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A REPORT
ON A GEOLOGIC RECONNAISSANCE
OF THE
ST. HELENS MINING DISTRICT
WASHINGTON

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OF THE
ST. HELENS MINING DISTRICT, WASHINGTON

Location

The mineralized area which lies north of Mount St. Helens in northwestern Skamania and south-central Lewis counties, Washington, is known as the St. Helens mining district. It is largely included in Townships 9, 10, and 11, North, and Ranges 5 and 6 East, but it should be recognized that future investigations may show this area to extend both east and west of these townships. (see map). Approximately 100 square miles of the section is known to be metalliferous.

Topography, Drainage, and Vegetation

The region is rugged and mountainous although the total relief is only about 3,000 feet. A wonderful stand of timber is present in places and all the properties are well supplied with timber suitable for mining purposes. Huckleberry bushes, devil's club, and other small shrubs grow abundantly in the district, making travel off trails difficult. Green River, flowing west, roughly bisects the mineralized zone. The northern portion of the area is drained by Cispus River while tributaries of the Toutle and Lewis handle the water from the southwest and southeast parts, respectively. An outstanding feature is the numerous and short tributary streams. These are due to the relatively youthful, yet highly dissected terrain. The rainfall of this section is between 60 and 100 inches annually, resulting in a humid climate. Such a high rainfall is a distinct advantage in that it provides an abundance of water throughout the area, yet because of the rugged topography will not interfere with mining operations.

Accessibility

A good automobile road has been completed from the Pacific Highway just north of Castle Rock up Toutle River to Spirit Lake. However, it is not possible to reach the district or any of the properties by road at the present time. A well kept trail, maintained by the U. S. Forest Service, leads from the end of the road at Spirit Lake to the several developments. From the north, it is possible to drive to the mouth of Quartz Creek, which is ten to twelve miles by forest trail from the center of the district. A road, suggested by the Division of Geology for mine to market construction, should be built from Spirit Lake to the western edge of the district. This would not only make accessible mineral deposits, but would open an area of exceptional scenic beauty. A second road down Quartz Creek would not be difficult to construct and these two roads would, in addition, provide a direct connection between Spirit Lake and Randle, thus opening a great deal of new territory.

History

The district was organized in 1892¹ Since that date a considerable amount of development work has been done although vigorous activity has been spasmodic. Zapffe² reported at least 11,000 feet of workings throughout the area in 1911, and additional work has been done since his visit. The only recorded production to date is credited to the St. Helen's (Norway and Sweden) property. Three cars of low-grade copper ore were shipped for testing purposes 1929³. Both development and production have unquestionably been handicapped by the lack of any adequate means of transportation.

Geology

There is little printed geologic information relating to the St. Helen's district. A study of the available articles reveals some lack of agreement and uncertainty as to the actual relationship between the granitic mass and the extrusive series occurring here. The appended bibliography lists the most important reports. The geologic description and accompanying map in this report have been compiled from unpublished notes in the files of the Division of Geology as well as such published reports as are available. Too little authentic information about the area has been collected to permit more than a tentative outline of the geology.

Apparently the oldest rocks exposed comprise an interbedded series of basalt and andesite flows. These are widespread, extending for many miles beyond the boundaries of the district. A granitic rock ranging in composition from monzonite to diorite appears to have been intruded into the series of flows. This intrusion resulted in the formation of metalliferous segregations in the granitic rock itself and of mineral-bearing quartz veins in the overlying basalt-andesite series. The most common minerals thus formed include chalcopyrite, pyrite, galena, sphalerite, gold and silver, with tourmaline and quartz as gangue minerals. Since the intrusion, erosion has removed much of the overlying basalt and andesite over an area of about 40 square miles. There are many exposures of andesite and basalt yet remaining within the area of granitic rock and also unmappable bodies of the intrusive exposed in the region shown as basalt and andesite. A detailed survey of the district would be required to entirely separate these masses.

¹ Landes, Henry, Washington Geol. Survey Ann. Rept. Vol. 1, pt. 2, p. 94, 1902.

² Zapffe, Carl, The Geology of the St. Helens Mining District of Washington, Economic Geology, Vol. 7, pp. 340-350, 1912.

³ U. S. Bur. of Mines Mineral Resources, Pt. 1, p. 427, 1929.

Over much of this rock surface lies a concealing mantle of unconsolidated material with a cover of soil. Still later, eruptions from Mount St. Helens threw out considerable quantities of pumice, some of which is now found as a thin covering overlying the rock and soil of the district in places. The rocks mentioned above are the only ones actually known to occur in the district, although quartzite has been reported from this vicinity.¹

Mineralization

Literature on the district (see bibliography) records the locations and development of a number of prospects. The metals reported are predominately copper, gold, and silver, with minor amounts of lead and zinc. Values from the several properties are reputed to run from only a few cents per ton to more than \$60. Several thousand tons of ore have been mined and left on the dumps of a few properties. According to reports, the veins and lenses in the mineralized zones range from a fraction of an inch to several feet in width, but their length has not been determined.

Summary

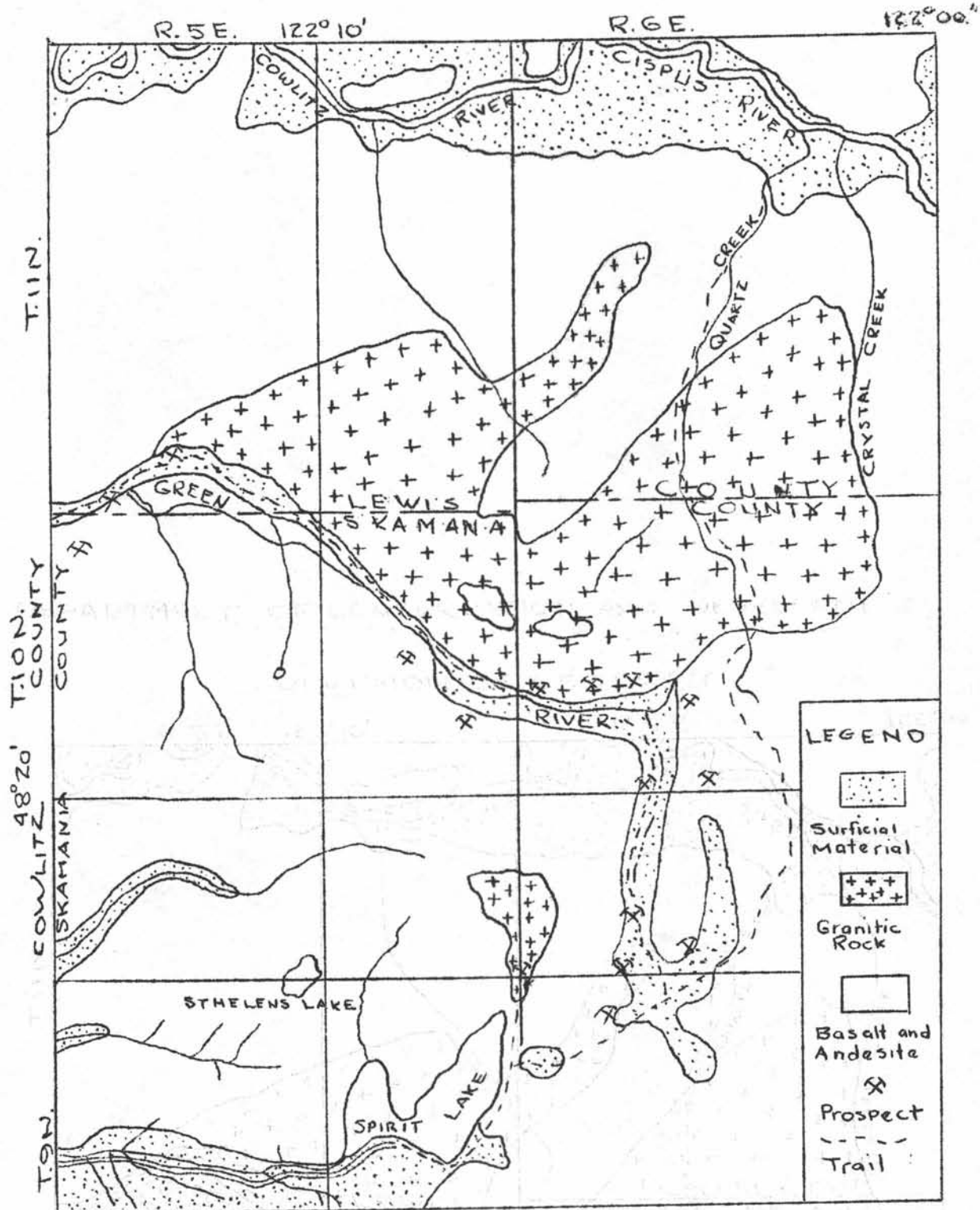
Thus, although known for more than 40 years, the district as a whole is still in its infancy in respect to both directed development and production. Due to the inaccessibility, development already done has entailed exceptional perseverance and faith. Much credit is due those who pioneered under such handicaps. Some transportation facilities would enable claim owners to test thoroughly a district which shows promise of important production.

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¹Landes, Henry, Washington Geol. Survey Ann. Rept. Vol. 1, pt. 2, pp. 93-94, 1902.

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Preliminary Geologic Map of the St Helens Mining District