Cinnabar Hill Area

LOCATION

The Cinnabar Hill area is located in the northwestern Barnett Hills, a small range north of Rawhide Flats, in southwestern Churchill County about 20 miles southeast of Fallon. The mines in this area are included within the Holy Cross mining district although the main part of the district is located in the Terrill Mountains about 8 miles southwest of Cinnabar Hill. Eight sections of land in the Barnett Hills are included within the proposed withdrawal area. These eight sections, however, include all of the known mineral occurrences in this part of the Holy Cross district, north of the Walker River Indian Reservation.

HISTORY

The silver-gold deposit at Camp Terrell, the principal mine within the Holy Cross district, was discovered in 1910-1911. To the north, in the portion of the district in the Barnett Hills, the first recorded activity was in 1932 when gold was discovered by A. L. Robinson (Vanderburg, 1940, p. 32). The discovery was made on what became known as the Bimetal property, located within the Walker River Indian Reservation just south of the boundary of the proposed withdrawal boundary.

Later, in 1938, cinnabar float was found by Robinson in the hills to the north of the Bimetal mine; he traced the float up the side of a small hill and found its source on what is now known as Cinnabar Hill. The deposit found there, the Cinnabar Hill mine, has been developed by a small amount of underground workings and, although there is no mercury production credited to it, a small burned-ore pile on the dump suggests that there has been some production. Several other shallow mine workings on the low hills northwest of Cinnabar Hill are probably mercury prospects and also date from the 1938 period of activity.

The most recent activity in this part of the district dates from 1984 when a large claim block was staked in the area by Coeur Exploration Co. of Sparks, Nevada. Coeur staked the area after the date that it was withdrawn from mineral entry and they have curtailed any planned exploration pending outcome of the proposed withdrawal.

The Holy Cross district is credited with slightly over $72,000 production. Most of this, however, is from the Camp Terrell mines; there is no recorded production from either of the two properties in the Barnett Hills.

GEOLOGIC SETTING

Rocks cropping out in the western portion of the Barnett Hills include Cretaceous granodiorite, Tertiary rhyolite tuffs, dacite flows, and basalts. The granodiorite body crops out in an elongate, north-south pattern and dominates the central portion of the area. The granodiorite is capped on its eastern side by Tertiary rhyolite tuffs. The tuffs are unconformably overlain by dacite flows, which are in turn unconformably overlain by basalt. High angle faults cut most of the rocks (Willden and Speed, 1974, p. 74).

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Cinnabar Hill is located to the northeast of the northern boundary of granodiorite, and is underlain by brecciated, silicified rhyolite tuff. To the northwest of Cinnabar Hill, two small rhyolite intrusive domes crop out as conical-shaped hills. The domes are locally brecciated and silicified and display evidence of hot springs-type alteration. Most of the area north and west of Cinnabar Hill and the rhyolite domes is covered with basalt, dune sand, and alluvium.

ORE DEPOSITS

Mines and prospects in the western Barnett Hills have explored two types of ore occurrences; gold-silver bearing quartz veins in granodiorite and mercury-bearing, silicified shear zones in rhyolitic welded tuffs and shallow rhyolite domes.

The quartz veins in granodiorite occur in the southern part of the area studied; the largest occurrence, the Bimetal mine, is south of the project boundary and within the Walker Lake Indian Reservation. At the Bimetal property and nearby Sand Mountain claims, the veins strike to the northwest. Veins exposed at the Wall Street prospect, to the north, strike northeast. Willden and Speed (1974) state that the veins generally parallel a prominent set of aplite dikes in the granodiorite, and believe the some of some of veins may be quartz-rich pegmatites rather than true hydrothermal veins.

The deposit at the Cinnabar Hill mine is the largest of the several silicified shear zones in rhyolitic rocks that have been prospected for mercury in the central part of the area examined. The shear zones at Cinnabar Hill and other smaller prospects to the northwest strike northwest and are marked by wide zones of hydrothermal brecciation and silicification. The shear structures are stained with hematite and local areas along the structures contain veinlets and fracture coatings of alunite. Jarosite is sometimes present, barite was seen in one prospect along with specks of galena. The Cinnabar Hill deposit is contained within a rhyolitic welded ash-flow tuff, the several small occurrences to the northwest are within silicified rhyolite intrusive rocks. All of these volcanic-hosted occurrences display hot-springs type alteration suggesting that the area may have potential for the discovery of hot-springs gold deposits.

PROPERTIES WITHIN OR ADJACENT TO PROPOSED WITHDRAWAL AREA

Bimetal Group (Mine): The Bimetal property, discovered in 1932, is the first mineral deposit to be developed in this portion of the Holy Cross district. Two inclined shafts, an adit, and numerous trenches develop gold and silver bearing quartz veins formed along a strong northwest trending shear zone in granodiorite. All of the workings of this mine are south of the southern boundary of the proposed withdrawal area. However, the vein need only be projected about 1000 feet to the northwest along strike to extend it into the withdrawal area.

Sand Mountain Claims: A strong, northwest-trending vein is exposed in an old prospect pit on this claim block. The structure parallels the vein mined at the Bimetal deposit to the south and contains trace amounts of gold. Very little work has been done on this structure and areas favorable for

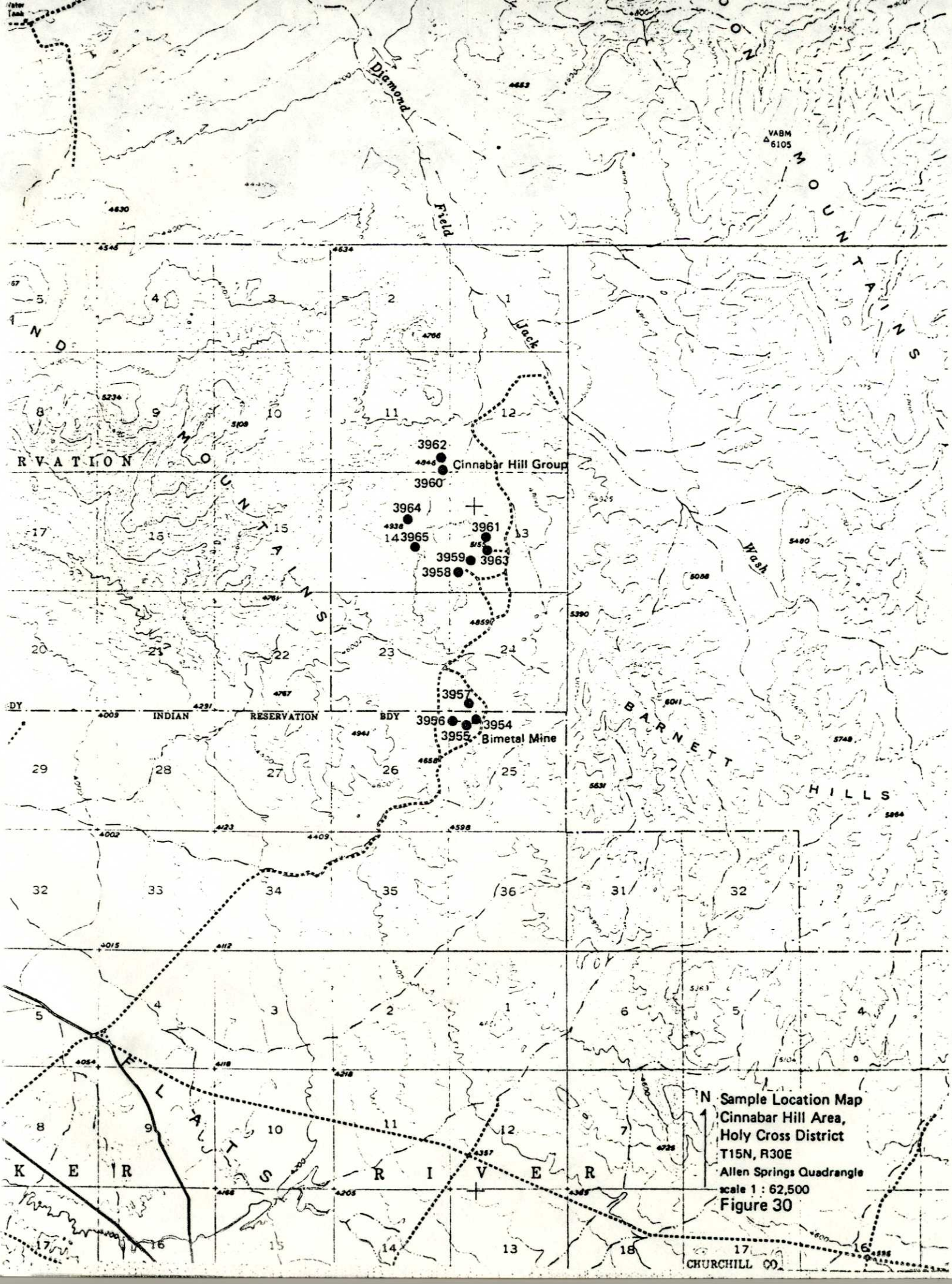
prospecting may occur both to the northwest and to the southeast along its strike.

Cinnabar Hill Mine: Mercury mineralization associated with quartz breccia, chalcedonic quartz, hematite, gypsum, and minor jarosite occurs along a shear zone that cuts altered rhyolite tuff. The main shear zone, exposed in the shaft and other small workings on the lower east side of Cinnabar Hill, strikes northwest and dips steeply to the northeast. A second, prominent, structure is exposed in shallow shaft and cuts located on a ridge north of the main workings. This structure strikes northeast and can be projected southwest, through the main workings and beyond, to correlate with the major northeast-trending structure exposed in granite on the old Wall Street claims.

With the exception of iron and manganese oxides, very little evidence of metallic mineralization can be seen in the Cinnabar Hill workings. Geochemical samples collected from the exposed structures and mine dumps (fig. 30) contained high values for arsenic and antimony as well as for mercury. No gold or silver was detected in these samples but the association of high antimony-arsenic-mercury values occurring in silicified, brecciated rocks in a hot-springs type environment suggests that gold and silver could be present somewhere within the mineralized area. Areas favorable for precious metal prospecting occur each way along strike of both of the mineralized structures exposed at Cinnabar Hill. The area of best potential may lie to the northwest, toward the silicified rhyolite domes. A large area of alluvial cover separates Cinnabar Hill from mineralized outcrops associated with the domes; this area could conceal areas of precious metal mineralization.

Prospects Northwest of Cinnabar Hill: Several small prospects occur on and around the flanks of two silicified rhyolite domes located about three quarters of a mile northwest and north-northwest of Cinnabar Hill. The prospects explore northeast-trending, highly-silicified shear zones containing hydrothermal breccias. The rhyolitic wall rocks are silicified, sericitized, and contain fracture coatings and veinlets of alunite. The rocks are stained with both iron and manganese oxides; the matrix of the silicified hydrothermal breccias commonly contain finely disseminated pyrite. The southern-most prospect in this area exposed silicifed hydrothermal breccia hosted in altered diorite. Clots of galena occur in breccia matrix at this prospect and barite crystals coat vugs in the breccia. A sample from here contained 0.20 ppm gold, the only gold detected in any samples from Cinnabar Hill and vicinity. The gold value was associated with minor silver and anomalous arsenic, antimony, and mercury.

The presence of gold in the one sample from this area enhances the potential of both this and the Cinnabar Hill area for precious metal prospecting. Favorable areas for prospecting occur both to the northeast and southwest of the silicified domes, along trend of the exposed mineralized structures, and to the southeast toward Cinnabar Hill.


Diamond
Field
Jack
Wash
3962
Cinnabar Hill Group
3960
3964
3965
3961
3959
3963
3958
3957
3956
3955
3954
Bimetal Mine
INDIAN
RESERVATION
BDY
BARNETT
HILLS
VABM
6105
N
Sample Location Map
Cinnabar Hill Area,
Holy Cross District
T15N, R30E
Allen Springs Quadrangle
scale 1 : 62,500
Figure 30

GEOCHEMICAL RELATIONSHIPS

Mercury values were high in all samples collected from this area (fig. 30); samples from the Cinnabar Hill mercury mine, of course, reported values in excess of the upper limits of detection.

All of the samples from the Bimetal mine area contained gold and silver; only one of these samples contained anomalous arsenic and antimony. In contrast. all of the samples collected from the hot-springs type occurrences around the Cinnabar Hill mine were anomalous in arsenic and antimony but only one contained detectable gold and silver. Barium was generally anomalous in samples from near Cinnabar Hill. Strontium formed the most obvious discrimination between the two deposit types in the area; samples from the gold-silver vein occurrences contained no detectable strontium, those from the hot-springs type deposits contained moderate to anomalous strontium values.

Base metal values were low in all samples taken in this area, and only one sample was moderately anomalous in molybdenum.

SELECTED REFERENCES

Lincoln, F. C. (1923) Mining districts and mineral resources of Nevada: Nevada Newsletter Publishing Co., Reno.

Schrader, F. C.(1947) Carson Sink area, Nevada: U.S. Geological Survey Open-File report.

Vanderburg, W. O. (1940) Reconnaissance of mining districts in Churchill County, Nevada: U.S. Bureau of Mines Information Circular 7093.

Willden, R., and Speed, R. C. (1974) Geology and mineral deposits of Churchill County, Nevada: Nevada Bureau of Mines and Geology Bull. 83.