

### Gold Bar or O'Brien Mine

Advance copy from E. D. Wilson of the Arizona Geological Survey. 7/8/34.

The Gold Bar or O'Brien Mine is fifteen miles by road northeast of Wickenburg and 2.7 miles northeast of Constellation.

This deposit was located in 1888 by J. Mahoney. About 1901, the Saginaw Lumber Company erected a ten-stamp mill on the property and is reported to have treated 4,000 tons of ore that yielded about \$60,000.

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#### Oral communication from Mr. Ward Twichell.

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In 1907-1908, the Interior Mining and Trust Company is reported to have mined the ore body from the surface to the 385 foot level on the incline. This company erected a 100-ton mill, equipped with stamps, amalgamation plates, tables, and vanners. Heikes states that the 1907 production amounted to \$33,402 in bullion and concentrates. These concentrates averaged, per ton, two ounces of gold, three ounces of silver, 49 percent of iron, fifteen percent of silicam and fifteen percent of sulphur.

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#### U. S. Geol. Survey, Mineral Resources, 1907, Pt. 1, pp. 182-183

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Heikes says that, in 1908, \$91,749 worth of gold came from the Black Rock district, of which the largest producer was the Interior Mining and Trust Company.

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#### Work cited, 1908, Pt. 1, p. 310.

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About 1915, the company reorganized as the Gold Bar Mining Company and a shaft was sunk to the 700-foot level. In February, 1934, the property was under the trusteeship of the Commonwealth Trust Company, of Pittsburg, and was being worked in a small way by leasees.

This region has been deeply dissected by northward-flowing tributaries of Hassayampa Creek. The principal rock is medium-grained granite, with some inclusions of schist. It is intruded by



pegmatite, granite porphyry, and basic dikes. Fissuring in S. 70° W and S. 30° E. directions is evident. The vein, which outcrops on the western side of O'Brien Gulch, at an altitude of 3,400 feet, occurs within a fissure zone that strikes N. 70° E. and dips 30° NW. Its filling consists of coarsely crystalline, glassy, grayish-white quartz. In places, the quartz from the oxidized zone is rather cellular with cavities that contain abundant hematite and limonite formed from pyrite. Pyrite is present in the deeper workings. The gold occurs as fine to mediumly coarse particles, both in the quartz and with the iron minerals. The wall rock shows intense sericitization.

The mine workings indicate that the ore shoot was a chimney that measured about forty by fifty feet in cross-section at the surface and plunged 30° SW.

From letter by B. N. Webber, Geologist of Phoenix, Arizona.  
11/2/31 -- to "Engineers Incorporated" - Phoenix, Arizona.  
Extracted by J. H. Steinmesch.

Webber characterizes ore body as Pyrite replacement of a granite gneiss pipe or lense pitching about 45°. He quotes Shanklin as estimating 16,000 ton -- \$11.00 - .55 oz. ore. Cecil Smith and Ed. Holderness as giving \$9.00 value - .45 oz. He says no values below 445 foot level. Says pitch Azimuth changes at 445 foot level -- orebody may swing north, of so values on 478 level would be an index. He says ore body may be faulted at 445 foot level or that the change from partially oxidized ore to primary ore might account for lack of values below 445 foot level. Also that the low values below 445 look bad for future extension; and if good ore is due to enrichment, the 16,000 ton of \$11.00 ore is all that would be expected.

Conclusion:

There is every expectancy of \$11.00 - .55 oz. ore and possibility of extension of good ore above 445 foot level. The ore may be extracted at a profit.

Benjamin N. Webber, Geologist.



Benjamin N. Webber, Geologist  
Letter 2/17/32. B. N. Webber to "Engineers Incorporated."

He says he thinks other outcrops O.K. i.e. The Cable, Black Bear, etc.

Thinks property O.K. geologically -- thinks property merits investigation.

B/ N. Webber.

Webber is said to have made a geologic map but I doubt if it is very complete.

Of the preceding geological opinions, Hydes are most stimulating. He also makes definite recommendations for development.

I do not "get" his statement that the Cable outcrop "is where the 'Red Wonder fissure joins the N 70 E system"; this will show up on the geological map.

His recommendations are:

1. Sink No. 1 shaft 125' deeper and connect on the 500' level with No. 2 shaft. (This should be considered in connection with making No. 1 the ore hoisting shaft and No. 2 merely an escape. No. 1 might well cut ore in going down to the 500, if the hanging and foot walls dip a little more steeply in this area than they do in the glory hole.
2. Enlarge openings to handle pipe rails, etc.
3. From 500 level run drifts to delimit ore body. (See my Recommendations 1 and 2.)
4. Drive drift on 500 near No. 2 etc. (This is drift #105 on map note)
5. From 500 level No. 2 shaft, drive 600 to 700 ft. south to cut downward extension of No. 3 Blowout (Cable) (Consider this a wild gamble until the Cable has ore which has been followed down a hundred ft. or so from the surface.
6. Hyde's quota for development does not greatly differ from mine.

B. N. Webber also expresses definite opinions, which should be respectfully considered; altho I did not meet him I think he might be a good man to do further work such as making the map. He is rated as a good geologist.

#### ORE ESTIMATES:

Shanklin assumes a chimney 40 to 50 x 700' long, 1,400,000 cu. ft., 110,000 tons of ore (12 cu. ft. per ton.)



Hyde assumes a cross section 40' x 52.5 x 560' long making 89,000 tons. He deducts 20,000 tons as mined, leaving 69,000 tons reserve.

Fennell averages the above estimates in appraising the property, thus getting 89,000 tons.

The computations of the two examiners are not safe. Neither surveyed the old stopes, and cannot know the volume which has already been excavated. The cross section of the shoot may vary.

If Shanklin's Plan and Section AA are taken, the tonnage already excavated from the old stopes above the 385 level is 40 x 50 x 375' or 62,500 tons.

The total milled is less than 25,000 tons, a discrepancy of 37,000 tons, an important figure.

The first stage of underground examination should clear up this point because it is possible that the entire ore reserves may be those from the 445 level back toward the surface.

A. L. Flagg estimates between 385 and 445 - a section 40 x 40 x 114 ft. long, 15,000 tons. He deducts 25% for the winze and level openings, leaving net 11,000 tons of ore.

This tonnage is the only ore that is assured, and this is not fully blocked out.

The grade of the sulfide ore is well checked, as can be seen in Flagg's report and sketch, and the tabulation of sampling by three engineers.

The grade of the ore from the 385 level up will depend on the skill used in mining and sorting, as well as on the deposit itself. A young engineer to sample the stopes and fight the grade will pay as well in this mine as any place I have ever seen. The former operators maintained an average of .4 to .425 oz; in virgin ore with sorting, this should be bettered today.

If 40,000 tons can be proven the engineer who does so should be able to estimate the probability of proving another 40,000 with a reasonable amount of development.

To increase the positive ore from 11,000 tons to 40,000 tons, it will be necessary to do some drifting, etc. Cutting samples cannot alter the situation. Hence my recommendation that compressed air be provided in Stage I of the investigation. Drifts cannot be driven without hoisting dirt. If material is being hoisted - hoist some ore and stack it as 1st Class, 2nd Class and Waste, and in a place where it will stay.

Nothing will give as much light on an ore deposit as to mine some of it even though the amount be small.

#### WATER SUPPLY:

The mine formerly made 50 gals. per minute. From the unwatering, it appears to be near that now. This flow will decrease as a contiguous territory is drained, and reach a more or less constant figure after a year. What this permanent supply will be cannot be predicted.

Strict economy will permit milling with a make up of 300 gallons per ton treated. The old cyanide tanks will be useful for



water salvage. If the mine makes 33 g.p.m., 48,000 gals. per day, it should be ample for milling purposes at 100 tons per day or less.

Plants are having water trouble now that never ran short before.

The shaft at the Crown Claim might be tested for its permanent flow if a deficiency arises. It is on the same side of the diorite dike as the camp well.

#### EQUIPMENT:

Equipment is elsewhere listed and much of it is in good condition.

Cost of getting Mill into operation will be 1/3 or less than to start with a bare hillside.

The principal consideration is power. The gasoline engine drives formerly used when gas was 8¢ instead of 16¢, as now, can be readily converted to electric motor or Diesel type drive.

In section 5 of recommendations, a careful study of the power situation is advised.

My allowance for power may seem high, but I have been through this matter several times. Invariable power consumption is increased beyond original estimates; large staffs of the best engineers have been of 200% in a three year forecast of requirements.

Cost of power is likely to be 10¢ per KWH with the gasoline engines. At 25 KWH per ton treated, which I would expect on your 80 ton plant, this would be \$2.50 per ton or \$200.00 per day.

The gasoline engines may be tolerated on the hoist and other intermittent operations, but on the milling equipment and air compression the cost will be prohibitive for normal operation.

The Waukesha Diesel is used by Ingersoll-Rand on many of their units and since they manufacture the Price Oil Engine, it indicates they think well of the Waukesha unit.

As with the cost of the property and its development, amortization of the power equipment should be made in four years.

In the first stage of investigation use what you have as far as possible.

When the power question is up, get an AI power man from the Arizona Power Company to make a survey and recommendations with estimated costs in black and white.

Get your Diesel man in and do the same; get them down on paper. Then compare and let your engineer use his judgment.

Electrical Pumping and underground hoisting will be indispensable.

#### CONCLUSIONS:

From my partial examination, to July 30, 1934, I conclude:

1. That the group of claims has produced over 20,000 tons of mill ore of a grade slightly over .4 oz. per ton.



2. That underground examination with some development work will prove a sizeable tonnage of .4 oz. ore, which will be recoverable between the 385 level and the outcrop in the Glory Hole.

3. That the former operators left more or less sulfide ore of .4 to .6 oz. grade in the floor of the Glory Hole.

That the same thing occurred to a greater or less degree in the stopes I was unable to see, is probable enough to justify the cost of investigation.

4. That 11,000 tons of sulfide ore of .5 oz. grade is fairly certain between the 385 and 445 levels.

5. That this main shoot, now sulfide ore, will probably extend to greater depth. Other mines in the formation do so.

6. That if this main shoot be faulted it should be possible to locate its extension.

7. That the Blue Moon, the Red Wonder, and the Crown Tunnels merit further sampling and probably some development.

8. Geological conditions are favorable.

9. That ore carrying over .4 oz. gold will be profitable, in quantities above 80,000 tons. There is a fair chance of proving this tonnage or its equivalent.

10. That the price of the property is high but no prohibitive when it is considered that it may pay for itself.

11. That it is at this time a development proposition which offers a fair chance of good profit.

12. It is likely to call for as little as \$40,000 or up to \$100,000 in capital, if further work comes up to expectations. If not, the input might be stopped at \$10,000; it is useless to start work without having available \$30,000. See Recommendations XII.

#### GENERAL SUMMARY:

The Gold Bar Development Co., is largely a development proposition, but with 11,000 tons of good ore fairly assured.

I recommend a real examination of the underground workings, including some drifting.

If this results favorably or equivalent favorable results are obtained outside, I then advise further work along the lines laid down above.

Respectfully submitted,

J. H. Steinmesch.

Consulting Mining Engineer.



## GOLD BAR MINE

### Conclusions and Recommendations.

The following conclusions are based on the report by Shanklin, 1927, and Hyde, 1929, and their supplemental data, the investigations of Pratt, 1934, and recent conferences with Warde Twichell and Stone, foreman, and a personal surface examination made in March, 1934. The above report and maps are attached for reference.

The property is located at an elevation of about 3400 feet in the Black Rock Mining District, Yavapai County, Arizona. It is in the Bradshaw Mountains  $1\frac{1}{2}$  miles south of the Hassayampa River, 2 miles north of Constellation, and 18 miles northeast from where it is reached by a good dirt road.

The property comprises 16 patented lode claims and a fraction millsite claim on the river, a total of 301 acres covered by U. S. Mineral Patent No. 4060 A. & B. The locations date back to 1888 and the title appears clear in the estate and heirs of James W. Twichell. The property appears to cover the entire area of the district that shows any important mineralization.

There is a telephone line to camp and a power line to Constellation, the post office, and climate, living, labor, transportation and operating conditions are favorable. There is no timber in the country but the mine would make water for a twenty five ton mill, and water for a one thousand ton mill could be brought from the river with a lift of perhaps 400 feet. There is a good camp site with good accommodations for about 30 men.

The country rock is Bradshaw Mountain granite and the veins are in fault fissures striking about north  $70^{\circ}$  east, the main veins being parallel and about 600 feet apart and dip to the northwest. The ore shoots are at intersections with minor fissures striking about north  $30^{\circ}$  west or they are pipes raking about  $30^{\circ}$  to the southwest in the veins. The gangue is a brecciated granite cemented with a quartz filling. The gold is associated with pyrite



with some chalcopyrite at depth. At the outcrops the pyrite is well oxidized and there are some copper carbonates and silicates and the gold is rather coarse, free and about 800 fine.

The geology and the type and character of the mineralization suggest persistence of ore bodies and values to a considerable depth.

The main development work is in the north vein and consists of an incline in the rake of the shoot to an inclined depth of 503 ft., connected on the 385 foot level with shaft No. 1, 325 feet deep vertically, and on the 503 foot level with shaft No. 2, 735 feet deep vertically. The latter shaft was located to cut the ore shoot on its southwest rake but the shoot was faulted at the 445 foot incline level, presumably only a short distance to the northwest (Hyde).

Presumably due to post mineral movement a channel was opened along the rake of the shoot resulting in an oxidized zone to the water level. Extraction was largely confined to the oxidized ores by selection and amounted to about 20,000 tons or from 20% to 25% of the total content above the fault, leaving from 69,000 tons (Hyde) to 110,000 tons (Shanklin) of available ore in the shoots. These estimates are based on a width and thickness of ore shoot of about 40 feet, and from the appearance and size of the outcrop and glory hole they appear to be conservative estimates of reasonably assured reserves.

Records of past production, mill runs and sampling by Hyde and Shanklin indicate average values of about \$19.00 with gold at \$35.00. Deducting 20% to allow for leaching in the oxidized sections and for selection in past extraction would give an average of about \$15.00 in the remaining ores. The results of recent leasing operations in and near the glory hole check fairly close with this figure, and on the above basis there would be over \$1,000,000.00 of gross value in the remaining ores.

The appearance at the glory hole and outcrop suggest that there are several thousand tons of near surface ores available for immediate mining of which the heads can be kept at the above figure



with a reasonable amount of sorting and with mining costs of not to exceed \$3.00 per ton delivered to the mill on a basis of 25 tons per day, with milling costs, royalty, and loss at around \$6.00 per ton, leaving \$6.00 per ton for rehabilitation, development, and expansion purposes.

Shaft No. 1 is caved a little at the collar and at water level but could be rehabilitated at probably small cost. Shaft No. 2 has been recently retimbered and the timbers below are reported in good condition and the ground stands well. The hoist, pump, compressor, and engine are in fair condition and with small repairs would meet the present needs.

The 12 stamp Nisson mill and accessory equipment can largely be rehabilitated at small cost but should have added a flotation unit. The river pipe line and pumping plant will need some repairs and replacement for larger mill operation. The mine, mill and camp buildings are mostly in good condition.

The south vein, west ore shoot closely resembles the north shoot in appearance and type and character of mineralization but is larger and more highly silicified and the outcrop is perhaps 300 feet higher in elevation. It justifies immediate exploration as it should contain above the fault level several times the tonnage of the north shoot, of which a large tonnage is suitable for open cut mining. Two smaller outcrops to the northeast suggest that this south ore shoot may prove to be several hundred feet in length.

Mr. Hyde after a study of the conditions of the fault reached the conclusion that the downward extension of the shoot would be found only a short distance to the northwest, and the geology, type and character of the mineralization support the above conclusion, and the deeper development at the Monte Cristo at Constellation indicate persistence of mineralization deeper than the level of this fault. A comparatively small amount of additional development work properly located may reasonably be expected to show several hundred thousand tons of probable ore of milling grade.



In every respect the Gold Bar Mine gives promise of many years of very profitable operation. This seems to be the conviction of all the engineers who have seen it. It can be placed into profitable operation quickly at small cost and the scale of operations can be expanded from earnings to any basis that may be justified by the proposed exploration and development program, although it may prove to be advisable and profitable to expedite the expansion program by securing the additional capital when and as same can be used to advantage.

Recommendations:

1. Rehabilitate mill for 25 ton per day capacity with flotation added.
2. Run air line from compressor to glory hole to commence mining here and in the eastern portion of the outcrop, transporting to mill bins by surface tram.
3. Repair No. 2 shaft water column and commence unwatering discharging into pipe line to tank at mill.
4. Rehabilitate No. 1 shaft and open up the 385 foot incline level for extraction of remaining ores.
5. Unwater to the 503 foot level, cross cut to pick up ore shoot below the fault and open up for extraction.
6. Cross cut to ore shoot on the 700 foot level at the point indicated by above work.
7. Explore and test south ore shoot by surface cuts and a cross cut tunnel 100 feet below apex and by cross cuts from the old O'Brien tunnel.
8. Run such cross cuts to south ore shoot from levels 300 ft., 500 ft., and 700 ft. shaft No. 2 as may become justified.
9. Rehabilitate river pipe line and pumping plant to meet mill expansion requirements.
10. Rehabilitate, adapt, modernize, and expand mill progressively as justified.
11. Replace present power with Diesel plant with capacity as may be justified by mine developments.

(Signed)

J. M. Beach,  
May 1934.



9/15. 34

① Gold Bar Mine

(look up in mines file)

included

near Constellation, east of Lickburg.

Now being reopened by Cecil G. Fennell & Sidney R. Francis  
(brother of Dean Francis) 610 S. Kenmore Ave. L.A. or

and might be addressed % L.A. Athletic Club. They employ  
as Engineer J. M. Beach, 398 Loma Vista. L.A.

Looking for money.

Idle in 35936



*Prof. Geo. B. ...*

February 27, 1933.

Mr. James H. Prentiss  
The Prentiss Agency, Inc.  
120 South La Salle St.  
Chicago, Illinois

Dear Mr. Prentiss:

Re: Gold Bar Mine

Yours of the 22nd received, and I am glad that you took the precaution to have a preliminary examination of this property made, and no doubt Mr. Pembroke has given you the information which I suggested it would be wise to obtain. I hope you will also be able to check up the minor points mentioned in your letter, since the rather unfavorable record of mining operations around Wickenburg during the past thirty years naturally leads one to proceed cautiously in undertaking any new operations in that district.

I hope you will be coming out this way later, and shall look forward to the pleasure of making your personal acquaintance, assuming that I am in Phoenix at the time you visit Arizona.

A good deal of my work is now in northern California, and I expect to return that way around the middle of March.

Yours very truly,

*G. M.*

GMC:F

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REPORT ON GOLD BAR MINE

Wickenburg, Arizona

By W. R. Shanklin, Mining Engineer, Tulsa, Oklahoma.

Mr. W. O. Dickenson,  
Tulsa, Oklahoma.

Dear Sir:

Complying with your request that I make a survey and examination of the Gold Bar Mine at Wickenburg, Arizona, I am herewith presenting my report; with detail maps of underground work, and such other items of information as I have been able to find from my examination of the property.

LOCATION:

The Gold Bar Mine is located in what is known as the Black Rock Mining District in Yavapai County, Arizona, about fifteen miles Northeast of the town of Wickenburg, on the Santa Fe Railroad, which is about 51 miles North and West of Phoenix. This part of the country is not surveyed or subdivided, therefore no legal descriptions of the land can be given.

CLAIMS:

There are sixteen full claims in a body, and a fractional claim on the Hassayampa River for a mill site, on which is located a pumping station for milling purposes. This group of claims is shown on the attached map. Title is held on these shown by solid lines, and patent can be obtained on them by going through the usual procedure of patenting such claims. Those shown by dotted lines were taken up some years ago, but have since been allowed to lapse, and are now forfeited.

TOPOGRAPHY:

The Topography is very rough and mountainous with narrow, sharp canyons and precipitous slopes. The general altitude of the area ranges from about 3200 to over 4100 feet, with an elevation at the No. 2 shaft of about 3450 feet.



The surface drainage is to the North and Northwest, into the Hassayampa River, which, in turn, flows to the Southwest and enters the Gila River.

#### HISTORY:

This property was first mined by O'Brien and Mahoney, and became known as the O'Brien Mine. They started mining operations at the Old Glory Hole, which they mined for several years, treating the oxidized ores by stamp mill and amalgamation. No record of this operation or production is now available.

The property was then organized as the Interior Mining and Trust Company, who operated on a much larger scale than the former operators, sinking the No. 1 shaft and opening up the old stope down to the present 385 foot level. All of the milling equipment now on the property was put there by this company and operated for a number of years. The records of this operation and production are entirely lost, but it is evident that a lot of valuable ores were mined and treated.

A re-organization of the Interior Mining and Trust Company was effected and the property became known as the Gold Bar Mining Co. This company sank the No. 2 shaft to a depth of 735 ft. and drove the present drifts on the 500 level and 700 foot level, but did not operate the mill, or produce any marketable ores. The property was shut down a number of years ago and remained idle until quite recently, when the ground was unwatered and the two shafts connected by a drift on the 500 foot level. The old milling machinery now on the property was shut down about twenty years ago and has not since been operated.

#### DEVELOPMENT:

The development of the mine was first started at the Old Glory Hole and carried downward in various stages. The shafts were sunk during the latter years of its operation, together with the drifts and crosscuts from the 385 foot level down to the 700 foot level, comprising a total of about 1800 feet of drift, as shown in detail on the attached maps of the underground workings.



The old workings above the 385' level comprise principally a larger inclined stope, or drift, with its best values from the old 200 foot level down to the present 385 foot level. These workings were damaged and allowed to cave, by the pulling of some very rich pillars, after which the lower levels were opened in an effort to develop a lower extension to the upper ore body. The last work done in the mine was quite recent, when the mine was unwatered and the present connection made with the incline at the 500 foot level.

#### EQUIPMENT:

The property is now equipped with the following itemized list of mining machinery, oil engines, compressors, buildings, tanks pipe lines and other miscellaneous equipment. A lot of this equipment is in fair condition and can be used in the further development and operation of this property, for which purpose it is estimated as being worth approximately \$40,000 to the property, but to tear down and remove it for sale as second hand machinery, it is worth only a small part of its value if used on the property.

#### PRODUCTION:

The records of the operation of the mill are entirely lost, having been destroyed or removed by officials of the Interior Mining and Trust Company, and no evidence of any ore sales or other data pertaining thereto is now available to show that the mine actually produced and sold valuable concentrates and bullion, except the attached photographic copies of Mint Memorandum and the return of settlement sheets from the Smelter for concentrates and bullion shipped to them, which were evidently overlooked when the other records were removed or destroyed. (EXHIBIT 1 AND EXHIBIT 2)

The ore from the mine was treated in the present stamp mill, over amalgamation plates, concentrating tables, and vanners, and by cyanide treatment of the mill tailings. It is reported that the entire production of gold and silver values covering the entire period of the property's operation was approximately a quarter of a million dollars.



### MILL TEST:

During the latter period of the operation of the present mill, a mill test was made on 70.17 tons of dry ore taken from the present 407 foot level on the south side of the winze or incline. This ore was milled very carefully and showed a concentrate recovery of about 22 per cent, or 15.44 tons of concentrates with a value of \$133.20 per ton. The ore as taken from the mine, or mill feed showed a value of \$29.30 per ton. This mill test gives an idea of the value and richness of the ores taken from the mine at this level during the period of sinking the incline or winze, and driving the crosscut drifts, as shown on the map of the underground workings, and is comparable to the ore that is now seen in these old drifts.

### WATER:

The water for milling purposes was formerly a problem, and necessitated the installation of a pumping plant on the Hassayampa River about a mile from the present plant. Water for domestic purposes is obtained from a good well and spring, located at the camp site.

The mine water was never very heavy, as little water was encountered in the old workings and around the No. 1 shaft at the 385 foot level. Such as accumulated was hoisted and bailed out. When the No. 2 shaft was sunk and the present drifts cut, a flow of water was encountered which at present amounts to about sixty gallons per minute, with indications that this will probably increase as the work is carried deeper.

A 7-inch Luitweiller lift pump was installed to take care of this water, but as there was no 7-inch column pipe on the property at the time, and there was considerable 4-inch pipe, the pump was bushed down to fit the 4-inch column, and has operated that way ever since, but it pumps very little water and will not keep down the present flow in the mine.

There is probably sufficient water in the mine for milling purposes, so long as the present underground conditions re-



main the same and operations are carried on above the 500 foot level; it will furnish a very economical supply of milling, as the water has to be pumped down to the 500 foot level.

#### GEOLOGY:

The surface rocks are granite, with many local variations, and should probably be correlated with the Bradshaw mountain granite. It is quite uniform over the area, and is found in all the levels of the mine to a depth of over 700 feet in the No. 2 shaft.

There is a number of dioritic dikes of varying character, cutting into this granite, which have a general strike of NE and SW, and with varying dips to the NW. Occurring with these dikes is a system of fault and fracture planes having approximately the same dip and strike.

The mineralized zone, or vein, follows the general trend of the dikes and fault system, and dips about  $30^{\circ}$  NW. No foot or hanging walls are discernible in the mine, except for the presence of heavy quartz vein matter, which occurs between the ore body and the large faulted crushed or brecciated section of the S.E. side of the Mine. This evidently cuts off the ore body, as no value of any consequence are found beyond this contact.

On the West side of the incline, or winze, at the 445 foot level, there is found an intrusive dike along which occurs heavy quartz vein matter in contact with a strong copper vein, showing good values in gold and silver. This vein, or lead, probably dips to the NW and may develop into a body of copper ore, but at present it is found at no other point in the mine.

#### SAMPLING AND ASSAYS:

Sampling of the mine was done very carefully, samples being taken approximately every five feet throughout the drifts that could be entered and examined. The assays of these samples are attached hereto on the original sheets from the Assay Office, and speak for themselves (Exhibit 3). The location in the mine from which each sample was taken is shown on the attached map of the



underground workings with a line and number of the assay. The average value of these samples taken out of the area hereafter described as OREBODY is \$11.75 gold and silver per ton.

There was taken from the mine two large samples of ore as near shipping concentrates as could be obtained for smelter tests. These samples were taken, one to the Magma Smelter at Superior, and the other to the Hayden smelter at Hayden. The results of these tests are also attached hereto as Exhibit #, and furnish a good idea of the value of the concentrates that can be shipped from the mine.

OREBODY:

The ore body, as developed by the underground workings, is apparently a vein or veins, of disseminated ores in a comparatively narrow strip paralleling and intermixed with a mass of quartz vein matter which lies between the ore and the faulted or severely brecciated area, which is evidently a fault and in turn parallels the general strike of the fault or fracture planes as observed on the surface and in the mine.

The ores are iron sulphides in association with this vein of quartz carrying gold and silver values. There is also some exodation throughout the sulphide zone extending from the old 200 foot level to the present 445 foot level. Above the old 200 foot level all the ores are pretty well oxidized to the surface at the Old Glory Hole.

The underground workings have in no way blocked out or developed what might be termed an ore reserve, but the showing of sulphide ores carrying values as shown by the sampling, shows beyond doubt that there is a body of ore which can be mined at a profit. To estimate an available tonnage of mineable ore is largely a matter of opinion as to the extent of the ores carrying average values large enough to make mining profitable. Naturally, such an estimate should be conservative, using only such measurements as come well within the limits of the exposed ores that show good values.



On the attached map of the underground workings is outlined an area that encloses the major portion of the observed mineralization, which shows an average width of about 40 ft., a length of about 330 feet, and an average height of probably 100 feet, extending from the 445 foot level up to the old 200 foot level, which is correctly a distance of about 175 feet. This area seems to cover the large part of what is apparently the extent of the present known ore body, and contains a total of about 110,000 tons of ore, using 12 cubic feet of rock in place of one ton, and the average value per ton rock or mine run of \$11.75 as indicated by the sampling, giving a total value of \$1,292,500.00. This sum must be considered as an estimate only, and that the actual value may vary widely from these figures. However, as considerable value is indicated by the above estimate, further development of the property should develop extensions to the present ore body, both laterally and with depth.

The point on the map indicating the presence of copper sulphides carrying values in gold, silver, and copper, the assays of which are shown (but the area not included in the above estimate) gives values of \$13.83 to \$54.85 per ton. This is a good, strong showing of copper ores, and is worthy of further development, as the vein probably parallels to some extent the other ore body, but deeper.

#### CONCLUSION:

The matter of ingress and egress to this property is one of great importance and involves the preparation of suitable roads for hauling heavy material to the mine, and concentrates from the mine for shipment at Wickenburg, a distance of 15 miles. There is a reasonable good mountain road from Wickenburg to the Monte Cristo Mine. From there to the Gold Bar Mine, a distance of two and one half miles, the road will require some improvement and reconstruction.

The attached letter of Mr. F. A. Mueller, who has been connected with and in charge of the property for a great many years, is the only authentic information obtained upon the character of the ores that were developed in the old stope below the old 200 foot level. This letter is marked "EXHIBIT 5".



From the foregoing data it is quite evident that there is considerable profit to be derived from this mine, if operated in the proper manner; and if so, a certain portion of the profits should be set aside and spent in further prospecting at deeper levels, in which case it is very probable that valuable bodies of copper ores may be discovered, as well as extensions to the present known ore body.

Respectfully submitted,

(Signed)

W. R. Shanklin

W. R. Shanklin,  
Mining Engineer  
Tulsa, Oklahoma

Phoenix, Arizona

April 23, 1927.

GOLD BAR MINE

Wickenburg, Arizona

Report of Examination by Hills and Willis,  
Mining Engineers.

To the Board of Directors,  
Interior Mining and Trust Company.  
Hartje Building, Pittsburg, Pa.

Gentlemen:

In accordance with your request, I have made an examination of your mining property located 16 miles N.E. of Wickenburg in the Black Rock Mining District, Yavapai County, Arizona.

The period of my examination on the ground, was from December 8th, 1907 to January 1st, 1908.

There are certain items such as the extent of the estate the character and condition of the title, the mines history, the location with reference to railroads and other transportation facilities, the question of water supply, drainage, inventories of machinery and other equipment, and other particulars which commonly form important and extensive parts of mine reports; which are not considered in this case. You are already fully posted in regard to these features.

However, the subject of the extent of the ore shoots within your vertical plane and boundaries and the question of extralateral rights and possible future litigation in regard thereto was discussed but after certain surveys and maps were made and considered, the matter was left with the members of the board, who were on the ground. The property or surface maps were left at the mine and I did not take any copy of same.

GEOLOGY AND MINEROLOGY:

The country is granite, which is extensively fissured and some of the fissures show faulting, though so far as observed, the faults were not of large displacement. The mineral deposits of the veins seem to have been subsequent to the faulting. A number of quartz veins were observed on the property and several of them have received some development work; but my examination was practically



confined to the ore body where mining and milling operations were being conducted. This ore deposit is in the form of a pipe or chimney. It has a strike S 53 degrees W with a dip of 30 degrees from the horizontal. Within or near the ore body signs of vein structure are obscure and the valuable ore is seldom bounded in any direction by walls. The original ore deposit consists of iron purite carrying gold, with a little silver and traces of copper, antimony and lead. I did not observe any zinc.

From the surface down to a vertical depth of about three hundred feet, the ore has been oxidized quite thoroughly; below this level the appearance of the original sulphide form is rapid. At the winze level there is still some iron oxide but the quantity is so small as to be scarcely noticeable in the mass of sulphides. Quartz, the most common material of vein filling, is found in comparatively small quantities aside from the quartz which is a constituent part of the granite.

#### SURVEY AND MAP:

During the period of my examination it was found necessary to make a survey of the underground workings of the mine. The survey and map were made under my supervision, and sections were left at the mine as a working map. This report shows only such portions as have some important connection with the subject considered. The ore shoot has been opened for a little more than 500 feet on its dip, which is but a little over three hundred feet in vertical depth. The mine workings consist of a vertically below the collar of the shaft as follows:

Adit level	1112 feet.
No. 1 "	114 "
No. 1 $\frac{1}{2}$ "	171 "
200' "	209 "
300' "	307 "
Winze	333 "

Only the 200 and 300 foot levels are connected with the shaft, but all of the workings are connected through stopes in the ore shoot. A plat attached hereto and forming a part of this report

shows separately the plan of the winze and the plan of the 300 foot level at and near the ore shoot. On another sheet there is a vertical section showing the dip of the ore shoot. On both plan and section the extent of the pay ore, as far as developed, is shown by red coloring, and the ground which was sampled and proven barren is colored green.

THE ORE:

Gold is practically the only valuable product of the mine; though there is a trifle of silver and the high per cent of iron figures as an indirect asset by lessening the reduction charge in the case of smelting ore. Iron, Sulphur and Silica (insoluble) are factors in determining the cost of treatment, hence some of the important mill runs and concentrate samples were assayed for these minerals.



GOLD BAR MINE

Rolla, Missouri.  
Aug. 16, 1934.

Mr. S. R. Francis,  
610 S. Kenmore Avenue.  
Los Angeles, California

Dear Sir:

Herewith detailed report of my examination of The Gold Bar Claims, Constellation, Arizona, during July 1934.

The objects of this examination were:

(a) To check statements previously made regarding the value and profit possibilities of the property.

(b) To decide whether the possible profits were large enough, and probable enough to justify the capital required to bring the property to profitable production.

The mine was not unwatered, and while I was unable to complete my investigation, I gathered evidence enough to form the following opinions:

On the first point I find the property has a substantial record, and considerable developed ore of good grade, altho short in some ways of previous estimates.

On the second point, I advise completion of the examination and the doing of development work underground to the amount of \$8000.00.

If this work results favorably I would advise further steps along the line of detailed recommendations in the body of the report.

If this work makes realization of 89,000 tons of .4 to .5 oz. ore seem impossible or improbable, a small non-mining organization should not attempt to operate the property unless other conditions have changed radically in the meantime.

I wish to thank you for the opportunity of doing this work and to express my regret at being unable to follow it thru to completion.

Yours very truly,

(Signed) J. H. STEINMESCH



## HISTORY:

I. The Mine now called the "Gold Bar " was discovered in 1888 by James Mahoney. F. X. Obrien, an able mining man who <sup>had</sup> made money in Leadville, later became interested.

According to Conlee's report written in 1905, the first mill (10 stamp) had by that time treated 4000 tons of ore yielding \$10 (.5 oz.) from the plates, and making a tailing of .132 oz., The mine therefore produced better than .6 oz. ore at this time.

Most of this ore came from the glory hole on the Homestake claim, but some ore was milled from the openings on the Black Bear Wash, where 1200 ft. of shafts and drifts were driven. This work was abandoned in favor of the glory hole where several shafts and a long incline were driven.

II. The Interior Mining and Trust Company was formed and became active about 1906. NO. I Shaft was sunk, and the present 12 stamp mill with plates, tables, vanners, and cyanide was built.

This work probably cost \$150,000. The wagon road is said to have cost \$40,000, up to this time.

The mill ran from July 1907 to June 1908; about 11 months. 786 daily assays of mill heads average .4 oz. Check assays indicate the ore was a little better than these assays.

Production in this period was \$120,000 or 6000 oz. Mine development was active but expensively done. An incline 250 ft. long is said to have cost over \$60,000. In and off this incline a body of excellent sulfide ore was partially proven. It contains high grade spots, and examiners have been very cautious in sampling this ore.

The mill stopped in June 1908. Financial friction because of the panic of 1908 probably contributed to the decision. Some sampling was done between June and November 1908.

III. The Gold Bar Mining Company was formed in 1915 and in 1916 No. 2 shaft was sunk 745 ft., probably with the expectation of cutting the extension of the main ore shoot. It is badly off the line. The



500 ft. level was connected to the bottom of the incline, some drifting was done on this and the 700 level, but no sampling was recorded or technical advice secured.

The shaft is said to have cost \$80,000; installations of the Luitweiler pump indicated operation was intended, but no commercial production was made at this time.

IV. The mine was unwatered for examination by Shanklin in 1927, Hyde in 1929, Smith and Holderness and Flagg in 1931.

V. Some \$5000 in gold was sold in 1933 and 1934 from high grading in the glory hole by Earl Stone and Harry Major.

VI. The present option was executed in the spring of 1934 by S. R. Francis, for the Gold Bar Development Co. It provides for the payment of \$300,000 in 5 annual installments.

VII. Stripped of all imagination, Production in the period covered has been between 8000 and 8500 oz. of gold from something over 20,000 tons of mill ore. (Other statements estimate 19,000 oz.).

Value of metal sold at \$20 per oz. for gold was \$165,000.

I estimate cost of equipment and development to date \$250,000 Omitting No. 2 shaft, which was an unnecessary error, the property broken even.

At \$35 per oz. for gold it should have made some money anyway. With improved technology it should do better today.

#### PREVIOUS REPORTS:

- I. By Wann in 1900. No details available.
- II. By Conlee in 1905. Extracts are attached. Says "200,000 tons of ore."
- III. By Victor G. Hills in 1908. Hills report without maps, Conclusions or recommendations is separately attached. I believe the copy is authentic. Miss Mary L. Hills, 2678 Hudson St., Denver, on Aug. 11 "regrets she cannot accede to the use of her father's property". I judge from the she has a complete copy. Hills was an able man and was on the mine while it was operating.



- IV. W. R. Shanklin 1927. Mr. Shanklin assembled a set of maps, took 138 samples, and estimated 110,000 tons of .5875 oz. ore.
- V. George P. Hyde 1929. Mr. Hyde made the examination for Foote and Company, Appraisers 136 Liberty St., New York, who addressed their report to Mr. Jas. A. Twichell, Wickenburg, Arizona. Hyde estimated 69,000 tons of .6 oz. ore.
- VI. In 1931 Cecil Smith and Ed Holderness, mining men of Arizona sampled the sulfide ores between the 385 and 445 levels for a group of Phoenix men, among whom were Howard Fields, Wayne Hefner, J. M. Alexander, and probably Banj. N. Webber, a geologist.
- VII. A. L. Flagg, Phoenix, Arizona, sampled the sulfide ores as a check on the work of Smith and Holderness in 1931 for the owners.
- VIII. Morton E. Pratt, C. G. Fennell and others have commented on various aspects of the property.

TENTATIVE APPRAISAL OF THE PROJECT. Based on treated 89,000 tons of ore.

- I. The Project has been presented as one with enough proven ore to vine an "operating profit of 602,593.00. In another place "Net operating profit is given as 914,523.00".

There is no profit from such an enterprise until after all bills are paid.

In this case the money advanced and the price of the property must be amortized on 89,000 tons of ore - about four years operation.

The object of this tentative appraisal is to clear the fog from large figures which could be misunderstood.

The figures used are illustrative; no large tonnage is yet proven.

This analysis shows that the tentative profit after all bills are paid, would be 200,000.00 to \$400,000.00 from 89,000 tons mined



and milled in four years, if the operation was then closed down.  
See Sec. IV, line 11.

On additional tonnage, after the first 89,000 tons, profits would be about doubled - See Sec. IV, line 12.

II. GRADE OF THE ORE:

From the Mill operation in 1907 and 1908, from the sampling in the sulfide ore between the 385 and 445 levels by Hills in 1908, Shanklin in 1927, Hyde in 1929, Smith and Holderness in 1931, Flagg in 1931, from my own and Shanklin's sampling in the Glory Hole, I conclude that with skillful mining and sorting, a grade of .5 oz. per ton should be delivered to the mill. Others assume .6 oz.

III. TONNAGE:

The tonnage will depend upon:

- (a) Cross section and continuity of the ore shoot from the 445 level back toward the surface.
- (b) Mining from foot of old stopes.
- (c) Extension of present shoot in depth.
- (d) Tonnage developed on outside prospects.
- (e) 11,000 tons of sulfide from the 385 to 445 levels may be assumed as proven. I was unable to get underground, but believe substantial tonnage will be proven on the main chimney by drifting and raising.
- (f) From thorough examination of glory hole, I believe considerable fair grade sulfide ore will be found in the bottom of old stopes. Recovery cost, in the caved area, may be high.
- (g) I think the ore will go deeper than so far found. From surface examination only, I conclude the main shoot has been faulted. The amount of displacement and difficulty of finding the extension I cannot estimate without further work above and below ground.
- (h) Values on the outside prospects may be important but are very much more speculative. No tonnages or values can be given.

IV. COSTS

Costs will depend on management. Assume 80 tons per day capacity.

Open stope mining should cost per ton	\$2.00
Development	1.00
Prospecting	.50
Milling (including sorting)	2.00
Freight and Smelting (considerable free milling ore)	1.00
Miscellaneous	1.50
Total operating cost per ton milled	<u>7.00</u>



No city office or absentee expense can be supported.  
Mr. Fennell estimates 8.50 per ton.

Mining, Milling, and overhead on 16,000 tons were \$5.00 in 1908, according to Mr. Fred Mueller, the bookkeeper at that time. Development was not included.

V. Without having examined the underground I cannot estimate any tonnage. To illustrate the case, let us assume the average of Hyde's and Shanklin's estimates 89,000 tons, is verified by further work. It is also assumed that this 89,000 tons is mined and milled in about four years.

Costs will be higher to start, but should improve; the condition of the mine openings may be quite serious; development and prospecting should be strongly pushed.

The figures given are reasonable objectives. In the following tabulation please note that lines 6,7,8, are non-recurrent of charges, and that the net profit, line 11, is after return of original capital plus 6% int.

100,000 tons of ore in the ground will be necessary to supply 89,000 tons to the mill.

Illustrative Comparison of results on a per ton basis.

Gold \$35.00 per oz. From treatment of 89,000 tons of ore.

	Previous	J.H.S.
1. Grade of ore	\$20.76	\$17.50
2. Loss in milling	2.08	2.62
3. Net sales value per ton milled	18.68	14.88
4. Mining, milling and miscellaneous costs	8.50	7.00
5. "Operating profit" "	10.18	7.88
6. Money Advanced \$100,000.00	1.123	1.123
7. Interest at 6% for four years	.28	.28
8. Cost of property \$300,000.00	3.37	3.37
9. Operating profit	5.41	3.11
10. Depreciation of plant, roads, etc.	.50	.50
11. Net Profit on above basis per ton	4.91	2.61
(a) On first 89,000 tons	437,000.00	231,400.00

Lines 6,7,8 are non recurring charges

Additional ore of the same grade with the same costs should return,

12. Line 5 less line 10 per ton	9.61	7.38
13. On 22,000 tons per year line 11	\$108,000.00	\$52,000.00
	per yr.	per yr.
14. On 22,000 tons per year line 12	\$193,000.00	\$147,000.00
	per yr.	per yr.



The same grade of ore formerly put in the mill .4 oz. would pay out on 89,000 tons. Additional tonnage would be quite profitable. Raising the grade .1 oz. in either case would increase return \$3. per ton, and might cost, additionally, 30¢ per ton.

- V.
- (a) Less than 89,000 tons of .4 oz. ore would be unlikely to return a profit.
  - (b) If 50,000 tons can be promptly proven, on the main sheet, the outside prospects, plus the ore developed in mining should total an equal amount.
  - (c) How much weight to give this will be apparent after the first stage of development work has been completed.
  - (d) I think there is a good chance of substantiating the rough estimates of Hyde and Shanklin. I recommend completion of the examination on this basis.

#### SAMPLING:

Where a large number of samples had previously been taken, I made a point of taking fairly large samples at points where I thought there was a chance of getting a mine size opening.

My samples in the glory hole show a higher average than Shanklin's .23 oz. vs. .12. oz.

It must be borne in mind that a number of my samples were taken to prove some workable ore, while Shanklin cut a sample every 10' regardless.

Samples S19, S20, S23, S27 were taken outside the recognized ore body. Some gold was found. If the property goes into operation, I think that careful mining, and sorting out of coarse waste, will permit working small stopes in this area just above the hanging wall.

The dump samples S29 and S30 A & B prove the dump to contain good mill ore, after .4 oz. had been taken out by selecting high grade and scraping rusty pockets.

E. Stone gave me the following which I partly checked. They broke 4500 tons in foot of Glory Hole. They sold: Amalgam 3,000.00  
 They sold 15 tons of tails from their little mill @ 150.00 pt2,250.00  
 They broke 4500 tons in foot of Glory Hole  
 They sold Amalgam 3,000.00  
 They sold 15 tons of tails from their little mill @ 150.00 pt2,350.00  
 They piled up 15 tons they estimated at 1.50 oz. 790.00  
 Had 500 tons of rejects (represented by 29 Z x B x 30 A x B @ .24 oz. 4,089.00  


---

 Total gold @ 20.00 500 oz. 10,120.00



He checked closely on the 500 tons of rejects and as he cut a good deal of rich sulfide, the grade as broken was very good.

I saw the certificate on the 15 tons but not on the amalgam.

This ore ran twice the grade necessary to pay, and was mined down the dip to the N.W., and just above the foot wall. Contained a good deal of sulfide.

In connection with these samples, note that an experienced high grader, did a very poor job of recognizing ore - see S 29.

S30 tends to prove that picking coarse waste out of the oxide ores would be workable; might raise the grade from \$8 to \$10 per ton.

Description of samples is given in detail and relevant information is also added.

Samples on outside prospects were generally smaller and less surely representative. The Blue Moon, Crown Drifts, and the Red Wonder, were encouraging, the remainder negative.

Samples SI to S' inclusive, were assayed by I. L. Wright, Silver City, New Mexico, and the remainder by the Arizona Assay Office, Phoenix, Arizona. Total number 55.

Duplicate samples were boxed and placed in the office at the Gold Bar Camp.

A gasoline driven sample crusher was invaluable in reducing the large samples.

The ore is very spotty.

#### OLD ASSAY RECORD:

Thru Mr. Ward Twichell, I secured the original assay record of The Interior Mining and Trust Company, which was in good order, and recorded all assays made at the Mine between July 1907 and Nov. 1908.

Mill heads for each of the three sections were assayed daily and 786 of these assays are summarized by months on the next page.

The Low day was September 9, 1907	.0967 oz. per ton
High " " August 16, 1908	1.486
The High months was August 1907	.667
Low month was July 1907	.2782
Average	.403



Check assays by Newman of the Portland Gold Mining Company, Cripple Creek, Colo., indicate the ore ran 5% better than the mine assays.

Tailing assays are less complete but a recovery of 75% seems probable.

Mine assays were very numerous, a good many being specimens.

Twenty-five assays of "Blow Out" samples gave generally low values. They indicate these crops were not ignored by the old timers.

Daily Heads assays for 3 months are included to indicate fluctuations in the ore.

Hill's report contains a long list of samples.

(J. H. Steinmesch)

GOLD BAR MINE

(Copy of letter from A. L. Flagg - April, 1931.)

Dear Sir:

I submit herewith the results of my recent investigation at the property formerly owned by the Gold Bar Mining Company, in the Black Rock Mining District, Yavapai, County, Arizona.

DATA FURNISHED: (1) Mine maps and assay results from a formal report by W. R. Shanklin, 1927; (2) Assay results and copy of a mill-test-run from a report by George P. Hyde, 1929; (3) Assay results of the sampling by Smith & Holderness, 1930. No detailed records of previous operations are available, except the report of the milling test, made by V. G. Hills, in 1908.

SCOPE OF INVESTIGATION: Except for a brief reconnaissance of an area approximately three thousand feet square, in the center of which the principal developed ground is situated, the investigation was confined to 385, 407, 445, 478 and 503 levels, entered through the No. 2 shaft. The surface investigations were carried out more for the purpose of general information.

GEOLOGICAL STUDIES: Except for a few hand specimens for consideration no geological material was gathered. Questions affecting the genesis of the ores were not a part of the problem as submitted, neither were any special problems in structural geology.

SAMPLING: Sampling was limited to check samples below the 407 level, and were taken for the purpose of determining whether or not any part of this block might be estimated as ore in sight. The samples were assayed at the Arizona Assay Office in Pheenix, Arizona, and the original certificate is attached hereto.



For the purpose of evaluating the property as a development project the agreement between the Shanklin general sampling and the Hyde check sampling is sufficiently close. In arriving at an average value of the block between the 385 and the 445 levels as determined by the Smith and Holderness sampling an average of a little more than \$18.00 is obtained if the one high sample No. 6 is included. If this sample is not included the average is \$8.50. The average of the seven check samples taken by the writer from the Block between the 407 and 445 levels is \$8.88. Since previous sampling of the whole section, as well as the mill run, have indicated a higher value, the "sweetening" effect of an occasional higher value may be allowed for to the extent of assuming that in all probability the ore in the shoot explored so far will break to an average of around eleven dollars per ton in gold alone.

#### ASSAY RESULTS

Sample	Number	1	0.04 oz. gold	\$0.80
"	"	2	.46 "	9.20
"	"	3	.72 "	14.40
"	"	4	.82 "	16.40
"	"	5	.30 "	6.00
"	"	6	.10 "	2.00
"	"	7	.66 "	13.20

The attached blue-print shows the approximate location of the above samples.

TONNAGE ESTIMATES: The nature of the development in the region at and below the 385 level is such that it is impossible to say, in the strict sense of the term, that there is any ore blocked out. In the reports by Messrs. Shanklin and Hyde certain positive tonnages are mentioned. While the method of computing this tonnage is stated in general terms the area is not so sub-divided that it is possible to compare the amounts estimated in either of these reports with that set out as being indicated ore in the present report. Furthermore, the workings above the 385 level were inaccessible at the time of the present investigation. Therefore, no opinion can be expressed

as to the positive or indicated ore above the 385 level.

From the data gathered during the time of investigation on which this report is based, and, after making due allowance for the dimensions as reported for the ore removed from the stoped out areas above the 385 level, now inaccessible, there is believed to be between the 385 level and a point just below the 445 level a block approximately forty (40) feet square in cross-section by one hundred fourteen (114) feet long, measured on the longer axis of the winze, and volume of 182,400 cubic feet or 15,200 tons gross. From this 25% might be deducted as representing the ore removed from the winze and the other working at these levels, leaving a net of 11,400 tons of indicated ore.

CONCLUSION: The present investigations indicate a minimum of 11,400 tons of ore of an average value of not less than \$8,888 per ton in gold between the 385 and 445 levels. In view of the milling test record, which is a sample on a larger scale, and after making due allowance for the higher averages obtained by a closer sampling on the same section, it is reasonable to assume that an average value of from \$11.00 to perhaps over \$12.00 per ton will be realized as this area is stoped out.

Respectfully submitted,

(Signed) A. L. Flagg  
Consulting Engineer.

Phoenix, Arizona.  
April 20th, 1931.



F O O T E   A N D   C O M P A N Y  
Industrial Engineers, Auditors and appraisers

136 Liberty Street

NEW YORK

Telephone Rector 9186

May  
Tenth  
1929.

James A. Twichell, Esq.  
Gold Bar Mine,  
Wickenburg, Arizona

Dear Sir:-

In accordance with your instructions, we have made an examination of your mining properties located at Wickenburg, Arizona, in the County of Yavapai, and known as the:

G O L D   B A R   M I N E

At the time of our examination between the dates of April the 11th and 23rd, 1929, considerable time was saved, as we were furnished accurate maps of the surface and underground workings, which maps and other valuable data was offered to us by Mr. W. R. Shanklin, Mining Engineer and Geologist. These maps by the courtesy of Mr. Shanklin, have been made a part of this report, who was present during our examination of the Mine, and rendered valuable assistance to our Engineer.

The specific data contained on the aforesaid maps, were carefully checked, and found to be correct.

The maps submitted consisted of:-

Long Section of Mine Workings and Marked Section A-A  
Cross Sections and Marked Section B-B and C-C  
Location of Underground Workings  
Plat of the Claims, showing locations of Development work.

Our Mining Engineer and Geologist Mr. George F. Hyde, was instructed to pursue a policy of brevity during the period of his examination of your property, where the data had been so ably treated in other reports, but to give due consideration and careful study to the treatment of the ores, and a decided opinion of the best ways and means for the proper development of the Mine, to ultimately extract therefrom the best results obtainable without jeopardizing the underground workings, which would result in a large capital outlay for its

rehabilitation and safety of operations.

Respectfully submitted,

FOOTE AND COMPANY

By E. P. Foote, F.A.A., F.C.I., C. P.A.

G O L D   B A R   M I N E

Wickenburg, Arizona.

LOCATION:\*

This property is located in Yavapai County, in the State of Arizona, about fifteen miles North Eastern from Wickenburg, which is on the Santa Fe Railroad, and is reached by a road in good condition, though having in places steep grades, which could be bettered by the expenditure of a few thousand dollars.

CLAIMS:-

The property consists of sixteen full, contiguous patented claims as follows:-

1. West End, 2. Bennett, 3. Galbraith, 4. Homestead, 5. White Blaze, 6. Charm, 7. Fob, 8. Black Bear, 9. Red Wonder 10. Cable, 11. Robert, 12. Little Jim, 13. Little Johnny, 14. Crown 15. Burton, 16. Home, and a fractional claim, the Bruston, situated on the Hassayampa River, and on which is a pumping station.

A suit to quiet title has been instituted, and a favorable decision rendered by the Court.

TOPOGRAPHY:-

The country in which the claims are located is rough, with deep canyons and precipitous sides. The elevation of the camp being about three thousand five hundred (3,500) feet above sea level.

The climate conditions are favorable for continuous operations during the entire Year. A decided advantage.

HISTORY:-

The property was discovered about the year 1889 by James Mahoney, who interested Mr. F. X. O'Brien, who was then mining in Colorado. Later O'Brien purchased Mahoney's interest. In 1901 a years lease was given John Brown, Trustee of the Saginaw Lumber Co. During the life of this lease a ten stamp mill was erected. The ore



treated came from an open cut in the out crop of the ore chute and from measurements of this cut, I estimate about 4000 tons of ore were treated with a recovery, according to Mr. O'Brien, of \$60,000.00. On the basis of an 80% recovery, the ore treated contained a value of approximately \$18.75 per ton.

The Interior Mining & Trust Co. was then formed. This Co. sank the No. 1 shaft to a depth of 325 feet, erected a mill of a hundred tons capacity and worked the ore body by means of an incline from the 385 foot incline level to the surface, a distance of approximately 500 feet. These workings are inaccessible owing to caving, the rich supporting pillars have been pulled. Through the courtesy of Mr. F. A. Mueller who was in touch with the operations during this period, and from a few records which have escaped destruction, I find the mill ran ten months, treating some 20,000 tons of ore with a recovered value of \$200,000.00, this from ore containing \$275,000.00 value of \$13.75 per ton of ore treated. A poor recovery.

Then came a reorganization and the property became known as the Gold Bar Mining Company. \$80,000.00 was raised with which the No. 2 shaft was sunk to the 700 foot level and connection made between the 500 foot level No. 2 shaft, and the old workings at the 385 feet level by means of drift and upraise. A small amount of ore was mined at this period and mill runs made.

#### GEOLOGY:-

The geology of this district offers nothing complex. The country rock is granite, and is known as the Bradshaw Mountain Granite. There has been extensive fissuring, showing two major periods of movement. One resulting in a system of North 70° East fissures, and the other in South 30° East fissures. Both systems show evidence of intensive mineralization.

Development has been almost entirely confined to one of the fissures of the North 70° East system, with a dip of 30° Northwest.

Evidence of faulting in this fissure is encountered on the 445 feet incline level, where a <sup>h</sup>rust movement interrupted the ore body. The downward extension of the ore body will be found in the Northwest or hanging wall side of the vein. This displacement was undoubtedly caused by one of the fissures of the South 30° East System. There being a strong cross fissure in evidence at this point in the workings and it corresponds in position, to what is known on the surface as the Black Bear VEIN. This displacement accounts for the fact that while No. 2 shaft was sunk on the supposed rake of the ore body, it failed to encounter the ore. On the 500 foot level of the No. 2 shaft, and about 100 feet from the shaft, where is encountered a condition of extreme crushing, accompanied by extensive mineralization of Marcasite.

This same condition with Marcasite exists in the foot-wall and adjacent to the ore body from the surface to the 445 foot level. The downward extension of the ore body at the 500 foot level will undoubtedly be picked <sup>up</sup> by driving a short cross-cut to the Northwest.

Paralleling this fissure on which the work has been done, and about 600 feet distant to the Southeast, is another fissure having a same dip 30° N.W. There are three very strong out-crops or blowouts on this fissure. The two extremes being about 1000 feet distant from each other. All three are larger and show very much more extensive mineralization than the out-crop on the fissure, in which the mining has been done.

I was particularly impressed by the one furthest to the Southwest, which is located on the Cabel claim, and is where the Red Wonder vein or fissure, the strongest fissure of the South 30° East system joins the S. 70° W. system. I believe when this property is developed, it will be found that under or in connection with this out-crop, the largest and richest ore bodies will exist. I cannot understand why this feature of the property has received so little attention in the past. The invitation is unmistakeable.



#### ORIGIN OF ORES:-

That the ores have been deposited as sulphides, filling, pre-existing deep fissures in the granite and by hot ascending solutions is so evident in view of present knowledge that it requires little further argument. In as much as the ores of deep seated ascending origin are always genetically associated with igneous rocks and this condition pre-eminently exists in the case under observation, there is every reason to expect permanency and continuation of the ore bodies to depth.

From conditions I observed at the Property I should expect stronger and richer ore bodies to occur as greater depth is attained and be accompanied in the values by a copper content. That copper will eventually form a considerable proportion of the values is sustained by its occurrence in a drift on the 445 foot level, in the Bennet Drift on the 475 foot level at 610 feet in the No. 2 shaft and 165 feet from the No. 2 shaft on the 700 foot level. This copper occurs as carbonate and oxides and as assay gave copper 6.15%, Gold \$6.80.

#### ORE BODIES AND VALUES:-

The ore body developed consists of quartz intermixed with massive iron sulphides, carrying gold and silver values in the proportion of four ounces of silver to one ounce of gold.

From the surface to the 385 foot incline level, the ore is oxidized to a more or less extent, at the surface completely then in diminishing proportion until at the 385 foot level the ores occur almost completely as original sulphides.

In only two places, the surface and one the 407 foot incline level has the ore body been cross cut. In the former place for a width of 60 feet and in the latter place for 45 feet. The distance between these two points being approximately 500 feet. The depth of the ore body on the dip of the vein has in no place been demonstrated. At the surface the ore in the bottom of the glory hole is still "going" and is exposed at this point 40 feet in depth. On the 407 foot incline

level, the same depth has been exposed by stoping with ore still in the roof and floor.

Assuming, as one is justified, from the reports of conditions as they existed in the stoped area that the same dimensions of width and depth hold for the distance of 560 feet or from the 445 foot incline level to the surface, and using twelve cubic feet for a ton of ore in place and deducting 20,000 tons as mined, we have an available ore supply of 69,500 tons, not to mention a large expectancy of probable ore.

Various results of values in this ore body are as follows:

Ten stamp mill, results per ton .....	\$18.75
Large Mill, " " " .....	13.75
Mill Run of 70.166 tons, taken without sorting across a 4' x 6' x 40' cross-cut on the 407 foot level -	
Copy of the report of this run attached as exhibit A .....	28.56
Average of 43 samples of the ore body taken in the winze area .....	12.80
Composite of 15 samples, taken at random by me as check on above (See Exhibit B) .....	11.20

From the foregoing results a valuation of \$12.00 is conservative. On this basis the 69600 tons represent a value of \$835,200.00. This estimate takes no account of the low profitable grades of ore of which there is an abundance, nor of the large expectancy of probable ore.

In justice to the property, it should be noted that the conditions existing when the samples were taken, the mine having been under water for many years, with resulting muddy accretions on walls and roof, would tend to give lower results than would be attained in the extraction and milling of the ore. With modern mining, and milling methods, this ore carrying \$12.00 in value per ton, should give a handsome profit.

#### EQUIPMENT:

Excellent living quarters for both staff and a larger crew are now on the property.

No. 2 shaft is a well constructed, double compartment shaft,



and is well equipped for hoisting. It has in connection compressor and pumping facilities.

No. 1 shaft while not as well equipped or in as good condition as No. 2, can with but little expense be made into a good workable shaft.

Mill building is well constructed, in good condition and with a little expense will lend itself to the installation of modern machinery. The advance of late years in ore reduction methods since the installation of this plant has rendered much of the machinery obsolete, still a very considerable portion can be utilized.

#### WATER:-

The mine as at present developed produces about 60 gallons of water per minute. This will undoubtedly be increased with further development. This gives an assurance of sufficient water for all mill purposes.

#### POWER:-

A power line has been brought to the Monte Cristo Mine, one and one-half miles distant. The rate for power is two cents per KWH.

#### METALLURGY AND REDUCTION:-

While decision as to reduction and concentration of the ore should be left for more detailed investigation than I was able to give it, the process that will undoubtedly be adopted will follow more or less on this line;

Crushing and sizing to a four mesh product, tabling same.

The reject from the tables going to a ball mill circuit to be finished by flotation cells. The product of tabling and flotation sent for reduction to a smelter.

Should tonnage of concentrates warrant, it might be well to investigate the feasibility of a Dwight-Lloyd cinderling plant.

#### CONCLUSIONS:

In order to complete this report the following summary of conclusions may be briefly stated:

The large body of excellent grade of ore so far exposed warrants

an extensive campaign of development. This should be done as follows:

1- Sink No. 1 shaft 125' deeper and drive a connection between the two shafts on the 500 ft. level of the No. 2 shaft.

2- At the 385 ft. incline level of the No. 1 shaft a working station should be made and so constructed as to easily handle large timbers and long lengths of pipe. Twenty feet below this station a sub-level of short length should be run to act as a discharge for a reserve or pocket bin, extending from the station above. Such a bin is necessary to prevent delays. Drafts should be run on this level to delimit the ore body.

3- From the station at the 500 foot level of the No. 1 shaft drifts should be run to pick up and delimit the ore body on that horizon.

4- The cross-cut on the 500 foot level and 100 feet from the No. 2 shaft should be driven ahead with every expectation of picking up the ore body within a short distance.

5- From this station a drift should be run about S 10° W for six or seven hundred feet to prospect for the downward extension of the ore under the No. 3 blow-out.

6- This campaign of development should cost not to exceed \$30,000.00 and should be done before any decision is reached as to the character and size of the permanent reduction plant. It would be advisable to install a small pilot plant of about 25 ton capacity for reducing the ore extracted from the development campaign. This could be done at a reasonable cost as the machinery necessary is largely on the ground. What would have to be purchased could be done at a reasonable cost as the machinery necessary is largely on the ground. What would have to be purchased could be done with the idea of its being a unit of the permanent plant. The profit from the pilot plant should largely pay for the development cost and being an excellent guide as to the character of the permanent plant.

The property at present is not sufficiently developed for the extraction of large tonnage. The commodity in this instance being



gold is not subject to market fluctuations. The cost of opening up and proving this exceptional ore showing will be nominal and the outcome will undoubtedly result in a large and successful mining venture.

(Signed) FOOTE AND COMPANY

Attest:

Signed by George P. Hyde  
Mining Engineer and Geologist

(Signed) E. P. FOOTE

F.A.A., F.C.I., C.P.A.

DATA ON GOLD BAR MINE

- (1) Report to Twitchell, May 10th, 1929, by Foote and Company.
- (2) Report to Dickenson, April 23, 1927, by W. R. Shanklin. ✓
- (3) Report to Interior Mining and Trust Co., no date, by Hills and Willis, Mining Engineers. ✓
- (4) Gold Bar Group by F. A. Meuller. No date.
- (5) Letter from Morton E. Pratt of October 27th, 1933, to Mr. Cecil G. Fennell. ✓
- (6) Letter(copy) from A. L. Flagg, April, 1931. ✓
- (7) Statement by Cecil G. Fennell, 1936.
- (8) Notes of Flagg and Other Reports, 1934.
- (9) Gold Bar Mine by J. M. Beach, 1934.
- (10) Letter to S. R. Francis, August 16th, 1934, by J. H. Steinmesch.

MAPS

- 1 - Assay Plat of Gold Bar Mine by W. R. Shanklin  
with notes and additional assays by J.H.Steinmesch
- 2
- 2 - Section map of Gold Bar Mine - by W. R. Shanklin
- 3 - Assay Plat of Gold Bar Mine  
(same as map first listed but without Steinmesch data)



January 13th, 1939.

Mr. Leonard Jones,  
Phoenix,  
Arizona.

Re: Gold Bar Mine

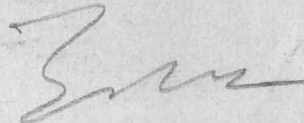
Dear Mr. Jones:

I have personally discussed with you and your associate, Mr. VanBuskirk, the Gold Bar Mine near Wickenburg, Arizona and through our mutual friend, Roy Barnes, have delivered to you a professional opinion dated December 23rd, 1938 together with a number of reports and maps which give a pretty complete description of the property.

I have also examined the Lease Agreement and Option to Purchase held by you and Mr. VanBuskirk and while time did not permit me to study this in detail, it appeared to be eminently fair and equitable to both the lessors and the lessees and the terms were such as I should recommend any client of mine to accept subject to the legal opinion of his attorney.

Since I now understand that you have become interested in this venture, I am glad to say to you personally that it is, in my opinion, an excellent opportunity to build up a comparatively small but probably quite profitable mining operation and that I believe that you and your friends and associates will be well advised to carry out the program of construction, development and operation which we have discussed in general terms and which should and I sincerely hope will justify the conclusions expressed in my professional opinion referred to above.

Yours very truly,



GMC: MF

January 5th, 1939

Mr. J. K. Kitto  
c/o Biddle, Whelen & Company  
1606 Walnut Street  
Philadelphia, Pennsylvania

Re: Gold Bar Mine

Dear Mr. Kitto:

Our mutual friend, Mr. Roy Barnes, has discussed with me on several occasions the Gold Bar Mine near Wickenburg, Arizona and I today expect to deliver to him and his associates a professional opinion dated December 23rd and a number of reports and maps which I believe give a full description of the property.

Today I have for the first time had an opportunity to examine the proposed Lease Agreement and Option to Purchase and while time has not permitted me to study this in detail, it appears to be eminently fair and reasonable to both the lessors and the lessees and terms such as I would recommend should be accepted by any client of mine subject, of course, to the legal opinion of an experienced attorney representing such client.

Since I am given to understand by Mr. Barnes that you may become interested in this venture, I am glad to say to you personally that it is, in my opinion, an excellent opportunity to build up a comparatively small but probably quite profitable mining operation and that I believe that you and your friends and associates should give this your very best consideration as a result of which I think you will agree with my conclusion as expressed above and in the professional opinion which I understand will be sent you with this letter.

Yours very truly,

*J K C*

GMC:MF

*Ivin Roy Barnes 1/6.39*



October 14th, 1939

Commonwealth Trust Company  
308 Fourth Avenue  
Pittsburgh, Pennsylvania

Attention: Mr. R. Ralph Sauers, Trust Officer

Re: Gold Bar Mine

*file*

Dear Sir:

I have been given to understand that you are the party to whom I should write in reference to the Gold Bar Mine, near Wickenburg, Arizona. I have looked into this property to some extent during the past few months and believe that it might be interesting to certain clients of mine who are looking for old gold properties which may be reopened and operated with profit.

Before going further or suggesting that any substantial amount of money should be spent for unwatering and cleaning out the workings and resampling the same, I think it prudent to definitely determine the status of the title and to ascertain whether a lease with option to purchase could be obtained without risking any present or future litigation or complications with other parties who may be or have been involved in previous similar transactions.

I should particularly like to be assured that you or some party to whom you might refer me could negotiate and close such an agreement without any possible complications with Messrs. R. B. Van Buskirk, Cecil G. Fennell, John Beach, Ward Twitchell, Sidney Francis of St. Louis or any other parties whom I may not have mentioned.

Should you be in a position to reassure me on this point I would appreciate your advising as to where I could obtain any reports, maps, etc. that might aid in the investigation and as to the terms and conditions upon which the mine would be turned over under lease and option, it being of course understood that I would expect to furnish satisfactory references as to the financial responsibility and intentions of the parties whom I may represent in this transaction.

Thanking you for attention to this matter, I remain

Yours very truly,

*[Signature]*

GOLD BAR

9/18/39

According to Fennell:-

Tenney examined for Van Buskirk in '39.

Hatcher once examined for A. S. & R. and then had Holderness and Smith examine on the quiet.

Holderness had trouble with Ward, Twichell (Yale '13) then got sore and turned it down and he gave it a black eye to Tenney who in turn condemned it to Van Buskirk.

Mine is now wide open for a deal. Caretaker at mine is names Hayes and not Mackay and Sidney Francis may still have some hold on it.

Fennell suggests that we should look over the surface and if favorably impressed make a direct approach to the Trust Co. in Philadelphia.



NOTE RE GOLD BAR

9/15/39

Owner represented by Mr. Sauer, Trust Officer of Commonwealth Trust Co. of Pittsburgh.

Gamble to reopen and sample this mine which might cost \$10,000, might appeal to Joralemon and his crowd, would need 200 samples and could get down thru #1 Shaft and then shift to #2 Shaft which is much bigger. Water down 200' and a lot of caving in the old workings. Pumping and cleaning out may be more costly than expected.

Jones and Van Beukirk are out of the picture.

Geo. Hall of Tucson interested and he was with Smith and Holderness. Also there is now a man named Mackay at one mine who claims that his friends will operate before long, but Fennell thinks that it is open for a deal and will find out definitely in the near future.

*Cy F. Farnell*

January 5th, 1940

Mr. H. Ralph Sauers, Trust Officer  
Commonwealth Trust Company  
P. O. Box 956  
Pittsburgh, Pennsylvania

Re: Gold Bar Mine

Dear Sir:

Please refer to your letter of October 19th, 1939 replying to mine of October 14th.

Since I have been advised from time to time that the Gold Bar property is still entirely inactive and that such is its present condition, I assume that the negotiations to which you referred in your letter have not resulted in any tangible change in the previous situation and if the present time is opportune for a renewal of my inquiry of last October, I should be glad to learn whether or not the owners of this property would consider entering into negotiations with parties whom I represent.

Yours very truly,

*Erne*

GMC:MF



*Gold Butte*

October 12th, 1939

Mr. Ira B. Joralemon  
315 Montgomery Street  
San Francisco, California

Dear Joralemon:

Thank you for yours of the 3rd replying to mine of September 29th and in reference to an old gold property in central Arizona.

I fully appreciate the many uncertainties attendant upon the European War and possibly affecting the cost of producing gold in this country and I have given this matter consideration and believe that the mine which I have in mind would probably meet your requirements insofar as the grade and value of the ore is set forth in the old reports.

However, I am not altogether satisfied with the representations which have been made to ~~you~~ <sup>me</sup> in respect to the title to this property and the legal responsibility of the local parties to make a firm agreement for lease or purchase and therefore, before going any further, I am communicating directly with the trustees for the estate which is supposed to hold title to the property and should I receive satisfactory assurances from them, I will probably write you further in this regard.

Personal regards.

Sincerely,

*J. M.*

GMC:MF

IRA B. JORALEMON  
315 MONTGOMERY STREET  
SAN FRANCISCO

A 10/12  
39

October 3, 1939.

Mr. George M. Colvocoresses,  
1102 Luhrs Tower,  
Phoenix, Arizona.

Dear Colvo:

Answering your letter of September 29th, it is hard to say whether or not my clients would be interested in the gold property in central Arizona. The war has made the relationship between cost and price of gold uncertain and I think a property should show a possible profit with very much higher costs than those at present in order to be attractive.

If you think this property might meet these conditions, I shall be very glad to hear more about it. It will have to be pretty attractive before we could consider it but such things are occasionally overlooked and it might fill the bill.

I had not heard the results of U.V.X. damage suits at Jerome and I am very glad that you won the jury verdicts.

With best regards,

Yours sincerely,

*Ira B. Joralemon*

IBJ:CS



January 5th, 1940

Mr. H. Ralph Sauers, Trust Officer  
Commonwealth Trust Company  
P. O. Box 956  
Pittsburgh, Pennsylvania

Re: Gold Bar Mine

*file*

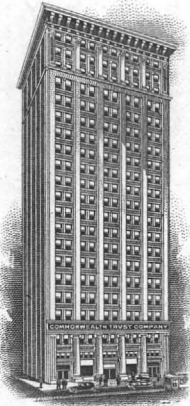
Dear Sir:

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Since I have been advised from time to time that the Gold Bar property is still entirely inactive and that such is its present condition, I assume that the negotiations to which you referred in your letter have not resulted in any tangible change in the previous situation and if the present time is opportune for a renewal of my inquiry of last October, I should be glad to learn whether or not the owners of this property would consider entering into negotiations with parties whom I represent.

Yours very truly,

GMC:MF



# Commonwealth

Trust Company of Pittsburgh

308-314 Fourth Avenue

Capital \$1,500,000 Surplus \$1,700,000

Member of Federal Reserve System

Pittsburgh, Pa.  
(POST OFFICE BOX 956)

Aspinwall Branch  
Brilliant and First Streets  
Aspinwall, Pa.

Mt. Lebanon Branch  
670 Washington Road  
Mt. Lebanon, Pa.

TRUST DEPARTMENT

*Gold Bar Mine file*

October 19, 1939

*A. 1/540*

Mr. George M. Colvocoresses,  
1102 Luhrs Tower,  
Phoenix, Arizona

Dear Sir -

I am in receipt of your letter of October 14, 1939, regarding the Gold Bar Mine of the James A. Twichell Estate.

It is possible that the Estate will dispose of this property within the next few weeks. I shall, therefore, withhold answering your inquiry until I have definite word on the present negotiations.

Yours very truly,

*H. Ralph Sauers*  
H. RALPH SAUERS,  
Trust Officer.

HRS:MM



# NORTH AMERICAN LIFE INSURANCE COMPANY OF CHICAGO.

JOHN H. McNAMARA, CHAIRMAN OF BOARD  
E. S. ASHBROOK, PRESIDENT  
PAUL McNAMARA, VICE PRESIDENT  
H. O. KRAMER, VICE PRESIDENT  
THOS. E. ROONEY, TREAS.-GEN. COUNSEL  
W. O. MORRIS, SECRETARY-ACTUARY  
CHAS. B. IRWIN, MEDICAL DIRECTOR  
C. G. ASHBROOK, SUPT. AGENCIES  
JOHN A. RISK, DIRECTOR

JOHN H. McNAMARA, FOUNDER

HOME OFFICE: NORTH AMERICAN BUILDING

The Prentiss Agency, Inc.  
1813 - 120 South La Salle Street

PAID UP CAPITAL, \$1,250,000  
RESERVE AND SURPLUS, \$13,000,000

February 22, 1935.

*A 7/27,*  
*33*

Mr. George M. Colvocoresses,  
1108 Luhrs Tower,  
Phoenix, Arizona.

Dear Mr. Colvocoresses:

Thank you very much for your letter of February 20th, which in a way confirms the information I have already received about this property. It was offered to me by Mr. James M. Hall, who has the property for sale, and I had Mr. Earl R. Pembroke of Salt Lake City make a superficial examination of it several weeks ago, and Mr. Pembroke was sufficiently impressed with the surface indications and with old reports which were given him to read to recommend the expenditure of enough money to unwater the mine and have a look at the ore bodies, though he, too, recommended the testing of the ore and the checking up of several other minor points before going to the expense of this preliminary examination.

I am rather hopeful that I will have the money in hand very shortly to do ahead with this preliminary work if I want to, and in this event I will come out there immediately.

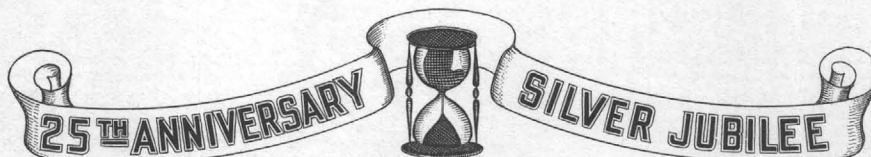
I am glad to have made your acquaintance through Mr. Harriman, and if I make the trip I will certainly get in touch with you immediately, and in the meantime again thank you for your courteous and prompt answer to my inquiry.

Yours sincerely,

*Jas H. Prentiss*

Jas. H. Prentiss

JHP:W



GOLD BAR MINING PROPERTY

## LOCATION:

Yavapai County, Arizona. Fifteen miles from rail transport by graded mountain road. Two miles from U.S. Post Office. Winter climate mild. No snow. Summers hot for two months.

## PROPERTY:

Sixteen Patented Lode Claims. Over 300 acres. Also a mill site - water right location about one mile from the camp. An abundance of water at this point. The mine will probably furnish sufficient water for metallurgical and mining use.

## HISTORY AND PRODUCTION:

Mineral locations on which patents are based date back to 1888/ First production of importance in 1901. Principal production in 1908-1910. Idle since 1918. There are no authentic figures as to total production. A fairly reliable estimate is about 25,000 tons, of an average value of close to \$15.00 per ton. Gross recovery about \$280,000. The first production was by amalgamation alone, later gravity concentration (tables) was added, and late in the period of operation cyanide leaching was added.

## DEVELOPMENT:

The above production was made from one ore shoot, followed to an incline depth of 560 feet. A vertical shaft (325') connects with the ore shoot at an incline depth of 385 feet. No ore has been stoped below the 300 foot incline level. A second vertical shaft located to intersect the ore shoot at about 700 feet, is now down 735 feet, and is not in ore. The ore shoot and incline workings are connected with this shaft at the 500 foot level. Average inclination of the ore shoot is 30 degrees from the horizontal. Present water level is at about 275 feet incline depth on the shoot. The 735' vertical shaft is said to have made about 60 gallons of water per minute. Estimated at not over 20 gallons per minute at the 500 foot level. The owners have the reports of two engineers, made not for themselves but for prospective purchasers, that give ore as opened and available for production, as follows:



Report date	Tons (2000#)	Avg. Value	Total Value
April, 1927	110,000	\$11.75	\$1,292,500.00
May, 1929	69,600	12.00	835,200.00
Gold and Silver. Ratio 1 - 4 Gold @ \$20.00, Silver @ \$.60.			

Both reports consider "probable ore" of a large additional amount as fairly assured. That the 735' vertical shaft has not disproven the downward extension of the ore shoot, but is more than probably but a short distance from it. That the prospective possibilities of other and larger ore shoots are exceptionally good, as judged from geological structure and outcrops of the vein system, as yet unexplored.

#### EQUIPMENT:

The property was well equipped, and nothing has been removed. Buildings, mill bins and such are in a fair state of preservation. Twelve Nisson stamps on concrete blocks, rock crusher, pumps, compressor small equipment and tools, in good condition. In all of very considerable value to anyone rehabilitating and operating the mine.

#### UNWATERING AND EXAMINATION:

Good and sufficient equipment for unwatering the mine on hand, in place, and in operating condition. Cost of unwatering and verifying ore estimated as available would amount to about \$1000.00.

#### PRINCIPAL DETAILS OF AGREEMENT WITH THE GOLD BAR COMPANY as signed by Eard Twichell.

#### UNWATERING AND EXAMINATION:

The company to furnish such equipment and facilities as are on the ground, at no charge.

Sixty days time for unwatering and examination.

Unwatering to start within ten days of the signing of agreement. (Good and sufficient equipment available, and in working conditions to do the unwatering in twenty days. With small additional equipment it could be accomplished in less time. Fuel for power units (distillate and gasoline) and labor, the principal items required. Unwatering could be started on a day's notice.) (Reasonable extensions on the above time will be given to cover unforeseen contingencies, if desired.)

LEASE AND OPTION TO PURCHASE:

Governing details and to be entered into following the examination.

To start underground operations, or the installation of other or additional equipment to facilitate underground operations, within a period of not to exceed thirty days.

To employ not less than 10 men daily in underground operations. Average over any three months period.

Ore reduction can be started on the property at any time, and expressly provided that for the first year underground development must be so conducted as to in no way deplete ore reserves as determined at the start. Further provided that exploratory and development work can be conducted in ore, and on any part of the property. No ore to be shipped or removed from the property except on the consent of the owners.

To pay a royalty of 15% of the net returns from mint, smelting works or other agency handling the products marketed. On consent to the removal of ore from the property for treatment, royalty to be at the rate of 20% of the net returns. All royalties paid to apply on purchase price.

To have the privilege of purchasing an undivided three-quarter part (75%) of the property for a total price of \$150,000.00

One year from date of instrument	25,000.00
Eighteen months	25,000.00
Twenty-four months	25,000.00
Thirty months	25,000.00
Thirty-six months	50,000.00

Following final payment as above, any and all profit from operation to be applied to the extinguishment of capital expenditure incurred in mine exploration and development, equipment etc., to the total sum not to exceed \$125,000.00, before the minority (25%) interest receives any dividends or profit from operation.



STATEMENT BY CECIL S. FENNELL 1936

GOLD BAR MINING COMPANY

Black Rock District, Yavapai County

ARIZONA

S U M M A R Y

of

accompanying reports, maps, memoranda and of data secured from a reconnaissance field survey & examination of the property incidental to the unwatering of the mine to the 490' level & preparation for the operation of the property as a whole and based thereon an Inventory & Tentative Appraisal.

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PURPOSE OF SUMMARY & SURVEY:

To epitomize the above mentioned voluminous data after making such confirmatory investigations as were possible, by which to enable the layman to get a bird's eye view of and obtain a correct understanding of the property and its salient features as related to an interest in the property from any one of several angles.

Basal geologic conditions in their relationship to the formative stage of, and mineralization of veins, and other ore bearing media, and thus to the genesis of the ore itself, and to the values inherent to such ores, become of outstanding importance, when it is recognized that the practical and commercial outcome of the operations are dependent thereon.

Particular study has therefore been paid to these factors as effecting the evaluation, under appraisal and otherwise, of this property, and though it is not within the scope of a summarized survey to give the findings as here stated, it appears desirable to enlarge upon same to the extent given under the captions, Geology, Ore Genesis, and Mineralization.

LOCATION:

The Gold Bar Mine is situated fifteen miles Northeast of Wickenburg, nearest point of local supply, and three miles East of Constellation, which is the postoffice for the mine. The well-



known Monte Cristo Mine is located at Constellation.

The mine is connected with Wickenburg by a fair mountain road, which is in sufficiently good condition to permit of the operation of motor trucks. Graded hard surface highways radiate North, South, and West from Wickenburg.

The nearest railroad station is at Wickenburg on the A.T. & S. F. R.R., with connection on at Phoenix, fifty miles South, with the S. P. R.R. Prescott, the County seat, is located about sixty miles to the north.

TITLE:

Sixteen, U. S. granted, patented claims. The mill site, upon which the pumping plant is located, is also patented.

HISTORY:

The Gold Bar Mine was discovered by James Mahoney in 1888, who sold it some years later to F. X. O'Brien. A lease on the property was given to John Brown, one of the officials of the Saginaw Lumber Company in 1901. He erected a ten stamp mill on the property and operated same for a year or two.

The Interior Mining & Trust Company acquired the property thereafter and erected a 100 ton capacity mill; subsequently the Gold Bar Mine Company acquired same under a reorganization, but did not operate the property very actively. The property has not been operated of recent years; but was unwatered about four years ago down to the 520 level to permit of examination -- the water has since risen to the 300 level.

PRODUCTION:

Under these successive ownerships, according to the best available records, there appears to have been a gross production -- practically all the values are in gold of about \$380,000.00.



This was at the price for gold of \$20.67 oz. Based upon the present price of gold -- \$35.00 oz. -- this would make a gross production of . . . . . \$645,000.00

MINES OF SAME DISTRICT:

The largest and most profitable mines of this district are located upon and within the Bradshaw Mountain granites, as is the Gold Bar Mine, and at the same geological horizon. Amongst these are numbered the Congress, Monte Cristo, Octave, Yarnell, and Vulture.

In the adjoining Yavapai schist formation, which interlocks with these granites with a considerable degree of non-conformity, are located the historic Peck, Wildflower, Blue Bell, McCabe-Gladstone, and the Famous United Verde mines. These mines have yielded from \$2,000,000.00 to over \$20,000,000.00 respectively, (the United Verde something in excess of \$75,000,000.00) and attained depths on the dip of their veins from 1000 feet to 3500 ft.

GEOLOGY:

The mine is situated in the Bradshaw Mountain Granite formation. This formation is probably one of the pre-Cambrian period as distinguished from the post-Cambrian period; an important distinction as related to the genesis of gold bearing ores in granite.

Environing rhyolite and dioritic flows and intrusions, are associated with gneissic and other metamorphosed formations; basalt and malpais of volcanic origin appear; pegmatitic rocks, products of segregation, from the gneissic rocks, also appear. No sandstone or limes, or other sedimentary formation is in evidence.

The strata and manner of their stratification, as hereafter indicated evidence the dynamic igneous and seismic forces that contributed towards and brought about the extensive rupturing movements which permeated this area. Resultant therefrom exten-



sive fissuring occurred which formed the "true fissure" veins.

As the dynamic forces of seismic, igneous, and rupturing movements, arising from the adjustment of the strata composing the earth's crust, concentrate in certain areas, such as here found, deep seated veins, well mineralized, are to be expected.

#### MINERALIZATION:

In the immediate neighborhood of the mine there appears to have been two major periods of movements, though probably not within the same geologic epoch, which brought about extensive fissuring. One movement formed a  $70^{\circ}$  North East system of fissures, and the other South  $30^{\circ}$  East fissures. These formed the two fissure veins which heretofore received the closest attention. They take a generally uniform dip of  $30^{\circ}$  to the Northwest. These veins intersect upon the property. It is probably in the neighborhood of this intersection that the most pronounced mineralization and enrichment of the gangue-vein filling-- has taken place.

The present development and opening up of the mine has been confined to the North  $70^{\circ}$  East fissure vein system, and most of the ore extracted has been taken from the ore shoot which it carries.

These fissures created zones of lowered resistance to permit of the rising solutions penetrating towards the surface to deposit their metalliferous content.

Within the zones of greatest dynamic activity, as evidenced in places in the underground workings and by certain of the surface out-crops, deep seated chimneys and pipes may occur, which, in flattening upon an incline lateral plane, probably increased the width of the veins, thus giving opportunity for wide ore shoots to make.

Should further study and working out of the geologic conditions sustain this theory, it is to be expected that in relationship to these chimneys or pipes, the ore shoots may be short, but of extreme depth and width, forming in places, lenses, or



lenticular bodies of rich shipping ore. This has already occurred to a limited extent in the "Glory Hole", old workings of the mine.

In the neighborhood of the convergence of the two fissures mentioned, some faulting has occurred, with a corresponding displacement of the vein, with its ore content. In this particular part of the mine the ore shoot has yet to be picked up.

This faulting has given rise, in some instances, to the assumption that the mine, in this part of the workings at least, was "bottomed" -- an almost ridiculous deduction in view of the geologic influences, as previously explained, clearly indicating deep-seated ore bodies; and in view of the experience of the outstanding properties of the same district occurring in the same geologic period and formation.

The extensive movements and fracturing which have taken place could scarcely exist without causing at least a moderate faulting. This runs true to form in this mine, as in others, in bringing about a displacement of the vein and its contained ore bodies.

In the majority of such displacements, similar to that occurring here, the ore is picked up without excessive loss of time or heavy expenditure.

#### ORE GENESIS:

Similarly to the ores in the other mines in this district, the Gold Bar carries, with depth, the usual primary sulphides. These have ascended under high pressure from great depth in the form of super heated semi-molten solutions, fed through the fissures to which reference has been made.

These solutions, derived from deep seated ore magmas, were deposited by precipitation upon nearing the surface as heat was dissipated and pressure released, thus segregating and solidifying into ore as we know it.

The extensive mineralization and high values found are the sequelae of the conditions above depicted. The areas, already worked in this mine, are so closely confirmatory of the above, as to leave



but little doubt as to the permanency, and continuity of value, of the ore bodies.

The manner of the laying down of the ore; the existence of primary sulphide bodies; the appearance of copper in the gangue in the lower levels; and the depth and production obtained in and from neighboring mines, in the same formation of the same geologic period, warrants the assumption not only that the values will continue to great depth, but that such values may increase with depth.

The above is aside from, and not taking into consideration the rich oxidized secondary ores near the surface, which have been mined, and are yet to be mined; and some of which is already broken ready for extraction in the stopes.

#### DEVELOPMENT:

Shaft No. 1 is sunk to a depth of 325 feet; shaft No. 2 to a depth of 735 feet; and the "Old Shaft" -- now out of service -- to a depth of about 200 feet. Levels have been extended from these shafts and incline at 200 ft., 385 ft., 407 ft., 445 ft., 478 ft., 503 ft., and 700 ft. and an incline from the "Old Shaft" to a depth of 520 ft. Several short crosscuts have been driven, but possibly not in the most desirable direction. Reference is made to the accompanying maps for further details of the development.

The mine has been developed and the ore bodies opened up, by these shafts, inclines--levels--drifts, crosscuts, and raises to the extent of over 2,400 lineal feet.

#### EQUIPMENT:

This consists of a one hundred ton capacity mill, complete hoisting plant at No. 2 shaft, auxilliary hoisting equipment, pumps, compressors, with adequate power--gas engines--connected to each operating unit; also machine and blacksmith shop; also a fairly complete supply of tools, drills, and minor appliances.

A pumping plant, equipped with high pressure triplex pumps--gas driven--is located at the Hassayampa River, one and one half miles from the mill, connected to the mill by a four inch water



main-- in this arid country an extremely valuable asset. About 900 feet of this pipe is missing. The pipe and pumping plant will require considerable overhauling.

Camp buildings: Bunk and boarding houses, and manager's residence, and store building with the usual domestic out-buildings, are located below the mine, in a canyon leading to the Hassayampa River. Like the mill building, these buildings need overhauling. See Inventory for additional details and condition of the foregoing.

Much of this machinery, including the mill, requires reconditioning and much of it is more or less obsolete--at the same time this obsolescence does not debar its use, with a comparatively small expenditure for reconditioning, for the further development of the property, extraction of ore, and bringing it to the stage of permanently profitable operation.

Thereafter a new mill, or an adaptation of the present mill by additions of flotation and cyanidation units, so as to permit of the utilization of the latest metallurgical practice and appliances, will be desirable.

With these a better extraction of values can be made, and costs considerably reduced.

See section: "Recommendations" relative to the installation of electrical power, which is now available, and additions to, or the erection of a new mill.

See "Inventory" for details of machinery, physical property, and their conditions.

#### ORE VALUES:

The ore in sight and partially blocked out--see maps and reports--is composed of approximately 40% oxidized and 60% sulphide ore, and yields an average value, under careful sampling, of from \$11.00 to \$15.00 per ton at \$20.67 oz.

The value of the silver content of these ores, at present price for silver, ranges from 65¢ to \$1.25 per ton of ore.

The average of \$11.00--\$15.00 is .....\$13.00

With gold at \$35.00 oz., the added value to this ore, as against a price for gold of \$20.67 is .... 9.35



Making present value of ore, per ton .....\$22.35

ORE RESERVES:

Due to the former operators of the property failing to, or being unable to utilize the sulphide ores, most of the sulphide, ore reserves still exist in the backs, above and below the levels, with a lesser tonnage existing as stope filling.

The oxidized ore is mainly limited to the upper workings, and exists mostly as stope filling. The former operators made but little attempt to work what they regarded as the lower grade ores. This resulted in their leaving, broken in the stopes, a considerable tonnage of now good milling ore, based upon the price for gold of \$35.00 oz.

ORE--TONNAGES:

The average of the tonnages in the reports etc., from which this is summarized, is 89,800 tons. In behalf of conservatism, as applied to the appraisal and profits, in the financial set-up, this tonnage is divided into immediately available (positive) ore of 35,920 tons, and Probable ore of 53,880 tons.

ORE--POTENTIAL:

Partially based upon the experience of mines in the same Bradshaw Mountain granites and the Yavapai schists--in this and adjoining districts--and upon the deductions, as made in the text, (see Geology and Mineralization), there is no good reason for not anticipating--though this is not taken into consideration in the valuation for appraisal purposes-- that greater tonnages than those above given, similar to those heretofor extracted, and still in sight in place in the mine, will be developed. See Appraisal--Potential Assets.

RECOMMENDATIONS:

1. That the present plant and mill be used:
  - (a) as a pilot to render working information as to the best method by which to gain the highest extraction of values from the ore:



- (b) with which to produce a moderate income as set forth on page 3, in the financial set-up, which accompanies this summary.
- (c) while developing the mine and putting in sight additional ore bodies.

2. To connect into the present ore bodies for more economical extraction from the #2 shaft--probably from the 500 foot level, by drifting to the North East, thus to permit of more economical operations, and ore development than formerly.

3. To sink at least 60 feet or 70 feet on the outcrop on the Great Bear Claim, and drift at that depth 30' to 50' North East and South West or to drive a short tunnel to cut same at this depth. This may determine something as to occurrence of ore in this area, which is noted in the text. This should be done inexpensively, using a prospecting shaft and 4' x 6' drifts.

4. To do such work as will define the "chimneys" or "pipes" of ore referred to in the text.

5. That sufficient preliminary capital be provided to permit of the execution of the above. This should not exceed \$15,000.00 to \$20,000 See /financial set-up.

6. That thereafter, and not until then, sufficient capital be provided for:

- (a) the installation of a new mill; or the material enlargement of the present mill, with flotation and possibly cyanidation adjuncts.
- (b) to change over from the present gas engine power to either electric or Diesel engine power, for all purposes.
- (c) for extensive exploitation and development of ore.
- (d) for the prospecting and opening up of contiguous claims belonging to the property.

The provision of from \$50,000.00 to \$75,000.00 additional capital should suffice for this, especially if a small portion of the then income, were utilized with same.

#### CONCLUSIONS:

There are four factors, which under capable management, appear to make the operation of this property safe and profitable.



1. According to the best information available at the price for gold of \$20.67, former operators either made a small loss, a small profit, or broke even.

Taking the same ore, under the same conditions of mining, milling, overhead and marketing, with the price for gold 75% higher, they would have made, even in the face of adverse operating conditions, a profit of \$5.00 to \$8.00 per ton, upon the ore then treated.

2. This was in the face of high costs, and constant bickerings and pulling apart of the foremen, miners and management, mediocre management, lack of expert advice, and unwarranted high marketing expense, and with at least a portion of the development work wrongly placed.

Costs of mining, milling marketing and overhead, are now, somewhat less than during those years of the operation of the property as shown in the Text under History, and in addition the price of gold is approximately 75% higher.

Added to these cost reductions are the economics resulting from the installation of electric or Diesel engine power when installed; and the economy--probably arising--of not having to pump from the Hassayampa River as water at greater depth is encountered.

3. Advances in metallurgy were lacking in the previous operation of the property, particularly in the extraction of the values from sulphide ores by flotation. A materially lower tailing loss is now feasible.

4. The former operators were more or less afraid to tackle the primary sulphide ores, relying in the main, on getting the values and profits out of the oxidized ores. For this reason they left the larger portion of the sulphide ores exposed in place in the mine. These ores, under modern metallurgical practice, are now available as are and were the oxidized ores.

5. Regarded purely from the engineering angle, with the uncertain factor arising from the "Probable" ore estimate, so definite a statement as that prefacing this heading might appear scarcely



warranted, but when, upon careful further calculation, it is found that both estimates of Positive and Probable ore tonnages could be cut in half, the average value of the mill heads be reduced by 30% to 40% and the loss in milling increased to 20%, and yet show an excellent profit, it is deemed fair to both property and investor to let it stand.

Copied  
10

GOLD BAR MINE

Rolla, Missouri,  
Aug. 16, 1934.

Mr. S. R. Francis,  
610 S. Kenmore Avenue.  
Los Angeles, California

Dear Sir:

Herewith detailed report of my examination of TheGold Bar Claims, Constellation Arizona., during July 1934.

The objects of this examination were,

- (a) To check statements previously made regarding the value and profit possibilities of the property.
- (b) To decide whether the possible profits were large enough, and probable enough to justify the capital required to bring the property to profitable production.

The mine was not unwatered, and while I was unable to complete my investigation, I gathered evidence enough to form the following opinions,

On the first point I find the property has a substantial record, and considerable developed ore of good grade, altho short in some ways of previous estimates.

On the second point, I advise completion of the examination and the doing of development work underground to the amount of 8000.00

If this work results favorably I would advise further steps along the line of detailed recommendations in the body of the report.

If this work makes realization of 89000 tons of .4 to .5 oz. ore seem impossible or improbable, a small non-mining organization should not attempt to operate the property unless other conditions have changed radically in the mean time.

I wish to thank you for the opportunity of doing this work and to express my regret at being unable to follow it thru to completion.

Yours very truly,

(Signed) J. H. STEINMESCH



## HISTORY:

I. The Mine now called the "Gold Bar" was discovered in 1888 by James Mahoney. F. X. O'Brien, an able mining man who had made money in Leadville, later became interested.

According to Conlee's report written in 1905, the first mill (10 stamp) had by that time treated 4000 tons of ore yielding \$10 (.5 oz) from the plates, and making a tailing of .132 oz.. The mine therefore produced better than .6 oz. ore at this time.

Most of this ore came from the glory hole on the Homestake claim, but some ore was milled from the openings on the Black Bear wash, where 1200 ft. of shafts and drifts were driven. This work was abandoned in favor of the glory hole where several shafts and a long incline were driven.

II. The Interior Mining and Trust Company was formed and became active about 1906. No. 1 shaft was sunk, and the present 12 stamp mill with plates, tables, vanners, and cyanide was built.

This work probably cost \$150,000. The wagon road is said to have cost \$40,000, up to this time.

The mill ran from July 1907 to June 1908; about 11 months. 786 daily assays of mill heads average .4 oz. Check assays indicate the ore was a little better than these assays.

Production in this period was \$120,000, or 6000 oz. Mine development was active but expensively done. An incline 250 ft. long is said to have cost over \$60,000. In and off this incline a body of excellent sulfide ore was partially proven. It contains high grade spots, and examiners have been very cautious in sampling this ore.

The mill stopped in June 1908. Financial friction because of the panic of 1908 probably contributed to the decision. Some sampling was done between June and November 1908.

III. The Gold Bar Mining Company was formed in 1915 and in 1916 No. 2 shaft was sunk 745 ft., probably with the expectation of cutting the extension of the main ore shoot. It is badly off the line. The 500 ft. level was connected to the bottom of the incline, some drifting

was done on this and the 700 level, but no sampling was recorded or technical advice secured.

The shaft is said to have cost \$80,000; installations of the Luitweiler pump indicated operation was intended, but no commercial production was made at this time.

IV. The mine was unwatered for examination by Shanklin in 1927, Hyde in 1929, Smith and Holderness and Flagg in 1931.

V. Some \$5000.00 in gold was sold in 1933 and 1934 from high grading in the glory hole by Earl Stone and Harry Major.

VI. The present option was executed in the spring of 1934 by S. R. Francis, for the Gold Bar Development Co. It provides for the payment of \$300,000 in 5 annual installments.

VII. Stripped of all imagination, Production in the period covered has been between 8000 and 8500 oz. of gold from something over 20000 tons of millore. (Other statements estimate 19,000 oz.).

Value of metal sold at \$20 per oz. for gold was \$165,000.

I estimate cost of equipment and development to date \$250,000 Omitting No. 2 shaft, which was an unnecessary error, the property broke even.

At \$35 per oz. for gold it should have made some money anyway. With improved technology it should do better today.

#### PREVIOUS REPORTS:

I. By Wann in 1900. No details available.

II. By Conlee in 1905. Extracts are attached. Says "200,000 tons of ore".

III. By Victor G. Hills in 1908. Hills report without maps, Conclusions or recommendations is separately attached. I believe the copy is authentic. Miss Mary L. Hills, 2678 Hudson St., Denver, on Aug. 11, ~~regrets~~ she cannot accede to the use of her father's property". I judge from this she has a complete copy. Hills was an able man and was on the mine while it was operating.

IV. W. R. Shanklin 1927. Mr. Shanklin assembled a set of maps, took 138 samples, and estimated 110,000 tons of .5875 oz. ore.



- V. George P. Hyde 1929. Mr. Hyde made the examination for Foote and Company, Appraisers 136 Liberty St., New York, who addressed their report to Mr. Jas. A. Twichell, Wickenburg, Arizona. Hyde estimated 69000 tons of .6 oz. ore.
- VI. In 1931 Cecil Smith and Ed Holderness, mining men of Arizona sampled the sulfide ores between the 385 and 445 levels for a group of Phoenix men, among whom were Howard Fields, Wayne Hefner J. M. Alexander, and probably Benj. N. Webber, a geologist.
- VII. A. L. Flagg, Phoenix, Arizona, sampled the sulfide ores as a check on the work of Smith and Holderness in 1931 for the owners.
- VIII. Morton E. Pratt, C. G. Fennell and others have commented on various aspects of the property.

TENTATIVE APPRAISAL OF THE PROJECT. Based on treating 89000 tons of ore.

- I. The Project has been presented as one with enough proven ore to give an "operating profit of 602,593.00. In another place "Net operating profit is given as 914,523.90"

There is no profit from such an enterprise until after all bills are paid.

In this case the money advanced and the price of the property must be amortized on 89000 tons of ore - about four years operation.

The object of this tentative appraisal is to clear the fog from large figures which could be misunderstood.

The figures used are illustrative; no large tonnage is yet proven.

This analysis shows that the tentative profit after all bills are paid, would be 200000.00 to 400000.00 from 89000 tons mined and milled in four years, if the operation was then closed down. See Sec. IV, line 11.

On additional tonnage, after the first 89000 tons, profits would be about doubled - See Sec. IV, line 12.

- II. GRADE OF THE ORE.

From Mill operation in 1907 and 1908, from the sampling in the

sulfide ore between the 385 and 445 levels by Hills in 1908, Shanklin in 1927, Hyde in 1929, Smith and Holderness in 1931, Flagg in 1931, from my own and Shanklin's sampling in the Glory Hole, I conclude that with skillful mining and sorting, a grade of .5 oz. per ton should be delivered to the mill. Others assume .6 oz.

### III. TONNAGE

The tonnage will depend upon,

- (a) Cross section and continuity of the ore shoot from the 445 level back toward the surface.
- (b) Mining from foot of old stopes.
- (c) Extension of present shoot in depth.
- (d) Tonnage developed on outside prospects
- (e) 11,000 tons of sulfide from the 385 to 445 levels may be assumed as proven. I was unable to get underground, but believe substantial tonnage will be proven on the main chimney by drifting and raising.
- (f) From thorough examination of glory hole, I believe considerable fair grade sulfide ore will be found in the bottom of old stopes. Recovery cost, in the caved area, may be high.
- (g) I think the ore will go deeper than so far found. From surface examination only, I conclude the main shoot has been faulted. The amount of displacement and difficulty of finding the extension I cannot estimate without further work above and below ground.
- (h) Values on the outside prospects may be important but are very much more speculative. No tonnages or values can be given.

### IV. COSTS.

Costs will depend on management. Assume 80 tons per day capacity.

Open stope mining should cost	per ton	\$2.00
Development		1.00
Prospecting		.50
Milling (including sorting)		2.00
Freight and Smelting (considerable free milling ore)		1.00
Miscellaneous		1.50
Total operating cost per ton milled		<u>7.00</u>

No city office or absentee expense can be supported.  
Mr. Fennell estimates 8.50 per ton.

Mining, Milling, and overhead on 16000 tons were \$5.00 in 1908, according to Mr. Fred Mueller, the bookkeeper at that time. Development was not included.

V. Without having examined the underground I cannot estimate any tonnage. To illustrate the case, let us assume the average of Hyde's



and Shanklin's estimates 89000 tons, is verified by further work. It is also assumed that this 89000 tons is mined and milled in about four years.

Costs will be higher to start, but should improve; the condition of the mine openings may be quite serious: development and prospecting should be strongly pushed.

The figures given are reasonable objectives. In the following tabulation please note that lines 6,7,8, are nonrecurrent of charges, and that the net profit, line 11, is after return of original capital plus 6% int.

100,000 tons of ore in the ground will be necessary to supply 89,000 tons to the mill.

Illustrative Comparison of results on a per ton basis.

Gold \$35.00 per oz. From treatment of 89,000 tons of ore.

	Previous	J.H.S.
1. Grade of ore	\$20.76	\$17.50
2. Loss in milling	2.08	2.62
3. Net sales value per ton milled	18.68	14.88
4. Mining, milling, and miscellaneous costs	8.50	7.00
5. "Operating profit" "	10.18	7.88
6. Money advanced \$100,000.00	1.123	1.123
7. Interest at 6% for four years	.28	.28
8. Cost of property \$300,000.00	3.37	3.37
9. Operating profit	5.41	3.11
10. Depreciation of plant, roads, etc.	.50	.50
11. Net profit on above basis per ton	4.91	2.61
(a) On First 89,000 tons	437,000.00	231,400.00

Lines 6,7,8 are non recurring charges.

Additional ore of the same grade with the same costs should return,

12. Line 5 less line 10 per ton	9.61	7.38
13. On 22,000 tons per year line 11	\$108000 per yr.	\$52000 per yr.
14. On 22,000 tons per year line 12	\$193000 per yr.	\$147000 per yr.

The same grade of ore formerly put in the mill .4 oz. would pay out on 89,000 tons. Additional tonnage would be quite profitable. Raising the grade .1 oz. in either case would increase return \$3. per ton, and might cost, additionally, 30¢ per ton.

- V. (a) Less than 89,000 tons of .4 oz. ore would be unlikely to return a profit.
- (b) If 50,000 tons can be promptly proven, on the main sheet, the outside prospects, plus the ore developed in mining should total an equal amount.
- (c) How much weight to give this will be apparent after the first stage of development work has been completed.
- (d) I think there is a good chance of substantiating the rough estimates of Hyde and Shanklin. I recommend completion of the examination on this basis.

#### SAMPLING:

Where a large number of samples had previously been taken, I made a point of taking fairly large samples at points where I thought there was a chance of getting a mine size opening.

My samples in the glory hole show a higher average than Shanklin's .23 oz. vs. .12. oz.

It must be borne in mind that a number of my samples were taken to prove some workable ore, while Shanklin cut a sample every 10' regardless.

Samples S19, S20, S23, S27 were taken outside the recognized ore body. Some gold was found. If the property goes into operation, I think that careful mining, and sorting out of coarse waste, will permit working small stopes in this area just above the hanging wall.

The dump samples S29 and S30 A & B prove the dump to contain good mill ore, after .4 oz. had been taken out by selecting high grade and scraping rusty pockets.

E. Stone gave me the following which I partly checked. They broke 4500 tons in foot of Glory Hole. They sold: Amalgam 3,000.00  
 They sold 15 tons of tails from their little mill @ 150.00 pt 2,250.00  
 They broke 4500 tons in foot of Glory Hole  
 They sold Amalgam 3,000.00  
 They sold 15 tons of tails from their little mill @ 150.00 pt 2,350.00  
 They piled up 15 tons they estimated at 1.50 oz. 790.00  
 Had 500 tons of rejects (represented by 29 A x B x 30 A x B @ .24 oz. 4,080.00  
 Total gold @ 20.00 500 oz. 10,120.00

He checked closely on the 500 tons of rejects and as he cut a good deal of rich sulfide, the grade as broken was very good.

I saw the certificate on the 05 tons but not on the amalgam.



This ore ran twice the grade necessary to pay, and was mined down the dip to the N.W., and just above the foot wall. Contained a good deal of sulfide.

In connection with these samples, note that an experienced high grader, did a very poor job of recognizing ore - see S 29.

S30 tends to prove that picking coarse waste out of the oxide ores would be workable; might raise the grade from \$8 to \$10 per ton.

Description of samples is given in detail and relevant information is also added.

Samples on outside prospects were generally smaller and less surely representative. The Blue Moon, Crown Drifts, and the Red Wonder, were encouraging, the remainder negative.

Samples SI to S' inclusive, were assayed by I. L. Wright, Silver City, New Mexico, and the remainder by The Arizona Assay Office, Phoenix, Arizona. Total number 55.

Duplicate samples were boxed and placed in the office at the Gold Bar Camp.

A gasoline driven sample crusher was invaluable in reducing the large samples.

The ore is very spotty.

#### OLD ASSAY RECORD;

Thru Mr. Ward Twichell, I secured the original assay record of The Interior Mining and Trust Company, which was in good order, and recorded all assays made at the Mine between July 1907 and November 1908.

Mill heads for each of the three sections were assayed daily and 786 of these assays are summarized by months on the next page.

The Low day was September 9, 1907	.0967 oz. per ton.
High " " August 16, 1908	1.486
The High months was August 1907	.677
Low month was July 1907	.2782
Average	.403

Check assays by Newman of the Portland Gold Mining Company, Cripple Creek, Colo, indicate the ore ran 5% better than the mine assays.

Tailing assays are less complete but a recovery of 75% seems probable.

Mine assays were very numerous, a good many being specimens. Twenty-five assays of "Blow Out" samples gave generally low values. They indicate these crops were not ignored by the old timers.

Daily Heads assays for 3 months are included to indicate fluctuations in the ore.

Hill's report contains a long list of samples.

(J. H. Steinmesch)



December 23rd, 1938

Messrs. Roy Barnes & Leonard Jones  
Phoenix, Arizona

Re: GOLD BAR MINE

Gentlemen:

You have asked for my professional opinion in respect to the Gold Bar. This I am glad to furnish you, it being understood that I have not made a personal examination of this mine but base my opinion upon conferences with and reports of other Engineers, two of whom were in my employ and some others I know and believe to be competent and reliable.

I consider that reconditioning and operating the Gold Bar Mine on a small scale constitutes a very attractive mining venture provided this property can be taken over under lease and on favorable terms.

The records of old operations show that a substantial tonnage of high grade gold ore was mined in the past and there is a consensus of opinion to the effect that a considerable tonnage of similar ore still remains to be mined from the pay shoot or chimney in the vicinity of the old stopes. Returns from mining and milling this ore should return the initial investment with some profit and provide funds for the further exploration of the mine in depth.

Among the engineers who examined the mine when the old workings were unwatered and accessible and those who have studied the local geology, there appears to be some difference of opinion in reference to the prospects of finding new ore bodies. This difference is largely based upon varying interpretations of the local faulting but I do not believe that the evidence now available justifies any very positive conclusion on this point, either favorable or otherwise, and the uncertainty in this regard in no way affects my conclusion as expressed in the second paragraph of this letter.

In support of my opinion I hand you herewith copies of maps and reports as listed on the following page.

Yours very truly,

*J. H. Colman*

GMC:MF

(See next page)

Page 2.

December 31st, 1938

P.S. Since writing the above letter I have had the advantage of a long personal conference with Mr. A. L. Peach, a well known mining engineer who has been connected with both the Phelps Dodge Corporation and the United Verde Extension Mining Company for several years past.

Mr. Peach has made personal examinations of the underground workings of the Gold Bar Mine at times when this was unwatered and has taken a number of samples. He tells me that his opinion of this property is extremely favorable and that he fully concurs in my conclusion as expressed in the second paragraph of this letter and would have recommended it very strongly to the clients for whom he made the examinations except for the fact that the terms on which it was offered at that time were absurdly high and involved large cash payments which could not be justified on any engineering basis.

Mr. Peach expressed his willingness to repeat this statement to any interested party and gave me permission to quote him as above. I value his opinion very highly and consider the same as a strong confirmation of my own judgment as previously expressed.

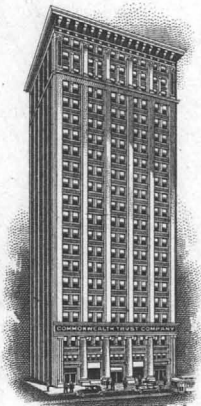
Yours very truly,

GMC:MF

January 6th, 1939

P.S. I have now seen the proposed Lease Agreement and Option to Purchase running from the owners of the Gold Bar to Messrs. Leonard Jones and R. B. Van Buskirk and having looked this over with some care, I believe that it is fair and equitable to both parties and constitutes an agreement on the basis of which I should recommend taking over and operating the property.





# Commonwealth Trust Company of Pittsburgh

308-314 Fourth Avenue

Capital \$1,500.000 Surplus \$1,700.000

Member of Federal Reserve System

Pittsburgh, Pa.

POST OFFICE BOX 956

Aspinwall Branch  
Brilliant and First Streets  
Aspinwall, Pa.

Mt. Lebanon Branch  
670 Washington Road  
Mt. Lebanon, Pa.

TRUST DEPARTMENT

January 9, 1940

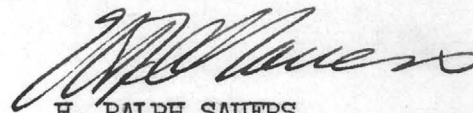
Mr. George M. Colvocoresses,  
1102 Luhrs Tower,  
Phoenix, Arizona

*Sold Bar file  
h-a.*

Dear Sir -

Answering your inquiry of the 5th instant,  
I beg to inform you that the Gold Bar Mine of the James A.  
Twichell Estate has now been sold to Mr. Ward Twichell and Mrs.  
Alice M. Everson, to whom we must refer you for information as  
to whether or not the property is now to be offered for lease  
or sale by them.

Yours very truly,

  
H. RALPH SAUERS,  
Vice President.

HRS:MM

### Gold Bar or O'Brien Mine

Advance copy from E. D. Wilson of the Arizona Geological survey . 7/8/34

The Gold Bar or O'Brien mine is fifteen miles by road northeast of Wickenburg and 2.7 miles northeast of Constellation.

This deposit was located in 1888 by J. Mahoney. About 1901, the Saginaw Lumber Company erected a ten-stamp mill on the property and is reported to have treated 4,000 tons of ore that yielded about \$60,000.

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Oral communication from Mr. Ward Twichell.

In 1907-1908, the Interior Mining and Trust Company is reported to have mined the ore body from the surface to the 385 foot level on the incline. This company erected a 100-ton mill, equipped with stamps, amalgamation plates, tables, and vanners. Heikes states that the 1907 production amounted to \$33,402 in bullion and concentrates. These concentrates averaged, per ton, two ounces of gold, three ounces of silver, 49 percent of iron, fifteen percent of silicam and fifteen percent of sulphur. He

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U.S. Geol. Survey, Mineral Resources, 1907, Pt. 1, pp. 182-183

says that, in 1908, \$91,749 worth of gold came from the Black Rock district, of which the largest producer was the Interior Mining and Trust Company.

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Work cited, 1908, Pt. 1, p. 310

About 1915, the company reorganized as the Gold Bar Mining Company and a shaft was sunk to the 700-foot level. In February, 1934, the property was under the trusteeship of the Commonwealth Trust Company, of Pittsburgh, and was being worked in a small way by leasees.

This region has been deeply dissected by northward-flowing tributaries of Hassayampa Creek. The principal rock is medium-grained granite, with some inclusions of schist. It is intruded by



pegmatite, granite porphyry, and basic dikes. Fissuring in S. 70° W and S. 30° E. directions is evident. The vein, which outcrops on the western side of O'Brien Gulch, at an altitude of 3,400 feet, occurs within a fissure zone that strikes N. 70° E. and dips 30° NW. Its filling consists of coarsely crystalline, glassy, grayish-white quartz. In places, the quartz from the oxidized zone is rather cellular with cavities that contain abundant hematite and limonite formed from pyrite. Pyrite is present in the deeper workings. The gold occurs as fine to mediumly coarse particles, both in the quartz and with the iron minerals. The wall rock shows intense sericitization.

The mine workings indicate that the ore shoot was a chimney that measured about forty by fifty feet in cross-section at the surface and plunged 30° SW.

From letter by B. N. Webber, Geologist of Phoenix, Arizona.  
11/2/31 -- to "Engineers Incorporated" Phoenix, Arizona.  
Extracted by J. H. Steinmesch.

Webber characterizes ore body as Pyrite replacement of a granite gneiss pipe or lense pitching about 45°. He quotes Shalklin as estimating 16,000 ton -- \$11.00 - .55 oz. ore. Cecil Smith and Ed Holderness as giving \$9.00 value - .45 oz. He says no values below 445 foot level. Says pitch Azimuth changes at 445 foot level -- ore-body may swing north, if so values on 478 level would be an index. He says ore body may be faulted at 445 foot level or that the change from partially oxidized ore to primary ore might account for lack of values below 445 foot level. Also that the low values below 445 look bad for future extension; and if good ore is due to enrichment, the 16,000 ton of \$11.00 ore is all that would be expected.

Conclusion:

There is every expectancy of \$11.00 - .55 oz. ore and possibility of extension of good ore above 445 foot level. The ore may be extracted at a profit.

Benjamin N. Webber, Geologist

Benjamin N. Webber, Geologist  
Letter 2/17/32. B. N. Webber to "Engineers Incorporated"

He says he thinks other outcrops O.K. i.e. The Cable, Black Bear, etc.

Thinks property O.K. geologically -- thinks property merits investigation.

B. N. Webber.

Webber is said to have made a geologic map but I doubt if it is very complete.

Of the preceding geological opinions, Hydes are most stimulating. He also makes definite recommendations for development.

I do not "get" his statement that the Cable outcrop "is where the "Red Wonder fissure joins the N 70 E system"; this will show up on the geological map.

His recommendations are:

1. Sink No. 1 shaft 125' deeper and connect on the 500' level with No. 2 shaft. (This should be considered in connection with making No. 1 the ore hoisting shaft and No. 2 merely an escape. No. 1 might well cut ore in going down to the 500, if the hanging and foot walls dip a little more steeply in this area than they do in the glory hole.
2. Enlarge openings to handle pipe rails etc.
3. From 500 level run drifts to delimit ore body. (See my Recommendations 1 and 2)
4. Drive drift on 500 near No. 2 etc. (This is drift #105 on map note.)
5. From 500 level No. 2 shaft, drive 600 to 700 ft. south to cut downward extension of No. 3 Blowout (Cable) (Consider this a wild gamble until the Cable has ore which has been followed down a hundred ft. or so from the surface.
6. Hyde's quota for development does not greatly differ from mine.

B. N. Webber also expresses definite opinions, which should be respectfully considered; altho I did not meet him I think he might be a good man to do further work such as making the map. He is rated as a good geologist.



## ORE ESTIMATES.

Shanklin assumes a chimney 40 x 50 x 700' long, 1,400,000 cu. ft., 110,000 tons of ore (12 cu. ft. per ton).

Hyde assumes a cross section 40' x 52.5 x 560' long making 89,000 tons. He deducts 20,000 tons as mined, leaving 69,000 tons reserve.

Fennell averages the above estimates in appraising the property, thus getting 89,000 tons.

The computations of the two examiners are not safe. Neither surveyed the old stopes, and cannot know the volume which has already been excavated. The cross section of the shoot may vary.

If Shanklin's Plan and Section AA are taken, the tonnage already excavated from the old stopes above the 385 level is 40 x 50 x 375' or 62,500 tons.

The total milled is less than 25,000 tons, a discrepancy of 37,000 tons, an important figure.

The first stage of underground examination should clear up this point because it is possible that the entire ore reserves may be those from the 445 level back toward the surface.

A. L. Flagg estimates between 385 and 445 - a section 40 x 40 x 114 ft. long, 15,000 tons. He deducts 25% for the winze and level openings, leaving net 11,000 tons of ore.

This tonnage is the only ore that is assured, and this is not fully blocked out.

The grade of the sulfide ore is well checked, as can be seen in Flagg's report and sketch, and the tabulation of sampling by three engineers.

The grade of the ore from the 385 level up will depend on the skill used in mining and sorting, as well as on the deposit itself. A young engineer to sample the stopes and fight the grade will pay as well in this mine as any place I have ever seen. The former operators maintained an average of .4 to .425 oz; in virgin ore with sorting, this should be bettered today.

If 40,000 tons can be proven the engineer who does so should be able to estimate the probability of proving another 40,000 with a reasonable amount of development.

To increase the positive ore from 11,000 tons to 40,000 tons, it will be necessary to do some drifting, etc. Cutting samples cannot alter the situation. Hence my recommendation that compressed air be provided in Stage I of the investigation. Drifts cannot be driven without listing dirt. If material is being hoisted - hoist some ore and stack it as 1st Class, 2nd Class and Waste, and in a place where it will stay.

Nothing will give as much light on an ore deposit as to mine some of it even though the amount be small.

## WATER SUPPLY:

The mine formerly made 50 gals. per minute. From the unwatering, it appears to be near that now. This flow will decrease as contiguous territory is drained, and reach a more or less constant figure after a year. What this permanent supply will be cannot be predicted.



Strict economy will permit milling with a make up of 300 gallons per ton treated. The old cyanide tanks will be useful for water salvage. If the mine makes 33 g.p.m., 48,000 gals. per day, it should be ample for milling purposes at 100 tons per day or less.

Plants are having water trouble now that never ran short before.

The shaft at the Crown Claim might be tested for its permanent flow if a deficiency arises. It is on the same side of the diorite dike as the camp well.

#### EQUIPMENT:

Equipment is elsewhere listed and much of it is in good condition.

Cost of getting Mill into operation will be 1/3 or less than to start with a bare hillside.

The principal consideration is power. The gasoline engine drives formerly used when gas was 8¢ instead of 16¢, as now, can be readily converted to electric motor or Diesel type drive.

In Section 5 of recommendations, a careful study of the power situation is advised.

My allowance for power may seem high, but I have been through this matter several times. Invariable power consumption is increased beyond original estimates; large staffs of the best engineers have been of 200% in a three year forecast of requirements.

Cost of power is likely to be 10¢ per KWH with the gasoline engines. At 25 KWH per ton treated, which I would expect on your 80 ton plant, this would be \$2.50 per ton or \$200.00 per day.

The gasoline engines may be tolerated on the hoist and other intermittent operations, but on the milling equipment and air compression the cost will be prohibitive for normal operation.

The Waukesha Diesel is used by Ingersoll-Rand on many of their units and since they manufacture the Price Oil Engine, it indicates they think well of the Waukesha unit.

As with the cost of the property and its development, amortization of the power equipment should be made in four years.

In the first stage of investigation use what you have as far as possible.

When the power question is up, get an Al power man from the Arizona Power Company to make a survey and recommendations with estimated costs in black and white.

Get your Diesel man in and do the same; get them down on paper. Then compare and let your engineer use his judgment.

Electrical Pumping and underground hoisting will be indispensable.

#### CONCLUSIONS:

From my partial examination, to July 30, 1934 I conclude:

1. That the group of claims has produced over 20,000 tons of mill ore of a grade slightly over .4 oz. per ton.
2. That underground examination with some development work will prove a sizeable tonnage of .4 oz. ore, which will be recoverable between the 385 level and the outcrop in the Glory Hole.



3. That the former operators left more or less sulfide ore of .4 to .6 oz. grade in the floor of the Glory Hole.

That the same thing occurred to a greater or less degree in the stopes I was unable to see, is probable enough to justify the cost of investigation.

4. That 11,000 tons of sulfide ore of .5 oz. grade is fairly certain between the 385 and 445 levels.

5. That this main shoot, now sulfide ore, will probably extend to greater depth. Other mines in the formation do so.

6. That if this main shoot be faulted it should be possible to locate its extension.

7. That the Blue Moon, the Red Wonder, and the Crown Tunnels merit further sampling and probably some development.

8. Geological conditions are favorable.

9. That ore carrying over .4 oz. gold will be profitable, in quantities above 80,000 tons. There is a fair chance of proving this tonnage or its equivalent.

10. That the price of the property is high but not prohibitive when it is considered that it may pay for itself.

11. That it is at this time a development proposition which offers a fair chance of good profit.

12. It is likely to call for as little as \$40,000 or up to \$100,000 in capital, if further work comes up to expectations. If not, the input might be stopped at \$10,000; it is useless to start work without having available \$30,000. See Recommendations XII.

#### GENERAL SUMMARY:

The Gold Bar Development Co., is largely a development proposition, but with 11000 tons of good ore fairly assured.

I recommend a real examination of the under ground workings, including some drifting.

If this results favorably or equivalent favorable results are obtained outside, I then advise further work along the lines laid down above.

Respectfully submitted,

J. H. Steinmesch.

Consulting Mining Engineer.











Shaft No. 2  
Approx. Elev. 3450'

Surface

Shaft No. 1  
Approx. Elev. 3373

Glory Hole

Old shaft

Outcropping sulphides

old Incline  
1280' level

Old workings

Approx. old 200' level  
Shows strong sulphide  
enrichment

385' Level

385' Level

325' Deep

407' Level

Showing Copper Sulphides

445' Level

End of drifts show  
quartz Veining

478' Level

DIP 32°

Quartz vein matter  
showing in bottom of drift

Fault breccia from this  
level to bottom of Incline

503' Level

Incline

Pyrite with quartz in fault breccia  
Wet ground and highly acidified

700' Level

735' depth

# SECTION A-A' GOLD BAR MINE YAVAPAI COUNTY ARIZ.

Showing Long Section of Mine Workings  
Scale 1"=40' April 15<sup>th</sup> 1927

W. R. Shanklin  
Mining Engr.  
Tulsa Okla.