

OPTICALLY POSITIVE CORDIERITE FROM NEW HAMPSHIRE

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While making a study of the garnet deposits of New Hampshire, granite specimens were collected from fresh road cuts for state highway No. 9 in the town of Stoddard, Cheshire County, about $2\frac{1}{2}$ miles west of the Antrim town line (Lovewell Mountain Quadrangle). Microscopic study of this granite led to the discovery of optically positive cordierite. Since anomalous cordierite has been reported only from India¹ and the Northwest Territories,² it is deemed worth while to note this occurrence.

The cordierite is found in a conspicuously porphyritic granite, Meridith granite of Billings,³ which occurs as a batholith. This granite is characterized by the presence of abundant orthoclase phenocrysts 2 to 4 inches long, twinned according to the Carlsbad law, and embedded in a matrix consisting chiefly of andesine feldspar, quartz, biotite, microcline, and scattered garnets about a quarter of an inch in diameter. For two or three miles along highway No. 9 there are numerous fresh exposures of the porphyritic granite containing scattered inclusions. Several phases of the granite are exposed, some of which have probably resulted from the assimilation of roof material. Certain of these phases contain inconspicuous grains of cordierite in which the typical blue color is poorly developed. Only careful inspection of the granite specimen enables one to see the somewhat smoky and very slightly bluish grains of the mineral. The cordierite is most abundant in certain dark crystalline patches containing sillimanite, and in a curious mottled salmon-colored variety of the granite, the color of which is due largely to the presence of garnet.

¹ Chacko, I. C., *Optically Positive Cordierite: Geol. Mag.*, vol. 3, pp. 462-474, 1916; *Min. Abst.*, vol. 1, pp. 66-67, 1920.

Krishnan, M. S., *Note on Cordierite in a Cordierite Gneiss from Madura District, Madras, India: Mineral. Mag.*, vol. 20, pp. 248-251, 1924.

Iyer, L. A. N., *A Study of the Calc-Gneisses, Scapolite Gneisses, and Cordierite-Garnet-Sillimanite-Rocks of Coimbatore, Madras Presidency; with Comparisons to Other Similar Occurrences in India: Mineral. Mag.*, vol. 22, pp. 121-135, 1929.

² Rutherford, R. L., *Optically Positive Cordierite from the Northwest Territories, Canada: Am. Mineral.* vol. 18, p. 216, 1933.

³ Billings, Marland, *The Petrology of the North Conway Quadrangle in the White Mountains of New Hampshire: Proc. Am. Acad. Arts and Sciences*, vol. 63, No. 3, p. 83, May 1928.

That the mineral is cordierite, in spite of its positive character is indicated by the following facts:

- (1) Typical golden-yellow halos surround included zircons;
- (2) Characteristic polysynthetic and cyclic twinning can be seen in many of the grains;
- (3) Alteration to pinite has proceeded in customary manner along irregular lines.

The material at hand has not lent itself to separation for a chemical analysis, but it is hoped to obtain later some specimens which will be suitable for this purpose, and to publish the results.

NOTE ON THE OCCURRENCE OF VIVIANITE
IN THE DISTRICT OF COLUMBIA

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During the excavations for the numerous governmental buildings along Constitution Avenue in the city of Washington, it was called to the attention of the writer that small masses of a blue powderlike mineral were being found embedded in the clay. Mr. Vincent Tilton of Washington first observed the mineral which was being taken from the site upon which now stands the building of the United States Department of Commerce. Later Dr. R. W. Brown of the United States Geological Survey submitted samples procured from the excavation upon which rests the new Archives Building.

On close examination the blue masses were found to be the ferrous phosphate, vivianite, which so far as is known, has not been recorded from the District of Columbia.

In form, the masses appear as small globular nodules, ranging in size from a millimeter to a centimeter; the larger being less numerous. Some of those obtained from the Commerce building site were elongated to above three centimeters and had a somewhat rootlike shape.

The structure of the vivianite ranges from a smooth powder in the smaller nodules to a very fine granular condition in those of greater size; and in color varies from medium blue to deep blue.

In occurrence the mineral is found embedded some twenty to thirty feet below the surface. It is associated with limonite dis-

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