

ART. XXXIV.—*On crystals of Gay-Lussite, from Nevada Territory;* by JOHN M. BLAKE.

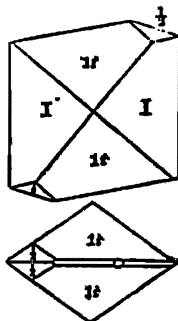
THE crystals of Gay-Lussite here described were obtained by Prof. B. Silliman in 1864, at Little Salt Lake, near Ragtown, Churchill Co., Nevada. The crystals differ strikingly from those measured and described by Phillips (Phil. Mag., April, 1827) in the proportional development of the planes as is shown by comparison with the figures given by Phillips, and by Descloizeaux (Ann. Ch. Phys., 3d series, vol. vii, p. 489).

¹ Gay-Lussite has been made artificially by J. Fritzsche, by mixing eight parts by measure of a saturated solution of carbonate of soda with one of a solution of chlorid of calcium of 1.130—1.150 specific gravity.—*J. f. pr. Ch.*, xciii, 339.

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The planes observed by Phillips were I , O , \bar{i} , $1\bar{i}$, and $\frac{1}{2}$; and the monoclinic axes, calculated from his measurements, are $a:b:c=1.444:1.489:1$; $C=78^\circ 27'$. Of the above-mentioned planes, \bar{i} was not detected on the Nevada crystals. But there is a plane, not before mentioned, \bar{i} , which can be seen when the crystal is placed in the proper position to reflect the sunlight, and it then appears to be made up of numerous microscopic planes. The same was true of $1\bar{i}$. These two planes, giving no definite reflected image of the sun, were approximately measured by noting the points at which the light was reflected with the maximum intensity.

In my trials I found the cleavage parallel to planes I perfect; parallel to O less perfect, giving a reflected image with a strong light. Specimens in the Yale Cabinet from near Lake Maracaibo, South America, showed the same composite character of the planes; but the effloresced condition of the specimens prevented any exact comparison with them.



The following are the angles obtained: the faces are mostly too feebly polished to afford results nearer than a degree. The angles are given in the order in which they were obtained in the several zones.

Zone 1st: I on I , $69^\circ 25'$; I , $180^\circ 20'$; I , $247^\circ 50'$.

Zone 2d: $1\bar{i}$ on $1\bar{i}$, $69^\circ 30'$; O , $123^\circ 20'$; $1\bar{i}$, $177^\circ 50'$, $179^\circ 40'$; $1\bar{i}$, $249^\circ 30'$; O , 804° ; $1\bar{i}$, 0° .

Zone 3d: I on $1\bar{i}$, $48^\circ 20'$; $\frac{1}{2}$, 71° , small; I , $180^\circ 20'$; $1\bar{i}$, $221^\circ 20'$; $\frac{1}{2}$, $249^\circ 40'$, small.

Zone 4th: I on $1\bar{i}$, $53^\circ 10'$; I , $179^\circ 20'$, $180^\circ 10'$; $1\bar{i}$, $231^\circ 20'$; I , 359° , 0° .

Zone 5th: I on $\frac{1}{2}$, $52^\circ 50'$; O , $96^\circ 10'$; I , $179^\circ 10'$; $\frac{1}{2}$, $231^\circ 15'$; O , $274^\circ 20'$.

Zone 6th: O on $1\bar{i}$, 50° ; \bar{i} , 101° ; O , $178^\circ 40'$; $1\bar{i}$, $228^\circ 30'$? \bar{i} , 281° ?

The following are Phillips's measurements, arranged in three zones, containing all of his observed planes:

Zone 1st: I on \bar{i} , $34^\circ 25'$; I , $68^\circ 50'$; I , 180° .

Zone 2d: $1\bar{i}$ on \bar{i} , $85^\circ 15'$; $1\bar{i}$, $70^\circ 30'$; O , $125^\circ 10'$; $1\bar{i}$, 180° .

Zone 3d: I on $1\bar{i}$, $42^\circ 15'$; $\frac{1}{2}$, $69^\circ 55'$; $1\bar{i}$, $110^\circ 20'$; I , 180° .

New Haven, Ct., Jan. 1866.