LOSEYITE—A NEW FRANKLIN MINERAL

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In the Stanton Collection of Franklin minerals recently acquired by the Harvard Mineralogical Museum, among other interesting specimens was one chiefly composed of the new mineral here to be described. This mineral is named loseyite in honor of Mr. Samuel R. Losey,* a native of Franklin and for many years, until his death, an ardent collector of the minerals occurring there.

Loseyite occurs as small lath-shaped bluish-white crystals more or less loosely grouped in radiating bundles in the cavities of a narrow vein composed chiefly of altered pyrochroite and sussexite. There are also present a few calcite crystals and a coating of hair-like minute needles which were identified as chlorophoenicite by optical tests. The untimely death of Mr. Stanton, who collected the specimen from an inaccessible part of the old mine workings, makes it impossible to state the location of the loseyite occurrence in the mine, since he made no record of the find.

CHEMICAL COMPOSITION

Loseyite is a basic carbonate of manganese and zinc in about equal molecular proportions, together with a slight amount of magnesium. The formula, deduced from the accompanying analysis, is $7RO \cdot 2CO_2 \cdot 5H_2O$, where $R = Mn^{II}:Zn:Mg = 5:4:1$. The formula may be written in basic form as $2RCO_3 \cdot 5R(OH)_2$.

ANALYSIS OF LOSEYITE

	1.	2.	3.
MnO	34.94	.493	36.40
FeO	0.64	.009 (.990 = 7×.141)	
ZnO	32.77	.403	33.38
MgO	3.42	.085	4.14
CO_2	12.59[b]	.286 .286 = 2×.143	12.90
H_2O	13.83[a]	.768 .768 = 5×.154	13.18
SiO_2 (acid insoluble)	0.16	.003	
Mn_2O_3	1.03[c]	.007	
Total	99.38		100.00

* Samuel R. Losey died about 23 years ago, aged about 73 years.

Weight of sample for analysis .4582 g.
a. Weight of separate sample .1215 g.
b. " " " " .1302 g.
c. " " " " .0187 g.

1. Analysis by L. H. Bauer.
2. Molecular ratios omitting SiO_2 and Mn_2O_3.
3. Calculated composition for 7 (Mn, Zn, Mg)O· $2CO_2$· $5H_2O$.

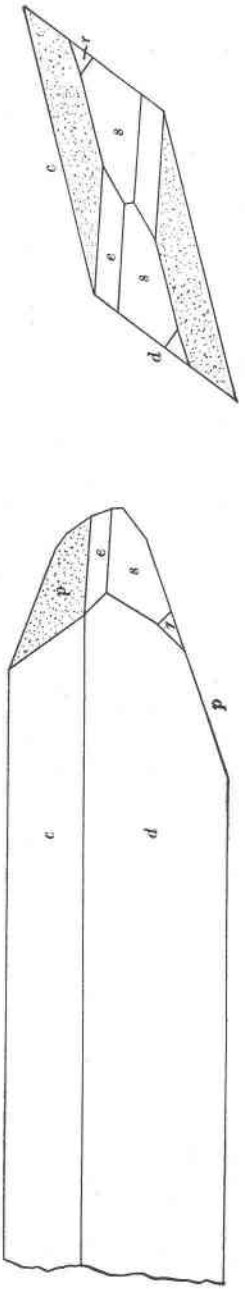
The formula here given for loseyite is analogous to that usually given for hydrozincite as is shown by comparing the two.

Loseyite	$2RCO_3 \cdot 5R(OH)_2$
Hydrozincite	$ZnCO_3 \cdot 2Zn(OH)_2$

The data available on hydrozincite are not wholly satisfactory and further relationship between the two minerals cannot be definitely stated. It is certain, however, that loseyite, with its high manganese content deserves full species rank.

Crystallography

The crystals of loseyite are monoclinic with elongation in the direction of the *b*-crystallographic axis. There were no crystals found which would yield really satisfactory goniometric measurements for crystallographic study. There were, however, some very minute lath-shaped crystals which could be used for approximate data. A number of these were measured, their size ranging from 0.5 to 0.2 mm. in length. The angles finally used were obtained from the two best of these minute crystals. Since the mineral is elongated in the direction of the *b*-axis, the measurements were made with this axis vertical. In the crystallographic table below, the angles and elements in this abnormal position [projection on (010)] are given, together with those calculated for the normal position. Figure 1 illustrates the habit of loseyite. The orthodome zone is striated parallel to the direction of elongation. The form $p(\bar{1}36)$ is the largest terminal form. Poor images were reflected from its faces, however, because they are etched. The prism $s(130)$ is small but gave brilliant reflection. The other forms noted had good reflection surfaces but their minute size prevented satisfactory readings.



Loseyite from Franklin, New Jersey

ANGLE TABLE—LOSEYITE

Side Pinacoid Position $p_0''=1.62; r_0''=1.43;\ \mu=85°\ 30'$					Normal Positin $p_0=.88\ \ a=.70\ \ \mu=85°\ 30'$ $q_0=.62\ \ c=.62$			
Miller Symbol	Observed ϕ	Averages ρ	Calculated ϕ	ρ	Miller Symbol	Letter	Calculated ϕ	ρ
100	85° 30′	90° 00′	85° 30′	90° 00′	001	c	90° 00′	4° 30′
110	47° 09′	90° 00′	46° 03′	90° 00′	101	d	90° 00′	43° 57′
101	85° 30′	58° 23′	85° 30′	58° 23′	011	e	7° 16′	31° 53′
013	0°	25° 32′	0°	25° 32′	130	s	25° 32′	90° 00′
$6\bar{1}3$	−87° ±	74° ±	−86° 04′	72° 53′	$\bar{1}36$	p	−12° 34′	17° 34′
$2\cdot\bar{7}\cdot 14$	−19° ±	35½° ±	−18° 20′	36° 20′	$\bar{7}\cdot 14\cdot 2$	r	−34° 55′	79° 16′

PHYSICAL PROPERTIES

The optical properties were determined in immersion media and are as follows: $\alpha=1.637$; $\beta=1.648$; $\gamma=1.676$, measured in white light. Biaxial (+) positive; $2V=64°$, $Y=b$. $\rho>\nu$ weak.

The specific gravity of loseyite was determined by floating some crystals in clerici solution. The value thus obtained is 3.27. The value calculated from the composition according to the Gladstone & Dale formula is 3.25, indicating that the chemical formula is probably correct.

No prominent cleavage direction could be detected under the microscope. The hardness is about 3.

SUMMARY

Loseyite, occurs at Franklin, N. J.; named in honor of Samuel R. Losey, a collector of Franklin minerals. Composition, $2RCO_3\cdot 5R(OH)_2$; R = Mn:Zn:Mg = 5:4:1. Crystallography, Monoclinic, elongated parallel to b.

$a:b:c=0.70:1:0.62$ $\beta=94°30'$

$p_0:q_0=.88:.62$ $\mu=85°30'$

forms: $c(001)$, $e(011)$, $d(101)$, $s(130)$, $r(\bar{7}.14.2)$, $p(\bar{1}36)$.

Optical properties: Biaxial positive, $2V=64°$, $b=Y$, $\rho>\nu$, $\alpha=1.637$, $\beta=1.648$, $\gamma=1.676$.

Physical properties: Specific gravity = 3.27. Hardness = 3±. Cleavage not detected. Color—bluish-white.

Association: Occurs with pyrochroite, sussexite, chlorophoenicite and calcite in a small vein in the ore at Franklin.