

NOTES AND NEWS

HELVITE FROM THE BUTTE DISTRICT, MONTANA*

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The rare mineral, helvite ($3\text{MnBeSiO}_4 \cdot \text{MnS}$), was recognized recently by the writer in a specimen from the 200-foot level (west drift) of the Lexington mine, Butte district, Montana, submitted by M. H. Gidel. The workings from which the specimen came are no longer accessible and its associations are unknown. The identification has been confirmed by optical and by spectroscopic tests. So far as the writer can ascertain, this is the third record of the occurrence of this mineral in the United States. For many years it was known only at the Rutherford pegmatite mine, near Amelia Court House, Amelia County, Va.¹ Recently it was identified in material from the Sunnyside mine, San Juan County, Colo.²

The specimen, which weighs about four pounds, is largely rhodonite and rhodochrosite, through which sporadic grains of sulphide minerals are scattered. Helvite occurs as sparse lemon-yellow grains as much as 2 mm. in diameter, and as veinlets about 1 mm. wide in the midst of the pink manganese minerals. According to W. T. Schaller, the mineral is isotropic with an index of refraction of 1.734. Spectrographic tests by George Steiger show that it contains considerable beryllium and only a doubtful trace of zinc.

The examination of several polished specimens and thin sections reveals relations of the minerals that are worthy of record. The specimen contains about 75 per cent rhodonite, 15 per cent rhodochrosite, 8 per cent quartz, and 2 per cent of the sulphides, pyrite, galena, and blende. No alabandite was found. The rhodonite forms a felted mass of fine needles which terminate here and there against small rounded masses of rhodochrosite; the carbonate seems to fill the pores of a spongelike mass of silicate and, while the carbonate is the later mineral, it does not replace the silicate. The masses of mixed silicate and carbonate are cut by veinlets that are largely rhodonite in the form of prismatic crystals; here and there the veinlets are filled with quartz, carbonate, or sulphides. In part, the sulphides are disseminated throughout the mass of mixed silicate and carbonate, and a part lies in the later veinlets. In

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¹ Fontaine, W. M., Notes on the occurrence of certain minerals in Amelia County, Va.: *Am. Jour. Sci.*, vol. 3, no. 25, pp. 330-339, 1883.

² Burbank, W. S., The manganese minerals of the Sunnyside veins, Eureka Gulch, Colo.: *Am. Mineral.*, vol. 18, pp. 513-527, 1933.

the examined sections, helvite occurs only in or near the rhodonite veinlets with which sulphides are associated and it was, therefore, one of the last minerals to be deposited.

The paragenetic relations of the minerals in this specimen conform in a broad way with those recorded by Burbank in the material from the Sunnyside mine. This specimen does not show the manganese silicates friedelite, alleghanyite, and tephroite found in the Sunnyside material, but shows the repeated succession of rhodonite-rhodochrosite recorded by Burbank. It seems probable that closer examination of the manganeseiferous veins at Butte will reveal more of the uncommon manganese minerals.

CRISTOBALITE AT CRATER LAKE, OREGON

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The discussion by Diller and Patton of accessory minerals in the andesites of Crater Lake National Park¹ mentions two occurrences of quartz and one of tridymite. Another mineral, cristobalite, should be added to the list.

The rocks exposed in Crater Lake National Park are in order of abundance andesites, basalts, and dacites. Mt. Mazama, the volcanic ancestor of the present crater, was composed principally of andesites with some later accumulations of dacite. The basalt occurs in adnate cones on the slopes of the former volcano.

In the southwestern corner of the Park, there is a very prominent conical land form known as Union Peak. Diller² considers the peak to be composed of andesite lava which solidified in the vent of a tuff cone. The plug was subsequently stripped of its tuff until only remnants now remain.

During a reconnaissance examination of the Union Peak area, an unusual specimen was discovered along the trail on the south side of the Peak. Although it was only a talus fragment, its composition and texture indicated that the mass which constituted the fragment was obviously the rock constituting the Peak. One surface of the talus fragment had dimensions of approximately one by two feet. The designated surface was made conspicuously irregular by the presence of pits or cup-like depressions with diameters from $\frac{1}{8}$ to $\frac{1}{2}$ inch and depths of approximately $\frac{1}{8}$ to $\frac{1}{4}$ inch.

The surfaces of these pits were covered with small white crystals (Fig. 1) which had the external form of octahedrons and a hardness greater than that of a knife blade. The unfamiliar association of this

¹ Diller, J. S., and Patton, H. H., *U.S.G.S. Prof. Paper 3*, p. 83, 1902.

² *Ibid.*, p. 20.