

Koto. An analysis made upon material separated by heavy solutions gave:  $\text{SiO}_2$  0.40,  $\text{Fe}_2\text{O}_3$  32.49,  $\text{Al}_2\text{O}_3$  2.32,  $\text{B}_2\text{O}_3$  16.80,  $\text{FeO}$  10.40,  $\text{CaO}$  1.86,  $\text{MnO}$  0.36,  $\text{MgO}$  34.54,  $\text{H}_2\text{O}$  1.42, sum 100.59%. This composition proves beyond question that the material is neither ilvaite nor a pyroxene, but that it is in fact ludwigite of not abnormal composition. That it should be mistaken for ilvaite under the microscope is not surprising since the optical properties of ludwigite and ilvaite are almost identical. How the mineral could have been mistaken for a pyroxene and what justification existed for assigning a new name to it is not clear. Such casual introduction of new names into a science already replete with meaningless words is greatly to be deplored. This ludwigite and its occurrence will be further reviewed in a paper on the distribution of ludwigite as a contact metamorphic mineral which is in preparation.

### THE OLD COBALT MINE IN CHATHAM, CONN.

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The old cobalt mine in Chatham is one of the many diverse types of metal deposit in New England which have in times past enticed speculative persons into spending money in their development without ever repaying the money invested, yet giving to mineralogical science numerous valuable specimens. The region about Cobalt was believed to contain rich mineral deposits from the earliest times. There is an old legend to the effect that Governor Winthrop was accustomed to repair to his mines here for a certain period of each year with a single henchman and to secretly mine, smelt and manufacture gold to supply himself for the balance of the year.

The cobalt mine was first worked in 1762 by three Germans who shipped the ore in casks to England, Holland, and China. Later another German named Erklens spent ten thousand dollars in development and shipped twenty tons of ore to China, but lost money on the venture. Seth Hunt, of New Hampshire, worked here from 1818 to 1820 and spent his fortune to no avail. Prof. C. U. Shepard operated the mine for a time about 1844. The last and most extensive operations were begun in 1850 when Edmund Brown sunk a shaft and ran drifts, taking out a large amount of ore and also building offices and reduction works.

There is no record of a purely scientific examination of the mine during its operation, and little is known regarding its production. Cobalt was the metal sought in all cases, it being converted into the oxide and used in the manufacture of smalt. A French chemist pronounced most of the ore from the shaft arsenical pyrite with 80 per cent. arsenic, 9 iron,  $4\frac{1}{2}$  sulfur and 4 cobalt, and a trace of bismuth.<sup>1</sup>

Dana lists from here the minerals arsenopyrite, smaltite, chloanthite (chathamite), scorodite, niccolite, and erythrite. "Chathamite," named for the locality, is an iron-rich chloanthite. The name is one of Shepard's. An analysis of this mineral by Genth gave: As 70.11, S 4.78, Co 3.82, Ni 9.44, Fe 11.85, sum 100 per cent.

The old mine is located at the south foot of Great or Cobalt Hill, about  $1\frac{1}{2}$  km. (1 mile) north of Cobalt Station. It can be reached by taking the road which runs north from the station, to the road which runs east along the foot of Great Hill. The cobalt vein crosses the east-west road at three hundred and seventy paces from its intersection with the north-south road. The course of the vein is marked by a continuous line of deep trenches, now overgrown with bushes and trees, for almost 300 meters. Actual exposures of the ore in place there are none, but much rock from the openings is available for examination.

The vein seems to strike about due east-west and to dip with the inclosing rocks about  $45^\circ$  to the north. The most abundant rock is a dark sandy quartz gneiss containing thin laminas of coarser foliated biotite and garnet. The "chathamite" occurs in small grains, bunches and veinlets intergrown with the biotite in these biotite-rich layers. The blocks of this rock containing the cobalt minerals are stained greenish yellow on the outside and are rolled and crumpled. They are very tenacious and emit an arsenical or sulfurous odor when broken, even when no cobalt minerals are visible. Associated with the biotite-quartz gneiss is some silvery muscovite or sericite schist which contains no metallic minerals. In one place a small amount of a much altered basic igneous rock was seen. The vein seems to be merely a zone in the gneiss where the cobalt minerals occur in disseminated form. This zone contains quartz veins and lenses of two types. The first type is composed of granular quartz rendered schistose by thin parallel partings of mica, and

<sup>1</sup> Loomis, I. F., *The Town of Chatham, Conn., Quart.*, 5, 370, 1899.

contains no cobalt or other metallic minerals. The second type is coarsely crystalline white quartz, often translucent and containing abundant large crystalline grains and aggregates of "danaite." Where these bunches of cobaltiferous arsenopyrite are decomposed they yield earthy aggregates of a greenish yellow to gray color which may include scorodite and erythrite. No niccolite was found in the short time spent at the mine.

The buildings which were used in connection with the mining have vanished and such underground workings as were opened are also lost to sight. The dumps are still accessible, however, and yield abundant specimens of the above described minerals.

### NOTES AND NEWS

It has been necessary to reduce the size of this number because many of our subscribers have not yet renewed, and members not paid their dues, and we are uncertain as to when they can be expected to do so. Subsequent numbers will be brought back to normal as soon as our income permits.

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*Corrections to List of Members of M. S. A.*—Page 48 (February number), after V. W. Field add: Wylie G. Flack, 4418 N. 15th St., Philadelphia, Pa; 5th line from bottom, Mr. J. L. Wills should be transferred to page 50, 16th line.

Page 49, 10th line from bottom, Mr. M. W. Senstius should be Professor.

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*Minerals from York, Pa.* M. L. Jandorf. The writer recently found in a local limestone quarry the following minerals, unusual for this region: barite, in colorless, pale greenish, golden wine-yellow, and white crystals; minute pyrite crystals in perfect cubes and modified, the latter type encrusting crystals of barite; deep purple fluorite; and transparent calcite crystals a few mm. in diameter, of almost perfect rhombohedral form. Unfortunately the number of specimens obtained is insufficient to permit them to be offered in exchange.

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An apparatus for growing large crystals has recently been patented by Dr. Otto Dreibrod, of Bitterfeld, Germany (U. S. Pat. 1,353,571, Sept. 21, 1920). The plan consists in circulating the liquid past the suspended growing crystal, and cooling the liquid on its way into the crystallizing vessel.

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We regret to note the death of Dr. T. Wada, the eminent Japanese mineralogist and author of the *Mineralogy of Japan*, on December 20th, 1920; and of Sir Lazarus Fletcher, keeper of minerals and subsequently director of the British Natural History Museum, on January 6th, 1921. Biographic sketches of both will be published when space permits.