AN OCCURRENCE OF XONOTLITE AT LEESBURG, VIRGINIA[1]

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The calcium silicate, first described as eakleite and later shown to be identical with xonotlite by Larsen[2], has been found recently as the product of solutions, emanating from diabase, upon Triassic limestone conglomerate, at Leesburg, Loudoun County, Virginia. The minerals and the metamorphic effects at this locality have been described by the present writer in a paper to appear in the Proceedings of the U. S. National Museum.

The first specimen of this mineral obtained from this locality was picked up as a loose mass on the floor of the quarry by Dr. Waldemar T. Schaller while on a visit to the locality accompanied by Dr. Larsen, Mr. Frank L. Hess and the writer.

The xonotlite forms rounded patches, up to 5 or 6 centimeters in diameter, surrounded by rims from 1 to 4 millimeters wide of cross-fibered pale bluish-green material which is largely calcite mixed with some fibrous silicate. After this material is treated with cold dilute acid there remains a residue of fibers of very low birefringence and refractive index below 1.50, which may be silica from the decomposition of wollastonite fibers. The interstices between the xonotlite areas are filled with pearly granular wollastonite.

This xonotlite, like those previously described from other localities, is densely fibrous and very tough. When freshly broken the mineral is distinctly pink in color and somewhat translucent but upon exposure to air the pink color gradually fades and the pieces become opaque and chalky in appearance. A selected fragment from the center of one of the purer masses was analyzed yielding the results given in column 1 of the following table. This was not, however, of very pure material as it was shown by microscopic examination to contain two admixed minerals amounting to several per cent. The most abundant of these was apparently diopside, the second probably thaumasite. The xonotlite, under the microscope, is finely fibrous with parallel extinction and positive elongation. The refractive indices are somewhat variable,

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[2] E. S. Larsen. Eakleite, a new mineral from California. *Am. J. Sci.*, **43**, 464-465 (1917). The identity of eakleite and xonotlite. *Am. Min.*, **8**, 181-182 (1923).

the average being $\alpha=1.580$, $\gamma=1.592$. The xonotlite mass was found on the floor on the eastern wall of the quarry near the basalt dikes. None of this type of material could be found on subsequent visits.

When the members on the field trip of the Mineralogical Society of America visited this locality following the Christmas, 1923, meeting, a very different form of xonotlite was found in thin seams in relatively unaltered limestone in the north end of the quarry. This was available in considerable amounts and specimens were collected by Samuel G. Gordon, Chester B. Slawson, F. R. Van Horn and others of the party. This material forms veinlets up to 5 mm. wide filled with flaky fibrous xonotlite with pearly luster and pale pinkish color which greatly resembles the coarser varieties of pectolite. The feel is harsh and needles break off and enter as splinters in the fingers like pectolite. The xonotlite is mixed with calcite and some of the fissures appear to have an earlier layer of datolite next to the wall. The needles form radiating bundles and rosettes on the crack-surfaces, sometimes 3 cm. across. Under the microscope these lie on a perfect cleavage which is probably perpendicular to the obtuse bisectrix. If this be taken as the $b(010)$ face the optical orientation is $X=b$, $Y=a$, $Z=c$. The elongation of the needles is positive and they give parallel extinction. The mineral is thus biaxial and positive, probably with 2V small. The refractive indices are $\alpha=1.583$, $\beta=1.583$, $\gamma=1.595$. The analysis of this material is given in column 2 of the following table.

ANALYSES OF XONOTLITE FROM VIRGINIA

	1 Compact	2 Coarse	3 Theory. $5CaSiO_3.H_2O$.
SiO_2	45.62	49.60	50.16
Al_2O_3	2.05	1.00	——
CaO	41.28	46.32	46.82
MgO	2.26	——	——
$H_2O+110°C.$	6.00	2.80	3.02
$H_2O-110°C.$	1.00	none	——
Total	98.21	99.72	100.00