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No. 17 Co

Phoenix, Arizona,

CHAS. A. DIEHL

Mar 31 38

ARIZONA ASSAY OFFICE

Phone 3-4001

315 North First Street

P. O. Box 1148

This Certifies That samples submitted for assay by Mr. G. M. Colvocoresses contain as follows per ton of 2000 lbs. Avoir.

MARKS C. C.	SILVER		VALUE (Oz)		GOLD		TOTAL VALUE Of Gold and Silver	PERCENTAGE			REMARKS
	Ounces	Tenths			Ounces	Hundredths		Copper	Iron	Silica	
1	Trace				.03		\$1.05				
2	.2				.04		\$1.40				
3	.5				2.17		\$75.95				
4	.5				1.93		\$67.90				
5	.1				.05		\$1.75				
6	.1				.02		\$.70				
Compo of all	.3				.67		\$23.45		.005	7.65	83.12

Charges \$ 12.00

Assayer Arizona Assay Office. *C. A. D.*

Mercury

October 22, 1920.

QUICK SILVER

CINNABAR MINE, CINNABAR, ARIZONA

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Operated in 1910, and prior to that date by the Colonial Mining Company of Chicago and Ehrenberg.

Production seems to have been very small. Note article concerning same in Mining World, July 23, 1910 and E. & M.J., February 25, 1911.

Apparently produced a little quick silver in 1908, 1909 and 1910, and a small amount at the end of 1913. Possibly again a very small quantity in 1916-1917.

Property is equipped with 30 ton Scott Furnace and 3 ton Johnston-McKay retort plant. Equipment was put in prior to 1914 and mine was shut down in that year or possibly sooner by orders of State Mine Inspector.

Following quotation taken from Mineral Resources of the United States Part 1, 1910, published by U.S.G.S., Page 696, and quoting Bulletin U.S. Geological Survey No. 430, 1910, Pages 151 to 153, by Howland Bancroft:

"The rocks in this locality are arenaceous shales, presumably of pre-Cambrian age, which have been metamorphosed into quartz-mica schists. * * * The country rock in which the deposit worked by the Colonial Mining Co. occurs is unlike most of the schists in the vicinity in that it contains small crystals of magnetite scattered through the rock in large quantities.

The vein worked by the Colonial Mining Co. strikes S. 55° E. and is practically perpendicular. It occupies a fault zone which shows intense brecciation of the country rock. The gangue is highly siliceous and is cut by small stringers of calcite and siderite, the former occurring in places in conspicuous quantities, but being entirely absent in the croppings of the vein, where silica with a little black oxide of manganese forms the ledge. In width the vein varies from a few inches to several feet; parallel breccia planes of small magnitude, which accompany the main fault in places, tend to widen the deposit. The ore shoot in the property is said to pitch to the southeast.

Cinnabar is very sparsely distributed through the gangue and is supposed to be found mainly on the northeast side of a very plastic, iron-stained gouge which has resulted from the extreme movement in the fault zone. The ore in places is conspicuously marked by the green carbonate of copper, and Turner has reported gold and silver in ores from this deposit. The presence of magnetite near the vein is a feature worthy of note; its alteration has probably formed the red and yellow stains so common in the brecciated vein material and gouge.

Considering the facts that late eruptions are absent in the vicinity, that the deposit is highly oxidized, that copper stains are prominent, and that values of gold and silver occur in the vein, it seems highly probable that the cinnabar has been derived from mercurial tetrahedrite."

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Following is a description of furnace for treating quicksilver ores taken from Mineral Resources of the U.S. Part 1, 1912, published by U.S.G.S., Pages 935 and 936:

"Quicksilver retort furnaces are of two types: The pipe retort and the D retort. Both work on the principle of distilling off the mercury from the ore separately from the gases of combustion and conveying the volatilized metal through short outside condensing pipes to a trough in which the mercury is collected. The retorts are built over fire boxes and are filled and discharged horizontally from the same doors and from the furnace floor, the D retort by means of iron pans resting on the flat bottom and the pipe retort by semicircular shovels and hoes. Retort plants contain from 1 to 15 retorts, 12 being the usual number for a pipe-retort plant, and are inexpensive to build and operate. It has been estimated (Note: Frank J. Booth, The Reduction of quicksilver ore: Min. & Sci. Press, Nov. 10, 1906) that a 12-pipe plant costs from \$1,000 to \$1,500, depending upon local conditions. The pipes themselves cost \$25 to \$35 apiece, whereas the D retorts cost about \$250 each. The D retort, however, increases capacity and decreases space. Recovery is probably about 75 per cent of metal in the ore as charged. Retort plants serve useful purposes at small mines or in prospecting or early development, but are best used perhaps for treatment of rich ore and concentrates or furnace soot. Unless carefully operated they menace the health of workmen by causing salivation; and when in operation at new mines the temptation is to gouge out rich ore for them and possibly quickly to sacrifice a property that otherwise might be remunerative if worked on a larger scale and by better methods.

The great bulk of present domestic output is from shaft furnaces, in which, as is well known, the descending ore meets the upward furnace flames and gases, and the volatilized metal passes with the gases and impurities of combustion into a series of condenser chambers, usually of brick, in which the metal is collected and from which it is drawn off. The gases pass from the final chamber to the stack, usually through an inclined flue. The modern tendency is toward the increased use of the Huttner tile furnace perfected by Robert Scott, formerly of the New Almaden mine, which is adapted to both medium and fine ore. All the furnaces in Texas and Nevada are of this type. At New Idria, also, are the coarse ore furnaces designed by B.M. Newcombe, the well-known manager, and at the Guadalupe are the Davey modified Litchfield furnaces. Some thought and experimentation have recently been given to the application of rotary furnaces for quicksilver ores. It has been estimated that a Scott furnace can be built, under favorable local conditions, at about \$1,000 per ton of capacity. According to this the common 10-ton furnace should cost about \$10,000."

Quick Silver - Cinnabar Mine #3

October 22, 1920.

Note the weight of the flasks of quicksilver prior to June 1, 1904 was $76\frac{1}{2}$ lbs. net. Since that date 75 lbs. net.

G.M. Colvocoresses.

GMC : EEW



THE UNIVERSITY OF ARIZONA
TUCSON

COLLEGE OF MINES AND ENGINEERING
AND
ARIZONA BUREAU OF MINES

OFFICE OF THE DEAN
AND DIRECTOR

Colonial

Oct. 26, 1920

(C)

10/25
A. 120

Cinnabar

Mr. G. M. Colvocoresses,
Consolidated Ariz. Smelting Co.,
Humboldt, Ariz.

My dear Mr. Colvocoresses:

In reply to your letter dated Oct. 21, I enclose herewith all the data that we can find relative to the Cinnabar deposit concerning which you request information. We have a newspaper clipping in addition to the items I am transmitting to you, but it gives no additional information. We wrote to the Colonial Mining Company in November, 1918, but our letter was returned unclaimed.

I think that the letter from Mr. Smith is especially interesting, since it indicates that the deposit was closed, not because it was worked out, but simply because the owners did not wish to go to the expense of putting down a new shaft.

Trusting that the data I am sending to you will be useful to you, and assuring you that we shall always be glad to serve you in any way in our power,
I am

Very sincerely,

G.M. Butler

G.M. Butler-L

Dean and Director.

Divide file unless mercury

October 21, 1920.

Mr. G. M. Butler, Dean,
University of Tucson,
Tucson, Arizona.

Dear Mr. Butler:-

May I ask a favor of you, if it is in your power to supply me the information requested?

A short time ago, while on a hunting trip, I came across an old cinnabar mine in a range of hills, which I believe are called the Dome Rock Mountains, ^{or Plumosa} the property in question being located in a straight line some 12 miles southwest of Quartzsite.

The mine camp was apparently called "Cinnabar" and as far as I can gather, it was operated several years ago by the Colonial Mining Company of Chicago and of Ehrenberg. I found an old envelope, which apparently came from the head office of the Company and was marked to return to George H. Klumph, 1450 Old Colony Bldg., Chicago. Later on I was advised that this property was operated by the Cinnabar Development Company of Quartzsite and I believe that during the war in 1917 a man named Newton, who had formerly been superintendent for the company, took the property on a lease and operated it temporarily, principally cleaning out the upper workings and treating the ore from them.

Mr. G.M. Butler #2

October 21, 1920.

The mine is equipped with a 600 ft. shaft, now inaccessible, and there is a small treatment plant close to the shaft and a much larger one about one-quarter of a mile away. Indications are that there was a considerable production of mercury and one of the men who formerly was a miner there gave me quite a stirring account of a 4 foot vein of 14% ore supposed to be located in the bottom of the shaft.

I am somewhat interested in the possibilities of producing mercury in this State and if there are on file any records in the State Bureau of Mines or in the University Library or elsewhere, from which accurate information concerning the mine in question and its output could be obtained, I would be greatly obliged if you would indicate where such documents are located or if you could arrange to have copies made of any reports or records, I will be more than pleased to pay for any expense incurred in connection with obtaining this information.

Thanking you in advance, I remain

Yours very truly,

GENERAL MANAGER.

GMC :EEW

P.S. Since dictating the above, have found reference to the property in question in Bulletin 430 of the U.S. Geological Survey published in 1910 but can not get any data relative to operations after that date, which would particularly interest me.

Colonial Mining Co. *Collected by* *J. G. Miller*
October 22, 1920.

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