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MINERAL OCCURRENCES IN THE STEWART DISTRICT

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sists of granite. In contact with this is highly altered schist of apparently sedimentary origin. Beyond this is a vast area underlain by greenstone and tuffs, and it is in these rocks that the recent ore discoveries have been made. The greenstone, which is essentially a quartz porphyry, has been sheared and silicified in places, and it is in such zones that the ore occurs.

The greenstone in places is overlain by a volcanic breechia, varying in texture from fine to coarse grained. This rock is generally grayish to green in color, and shows the same alterations as those found in the quartz porphyry. Where it is fine grained and changed to the color of the greenstone, it is almost impossible to classify accurately in the field.

The greenstones, or altered quartz porphyry, containing the ore, are part of a series of rocks, called by Mr. Mc-Connell the Bear River formation. These greenstones vary widely in appearance, ranging from light green and almost normal quartz porphyry, to a dark green and highly altered product.

Mineralization is confined largely to the greenstones and is only present to a minor degree in the brecchia. On the Province claim of the Big Missouri group, an enormous development of the primary ore replacing the greenstone is exposed. On the Yellowstone group the ore occurs altogether within the breechia.

The Province outcrop covers an area on the surface of approximately 1,500 feet by 1,000 feet. The Yellowstone does not show such an area of mineralization as the breechia is not shattered or silicified to the same extent as the greenstone, and mineralization is confined to shear zones and fissures with much higher values. It is possible that this breechia layer is shallow and that more extensive mineralization with probable high grade ore is present in the underlying greenstone.

The primary ore in the district consists of the following disseminated sulphides in a schist gangue; sphalerite, galena, chalcopyrite and pyrite, carrying gold and silver.

The following is a typical analysis of the large outcrops of disseminated low grade ore in the district, obtained from an average of a large number of samples:

Zn., 4.0; Pb., 1.2; Cu., 0.4; Au., 0.04; Ag., 1.7; Insol., 66.1; SiO2., 59.1; Fe., 9.8; CaO., 1.4; S., 11.1; Al2O3, 5.8; MgO., 2.0.

A number of smaller outcrops of primary ore, such as on the Hercules, Indian, Yellowstone and some outcrops on the Missouri group are much higher grade and show values of the following order:

Zn., 6.3; Pb., 5.6; Au., 0.1; Ag., 7.65.

The structural features connected with these low grade disseminated ore bodies in the greenstone are, first, marked schistosity, the direction of which governs the strike of

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