

## Vanadium in New Mexico

## SPECIAL CORRESPONDENCE

The Vanadium Mines Company, operating in the Caballos district, Sierra county, N. Mex., is developing the White Swan mine and has sunk a two-compartment shaft to 140 ft., with a 150-ft. drift at the 80-ft. level. A body of vanadium-bearing ore has been uncovered which is said to assay 2 per cent.  $V_2O_5$ . The company is planning a reduction plant in addition to its present 50-ton concentrating mill. This plant will consist of one calcining furnace, 10 leaching and two evaporating tanks capable of producing daily 2000 lb. of  $V_2O_5$ . The cost will be about \$100,000 and the plant will be at

Cutter, on the Jornada del Muerto, about half way between El Paso and Albuquerque on the main line of the Santa Fé railway, at the junction of the branch line to Elephant Butte. Here water can be obtained at 90 to 110 ft. A power plant is nearly completed, which will supply electric power for the mill and mine.

The Vanadium Queen Mining Company of Las Animas district is completing its plans for a large concentrating plant on the Río Perche, and it is presumed that actual work will begin soon. The holdings of this company promise a large production of vanadium.

E &amp; M J 2/25/1911, P 38

The lead ores of the Cutter mines, near Albuquerque, are said to be vanadiferous. Some of the analyses show 50 per cent. lead sulphate and 8 to 15 per cent. vanadium oxide. A mill for the treatment of the ore is being built and is expected to be running in March; the cost will be \$150,000. L. S. White is manager.

## Vanadium in 1910

There was an active demand for vanadium deposits during 1910, especially from French sources, but there is no record of any important new investments in the business in the United States or Mexico. The New Mexico deposits were developed successfully, according to report, but plans to erect mills did not materialize. The Cave Creek deposits in Arizona are being investigated and several Mexican deposits were slightly developed. The Colorado occurrences still seem to be the most promising source of supply in the United States. The Peruvian deposits of exceptional richness are closely controlled, and conflicting reports of their possibilities are extant.

Concerning the general vanadium situation a company actively interested in the business writes:

"Of course the statement that there is a production of vanadium to the extent of from \$300,000 to \$400,000 a month at Newmire is entirely wrong, and these statements are usually gotten up by people who have ore claims for sale. The production of vanadium ore at Newmire does not average \$20,000 worth per month in the whole district; this includes the prepared vanadic acid as well as crude ore running about 1½ per cent. shipped as it comes out of the ground. In a general way the vanadium market is over supplied, and the one or two large vanadium producers can easily take care of any demand that there may be. There are a lot of companies on paper issuing fine prospectuses which make it look as if there were a shortage or a larger demand than there really is. The consumption, of course, is growing with the extent of increased knowledge and different fields of consumption. Prices for ferro-vanadium are about \$5 per lb. of vanadium contained in the alloy. Prices for vanadic acid are about \$2.50 per lb., according to purity."

## Vanadium in Sierra County, New Mexico

BY BRIGHAM LEATHERBEE\*

The first discovery of vanadium in Sierra county, N. M., was made by Dr. F. M. Endlich in 1884, at which time he was the manager of the Lake Valley mines. The metal occurred in a crystalline formation in combination with lead and arsenic, and has since been named endlichite and so classed by Dana and other subsequent authorities.

About 1896 or 1897, William F. Hall of Hillsboro, discovered the same crystals in the mines about three miles north-east of that town which are now controlled by the Vanadium Queen Mining Company.

In less than a year about 1250 lb. were shipped to the Foote Mineral Company, of Philadelphia, and distributed, as rare mineral specimens, to various public and private collectors throughout Europe and America. Having no known commercial value at that time, both vanadium and molybdenum crystals from these properties were thrown aside, save for such specimens as were noticeable for their beauty, these being sent East as above mentioned.

During the winter of 1909-10, vanadium in commercial quantities was discovered on the old properties of the Southwestern Lead and Coal Company on the east slope of the Caballos mountains. A new company was formed under the title of the Vanadium Mines Company, which took over these mines and is now actively engaged in operating them.

\*Hillsboro, N. M.

## Caballos District, Sierra County, New Mexico

By BRIGHAM LEATHERBEE\*

The Caballos mining district of Sierra county, New Mexico, is attracting much attention at present among mining men, owing to the activity of the Vanadium Mines Company. This company is now mining and concentrating vanadium ores, and will, in all probability, be reducing its concentrates within a few weeks, as it is hoped that the new oxide plant at Cutter will then be in operation.

At present the company is working its White Swan mine, which has a fissure vein, carrying vanadium ore. A standard two-compartment shaft is now down on this vein about 175 ft., with levels driven at 80 and 140 ft. This is equipped with an electric hoist. About one-quarter of a mile west from the White Swan is another fissure vein of vanadium ore known as the Dewey. A prospect shaft on this vein is now down about 75 ft. in good ore, and is operated by a 40-h.p. steam hoist.

The old mill of the Southwest Lead and Coal Company, to which company the new corporation succeeded, has been remodeled and is being used as a concentrating mill. It is running continuously, treating on an average about 40 tons in 24 hours.

Electric power for the mines, mill and camp is furnished from the power plant about four miles distant from the mines, where is the nearest available water. Two 125-h.p. horizontal tubular boilers operate a 200-h.p. Monarch corliss engine directly connected with a 110-kw. alternating-current generator.

Upon the completion of the new oxide plant at Cutter, which will cost about \$100,000, the concentrates from the mill in the Caballos will be hauled there for treatment, with the probable daily production of 2000 lb. of vanadium pentoxide. Late reports from Cutter announce that in drilling the wells to supply the new plant with water, a large body of potter's clay has been discovered and that this will be developed by the company.

\*Hillshoro, New Mexico.

E & M J 3/11/1911, p 574

from an article by Thomas F. V. Corbin

Early in 1910 the General Vanadium Company did considerable work on a group of vanadinite claims situated about 14 miles from Cutter, N. M., but owing to poor returns soon abandoned the field, which is now being exploited by the Vanadium Mines Company of Pittsburg. The

missed apart??

## Vanadium Mines Company

The Vanadium Mines Company announces (*Iron Trade Review*, March 2, 1911) that the first shipment of ferro-vanadium will be made from its Rankin Penn., plant, about the middle of March. The mines and ore-treatment plant are at Cutter, N. M. The ore is a vanadate of lead from which lead sulphate and vanadium oxide are recovered. The lead sulphate is shipped direct to consumers, and the vanadium oxide is sent to the Rankin plant for manufacture into ferro-vanadium.

E & M J 4/8/1911, p 735

### New Mexico

The vanadium reduction plant at Cutter has closed after a short run, during which about 1500 lb. of commercial vanadium product was made.

E & M J 9/9/1911, p 516

*Vanadium Mines*—A contract is reported to have been let for the construction of a \$75,000 concentrator for treating vanadium ores at the mines near Cutter, Sierra county.

E & M J 1/1/1912, p 244

The vanadinite (lead vanadate) deposits at Cutter, New Mexico, were operated to some extent in 1911 by the Vanadium Mines Co. of Pittsburg but operations were limited by reason of metallurgical difficulties with this ore. Experiments were made with the ore-treatment problem the results of which are not available. Satisfactory development of ore in the district was reported. Other vanadinite deposits in New Mexico, Arizona, California, and Chihuahua received some attention during 1911, but no important production resulted.

E & M J 1/1/1912, p 230

*Vanadium Mines Co.*—On Jan. 22, at Pittsburg, Penn., W. A. Bonitz was appointed receiver for this company. The petitioner, Helen F. Bennet, alleged that the company has debts of \$203,000. The company's mines are situated in this county, and the plant for the reduction of ferro-vanadium is at Rankin, Pennsylvania.

E & M J 1/1/1913, p 124 from -  
"Mining in N. M." in 1912

Vanadium is one of the mineral products of the state and a deposit is owned by a Pittsburgh corporation, but the result of this company's operations is a matter of conjecture, as all information in regard to its properties is withheld.

4/6/1912 p 716

*Vanadium Mines Co.*—This Pittsburg company, A. B. Bement, receiver, is planning to resume operations at its vanadinite property, at Cutter. The mine is down 400 ft. and is extensively developed. A mill is erected, the treatment scheme of which will be radically modified to meet the results of recent metallurgical tests on the ore.

E & M J 6/8/1912, p 154

*Hopper-Bigelow*—This company, of 100 Broadway, New York, controls the following companies in this county: Victoria Chief Copper Mining & Smelting Co., Wellington Copper Mining Co., Statehood Mines Co., Vanadium Queen Mining Co., and the Cutter Townsite Co. Of these the Victoria Chief and Statehood are the most important. The former was equipped with a good camp, general store, fine engines, expensive machinery, etc., but profitable ore was not found. These two companies have now gone into the hands of receivers.

E & M J 1/1/1913, p 124

from "Mining in N. M." in 1912



VANADIUM MINES CO.—The property of this company in the Caballos range west of Cutter, has been sold and the mill has been dismantled and removed. It is reported that it will not resume operations as a vanadium producer. Several of the men formerly with the company are now associated with the American Vanadium Co., of Pittsburgh. The vanadium occurred in association with lead in a vein in limestone. Impurities in the ore made metallurgical treatment difficult. The deposit was opened to a depth of about 400 feet.