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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 senarmontite. 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

* A revision of a paper read before the meeting of the Philadelphia Academy of Natural Sciences, Aug 27th, 1895.

† This Journal, xxxvi, p. 463.

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.

ART. LIV.—*Three-toed Dinosaur tracks in the Newark Group at Avondale, N. J.*; by J. B. WOODWORTH.

A "track stratum" appears first to have been recognized in the quarries along the west bank of the Passaic River, in New Jersey, in the Newark rocks, by Mr. Frank L. Nason, of the N. J. Geol. Survey, in 1888. In his description, the general stratigraphic relations of these quarries are set forth, but nothing more is said regarding the tracks other than that they are referred to "reptiles, birds and insects."*

The object of this notice is to confirm Mr. Nason's observations as to the existence of tracks, and to describe a track-covered slab seen in the quarry at Avondale in September of this year. Having come fresh from the collection of dinosaur tracks at Amherst, the writer began a search in the now little-worked Newark quarries. Ill-defined impressions were here seen, but nothing that was satisfactory. At Avondale, markings, due neither to current-mark nor to ripple-mark, were at once seen on the brownish-red shale-covered surfaces of several blocks of freestone. In addition to these equivocal impressions, the following described foot-prints are essentially identical with those found in the Connecticut valley area:

On a triangular block about 7 feet on a side, 15 tracks were seen. These were of two kinds, with the exception of one isolated print, in three lines as follows:

* Annual Report of the State Geologist for 1888, Camden, 1889, pp. 22, 28.