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ROUND MOUNTAIN DISTRICT

LOCATION

The Round Mountain mining district is located on the western slopes of the central Toquima Range about 45 miles north of the town of Tonopah, Nye County. The district extends from the general area of Willow Creek on the north to Mariposa Canyon on the south, and from the crest of the Toquima Range near Spanish Peak on the east to the floor of Smoky Valley on the west. Most of the gold mines of the ditrict are at Round Mountain on the west side of the district; tungsten, mercury, and uranium mines and prospects are located in the foothills immediately east of the town of Round Mountain.

HISTORY

The Round Mountain district may have been prospected as early as the 1870's when the nearby camp of Jefferson was active. The first record of activity, however, is in 1891 when claims were located in the area of the later Round Mountain gold discoveries. The main activity at Round Mountain dates from 1906 when lode and placer gold deposits were located on the lower slopes of Round Mountain and Stebbins Hill (Tingley and Berger, 1985). Lode and placer gold mines were active at Round Mountain between 1906 and 1916, and from 1919 into the 1920's; activity declined sharply in the 1930's. Placer mining was done at deposits on the western flanks of Round Mountain in the 1940's and 1950's. The last placer mining ceased in 1959 (Kleinhampl and Ziony, 1984. In 1969, Copper Range Co. entered the district and conducted exploration on both the placer and lode deposits. Lode exploration was successful, large-scale openpit operations began at the new Smoky Valley Mine in 1977, and gold mining has been continuous on the property since that date.

Huebnerite-bearing quartz veins were discovered in the area of Shoshone Creek, east of Round Mountain, about 1907 and a small amount of tungsten concentrates was produced in that year. Tungsten prospecting continued in the area up to about 1912, but there has been no significant activity since that time. Uranium has been reported present in some of the old tungsten mine workings, but there has been no uranium production (Garside, 1973).

Mercury has been produced from the Senator, or Red Bird, mercury mine near Spanish Peak at the crest of the Toquima Range east of Round Mountain. This property was discovered sometime between 1925 and 1928 (Bailey and Phoenix, 1944) and is credited with between 100 and 200 flasks of mercury produced up to 1965 (Kral, 1951; and Kleinhampl and Ziony, 1984). This property is sometimes included in the adjacent Belmont district rather than Round Mountain.

GEOLOGIC SETTING

Pre-Tertiary rocks cropping out in the Round Mountain mining district include principally Cambrian and Ordovician siliceous shale, siltstone, chert, and minor limestone. Cretaceous granitic rocks of the Round Mountain pluton cut the sedimentary rocks on the southeast, and northeast-striking Tertiary rhyolite dikes cut both sedimentary and granitic rocks in a zone along the west boundary of the pluton (Kleinhampl and Ziony, 1984). Tertiary ash-flow

tuffs cover the north, west, and south parts of the mining district. The southwestern margin of the Mount Jefferson caldera lies to the northeast of the Round Mountain district, the Manhattan caldera lies to the south of the district. Ash-flow tuffs at Round Mountain, host rocks for the gold mineralization there, are interpreted to be intracaldera tuffs which pre-date the Tuffs of Mount Jefferson. These tuffs may fill an older caldera structure which now li°es mainly buried beneath gravels in Smoky Valley (Tingley and Berger, 1985).

ORE DEPOSITS

The gold deposits at Round Mountain and at the Gold Hill Mine north of Round Mountain are the most important mineral deposits within the Round Mountain district.

The Round Mountain lode gold deposits occur near the margin of a large caldera complex. Host rock for the gold deposits is a 1400-foot thick rhyolite ash-flow tuff unite that is composed of a 400- to 500-foot thick nonwelded base, a densely welded central portion about 800 feet thick, and a less densely welded vapor-phase altered top that is 75 to 100 feet thick. The lode gold mineralization is controlled by the dispositon of high-angle regional stress fractures, in particular a northwest-trending set. Where the narrow fractures cut the lower nonwelded portion of the tuff, mineralization occurs as thin quartz veinlets and as disseminations throughout the pumiceous tuff. In the welded portion of the tuff, the mineralization occurs wholly as veins along the high-angle fractures or along hydrothermally dilated low-angle joints. Circular, somewhat pipelike masses of brecciated rock exposed along some of the fracture zones are interpreted to be centers of hydrothermal explosions directly related to the formation of the gold mineralization. (Tingley and Berger, 1985). The gold ores, as presently exposed, are oxidized and are characterized by hematitic and limonitic stain. Samples of deep ores reveal the mineralogy to be primarily native gold and pyrite. Realgar has been reported present and fluorite is present in the brecciated zones. Adularia from veins on Round Mountain has been dated at about 25 m.y. Alunite from surface and near-surface vein localities at Round Mountain has been dated at about 10 m.y., recording an early Pliocene period of supergene alteration (Tingley and Berger, 1985).

The gold placer deposits at Round Mountain formed from the vein deposits and are located down-slope from the vein outcrops. A problem with the placer deposits that plagued early operators and that still faces any potential operator is the presence of a large part of the gold values as "contained gold". This is gold not freed from its rock matrix; standard placer gold recovery methods do not collect this gold and it is lost to tailings.

At the tungsten occurrences east and south of Round Mountain, small huebnerite-bearing quartz veins occur in and near the Cretaceous Round Mountain pluton. The veins are short, lenticular, and strike mostly northeast and northwest. In addition to quartz and huebnerite, the veins contain muscovite, fluorite and barite (Shawe and others, 1984). Mine workings at these occurrences are very small, and only very little tungsten ore could have been produced from them. Samples of ore from the old dumps show veins of only a few inches in thickness although clots of huebnerite up to several inches across were seen within some vein material.

Ore at the Senator mercury deposit occurs as cinnabar and metacinnabar in thin quartz-barite veins that occupy a shear zone cutting granite. The shear zone is about 100 feet wide at its widest exposure, and can be traced for almost 1,000 feet along strike. The mine camp at the property has been abandonded since about 1968, but evidence of recent dozer work on the north end of the vein system was seen when the property was examined (Spring 1986).

GEOCHEMICAL ASSOCIATIONS

At the Round Mountain lode gold deposit, areas enriched in gold and silver are also anomalous in the pathfinder elements arsenic, antimony, thallium, mercury, fluorine, molybdenum, and tungsten. The gold deposits are not characteristically enriched in copper, zinc, and lead, although locally anomalous amounts of these metals occur (Tingley and Berger, 1985).

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