LAKE DISTRICT

LOCATION

The Lake district includes the southwest portion of the West Humboldt Range and the Mopung Hills in northern Churchill County. Most of the prospects in the district lie to the west of Topog Peak in Sections 1, 2, 9, and 10, T24N, R29E.

HISTORY

The earliest record of mineral activity in this district is from 1868 when sodium nitrate deposits were located in the Mopung Hills. One of these hills, of a marked red color, was then known as Niter Butte and the nitrate salt locality was said to have been known to early Indians. Activity on the niter claims continued intermittently into the 1880's and revived again about 1902. No production is recorded, however, and the deposits have been abandoned for many years (Vanderburg, 1940). Ruins of an old limestone kiln on the west flank of the Mopung Hills is evidence of a early attempt to produce lime from deposits in the hills to the east. Vanderburg (1940) reports that a small tonnage of limestone was shipped from this area around 1900.

Lincoln (1923) reports that a few cars of lead-silver-antimony ore were produced from the district in the period 1860-1880 and a one-ton lot of antimony ore was produced from the Green Mine in 1941 (Lawrence, 1963). There has been no production recorded since that time. Recently, interest has been renewed in the district, and a large block of claims has been staked on the northeast portion of the Mopung Hills. Considerable trenching and drilling has been done and it is understood that exploration, probably for precious metals, will be continued.

GEOLOGIC SETTING

The West Humboldt Range extends south into Churchill County from Pershing County as a divide between the Humboldt Sink on the west and the Carson Sink on the east. According to Wilden and Speed (1974) the range is probably a horst; the northern end has been tilted to the east, whereas the Mopung Hills, at the southern end, may be tilted to the west. Rock units exposed in the West Humboldt Range are Lower Jurassic sedimentary rocks, Middle Jurassic limestone and quartz arenite, basalt, Cretaceous(?) granodiorite, and Tertiary volcanic rocks. Lower Jurassic rocks crop out discontinuously along the entire length of the range in Churchill County and form the oldest exposed unit. Limestone and marble of Middle Jurassic age overlie the older rocks. In the Mopung Hills this limestone and marble unit contains gray limestone, limestone breccia, gypsum, and quartz arenite. The limestone and marble unit is almost everywhere overlain by greenstone or gabbro (Wilden and Speed, 1974). Tertiary volcanic rocks consist of welded rhyolite tuff and tuff breccia which have been deposited on a surface of variable relief. The volcanic stratigraphy has not been

studied in detail and it is possible that some of the rhyolite originated from a volcanic center in the Mopung Hills.

ORE DEPOSITS

Mines and prospects in the Lake District are located in three clusters within the area; narrow quartz-calcite veins have been prospected in an area northwest of Topog Peak, mineralized breccias and shear zones associated with a rhyolite-hornfels contact have been explored on the east side of the Mopung Hills, and small antimony occurrences have been mined from an area on the west side of the district.

The quartz-calcite veins, in Section 1, T23N, R29E, strike northwest and cut quartzite. The veins contain small amounts of hematite-after-pyrite but no other visible mineralization.

Old workings on the east side of the Mopung Hills explore a gossan zone cemented with gypsum and native sulphur which occupies a northeast-trending shear zone in altered sedimentary rocks. The geologic map of this area (Wilden and Speed, 1974) indicates that the breccia area is along the trace of a thrust fault separating two sedimentary units. The alteration resembles that of a hot springs system. About one mile to the southwest, generally on strike, a wide shear zone in rhyolite was noted which contains barite crystals in open spaces in silicified breccia.

The small antimony occurrences described by Lawrence (1963, p. 35) were not located during our examination. Antimony minerals are described as occurring along northeast-trending fracture zones in silicified limestone and in shales. The mined material has come from mineralized boulders from a cemented rubble zone overlying bedrock. The source of the mineralized boulders have not been found. This area is the type locality for the mineral "mopungite", an oxide antimony mineral found at the Green Prospect (Williams, 1985).

GEOCHEMICAL RELATIONSHIPS

None of the ore samples collected from prospects in this district were particularly high in any element. Boron was found to be present in fairly high amounts in all samples, gold was detected in one sample from the sulphur-rich gossan on the east side of the Mopung Hills. This sample was also high in mercury. Only one high arsenic value was detected, and antimony values were uniformly low.

SELECTED REFERENCES

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