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THE DUFRENITE LOCALITY AT MIDVALE, ROCKBRIDGE COUNTY, VIRGINIA

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The Virginia locality of the rare mineral dufrenite is generally designated in collections as "Rockbridge County, Va." Writers affecting greater precision have given it as "ten miles east of Lexington, Va.," or, erroneously, as 3 miles west of this town. The old iron mines which produced this mineral are located on the crest of the Blue Ridge, about $1\frac{1}{2}$ kilometers (one mile) southeast of Midvale,—a small station on the Norfolk and Western R. R., about 35 km. north of Natural Bridge.

Small dumps just west of the South River road, about a kilometer south of the station, serve to locate the site of the washer. The ore was brought down from the mountain by a tramway which extended directly eastward. The mines may be reached by following the tramway up the mountain, after crossing the stream on a log bridge south of the site of the washer. As this route is rather steep and somewhat overgrown, it is preferable to ascend by an old road which parallels it to the south. The road is replaced by a trail over talus blocks of "Erwin" quartzite, joining the tramway in a cut of this rock.

The mines are quite overgrown, but the dumps are easily accessible. The ore deposits occurred apparently in a brecciated ferruginous sandstone or conglomeratic member of the "Unicoi" formation, as the dumps consist largely of this material. Occasionally a mass of radiating greenish-black dufrenite, altered on the surface to limonite, may be found. Veins of an iron hydroxide mineral occur thruout the sandstone, often exhibiting a slight translucency, being blood-red by transmitted light. Strengite is present, tho rare, very minute adamantine brown and reddish crystals occurring on dufrenite, or in fractures in the sandstone. One specimen showed a minute amount of

green cacoxenite. Specimens of dufrenite may also be picked up on the dump on the site of the washer.

An abandoned manganese mine is situated on a spur of the Blue Ridge about $1\frac{1}{2}$ km. northeast of Midvale, but specimens of pyrolusite are the only thing obtainable there.

CALCULATION IN THE TRICLINIC SYSTEM ILLUSTRATED BY ANORTHITE

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(Continued from page 194)

2. *Determination of v_0 from the angles of terminal faces.* Figure 44 and Tables 5 and 6

In figure 44 let $F_1 = p_1q_1$, and $F_2 = p_2q_2$ be any two terminal faces for each of which we have measured the pole distances $\rho_1\rho_2$ and the vertical circle readings V_1, V_2. These two faces determine a zone, *Z*, in which there must lie, at its intersection with the prism zone, a possible prism face. The symbol of this prism will be ∞ q where $q = \frac{q_2 - q_1}{p_2 - p_1}$.

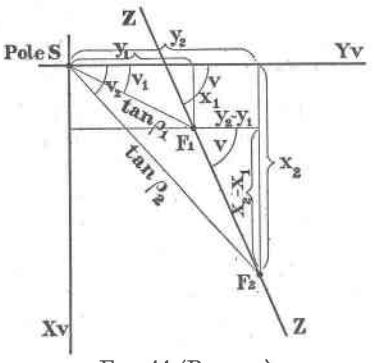

FIG. 44 (Parsons)

The angle v of all such prisms ∞ q determined by any pair of terminal faces can be calculated and will give a set of values which may be compared with the measured prism angles. Or the calculation may be confined as is here done to pairs of faces lying parallel to the direction line of 0 ∞, each of which will give a value of v_0. In figure 44 let X_v and Y_v be rectangular coördinates, the latter having the direction determined by S, the projection center, and the zero direction of the V values. From the figure it is evident that:

$$x_1 = \sin v_1 \tan \rho_1 \qquad x_2 = \sin v_2 \tan \rho_2$$

$$y_1 = \cos v_1 \tan \rho_1 \qquad y_2 = \cos v_2 \tan \rho_2$$