$3Sb_2S_3$. The original analysis is given in column 1 of the following table. In column 2 are given the ratios of the original analytical figures while in columns 3 and 4 are given the residual ratios as nearly as possible after deducting 7.74% of stannite, all of the copper being used, by way of trial, as the only possible index to this constituent. It will be seen that the corrected ratios indicate the formula $4PbS \cdot FeS \cdot 5Sb_2S_3$.

	1	2	3	4
Lead (Pb)	25.80	.125	.125	.031× 4
Iron (Fe)	2.77	.049	.031	.031× 1
Copper (Cu)	2.25	.035		
Antimony (Sb)	43.46	.362	.344	.034×10
Sulphur (S)	24.54	.765	.693	.035×20
	98.82			

The only other explanation of the difference between keeleyite and zinkenite is that the formula commonly ascribed to zinkenite is wrong and that this mineral actually has the formula $2PbS \cdot 3Sb_2S_3$ or $3PbS \cdot 4Sb_2S_3$. However this may be, it is definitely established that keeleyite is different from the other sulphosalts of lead and can be accorded full species rank.

APATITE CRYSTALS FROM WIANT'S QUARRY, NEAR PILOT, MARYLAND

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In Mr. Samuel G. Gordon's paper on desilicated granitic pegmatites[2] of the vicinity of the Pennsylvania-Maryland state line he states that the albitite of Wiant's quarry, three quarters of a mile northeast of Pilot, Cecil County, Maryland, is filled with miarolitic cavities which are lined with minute, colorless, albite crystals. He further says that minute, transparent, greenish, highly modified beryl crystals occur rarely implanted on the albite while not infrequently the rest of the cavity is filled with matted masses of dark green actinolite needles.

[1] Published by permission of the acting Secretary of the Smithsonian Institution.
[2] *Proc. Acad. Nat. Sci. Philadelphia*, **1921**, part 1, page 179.

In the course of the writer's investigations of the minerals of Maryland in cooperation with the State Geological Survey, Wiant's quarry was visited. Mr. Gordon then suggested that it was probable that the supposed beryl crystals were in reality apatite. None of the crystals were found at this time but Mr. Gordon very kindly forwarded the writer several specimens which he had previously collected. These have been studied in the Museum's laboratory and the mineral found to be apatite.

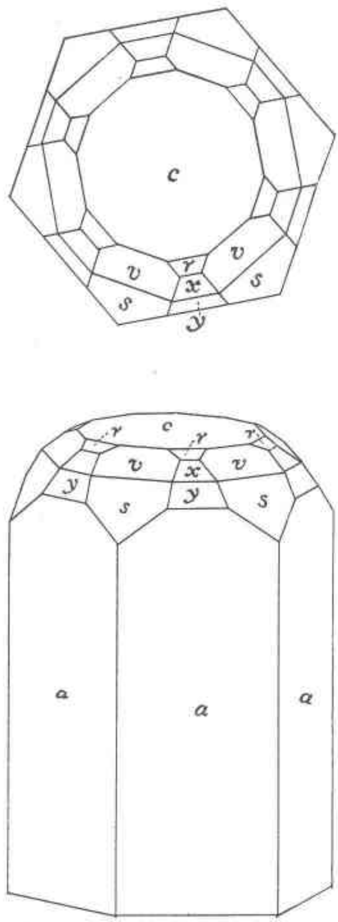

Fig. 1.

The apatite crystals are sparsely scattered over the drusy crusts of colorless or brown, iron-stained albite crystals which line the narrow miarolitic cavities in massive white albite. Individual crystals of the apatite reach a length of 4 or 5 mm. with a thickness of 2 mm. although most of them are somewhat smaller. The larger ones are green but the smaller ones are colorless and are not easy to distinguish from the colorless albite crystals on which they rest. The longer apatite crystals show cleavage parallel to the base *c* (0001). Many of the larger ones are bluish-green, partly opaque, and rather soft and friable as though they had suffered partial disintegration through weathering.

The apatite is soluble in nitric acid and reacts for phosphoric acid and fluorine. Optically it is uniaxial and negative with the refractive indices $\epsilon=1.631$, $\omega=1.635$. The habit of the crystals is as shown in the drawing, Figure 1. The forms observed together with the angles measured are given in the following table:

MEASUREMENTS OF APATITE CRYSTAL

Form		Symbol		Quality	Measured		Calculated	
No.	Letter	Miller	Gdt.	Description	ϕ	ρ	ϕ	ρ
1	*c*	0001	0	Excellent	° ′	0° 00′	° ′	0° 00′
2	*a*	$10\bar{1}0$	∞0	Good	0° 01′	90° 00′	0° 00′	90° 00′
3	*b*	$11\bar{2}0$	∞	Very poor	31° 09′	90° 00′	30° 00′	90° 00′
4	*v*	$11\bar{2}2$	½	Very poor	30° 06′	36° 34′	30° 00′	36° 16′
5	*s*	$11\bar{2}1$	1	Medium	29° 54′	55° 45′	30° 00′	55° 43′
6	*r*	$10\bar{1}2$	½0	"	0° 01′	22° 50′	0° 00′	22° 57′
7	*x*	$10\bar{1}1$	10	"	0° 01′	40° 21′	0° 00′	40° 16′
8	*y*	$20\bar{2}1$	20	Poor	0° 01′	59° 32′	0° 00′	59° 27′

The apatite crystals are younger than the albite but are clearly older than the hornblende needles which occasionally occur in the cavities. As a last deposit covering all the minerals there is seen occasionally a brown clayey substance which is transparent under the microscope, nonpleochroic and variable in refractive index, the mean being around 1.60. This is probably an iron bearing beidellite.