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4970 0061

Mercury Nevada
Calbetteño,

Located near Warm Springs near Tonopah. Reported favorable by Taylor June 7,8; Gustafson, June 24, and Evans, July 1.

A large zone of alteration (200' wide) showing 2 to 5 pound rock weher developed, promised in excess of 100,000 tons for easy mining.

The property was drill in 19 days, during August 1940; the broad zone was condemned, and narrow zones encountered left about 10,000 tons of 6.7 pound rock, as a reserve. This was considered attractive to a small operator but not to a large company.

As a post mortem it is believed that DLE would not have recommended this one had he

seen some of the occurrences in California
which he studies in the spring of 1942.
These offered much better possibilities,
and with such in the background, this Cal-
betteno waste of time might have been avoided.

WARM SPRINGS MERCURY PROPERTIES

4470 0061

NYE COUNTY, NEVADAINTRODUCTION:

The property examined by the writer on June 7 and 8, 1940, is located 49 miles east of Tonopah, Nevada. In order to reach the property, drive eastward from Tonopah 41 miles on U. S. Highway 6 and turn left on northward and drive up the canyon on a good desert road 8 miles to the camp buildings. The road was found to be in good condition and the trip from Tonopah can be easily made in less than an hour.

A total of twelve hours was spent in going over the property. About two hours was used for reconnaissance of the underground workings, and the remainder was taken up by examination at the surface of the producing mine, at the M and M group, and in an inspection of the Milk Springs development.

SUMMARY AND CONCLUSIONS:

Low grade cinnabar, which should be readily concentrated, occurs in a soft rhyolite tuff over an extensive area. At the present time, a small portion of the property is under production at the rate of a flask of mercury per day. Mining and reduction methods and equipment, however, are of a rather crude type, and the results of sampling indicate that selection and sorting are being practiced. The present owners are desirous either of obtaining additional capital in order to run a large tonnage or wish to sell and retain a small interest.

Preliminary sampling substantiates the occurrence of at least 100,000 tons of two to five pound ore with possibilities of many times this amount. The ore could be mined by power shovelling which would result in low costs, and even at considerably lower prices than at present, \$200 per 76 pound flask, the operation would make a profit. The widespread development of the cinnabar-bearing rhyolite tuff can mean that enormous reserves of mercury will eventually be developed here. It is recommended that the outcrop of tuff be sampled carefully in intervals of not greater than ten feet, wherever possible, and that a reconnaissance geologic map be made of the entire development of the tuff bed. The ground is easily accessible and the formation is soft and easy to sample so that two or three days on the property should be sufficient for a party of two.

PRESENT STATUS:

Calbottano Mercury Mines is operating at the present time on the Smith claims, producing about a flask of mercury a day. This is reported to be an unincorporated company formed by A. J. Bettles and Alex Bettles of Reno, Howard Callendar, Frank Enos, and George Thayer. These men themselves have been working on the property with the aid of two or three miners. They purchased the mine from James Smith of Tonopah for \$75,000 on the following terms April 1, 1940.

\$1,000-----down payment
 \$1,500-----at the end of first 30 days
 \$1,500-----at the end of second 30 days
 \$2,000-----at the end of five months thereafter
 \$2,000-----at the end of five months thereafter
 Balance to be paid on royalty basis.

This property is being held for a purchase price of \$100,000 with an allowance of 60 days for exploration without payment. A cash payment of \$5,000 is required at the end of the 60 days, however.

Calbottene acquired the property through the agency of Art Langan of Tonopah. The owners are Homer Buckley and Anderson.

In addition to the producing properties, there are also available other claims along the outcrop including one belonging to the Bettles brothers, four located by Buckley and Smith, four owned by George Thyer, and four owned by Ed Feltman. These claims block the ground known to contain cinnabar, and A. J. Bettles advises that he has agreements covering at least part of these properties. In fact, he originally came to Prescott with the idea of interesting them in the Buckley and Smith M and M claims for \$50,000. These claims are east along the strike, from the present mine a distance of about 3,000 feet.

MINING AND RETORTING:

At the present time, ore is being obtained largely through development work. A tunnel which will give from 75 to 100 feet of backs has been driven into the hillside along a prominent slip which parallels the footwall. Three chutes have been developed off this tunnel in order to remove ore from stopes. At present, the tunnel is being driven ahead to connect with a large high grade ore body uncovered by an inclined shaft sunk on top of the hill. This tunnel is opening up high grade (20 pound) ore along its course and has already developed several thousand tons of ore and is still some 50 feet from its objective.

The ground is dry and rather structureless, standing quite well. The only timbering required is an occasional stull, and native wood is used for this purpose. The mining practice has not been good and the workings are quite irregular. The ground is soft enough that shot-holes are drilled with a steel auger and a round of eight holes, three to four feet in depth, can be put in in two hours. A charge of two sticks per hole must be used as the hole shows a tendency to bootjack if under charged because of the chalky nature of the formation.

Selective mining to some extent has been followed in order to provide the best possible ore. The ore appears to be hand sorted to a certain extent as well. The ore is taken out of the mine to a 3/4-inch grizzly on the same level as the track, from which it goes into a fine ore bin. The coarse goes through a Blake ^{type} jaw crusher and then into the fine ore bin. This material is then fed continuously into the Cottrell rotary furnace which has a capacity of ten to twelve tons a day and is kept at a heat of 1200°-F by burning Diesel oil.

The vapor from the rotary furnace goes into two sets of condensers, and both a clear mercury production and a sludge are drawn off. The sludge is not re-run in the rotary furnace, but is run through a small retort adjacent to the furnace. This sludge represents about 25% of the total output from the furnace. High grade is picked from the coarse to add to the sludge for bulk before it is put through the retort.

The present operators have been running both the rotary furnace and the retort three shifts a day and the mine one shift a day.

They have produced a total of 31 flasks since the property was acquired on April 1, which gives an actual operating production of a flask a day, as the plant has been shut down during part of the time. Total production of the property since its discovery in 1935 has 103 flasks, distributed as follows:

Fidler-----	24 flasks	1939
James Smith-----	58 flasks	December 1939 to April 1940
Calbotteno-----	31 flasks	April 2 to June 1, 1940

The owners have given the following costs:

Mining-----	\$1.65 per ton
Total roasting-----	\$2.50 per ton
Rotary furnace fuel-----	\$0.50 per ton
Retort fuel-----	\$3.00 per ton

(Cost of fuel is included in roasting cost). The high cost of mining and roasting is due in large part to the small tonnage handled.

OPERATING CONDITIONS:

Transportation facilities are amply provided by the good road connecting with Tonopah where railway facilities are available. Electric power can be obtained at a distance of some ten or fifteen miles. The operation has been hampered to some extent by lack of an adequate water supply. At Milk Springs, 7 miles up the canyon, there appears to be plenty of water and some of it is at present being developed for the use of the camp. This water does not appear to be entirely satisfactory, however, as it has some finely divided matter in suspension, being of a milky color. The water is being used for domestic purposes, however, without harmful effect. From the appearance of the valley in which the springs occur, a large supply of water could be developed here.

In general, the terrain would lend itself to prospecting either with the drill or other equipment. However, some portions of it, particularly on the M and M claims and eastward, are covered with a considerable thickness of coarse rhyolite rubble which would be difficult to drill. The eastern end of the claims is also at a higher altitude and is much more rugged.

Camp buildings consist of a combination dining-room, kitchen and living quarters, and two small cabins at the mine. There is also a small cabin at the M and M claims. In addition to the rotary furnace and retort at the Calbotteno Mine, there is also a small retort at the M and M claims, which can be reached by a fairly good road.

GEOLOGY:

The occurrence lies in an unnamed area west of Hot Creek, south of Tybo, east of Hammaph, and north of Clifford. Recently, the name Quicksilver City has been suggested for the area. The nearest mineral production of any consequence is that of Tybo, 18 miles north, where several million dollars worth of lead and silver have been mined.

The cinnabar occurs in altered rhyolite tuff that is a member of a series of acid flows. The region has been affected by volcanic activity quite recently, as there are thermal springs at Warm Springs and at Hot Creek, both points only a few miles distant from the cinnabar area. The tuff is an extensive bed with a N-80°-E strike and a 40 to 50°-S dip. The cinnabar mineralization is controlled by fissure patterns in the tuff predominantly parallel to the strike and at right angles to it. There is some evidence, however, that there may be cinnabar mineralization throughout large zones of the tuff which may not be definitely governed by this structural pattern. A sample of the tuff on the south side of the property, where it is in contact with rhyolite porphyry at what appears to be the hanging wall, assayed a quarter of a pound of mercury. The tuff also assays closely adjacent to the footwall, the rhyolite porphyry similar to that occurring on the apparent hanging wall.

The geology of the occurrence at the M and M claims is much the same as that at the mines. The topography is somewhat different, however, as it is on a fairly steep slope covered with a coarse rubble of rhyolite porphyry. In places there occurs beneath this rubble a breccia bed which on assaying showed better than five pounds of mercury to the ton. This bed directly overlies the tuff. The tuff is of the same general nature as that at the mine and appears to carry about the same values. The developing work here has not been carried far enough, however, to be able to determine the character or extent of this occurrence and its relationship to the other.

RESERVES:

The developing work which has been done to date at the producing mine includes about 175 feet of drifting, 100 feet of shafts and winzes, and several hundred feet of wide trenches. The wide trenches were dug by a small power shovel, but unfortunately were dug by someone with no knowledge of the structure of the deposit and, as a result, are without much bearing as to development work. Taking the development work as a whole, somewhat more than 100,000 tons of ore that will run from two to five pounds of mercury per ton is in sight. This ore can all be removed with the power shovel and is covered with an average of less than five feet of overburden. On the basis of the present operation, that is ore that will average eight to ten pounds of mercury per ton, some 10,000 tons of ore can be considered as blocked out.

When it is considered that the rhyolite tuff carrying cinnabar has been traced over a distance of three miles, it will be realized that the potential reserve of this area is enormous. In order to

develop these reserves some form of exploration, such as churn drilling, would probably answer the purpose. The chalky nature of the tuff might also lend itself readily to drilling with some type of Gulf Coast rotary rig.

When a chunk of the ore is allowed to set under water for a few hours it breaks down completely and the cinnabar crystals can be readily panned out. Most of the cinnabar occurs as small individual crystals which separate from the tuff when it is panned. This suggests that the ore could be concentrated and the owners are convinced that this is the case.

MAPS:

Sketch maps have been prepared showing roughly the location of contacts of the workings and of the samples at the producing mine and at the M and M Mines. Assays are also shown on these maps. Claim maps are not available as the claims have not been surveyed.

R. E. Taylor
Reno, Nevada
June 12, 1940

Written from dictation

WARM SPRINGS MINING PROPERTIES,
EYE COUNTY, NEVADA

June 12, 1940

C. C. Lee

Ralph E. Taylor

Dear Mr. Lee:

The attached report covers the mercury property east of Tonopah brought to us last week by Mr. Bettles. I visited it Friday and Saturday and found that they had an extensive occurrence of low grade mercury. The grade appeared to be somewhat lower than Bettles had described to Mr. Gustafson, however, the property appears to have possibilities of being very large and it does have areas of high grade. You will note the sample of their milling ore No. 828 ran only 3.8 pounds to the ton, whereas they claim to be running 8 to 10 pound ore. This sample came from development work, however, and probably represents an area of low grade, as it is about the average tenor. From the manner in which the ore occurs, I believe it can be mined pretty easily and cheaply with power shovel. Some method of concentration could probably also be worked out for it.

The owners are in very much of a hurry to do something on the property. They feel that they are just marking time to go on trying to run it as a high grade proposition since there is considerable amount of low grade ore in sight, and they would like to see at least 100 ton furnace put in operation, or some form of concentration plant installed. They have also received inquiries from Goldfield Consolidated (George Wingfield) and a representative of the French government, but we are being given preference. I do not know how long they will be willing to defer taking up negotiations with other parties.

Mr. Gustafson is scheduled to return either sometime tonight or in the morning, but advised me today to send this report directly to you without awaiting his comments. As soon as he arrives, I will turn a copy of the report to him so that he can present his reactions to the proposition.

Yours very truly,

RET:JED

CC; Mr. Lundy
New York Office



Calbettino - cut normal to ore zone exposing
cinnabar.....



Calbettino - cut along trend of
deposit.....



Calbettino - winze to small stope.....



Calbettino; ore bin on A & B Quick



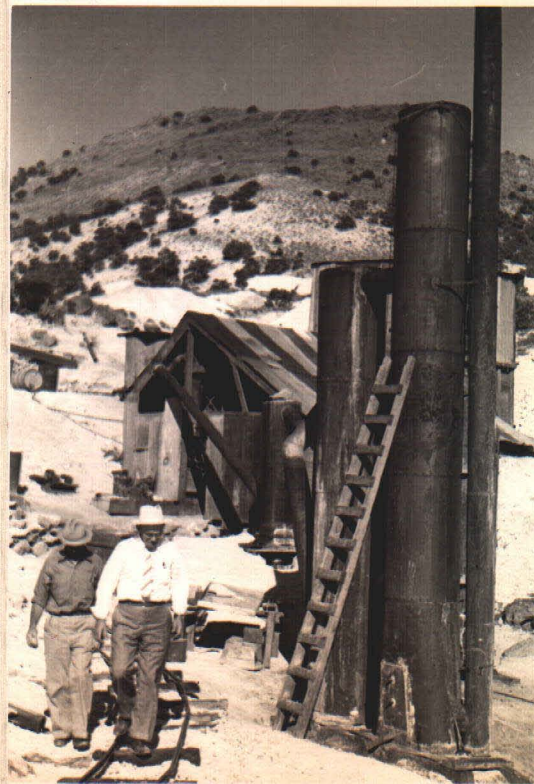
Calbettino trend of ore zone on A & B Quick



Calbettino cuts along strike of deposit



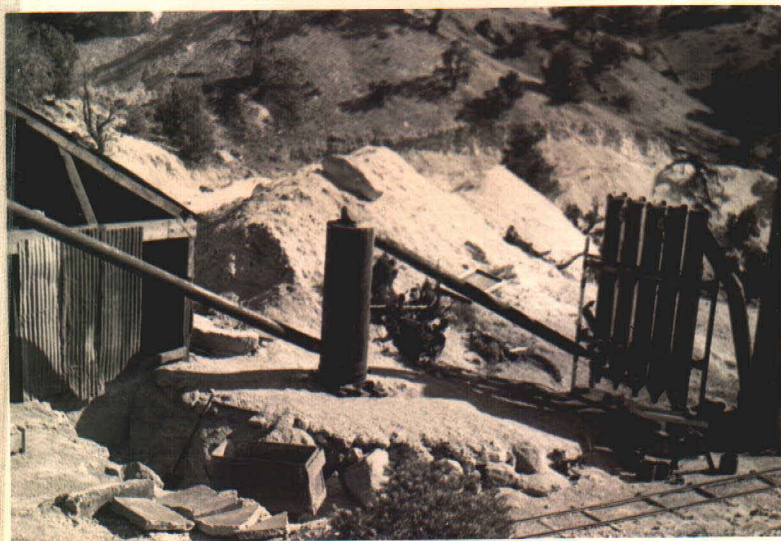
Calbettino cuts along strike of deposit.....



Calbettino - portal of tunnel started on streak.....



Calbettino - cut along trend of deposit.....



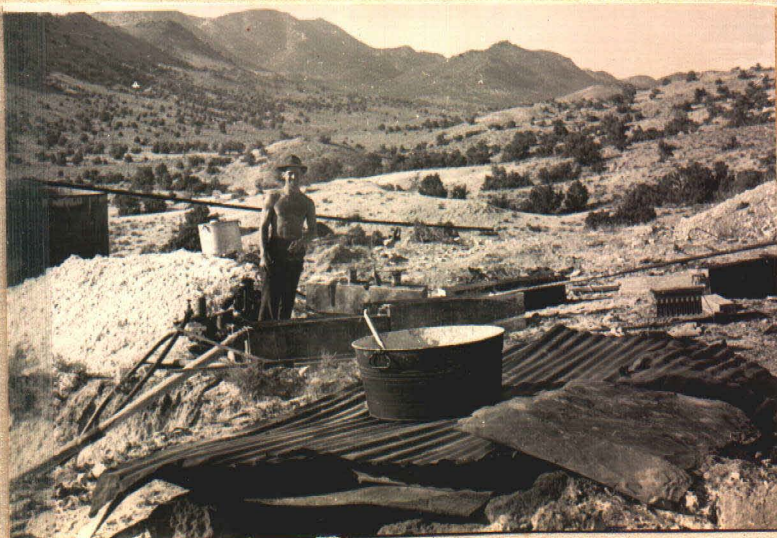
Calbettino - part of ten ton condensing system....



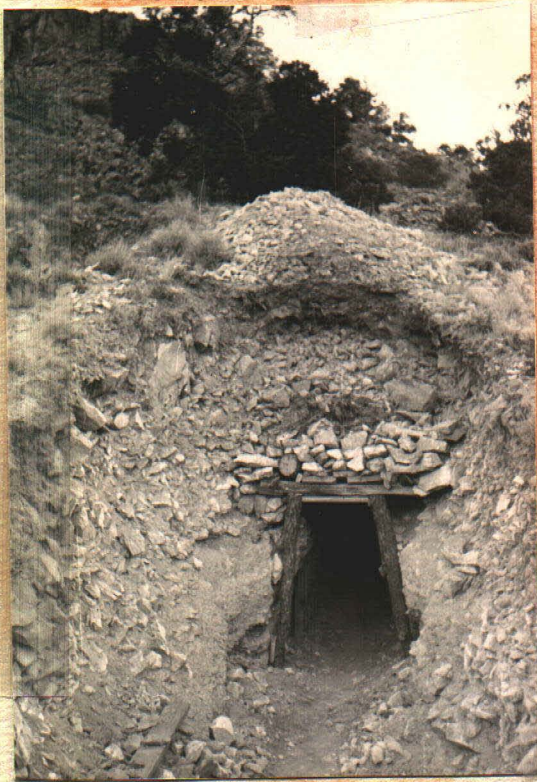
6. Calbetteño - looking towards Tybo from M. & M. group.



7. Recovery of sludge samples by old-fashioned box arrangement. Calbetteño - A. & B. Quick V. D. H. 14.



8. Another view of the above (No. 7).

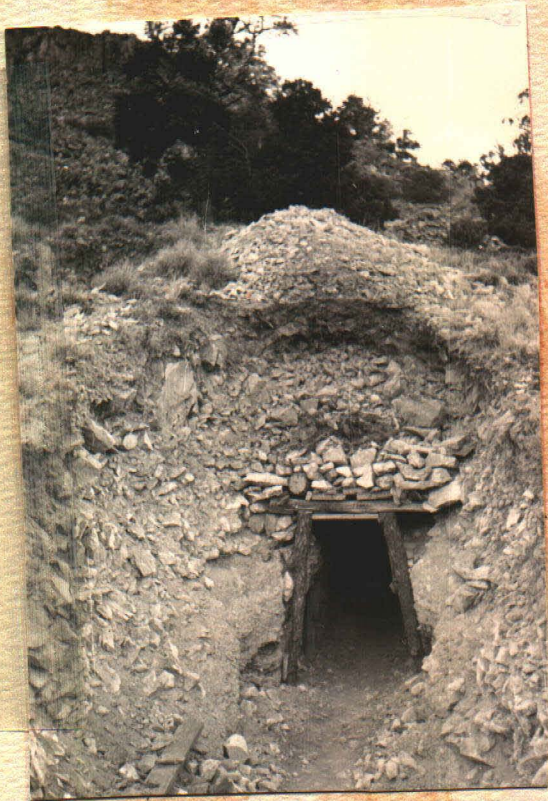


Tunnel extended into possible ore zone to comply with the terms of the M and M option.

Start of the originally proposed tunnel on slope above tunnel shown in the above picture. Extensive overburden made this work impracticable and the advance was stopped.



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