

PRICEITE FROM FURNACE CREEK, INYO COUNTY,
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In the field and in the literature frequent mention is made of the occurrence of priceite in California. In the course of an investigation of the borax deposits of the Mohave Desert Region by the writer all the reported localities were visited. Invariably the priceite proved to be the calcium silicoborate, howlite. At the mines the howlite is generally referred to as pandermite (= priceite). True priceite, not hitherto reported, was found during this investigation at a small prospect in the Furnace Creek Wash in Inyo County, about two miles below the mill of the Pacific Coast Borax Company.

The priceite occurs as nodules and irregular masses embedded sporadically in a soft greenish gray shale. Near the surface the mineral is in soft chalky masses associated with colemanite and gypsum. With depth, the priceite becomes harder and more compact. The purest material is very compact and tough and breaks with a decided conchoidal fracture. The surface specimens resemble the priceite from Oregon while the more compact material is entirely similar to the mineral from Panderma. The color is pure white. Its hardness is 3-3.5. Sp. Gr. 2.43.

The compact mineral is crystalline to cryptocrystalline. The softer material under the microscope is seen to be made up of shreds and small platy grains with occasional rhombic outline. These grains have a weak birefringence, are biaxial with positive optical character and a medium optic axial angle. The indices determined by the immersion method are:

$$\alpha = 1.571, \beta = 1.590, \gamma = 1.593.$$

For analysis the compact, pure white material was selected. Although very fine grained the material appeared homogeneous under the microscope. The results of the analysis together with the calculated ratios is given below:

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ANALYSIS AND RATIOS OF PRICEITE FROM CALIFORNIA

SiO ₂	0.58		
CaO	32.20	.575	5
Al ₂ O ₃	0.20		
B ₂ O ₃	49.03	.700	6
H ₂ O (-)	0.38		
H ₂ O (+)	17.86	.990	9
	<u>100.25</u>		

The ratios therefore correspond to the formula usually given for priceite, $5\text{CaO} \cdot 6\text{B}_2\text{O}_3 \cdot 9\text{H}_2\text{O}$. Van't Hoff, however assigned the formula $4\text{CaO} \cdot 5\text{B}_2\text{O}_3 \cdot 7\text{H}_2\text{O}$ to the mineral, artificially prepared. In the following table the three best analyses are compared with the theoretical compositions of the two ratios given.

COMPOSITION AND RATIOS OF PRICEITE

	4:5:7	5:6:9	Foshag	Van't Hoff	Kraut
CaO	32.7	32.5	32.2	31.4	32.3
B ₂ O ₃	51.0	48.7	49.0	48.9	49.9
H ₂ O	16.3	18.8	17.9	18.9	18.2

The agreement is sufficiently close to accept the ratios of priceite as $5\text{CaO} \cdot 6\text{B}_2\text{O}_3 \cdot 9\text{H}_2\text{O}$.

The minerals associated with the priceite are colemanite and gypsum. Both of these minerals were observed only in the specimens from the surface. The colemanite forms small crystals coating the sides of the cavities or attached to loose masses of the priceite in the cavities. In some places the priceite gives way to vugs lined with small and brilliant colemanite crystals. The relations indicate clearly that the colemanite is the result of the surface alteration of the priceite. The gypsum is decidedly later than the colemanite as well as the priceite. It forms seams in the shale and fills cavities occupied by the colemanite.

Van't Hoff synthesized priceite by the action of sodium and potassium chloride solutions upon ulexite at a boiling temperature. The Furnace Creek mineral, however, shows no evidence of having been derived from any preexisting mineral, but was probably deposited as priceite within the shales. In a recent paper by G. Linck,² the priceite of Panderma was thought to be a direct pre-

² *Centralblatt, Min. Geol.*, p. 193, 1923.

precipitation from the boraciferous waters of lagoons, the precipitate being first amorphous but crystallizing upon standing. The general occurrence and the metacolloidal character of the California mineral would seem to bear out such a hypothesis. The mineral is of very local occurrence, however, and probably formed under conditions somewhat different from those that determined the formation of the large beds of ulexite and colemanite of this region.

PROCEEDINGS OF SOCIETIES

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences, October 11, 1923

A stated meeting of the Philadelphia Mineralogical Society was held on the above date, the President, Mr. Vaux, being in the chair. Fifteen members were present. The minutes of the previous meeting were read, corrected and then approved. Four names were proposed for membership. The matter of nomination of officers for the coming year having been overlooked at the preceding meeting, it was expressed as the sense of the society that the present officers be re-elected. On motion of Mr. Hoadley, seconded by Mr. Warford, and unanimously passed by the members, the Secretary cast a ballot re-electing the present officers for another term.

Mr. Biernbaum suggested that the order of business be amended so as to group together the routine business and provide for the uninterrupted consideration of subjects of mineralogical interest. Mr. Vaux heartily endorsed the suggestion and proposed a motion to make this change. The motion, duly seconded, was unanimously carried. Mr. Hoadley proposed that the Society consider the advisability of placing in the Mineral Hall of the Academy a loan collection to be supplied by the members of the Society. After some discussion, a motion was passed to create a committee to look into the matter and report to the Society the conclusions reached. The President appointed Messrs. Blank, Trudell and Biernbaum on this committee.

No further business being at hand, Mr. Boyle spoke on the subject "*The Micās.*" The ordinary physical characteristics of the principal members of this group were briefly referred to, their mode of occurrence, probable origin and associations were outlined and their general relationships stated. The chemical relationships were somewhat more fully explained with a view of presenting a synoptic study of the group, this being illustrated by blackboard presentation of the similarities and variations of chemical composition. The talk was also illustrated by specimens so displayed as to indicate the relationships shown by the chemical composition. Some discussion followed which evidenced the interest of the members in the subject.

The following trips were reported upon: by Mr. Hoadley, to Easton, Pa., Ogdensburg, N. J. and McAfee's near Franklin, N. J., which produced the usual minerals. Also a trip to Mantua and Mullica Hill, N. J., where well crystallized vivianite was found. On this latter trip, Dr. L. C. Wills and Mr. Boyle were present,