LARGE MAGNETITE AND FRANKLINITE CRYSTALS FROM FRANKLIN FURNACE, NEW JERSEY

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MAGNETITE

Most people do not associate magnetite with Franklin Furnace. However in 1868, Dr. George H. Cook in his Geology of New Jersey mentioned two veins in this vicinity. The more continuous one was found in what was later designated as the Pochuck gneiss while the other occurred in the metamorphosed white Franklin limestone. More ore was produced from the gneiss but some was also obtained from the limestone. Both were mined by the Franklin Iron Company and the ore was smelted at the old Franklin charcoal furnace. The most important working in the gneiss was known as the Hill mine and was abandoned in February 1882. The one working in the crystalline limestone was called the Furnace or Pikes Peak Mine where work ceased in November 1881. In 1879 both properties together produced 14,000 tons of magnetite ore.

The writer while visiting Franklin in 1893 picked up a large magnetite crystal which by comparison with similar crystals in various collections seemed of such unusual size as to be worthy of record. The crystal under discussion was found on a dump from a trench excavation not very far from the New York, Susquehanna and Western Railroad tracks, southwest of the old furnace and near the first limestone quarry. This trench was in the limestone and was probably a continuation of the so-called Furnace vein. The magnetite crystal weighs 1205 grams and is about 9 by 9 by 10 centimeters, or about $3\frac{1}{2}$ by $3\frac{1}{2}$ by 4 inches. (Fig. 1). The crystal habit is rhombic dodecahedral with one face of the dodecahedron 7.5 centimeters between the two horizontal axes, and 5 centimeters high or 3 by 2 inches. The octahedral face above is from 2–2.5 centimeters or $\frac{3}{4}$–1 inch in length, and the dodecahedral faces are pronouncedly striated parallel to the intersecting edges with the octahedron. As the writer has previously indicated, he knows of no magnetite crystal any where which approaches this one in size.

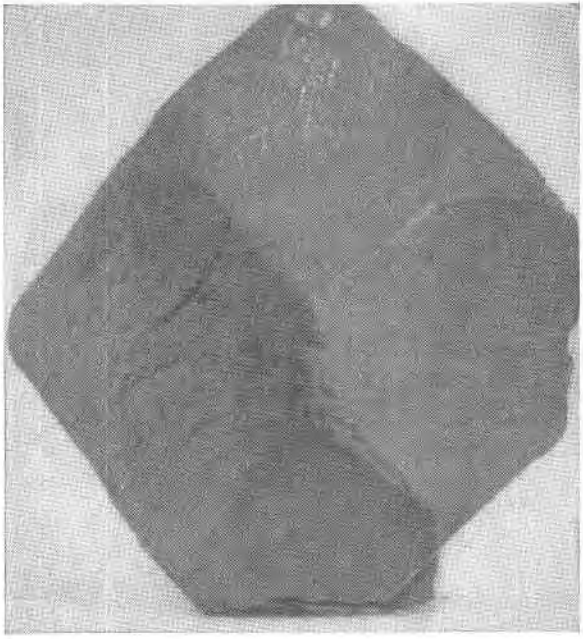

Figure 1. Magnetite.

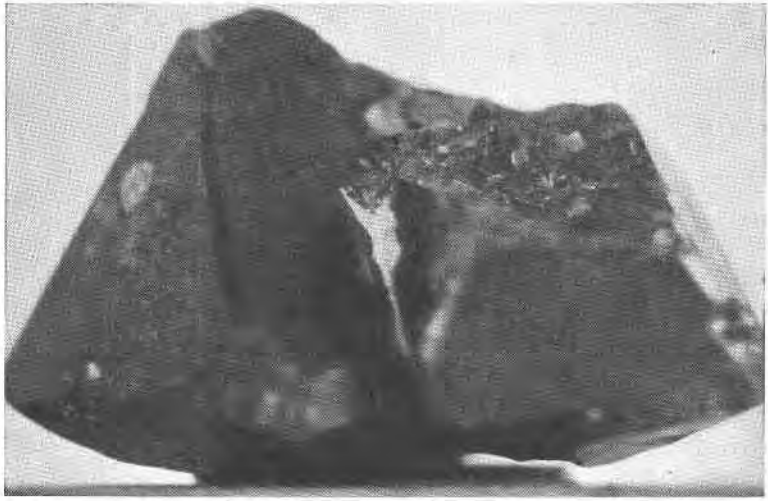

Figure 2. Franklinite.

Franklinite

Large Franklinite crystals were not very unusual in the old days and in 1891, the writer found one rather imperfectly developed associated with calcite, zincite and tephroite. The specimen weighs 975 grams, and as usual the habit is octahedral with edges slightly truncated by the rhombic dodecahedron, the faces of which are about 10 centimeters or four inches long. The octahedron face is 8 centimeters or $3\frac{1}{4}$ inches between the dodecahedral faces.

A second specimen was found in 1893 and consisted of a group of two franklinite crystals which weighs 810 grams. (Fig. 2) The larger crystal is about 8 centimeters or $3\frac{1}{4}$ inches on the dodecahedral face while the octahedral face is between 5 and 6 centimeters or between 2 and $2\frac{1}{4}$ inches long.

There is no doubt but that other franklinite crystals have been found as large as these but both specimens are, nevertheless, unusual in size.