

DISCUSSION OF RESULTS

The results of the 1970 exploratory program in the Belmont-Round Mountain-Manhattan district indicate that three areas may be of further interest.

1. Perkins-Barcelona Area.

This area exhibits moderate to strong rock alteration within restricted zones in the granite/quartz monzonite. These zones, controlled by shearing, are sericitized and silicified and contain minor amounts of molybdenum and copper mineralization. Quartz veining in the area carries, in addition to copper and molybdenum mineralization, small amounts of galena, sphalerite, tetrahedrite, cinnabar and fluorite.

Geochemical response, although affected by contamination from old workings, indicates that anomalous amounts of molybdenum occur in the area. Using a background of 3 ppm for Mo, anomalous values are up to 10 and 15 times background and are associated with quartz veinlets and silicification.

The pattern of mineralization is complicated. Later stages of mineralization are superimposed on earlier minerals. This is particularly true with mercury and may also apply to the Pb-Zn-Ag mineralization. Cinnabar coatings on molybdenite have been observed.

The source of mineralization is unknown, but may be a buried younger intrusive or a late stage magmatic source located at depths in excess of 1,000 or 2,000 feet.

2. Shoshone Creek Tungsten Prospects.

The results of the preliminary investigation of this area suggest that tungsten mineralization occurs in both quartz veins and altered granite/quartz monzonite. The stronger veins in the area are generally parallel, but small zones of stockworks occur. Rock alteration is moderate to strong and is typical of the alteration that

occurs in the peripheral zone of porphyry copper-molybdenum ore deposits.

Geological inference suggests that within a few hundred feet of depth the intensity of silicification and the amount of quartz veining could, with the associated tungsten mineralization, be sufficient to constitute an economic bulk type deposit possibly amenable to open pit mining.

3. Jefferson District.

This area, although presently active, could have potential for bulk low grade silver deposits. Pyritization is prolific throughout the area and indicates a substantial mineralizing source.

Other areas examined gave no encouragement. The Mariposa Creek area shows some erratic molybdenum values. Duplicate sampling indicates that the area has low values and that minor molybdenum mineralization probably occurs along the contact zone of the Belmont and Toquima granites.

* RS-177 1/2 elev 6600
 RS-178 elev 6500 ————— Prospect dumps (huebnerite in quartz ...)

* RS-147 elev 7,000, assumed
 outcrop

MASS 3
 + RS-116 elev 10,000
 prospect pit
 Zero of quartz more
 purple of
 phenocrysts up
 to 2" long
 MASS 2
 + RS-250 elev 7,000
 prospect cut (cinnabar)
 MASS 1
 + RS-97 elev 8200
 + dump at lode prospect (tetrahedrite, trace mal)
 + RS-110 + RS-110/2 elev 7500
 dumps at lode prospect (tetrahedrite; tr mal)

RELATIVE LOCATIONS
 OF ROCK SPECIMENS
 NEVADA 642-4

1" = 1 MILE
 CW & G

PETROGRAPHIC DESCRIPTIONS

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RS-177/2 - Shoshone Creek Tungsten Prospect

rock type: altered porphyritic quartz monzonite

veins: none

mineralogy

- 21 plagioclase - fine to medium grained subhedral to anhedral, twinned crystals; compositional zoning; composition An_{36} ; altered to quartz, sericite, biotite; replaced locally by K-feldspar
- 40 K-feldspar - fine to medium grained, anhedral, zoned phenocrysts and matrix; poikilitic; microcline twinning, micrographic growths; weakly sericitized and replaced by quartz
- 20 quartz - fine to medium grained, anhedral crystals; micrographic intergrowths; in part an alteration product of plagioclase and K-feldspar
- 3 biotite - fine to medium subhedral to anhedral shreds; pleochroic light brown to dark brown locally replaces plagioclase; altered to sericite and opaques
- 15 sericite - fine grained anhedral aggregates and shreds; alteration of feldspar and biotite
- <1 apatite - zircon - fine grained accessory
- <1 rutile - fine grained prismatic crystals; alteration of biotite
- <1 magnetite - hematite - fine grained, euhedral cubic grains; oxidized to hematite
- <1 leucoxene - fine grained anhedral opaque

texture: porphyritic with rare K-feldspar phenocrysts in a xenomorphic matrix of quartz biotite, plagioclase, and K-feldspar; poikilitic K-feldspar; micrographic intergrowths

alteration: sericitization, degree moderate; plagioclase biotite and K-feldspar altered to sericite and quartz; plagioclase most intensely altered; biotite also present as small shreds in plagioclase; is a hydrothermal alteration or a magmatic effect?; the greener color and shreddy character suggest a hydrothermal or deuteric event - before sericitization?

evidence for late stage magmatic reorganization as indicated by micrographic intergrowths

RS-178 - Shoshone Creek Tungsten Prospect

rock type: sericitized quartz monzonite

veins: muscovite-quartz vein

mineralogy

- 20 quartz - fine to medium grained; anhedral crystals; present also in vein; partly an alteration product
- 20 muscovite - sericite - fine to medium grained, subhedral to anhedral plated and individual scales; predominantly an alteration of plagioclase
- 35 plagioclase - fine to medium grained, subhedral to anhedral, lath shaped crystals; compositionally zoned, average composition An₃₆; altered to sericite and quartz
- 20 K-feldspar - fine to medium grained, anhedral, twinned crystals; microcline twinning; altered slightly to sericite and quartz
- 1 zircon - fine grained accessory
- 1 biotite - very fine grained, brownish altered grains; remnant biotite?
- 3 analcite - fine grained, anhedral, irregular disseminated grains; alteration of plagioclase isotropic
- 1 pyrite - fine grained, cubic crystals; present as disseminations and at altered biotite sites
- 1 leucoxene - fine grained, disseminated

texture: xenomorphic; scalloped and embayed plagioclase crystals; vein displays replacement texture; quartz has vermicular penetrations into adjacent wall rock grains

alteration: sericitic, degree moderate; sericite and quartz as alteration of plagioclase and biotite; analcite also present as plagioclase alteration, an unusual mineral in this type of alteration

Alteration Summary Chart
Chapman, Wood and Griswold Series
of Phaneritic Granitic Rocks

Rock Specimen	Alteration Type			Alteration Intensity			
	Propylitic	Chloritic	Sericitic	Very Weak	Weak	Moderate	Strong
RS-97			x	x			
RS-110			x				x
RS-110/2		x	x		x		
RS-116			x				x
RS-147			x	x			
RS-177/2			x			x	
RS-178			x			x	
RS-250			x	x			

RS-97 - Perkins Adit

rock type: 'fresh' granite

veins: quartz veins (2-3mm wide)

mineralogy

- 20 quartz - fine to medium grained, anhedral crystals; present in rock mass and in veins
- 2 biotite - fine to medium grained, light brown, pleochroic, subhedral books; interstitial grains; altered to muscovite (perhaps a magmatic reaction?)
- 26 plagioclase - fine to medium grained, subhedral to anhedral embayed crystals; altered to sericite-muscovite, chlorite, and quartz; local perthitic late stage replacement intergrowths; plagioclase grains strongly scalloped and vermicular along edges indicating late stage resorption-reaction with magma
- 50 K-feldspar - fine to medium grained, anhedral perthitic grains; local micrographic intergrowths essentially unaltered; may be orthoclase
- 2 sericite - muscovite - fine to medium grained subhedral to anhedral crystals; alteration product of plagioclase and biotite
- 2 chlorite - fine grained, greenish, nearly isotropic phase; an alteration of plagioclase

texture: xenomorphic fine to medium grained micrographic and microperthitic intergrowths local protoclastic zone?

alteration: weak; probably deuteric alteration effects; slight sericitization of plagioclase and biotite; much evidence of late stage magmatic reactions as indicated by micrographic intergrowths

RS-110 - Barcelona Adit

rock type: sericitically altered rock

veins: none

mineralogy

- 65 sericite - muscovite fine to rarely medium grained anhedral flaky masses; elongated, rectangular sericite aggregates after feldspar crystals
- 33 quartz - fine to medium grained, anhedral grains; in part alteration product and in part remnant of pre-alteration
- 1 pyrite - fine grained, euhedral to anhedral, crystals; disseminated in sericitized zone
- ∠1 zircon - fine grained, accessory; probably unaltered remnant
- ∠1 leucoxene - fine grained, scattered opaque

texture: xenomorphic aggregate of alteration minerals

alteration: sericitic, degree strong; extensive alteration to quartz and sericite; traces of pyrite associated with alteration

rock type: weakly altered granite

veins: none

mineralogy

- 20 quartz - fine grained, anhedral crystals; local graphic intergrowths; very fine grained, anhedral zones; late stage replacement products; locally an alteration product
- 13 plagioclase - fine to medium grained subhedral, lath shaped, altered crystals; altered to sericite, quartz, carbonate
- 50 K-feldspar - fine to medium grained, subhedral to anhedral; graphic intergrowths; locally perthitic; some microcline twinning; slight alteration to sericite and quartz; compositional zoning
- 1 zircon, apatite - fine grained, accessory minerals
- 5 biotite - fine grained, subhedral crystals; pleochroic light green to brown; altered to chlorite
- ∠1 chlorite - fine grained, local anhedral alteration of biotite
- 10 sericite - fine grained, anhedral flakes; alteration of plagioclase and biotite?
- ∠1 carbonate - fine grained, anhedral disseminated alteration of plagioclase
- ∠1 magnetite - fine grained, euhedral magmatic crystals
- ∠1 sphene - fine grained, accessory mineral

texture: weakly porphyritic quartz, plagioclase, and K-feldspar in a xenomorphic matrix; micrographic micromyrmekitic and micropethitic intergrowths

alteration: sericitization and chloritization, degree weak; sericitization most intense alteration type; plagioclase altered to sericite quartz and carbonate; chloritization very poorly developed; biotite locally altered to chlorite and muscovite

there is much evidence of late stage magmatic or deuteric reorganization as indicated by the graphic replacements, etc.

RS-116 - Woodtick Prospect

rock type: sericitized granite?

veins: none

mineralogy

- 38 quartz - fine to medium grained, anhedral crystals; partly an alteration product; locally clouded
- 60 sericite - muscovite - fine to medium grained, anhedral flaky masses to subhedral grains; locally greenish color; alteration product of feldspar and mafics
- ∠1 zircon - fine grained, accessory mineral
- ∠1 apatite - fine grained accessory mineral
- ∠1 rutile - fine grained prismatic blades; alteration product of mafic minerals
- ∠1 leucoxene - Fe-Ti oxides; opaque
- 1 K-feldspar - fine grained, anhedral crystals remnant grains; mostly altered to sericite and quartz

texture: xenomorphic aggregate of alteration minerals

alteration: sericitic, degree strong; thorough alteration of feldspars and mafics to sericite and quartz; the darker muscovite masses may be alteration of mafics; some sericite aggregates have a tabular shape, suggesting replacement of feldspar

RS-147 - Shoshone Creek North Fork

rock type: weakly altered granite

veins: none

mineralogy

- 50 K-feldspar - fine to medium grained, anhedral, compositionally zoned crystals; microcline twinned; locally poikilitic; micrographic texture along edges; traces of alteration to sericite; microperthitic intergrowth along boundaries of K-spar and plagioclase
- 15 quartz - fine to medium grained, anhedral, equigranular crystals; micrographic and micromyrmekitic intergrowths; local alteration of plagioclase
- 25 plagioclase - fine to medium grain, subhedral to anhedral, tabular crystals; embayed borders; microperthitic and micromyrmekitic intergrowths; compositional zoning; average composition An₁₆; slightly altered to sericite
- 5 biotite - fine grained, subhedral, flaky shreds; associated with magnetite and apatite zircon; slightly altered to chlorite and sericite
- 2 sericite - muscovite - fine grained anhedral flaky masses; alteration product of feldspar and biotite
- ∠1 chlorite - fine grained, anhedral alteration of biotite
- ∠1 apatite, zircon - fine grained accessory minerals
- ∠1 magnetite - fine grained, euhedral to anhedral magmatic mineral
- 2 allophane? - yellowish cloudy material with low birefringence; associated with sericite; probably represents a stage of transitional alteration to sericite; alteration of plagioclase

texture: xenomorphic; local micrographic; micromyrmekitic, and microperthitic replacement textures; poikilitic K-spar

alteration: sericitization and chloritization; degree weak, weak alteration of plagioclase to sericite, allophane, and quartz; very weak alteration of biotite to muscovite and chlorite

much evidence of late stage magmatic reorganization as shown by micrographic, micromyrmekitic textures

RS-250 - Van Ness Mine

rock type: quartz monzonite porphyry

veins: thin sericite; also thin biotite veinlets

mineralogy

- 43 plagioclase - fine to medium grained, anhedral, clouded phenocrysts and matrix; composition An₂₈; compositional zoning; myrmekitic replacements; altered to sericite and quartz
- 30 K-feldspar - fine to medium grained, anhedral, clouded phenocrysts and matrix; microcline twinning; graphic intergrowths; tends to be poikilitic; slight alteration to sericite and quartz
- 20 quartz - fine to medium grained, anhedral crystals; present as phenocrysts and matrix grains from intergrowths with plagioclase and K-feldspar
- 3 biotite - fine grained, subhedral, leafy books; pleochroic light brown to dark brown; pleochroic halos; altered to muscovite, rutile and leucoxene
- 2 sericite - muscovite - fine grained, anhedral, flaky alteration product of plagioclase, K-feldspar and biotite; muscovite after biotite has greenish tinge
- ∠1 zircon - fine grained accessory
- 1 rutile - fine grained, anhedral; alteration product of biotite
- ∠∠1 garnet - fine grained isotropic mineral developed along thin veinlet of sericite; alteration of plagioclase

texture: porphyritic with fine to medium grained phenocrysts of plagioclase, K-feldspar, and quartz in a fine grained xenomorphic matrix

alteration: sericitic, degree weak; biotite ~ 50% altered to muscovite and rutile, and only traces of feldspar altered to sericite and quartz
some evidence for late stage magmatic reorganization as indicated by myrmekitic and graphic textures
biotite veinlets may be late stage; rare (only 2 noted; perhaps just greenish muscovite, veinlet too small to allow accurate identification)

The Grouse prospect is a small mercury showing. Cinnabar and meta-cinnabar were noted with quartz veining and a 1 to 2 foot wide rhyolite porphyry dyke. The granite in the immediate vicinity is highly altered.

The Jumbo prospect is located in the contact zone of the Toquima and Belmont granites. An inlier of dark schist occurs at the contact. No metallic mineralization was noted.

6. Shoshone Creek Tungsten Prospects - Section 27, Township 10 North, Range 44 East.

These tungsten prospects, which were explored by underground openings during the 1950's, consist of numerous wolframite-bearing quartz veins up to 2 feet in width. The general attitude of the veins is N35°E/40°SE.

Adits and prospect holes are scattered over some 5,000 feet in an east-west direction. Locally small zones of quartz vein stockworks occur. The larger veins are often separated by several tens of feet of altered granite.

The granitic rock throughout the area is well altered and locally intensely altered. Specimen RS-177/2 is a sericitically altered fine- to medium-grained porphyritic granite/quartz monzonite from an old tungsten working. Plagioclase shows some replacement by K-feldspar and biotite is partially altered to rutile. A rock chip sample (S-177) indicated 4000 ppm of tungsten.

Specimen RS-178 is a sericitically altered pyritic quartz monzonite from a long adit extending beneath the area of RS-177/2. Plagioclase is partially altered to analcite and a quartz vein shows replacement texture. A chip sample (S-178) indicated 40 ppm of tungsten.

Both of the above samples indicated slightly anomalous amounts of molybdenum, lead and silver.