz and adularia occur near the bottom of the section. These are coated with bright yellow jarosite.

### Tr R11 Quartz-adularia vein with Au and argentite

This sample of banded vein material was collected from the "Main Zone" in order to determine the identity of the grey mineral that is evident in hand sample. The ore mineralogy of this rock is simple. Gold occurs as very small bead-like grains of free gold; silver occurs in argentite, which appears grey in hand sample. One grain of chalcopyrite was observed. This verifies our observation of minute Cu-stains in the field. The vein mineralogy also explains why the common tracers for precious metals, As and Sb, are in such low concentration on the Trout.

The gold occurs next to or enclosed in the argentite and as tiny free grains, mostly interstitial to quartz. It thus presents an encouragingly extractable, free-milling form.

The gangue texture is feathery, both in hand sample and in plane light, a sort of "quench texture" with the branches running perpendicular to the vein selvages. In crossed nicols, it is seen that the feathery growths are aggregates of dusty, anhedral quartz, surrounded by aggregates of clear, anhedral adularia. The habits of the quartz and adularia have nothing to do with the megascopic, feathery texture. I suggest that they are pseudomorphous after some other mineral(s), perhaps calcite?

The association of gold-silver with adularia in the veins, in this rock and also in R 07, suggests the utility of a field staining kit for Kspar, to be used on drill core and on veins encountered during prospecting in 1985.

Tr R15 Polymict explosion breccia

This rock consists of the results of at least two episodes of brecciation by explosion. The later one has produced fragments of breccia, andesite and vein chalcedony. Both episodes produced extremely finely milled matrix material. Unlike Tr R07, however, there was no episode of solution and replacement following brecciation.

Fragment types

- 1) Breccia. These are by far the most common. They contain small, sparse to moderately common lithic and crystal clasts in very fine grained, fragmental matrix with abundant reddish Fe-oxide. The clasts include pieces of plagioclase crystals, vein chalcedony, and andesite.
- 2) Andesite. These fragments consist of flow-aligned plagioclase microlites in dense equigranular aggregates.
- 3) Chalcedonic quartz in aggregates of irregular textures and grain sizes.

The breccia matrix that occurs in the present rock is identical to that in fragments (1), except that it contains less Fe-oxide.



Tr R18 Brecciated dacite,<sup>1</sup>  
chalcedony infilling

This rock contrasts to R07 in several important respects, which perhaps explain why it has returned lower assays.

a) All of the clasts are identical in texture and lithology, suggesting that it represents in-place brecciation, rather than a violent explosion that mixed fragments from different levels.

b) The clasts are angular rather than rounded; thus they were not attacked by solutions after brecciation.

c) There is chalcedonic quartz in the hydrothermal matrix, but no adularia.

The fragments are all of a hypabyssal dacite that is dominated by a matte of interlocking .1 mm plagioclase crystals. The dacite contains sparse albitized plagioclase crystals and minor interstitial quartz. No mafics are evident.

The matrix consists of quartz of mixed grain sizes, from chalcedonic to crystalline.

<sup>1</sup> This rock may consist of Kspar not plagioclase. It should be stained.