From the above analysis it is quite evident that the material represented by the minute rhomb-shaped crystals is in fact, normal alunite. The optical properties of these crystals because of their small size are rather difficult to measure. Their mean index of refraction is 1.58. Larsen[4] gives for newtonite the following optical properties.

$\omega = 1.560$, $\epsilon = 1.580$. Optically positive.

These values are essentially the same as those for alunite:

$\omega = 1.572$, $\epsilon = 1.592$. The chemical reactions given for newtonite are also similar to those of alunite. Both are insoluble in hydrochloric acid but soluble in sulphuric acid and in boiling caustic potash solution.

There can be but little doubt that the crystalline material made up of minute rhomb-shaped crystals and described as newtonite is really alunite. The analysis of the material given by Brackett and Williams cannot be interpreted as a mixture of alunite and quartz, as some of the specimens actually are, but the analysis and the optical investigations must have been made on two entirely different materials. From the analysis given in the original description the material investigated chemically must almost certainly have been halloysite. "Newtonite" is therefore to be stricken from the list of mineral species.

[4] *U. S. Geological Survey Bulletin*, No. **679**, p. 115.

SOME MINERALS FROM THE KENSINGTON MICA MINE, MONTGOMERY COUNTY, MARYLAND[1]

EARL V. SHANNON

An old mica mine, worked from 1882 to 1884 and known then as the Gilmore mine is located in Montgomery County, Maryland, on Northwest Branch about 2 miles north of Burnt Mills. This mine has been described briefly by Sterrett.[2] The only noteworthy fact regarding the mineralogy of the locality heretofore recorded was the occurrence of gahnite. While the mine was being worked it was visited by Doctors Geo. P. Merrill and Frank Wigglesworth Clarke. On this visit Dr. Merrill collected a large mass of gahnite.

[1] Published by permission of the Secretary of the Smithsonian Institution. The seventh preliminary paper on the minerals of Maryland prepared in cooperation with the Maryland Geological Survey.

[2] Douglas B. Sterrett. Mica Deposits of the U. S. *U. S. Geol. Survey Bulletin* **740**, pp. 104-105.

This was analyzed by Chatard and is described as a dark green massive specimen filling a cavity in feldspar. Other minerals mentioned from the locality are mica, quartz, albite, garnet, black tourmaline and beryl.[3] The gahnite specimen is not now in the Museum and was probably lost in the laboratory at the time it was analyzed. The following notes on this locality are from the writer's visits in connection with the study of the minerals of Maryland, accompanied by Doctors Wm. F. Foshag, Edward Sampson, and Waldemar T. Schaller.

The mine openings are now entirely obliterated and overgrown with woods but they are extensive and easily recognized as soil-filled depressions. The dumps, however, are large and contain much fresh material from the pegmatite. It is in these that collecting must be done since no rock can be seen in place. As is to be expected, quartz, mica and feldspar make up most of the blocks. Most of the larger crystals of mica were taken away and those which remain show twinned structure. The feldspar is in part flesh red microcline perthite, more or less replaced by white albite. Much of the feldspar, although pinkish in color, forms loose textured cellular masses of blades and is obviously the cleavelandite variety of albite. Optically it is biaxial positive with 2V large, $\beta = 1.530$.

Tourmaline was not seen in the pegmatite proper but imperfect black crystals are abundant in muscovite schist from the walls. These are intensely pleochroic under the microscope in powder with ω = blackish green, almost opaque, and ϵ = pale greenish brown. The refractive indices are $\omega = 1.670$, $\epsilon = 1.640$; $\omega - \epsilon = .030$. A single large crystal of beryl was found. This was imperfectly formed and weighed in the neighborhood of 20 pounds. When broken it was found to be dense and tough and to have a peculiar greenish-yellow color and somewhat resinous luster. It included considerable apatite and a little muscovite.

Apatite occurs as blue-green masses up to 2 inches in diameter included in beryl or in the cleavelandite. Under the microscope it is uniaxial, negative, and marked by numerous elongated cavities parallel to the vertical axis. The indices are $\epsilon = 1.633$, $\omega = 1.636$.

Small rusty cavities surrounded by radiating cracks and rust stain and occasionally autunite suggest the former presence of a rare earth mineral. Small grains forming the nucleus of such

[3] *U. S. Geol. Survey Bull.*, **9**, p. 9, 1884.

rosettes of cracks are resinous brown with conchoidal fracture. These are high in uranium as shown by the autunite formed by their alteration and resemble hatchettolite more than any other mineral of this group.

Autunite occurs principally as a thin yellow stain which occasionally in the thicker portions shows tabular structure and a greenish fluorescence. Under the microscope it is biaxial, negative, with 2V small, α = about 1.555, $\beta = 1.575$, $\gamma = 1.578$. It is pleochroic with X, colorless; Y and Z, pale yellow.

Ocherous manganese oxide occurs as spots up to an inch or more in diameter, sometimes surrounded by a rim of granular yellowish mica. Some of these certainly represent altered garnet but others look like the remains of manganese phosphates.

Garnet occurs in ill defined brownish-red masses up to an inch or more in diameter. Occasional imperfect faces of the dodecahedron are to be seen but most of the masses are interstitial with relation to platy feldspar and show no crystal faces. The garnet is in part altered to manganese oxide. A carefully prepared and purified sample, washed free from black oxide by dilute hydrochloric acid was homogeneous with a refractive index of $1.813 \pm .002$. This was analyzed and found to be relatively pure spessartite. The analysis gave the following results and ratios:

ANALYSIS OF SPESSARTITE

	PER CENT		RATIOS	
SiO_2	35.76	.596	.199×3	.98×3
Al_2O_3	20.72	.203	.208×1	1.03×1
Fe_2O_3	0.76	.005		
CaO	1.22	.021	.204×3	1.01×3
MgO	0.50	.013		
MnO	34.40	.484		
FeO	6.66	.093		
	100.02			

This close agreement with the garnet ratios is of interest since another spessartite recently analyzed by the writer, as well as the one previously described from Amelia, Virginia, does not agree with the ordinary formula for garnet unless a considerable amount of the manganese is assumed to be in the trivalent state.

The presence of cleavelandite, spessartite, apatite, beryl and rare earth minerals indicates that this is a pegmatite mass of unusual interest quite different mineralogically from the ordinary granite pegmatites of this region.