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GEOLOGY OF THE COMSTOCK MINE AND LODE,
SILVER CROWN DISTRICT

by

W. Dan Hausel and Jay Roberts, 1981

Geological Survey of Wyoming

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Introduction

The Comstock lode is one of several northeasterly trending mineralized shears found within the Silver Crown District on the eastern flank of the Laramie Range (Plate 1). The mineralized fissure can be traced for three quarters of a mile and occurs as mineralized fault gouge and quartz veins trending approximately N 20° E (Figure 1).



Figure 1. Photograph of the Comstock lode exposed in prospect pit.

Access to the mine is from the Happy Jack road (Wyoming State Route 210) to private road. The property is owned by Copper King Mines (Harry Ferguson of Cheyenne, President).

Geology

Major development on the Comstock lode includes the Comstock adit and tunnel (Figure 2) (which contains about 500 feet of workings) and the Comstock shaft. Several small prospects intersect the lode at various localities (Figure 3).

The Comstock shaft collars at about 7240 feet elevation and was developed to about 200 feet depth where it opens up to the 'Big Room' (Bill Ferguson, personal communication) which presumably is a large stope developed on an ore shoot at the intersection of two mineralized trends (N 20° E and N 40° E) (Figure 2). The shaft intersects the Comstock tunnel at approximately 7100 feet. The 'Big Room' was not examined during mapping of the Comstock, because both shafts in the Comstock mine were flooded to the tunnel level.

The dominant rock type in the Comstock mine is a porphyritic to gneissic gray to red brown granodiorite. The granodiorite contains aggregates of biotite with primary quartz, plagioclase and potassium feldspar.

A pink to red brown quartz monzonite is exposed as small narrow dikes cutting the granodiorite. Contacts between the monzonite and granodiorite are gradational to fairly sharp. These rocks are finely crystalline and range from slightly porphyritic to equigranular.

The third rock type is a fine-grained black biotite schist that occurs as xenoliths with sharp contacts included in the granodiorite.

Mineral deposits

The Comstock mineralization contains sporadic high-grade ore but in small tonnages. The mine map (Figure 2) very well shows the sporadic character of

ore with numerous small mineralized fissures separated by large blocks of unmineralized rock.

Two dominant mineralized trends are recognized: (1) N15-20° E and (2) N40-45° E. The trends are different than the mapped joint trends (Figure 4) however, the N15-20° E trend is concordant with foliation. Ore minerals include chalcopyrite, bornite(?), cuprite, chalcocite, malachite, azurite and chrysocolla. Primary gangue includes quartz, epidote and clay minerals.

No samples were taken for assay because of the low mining potential of this deposit, but some hand specimens were collected and may be inspected at the Geological Survey of Wyoming (WGS samples SC1-4). One reported assay of a selected dump sample produced 1.97% copper, 1 ppm gold, and 25 ppm silver (Klein, 1974). The Copper King Mine located 2 miles to the south contains at least 10 million tons of ore averaging 0.30% copper and 0.038 ounces of gold per ton to a depth of 500 feet (Klein, 1974).



Inside the Comstock Mine



Remains of some equipment used by the early miners.



One-foot wide mineralized vein above Jay Roberts' head.



Close-up of mineralized vein.

References

Klein, T.L., 1974, Geology and mineral deposits of the Silver Crown District, Laramie Range, Wyoming: Geological Survey of Wyo. Preliminary Report 14, 27 p.

COMSTOCK PROSPECT
(SW/4 SE/4 NW/4 Sec.13, T.14 N., R. 70 W.)

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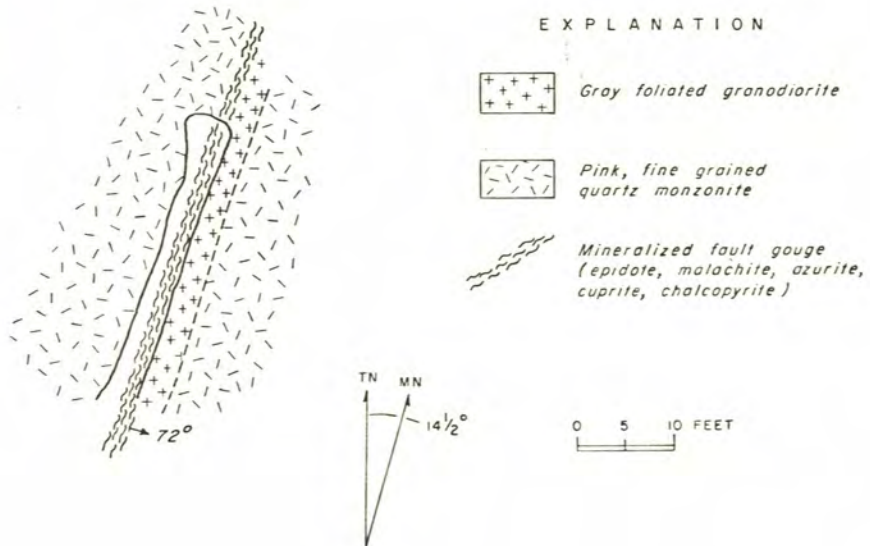


Figure 3



Figure 4. Contoured pole-plot diagram (percent per one percent area) of 49 joints (solid contours) and 8 mineralized trends (dashed contours).

GEOLOGY OF THE COMSTOCK MINE (Sec. 13, T.14 N., R. 70 W.) SILVER CROWN DISTRICT

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Mineralized ore shoot, copper stains and abundant limonite in fault gouge and fractures.

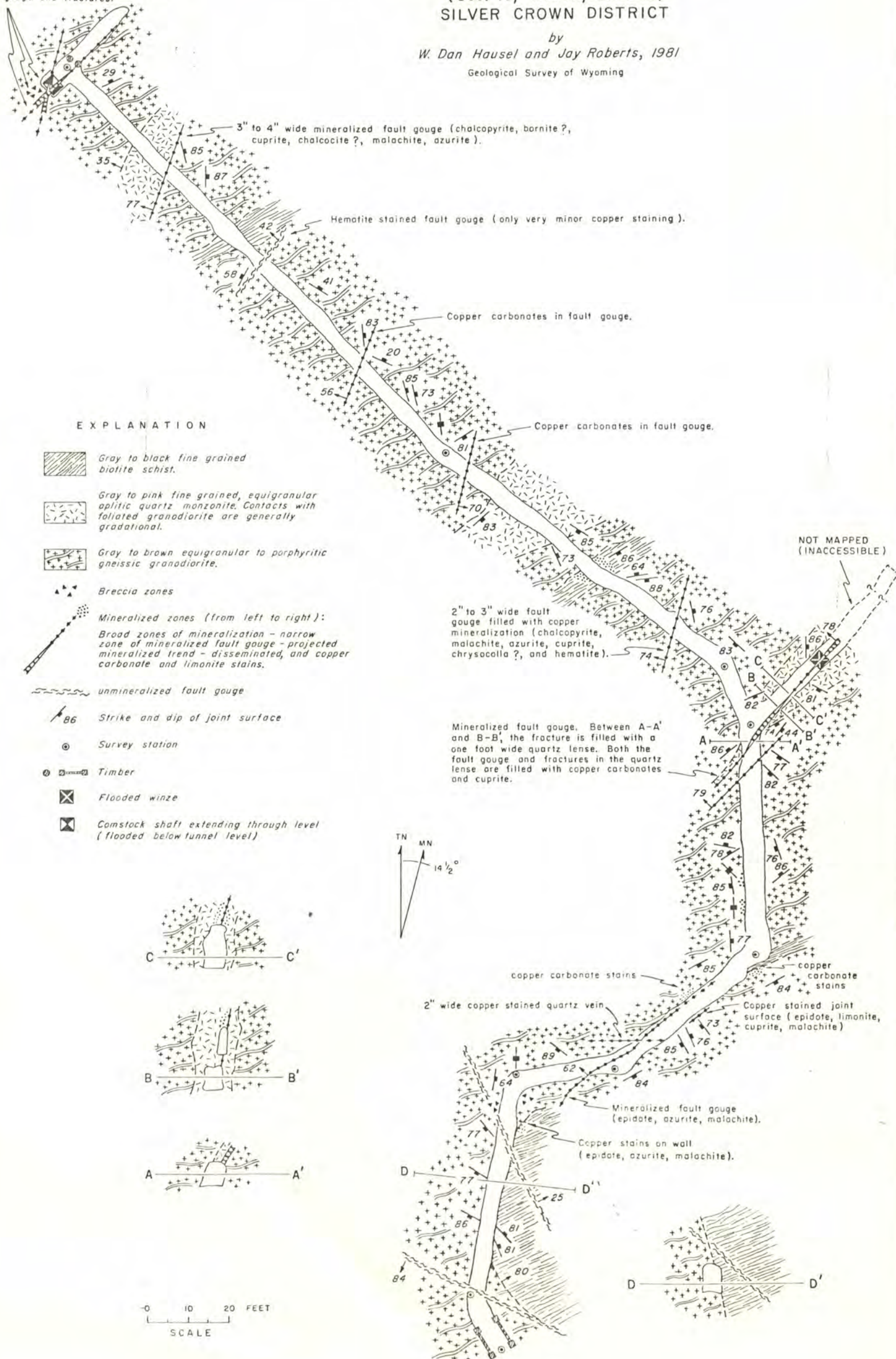


Figure 2.