THE OCCURRENCE OF A LARGE IRON-TOURMALINE IN ALABAMA PEGMATITE

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Some years ago Mr. Hubert H. Ward and Mr. B. E. Broadwell, Case, class of '08, found a large iron-tourmaline crystal in a weathered pegmatite dike in eastern Alabama, and presented the same to the Department of Geology and Mineralogy at Case. This occurrence was described by the writer at the thirtieth annual meeting of the Geological Society of America at St. Louis, Missouri, on December 29, 1917, and a brief abstract was published in the Bulletin of the Society.[1] It has been suggested recently that the readers of the American Mineralogist would be interested in a description of the specimen and in seeing the photographs of the same.

In the vicinity of Micaville, Randolph County, Alabama, there are many pegmatite dikes. In Township 18, Range 10 and 11 East, there are thirteen of these dikes which are approximately parallel and strike northwest and southeast, according to the information given to the writer. They vary in width from six inches up to forty feet, and occur in what is locally called the Ashland Mica Schist. The dikes are generally found parallel to the foliation planes of the schist which becomes rich in garnets at the contact, and is said also to contain cyanite. The chief minerals of the pegmatites are quartz, orthoclase, muscovite, biotite, iron-tourmaline and beryl. The mineral content of the dikes varies from nearly pure orthoclase up to almost pure quartz, and the muscovite, for which the dikes were originally exploited, seems to be found in greater quantity when quartz is present in large amounts. The pegmatites are usually weathered to kaolinite from depths ranging from ten down to ninety feet. The quartz occurs always in very large masses, sometimes weighing several hundred pounds, but crystal faces are generally lacking. The orthoclase, on the other hand, is seldom larger than a few inches, and crystal planes are likewise rare. The muscovite occurs in well formed crystals, which range in size from microscopic ones up to those which weigh three hundred pounds. The iron-tourmalines are commonly found in all sizes up to ten inches long and six inches in diameter. Beryls were not plentiful, but crystals have been found as large as five inches long, and three inches in diameter.

[1] *Bull. Geol. Soc. Am.*, **29**, No. I, p. 104-105, March 1918.

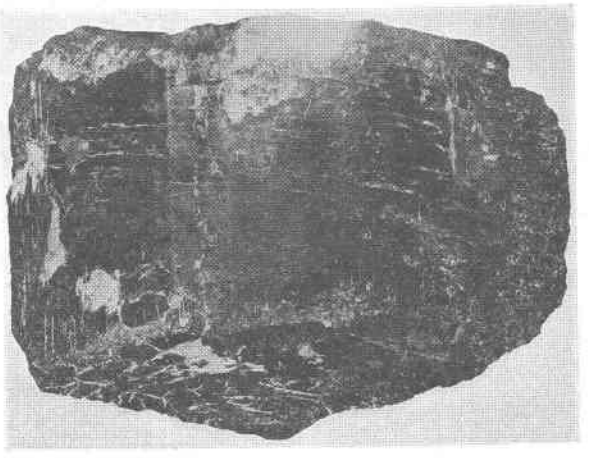

Fig. 1. Side View of Iron Tourmaline 7 inches high and 10 inches in diameter weighing 43½ pounds. Originally 3 to 3½ feet long and weighing probably 225 to 250 pounds.

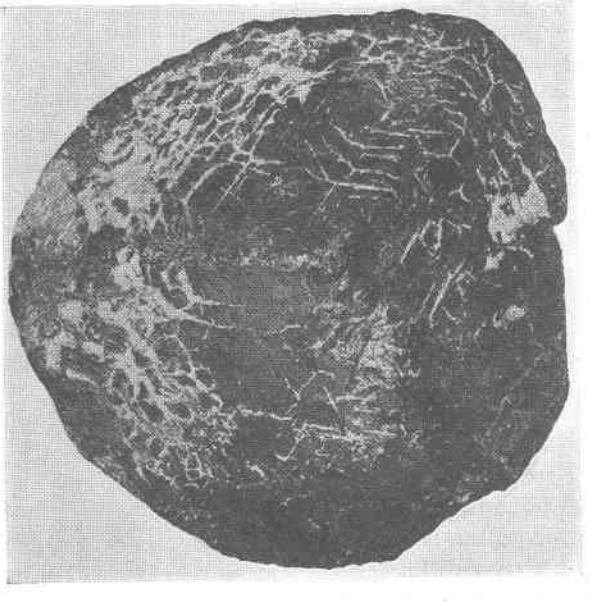

Fig. 2. Bottom view of Large Iron-Tourmaline.

The large iron-tourmaline was found by Mr. Broadwell in the shaft of Mine No. 5 of the Great Southern Mica Company about one half mile from Micaville. This shaft was in the largest dike, which was about forty feet wide, and the crystal was found at a depth of about seventy feet. The dike was weathered to a depth of eighty feet. The tourmaline was originally from three to three and one half feet long and probably weighed from 225 to 250 pounds. As far as the writer's knowledge is concerned, it is one of the largest crystals of tourmaline ever discovered. At present the specimen is seven inches high and ten inches in diameter, and weighs 43½ pounds. The faces are rough, and vertically striated due to oscillatory combination of the two prisms, but the three planes of ∞P $(10\bar{1}0)$, and the six faces of $\infty P\,2$ $(11\bar{2}0)$ are easily distinguishable. The crystal is terminated by R $(10\bar{1}1)$ which is immediately below the prism of the first order, ∞P $(10\bar{1}0)$, and is therefore the blunter end of the original hemimorphic crystal which, according to Gustav Rose, is the analogue pole in the development of pyroelectricity. Figure 1 is a side view which shows many cracks nearly perpendicular to the vertical axis, but which may be only a development of the subconchoidal to uneven fracture. Figure 2 is the bottom view of the crystal. Certain white markings are visible in three directions at approximately 120 degrees, which are roughly parallel to the edges of the rhombohedron. The white particles which render the markings more visible consist of a mixture of quartz and muscovite scales.

A VISIT TO THE LOCALITY OF NEWTONITE

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In connection with the writer's studies on the aluminium silicate minerals, it seemed desirable to obtain specimens of as many of the rarer clays as practicable, so that analyses could be made on optically controlled material. One species of particular interest was newtonite, recorded in Dana as occurring only "on Sneed's Creek, in the northern part of Newton County, Arkansas." In the course of a recent trip through that region (taken primarily for the study of the vegetation) an opportunity to visit the locality presented itself, and directions for finding it seem worth placing on record for the aid of others who may desire to go there.

The locality is situated on the Harrison Quadrangle, Arkansas-