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A NEW OCCURRENCE OF PTILOLITE[1]

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THE mineral described in this paper was submitted to the U. S. National Museum for examination and report; it was stated to come from Challis, Idaho. It was examined optically by Dr. Wherry and found to agree in properties with the rare species ptilolite; this was confirmed by Mr. E. S. Larsen, of the U. S. Geological Survey. This mineral having heretofore been known only in minute amount, from three places in Colorado, whereas the present specimen shows a mass of it 10 x 7 x 4 cm. (4 x 3 x 1½ inches) and is from an entirely new region, makes the occurrence worth special description.

The matrix, of which a small amount is attached to one side, is a highly weathered basic igneous rock. The rock is coated with a 1 cm. layer of chalcedonic silica, on which the ptilolite rests. The latter is a soft fluffy mass of minute fibers resembling fine asbestos or glass-wool.

To further confirm the identity of the mineral, a sample was submitted to analysis, but the first constituent determined, SiO_2, yielded an almost incredibly high figure, considering that a silciate was represented, namely 81.5%. It seemed as if some silica must be present as an impurity, altho the sample had been picked with care from what seemed to be pure material. On microscopic examination there were found to be numerous minute spindle-shaped grains of quartz, really doubly terminated crystals with rounded edges, scattered thru the mass of ptilolite, and enclosing many needles of the latter. The importance of thoro microscopic study of all minerals to be analyzed is thus once more exemplified.

[1] This work was done while the writer was private assistant to Dr. George P. Merrill, of the U. S. National Museum, and is published by permission of the Secretary of the Smithsonian Institution.

To supplement the description of ptilolite given in Dana's System, page 572, the optical properties and specific gravity, determined on this specimen by Messrs. Larsen and Wherry, are here recorded:

Specific gravity, determined by suspension of minute, quartz-free fibers in a heavy solution, 2.30 ± 0.01.

Under the microscope seen to consist of well-defined, transparent needles; refractive indices: $\alpha = 1.475$, $\beta = 1.477$, $\gamma = 1.478$, all ± 0.003. Biaxial with large axial angle, and optically negative; extinction parallel and elongation negative.

It was found to be impossible to free the sample from quartz by the use of heavy solutions, so only a partial analysis was made; the results are presented in table 1.

TABLE 1

	1	2	3
SiO_2	81.5	72.3	70.4
Al_2O_3	8.2	12.3	11.9
CaO	1.7	2.6	3.9
MgO	0.3	0.4	—
K_2O	1.0	1.5	2.8
Na_2O			0.8
H_2O	7.3	10.9	10.2
Totals	100.0	100.0	100.0

1. Analysis by L. H. K.; alkalies obtained by difference.
2. Same after deducting 33⅓% of quartz and recalculating to 100%.
3. Analysis of ptilolite, from Dana, for comparison.

These results indicate the material to be undoubtedly ptilolite.

DIASPORITE IN MISSOURI. Edgar T. Wherry. Washington, D. C.

During the past year about twenty-five samples of minerals have been received for identification by the editors of this magazine. Among the rarer minerals represented there may be mentioned fuchsite, uraninite, margarite, vesuvianite, and diaspore or diasporite; the latter form of this name is preferred by the writer for the sake of uniformity. Diasporite is usually represented in collections by crystalline coatings associated with corundum; but the material submitted consists of gray sandy grains imbedded in white clay. Its identity was established, first, by optical examination, it proving to be biaxial, with two refractive indices = 1.70 and 1.75; and this was confirmed by chemical tests: it is insoluble in acids but after fusion with sodium carbonate dissolves and yields reactions for aluminium with only traces of other elements.

The locality for this unusual occurrence is stated to be Rosebud, Missouri, about 85 miles west of St. Louis. It is reported to form lenses in clay, known locally as "sand-rock" or "ashy clay," of many hundreds of tons in weight; it must therefore be the largest deposit of diasporite thus far discovered. The clay is presumably residual, left behind upon the weathering away of limestone strata, and the diasporite has probably been developed by the action of hydrothermal waters on the clay. The region should certainly be investigated by a mineralogist to ascertain whether showy crystalline specimens occur there also.