

From NBMG OFR 83-9
See also 83-10 for
geochemical results.

CORNUCOPIA DISTRICT

1250 0008

(219)
Item 8

The Cornucopia mining district is located about nine miles south of Wilson Reservoir in the low mountains bordering the south-east margin of the Owyhee Desert. Access to the district is good along a dirt road which heads west at the southern end of the Bull Run Mountains. The main mines in the district are patented. The patented mines are concentrated in two groups occupying sections 18 and 19 of T42N, R51E. Some minor prospects and unpatented claims exist in the area surrounding the center of the district.

The high-grade silver veins of the Cornucopia district were first discovered in July, 1873 (Whitehill, 1873 & 74). One of the first claims staked was the Leopard property which turned out to be the most productive vein deposit in the district. The value of the silver and gold-bearing ore produced between 1875 and 1882 exceeded one million dollars (Couch and Carpenter, 1943). From 1937 to 1940, 10,000 tons of mine tailings were reworked. The tailings yielded an additional 0.13 oz. gold and 9 oz. silver per ton (Smith, 1976).

Activity in the district resumed in 1973, when Spartan Exploration, Ltd. conducted geologic mapping, EM surveys and rock-chip sampling of bulldozer trenches in the heart of the district. Rock chip assays defined a broad area of disseminated precious metals mineralization which reportedly averaged 3.24 oz. silver and 0.034 oz. gold per ton (EMJ, June 1974). Favorable waste dump samples were also obtained. Exploratory drilling commenced in the summer of 1974 in a target area located just south and east of the Cornucopia (Leopard) Mine. Calculated reserves exceeded 3 million tons of ore grade material.

The shafts on the Leopard vein have been inaccessible since before 1908 (Emmons, 1910). At the time of our summer 1982 visit, the underground workings

of the Cornucopia, or Leopard, Mine were further obscured by recent reworking of the voluminous tailings pile and excavations related to the drilling program conducted 8 years earlier. We observed that the disseminated ore zone delineated and drilled by Spartan Exploration was never developed beyond the exploration stage.

The geology of the south-east quarter of the Wilson Reservoir 15' topographic quadrangle is described in USGS Circular by Coats, 1967. His revision of the volcanic stratigraphy and observations on the ore deposits at Cornucopia has provided new insight on the geology of the district.

Cornucopia is a typical epithermal, volcanic-hosted precious metals camp. The host rock for the vein deposits are porphyritic pyroxene andesites. Throughout the entire mine area the rocks are bleached and altered. Near the veins, the wallrocks are kaolinized and silicified. Bleaching and argillization extends for some distance beyond the mined areas. Less proximate andesites are propylitized.

The best exposure of the altered andesites is along the drill roads and trenches adjacent (uphill) to the Cornucopia Mine. The rocks here are a light buff color, notably sheared and altered to a mixture of clays, iron and calcite. The rocks nearest to the faults and veins are pyritized and sericitized. Pods of secondary quartz occur locally, making it easy to mistake the bleached rocks as rhyolite (Coats, 1967). Gossany fissures cut the altered volcanics at a high-angle along north and west orientations. Abundant quartz vein material is scattered along the drill roads. The vein is sheared, pyritized and iron-stained.

Post-mineral tuffs of rhyolite and rhyodacite unconformably overlie the altered andesites (Coats, 1967). The tuffs occur south and west of the Cornucopia Mine where they form the hanging wall of an extensive, north-striking, post-mineral fault. Nowhere in the mine area are the younger flows mineralized or significantly altered.

The formational contact between the older and younger volcanics is not well exposed. The absence of a well exposed contact in the mine area combined with the masking effect of the alteration led Emmons to conclude that the ore-bearing andesites are intrusive into the rhyolites.

There are numerous faults in the center of the district. The Cornucopia (Leopard) Mine is situated at the intersection of at least two premineral (?) north and north west-striking faults (Coats, 1967). The faults were in part responsible for localizing or controlling the mineralizing fluids. According to Thomson and West, 1881, the original strike of the Leopard vein is northeast with a dip of 45° to the SE. Post-mineral fault(s) terminate the vein directly north of the mine (Coats, 1967).

The second main area of mineralization, the Panther Group (?) is located about one-quarter of a mile northeast of the Cornucopia Mine. The area is developed by several adits, stopes and shallow prospects. Sample 1600 was collected from a stope which follows a sheeted quartz vein system about 2-3' in width. The andesite host rocks exposed in the stopes are intensely kaolinized, bleached and have a punky texture. The veins, which are explored along strike for about 50', strike N75E and are vertical. Individual veins within the system average 1" in width. They are typically sheared, iron-stained and display open-spaced and comb quartz textures. The sheared material collected from the dump contains dark grey sulfide lenses. A fault truncates the veins east of the stope. Emmons, 1910, observed that the Panther vein is segmented and displaced northward (?) along several northwest striking faults.

The vein ores from Cornucopia were described by Thomson and West, 1881, as "mostly free-milling, silver-bearing, and carrying some gold". The main silver minerals are argentite, ruby silver and horn silver. They are accompanied by pyrite and grey copper (Emmons, 1910). Lawrence, 1963, reports pyrargyrite

and a near surface vein assemblage of cerargyrite, pyromorphite and yellow antimony oxides. Buchanan, 1981, further recognized chalcopyrite, tetrahedrite, bornite, galena, stephanite and sphalerite in the vein ore. The maximum grade of milled ore was 400 oz. per ton (Emmons, 1910). The ratio of silver to gold was about 68:1.

Coats, 1967, suggests that extensions of the rich veins at Cornucopia could possibly exist beneath the yet unexplored and unmineralized pile of younger volcanics. Since the veins are faulted and the thickness of the overlying volcanics is variable, further exploration in the area would be costly but possibly ultimately profitable.

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