

NOTES AND NEWS

A NEW OCCURRENCE OF DIOPTASE IN ARIZONA

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INTRODUCTION

Dioptase (H_2CuSiO_4), a mineral of comparatively rare occurrence in the United States and previously described from only a few localities in Arizona,^{1,2,3,4} was recently discovered in considerable quantity at the Mammoth Mine of the Mammoth-St. Anthony Lead Co., in Pinal County.

DESCRIPTION OF THE DIOPTASE

The dioptase was found in a small block of ore during the mining of a stope on the 500-foot level. The mineral occurs as perfectly developed prismatic, emerald-green crystals lining small cavities in light blue chrysocolla, and associated with small crystals of orange-yellow wulfenite and dark brown descloizite. The crystals of dioptase range in size from 2 to 10 mm. in length, and from 0.1 to 1.5 mm. in thickness. They are hexagonal tri-rhombohedral and consist of a prism $m(10\bar{1}0)$ terminated by a positive rhombohedron $s(11\bar{2}1)$. The third order rhombohedron ($13\bar{4}1$), usually so characteristic of dioptase, has not been observed on the crystals examined.

The habit of the dioptase crystals in this occurrence is noteworthy. In all other occurrences known to the writer the dioptase crystals are short prismatic, but these are distinctly elongated and almost needle-like. Some of the specimens consist of a confused aggregate of individual prismatic crystals; in others the crystals form small sheaf-like bundles. Some of the dioptase projects from the faces of small tabular wulfenite crystals, and tiny crystals of descloizite are perched on the dioptase. One particularly fine group of dioptase is completely encrusted with black, earthy manganese oxide.

¹ Hills, R. C., Reported occurrence of dioptase: *Am. Jour. Sci.*, 3rd series, **23**, 325 (1882).

² Smith, W. B., Dioptase from Pinal County, Arizona: *Proc. Colo. Sci. Soc.*, **2**, 159 (1887).

³ Lindgren, Waldemar, The copper deposits of the Clifton-Morenci district, Arizona: *U. S. Geol. Survey, Prof. Paper* **43**, 111 (1905).

⁴ Lausen, Carl, and Wilson, E. D., Gold and copper deposits near Payson, Arizona: *Univ. Ariz., Ariz. Bur. Mines, Bull.* **120**, 27 (1925).

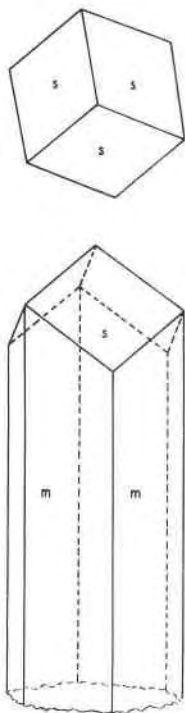


FIG. 1. Diopase.

Goniometric measurements are as follows:

No.	Form	Measured	
		ϕ	ρ
1	10 $\bar{1}$ 0	0°00'	90°00'
2	11 $\bar{2}$ 1	30°00'	51°02' (50°48' calculated)

Optically the diopase is uniaxial positive with $\omega=1.654$ and $\epsilon=1.708$.

Microscopic examination of the chrysocolla revealed the presence of isolated and fan-shaped aggregates of colorless to very pale blue slender crystals about 0.1 mm. in length. These crystals are biaxial negative with high birefringence. Indices of refraction are $\alpha=1.692$, $\beta=1.725 \pm .003$, $\gamma=1.725 \pm .003$. $2V=45^\circ \pm$. These properties correspond most closely to those of tyrolite, as described by Larsen and Berman,⁵ but the crystals appear to be nonpleochroic and microchemical tests failed to reveal the presence of arsenic. In spite of careful search sufficient material could not be isolated for an x-ray diffraction pattern.

⁵ Larsen, E. S., and Berman, Harry, The Microscopic Determination of the Non-opaque minerals: *U. S. Geol. Survey, Bull.* **848**, 194 (1934).

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Dr. Edward Wigglesworth, for twenty years director of the Boston Society of Natural History, has resigned to become Eastern director of the Gemological Institute of America and chairman of its educational advisory board. The gemological laboratory at 69 Newbury Street, Boston, will be under his direction. This is the second gemological laboratory of the institute, the first having been conducted in Los Angeles since 1933.

Mr. Edward W. Nuffield of the University of Vancouver has been appointed Teaching Fellow in Mineralogy at Stanford University for the year 1940-41.

NEW MINERAL NAMES

Norilskite

O. E. ZVIAGINCEV, New mineral species of the platinum group. *Compt. Rend. (Doklady) Acad. Sci. U.R.S.S.* **26**, No. 8, 788-791 (1940).

NAME: From the Norilsk copper-nickel deposits.

CHEMICAL PROPERTIES: An alloy of platinum with iron, nickel and copper. Analysis: Insol. 0.40, S 0.71, Pt. 35.50, Pd 3.57, Fe 25.30, Ni 25.64, Cu 9.28. Sum 100.40.

OCCURRENCE: Found in placers near the Norilsk copper-nickel sulfide ore deposits with grains of other palladium-platinum alloys containing variable amounts of Fe, Ni and Cu.

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