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San Juan Intr

May 28, 1934.

Mr. Frank M. Leonard, Jr.,
Casa Grande, Arizona.

Dear Frank:

It was very kind of you to telephone me, and particularly to write me regarding the claims on Gold Mine Mountain, and I received your letter this morning. I spent yesterday looking over Gold Mine Mountain in a general way and expect to return there tomorrow and go over the situation somewhat more in detail since my friends who are interested in the property wish to have a thorough examination conducted.

The claims in which they are interested are the same that you examined in 1930, and belong to Bat Gay who was with us yesterday. I learned from Gay that this property had been developed principally by an old-timer named John Shibrian (I am not sure I have spelled his name correctly) who worked more or less single handed, but they were leased in 1930 to a man named Brown from Casa Grande, for whom you perhaps examined the property, and he is supposed to have made several shipments of sorted ore from the dumps and workings.

I was rather surprised to find that so much development had been done and there are a number of shafts from 30-100' in depth, some of which we were able to visit, but others, and particularly the deepest shaft, are inaccessible.

My general impression is that the showings on the south side of the mountain are as you state, of very little importance, but some of the veins on the north side appeared quite persistent and could hardly be termed gash veins altho I do not know what values they contain or whether the pay ore is confined to narrow streaks along the walls and to small pockets and kidneys.

Right up near the top of the mountain on the north side some work has been done very recently and a cross-cut has intersected the vein some 60' below the out-crop and drifting along the vein at this depth appears rather favorable provided the ~~others~~ values are as reported by the operators. In any event, I shall know more about it after samples have been taken and assayed and there were one or two places which seem to justify some further work unless the local people have been fooling themselves badly in regard to the grade of the ore.

If you could obtain any information from Brown concerning his work and the quantity and value of the shipments which he made this might be very instructive and of course the present price of gold

materially changes the outlook in respect to all properties of this nature and leaves a much wider margin of profit than maintained in 1930.

Walter Smith came up to our Yale meeting on Friday evening and I had the pleasure of talking to him concerning the work which he is doing and he also told me of your activities and those of Don Reed. I am indeed glad that all of you have obtained positions with the Government and I hope that this work will continue, but I shall bear in mind the possibility of taking all of you back into mining if and when I am able to do so as I presume that you would all be glad to get back into the game if any opportunity arose which seemed to have a fairly permanent future.

I shall look forward to seeing you any time that you are in Phoenix. Meanwhile, many thanks and best personal regards.

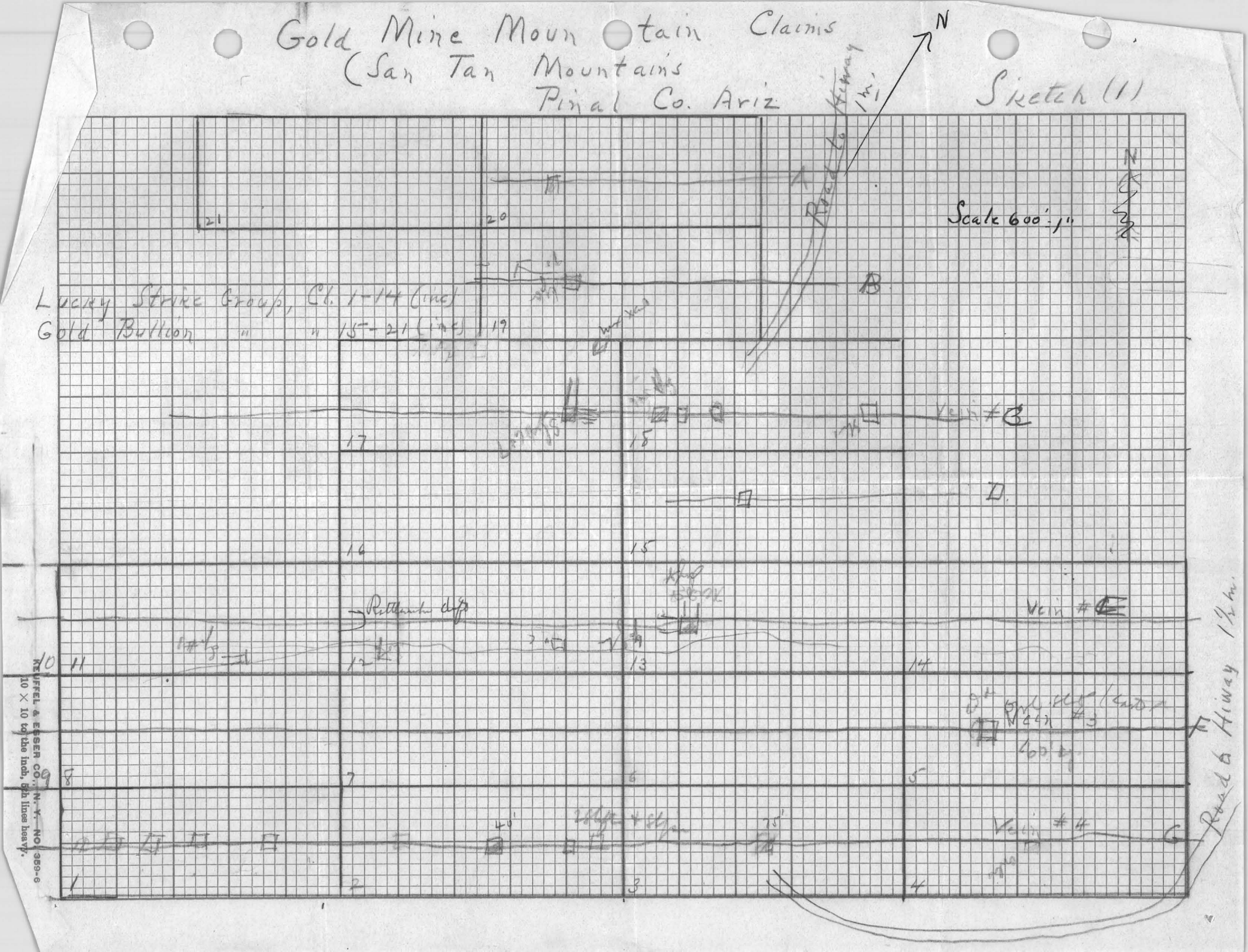
Sincerely,

G. M. Colvocoresses

GMC/HC

Gold Mine Mountain Claims
(San Tan Mountains
Pinal Co. Ariz

Sketch (1)



KEUFFEL & ESSER CO., N. Y. NO. 359-6
10 × 10 to the inch, 5th lines heavy.

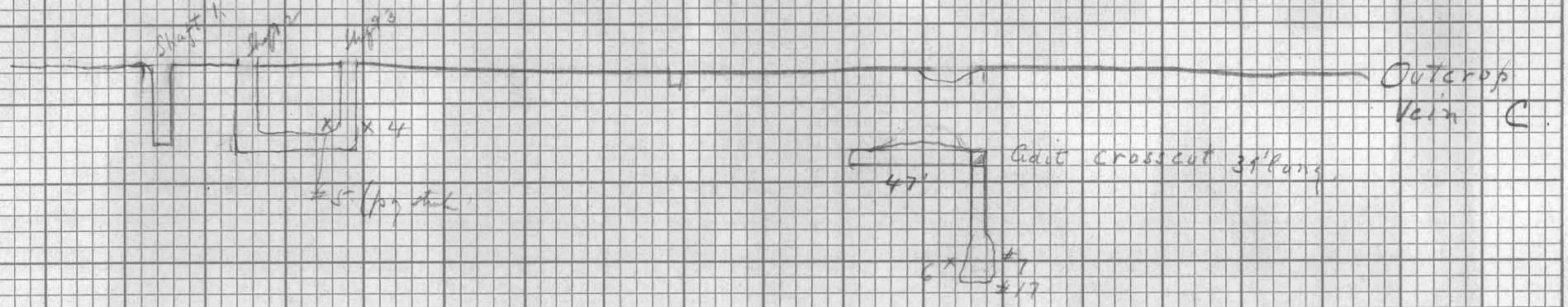
Gold Mountain Mining Co.

Sketch (2)

Section of Work on Vein C

Strike of Vein N 60° E.

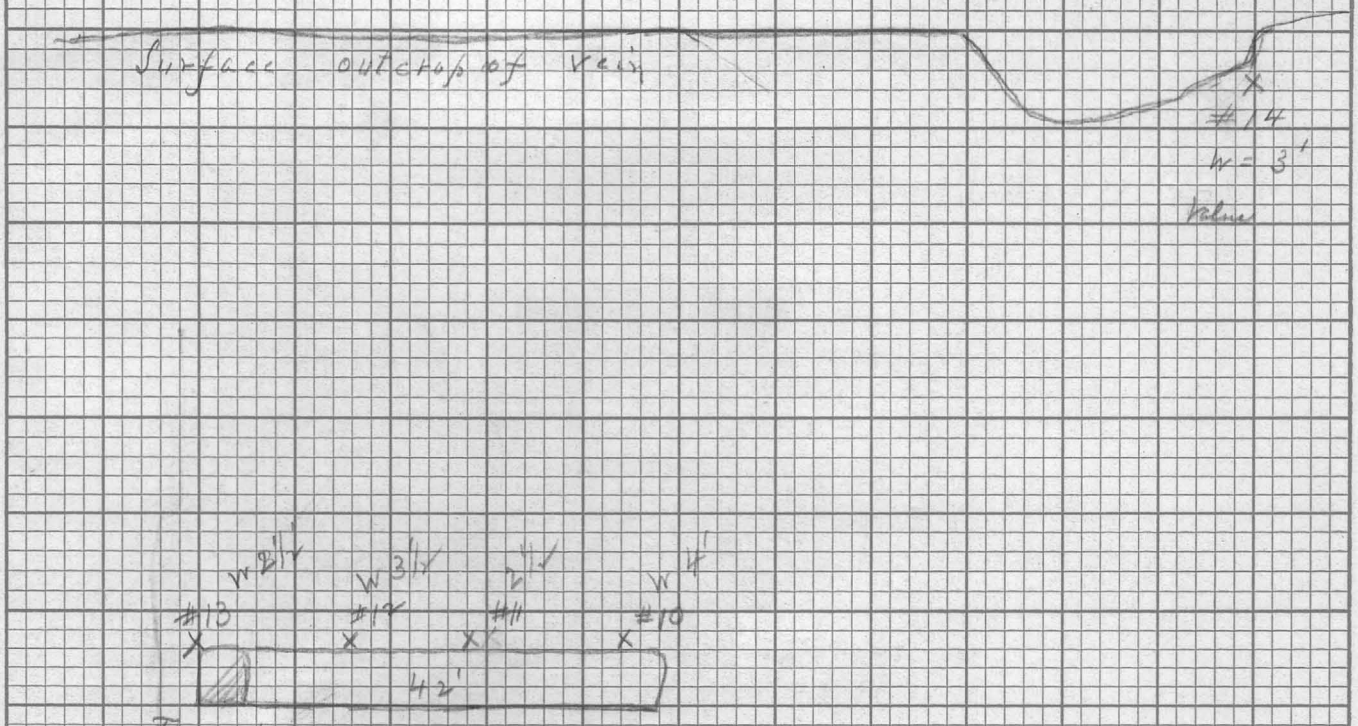
Scale 60' = 1"



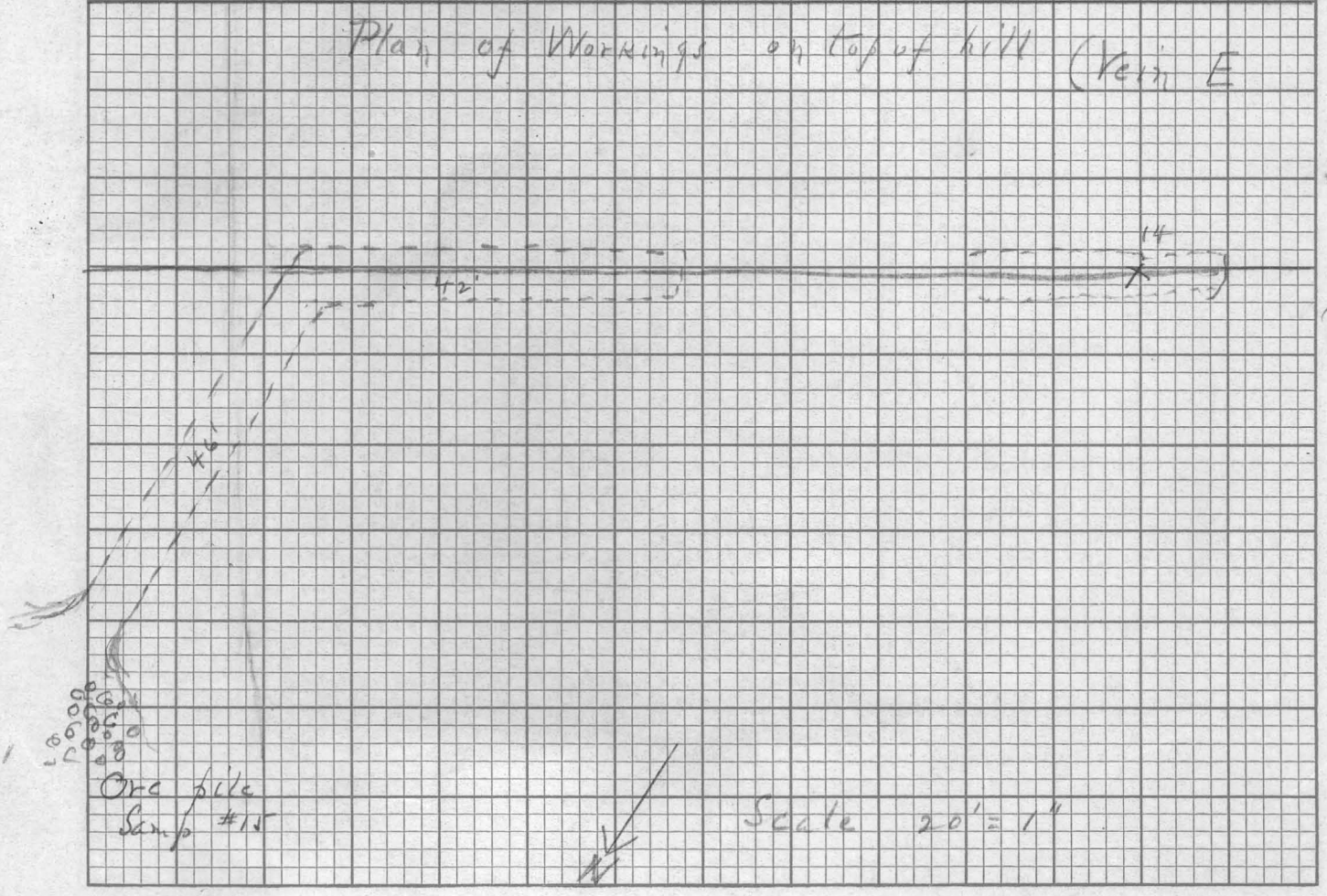
New adit crosscut. Depth from outcrop of vein 138'

Horizontal distance from portal to vein about 290'

Section of Workings on top of hill (Vein E

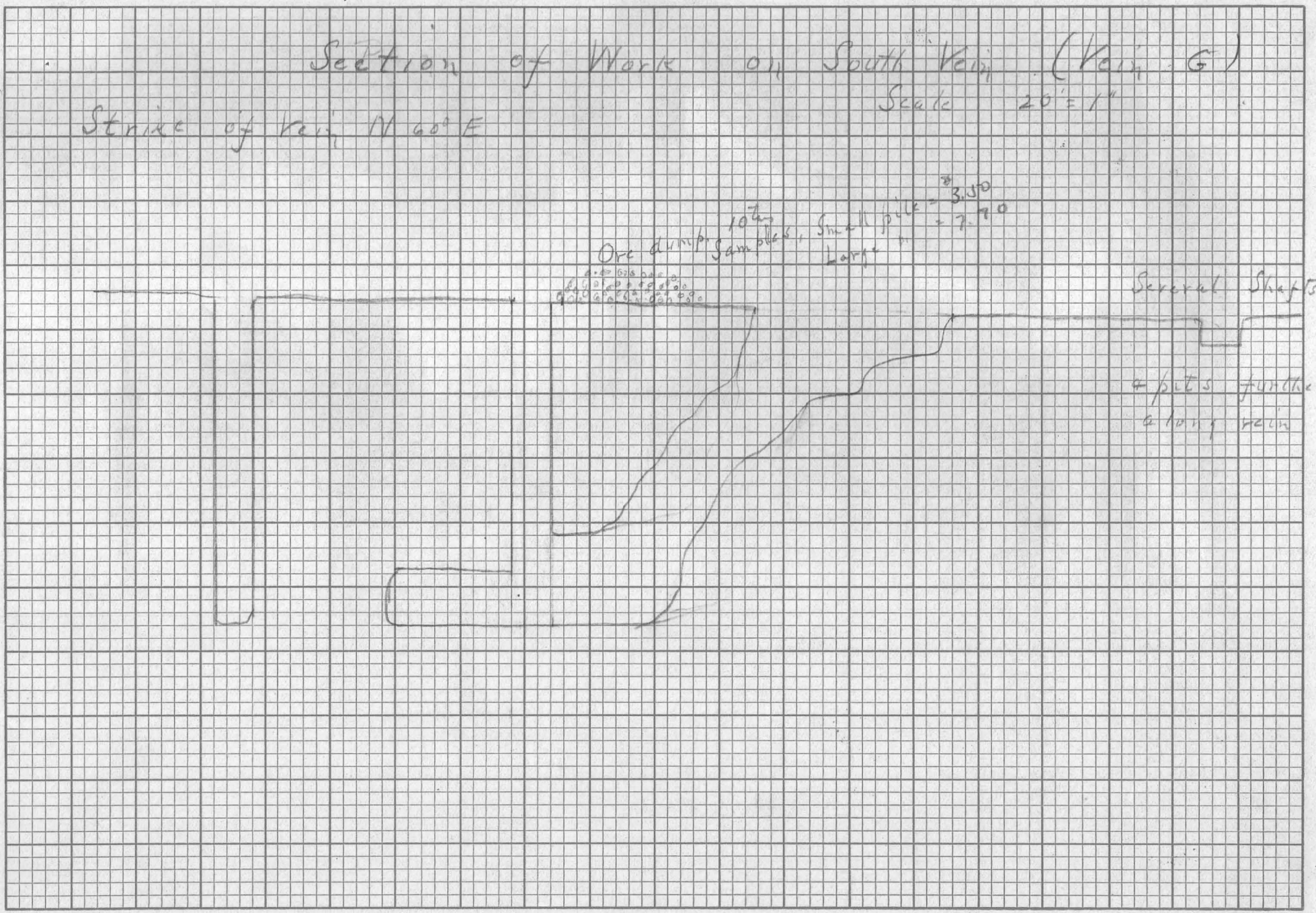


Plan of Workings on top of hill (Vein E



Sketch (3)

Sketch 4.



May 24, 1934.
Casa Grande, Arizona.

Mr. G.M. Colvocoresses,
P hoenix, Arizona.

Dear Mr. Colvo,

I was certainly glad to hear from you again and greatly appreciate the opportunity you were so kind to offer me. I sincerely hope that sometime in the future and at no great distant date I may again have the privilege of working for you.

I am confident that the Lucky Strike and the Gold Bullion Mining claims are the ones I examined for clients in 1930, as reference to my files checks the names. The claims at that time were owned by a Mr. Bat Gay of Superior, whom I never met, as I was taken to the property by a Riley Wood of Casa Grande. As I remember the Gold Bullion Claims are on the North Side of the San Tan Mountains not more than a mile or two from the South line of the citrus orchards. The other claims are on the other side of the mountain. On second thought I think the Lucky Strike are on the North side and The Gold Bullion are on the East and South Side. They do not form a contiguous group. The principal showing was on the Lucky Strike Claims on the North Side of the San Tan Mountains. Here some work was doneoriginally on the outcrops of some small gash veins in granite. There were several shallow open cuts that had been stoped and I made a guess at the time that about 1500 Tons would cover the entire record of production of the property. The development work subsequent to the gouging on the outcrops failed to reveal any marketable ore. This work consisted of crosscut tunnels of short length piercing the narrow veins at very shallow depths. This was done is two or three places and in all instances exposed a vein of two to four inches in width, and of a very low gold content. My samples, taken in the most favorable p laces, averaged about $12/ ton (Gold content only.) I did not have them assayed for anything else. They were merely indicative and are apt to be high rather than low. The Gold Bullion Claims on the other slope of the Mountain did not seem worth spending much time on. An open cut of a hundred ft. or so in length and of in the deep est place say 20 or 25 ft. deep showed a small amount of mineralization. I took a sample of a small pile of sorted ore I found on one of the dump s on the south side of the cut which showed a valueof $8000/ Ton gold conteny only. (All my samples were on the basis of Gold Value equalling $20.00 per oz. I also remember that a Mr. William J. Forbach of Superior leased the property about the time I examined it or a few months before. He was supposed to have done a little work in one of the adits which consisted principally in stoping. He quit just before he holed thru into one of the surface stopes. That is about the size of it, and all I can remember.

I have been fortunate in finding employment with the Indian Service, and have been working steadily for the past seven months. It looks very favorable for the work to continue. Both Don Reed and Walter Smith are also doing the same kind or work I am. Don has been fortunate in securing a little better job with the Indian Service on the Salt Lake Reservation, as Road Supervisor. Don and I have done most of the engineering work on the south end of the project, while Walter has been on white lands. Don has not left for Salt River but exp ects to be transferred any minute. We have been hearing rumors for the past two months that everyone on the project is to be laid off for three months beginning June 1, but I do not think it ap plies to the engineering crews. Nothing has been said to me about it and since I have been told to take on all of Don's work in addition to my own, it seems likely that I will have something to do all summer. Let us hope so anyway.

I regret very much that I have been unable to go to P hoenix more often. The few times I have gone Mrs. Leonard was not with me hence you will excuse out not calling on yourself and Mrs. Colvo. With best regards to yourself and family I am,

Sincerely

Frank M Leonard jr.

REPORT ON GOLDMINE MOUNTAIN CLAIMS

June 1, 1934.

Persuant to your request, I have examined the Gold Mine Mountain Claims known as the Lucky Strike and Gold Bullion Groups and beg to submit the following report.

The field work was done on May 27th and 29th, 1934. The samples were assayed by the Arizona Assay Office of Phoenix. Elevations were taken with an aneroid barometer and departures with a Brunton hand transit. Measurements of underground workings were taped but distances on the surface were merely paces or estimated by eye and must be considered very approximate.

Metals are valued at present prices - gold at $35.00 per ounce; silver at $0.65 per ounce.

LOCATION

The property consists of 21 full sized unpatented lode mining claims, which should have a total area of 420 acres, located on Goldmine Mountain at the eastern end of the San Tan Range of mountains, Black Water Mining District, Pinal County, Arizona, - forty miles by road from Phoenix.

The claims as staked are contiguous, but it appears that they cover a substantially larger area than is legally permissable and if any further development work is planned it would be essential to make a proper survey and a re-location of the property to cover all of the desired area in a proper manner.

Since these claims lie within the limits of the Papago Indian Reservation, careful consideration should be given to the legislation now pending in Congress, especially the Wheeler-Howard Bill with amendments. The passage of this bill may make it difficult or impossible to stake any additional claims in this vicinity and may otherwise affect the title to the claims already staked or place restrictions on mining operations so that it might, in any case, seem advaisable to defer any substantial expenditure until final action has been taken in Washington and the exact terms of the law, if passed, are definitely known.

The mountain sides are steep and barren except for cactus and

other desert shrubs. No water is found on the claims which have an elevation of 1600' to 2400' above sea level.

Good roads lead to both south and north sides of the claims and the north limit is only 1 mile distant from the Hunt Highway and 2 miles from the southern edge of the irrigated agricultural lands where ample water and electric power are available.

The station of Rittenhouse on the Arizona Eastern R.R. is only five miles distant and the railway or highway would permit cheap transportation, therefore, - from the standpoint of accessibility, - this property is exceptionally well favored.

GEOLOGY

The country is essentially formed by a pre-Cambrian crystalline complex; mica and chlorite-schists and quartzite, together with much grantie. These have been intruded by later granitic and eruptive rocks, pegmatite, diorite, gabbro, porphyry, etc. To the south and west these ancient rocks have been covered by successive flows of lava in the Malpais Range and vicinity but these do not extend to the property in question.

The veins on Goldmine Mountain are composed essentially of quartz and crushed country rock and are often associated with the intrusions of porphyry and diorite.

The metallic minerals found with the quartz are oxides and sulphides of iron and manganese, copper and lead with an association of gold and silver. The quartz veins strike about N 60° E - S 60° W, conforming to the schist and granite and can be traced for long distances on the surface.

The dip is nearly vertical in places, but ganerally slightly to the south as far down as developed by the present workings. The width of the main quartz veins varies up to a maximum of about 4', but the pay streak where found is only 2" to 4" in width along the hanging wall of the veins and the highest grade ore seems to occur in kidneys or pockets of small extent and width.

There are seven nearly parallel main veins which traverse the claims lengthwise and furnish ample opportunity for substantial bodies of pay ore provided such shoots can be found for sufficient length

and width to yield a profitable production.

HISTORY

Mining claims were located many years ago and for a long time are said to have been owned and developed by an old-miner named John Shibrian who worked almost single handed and made several small shipments of which no record is available.

About 1927 the ownership passed to Baptiste Gay of Superior who continued the development and leased the property for a time to Wm. Forbach and to a man named Brown from Casa Grande, both of whom made some shipments. Neither of these leasers held the property for any great length of time and Gay is now dealing with Jack Wooten and associates who are employing three men on development and have confined their work principally to the upper vein near the top of the Goldmine Mountain ridge and to starting an adit cross-cut near the base of the north slope.

I understand that Wooten has a bond and lease with 15% royalty and a purchase price of $50,000 payable in five equal annual installments, the first payment of $10,000 being due in something less than one year.

Favorable reports on the property have been made by Joseph L. Warner some two years ago, and E. B. Holt, early in 1934. They agree in thinking that better and more persistent values will be found with development in depth but their opinions do not seem to rest on any firm foundation and the history of mining in this and many similar formations records principally the finding and shipping of bunches and narrow streaks of high grade ore from pay streaks near the surface and uniform disappointment with the values which are found in depth.

DESCRIPTION OF WORKINGS

Lacking a survey, it is difficult to properly locate the veins or the various openings, but I submit some rough sketches, including a plan of the claims, revised from one which was drawn up by Wooten and, for convenience, I have marked the principal vains A, B, C, etc. There are a number of smaller veins to be seen on the surface, but the work which has been done, as far as it goes, has been confined to the more attractive showings and gives a pretty good idea of what may be

expected near the surface. The principal workings are shown in detail on sketches 2, 3 & 4, and are briefly described below.

Vein A.

Outcrops at intervals along the two northern claims of the Gold Bullion group and the only work noted was a shallow test pit in which the quartz had a width of 6" and assayed $7.00 per ton. Considering the narrowness of this vein, this showing does not appear promising.

Vein B.

Outcrops near the foot of the north slope of Goldmine Mountain except where covered with talus and wash. At one point a vertical shaft 90 or 100' deep was sunk. This cannot be examined, but Bat Gay climbed down 40' on a rope and brought up a sample from the vein which assayed $4.20. If more work is to be done on the claims it will be worth while to catch up the timbers near the collar of this shaft sufficiently to make it safe and put down temporary ladders so that the bottom can be inspected and sampled.

Vein C.

Is strong and outcrops for a considerable distance at an elevation of about 340' above the plain at the base of the mountain (which is taken to be 1500' above sea level). Aside from several surface pits, the main developments are shown on Sketch 2. The bottom of shaft #1 is not accessible, the vein shows stringers of quartz and wall rock (porphyry), and does not appear very strong. Shafts #2 and 3 are nearly 40' deep and connected by a drift at the bottom. The vein here is fairly solid quartz about 3' wide and judging by sample #4 is barren of values except for the pay streak which has a width of 3½" and runs along the hanging wall. This pay streak shows iron, copper and lead and according to sample #5, carries values of $35.00 in gold per ton. Some shipping ore has been mined and sorted from this narrow streak but it would be impossible to operate continuously in this manner with any profit.

About 230' further to the west the vein is again noted and an adit cross-cut was driven some 30' below the outcrop to cut the vein at a distance of 39' from the portal. A drift 47' long was then run

to the east but the vein is broken and weak and does not appear to carry values.

A shaft was sunk 40' from the end of the adit and the appearance of the vein somewhat improves, particularly on the West side where the hanging wall pay streak is again in evidence and a kidney of high grade appears to be making.

A sample (#6) from the east side of the shaft shows values of only $1.05 over a vein width of 2' but on the west side my first sample (#7) which was cut from a width of 2½' and included the 3" pay streak ran $24.15. To check this, I resampled the main vein a few inches away and obtained an assay (#17) of $5.25, and I took a separate sample (#18) from the 3" high grade streak which ran $58.80.

From the above I conclude that the values in the main vein are low but are sweetened pro rata by the percentage of the pay streak which is included. A little $30.00 ore might be obtained here by careful sorting, but its cost per ton would probably exceed the net value. Some stoping has been done above the drift and near the surface and apparently ore was mined and sorted and portions were shipped while the balance appears to compose a part of the ore pile near the road from which my grab sample #16 showed a value of $30.45.

The recent development now under way and to which reference will be made later is aimed to cut this vein about 100' west of this shaft #4 with an adit crosscut which has been trenched in for 35' to the portal which is nearly ready to be capped. My rough survey indicates that this adit should cut the vein 290' from the said portal, or at a slightly greater distance if the vein dips to the south, - and at a depth of 138' below the outcrop or 70' below the bottom of shaft #4.

VEIN D.

Is only exposed in the outcrops and in one shaft the bottom of which I did not visit. The vein appears faily strong but not very well mineralized.

VEIN E.

Outcrops on the north slope of the mountain near its summit and then going west crosses the crest of the ridge and is noted on the south and west slopes. The work recently done here is shown in Sketch

3 and consists of an adit crosscut running almost due south for 46' and extended as a drift which follows the vein S 60° W for a distance of 42'. The vein is strong and well defined and with a width varying from 2½' up to a maximum of 4' in the west face.

The location of the samples taken are shown on the sketch and none of them have commercial value but judging by the better grade ore found in the small pile on the dump some kidneys or portions of the pay streak must have been encountered in the drift altho they are not visible at present. The ore near the face of the drift where the vein appeared to be strongest and for a distance of 20' back had a value of only $1.40 and the balance of the vein was practically barren.

The sample from the open cut near the top of the hill showed the outcrop also to be quite worthless. It is possible that more pay-streak might be found by further development, but it seems to me most unlikely that either in lateral extent or with greater depth would the vein become sufficiently rich to pay for mining.

Several hundred feet further west and on the south slope of the mountain a strong outcrop of this vein was developed by a drift some 25' long (Rattlesnake drift) and from which my sample (#1) showed a value of only $0.70 for a width of 3'. Here also the vein appears to be quite worthless and entirely lacking a pay streak.

VEIN F.

The outcrop of this vein is mainly noted well down the south slope of the mountain near the eastern end of the claims. Development work consists of one shaft (Owl shaft) some 50' deep. It may be that some ore was taken from a pay streak here but in the bottom the quartz is only 18" wide and looks tight and hungry. No sample was taken as the showing seemed very unpromising.

VEIN G.

This outcrops along the bottom of the south slope of the mountain nearly a mile west of the Owl shaft and has been traced further west for a quarter of a mile where numerous shafts and pits were sunk at intervals.

The main workings at the east end are shown on sketch 4 and apparently considerable ore was mined and sorted from the drift at the

bottom of one of the shafts and the incline open pit to which it is connected.

Since the ore in place was difficult to sample, two grab samples were taken from a dump of about ten tons and the small pile ran $3.50 while the large pile ran $7.70, but it is probable that the richest ore from the pay streak had been shipped away.

From an examination of these workings and of the pits further to the west, I do not think that this vein gives any promise of developing any substantial quantity of pay ore.

CONCLUSION

The amount of exploration and development work done on these claims is in the aggregate very considerable. It amounts to approximately 700 ft. of shaft and pit sinking and 300 ft. of tunnelling in cross-cuts and drifts, besides many small open cuts. Even though much of this work may have been done by the former owners and their pardners, it represents a cost of not less than $20,000.00. The quantity and value of ore produced and shipped is unknown, but it certainly did not begin to pay for the expense. The work to date has wholly failed to develop any body of pay ore or to indicate any location where such is likely to exist.

It is true that none of this work, now accessible, has opened up the veins to a depth of more than 70' below their outcrop, but the indications are that the bulk of the pay ore and the main strength of the pay streak is confined largely to near the surface and in my judgment the values in the veins will generally decrease as depth is gained and the pay streak will probably disappear between 100' and 200' below the outcrops. I can see no reason to believe that higher values will be found at greater depths, either associated with sulphides or otherwise.

This reasoning is based on my observation of the veins themselves, and confirmed by the results of the samples. I believe that there have been two distinct types and periods of mineralization responsible respectively for the main veins and for the pay streaks.

The main veins are strong and persistent and will no doubt extend downwards to a considerable depth, very likely they have a deep

seated origin. They are filled with quartz, often honeycombed and crushed wall rock and contain oxides of manganese, iron and copper and some sulphides of copper, iron and lead. They carry a uniformly low percentage of silver, with average value less than $0.50 per ton, and the gold content is also very low and will not average as much as $1.50 per ton.

Needless to say, a 3' vein of $2.00 ore is of no commercial value and there is no remote suggestion that they will make marketable values in copper or lead.

The pay streaks appear to be essentially different in character as well as in value, in many parts of the veins they are not to be found at all, elsewhere they cling to the hanging wall of the main vein and have a width of 2" to 4", occasionally making pockets or kidneys that are somewhat wider. The pay streak quartz appears to be of a different character from the main vein, harder and more glassy and in addition to the other metallic minerals mentioned, it contains some arsenical iron pyrites which I failed to find in the main veins and with which I suspect much of the gold is associated. The pay streaks seem to have been formed much later than the main veins as a result of subsequent fracturing of the formation and to have been mineralized with descending or lateral solutions which were much richer in gold than those which were responsible for the main veins.

If the pay streaks were continuous along the veins, and had a uniform width of say, 3", and value of $50.00 per ton, the property might be considered as a possible producer of a small tonnage of high grade hand picked ore, even though the cost of mining and sorting would exceed $30.00 per ton, but all available evidence goes to show that the pay streaks are not continuous and that the values are pockety and erratic while the record of attempts to develop similar deposits indicates that the values decrease with depth and fail entirely at less than 200' below the surface.

Therefore, I cannot advise you to continue the exploration or development of this property as I believe that the chances are all against it's ever proving to be a profitable mine.

I do not pretend to be able to definitely forecast the condi-

tions which actually exist at a greater depth than has heretofore been explored and if you should decide that it is worth the risk to continue your work, then I think thatthe plan of exploration which you have outlined is logical and the extension of your present adit for a distance of about 300' should intersect vein C at a depth of about 138' below it's outcrop and actually show up the true conditions at that depth. The cost of this work (for labor and operating supplies) should not exceed $5,000 and for equipment I suggest that it would be well to rent, rather than to purchase, a small portable gas driven compressor which need not have a capacity of more than 120 cu. ft. per minute to operate two small drills in the tunnel. The rental of this compressor should not exceed $150.00 per month. You would have to purchase an air receiver, drills, steel, pipes, track, ties and cars, most of which might be obtained second hand at a total cost of perhaps $2,000 and to make provision to supply water with tanks hauled in a truck.

I figure that the total expense involved in driving the adit cross-cut tunnel to vein C would be about $8,000 and the time required, say, 3 months and I should be glad to further advise you as to the details of the equipment and the best method of prosecuting the work. Once the vein is cut, and unless you should be fortunate enough to intersect a shoot of good pay ore, you would undoubtedly wish to do some drifting before definitely abandoning the venture and 300' of drift east and west of the point of intersection would add $5,000 or $6,000 to the expense so that it would not be wise to continue this work unless you are definitely prepared to spend up to say, $15,000.

I have taken the opportunity to discuss this property with two other Mining Engineers, one of whom had examined and sampled the claims in 1930, and the other had made an inspection but had not taken samples. I have not been in any way influenced by their opinions, but I may say that their general conclusions were similar to mine.

My best advice to you is to drop the matter where it stands and without further expenditure, for I do not consider it even a good mining gamble.

Yours very truly,
(Signed) G. M. Colvocoresses

June 1, 1934.
Attached: Record of samples and notes.
Sketches 1, 2, 3 & 4.

RECORD OF SAMPLES FROM GOLDMINE MOUNTAIN CLAIMS

NO.	Oz. Au Per ton	Oz. Ag Per ton	Gross Value Per ton	
1.	.02	0.20	$ 0.70	Rattlesnake tunnel, West extension of vein E, width 3'.
2.	.10	1.10	3.50	Small pile of ore at collar of shaft in vein G.
3.	.22	2.60	7.70	Large pile of ore at collar of shaft in vein G. (10 ton)
4.	trace	0.10	nil.	Cut from vein 30' down shaft 2 on vein C. Width 3'.
5.	.99	0.10	34.65	Cut from pay streak in shaft 2 on vein C. Width 3½".
6.	.03	0.10	1.05	Cut from vein C on east side of shaft No. 4, 70' below surface. Width 2'.
7.	.69	0.40	24.15	Cut from vein C on west side of shaft No. 4, 70' below surface. Width 2½' (including large percentage of pay streak on hanging wall 2" wide.)
8.	.12	2.20	4.20	Cut by Bat Gay from vein B, 40' down 100' shaft.
9.	.20	1.40	7.00	Cut from vein A in surface pit, width 6".
10.	.04	1.30	1.40	Cut from drift at end of adit on vein E, 5' from W. face. Width 4'.
11.	.04	1.30	1.40	Cut from dirft at end of adit on vein E, 20' from W. face. Width 2½'.
12.	.01	0.20	0.35	Cut from drift at end of adit on vein E, 30' from W. face. Width 3½'.
13.	Trace	0.20	Nil.	Cut from drift at end of adit on vein E, 42' from W. face. Width 2½'.
14.	.01	0.50	0.35	Cut from vein in open cut on vein E, near top of ridge. Width 3'.
15.	.13	0.80	4.55	Grab from pile of ore at portal of tunnel and drift on vein E. on top of hill, say 8 tons.
16.	.87	1.80	30.45	General grab sample from ore pile on road, 12 - 15 tons.
17.	.15	0.20	5.25	From vein on west side of shaft #4, Width 2½'. (Same location as #7, but contains less of pay streak.)
18.	1.68	0.20	58.80	From high grade pay streak only at same location as sample #17. Width 3".

NOTES RE: SAMPLES

The values quoted are as reported by the assay office. Gold is figured at $35.00 per oz. - silver at 65¢, but no value is assigned to less than 1 oz. of silver.

It will be noted that the two samples which represent only the narrow pay streak in vein C show values of $35.65 and $58.80. Samples taken from the entire width of the vein, including the pay streak, vary from 5.25 to 24.15, according to the percentage of pay streak included. Samples from dumps mined and presumably sorted, including some pay streak ore, vary from $3.50 to $30.45.

Samples from the main veins, entirely excluding the pay streak are uniformly low and none of them have a value of as much as $1.50 per ton. The silver values do not increase in proportion to the gold, in fact, the silver content of the pay streak is no higher than in the main vein and the silver is probably associated with the small quantity of manganese which appears to occur in pockets at irregular intervals. In all cases, however, the silver values are too low to be important from a commercial standpoint.

On the accompanying sketches the location at which samples were taken is shown by circles surrounding the number of the sample so that reference can be made to the list of samples to which these notes are attached.

Goldmine Mondia

Casa Grande, Arizona.
June 1, 1934.

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

Dear Mr. Colvo,

I saw Mr. Brown yesterday and questioned him as to the total tonnage he shipped from the Lucky Strike. He replied that all the shipments made totaled four tons of about $10 per ton total value gross. He was unable to tell me how much of this value was silver but he said he remembered it as very little.

I did not see the 100 ft. shaft you spoke about in your letter nor the showing you mentioned on top of the hill. Since I wrote you I have been trying to recall how much ore Forbach told me he shipped. I am sure it was not more than ten tons and had about the same value as Brown's shipment. Wood, a prospector who worked there at the time Brown had the property under lease, uncovered a pocket or vug hole in the outcropping filled with loose powdered hematite, which he was able to pan without grinding or breaking up. He obtained by actual panning according to his own statement five or six dollars in free gold. He also panned some of the wall rock adjacent to the hematite but found nothing.

Best regards to yourself and Mrs. Colvo from all of us, I am

Very sincerely

Frank M Leonard Jr.
Frank M. Leonard Jr.

MEMO of Conference with:

James L. Moore 5/23/'34.

Group of twenty-one claims in the Santan Mountains (Pinal County) short distance south of Higley and good road within one mile of property. Two miles from Power Line.

Country is granite with intrusions of porphyry and veins of quartz carrying gold and silver.

A lot of shallow prospecting in shafts and tunnels from which small shipments of ore have been made by the prospectors.

One large strong vein crosses the mountains and is opened up by an adit and shows width of 5 - 8' of quartz which seems to run $7.00 to $8.00 per ton, free milling.

Moore wants preliminary examination of geology, surface and all workings and sampling and advice as to whether this is a good mining gamble to the extent of say $25,000 and the prospects for making a good mine, also if it seems good, - advice as to how to develop and operate. Will require two or three days in the field.

Will go out Monday, 28th, accompanied by John ~~Norton~~ Wooten (State Hotel, Phoenix).

Asked fee of $200 plus cost of assays by Diehl.

This was satisfactory to Moore.

Elgin Bryce Holt,
Mining Engineer,
830 North 2nd Avenue,
Phoenix, Arizona.

January 16, 1934.

Mr. Ralph Murphy,
City.

I am herewith handing you a catalog and other data concerning the Denver Portable Mills, manufactured by the Denver Equipment Company of Denver, Colorado. These mills are suitable for the recovery of gold values, especially in complex ores carrying other metals, such as silver, lead, copper zinc, etc.

You will note the following important and interesting statement in Bulletin No. 3307, included in said data; "Checking through recent developments of modern milling methods, it is no longer necessary to have a high grade deposit or a large tonnage mill to produce results. With well designed portable mills it is practical to treat most low grade ores and put the gold in the form of either a high grade concentrate or reduce to bullion, thus making it possible to treat ores not high enough in value to ship."

Prior to the installation of any mill, however, complete metallurgical tests should be made by competent engineers and chemists on ore to be treated, in order to determine exactly the method to employ in recovery of values. The Denver Equipment Company is prepared to handle this kind of testing work in an efficient manner, thereby assisting and directing the operator in the selection and erection of the right kind of a unit.

Referring to the Gold Bullion and Lucky Strike property, which we have under consideration, per our preliminary examination, as well as from other data we have on file concerning this property, I believe the same, when and if developed, will supply a 50-ton mill with continuous ore having an average value approximating 0175 ounce of gold, or about $15.50 gold per ton, valuing gold at former price of $20.67 per ounce. In further estimates in this letter I will also use the said former valuation for gold, so that corresponding allowances should be made by anyone who may check my statements, in order to arrive at a fair estimate of what may reasonably be expected in the way of net operating profits. Again, as Gold Bullion ore carries about 2% copper, this item should add somewhat in excess of $2.00 per ton to our mill heads, when and if a mill is installed at property.

The ore of this property, which occurs in seven veins, which have been prospected by means of nine shafts and other openings sunk to depths ranging from 20 to 80 feet, consists mainly of oxidized material, carrying gold values which could be recovered largely by plate amalgamation. Residual bunches of iron pyrite, mixed with chalcopyrite, however, are found in the said oxidized ores, assaying per a sample I took of this material, $96.00 gold per ton. This important fact indicates, once the sulphide zone is reached, deeper in the mine, bonanza shoots of gold-bearing pyritic ores will be uncovered. The above explanation of the character of our ore also indicates that we will not have to overcome any complex metallurgical problems in working out a process for the recovery of gold and other values in Gold Bullion and Lucky Strike ores. While, as explained above, the proper process for recovery of values should be carefully worked out ahead of mill installation, it is easy to see from an inspection of the ore in question that

values can be recovered in the form of gold bullion and high grade concentrates by means of plate amalgamation followed by flotation alone or flotation and tabling, more or less as outlined in Flowsheet No. 6, details concerning which you will find in Bulletin No. 3307.

Returning to a discussion of the Denver Portable Mills, it seems to me the property, even in its present partly developed state, would justify the installation thereon of the 15 to 20 ton mill, described in detail in the said literature, inasmuch as such a mill would yield a handsome profit while the mine is in process of extensive development. Again, in the event this mill could only be supplied with ore part time, during the early development of the mine, I am still of the opinion that profits derived from milling would more than pay the cost of extensive mine exploration work. Of course, no one can look down into the ground and tell exactly what ore changes may occur for better or worse in a mine. However, we are favored at Gold Bullion and Lucky Strike by the fact that we have milling ore exposed in all of the seven veins mentioned from the grass roots down to depths, as stated, ranging from 20 to 80 feet. Hence milling can start just as soon as two or three of the more important openings can be put in shape to produce ore in a workman-like manner.

I have just consulted with the Agent of the Denver Equipment Company, what is the man who represents said company here in Phoenix, concerning the mills in question, and he furnished me with the following estimate of prices for Flowsheet #6 on the 15 to 125 tons mills, exclusive of power, pipe lines and launders:

15 to 20 ton Denver Portable Mill ---	Weight ------	34,510 lbs.
	Price ------	$5,985.00
25 to 35 ton " " "	Weight ------	51,540 lbs.
	Price ------	$9,120.00
50 to 60 ton " " "	Weight ------	73,280 lbs.
	Price ------	$12,405.00
100 to 125 ton " " "	Weight ------	123,625 lbs.
	Price ------	$19,660.00

The said Agent also furnished me with information concerning what it would cost to purchase, transport and erect on property the said 15 to 20 ton mill, as well as cost of power plant and other items covering the expense of installing the mill ready to run; said cost being estimated as follows:

Factory cost of 15 to 20 ton mill ----------	$5,985.00
R. R. Freight from Denver to Chandler, Arizona, 34,510 lbs. at $1.20 per 100 lbs. minimum car weight 40,000 lbs. -----	$448.63
45 H.P. Diesel Engine (any standard type) delivered at property, cost approximately $55.00 per h.p. ----	$2,475.00
Cost of setting up mill, 15% of factory cost ----------	897.75
Pump to supply water for mill, including engine to run same, also small water tank and pipe ----------	500.00
Total cost of mill ready to run ----------	$10,306.38

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In the above estimate, it is understood that the mill will be installed at Queen Creek Station, 4 miles from property where plenty of well water can be obtained for milling purposes. As this point is connected with mine by a graded truck road, with an easy down grade haul, ore should be transported from property to mill at a cost not exceeding 25 cents per ton, provided loading and unloading bins are arranged.

In above estimate, however, I have not included putting mine in shape to produce ore. This would at least require the installation of a small gasoline hoist, to be erected at main shaft which has already been sunk to depth of 75 feet on one of the largest veins on the south side of Gold Mine Mountain. This shaft, as well as another nearby, sunk to 60 ft. depth on the "red vein", would have to be retimbered and cleaned out, in order to prepare these openings to produce milling ore. Once milling starts, ore could be produced from the various other shafts and openings of property by installing windleases until all these other openings are thoroughly prospected in order to determine the more favorable places for sinking working shafts.

It must also be understood that this estimate does not include general mine development ahead of mill installation, as I am merely outlining a "raw-hiding" plan for the installation of a small pilot mill which will be used to recover values from a goodly grade of milling ore as fast as the same can be developed. As above stated, by proceeding with the installation of the pilot mill as outlined, I believe profits derived therefrom would more than pay the expense of extensive mine development work, without which no important mine operation will pay.

Therefore, should we proceed in the manner above outlined we would requere extra funds to cover the following items, to-wit:

240 Schramm gasoline engine driven compressor, which will run 3 Jack-hammer type drills ----------	$2,800.00
Cost of retimbering two shafts, as outlined, ----------	500.00
Small hoist and gallows frame ----------	600.00
Drill steel and tools ----------	400.00
Blacksmith shop at mine and store rook; it being understood workmen could be housed at near-by villages ----------	300.00
General operating expense for first 40 days, or until returns for concentrates marketed would begin to come in -	1,500.00
TOTAL	$6,100.00

****

Therefore, it will be noted that total funds required to put property on a paying basis, per above outline, would be:

Total cost of mill ready to run ----------	$10,306.38
Other items, as above set forth ----------	6,100.00
	$16,406.38

****

I will say frankly, however, if the money can be found, at least $10,000 additional should be added to the above estimate for the purpose of blocking out ore in the mine ahead of milling; or otherwise milling operations will have to limp along until the mine is blocked out sufficiently to produce continuous ore. If this additional amount cannot be had, however, the mine can be put on a paying basis with around $16,406.38, as above set forth, provided, and this is the most important point of all - that a careful mining operator, who has had extensive experience in modern milling methods, is put in full charge of the enterprise herein discussed. Otherwise, no money at all can be made. This statement would seem unnecessary to clients of average business experience; but inasmuch as all mining countries are full of monumental failures, due to the fact that unskilled mine owners in many cases insist in operating their mines and installing milling plants instead of hiring engineers familiar with that line of work, it would seem that a word of caution should not be out of place in discussing the said matter.

As to profits that may reasonably be expected from the operation of say, an 18-ton mill oat said property, you must understand that any estimate I would make now regarding the same would only be a guess, as the property was not in condition for a careful sampling when you and myself looked it over. Taking into consideration, however, the fact that the mine has been worked in a small way by leasers and others, for the last 30 years, and that during this period a great deal of surface ore was "gouged out" and shipped to various smelters for treatment; that the said shipping ore had a value in car lots ranging anywhere from $22.00 to $44.00 gold per ton; and also taking into consideration that even now the dumps of reject material at the property, per our own sampling, assay all the way from about $5.00 to $14.00 gold per ton, - all this indicates to me that, when and if the mine is opened up in a large way we ought to be able to hold our mill heads at around $15.00 gold per ton.

I further roughly estimate that $5.00 should cover all costs of mining, milling, overhead, including marketing concentrates, plus loss in tails, per ton of ore treated.

From the above estimate or "guess", it would seem that all ores we should mill at property having a value in excess of $5.00 per ton would yield a profit. Therefore, $15.00 mill heads should yield a net profit approximating $10.00 per ton. Hence, an 18-ton mill would earn net about $180.00 per day, or $5,400.00 monthly. Again, if the said mill could be kept running half the time it would still earn good money.

Very sincerely yours,

Elgin Bryce Holt.

Goldmine Mountain

830 North 2nd Avenue,
Phoenix, Arizona,
January 9, 1934.

Mr. I. P. McBride;
117 N. 2nd Avenue,
Tucson, Arizona.

Dear Mr. McBride:

Referring to the Gold Bullion and Lucky Strike group of mines located in the Santan Mountains, between Chandler and Florence, Arizona, I have looked over the said property several times and I am confident it can be developed into a paying milling proposition with a limited amount of work.

There are 21 contiguous claims in the group, covering Gold Mine Mountain, the same being composed of granite and micaceous schist, with frequent diorite intrusions. Seven fissure veins traverse property, all of which have been surfaced, furing the last 30 years for shipping ore assaying from $20 to $50 per ton in gold per car lots; said veins range from 8 inches to 4 feet in width. I believe if property is intelligently developed it will supply a 50-ton mill with continuous ore having a value in gold ranging from $15. to $20 per ton. In making this statement, I am using original valuation for gold - $20.67 per ounce.

Nine prospect holes have been sunk on various veins to depth ranging from 20 to 75 feet. Ore so far exposed is oxidized material showing iron oxides with copper stain. Also residual bunches of iron pyrite are found; and it is most interesting that the same assay from 4 to 5 ounces in gold per ton. This fact would indicate that once the sulphide ore zone is reached, at a probable depth of 200 feet from surface, bonanza ore shoots will be encountered.

Through lack of funds, I was unable to thoroughly sample the property. However, I sampled the reject material from three dumps and obtained the following results:

No.	Description	ozs.	Gold Value	Remarks.
1.	Oxidized quartz	0.68	$14.05	14 tons ore N. side hill
"2.	Oxidized quartz	0.32	6.61	40 tons reject S. side hill
3.	Oxidized quartz	0.24	4.96	10 tons reject red vein S.side
4.	Selected iron sul.	4.65	96.12	From open cut on top (hill mountain.

I recommend that about $5,000 should be spent in exploratory work in order to put the mine in shape forma thorough examination. I am of the opinion, by spending that amount of money, property would then justify installation of a small pilot mill, which would be of material benefit in defraying the cost of developing the mine in a large way, with a view to installation of a larger plant at a later time. When and if all this can be done, it is my candid opinion and belief a lot of money can be made out of property.

Sincerely,

E. B. Holt, Mining Engineer

600 feet long and 100 feet in depth (disregarding the volume of ground between the surface and the level of the 160 ft. extended shaft.) : 600 X 100 divided by 12 equals 5,000 tons between the shafts, limited by the same lower levels, there will be 3,000 tons.

Assuming an average width of pay-streak of one foot, with ore averaging $50.00 per ton (allowing for a mixture of waste in mining the ore), this should yield $35.00 per ton profit, or $105,000 from the 3,000 tons. The cost of extraction of this ore, including mining, hauling, railroad freight and smelter treatment, at $15.00 per ton, totals $45,000 for 3,000 tons and should net $105,000.

The estimated cost of shaft sinking is $25.00 per foot, drifting $15.00 per foot; and ore extraction by stoping this block of ground, mining but half the width of vein to extract the pay-streak, should not exceed $10.00 per ton. Each foot of depth of this shaft sinking should yield 1/2 ton of pay-streak ore, with the present width at bottom of shaft, which, at $35.00 per ton net value, should cover two-thirds of the cost of shaft development. These estimates, based on existing conditions, are predicated on the continuation of the pay-streak of the same width and value of ore.

The fact that the gold Mine Mountain vein system shows ore of profitable grade, and similarity of ore, the conclusion is well founded that the mineralization has taken place from an underlying sulphide ore magma, lying below the desert plane; and the mineral carrying ore solutions, eminating from it, have filled the fissures.

Development of this mine with depth, will, in my opinion, prove a greater quantity of ore in these fissures than is now shown by the moderate depth so far attained. The clean-cut and regular walls of the fissures; their persistance on the surface and the marked tendency of these veins to make increased tonnage of ore, amply justifies an outlay of $15,000 to corer the cost of proposed development, and cash required.

Exploration of this kind is rarely expected to yield returns during the initial period of development; but there is strong inducement to open this property at a stage where it has already shown some production in car-load quantities; and while classed as an undeveloped prospect, because there is as yet no blocked ground, or measurable ore in sight, viewed technically, the work outlined will determine the capacity of the property for regular shipments; and the future scale of operation as a mine; and I am strongly of the opinion that, with practical management, a shipper of medium to high-grade ore will result with a moderate outlay.

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I submit herewith samples of wall rock, sulphide and oxidized types of ore from the vein, taken from shaft "A", and vein quartz, which is being more mineralized as depth is attained.

Respectfully submitted,

Joseph L. Warner
Mining Engineer.

NOTE: The calculations, it will be observed, in the above report are based on carrying out selective mining with a view to taking out high-grade shipping ore. Hence, cost of taking out milling ore would be much less than Mr. Warner has estimated, considering that veins range from two to five feet in width.

HOLT

The character of the ore changes at depth in the pay-streak to iron pyrite and high grade chalcopyrite, the pay-streak following the walls of the vein.

Ore shipments to the smelter from the Gold Bullion group, it is stated by the owners, have yielded $22.00 per ton in gold, aside from other metal values. On the north side of Gold Mine Mountain, fromqone of the Lucky Strike group, a recent development, a shipment is reported by lessee as yielding $40.00 per ton gold.

The latest exploratory mining, by a cross-cut tunnel and a 40 foot shaft sunk at the intersection of the vein, shows a marked increase in the size of the pay-streak, with sulphide ore rich in gold, accompanied by considerable free gold visible in the oxidized portion of the pay-streak.

Three hundred and fifty feet easterly from this development, and about 40 feet higher than the cross-cut tunnel just mentioned, is a 60 ft. shaft, from which the last ore shipment, just quoted, was made.

Between these two shafts there is a block of ground which constitutes a partially developed section at moderate depth, having every indication of long ore shoots, extending many hundred feet on each side of these shafts; with a tendency to rapid increase in the width of the pay-streak as depth is attained; the pay-streak having increased one foot in width in 40 feet depth in shaft.

Eleven tons of ore produced from this shaft, now on ore dump, assays as follows:

1.	Silver 0.4 oz.	Gold 0.98 oz.	-----	Value per ton $19.60
2.	" 0.4 "	" 1.14 oz.	-----	Value per ton 22.80
3.	Heavy sulphide in quartz	"4.50 oz.	-----	Value per ton 88.00
4.	Oxidized part pay-streak	"5.82 oz.	-----	Value per ton 110.40
5.	Quartz in vein lightly mineralized outside pay streak: Silver 2.1 oz.	Gold 0.15	-----	Value per ton 3.73

RECOMMENDATIONS

A cross-cut tunnel, on the upper vein of property, about 300 ft. higher elevation and about 700 ft. further east than the two shafts referred to herein, should be extended to intersect the vein shown above, which pay-streak ore has been developed by open cut - a distance of 125 feet - the remaining distance to intersect this vein is estimated at only 16 feet.

This development will involve about $300.00, and will intersect the vein at a depth of about 75 feet below the know ore in the open cut. This would yield a certain tonnage worth while without the expense of sinking, assuming the continuity of the vein and size of pay-streak to be the same as now in the open cut, which ore could be stoped at once.

However, because of the greater accessibility of the lower vein, now opened by two shafts 350 feet apart, I recommend that the initial work be done on the lower vein by sinking the 40 ft. shaft 100 feet deeper; a drift easterly to be run from the bottom of this shaft where connection can be made with the 60 ft. shaft by upraise; and this east drift to be extended 250 feet further to reach a point directly under the prominent quartz outcrop beyond the 60 ft. shaft. This work will develop a block of groun

REPORT

Gold Bullion and Lucky Strike Gold Mine

Pinal County, Arizona

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The Gold Bullion and Lucky Strike gold lode mining property occupies the north and south slopes of Gold Mine Mountain from the base to the summit, and comprises 21 contiguous claims, 440 acres in area. Title is held under the United States Mining lawa governing unpatented mining claims.

The property is situated in the Black Water Mining District, Pinal County, about 5 miles southerly from Queen Creek station in T 3 S, R 7 E, GSRB&M, of the U.S. land survey.

Gold Mine Mountain lies north and east of the Santan Mountains, a group of peaks and ridges, rising directly from the Gila River on the southerly boundary of the famout citrus and rich agricultural land in the Chandler District. The mines are near the Hunt Highway, connecting by auto-truck road with very light down grade for one mile, and the total distance to Queen Creek station on the Arizona Eastern Railroad, is 4½ miles; four miles being level road, making cheap hauling.

The Gold Bullion Group extends along the south side of Gold Mine Mountain for 1½ miles, while the Lucky Strike gold group on the south side extends for 3/4 of a mile at the head of the valley basin to the north. Seven strong veins, 4 to 7 feet wide, traverse these claims in a nearly easterly and westerly direction, and traceable by vein outcrop on surface for the full length of the claims.

Geologically, the general formation is granite, with an occasional belt of mica shhist, which follow the fracture planes to the granite. The veins are strong fissures, persistant in direction throughout their course, and conform to the strike of the granite formation. The dip of the veins is very regular, about 70 degrees from the horizontal southerly. The foot-wall on the north side of Gold Mine Mountain is a dark gree, eruptive diorite, which appears as the hanging wall of the veins. All these veins possess the same wall formation; the diorite, being an eruptive rock, is related to the deep source of mineralization in the origin of these ore veins. The entire vein system of Gold Mine Mountain consists of parallel fissures, and two of the Gold Bullion veins are within 50 feet of one another; hence, can be worked by cross cuts from one of the veins.

The vein structure consists of quartz and diorite, with occasional mica shhist filling, the latter derived from the formation associated with the granite. The quartz showing the vein croppings varies from a few inches to 2½ feet, and for long distances on the surface. The pay streaks of the veins in general vary from a few inches in width to 8 to 10 inches, and, where oxidized, show bright specks of free gold.

The narrow width of the pay-streaks at the surface affected earlier development; however, recent mining work has directed strong attention to the present showing of richer ore and wider pay-streaks. The main development includes 9 shafts, in depth 25 to 100 feet, several open cuts 100 feet in length, two cross-cut tunnels 35 and 40 feet in length, the positions of which are indicated on the accompanying maps of the property.

1108 Luhrs Tower,
Phoenix, Arizona.

June 1, 1934.

Mr. James L. Moore,
Title & Trust Building,
Phoenix, Arizona.

Dear Sir:

REPORT ON GOLDMINE MOUNTAIN CLAIMS

Persuant to your request, I have examined the Gold Mine Mountain Claims known as the Lucky Strike and Gold Bullion Groups and beg to submit the following report.

The field work was done on May 27th and 29th, 1934. The samples were assayed by the Arizona Assay Office of Phoenix. Elevations were taken with an aneroid barometer and departures with a Brunton hand transit. Measurements of underground workings were taped but distances on the surface were merely paced or estimated by eye and must be considered very approximate.

Metals are valued at present prices, - gold at $35.00 per ounce; silver at $0.65 per ounce.

LOCATION

The property consists of 21 full sized unpatented lode mining claims, which should have a total area of 420 acres, located on Goldmine Mountain at the eastern end of the San Tan Range of mountains, Black Water Mining District, Pinal County, Arizona, - forty miles by road from Phoenix.

The Claims as staked are contiguous, but it appears that they cover a substantially larger area than is legally permissable and if any further development work is planned it would be essential to make a proper survey and a re-location of the property to cover all of the desired area in a proper manner.

Since these claims lie within the limits of the Papago Indian Reservation, careful consideration should be given to the legislation

now pending in Congress, especially the Wheeler-Howard Bill with amendments. The passage of this bill may make it difficult or impossible to stake any additional claims in this vicinity and may otherwise affect the title to claims already staked or place restrictions on mining operations so that it might, in any case, seem advisable to defer any substantial expenditure until final action has been taken in Washington and the exact terms of the law, if passed, are definitely known.

The mountain sides are steep and barren except for cactus and other desert shrubs. No water is found on the claims which have an elevation of 1600' to 2400' above sea level.

Good roads lead to both south and north sides of the claims and the north limit is only 1 mile distant from the Hunt Highway and 2 miles from the southern edge of the irrigated agricultural lands where ample water and electric power are available.

The station of Rittenhouse on the Arizona Eastern R.R. is only five miles distant and the railway or highway would permit cheap transportation, therefore, - from the standpoint of accessibility, - this property is exceptionally well favored.

GEOLOGY

The country is essentially formed by a pre-Cambrian crystalline complex; - mica and chlorite-schists and quartzite, together with much granite. These have been intruded by later granitic and eruptive rocks, - pegmatite, diorite, gabbro, porphyry, etc. To the south and west these ancient rocks have been covered by successive flows of lava in the Malpais Range and vicinity but these do not extend to the property in question.

The veins on Goldmine Mountain are composed essentially of quartz and crushed country rock and are often associated with the intrusions of porphyry and diorite.

The metallic minerals found with the quartz are oxides and sulphides of iron and manganese, copper and lead with an association of gold and silver. The quartz veins strike about N 60° E - S 60° W, conforming to the schist and granite and can be traced for long distances on the surface.

The dip is nearly vertical in places, but generally slightly to the south as far down as developed by the present workings. The width of the main quartz veins varies up to a maximum of about 4', but the pay streak where found is only 2" to 4" in width along the hanging wall of the veins and the highest grade ore seems to occur in kidneys or pockets of small extent and width.

There are seven nearly parallel main veins which traverse the claims lengthwise and furnish ample opportunity for substantial bodies of pay ore provided such shoots can be found for sufficient length and width to yield a profitable production.

HISTORY

Mining claims were located many years ago and for a long time are said to have been owned and developed by an old-miner named John Shibrian who worked almost single handed and made several small shipments of which no record is available.

About 1927 the ownership passed to Baptiste Gay of Superior who continued the development and leased the property for a time to Wm. Forbach and to a man named Brown from Casa Grande, both of whom made some shipments. Neither of these leasers held the property for any great length of time and Gay is now dealing with Jack Wooten and associates who are employing three men on development and have confined their work principally to the upper vein near the top of the Goldmine Mountain ridge and to starting an adit cross-cut near the base of the north slope.

I understand that Wooten has a bond and lease with 15% royalty and a purchase price of $50,000 payable in five equal annual installments, the first payment of $10,000 being due in something less than one year.

Favorable reports on the property have been made by Joseph L. Warner some two years ago, and E. B. Holt, early in 1934. They agree in thinking that better and more persistent values will be found with development in depth but their opinions do not seem to rest on any firm foundation and the history of mining in this and many similar formations records principally the finding and shipping of bunches and narrow streaks of high grade ore from pay streaks near the surface and uniform disappoint-

ment with the values which are found in depth.

DESCRIPTION OF WORKINGS

Lacking a survey, it is difficult to properly locate the veins or the various openings, but I submit some rough sketches, including a plan of the claims, revised from one which was drawn up by Wooten and, for convenience, I have marked the principal veins A, B, C, etc. There are a number of smaller veins to be seen on the surface, but the work which has been done, as far as it goes, has been confined to the more attractive showings and gives a pretty good idea of what may be expected near the surface. The principal workings are shown in detail on sketches 2, 3 & 4, and are briefly described below.

Vein A. Outcrops at intervals along the two northern claims of the Gold Bullion group and the only work noted was a shallow test pit in which the quartz had a width of 6" and assayed $7.00 per ton. Considering the narrowness of this vein, this showing does not appear promising.

Vein B. Outcrops near the foot of the north slope of Goldmine Mountain except where covered with talus and wash. At one point a vertical shaft 90 or 100' deep was sunk. This cannot be examined, but Bat Gay climbed down 40' on a rope and brought up a sample from the vein which assayed $4.20. If more work is to be done on the claims it will be worth while to catch up the timbers near the collar of this shaft sufficiently to make it safe and put down temporary ladders so that the bottom can be inspected and sampled.

Vein C. Is strong and outcrops for a considerable distance at an elevation of about 340' above the plain at the base of the mountain (which is taken to be 1500' above sea level). Aside from several surface pits, the main developments are shown on Sketch 2. The bottom of shaft #1 is not accessible, the vein shows stringers of quartz and wall rock (prophyry), and does not appear very strong. Shafts #2 and 3 are nearly 40' deep and connected by a drift at the bottom. The vein here is fairly solid quartz about 3' wide and judging by sample #4 is barren of values except for the pay

streak which has a width of 3½" and runs along the hanging wall. This pay streak shows iron, copper and lead and according to sample #5, carries values of $35.00 in gold per ton. Some shipping ore has been mined and sorted from this narrow streak but it would be impossible to operate continuously in this manner with any profit.

About 230' further to the west the vein is again noted and an adit cross-cut was driven some 30' below the outcrop to cut the vein at a distance of 39' from the portal. A drift 47' long was then run to the east but the vein is broken and weak and does not appear to carry values.

A shaft was sunk 40' from the end of the adit and the appearance of the vein somewhat improves, particularly on the West side where the hanging wall pay streak is again in evidence and a kidney of high grade appears to be making.

A sample (#6) from the east side of the shaft shows values of only $1.05 over a vein width of 2' but on the west side my first sample (#7) which was cut from a width of 2½' and included the 3" pay streak ran $24.15. To check this, I resampled the main vein a few inches away and obtained an assay (#17) of $5.25, and I took a separate sample (#18) from the 3" high grade streak which ran $58.80.

From the above I conclude that the values in the main vein are low but are sweetened pro rata by the percentage of the pay streak which is included. A little $30.00 ore might be obtained here by careful sorting, but its cost per ton would probably exceed the net value. Some stoping has been done above the drift and near the surface and apparently ore was mined and sorted and portions were shipped while the balance appears to compose a part of the ore pile near the road from which my grab sample #16 showed a value of $30.45.

The recent development now under way and to which reference will be made later is aimed to cut this vein about 100' west of this shaft #4 with an adit crosscut which has been trenched in for 35' to the portal which is nearly ready to be capped. My rough survey indicates that this adit should cut the vein 290' from the said portal, - or at a slightly greater distance if the vein dips to the south, - and at a depth of 138'

below the outcrop or 70' below the bottom of shaft #4.

Vein D.

Is only exposed in the outcrops and in one shaft the bottom of which I did not visit. The vein appears fairly strong but not very well mineralized.

Vein E.

Outcrops on the north slope of the mountain near its summit and then going west crosses the crest of the ridge and is noted on the south and west slopes. The work recently done here is shown in Sketch 3 and consists of an adit crosscut running almost due south for 46' and extended as a drift which follows the vein S 60° W for a distance of 42'. The vein is strong and well defined and with a width varying from 2½' up to a maximum of 4' in the west face.

The location of the samples taken are shown on the sketch and none of them have commercial value but judging by the better grade ore found in the small pile on the dump some kidneys or portions of the pay streak must have been encountered in the drift altho they are not visible at present. The ore near the face of the drift where the vein appeared to be strongest and for a distance of 20' back had a value of only $1.40 and the balance of the vein was practically barren.

The sample from the open cut near the top of the hill showed the outcrop also to be quite worthless. It is possible that more pay-streak might be found by further development, but it seems to me most unlikely that either in lateral extent or with greater depth would the vein become sufficiently rich to pay for mining.

Several hundred feet further west and on the south slope of the mountain a strong outcrop of this vein was developed by a drift some 25' long (Rattlesnake drift) from which my sample (#1) showed a value of only $0.70 for a width of 3'. Here also the vein appears to be quite worthless and entirely lacking a pay streak.

Vein F.

The outcrop of this vein is mainly noted well down the south slope of the mountain near the eastern end of the claims. Development work consists of one shaft (Owl shaft) some 50' deep. It may be that some ore was taken from a pay streak here but in the bottom the quartz

is only 18" wide and looks tight and hungry. No sample was taken as the showing seemed very unpromising.

Vein G. This outcrops along the bottom of the south slope of the mountain nearly a mile west of the Owl shaft and has been traced further west for a quarter of a mile where numerous shafts and pits were sunk at intervals.

The main workings at the east end are shown on sketch 4 and apparantly considerable ore was mined and sorted from the drift at the bottom of one of the shafts and the incline open pit to which it is connected.

Since the ore in place was difficult to sample, two grab samples were taken from a dump of about ten tons and the small pile ran $3.50 while the large pile ran $7.70, but it is probable that the richest ore from the pay streak had been shipped away.

From an examination of these workings and of the pits further to the west, I do not think that this vein gives any promise of developing any substantial quantity of pay ore.

CONCLUSION

The amount of exploration and development work done on these claims is in the aggregate very considerable. It amounts to approximately 700 ft. of shaft and pit sinking and 300 ft. of tunnelling in cross-cuts and drifts, besides many small open cuts. Even though much of this work may have been donn by the former owners and their pardners, it represents a cost of not less than $20,000.00. The quantity and value of ore produced and shipped is unknown, but it certainly did not begin to pay for the expense. The work to date has wholly failed to develop any body of pay ore or to indicate any location where such is likely to exist.

It is true that none of this work, now accessible, has opened up the veins to a depth of more than 70' below their outcrop, but the indications are that the bulk of the pay ore and the main strength of the pay streak is confined largely to near the surface and in my judgment the values in the veins will generally decrease as depth is gained and

the pay streak will probably disappear between 100' and 200' below the outcrops. I can see no reason to believe that higher values will be found at greater depths, either associated with sulphides or otherwise.

This reasoning is based on my observation of the veins themselves, and confirmed by the results of the samples. I believe that there have been two distinct types and periods of mineralization responsible respectively for the main veins and for the pay streaks.

The main veins are strong and persistent and will no doubt extend downwards to a considerable depth, very likely they have a deep seated origin. They are filled with quartz, often honeycombed and crushed wall rock and contain oxides of manganese, iron and copperaand some sulphides of copper, iron and lead. They carry a uniformly low percentage of silver, with average value less than $0.50 per ton, and the gold content is also very low and will not average as much as $1.50 per ton.

Needless to say, a 3' vein of $2.00 ore is of no commercial value and there is no remote suggestion that they will make marketable values in copper or lead.

The pay streaks appear to be essentially different in character as well as in value, in many parts of the veins they are not to be found at all, elsewhere they cling to the hanging wall of the main vein and have a width of 2" to 4", occasionally making pockets or kidneys that are somewhat wider. The pay streak quartz appears to be of a different character from the main vein, harder and more glassy and in addition to the other metallic minerals mentioned, it contains some arsenical iron pyrites which I failed to find in the main veins and with which I suspect much of the gold is associated. The pay streaks seem to have been formed much later than the main veins as a result of subsequent fracturing of the formation and to have been mineralized with descending or lateral solutions which were much richer in gold than those which were responsible for the main veins.

If the pay streaks were continuous along the veins, and had a uniform width of say, 3", and value of $50.00 per ton, the property might be considered as a possible producer of a small tonnage of high grade

hand picked ore, even though the cost of mining and sorting would exceed $30.00 per ton, but all available evidence goes to show that the pay streaks are not continuous and that the values are pockety and erratic while the record of attempts to develop similar deposits indicates that the values decrease with depth and fail entirely at less than 200' below the surface.

Therefore, I cannot advise you to continue the exploration or development of this property as I believe that the chances are all against it's ever proving to be a profitable mine.

I do not pretend to be able to definitely forecast the conditions which actually exist at a greater depth than has heretofore been explored and if you should decide that it is worth the risk to continue your work, then I think that the plan of exploration which you have outlined is logical and the extension of your present adit for a distance of about 300' should intersect vein C at a depth of about 138' below it's outcrop and actually show up the true conditions at that depth. The cost of this work (for labor and operating supplies) should not exceed $5,000 and for equipment I suggest that it would be well to rent, rather than to purchase, a small portable gas driven compressor which need not have a capacity of more than 120 cu. ft. per minute to operate two small drills in the tunnel. The rental of this compressor should not exceed $150.00 per month. You would have to purchase an air receiver, drills, steel, pipes, track,ties and cars, most of which might be obtained second hand at a total cost of perhaps $2,000 and to make provision to supply water with tanks hauled in a truck.

I figure that the total expense involved in driving the adit cross-cut tunnel to vein C would be about $8,000 and the time required, say, 3 months and I should be glad to further advise you as to the details of the equipment and the best method of prosecuting the work. Once the vein is cut, and unless you should be fortunate enough to intersect a shoot of good pay ore, you would undoubtedly wish to do some drifting before definitely abandoning the venture and 300' of drift east and west of the point of intersection would add $5,000 or $6,000 to the expense so that it would not be wise to continue this work unless you are de-

finitely prepared to spend up to say, $15,000.

I have taken the opportunity to discuss this property with two other Mining Engineers, one of whom had examined and sampled the claims in 1930, and the other had made an inspection but had not taken samples. I have not been in any way influenced by their opinions, but I may say that their general conclusions were similar to mine.

My best advice to you is to drop the matter where it stands and without further expenditure, for I do not consider it even a good mining gamble.

Yours very truly,

G. M. Colvocoresses.

GMC/HC

June 1, 1934.

Attached: Record of samples and notes.
Sketches 1, 2, 3 & 4.

RECORD OF SAMPLES FROM GOLDMINE MOUNTAIN CLAIMS

NO.	Oz. Au per ton	Ozl. Ag per ton	Gross Value per ton	
1.	.02	0.20	$ 0.70	Rattlesnake tunnel, West extension of vein E, width 3'.
2.	.10	1.10	3.50	Small pile of ore at collar of shaft in vein G.
3.	.22	2.60	7.70	Large pile of ore at collar of shaft in vein G. (10 ton)
4.	trace	0.10	nil.	Cut from vein 30' down shaft 2 on vein C. Width 3'.
5.	.99	0.10	34.65	Cut from pay streak in shaft 2 on vein C. Width 3½".
6.	.03	0.10	1.05	Cut from vein C on east side of shaft No. 4, 70' below surface. Width 2'.
7.	.69	0.40	24.15	Cut from vein C on west side of shaft No. 4, 70' below surface. Width 2½' (including large percentage of pay streak on hanging wall 2" wide.)
8.	.12	2.20	4.20	Cut by Bat Gay from vein B, 40' down 100' shaft.
9.	.20	1.40	7.00	Cut from vein A in surface pit, width 6".
10.	.04	1.30	1.40	Cut from drift at end of adit on vein E, 5' from W. face. Width 4'.
11.	.04	0.30	1.40	Cut from drift at end of adit on vein E, 20' from W. face. Width 2½'.
12.	.01	0.20	0.35	Cut from drift at end of adit on vein E, 30' from W. face. Width 3½'.
13.	Trace	0.20	Nil.	Cut from drift at end of adit on vein E, 42' from W. face. Width 2½'.
14.	.01	0.50	0.35	Cut from vein in open cut on vein E, near top of ridge. Width 3'.
15.	.13	0.80	4.55	Grab from pile of ore at portal of tunnel and drift on vein E. on top of hill, say 8 tons.
16.	.87	1.80	30.45	General grab sample from ore pile on road, 12 - 15 tons.
17.	.15	0.20	5.25	From vein on west side of shaft #4, Width 2¼'. (Same location as #7, but contains less of pay streak.)
18.	1.68	0.20	58.80	From high grade pay streak only at same location as Sample #17. Width 3".

NOTES, RE: SAMPLES

The values quoted are as reported by the assay office. Gold is figured at $35.00 per oz. - silver at 65¢, but no value is assigned to less than 1 oz. of silver.

It will be noted that the two samples which represent only the narrow pay streak in vein C show values of $35.65 and $58.80. Samples taken from the entire width of the vein, including the pay streak, vary from 5.25 to 24.15, according to the percentage of pay streak included. Samples from dumps mined and presumably sorted, including some pay streak ore, vary from $3.50 to $30.45.

Samples from the main veins, entirely excluding the pay streak are uniformly low and none of them have a value of as much as $1.50 per ton. The silver values do not increase in proportion to the gold, in fact, the silver content of the pay streak is no higher than in the main vein and the silver is probably associated with the small quantity of manganese which appears to occur in pockets at irregular intervals. In all cases, however, the silver values are too low to be important from a commercial standpoint.

On the accompanying sketches the location at which samples were taken is shown by circles surrounding the number of the sample so that reference can be made to the list of samples to which these notes are attached.

GOLDMINE MOUNTAIN

May 24, 1934.

(Extract from letter to Mr. G. M. Colvocoresses from Frank M. Leonard, Jr.)

I am confident that the Lucky Strike and the Gold Bullion Mining claims are the ones I examined for clients in 1930, as reference to my files checks the names. The claims at that time were owned by a Mr. Bat Gay of Superior, whom I never met, as I was taken to the property by a Riley Wood of Casa Grande. As I remember the Gold Bullion Claims are on the North Side of the San Tan Mountains not more than a mile or two from the South line of the citrus orchards. The other claims are on the other side of the mountain. On second thought I think the Lucky Strike are on the North side and the Gold Bullion are on the East and South Side. They do not form a contiguous group. The principal showing was on the Lucky Strike Claims on the North Side of the San Tan Mountains. Here some work was done originally on the outcrops of some small gash veins in granite. There were several shallow open cuts that had been stoped and I made a guess at the time that about 1500 Tons would cover the entire record of production of the property. The development work subsequent to the gouging on the outcrops failed to reveal any marketable ore. This work consisted of crosscut tunnels of short length piercing the narrow veins at very shallow depths. This was done in two or three places and in all instances exposed a vein of two to four inches in width, and of a very low gold content. My samples, taken in the most favorable places, averaged about $12 ton (Gold content only.) I did not have them assayed for anything else. They were merely indicative and are apt to be high rather than low. The Gold Bullion Claims on the other slope of the Mountain did not seem worth spending much time on. An open cut of a hundred ft. or so in length and in the deepest place say 20 or 25 ft. deep showed a small amount of mineralization. I took a sample of a small pile of sorted ore I found on one of the dumps on the south side of the cut which showed a value of $8.00 Ton gold content only. (All my samples were on the basis of Gold Value equalling $20.00 per oz. I also remember that a Mr. Willima J. Forbach of Superior leased the property about the time I examined it or a few months before.

He was supposed to have done a little work in one of the adits which consisted principally in stoping. He quit just before he holed thru into one of the surface stopes. That is about the size of it, and all I can remember.

(Signed) Frank M. Leonard, Jr.

Taken from: GEOLOGY OF ARIZONA

SAN TAN MOUNTAINS

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This group of small ridges and hills lies on the north side of the Gila Valle north of Casa Grande. According to Schrader, they consist of pre-Cambrian granite and schist cut by younger granitic rocks and flanked locally by lavas. The latter cover an irregular area of about 9 square miles on the southern part of the range. They consist of superimposed flows dipping gently south-southwest and have a thickness of several hundred feet. At one locality Schrader found 100 feet of olivine basalt on 200 feet of latite, the latter in part tufaceous, lying on granite. The basalt was holocrystalline and composed principally of andesine-labradorite, augite, much altered olivine, and magnetite. This rock is also present in Walker Butte and caps Jackson Butte. The latite consists mostly of volcanic glass crowded with microliths and contains some orthoclase, albite, biotite, and probable olivine.