

ART. LIII.—*Preliminary Note on a new Alkali Mineral*;*
by WARREN M. FOOTE.

WHILE searching recently at Borax Lake, California, for the new species sulphohalite,† Mr. C. H. Northup discovered small crystals of what he considered to be a new form of that mineral. Mr. Northup reports that they are very rare, having been found during a laborious working of the “tailings” or debris from an exploratory boring known as the “New Well,” made by the Borax Lake Mining Company, and that they were undoubtedly formed in a stratum of clay reached at a depth of about 450 feet.

The entire find was forwarded to Dr. A. E. Foote, to whom the writer is indebted for the material used in this brief examination.

Crystallization, etc.—The mineral crystallizes in regular octahedrons, whose diameter rarely reach one centimeter. They occasionally exhibit triangular markings and a habit of parallel grouping in more or less regular aggregates. Fractured crystals show in the interior a cross of faint lines running perpendicularly to the crystal faces. These are divided by darker planes lying parallel to cubic symmetry, and passing through the angles of the octahedron, dividing it into eight parts. The same thing is noticeable in the clearest of the complete crystals, a bundle of striæ coming from the center of the crystal to the center of each face with the dividing planes clearly visible. This phenomenon is strikingly similar to that observed in cubes of boléite (figured by Bombicci in a memoir on mimetical pyrite, Bologna, 1893). The markings in the present instance are probably due to inclusion of organic matter, as in chialtolite.

The color varies from dirty white, pale yellow and greenish gray to dark brown; the lighter colored crystals closely resemble senariontite. Cleavage is imperfect. It is brittle and shows uneven fracture. Luster, vitreous on broken surfaces, occasionally bright on crystal planes. Hardness, 3.5 to 4.

Chemical examination.—In powdering the mineral a fetid odor is distinctly perceptible. It is easily fusible before the blowpipe; in the closed tube it blackens and gives off a burnt odor with violent decrepitation and liberation of water (which subsequently proved to be mechanically included), finally fusing to a gray mass. Boiling water effects partial decomposition of the powdered mineral, with separation of a bulky white

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residue, consisting mainly of basic carbonate of magnesia. It is decomposed with effervescence in cold dilute hydrochloric acid, with slight residue insoluble.

A careful qualitative analysis of crystal fragments showed it to consist essentially of sodium, magnesium, hydrochloric and carbonic acids, indicating a *double chloride and carbonate of sodium and magnesium*. Traces of phosphoric acid, silica, iron, calcium and organic matter were also found. This composition is quite as remarkable as that of other species peculiar to the Borax Lake region.

The name "*Northupite*" is proposed for this new species, since it was entirely due to Mr. Northup's indefatigable zeal in collecting that the mineral was brought to light. Professor Penfield has promised to make a quantitative analysis of this and several other interesting minerals found in association, at least one beside the *Northupite* being new.