The crystals show no measurable piezoelectricity and no anomalies in dielectric constant with temperature variation from $-190°$ C. to 480° C. The dielectric constant is about 6 at room temperature. A thermal analysis was made between 100° and 800° C., and this showed a sharp transition at 460° C. The analysis is illustrated in Fig. 3.

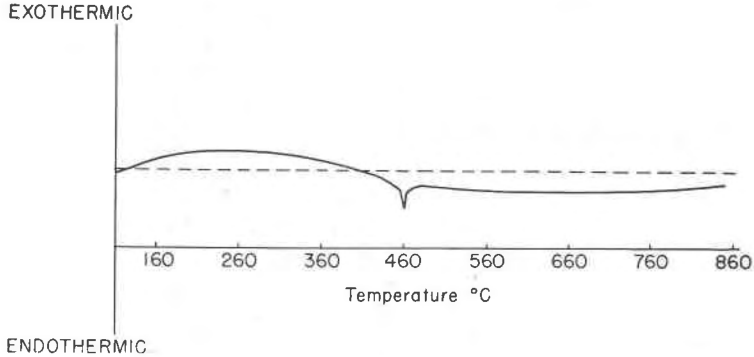

FIG. 3. Differential thermal analysis (AlF_3).

The crystal structure of AlF_3 below the transition point is not firmly established. A reexamination by x-ray diffraction of the structure above and below the transition temperature will be reported shortly.

The participation of Dr. W. Merz in the electrical measurements is gratefully acknowledged.

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POWELLITE AND ASSOCIATED PSEUDOMORPHS AT THE ANDERSON MINE, MINERAL COUNTY, NEVADA

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During and after World War I, the Santa Fe District in Mineral County, Nevada, was an important copper producer and of the producing mines the Champion-Anderson group was one of the largest. The writer had an opportunity in recent years to examine the surface and underground workings of these mines rather extensively. Certain features of the mineralization observed may be of more than passing interest.

The primary metallic minerals observed in the deeper levels of the Champion mine are chalcopyrite, bornite, sphalerite, pyrite, a local occurrence of stibnite, and very sporadic molybdenite. The accessible workings in the adjacent Anderson mine were all in the oxide zone. In these upper levels drusy hemimorphite frequently lines seams in the copper ore and associated with this hemimorphite the crystals described below were found.

Among a number of specimens of the drusy hemimorphite, three were found which showed tiny pyramidal crystals of tetragonal habit implanted upon the hemimorphite crystals. A few square tabular crystals were also found. A few of the crystals, apparently unaltered, were nearly colorless and translucent. Most of the crystals were an opaque white due to partial replacement by hydrozincite which is also present as late crusts on the hemimorphite. A few other crystals of both tabular and prismatic development show partial to complete replacement by chrysocolla. Since both tabular and pyramidal wulfenite crystals had been found in some of the Champion workings, that mineral was suspected here, but both triple nitrite and iodide microchemical tests failed to show any lead. Calcium was proved by precipitating microchemical gypsum and cesium chloride showed the absence of bismuth. Molybdenum was proved by semi-micro reduction to molybdenum blue and confirmation with xanthate. No tungsten reaction was obtained by using reduction tests of both stannous chloride and tin. Thus a calcium molybdate conformable with powellite is indicated. The age sequence in relation to the hemimorphite suggests a relatively low temperature of formation.

Chrysocolla, in addition to replacing the powellite, was observed in various stages up to complete replacement of both hemimorphite and acicular to capillary malachite crystals.

TRICLINIC CALCULATIONS

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To simplify triclinic calculations it may be well to point out certain relations implicit in my recent paper[1] which were not explicitly stated. Here the rectangular coordinate parallel to the $\phi=0°$ direction of the orthographic projection of unit distance on the axial trace out towards the "right" was expressed as n_0, n_1 or n_2 in the three orientations.[2]

[1] Fisher, D. Jerome (1952), Triclinic gnomonostereograms: *Am. Mineral.*, **37**, 83–94. On p. 91 the denominator of (13) should be cot β.*

[2] Since the m-coordinates (parallel the $\phi=90°$ direction) are readily derived from the n-values, it would seem that one could dispense with the former. It is stated (*op. cit.*, base p. 88) that the denominator of (9) is n_0.