Phila 6th

Now decided to include May 31 figures in report to stockholders if not already mailed please send Arizona balance sheet of that date

B. B.

H

NOTE FOR MERRILL PLACER FILE

12/9/38

James Girand Sr. has been dealing regarding the Merrill Placer with H. H. Jenkins, P. O. Box 1428, Arcade Station, Los Angeles. Jenkins is an official of the American Concrete and Steel Pipe Co. with office in L.A. (See phone book). Their engineer in Arizona is George Mitchell who is primarily a dredge man and interested mostly in deep gravel.

Girand is going to Los Angeles promptly and will tell Jenkins that copies of all of my maps, sampling data and reports can be obtained for $500.00 and if they want this on these terms they will write or wire me and I am to send over the data or take it over in case I go to see Frost.

G.M.C.

MERRILL PLACER

NOTE BY G. M. C. November, 1937.

The David Co. was poorly financed and worse managed and having spent all their money on investigations and unsuccessful attempts to secure additional funds in New York, Canada, and England, they went out of business in 1935. The property has reverted to Merrill and his associates, but some of the claims are said to have been jumped by others who have been trying to finance their operations by soliciting funds in Los Angeles.

My examination and sampling of these claims was by no means conclusive since it was confined to a limited area and no opportunity was afforded to properly work out the best method of mining or treatment of the gravel.

I am of the opinion that these holdings have merit even on the basis of my estimate of values which is much lower than thaf of several other engineers, and I believe that it should be possible to work a substantial yardage with a reasonable margin of profit thru securing an adequate water supply by the purchase of some ranches on the Hassayampa River and mining the surface dirt by edonomical methods now in practice elsewhere.

There is a chance of finding higher grade material at depth along the true bedrock, but this at present is merely a gamble.

I am also of the opinion that better opportunities for placer mining exist in California and elsewhere due to much higher benches of pay gravel and gravity flow of water.

I understand that Merrill would be very glad to negotiate a new deal on much better terms than he made to the David Co.

copied

I N D E X.

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January 3rd, 1934.

Mr. H. Hardaway,
Bristol, Virginia.

Dear Sir:

Below please find report re Gold Hill Placers of Rich Hill District, Congress, Arizona; made in your behalf, by the undersigned, during the month of December, 1923.

1. In reporting the investigation of placer deposits the geology of the same need not be entered into further than sufficient to prove the known character of material carrying values; local conditions including those physical; to aid of hinder flow of same; and to show the agencies of distribution value; character of gravel to be handled; method and ability to recover same, these being the principal points of procedure and study.

2. The deposits referred to lie princidly within the bounds of the property under option to Messrs. C.L. Hotel of Pulaske, Va., and A.H. McNeer of Dants, Va., from the Rich Hill Gold Mining Company of Los Angeles, California and only that part of the flow which is within these bounds and of the part which seemed to have merit, was investigated.

3. Owing to the absence of evidence of any systematic plan to determine anything pertaining to the areas in which the more attractive values might be found; first duty was to outline a plan to determine such facts; to proceed to execute and diagram same; having determined the areas worthy of consideration a rough diagram was made and is herewith submitted.

4. Concerning these deposits; gold was found on the surface throughout, very persistently; and those usually least in experience in trying to acquaint themselves with the property, go to the more concentrated spots where the best values are found (perhaps guided by evidence where more or less dry washing has been done by the individual miner) take their specimens with thrilling results; never stopping to consider anything more than what they really see. These deposits lie peculiarly so as to excite the layman.

5. However, this is the more reason why a more comprhensive investigation be made, even tho in a limited measure; conconlusions drawn and a system established to determine character of deposition and the value (if any), and the area where located. It was decided to sink pits and run open cuts in so far as a purely preliminary investigation could be carried on.

METHOD OF SAMPLING:

6. The or-dinary gold pan was used as the medium in testing values and character of materials found in placer gold. A pan holds to wash, easily 20# material. 200 pans are reckoned as one cu. yd. The character of material under c onsideration must govern as to how many pans are really allowed to the yard. In this estimation 65 pans is the constant.

RECORDS OF SAMPLES TAKEN:

7. Sample #1. represents cross section upper end of property (see diagram) of five (5) pans from pits sunk in the ground to depth of from 20" to 30". (Note: The surface throughout is composed of a very soft deposit; but in every instance in each pit was encountered a cement gravel of questionable nature, as to whether it could be handled to mine under the common system of dredging.) Quality and quantity per pan about the same altho pan #15 showed distinct characterization.

8. Sample #2 represents cross section (see diagram) of five (5) pans. In no place was the cement gravel found to a greater depth than 30". Pan #1 characterized distinct run of bright gold which will hereafter be called "Bright." Pan #2 contained both Bright and a rough gold known hereafter as "Regular". Pan #3 contained small colors, too small for identification. Pan #4 about the same as Pan #3. Pan #5 carried both Bright and Regular gold.

9. Sample #3 represents cross section (see diagram) of six (6) pans. Pan #1 small colors Bright. Pan #2 Bright and Regular, (flat) . Pan #3 from 3 feet of surface open cut five feet deep which contained Regular and a heavy gold. To designate this will term "Coarse". Pan #4 from 3 feet cement gravel directly under pan #3, gold too fine to characterize. Pan #5 gold Regular better size.

Pan #6 Regular and Coarse. Quantity each pan same.

10. Sample #4 represents cross section (see Diagram) of 6 pans. #1 Bright-small. #2 Bright and Regular; but Regular heavier. #3 first 3-feet open cut of 5 feet, all gold Regular but small. #4 taken from cement gravel under #3, colors too small to characterize. (Note: In a pit sunk into cement gravel 20' distant from pan #4 results were very favorable. Carried coarse gold and one 2 ct nugget). #5, depth 24' to cement gravel, gold small. #6 depth 28' gold small, character coarse.

11. Sample #5 where pits, easier reported, sunk to depth of 45', but refilled to depth of 12'; five (5) pans were taken from original; five (5) pans from Mate. (Note: Hereafter to designate the number will be original and the number plus A shall be Mate.) Original taken from wall of pit to depth of 12 feet. The pans were uniform throughout as to quantity, and size. Regular predominated. Very little Bright. Five pans "Mate" taken from material where dumped around the pit reported to be depth 45' gold evenly distributed throughout dump. Each pan in quantity and quality the same. In each case Regular gold predominated.

12. Sample #6 from pit sunk 5' (heavy rain filled pit hindering further worl) original, 3 pans showing Coarse and Regular. From Mate 4 pans, Bright and Regular showing that the pit represented three distinct runs.

13. Sample #7. Specimens taken from an open cut run in the bank of a gully and faced up to depth of 20'; original 7 pans taken. Gold found to be heavier from bottom up first 6 feet. Small nugget in 3rd pan 6" high (not included in estimate). Other four pans; Bright, Regular and heavy, evenly divided from Mate 7 pans ranged Regular and Bright principally. In lower pan coarse.

14. Sample #8. Specimens taken from an open cut (same as #7; but further in property) to a depth of 20'. Original of 5 pans showed values evenly distributed from bottom to top. (Note: In no place of open cut work does the loose gravel go deeper than 36"). Each pan showed Bright, Regular and Coarse. Small nugget found near surface tho not included in estimate.

The deposition is unfavorable to a regular distribution of values. In the cement gravel streaks of sand and gravel alternating was encountered. From Mate 4 pans were taken; sand and gravel intermingling. Gold too small almost throughout to characterize. Small nuggets found but not included in estimate.

15. Sample #9. Specimens taken from open cut in gully and faced up 18' showing cement gravel all but top 30'. From original 6 pans all showing Coarse and Regular. Pan from bottom carried more values than any other pans. From Mate, 6 pans almost identifcal with Original. Carried small nugget, not included in estimate.

16. Sample #10. Open cut in gully faced up to 30' bottom to top. Cement gravel bottom to within 24" of top. Original, 9 pans. Best values in bottom. Gold almost identical with sample #5. Mate found about the same as original.

17. Sample #11. Open cut faced up to depth of 25' all in cement gravel. From original 4 pans were taken. Deposition found to be about the same as #8. Mate same as Original, both bearing to Regular.

18. Sample #12. Open cut faced up to 16' . Four pans taken, concentration poor. Deposition irregular and very unsatisfactory. Gravel thin and values running more to Bright. Content gold vearing agency infrequent.

The only sample used in estimating are Original and Mate 5,6,7,8,9, 10, & 11. Nos. 1, 2, 3, & 4 showed only veneer over cement gravel of an uncertain and known concentration "12.

RECORDS OF SAMPLES TAKEN:

1- 5	Pans	$1.11	per cu. yd		
2 - 5"		.80	"		
3 - 6	"	.74	"		
4 - 6	"	.592	"		
5 - 5	"	2.133	"		
5a- 5	"	1.686	"	$3.82	$1.19 cu yd.
6 - 3	"	.888	"		
6a- 4	"	.832	"	1.722	.86 "
7 - 7	"	1.831	"		
7a- 7	"	.476	"	2.307	1.15 "
8 - 5	"	2.000	"		
8a- 4	"	.167	"	2.167	1.08 "
9 - 6	"	2.925	"		
9a- 6	"	1.851	"	4.776	2.39 "
10- 9	"	3.061	"		
10a-9	"	1.876	"	4.937	2.47 "
11- 4	"	.555	"		
11a-4	"	.746	"	1.502	.75 "

Total amount values of samples used in examination $10.61.

12 - 4 Pans (not included) .50 per cu. yd.

$10.61 divided by 7 equals$1.51 per cu. yd. of basis of calculation.

VALUES IN YARDAGE:

The area of g round under consideration (see Diagram) is shown as follows:- #5 depth 12'; #6 depth 5'; #7 depth 20' #8 depth 18'; #9 depth 16'; #10 depth 30'; #11 depth 28'; placing a reasonable average at 20', throughout the entire area checked on diagram amounting to about 4,100,000 cu. yards. This at $1.51 per cu. yd making a total value of about $6,191,000.

If it were considered necessary to more minutely demonstrate the above or to explore to a greater depth, drilling would have to be resorted to. The modern dredge handles ground to a depth of eighty feet, which in this case leaves a strata of fifty feet the value of which is undetermined at the present time.

CEMENT GRAVEL:

Throughout the Rocky Mountain system there are to be found great beds of cement gravels which in many instances carry gold values sometimes yielding profit even in the more hardened formation; but often they prove unprofitable owing to the impossibility of causing speedy dissolution through process of mining; thus allowing much of the gold values to be carried off.

Of the area examined 90% of it was of this cement gravel formation; making it purely a problem for the dredge constructor as to whether or not the money content would be more or less absorbed thru process of extraction.

In case a dredge were to be installed on this property, one of the largest, most sturdy type would be considered adequate to handle this cement gravel formation. Such a dredge handles 500 cu.yds, per hour in free gravel. Upon this basis it would be consistent to calculate that with this cement gravel to contend with, 250 cu. yds per hour or 6000 cu.yds per day, would be its reasonable capacity.

Water is one of the prime factors in placer mining. There are reported to be several sources of water available for this project; but that of the Hassayampa River is the one considered to be most feasible. During December, 1923, its average flow was about 2 second feet. At that place where water can be taken from the river the confines of the canyon thru which the river flows are such that a dam to a height of 125 feet can be constructed, where water may be impounded to make up for shortage during the dry periods. From this point to about midway of property is a distance of some five miles. The water necessary to operate dredge 2 second feet, must be raised from outlet of dam approximately two hundred feet,

by process of pumping, and from this point would flow by gravity thru twelve inch iron pipe to dredge.

POWER:

For sufficient power to operate a dredge and for pump and shop purposes; 100 h.p. would be required. Crude oil, being the cheapest fuel procurable; the Diesel engine using this oil would be the best medium for generating power.

SYNOPSIS:

Presuming that the area of gravel (see Diagram) to be handled is about 4,100,000 cu. yds, of a valuation of $1.51 per cu.yd, would yield some $6,000,000; the proposition resolves itself to the following figures:-

Total yield of ground.		$6,000,000.
DREDGE		
To one Dredge	$500,000	
To Freight to Congress	75,000	
To Freight to Ground	25,000	
To Install	100,000	
		700,000
POWER		
To Two Diesel Engines 1000 H.P	100,000	
To Freight to Congress	20,000	
To Install & Housing	15,000	
To Transmission lines to Dredge & Pump	15,000	150,000
WATER		
To Dam (Hassayampa River)	100,000	
To Pipe Line & Install	100,000	200,000
CAMPS		
To build & equipping Camp and Shops	20,000	20,000
DRILLING		
To drilling ground for demonstrating purposes	30,000	30,000
To cost operate dredge to work out ground 20% gross output		1,300,000
To amount to be cut 50-50 between owners and operators		$3,700,000
		$6,000,000

TIME REQUIRED		
To drill	6 months	
To make and install dredge	12 "	
To work ground	24 "	Total -42 Mo or 3½ years

Placer minining is not unlike any other industry or business; providing the industry or business is there. To outline the scheme and carry it thru to success, there must be some one continuously identified with it who knows the game and who has the vim to execute it;

And, for the investor who does not know the Gold Mining Game, there is risk simply because the idea of gold mining is luring, and at times this takes possession of the inexperienced beyond his judgment. While mining venture is no greater risk than any other venture when handled in a knowing way, weighing the proposition; studying it as any business requires and taking time in doing it.

The owners of the Rich Hill Gold Mining Co., were promised a copy of this report. Same will be forwarded to them. You will please advise Mr. Robert A. Armstrong c/o McAlpine Hotel, N.Y.City your wish in the matter as per request of owners.

Yours truly,

(Sgd.) A.H. McNeer.

Los Angeles, Cal.
July 28, 1926

Mr. R.M. Merrill
1558 Pacific Avenue
Alameda, California.

Dear Sir:

"This is to confirm what I told you verbally in explanation of the results of our prospecting work at Octave on your placer ground. It might be well to recall here that our company in taking up your placer ground, was looking wholly for a volume of gold bearing gravels that could be dredged at a profit. Incidentally, as a result of my preliminary examination, I told you that I felt certain there were at least two old channels cutting through the flats upon which the ground optioned to us exists. While our company was looking only for dredging ground, I felt that if these oldchannels did not exceed eighty feet in depth the bedrock pay on them would be high enough to pay for the moving by a dredge of the overlying barren gravels, and, therefore, my prospecting work would not be confined only to the large volume of gravels in the flats, but to these old channels as well."

"You will recall that I maintained from the first that there must exist two channels out of those mountains---one from Antelope and one from Weaver creek. Owing to the quantity and nature of the gold already produced in the upper stretches of these two creeks, it seems certain there would be a concentration rich enought to yield excellent profits from the drifting of those concentrations or pay stretches (streaks). While our drilling has not reached the bedrock, that is, to the paystreak, it has proven the deep trough existing in the old Antelope channel and the nature of the gravel indicates conclusively that there must be a rich concentration or paystreak on bedrock.

Our geological work on Antelope Creek enables us totrace quite clearly this old channel for a distance upstream of three or four miles. This is important in that once the pay-streak is out below, mining can be done upstream for that distance

and, since the s ource of the gold is being constantly approached as work progressed upsteam the richness should also increase.

I have not dwelt on Weaver Old Channel because our work was mainly confined to Antelope and nothing has been done to prove our assumption in regard to Weaver. The indications however, are just as clear, and only a sm all amount of work would be required to locate that old channel as well.

From a study of the production records, of the geology of the two valleys, and from the distribution of goldshedding stringers in the country traversed by Antelope and Weaver Creeks, together with the remnant of an extremely rich old channel on the ~~tip~~ top of Rich Hill. I am firmly convinced of the existence of unusually rich paystreaks on bedrock in those old channels. By the paystreaks I mean concentrations of gold bearing material which will pay to drift, and, by unusual I mean about two dollars per square foot of bedrock (not per cubic yard of gravel). I think I neglected to mentioned that we struck water at about one hundred feet. This is not only another indication of the channel, but assures you a source of water you had not formerly anticipated."

I do not hesitate to recommend, that you, either by yourself or with some associate, arrange for the necessary finances to sink on this old channel and to prospect it by drifting across it."

Yours very truly,

Norman C. Stines.

A RECONNOISSANCE OF THE OLD RIVER CHANNELS OF ANTELOPE GULCH

Yavapai County Arizona

For

R.M. MERRILL

BY

JOHN M.NICOL, CONSULTING ENGINEER

OCTAVE, ARIZONA

AUGUST 1926

JOHN MALCOLM NICOL

CROCKER FIRST NATIONAL BANK BLDG

SAN FRANCISCO, CALIF.

The general geological report on the Rich Hill District covers fully all the present data available; the following is a more detail sketch of the evidence of an old gold bearing channel of Antelope Valley.

There is much evidence on which to base the supposition that the lower end of Antelope Gulch forms part of a main valley of great age, that at one time drained a considerable territory to the north, possibly as far as Skull Valley.

Great volcanic eruptions of the tertiary epoch filled the whole middle section of the valley and for a time damned its lower outlet, forming a lake of considerable dimensions, the remains of which, as buried lake beds, are still clearly in evidence.

Great flows of lava covered the whole, the remains of which form the prominent mountain peaks of Antelope and others to the east and west. Recent erosion has gradually developed the lower end of the old valley and restored it to somewhat of its former shape; but has not yet eroded it to the same depth as in pre-tertiary times. In other words, the old channel remains buried below the present bottom of the existing Antelope Gulch Channel.

The present channel and one of its upper branches, has cut through the "rims" of the old channel at a number of places which enables it to be very clearly traced for about 3-½ miles, that is, from its lower end at Stanton, where it disappears under, and is buried by the great delta fan of Valley gravels, to a point, going north where it disappears under the great cap of tertiary lavas that form Antelope Peak and the hill to the north. How much further the channel extends is, of course, a geological surmise; we may for the present count on a workable length of over three miles.

The rims as exposed over the whole length are schistose rocks, the bedrock is therefore undoubtedly the same character of schist and would be easily worked in drifting and would be an excellent "gold catcher".

The widths of the old channel vary from about 200 feet at the narrowest to about 1200 feet at the widest point at the

lower end. Assuming a drifting depth of 6 feet, or two yards and an average width of one hundred yards, we have approximately 350,000 cubic yards of workable gravel per mile run. As there are three miles of channel whose existence is well established we may count on approximately one million cubic yards of workable gravel; what we need now is some basis on which to form a judgment of the probable values of this gravel.

The district of Rich Hill has been famous for the rich placer diggings in the shallow gulches worked in the early days.

There seems to be fairly authentic data to the effect that over $3,000,000 in placer gold was taken out from the 60's to the 90's and there are estimates running in several millions more. It is also certain that many large nuggets were taken out, one of over $1,000, and many of several hundred dollars in value.

The writer has seen quite a few nuggets taken out in recent times from the Weaver side of Rich Hill. The bulk of this gold came from benches of old channels.

On the west side of Rich Hill there are two well marked sections of an old bench of a still earlier channel of Antelope Valley and there is some evidence of an old fragmentary bench near the top of Rich Hill; that these benches were the principal feeds of gulches and the main source of the smooth well washed placer gold, is quite certain, because those gulches that were not tributary to these benches did not have as much gold; and when we go up Antelope beyond the last point where rims of the old channel are to be found, we get practically no gold.

Prospecting on the minor benches and the exposed sections of the rim of the old channel shows good ground--and this, together with the above facts, leads us to the normal conclusion that the bed rock of the deepest of the old channels should be very rich. I would not be surprised to find sections averaging $10.00a yard on bed rock.

The old channel is entirely virgin as far as old records and actual evidence of the absence of old working goes.

The matter of sinking a main working shaft and drifting on the old channel by breating should not be difficult.

It could be carried out in accord with standard California practice.

In fact, I can see no special engineering or other difficulties in the way of developing the old channel and a moderate investment of capital would soon prove it up.

An expenditure of $15,000 should be sufficient for a preliminary shaft and $5,000 sufficient for a moderate sized equipment.

There is no question as to the recognized value of the district as a gold bearing placer zone. That the old channel is there-- and still intact--- is self evident. I feel, therefore, it is a good vanture for a moderate capital investment.

Submitted,

(Signed) John M. Nicol

I hereby certify that the foregoing is a true and correct copy of original report signed by John M. Nicol.

(Signed) Bernice Driver Barie

Notary Public in and for
Los Angeles County, California.

Dated, August 27, 1926.

A RECONNOISSANCE OF THE

RICH HILL

MERRILL PLACERS

HAVAPAI COUNTY ARIZONA

FOR

R.M. MERRILL

BY

W.L. LELAND

SAN FRANCISCO, CALIFORNIA

JULY1, 1930

San Francisco, Cal.
40-25th Ave.,
July 1, 1930

Mr. R.M. Merrill
Congress, Arizona

Dear Mr. Merrill:

You have asked me for a report on your Arizona gravel property, located at or near the town of Octave, Yavapai County, Arizona, with particular reference to my idea of how to profitably mine the same.

The fact that we have disagreed on several vital points, particularly the water situation, is why I have hesitated to make any formal report for you and for that reason I will at this time outline my ideas in a letter. If, after you have read this letter you desire that I do so, I will make a formal report and also submit a plan for working the ground. Understand, please, the report, if made, will follow closely along the lines herein indicated.

There is but one problem to solve; Water. I mean the cost of developing, storing and conveying, water to your ground in quantities commensurate with your requirements. You probably have enough water locally without pumping, to operate one steam shovel on the middle portion or your Weaver Creek holdings, and at that you may at first be obliged to pump some extra water out of one of the local mines, until the muddy water from your mining operations tighten up some of the seepage places in a storate reservoir, which I suggest be built.

Now, with all respect to your judgement, it is not possible to deveop enough additional water locally to operate a second steam shovel, outfit. There is no use wasting any time arguing this question, and your first step, I am very sure is to get a good steam shovel to work there. The total cost of eventually developing, storing, and brining in two thousand miners inches of water would be, comparatively speaking, small and the tremenduous amount of gold you undoubtedly be able to get out of your ground with this amount of water, would on the whole make the first cost

almost insignificant. But you cannot make anyone believe this- no use trying- not until you first prove the values in your ground, and do it by operating on a big enough scale to remove all possible doubts on this vital point from the minds of people to whom you may look for finances. They cannot be convinced, I feel sure, in any other way.

Now, so far as I have been able to determine, the cheapest and best way by far, and in fact, the only practicable way that I know of, considering how little water there is available locally, is to use a steam shovel, separating your boulders and coarser gravel from the pay dirt by using the identical same standard tried out with gold dredge machinery that has been proven for this purpose. Try no experiments. Then the fine gravel, sand, etc. containing the gold can be washed up in sluice boxes, in the usual way, as you go along by using an outfit on skids carrying regular dredge machinery, the skids of sled to follow along immediately behind, and connected by means of a chain to a steam shovel, such as I sketched out for you. This fine gravel, sand, etc. containing the pay dirt should be carried away by means of a regular dredge standard type Robbins belt-conveyor to your sluice boxes, located 80 or possibly 90 feet away from the steam shovel to prevent water and sluice trailings from running back down and a round the steam shovel, thereby clogging up your operations, and otherwise hampering your work.

Personally, I have never seen any steam shovel outfit do mining work satisfactorily, unless they kept the sluice water and tailings clear off and well out of the way of the steam shovel. This is the only way so far as I can determine, to conclusively demonstrate (considering your lack of water handicap) what you have there in the way of gold values. Anyway, its first cost will be at least 90% cheaper than the cost of a dredge and a pumping plant. Understand you will have to build a fairly good sized dirt-dam across Weaver Creek below your steam shovel. This can be done in a few days, either with a shovel or horses and scrapers. Then as soon as the water fills up your reservoir, you can immediately begin operations, washing up the fine gravel and pay dirt by using the water out of the

reservoir over and over again. Set your electric pump at the lower end of the dam where the water is still and comparatively free of mud. While the water will, of course, be muddy, it will not be too muddy for sluicing purposes. The fine gravel sand and heavier portions of the silt will settle along the creek, some of it will go along down into the bottom of the reservoir in the still water of course, but before it gets down as far as the pump most of the material, excepting the finest silt, will sink. There is no experiment in or about this sort of an arrangement, because the plan is in use right along in several places.

This installation complete, will cost in the neighborhood of $30,000 or $35,000. In no case will it, I am sure, exceed $40,000. A 1½ cubic yard steam shovel should theoretically make three trips per minute and at that rate should handle 6525 cubic yards of material every 24 hours. But let us cut this estimate down say 85% to only 1,000 cubic yards handled every 24 hours. A whole lot of your ground is rich enough to pay back your entire $40,000 initial cost of installing your plant, plus operating expenses every Saturday night, even if you handle only 1,000 cubic yards every 24 hours.

As a matter of fact, you should average over two thousand cubic yards every day in the year. If you can get all of your money back and all of your expenses back, including maintenance costs, even once a year, that in itself would be pretty good. In any event, you should get your money back every month if you fix up right and use common sense in your operations. I think you will find your heavy boulders (steam shovel) ground will not average less than $1.88 per cubic yard anywhere. As a matter of course, you will work your boulder steam shovel ground as you come to it. It will not average $10.00 per cu. yard or even half that much. But the poorest of the Weaver Creek steam shovel ground will pay back your entire steam shovel investment every month at the very least, I am sure, if you fix it up right using a good hard and a half steam shovel (no doubt you would use either electricity of a Diesel engine

for power on your "steam"shovel). If you put in a half way outfit and hire a half way manager, it means failure before you start, beyond the slightest doubt.

A 3/4 or one yard shovel will not handle all of the larger boulders. And that means that your men will be constantly straining the shovel machinery in trying to move the larger boulders, and consequently you will be laid up a good part of the time w hile making expensive repairs. There are a few ,boulders that even a 1½ yard shovel will not handle. These can be blasted or rooted over to one side.

You will note I have suggested holes 2" in diameter, in the dredge type trommel. This is on account of the large nuggets. If you could be sure of 1½ diameter holes letting all the nuggets throught, it would materially cut down your power bill for pumping water from the reservoir for sluicing purposes, so as not to be obliged to sluice anything over 1½"diameter. One of the many reasons for urging a 1½ cubic yard shovel or larger, is if you get one too light, the hydraulic cylinder on the sled will pull the shovel back to the sled instead of pulling the sled up to the steam shovel when it moves ahead a few feet at a time on its own caterpillar tract. Do not get a wheel porpelled steam shovel.

First thing, when you get there with your stem shovel is to dig a pit 14 or 15 feet deep 30 feet wide and 70 or 80 feet long, and start building your sled in the pit. Then take your shovel up where the creek forks, and in one or two days you can build a dyke to turn the water down the south water way, so as to be safe in case of a cloud burst. Then take the shovel and build the storage dam across Weaver Creek. By that time, you should have the outfit ready to go to mining.

In wet weather, you will no doubt be obliged to run a hose on board from your sluice water pipe, to wash the mud off the boulders while they are still tumbling in the trommel..At the same time, you will very likely have to decrease the grade of the trommel, so as to get the boulders clean before they fall out of the lower end of the trommel, on to the 3 feet wide belt.

Please remember they were no gold dredges 32 years ago. That it was many years before the combined efforts and costly experiments of all the dredge mining people finally got down to a point that enabled them to design a good standard dredge. Now please just stick with this standardized dredge machinery on your sled-viz a standard dredge trommel, not a gravel pit type trommel, and standard type Robbins dredge belt-conveyor, and not the usual economically designed outfit for indoors steady load crushed gravel handling.

Kindly bear in mind, as I have often told you, to refrain from stating the correct values or any values for that matter, in your ground, because no one will believe you and it probably would result in creating suspicion in the minds of others as regards any other statements you may make on any other subject. Let who ever goes in with you determine the values there for themselves. Insist on this, it is easily done in this kind of mining. Not so in underground gravel mining or in hard rock mining either.

After you demonstrate with a steam shovel the values in that portion of your ground, where it is too shallow to dredge, which ground it so happens, contains boulders so large that no dredge ever built could possibly handle them, it ought to be easy/then for you to raise enought money to build a regular proven type steel dredge, one capable of handling 10,000 cu. yds per day which means over 14,000 tons per day. (Some dredges handle as much as 20,000 cubic yards per day.) Such a dredge will cost ready to run about $400,000, not counting pipe lines or pumping plants for supplying water which might run up to another $100,000. Then locate the dredge four or five miles down Weaver Creed just north of Round Mounting and about four miles from the Santa Fe Railroad at Harquehala Station. There are no large boulders down there, or anything else unusual to trouble you in dredging work, except of course the lack of water, and you can get that by pumping.

About 80 miners inches of water (2 second feet) is all

that I have ever known to be necessary to be put into a dredge pond to keep the dredge afloat and going good. However, for the purpose of playing sure, let us estimate that it will require as much as three second feet (180 cubic feet of water per minute) of water for a 10,000 cubic yard capacity dredge on the lower Weaver Creek flat. By putting a pumping power plant at the head of Box Canyon in the Hassayampa River, you can, by forcing the water up about 530 feet vertically, get it up to the t op and over the hill, on down to the first dredge site on lower Weaver Creek. The pipe line would be about 2 3/4 miles long. (These elevations and long distance figures are taken from the U.S. Geological Survey Map) If you use a 12" diameter screw pipe line or a 12" welded joints pipe line, your friction loss will amount to practially 2 feet for every hundred feet in length of the pipe line if you pump as much as 3 second feet of water through it.

Now, if the pipe line is say 15,000 feet long, then the pressure of resistance to overcome from friction alone will amount to about a three feet lift or head, in other words 131 pounds pressure per square inch or a total of 850 feet head to overcome, or a total pressure per square inch of 372 pounds to pump against. Now this will require nearly 500 horse-power and therefore, the bill for electricity at 2 cents per kilowat hour, for pumping the water alone, would amount to nearly $4,000 per month. (It would cost only $2,000 per month if you use a diesel engine.) but the first cost of a power plant would of course, be greater. Please note if you can get along with 1½ cubic feet of water per second, your pipe friction losses will be reduced from 300 feet to only 75 feet. Water is incompressible. The law of friction of water in pipes is in proportion as to the square of the relative velocities.

If you have a 10,000 cu.yd dialy capacity dredge, which means handling 300,000 cu.yds of material per month, the $4,000 cost per month for power alone just for pumping, water would foot up to 1-1/3 cents for water for every cu.yd handled. This expense does not include the cost of power for operating the

dredge itself. However, when working in 60¢ a cu.yd gravel, you could easily afford to pay 1-1/3 cents per cu. yd for power for pumping water. I chose the figures viz. 60¢ per cu. yd., because that is the lowest estimate by anyone that has tested the lower dredge ground. The power bill for operating the dredges at Marysville and Folsom, California, amounts on an average for the two place on 16 dredges to 1¼¢ per c.yd year in and year out. This includes pumping water out of the dredge pond for sluicing up gravel on the dredge. In deep ground where the dredge does not travel very far in a day you can take water directly on board and save part of this expense.

To be exact the figures is 1.24/100 cents per cu. yd. handled. If your electric power costs you, say twice as much at Octave as it costs at Marysville, you will have to go against a handicap of an additional 1¼ cents per cu.yd. for dredge operation power. Then add the one and one-third cents additional per cu.yd that it will require to pay for power for just the water supply and you will see that you are working in Arizone to a disadvantage or handicap to 2.6¢ per cu.yd. as compared with Marysville costs. However, there are no other disadvantages or expenses to meet that I know of that they do not have at Marysville. Power at Marysville prices for dredges averages a trifle over 7/8 of one cent per kilowat power. I have two annual dredge reports I will send you herewith.(one is for theYUba Consolidated Gold Field Ltd. annual report to operate near Marysville, while the other one referred to is the Latomas annual report) Let us take for purposes of comparison their highest annual cost per cu.yd. for their yardage average of gravel handled, which figures by the way, includes amortization and maintenance, viz. 6. 1/19¢ per cu.yd. This you should certainly be able to compete with having a new modern steel large capacity dredge, even if handicapped with two and six tenths cents extra cost for water and the extra rates charged for dredge power, and

keep your yardage costs well under their 6 1/19¢ cost, allowing of course the extra two and six tentch cents handicap referred to in detail above, or a total dredging cost at Octave of 8 13/20¢ per cu.yd based on Marysville cost figures, plus the extra cost of your handicaps. Please note that nearly all of their dredges are old and that they ran on an average of not quite 19 hours each day for the year and period covered by the reports . Many of their dredges are wooden.

The Three Friends Dredge that Mr. Ringe, Mr. Giffen and myself built 24 years ago, which I operated for 7 years, had an average record of running 23 hours and 22 minutes out of every 24. This dredge by the way is still running.

Unless the Ariz. Power Company (who I understand have a trunk line over your Octave property) have at least two plants for a generating electricity, your should by all means besides your electric pump, put in Diesel Engine power plant, on the Hassayampa River for pumping for safety sake if for no other reason to prevent the possible chance of your dredge settling down on even ground in the bottom of the dredge pond, which it certainly would do if the water, for any reason, should fail you. Either do that or else build a suitable storage reservoir somewhere above your dredge and keep sufficient water in it at all times, in case of an emergency to keep the dredge afloat for at least a month. This in case of serious disaster to the Ariz. Power Co. Elec. Power Plant or plants, which might possibly be put out of commission for a month. If they had say, three separate generating plants, that would be different.

The earnings of one 10,000 cu.yd. capacity dredge on lower Weaver creek on 60¢ gravel, will I am sure easily pay for the necessary expenditures as you go along for storing and brining in a couple of thousand minors inch of water by gravity to your ground. Then you can hydraulic off the rich steep hill sides high up above the area where you will be obliged to use steam shovels, no matter how much water you have. The same water may be used

below free of all cost for the four or five additional dredges you will probably install later on, after you have carefully drilled and tested, all of your ground. You will no doubt go out on the edges of your land and take everything that will 60 10¢ per cu. yd. which as stated above will require perhaps as many as five ten thousand cu.yd. capacity dredges to work out your ground. (There were 42 dredges at work at Orovile at one time) To pump enough water for all of these dredges would run up to close a quarter of a million dollars per year. If yourdredges will last say 20 years you can readily see why you must develop, store and bring water in by gravity.

Remember <u>you have 4 distinct kinds of mining on your land</u> viz: first steam shovel work. This will be on ground where there are too many big boulders for dredging and at the same time it so happened in this case the ground where the large bounders are is too shallow to float a dredge and besides all that there would be no place to dump your tailings if you should attempt to hydraulic where you should use shovels. Furthermore this steam shovel ground should be worked out before you cover it up with hydraulic tailings. Second, it will have to hydraulic your steeper ground above the steam shovel ground.

Then, third, go after the dredging ground, that is the main standby. And, finally perhaps you may in the future conclude to sink shafts and drift out the gravel if it pays in your deeply covered up ancient river channels that runs down near Antelope creek just west of Rich Hill.

There is no safer investment possible in any line of human endeavor where ground is suitable for dredging and the gold is evenly distributed throughout the gravel, provided it is carefully and intelligently drilled. It is not unusual to measure up the ground dredged the day you clean up and before you get the gold out of the sluices be able to tell with pencil and paper from the land area dredged since the previous clean ups taking the figures from

the drilling records to within two or three per cent of how much the cleanup for the half month's operation will amount to before you get the gold weighed.

There is no fire hazard or fire insurance to pay as modern dredges are built entirely of steel. The only real hazard is the possibility of twisting your dredge hull out of shape if for any reason the water goes out of the pond, or if the dredge should sink. By taking the ordinary precaution of putting in water type tight bulk heads, and keeping the man holes to the lower deck covered and locked at all times there is no danger of sinking a dredge.

Now, Mr. Merrill, in my judgment the only way to put this property of yours on its feet is to work reasonably close along the lines above indicated. There is no doubt the financial result whatever provided you go at it right, and handle your yardage and save your gold. But, don't please, deal with any one who wants to experiment and positively refuse to permit any machinery to be installed that has not heretofore been thoroughly tested out on standard dredges. I refer to machinery to be installed on your skids or sled, same to follow along just behind your steam shovel and further please don't let them put Cousin Jim or Uncle Ed in charge to try to run the outfit on your property unless he is competent. And in any case, don't fool with dry washers.

Remember the water you develop and store for mining will be valuable for all time for irrigation purposes after you are through mining.

As to where the gold came from or how it got into your ground is immaterial. The gold is there, no mistake about it, which is sufficient for our purpose.

I cannot say, neither can anyone else for that matter say, whether or not your deep channel will carry good enough values to pay to mine, but we need not consider that angle now. However, there is no doubt in my mind about the values in the rest of your ground. I repeat, insist upon your people sampling it for themselves.

It is easily done. If the old timers had had water you would have the sign of a mine there today. They had no place to store storm water in your water shed and no money to go elsewhere to store flood water and bring it on to the ground with ditch.

You cannot get the necessary money either in my opinion to do this unless you first prove conclusively by actual operations from gold actually recovered what values you have there.

There is but little gravel or soil on the steep side hills above your ground to hold rain water. Therefore, a few hours after a heavy storm, there is no very great amount of water left in the stream. In other words, the storm water runs off quickly. This is what prevented your upper ground from being hydrauliced more than it has been.

All the patented dry washers were failures and dry washers always were, and allwqys will be failures. If the ground has even the slightest moisture in it, for it costs too much to dry the moisture out. Experienced miners with small machinery have made money there in mid-summer for three-fourths of a century by working during the middle of the day. Just think what a dredge could earn in that kind of ground. A dredge which is capable of handling more gravel in a day than 10,000 can possibly handle in the same time with dry washers or rather dry panning, as most of them do. And even then there is enough gold left in their washer tailings to pay to dredge. Just pan some of their dry wash tailings and see.

Now, a cu.yd. is more gravel than the average dry washer miner can handle in a day. There are 120 pans of gravel in a cu.yd. and there are only 480 minutes in 8 hours, that means a panful must be dug out and dry washed every 4 minutes if they handle a cu. yd per man per day. They just don't do it that fast, that's all.

The man who tested a part of your ground for me before my last trip down there was competent and 100% reliable. It was this man who tested the Three Friends Dredging Co. ground

(referred to above) before we built our dredge. The ground he tested paid over a period of 7 years to within 2-3/9% of what his drilling records indicated it would pay and that error was in our favor.

In closing, I can say unhesitatingly that I am very sure from the very best possible source of information and my own personal observations and tests that the value in your ground justifies going ahead. And I also unhesitatingly assure you that if you do not go at the right you will surely fail irrespective of the value in the ground. There are no doubt ways to go about the work other than herein stated. However, I feel sure that the plans I have outlined if followed out carefully will succeed.

Yours truly

W.L. LELAND

COUNTY OF LOS ANGELES : SS
STATE OF CALIFORNIA :

I hereby declare the foregoing to be an absolute and correct copy of the original report made by Mr. W.L. Leland.

MARY E. LAWRENCE

Notary Public in and for the
County of Los Angeles, California.

CALIFORNIA TREASURE BOX LIMITED

CHICO, CALIFORNIA

San Francisco, California
40 25th Avenue
Feb 24, 1932

Mr. C.O. Byrd
538 Fidelity Building,
Los Angeles, California.

Dear Mr. Byrd:

My letter file discloses the fact that I send Mr. R.M. Merrill all of Mr. Bell's rough sketch field notes of his prospecting on Weaver Creek, Ariz. from a point opposite the Octave Mines for a little over 3,000 feet and 1320 feet in width. Mr. Bell staked out 6,000 feet, 1320 feet wide, but was taken ill and died before finishing the work. Where he got down it showed an average depth of 20 feet 9". The bottom ground was always the best. His average values was $1.88 plus per cu.yd. Bell estimated 62½% of the material was boulders and gravel over 2" in diameter. There are 120 pans in a cu.yd. If his estimate is correct there would be only 45 pans left that would carry values out of a cu.yd., or a triffle over 4¢ per pan to make up $1.88 I think Bell's sister still has the gold, several ounces of it that Mr. Bell obtained in his pannings. Mr. Merrill has never offered to pay me for Bell's work or even thank me so I fail to see why I should give him the gold. I am sending a copy of this to you in care of Mr. Louis Garbrecht, 1201 Robison Bvd.,El Paso, Texas.

Yours truly,

W.L. LELAND

Tuesday,
Octave, Nov 23

My dear Mr. Merrill:

Yesterday I took 10 pans, principally on Orfino Gulch as follows:

1 Pan	#10	surface -#12 where Castle sunk	½¢	27¢	yd.
" "	11	Shaft			
"	12	Hillside Orfino below Castle C amp	1/8	15¢	yd.
" "	13	Orfino Gulch	25¢	600	"
" "	14	Bank of Gulch	½¢	75¢	"
" "	15	Orfino Gulch	3¢	400	"
" "	16	" "	2½¢	350	"
" "	17	" "	3/4	110	"
" "	18	" "	1/8	15¢	"
" "	19	" "	0		
			19		
		Total	1602		
			$1.60 per yd.av.		

	10 pans	1602
Personally taken	8 pans	35
	18	1637 - $.90¢ average 18 pans

The eight pans I could hardly expect any colors from. The looseness of the gravel. I worked until 4 o'clock and then walked 4 miles to Octave and was good and tired. Got a good supper at Gilles and had a sleep in good bed at C lub House, I did not think they would care to open the Superintendent's house, although I did not ask as they have been very kind to me. I expect to be very diligent and not lose any time, so if you do not hear often from me you may know that all is going well. I hope to be through with my part of the work here in two weeks, although I will not leave anything undone.

"Old Desert" did not swear once yesterday in my presence the nearest he came to it was Dog gone it. He is a dear old soul and my ambition is to get him to see and know his savior. Tell Mrs. M. to be careful and turn the lamp down.

Sincerely yours,

JOHN J. HABECKER

Octave, Arizona

Dec. 5, 19

My dear Mr. Merrill:

Your note received. I will get the cement and express the first time I am down that way. I received a telegram from S & B to remain here, that they may be having someone come on down, so I may not leave here before the middle of the month. I have planned to go to San Francisco for a week and then return here on my way east and finish my work, but now I will stay here until finished and then come on to San Francisco.

Sincerely yours,

JOHN J. HABECKER.

Octave, Arizona

Dec. 9,

My Dear Mr. Merrill:

I have not yet learn't whether S. & B. are coming out or sending someone. I am rapidly cleaning up my work here and hope to start for San Francisco by Sunday or Monday.

I have a shaft on No.7 in the creek that I want to get to bedrock before I leave. It was 19 feet deep at noon to-day, and no bedrock and no pay in the bottom, although we did pass through a streak about 2/3 way down that gave three pans 11¢, 5 pans 9¢, total 8 pans 20¢, $3.75 average per yard. 29 other pans showed 0, but I would not be surprised to strike something good on bed rock if we can reach it. On No.8 we struck bed rock at 10 feet.

Pretty lonely here but I am busy.

Yours truly,

JOHN J. HABECKER.

MEMBER AMERICAN INSTITUTE MINING AND METALURGICAL ENGINEERS

CHAS. J. STONEHAM
MINING ENGINEER
Phone Axridge 4849
Los Angeles, California
October 25, 1931

R. H. Harman

Los Angeles, California

Dear Sir:

At your request I made one trip of observation and one trip for the purpose of checking values at the Yavapai Mine at Octave, Ariz.

I was accompanied by Mr. Thos. Holladay, who took the samples at an under my personal direction and who has been present at the running of these samples. At the time of extraction of the values, and the weighing of them.

I am herewith giving you the results of the same.

TAILING SAMPLES TAKEN

Sample # 1.
Taken from the tailings being dumped upon the dam weight 110 # moisture 10#, net weight 100#

Sample # 2.
Taken at lower end of old tailing dump. Net weight 97 #.

Sample No.3
Taken at upper end of old tailing dump, net weight 125#

VIRGIN PROPERTY SAMPLES

S ample No.4
Taken from under Grizzly over spilled material. Net weight 83#.

Sample No.5
Straight clay material being thrown away as an overburden and as of no value by Superintendent. Net weight 55#.

Sample No.6
Sand from bed of creek and at depth of 6". These samples taken of two shovels at points 50 feet apart. Net weight 110#.

The results of these tests are on the second page hereto.

Respectfully submitted,

CHAS. J. STONEHAM,
Mining Engineer.

Member A.I. M & M.E.

Sample	#1.	100#	Aa,	74	Mg.	Values	$	.932	Ton. $	per Yd.
"	#2	97	"	67	"	"		1.007	" 1.51	"
"	#3	125#	"	72	"	"		.906	" 1.15	"
"	#4	83#	"	5023		"		75.995	" 113.92	"
"	#5	55#	"	1027		"		22.50	" 35.29	"
"	#6	112#	"	10		"		.112	" .17	"

NOTE:

Sample No.4 gave 5,000 M.G. coarse nuggets and 23 M.G. fine gold.

Sample No.5 gave 1,012 M.G. coarse nuggets and 15 M.G. fine gold

In my opinion based upon my experience in my observations you have a very fine property, that will prove a great success with proper management.

In my opinion your material can be handled at a cost not to exceed 23¢ per yard, provided you have the proper machinery and equipment. It is my further opinion that the ground will yield an average of not less than $1.75 per yard.

Very respectfully submitted,

CHARS. J. STONEHAM

Subscribed and sworn to before me the 29th day of October, 1931

Annie B. Myers
Notary Public in and for
the County of Los Angenes
State of California

Com. expires Jan. 24, 1932.

ASSAY WEIGHTS REDUCED TO VALUE IN GOLD AT 900 FINE.

NO. SAMPLE	MILLIGRAMS	PANS	PER CUBIC YARD.	
1	45.94	3	$ .70¢	
2	52.92	3	.81	
3	18.52	3	.38	
4	44.55	3	.68	
5	58.22	2	1.34	
6	42.30	3	.85	
7	42.88	3	.66	
8	35.04	3	.54	
9	61.52	3	.94	
10	54.36	3	.80	
11	73.26	4	.84	
12	45.50	4	.52	
13	106.56	4	1.23	2 nuggets No.1 ol
14	40.93	3	.63	01861 #2 ol.19
15	36.82	3	.56	Sample 13
16	37.80	4	.43	Milg. Value
17	36.46	3	.56	Nugget 127.58 .07
18	23.00	2	.53	Nugt. 65.00 .04
19	48.78	3	.75	
20	36.96	6	.28	
21	62.78	4	.72	
22	37.18	2	.86	
23	18.10	2	.41	
24	47.13	4	.54	
25	67.58	6	.52	
26	36.42	3	.56	
27	58.00	4	.67	
28	55.44	3	.85	
29	25.42	5	.23	
30	14.76	1	.22	
31	87.40	2	2.02	
32	85.36	9	.44	
33	73.18	6	.56	
34	74.70	4	.86	

E. LIONEL C de la Pole

Feb. 18, 1929.

KEY SHOWING LOCATION WHERE SAMPLES WERE TAKEN.

.....

No. 1 West end
No. 2 Cross section No.1
No. 3 Channel
No. 4 C yanide Gulch and Yaqui
No. 5 Orofino, 2 Miles S. of Slaughter House Gulch
No. 6 Yaqui 2-miles S. of mill
No. 7 Antelope W. of Stanton
No. 8 Slaughter House Gulch, high bank E.
No. 9 Junction of Cyanide and Yaqui
No.10 3½ Miles S. on Yaqui
No.11 3 Miles S. on Yaqui
No.12 Fool's Canyon
No.13 Caliche Weaver
No.14 Slaughter House Gulch and Weaver
No.15)
No.16) Cross Section No. 2
No.17)
No.18))
No.19 Cyanide W. of Octave
No.20 Ninety F eet Caliche W . Bank of Weaver S. of Red Hill
No.21 Cross section No.4
No.22 Antelope West Round Mountain
No.23 Cross Section No.3
No.24 Cross Section No.3
No.25 100 Feet Caliche Weaver
No.26 Cross section No.4
No.27 Cross Section
No.28 Weaver and Orofino
No.29 West A ntelope
No.30 Photograph No.4 Flat N. of Round Mountain
No.31 Antelope West of Round Mountain
No.32 High Bank Weaver and Slaughter House Gulch
No.33 Cross Section No.3
No.34 Orofino North of Weaver
No.35

Nugget Cross Section No.4

Nugget Cross Section No.3

E. LIONEL C. de la POLE.

Feb. 18, 1929

FRANK P. ADAMS
ATTORNEY AT LAW
950 RUSS BUILDING
SAN FRANCISCO
TELEPHONE SUTTER 6361

A 37/22, 39

May 17, 1939

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

Dear Sir:

Mr. George G. Moore of Monterey, California, has directed my attention to the Rich Hill placers in which the David Mines Company is interested.

I am interested in this property as a possible place for the installation of a floating bucket-line gold dredge, and with this in mind have examined your report addressed to Mr. Moore and dated August 23, 1934.

I have talked with Mr. Leonard Pockman about this property and he states that he feels that there is very probably such a quantity and type of boulders in the country that dredging would not be feasible.

Though I would much prefer a larger property that would justify the installation of a six or nine-foot dredge, I would be interested in installing a small dredge in this ground to dig the gravel down to the first caliche or false bed-rock, so that if the boulder condition is not encountered in the shallower bed of gravel the property would justify my examination.

Would you be kind enough to give me your opinion on this matter or to render it directly to Mr. Moore, so that he can forward it to me. Your report was, of course, based upon the method of operating which Mr. Moore had in mind for the David Mines, and therefore different conclusions may be appropriate if dredge operation is contemplated.

Very truly yours,

Frank P. Adams

FPA:BM

Merrill Placer File

May 23rd, 1939

Mr. Frank P. Adams
Attorney at Law
950 Russ Building
San Francisco, California

Re: Merrill or Rich Hill Placers

Dear Sir:

I find your letter of the 17th on the occasion of a very brief visit to my office between two professional trips away and you will excuse a hurried answer.

I note that you fully appreciate that there are many conditions essential to the operation of a dredge which were not investigated at the time I examined this property for the David Mines.

In order to form any worthwhile opinion respecting the subject matter of your letter, it would be very important to thoroughly investigate the results of the development and mining which have been carried on at the Merrill Placers during the last two years and which would yield a great deal of important information regarding the character, extent and value of these deposits.

This work is not continuing at present and the owner of the claims has given me considerable general information and promised full details should I so desire.

The proper study and compiling of all this data together with a physical inspection of the present condition of the property and the results of the work mentioned above would involve considerable time and effort and if you believe that this would be worthwhile, I should be pleased to arrange to conduct this further investigation on a professional basis utilizing all of the information which I have previously obtained. However, I could not undertake this work until some present engagements are completed which may be before the end of this month or sometime in June.

I shall be glad to hear from you further on this matter but, meantime, would not feel justified in expressing any opinion as to the advisability of the plan which you have in mind. The upper portion of the placer ground does contain a very large percentage of boulders but this is not the case with some of the gravel further down the creeks where much of the recent mining has been carried on.

Yours very truly,

GMC:MF

Mr. Colvocoresses obliged to leave before signing.

August 22, 1945

Mr. Ralph H. Pfeffer
P. O. Box 574
Wickenburg
Arizona

RE: Weaver Placer

Dear Mr. Pfeffer:

Enclosed is a copy of a letter received this morning from Merrill and from which I note he has written to you direct. No doubt, you would find it advantageous to have Merrill or one of his associates visit the property in your company to show you the work which has recently been done and with which I am not familiar.

The method of operation referred to in the third paragraph of Merril's letter is similar to that which was planned by the parties for whom in investigated the property, except that they proposed at that time to handle the gravel on a small railroad rather than by truck, but I am sure that the trucks would be preferable under present conditions.

Yours very truly,

encl 1

Prof. Corresp File

August 13,1945

Mr. Robert M. Merrill
2850 Griffin Avenue
Los Angles 31
California

RE: Weaver Placers

Dear Mr. Merrill:

You will doubtless recall our many contacts in reference to this property and recently I have been approached by Mr. R. H. Pfeffer who is operating a placer mine near the Old Vulture and is anxious to secure additional placer ground to be developed and operated as soon as government restrictions permit.

I have told Mr. Pfeffer a good deal concerning your property and he is anxious to discuss the possibility of securing a bond and lease on same.

Mr. Pfeffer is an experienced mining operator and I believe has or can secure ample financial backing to properly carry out any project that he may undertake. Therefore I suggest that you should get in touch with him unless your placer ground in the vicinity of Weaver Creek is already definately tied up to other parties in which case I would appreciate your advising me in that regard.

With personal good wishes, I remain

Yours very truly,

Addrss Ralph H. Pfeffer
P.O. Box 574, Mckenzie, Oregon

Charge

To lift 1000 gals water per min against 400# pressure would require about 300 H.P. allowing for 60% efficiency of pumps etc. With cost @ 2¢ per H.P. hour = 6.00 per hour = $80.00 per 13 hour day = say $2400 per month (= 800,000 gal. per day)

This should be cut in half by using water from the [illegible] site

If lift is cut in half cost would be say $1200 per month

Figuring on a plant capacity of 5000 yd per day (pay dirt) = 150,000 y. per month, cost would be 1¢ per yd but this would only allow less than 100 gals of fresh water per yard & even by saving & reusing as much water as possible it is doubtful if one could get along with this quantity

Charge

If 160 gal per cu yd is required this would mean 800,000 gals per day = 1000 gals per min of 13 hours = 13 × 6, $80.00 per day = $2400 per month

→ If pumps for [illegible] diversion site will cost 1200 per month & say $1200 per m.

Plant. 8000 yard digging

~~2500~~ 5000 yard pay dirt [illegible], [illegible]

100 gal of fresh water = 50000 gal per d = 8 hr pumps + 100 hp = $24.00 ($3) per d. = ½¢ per yd [illegible] = 1¢ per [illegible] dirt

Elevations:

			Lift from River at Box
K. L. Bar Ranch	2076 feet		
Hassayampa River at the Box.	2200	U.S.G.S.	
" " " " " (Reading 2640, correct -440)	2200	An.	
Top of Ridge on road just east of Round Mt. dist by road 3.4, pipe line 2.5	2600		400 from River
Top of Round Mt. (U.S.G.S.	3250	U.S.G.	1050
Gulch of [illegible] just west of Washing Plant. Dist fr Box, by road = 6.4, pipe by 5.5 m.	2720	Aner.	520
Washing Plant on Ridge	2800	Est.	600
Steam Shovel in [illegible] just below Slaughter House, dist by road fr Box 9 m.	2950	Aner.	750

Could pump from the Box for 2.5 m to near top of Round Mt with lift by 800' & run by gravity 3 miles to washing plant. Total pipe line by 5.5 m, total lift with ~~gravity~~ friction by 900' = 400# pressure.

Lift

Elevation Hassa. River at Lower dam site	2600	U.S.G. Aner.

(Dist to Washing Plant by air line 7 m & by pipe line about 8 m.)
(300 H.P. allow for efficiency

Could pump from Lower Dam Site to washing plant with 8 miles of pipe & lift 200 or with friction by 440 ft = 200# pressure 150 H.P. allow for friction

1 gal = 8.34 lb

$$\text{H.P. of pumps} = \frac{\text{lb water per min} \times \text{lift in feet}}{33000}$$

(over)

Copy

2850 Sycamore Ave.

31

Los Angeles, Calif.
August 20th, 1945

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

Dear Mr. Colvocoresses:

Your recent letter at hand. I followed your suggestion and dropped a letter to Mr. Ffeffer today. Yes I still control the placer deposit on Weaver and Antelope Creeks.

I do not remember just when I talked with you last but I do know there has a great deal happened , in many ways, in and about the property since you was sampling for Mr. Moore. The last sizable job was done in thirty-nine which showed a much higher value than you reported. However, the most of it was done on a part of the property which I do not think you sampled. We are now quite interested in the values of the black sands and the hematite,which other outfits are saving, altho our sampling is not yet completed but the values appear to be much higher in the black alone, after being crushed, than in the values obtained from the sluice box.

Do you remember a Mr. Butcher, from Danville, Illinoise, who was on the property when you were there? If you remember he suggested the way to work that property was to load the material in trucks and haul it to a central stationary plant. That seems to be the way many are doing now and at a cost altold of eight cents per yard. If you have not read the articlein the "New Mining Methods and Shortcuts" Compiled by the Engineering & Mining Journal I believe you would find it interesting to get a copy and turn to page 62 and read that article.

I hope your man does not attempt to go over the property without me because I was over there less than a month ago And I find most of the roads are blocked and unless one knows just where to go I am sure he would not find his way around. Also if he is interested the sooner he gets in touch with me the better as I have had more inquiries the past two weeks than I can take care of.

Thank you for your letter. Will probably be in Phoenix before a great while and will look you up.

As ever

R. M. Merrill

R. M. Merrill

over

2850 Griffin Ave.
Los Angeles, Calif.

Tel. Capital 1-1706

ANNEX I.

Sample Number	Location	Distance from Mouth.	Depth of Pit.	Bank Measurement of Pit cu. yds,	Grains Gold Recovered
201	Oro Fino Creek	100'	9.75' b	8.75 cu. yds.	11.0 gr.
207	" "	600'	9.2'	8.13 " "	7.6 "
208	" "	1,100'	6.0'	6.0 " "	23.3 "
"	" "	(additional 2')	2.0'	2.0 " "	1.0 "
212	" "	1,100'	5.5' ?	4.9 ? " "	14.0 "
215	" "	7,900'	1.2 ?	1.07? " "	2.5 "
202	Weaver Creek or Wash	100' *	9.0'	8.25 " "	6.25 "
203		100'	10.0'	10.2 " "	6.25 "
204	"	600'	10.0'	10.0 " "	6.35 "
205	"	600'	9.0'	9.2 " "	4.5 "
302	"	10,000'	10.2'	10.9 " "	13.0 "
303	"	10,000'	8.7'	13.0 " "	11.0 "
305	"	12,000'	12.7'	11.2 " "	10.0 "
309	"	15,000'	6.5'	6.76 " "	12.5 "
310	"	15,250'	7.6'	7.76 " "	26.5 "
306	Jap Creek	0'	7.25'	7.05 " "	25.5 "
307	" "	600'	6.6'	6.75 " "	31.5 "
308	" "	930'	6.7'	7.44 " "	67.5 "
301	Slaughter House Gulch	100'	8.6'	8.0 " "	19.0 "

Notes: (holes that are abreast of each other across channel. In Weaver 202 & 203; 204 & 205 are 500' apart, 302 & 303 are 100' apart. In Jap Oro Fino 208 & 212 are 100' apart.

* The distances to pits in Weaver are taken from the junction of Oro Fino with it. The mouths of the other creeks are at their junctions with Weaver.

? Estimated by Dodd, work stopped before measurement taken

ANNEX I, TABLE OF RESULTS OF SAMPLING
Part of
PRELIMINARY REPORT ON RICH HILL PLACERS;
MERRILL HOLDINGS.
BY
VAHRENKAMP & SANDERS.

Total Value Gold Recovered.	Value Gold per cu, yd. @	Total Weight Black Sand Recovered.	Black Sand per cu. yd. of gravel	Assay Value of Black Sand per ton of Bl. Sand.
68.7 ¢	7.85¢	340#	39.0#	$ 2.80
47.3 ¢	5.81 ¢	398#	49.0#	$ 2.10
$ 1.395	23.3 ¢	61#	10.0#	35 ¢
6.25 ¢	3.12 ¢	19#	10#	
87.2 ¢	19.6 ¢ ?			
15.6 ¢	14.6 ¢ ?			
39.1 ¢	4.73 ¢	398#	48.4#	$ 2.45
40.5 ¢	3.97 ¢	280#	28#	$ 1.05
39.6 ¢	3.96 ¢	215 #	21.5#	$ 0.70
28.2 ¢	3.06 ¢	165#	18#	Tr.
81.4 ¢	7.45 ¢	236#	21.7#	$ 3.50
68.75 ¢	5.3 ¢	218#	16.8#	
62.5 ¢	5.57 ¢			
78.0 ¢	11.55 ¢			
2 ½ x $1.66	21.4 ¢			
$ 1.60	22.7 ¢	138#	19.6#	$ 2.10
$ 1.96	29.0 ¢	77#	11.4#	
$ 4.22	56.7 ¢	83#	11.2#	
$ 1.18	14.8 ¢	77#	9.6#	$ 2.10

Notes: @ Value of gold calculated on the basis of 856 fine (figure obtained by Mr. Heikes from local gold buyer at Octave) and $35 per ounce. Black sand assays on basis of gold at $35 per ounce.

October 1, 1945

Mr. Ralph H. Pfeffer
P. O. Box 574
Wickenburg, Arizona

Re Merrill Placer

Dear Mr. Pfeffer:

As promised some time ago I enclose herewith a copy of the long report by Nicols on the Rich Hill Placers. I have always considered Nicols to be a reliavle man and believe that you will find portions of his report of considerable interest.

I hope that your negotations with Merrill are proceeding in a satisfactory manner, and that you will have the property under lease in the near future.

Yours very truly,

GMC/tar

September 21, 1945

Mr. Ralph H. Pfeffer
P. O. Box 574
Wickenburg, Arizona

RE: Weaver Placer

Dear Mr. Pfeffer:

As promised I am sending you herewith a copy of a report on this property which I made to the David Mines Company in 1934.

Much of the information will probably be of no value at present since it refers to the method of operation which Mr. Moore and his mechanical engineers from the East has worked out along the lines of stripping the coal seams in Illinois and elsewhere. He had actually obtained options on a large amount of equipment at very low prices but, of course, none of this was ever purchased and while I believe that his method of operation could probably be worked out in a satisfactory manner the recent development of dredges would probably lead you to follow a dredging practice unless it should prove impossible to hold the water in the pond.

I am also enclosing a tabulation marked"Annex I" giving the results of samples taken by other engineers before I took charge of the work, their results are rather erratic but on the whole somewhat lower than mine.

I have a note to the effect that a washing plant in another part of Arizona was using 250 gallons of water per yard of gravel of which about 2/3's was returned from the tailings pond.

Another note made at the end of 1938 is to the effect that the Universal Company, headed by a man named Kennedy had used a dry washer on Merrill's ground and had mined 44,904 yards of gravel of which 6,520 yards came from Jap Gulch and assayed 42¢ per yard while the balance which came from down the gulches gave very erratic values, ranging from 5¢ to 40¢. The recovery was poor and Kennedy seems to have lost a lot of money but before quitting he claimed to have found an old channel east of Round Mountain where values ranged from $2.00 to $4.50 per yard along the bedrock and also amother channel (location not given) which had a width of 100 yards and an average value of 85¢. I take no responsibility for these stories regarding Kennedy's operation as they heresay information.

I had mentioned the possibility of securing a water supply from the Octave Mine for which Merrill once negotiated. The A. S. & R. have discontinued their operations at that property and I think that the water would be obtainable from the owners and might represent a substantial flow that could be obtained by pumping from the mine and would run by gravity to any location where you might intend to operate.

My report on the Red Bank Placers which I mentioned would probably be of no value since I merely sampled in a few places near the head of Weaver Gulch where the gravel itself had a value around $2.00 but the boulders constituted 80% or more of the bank and the yardage of this material was probably very limited.

However, I found in the Red Bank file a report by Nichol which may contain some information which would be useful to you and since I do not believe Merrill had any copy of this report I am having a copy made for you and will send it along at a later date, altho I can not say just when it will be coming.

With personal regards and hoping that your plans are working out entirely to your satisfaction, I remain

Yours very truly,

GMC/tar

P. S. The enclosed report was submitted in conjunction with the map and record of assays which are already in your possession.

Phoenix, Arizona
September 23rd, 1937

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

Dear Mr. Colvocoresses:

This will confirm our conversation in respect to purchasing your assay maps of the Merrill Placers. The price is Twenty-five Dollars ($25.00) of which I have paid you $10.00 in cash and an additional $15.00 will be paid on or before the 15th of November, 1937.

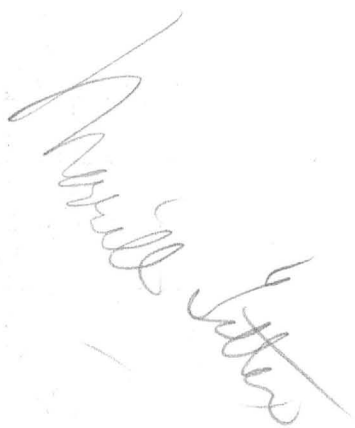
Yours very truly,

P. M. Merrill

Paid 15.00 in cash

25

Dec 1 37



steel ½" thick, about 10" square & with the corners somewhat rounded. Two holes are drilled for the long ~~rear~~ rear castles on the ordinary horse shoe and after these had been slipped thru the plate a steel clamp ~~with a turnbuckle~~ which was attached to the shoe was carried up over the horse hoof & clamped tight with a turnbuckle. Horses have to be trained to use these snow shoes; ~~&~~ to step wide so as not to knock the opposite leg & to lift ~~them up~~ their feet up & straight high enough to clear the shoe from the snow & of course they were suited to no gait other than a slow plodding walk. But in the deep soft snow thru which the La Porte stage had to ~~flow~~ plough its way they were a great help & the only means by which horses could travel the road at all.

And so we proceeded at the rate of 1½ miles per hour, - pretty slow after auto travel for a distance of 7 miles to Diamond Springs where we met the sled from La Porte, transferred the mail etc., & each sled & team they turned back in its tracks. The ~~road for~~ last 6 miles of the road, (from Diamond Springs to La Porte) was by far the worst. Steadily we were rising higher into the Sierras; steadily there were more & steeper grades to be climbed & steadily the snow grew deeper - 9 ft on the marker at La Porte.

On most of the hills & these comprised a large portion of this part of the trip, the driver climbed off ~~his~~ the sled, slipped on his skis & ~~he~~ rode them alongside as he drove, & I also, to ease the "~~burden~~ pull" of the floundering team, walked in one of the runner tracks behind the sled holding on to the rope

Note re Water Supply. 1/31. 35

Based on the tests now being done by Pantle Bros on Big Bug, it is safe to assume that a washing plant will require 250 gal of water per yd of gravel & for 6000 yds per day a total of 1,500,000 gals will be required.

About 2/3 of this water could be returned from the tailings pond so that the amount of fresh water required would be about 500,000 gals per day or say 720 gal per minute (= 63 miner's inches.)

Costs of Installation

Preliminary Estimate Cy. 1st

		$
	Power line to plant & shovels & pumps 18 m	12000
	Road to main plant 8 m	40000
	with bridges etc. & to pumping plant & digging	20000
	Ensilag [illegible]	50000
	Camps building & living accom. (25 m)	4000
	Offices & assay office, safe etc. + equip.	10000
	Building for washing plant & [illegible]	25000
	washing Pans washing & bin etc	10000
Water:	Pumps & motors 2 of 500 gal in well & 2 to [illegible]	6000
	Installation pumps & bldg. & wells	3000
	Pipe line 5.5 m of = 3000	6000
	Laying pipe etc	6000
	Tanks & reservoir	
Excav.	2 Steam Shovels etc.	12000
		7000
	Pipe [illegible]	
Trans.	Tracks & switches 4 m @ 8 m	32000
	2 Locos & 20 cars + equip.	20000
		782000

Costs (Continued) Mil 4

Brought forward	225000
Main plant equip	
Trommels	4000
Launders & sluices	2000
Piping & mining	3000
Riffles & amalgamation & tables	5000
Tailing stackers & railroad & derrick cars	6000
Water reclaiming system	
Dams & pumps & pipes	10000
Clearing tanks	4000
	259000
Incidentals & engineering	41000
Total eq.	300000

Thar's Gold In That Thar Gulch

5/15/49

The Arizona Republic

Corrado

AUGUST
4
1934

Mr. George G. Moore,
Monterey, California.

Re: DAVID MINES, INC.

Dear Mr. Moore:

As per your verbal request, I hand you a brief interim report on your property known as the Rich Hill Placers, based on the examination of same which has been conducted during the past month under my direction.

Inasmuch as this investigation is only partially completed and much of the gathered data has not yet been put into a form which will permit of any exact calculations, I shall have to apologize for making only approximate statements and estimates, all of which may have to be substantially revised at a later date.

I shall not attempt to cover the general features of the Rich Hill Placers, which have been fully described by other Engineers, but will state briefly that this property comprises approximately 6000 acres, much of which is known to be gold bearing, particularly in and along the beds of the principal creeks, namely Weaver and Oro Fino. Many investigations of this property have been made in the past, but unfortunately the reports of the more reliable Engineers are not available and such reports as have been submitted appear to be largely based upon the results of sampling with a pan which are extremely unreliable in nine cases out of ten.

The sampling recently conducted by Mr. Vahrenkamp gave unfavorable results and indicated in so far as it went that the value

of the gravel in the banks was less than 14¢ per cubic yard. It is my opinion that these low values can be partially attributed to the inefficient equipment of the testing plant in which his samples were run, which did not properly disintegrate the clay nor recover the fine gold which could not be caught on the riffles.

In taking over this operation we added to the plant by installing a concrete mixer for disintegrating clay and by placing beyond the riffles a Denver mechanical amalgamating pan which recovers fine gold thru the use of mercury and on rubber matting. Results todate indicate that from thirty to forty percent of the gold in our samples is recovered by the Denver pan.

Our method of sampling consists primarily in digging pits from surface to the first layer or seam of caliche, which constitutes the false bed rock. In this connection it should be explained that gravel is also found below as well as above this caliche and in fact there are probably several different seams of caliche at various levels between the surface and the true bed rock which lies at a very considerable depth and to which it has been impossible to explore with the limited time and facilities at our command.

The upper stratum of caliche is from three to fifteen feet below the surface and may be tentatively assumed to lie at an average depth of 6', namely 2 yards, and all of our samples have been confined to the upper bed of gravel above the caliche. At a later date it will be very important to thoroughly investigate the character and values of the lower gravel down to the true bed rock, since it is quite possible that very rich material may be found at a substantial depth below the surface and it might

eventually be possible to work banks of pay gravel 60' to 150' in height. However, at this time there is no evidence at all to prove or disprove this supposition, which is merely mentioned for future study.

From the sample pits we set aside and carefully estimated the approximate yardage of large boulders and speaking roughly, I should say that in the ground so far sampled approximately 50% of the bank yardage is represented by boulders exceeding 6" in diameter, which would not be sent to the washing plant. This percentage varies in different sections of the property, - the boulders considerably exceeding this figure in upper Weaver, but in lower Weaver and Oro Fino representing only 10 to 20% of the excavated material.

From the dirt excavated from each pit approximately one cubic yard, and in some cases two cubic yards were taken to the washing plant and treated under conditions which are believed to approximate as closely as possible the condition which would exist in a commercial plant for treating a large yardage of gravel. The values given may, therefore, be considered to represent in each case the recoverable value of the gold in the pay dirt and no allowance is made for losses in treatment since these should be no greater than in our testing plant.

The general results of such sampling as we have carried on to date may be briefly given as follows:

Twenty-five samples taken from various pits have a mathematical average of about 23¢ per cubic yard of bank, while the samples taken by the steam shovel, when crossing Weaver Creek a short distance below Slaughter House, have a mathematical average of 13¢ per cubic yard of bank. This last figure is not a fair representation of the value in the gravel at this point since it is entirely reasonable to assume that the better

grade of gravel lies below the steam shovel cut and pits must be sunk and sampled from that depth down to the caliche in order to obtain a fair average which I would estimate to be probably 20¢ per yard of bank.

If the pits to be dug under the shovel cut should show up as well as expected, I feel that we could estimate that approximately 400,000 cubic yards of bank gravel had now been partially sampled, having an average value of over 20¢ per yard and from which it would be possible to mine and ship to the treatment plant, after the boulders had been thrown out, about 200,000 yards of pay dirt with an average value of 40¢ per yard. These figures will be verified or revised to some extent as soon as the samples from the pits under the shovel cut have been assayed, which will probably be by Tuesday, August 7th, when telegraphic advice on that matter will be sent to New York.

Several scattered pits on the other portions of the property indicate that similar values are distributed over a considerably wider area and it is to be expected that additional sampling will permit a large increase in the tonnage now estimated and if the present program of sampling is continued until October 1st, it should then be possible to give a reasonably close average on the value of about one million yards of bank gravel.

Second only in importance to the gold value of any placer mine is a sufficient water supply to permit the proper treatment of the ore. As far as can now be determined, there is no adequate source of water in the vicinity of your property excepting the Hassayampa River, where the flow and underflow at "the Box" have been measured for many years. A careful study of all available data is now being made and the data so far

obtained seems to show conclusively that while the stream flow is sometimes down to 250 gallons per minute, one could definitely count upon a minimum underflow of more than 4000 gallons per minute at "the Box", which seems to be the logical site for your pumping plant and is located five and one-half miles from the site of the washing plant. The elevation of the "Box" is approximately 600 feet lower than that of the washing plant and it will be advisable to lift the water a vertical distance of some 700 feet during the first two and one-half miles of pipe line and then to let it run by gravity thru the balance of the pipe line to the washing plant.

A permit from the State Water Department to use water at this point and a filing of rights up to a maximum of 4,400 gallons per minute have been applied for by your Attorneys, and I understand that such a permit will probably be granted, altho it is possible that conflicting claims may later cause legal difficulties and all these matters should be very thoroughly investigated before any heavy expenditure is made.

Electric power for the pumping and washing plant can be obtained from the Arizona Power Company, whose high tension line crosses near the Rich Hill Placer ground approximately two and one-half miles northeast of the site of the washing plant so that the total length of a new power line which would have to be built to the washing and pumping plants would be approximately eight miles.

Subject to pay values being found in a sufficient body of gravel to justify the construction and operation of a commercial plant, I entirely concur with the plan of operations which you have outlined. This consists in excavating the gravel bank with large steam shovels, loading the material into hopper bottom dump cars on which grizzlys will be fixed

to discard the large boulders, transporting the pay dirt to a central washing plant where it would be disintegrated, sized and washed and the gold saved on riffles, tables or some special equipment designed for amalgamating with mercury. Similar excavating practice has been pioneered in California and elsewhere and altho there are some special difficulties which might present themselves in the case of the Rich Hill Placers, it would seem to me that these can be overcome without great expense or hindrance.

The site selected for the washing plant is centrally located and has many natural advantages, particularly an excellent dumping ground for the tailings and the practice which would be followed in such a washing plant has been well standardized by the large gold dredges and mines and the cost of operating can be estimated with accuracy while the recovery of a high percentage of gold is well assured except in cases where the gold occurs as flour or badly oxidized and fortunately this is not the case at the Rich Hill Placers, so far as our sampling has progressed.

I have not sufficient personal experience in the operation of steam shovels and industrial railways to make any worth while suggestions regarding these operations, but you and your Associates have been very successful in similar work under different conditions and modifications of your methods will doubtless suggest themselves when these are applied to the local situation. I believe that the general outline of the washing plant which has been submitted to you by the Mutual Engineering Company of San Francisco should be satisfactory provided the capacity of the storage bin is enlarged and provided that ample trommel capacity is installed to disintegrate the clay and mud, but in advance of actual operations it is impossible to figure just what trommel capacity is required and I can only

suggest that provision be made for additions to the trommels if this be found advantageous. The plan for the disposal of waste seems to be satisfactory, but the gold saving devises should be considerably amplified and I suggest that in addition to the shaking riffles it will be found essential to install tables, amalgamators, Ainsley bowls, or some similar device for catching the fine gold.

As to the cost of constructing and installing the necessary equipment, I give herewith a tabulation showing figures given me by you, and based upon options or contracts to sell equipment which I understand are already in your possession. No attempt has been made to estimate the cost of labor or material involved in the installation and this will run to a considerable sum of money and may easily be under-estimated since construction costs in any out of the way place are bound to be much higher than in the vicinity of a large City where skilled labor is always available and machine shop facilities and warehouse stocks can be drawn upon at short notice.

In considering the cost of operation, we have tabulated principally the labor and the main items of supplies such as power and fuel. These figures are, I think, conservative, and an ample allowance for incidental expenses has been made to bring the total up to $700 per day. I feel very confident that under normal conditions the operation of the plant can be carried on for approximately this figure, but I do not personally feel confident that the two shovels can dig 6000 cubic yards of pay dirt per day, which means excavating from 10,000 to 12,000 yards of bank gravel, nor do I believe that the railroad facilities will be sufficient to handle this amount of material unless more cars are provided than is contemplated

in the estimate of construction costs. The careful study of cost of construction and operation was something which I had intended to follow up during the next two weeks so that I am not really properly prepared to make any definite estimate on these points and may wish to revise the figures now given to a substantial extent.

One of the principal objections to digging gold bearing material with shovels or other types of excavators is due to the fact that the gold bontinually sifts down thru the agitated gravel and sand and settles on the bed rock.

If enuf water can be spared to sluice off this bed rock the cost of cleaning will be small but if insufficient water is available or if the caliche proves too porous to permit sluicing it will be necessary to resort to hand sweeping and scalping which will mean some additional labor and may possibly run up your cost by perhaps one cent per yard beyond the estimated figures.

My first and principal recommendation is that the sampling should be continued along present lines from this date until October 1st. The yardage which we have sampled to date is not yet sufficient to justify the expenditure involved in constructing and equipping the commercial plant and while there is no apparent reason for believing that we have sampled only the best of the gravel, still it is always possible that such has been the case and from an Engineering standpoint I feel that it is most important that figures should be made available on approximately 1,000,000 yards of bank gravel before a definite decision is made in respect to proceeding with construction and operation. The additional cost of continuing the sampling

with pits only, and without attempting to use the steam shovel will be approximately $5,000 from August 15th to October 1st, and I am very sure that this money will be well spent and enable estimates to replace mere guesses in regard to the tonnage and value of an additional 600,000 yards of gravel.

Assuming that the sampling continues to give similar results to those which have been obtained to date and proves up the desired yardage of bank gravel having an average value of at least 20¢ per yard, and further assuming that the legal rights to the water supply can be positively secured and the existence of an ample available supply of water properly verified, I recommend that your company then proceed to carry out your plans and install the necessary equipment for commercial operations, designing the plant to handle approximately 6,000 yards of pay dirt per day.

I am satisfied that the operating costs should not greatly exceed $700 per day, unless it is necessary to go to very heavy expense for hand cleaning the bed rock gravel, and if it is possible to put thru 6,000 cubic yards of pay dirt this will represent a recovery of $2,400 or a profit of $1700 per day. Even if the difficulties of operating the shovels and railroad should reduce the yardage by 50%, the recovery should still be $1,200 per day and a profit of approximately $500, which would pay back the cost of plant and equipment within a reasonable length of time and leave a fair margin of profit.

Assuming that the minimum gold value is actually found to exist in the gravel, I can visualize only two reasons why this venture might fail. First, - the impossibility of handling any substantial yardage with steam shovels or any other type of mechanical equipment. Such a condition

appears highly improbably to me, and I am assured that it is a practical impossibility by those who know a great deal more than I about steam shovel operations. Second, - the absolute failure of the water supply. This might be caused thru litigation which should be guarded against as far as possible by thorough preliminary investigation of all the water rights which might come in conflict with those of the David Mines Company. It might also be caused by an absolute failure in the flow of the Hassayampa River. The last eight years have been the driest ever known in this part of the country and another two or three years of deficient rain fall might reduce the available water in the Hassayampa to nearly the vanishing point. I know of no way to guard against this last possibility and consider that it is one of the inherent risks which must be taken in any venture of this nature.

Yours very truly,

G. M. Colvocoresses.

GMC/HC

P. S. I am assuming that your Attorneys have thoroughly investigated the titles to the mining claims which you have under option, and satisfied themselves that these are valid and that the claims are in good standing.

G.M.C.

NOTES RE MERRILL PLACER

12/2/38

The Universal Co. (Kennedy) have discontinued operations under the terms of their lease and given a quit-claim deed to Merrill. During the past two years Merrill says that they have spent $117,000 at his property and the total return from gold recovered appears to have been less than $10,000.

They mined and washed 44904 yards of which 6520 came from Jap Gulch (where we had sampled) and yielded 42¢ per yard and the balance came from lower down the gulches and yielded from 5 to 40¢ per yard. Kennedy's machine (dry washer) gave fairly good results while the ground was dry but with the coming of the rains the recovery fell off to something less than 50% of the values.

Kennedy claims to have found an old channel east of Round Mountain where he got values ranging from $2.00 to $4.50 per yard; also another old channel some 100 yards wide and extending for a great length in which the average values were 85¢.

Merrill at one time got a years' lease on the water supply available in an old shaft in the Octave Mine where there seemed to be a very large flow. This lease has now expired but might be renewed.

(None of the above statements can be taken as reliable.)

G.M.Colvocoresses.

GEORGE M. COLVOCORESSES
MINING AND METALLURGICAL ENGINEER
1108 LUHRS TOWER
PHOENIX, ARIZONA

BRIEF STATEMENT CONCERNING RICH HILL PLACERS

These gold placers are located in Yavapai County, Arizona, principally along Weaver Creek and its tributaries. The claims cover both the wash gravel in and near the beds of the streams and also the mesas which lie between. The total area is approximately 6000 acres, all held by possessory title as unpatented placer mining claims and according to attorneys for the owner and the attorneys for the company which recently held an option on this property the titles are all clear and valid.

Investigations up to the present have been largely confined to the upper gravel lying along the washes and extending from the surface down to a false bedrock consisting of caliche which is found at a varying depth of from five feet to twenty feet. There are indications in some old shafts that pay values exist in the lower strata of gravel and perhaps all the way down to the true bedrock, but these have never been substantiated by any extensive tests. The same is true concerning the values which are found on the mesas and in some of the higher banks representing the ancient beds of the streams and having a height of from twenty to sixty feet.

Only a certain portion of the wash gravel has been properly sampled by test pits, some of which were put down under my direction, and a very thorough sampling of the pits

last mentioned indicated that after discarding a certain percentage of boulders,- which can be eliminated in a dry trommel,- the balance of the gravel which would be sent to the washing plant averages almost exactly 30¢ per cubic yard recoverable at present price of gold. A large additional area has been partially tested and appears to be of similar value and it therefore seems reasonably probable that there are at least 8,000,000 yards of this grade of material which could be treated at a central washing plant or by portable plants working along the washes. If sufficient values should be found to extend over portions of the mesas and below the caliche the total yardage of pay gravel on the property would represent many times this figure.

From tests made to date it can be definitely stated that at least 80% of the gold can be recovered by ordinary washing and amalgamation (there is practically no flour gold) and if, as seems likely, a 90% recovery could be made in practice the recoverable gold would represent 33¢ per yard in addition to which there is perhaps 3¢ or 4¢ which might be recovered by proper treatment of the black sand which is found in all the gravel and which always appears to carry some values.

Water for washing the gravel can certainly be obtained in quantity from the Hassayampa River at a point some six miles distant from the proposed location of the central washing plant, but it is possible that sufficient water could be obtained much nearer from the underflow in Weaver Creek and Antelope Creek.

The total expense involved in equipping this property for

operation on the basis of 3000 cubic yards per day can be estimated at $125,000 and the cost of mining and treating the gravel should be 14¢ per yard of material washed, leaving a profit of 16¢ per yard, which I believe might be increased to 20¢ through improving the recovery of gold and treatment of the black sand.

The most recent deal involving this property was made in 1934 with a company for which I was engineer and the terms involved a lease and option with royalty fixed on a sliding scale dependent upon the grade of the gravel mined. All royalty was to apply on the purchase price if the option were exercised. I believe that similar and quite favorable terms could be obtained at present.

In closing I wish to mention that this property has been examined and partly sampled on several occasions by other engineers, some of whom have had a wide experience in hydraulic mining. I have only seen certain of these reports but to the best of my knowledge everyone of these men estimated a higher average value per yard than I was able to justify as a result of my own sampling. I therefore believe that my estimates are at least conservative both as to tonnage and values, and that the results of actual operations are likely to prove substantially better than this forecast.

I have no personal interest whatever in this property and no intention of promoting it, but I believe that it can be made the basis of a profitable and interesting mining operation with which I should like to be connected, and I have a large amount

of technical data, maps, estimates, etc. which I am at liberty to use and would be glad to make available on a professional basis to any responsible party desirous of giving this matter serious consideration.

G. M. Colvocoresses

January 7th, 1936

P. S.

The company which last held this property under option was extremely desirous of continuing their interests and operating but met with certain financial reverses from other sources which made it impossible for them to do so.

9/23/37

Note re Merrill Placer (David Co.)

Call from R. M. Merrill. The David Co. and G. G. Moore have had no legal claim on the property for a couple of years. Merrill says that they owe him $8000 ~~but~~ and if they should pay this up he might give them another option for a proper cash consideration. David Co. claims to have invested $6500 in testing the property. They bought the Cameron Ranch on the Hassayampa River for $5500 and are now trying to sell it back to Merrill for $65,000.

Harold Arnold jumped some of Merrill's claims last summer but has no option on any of the other property and Merrill says that he is a crook or nutty.

Rohlfs (the engineer from Seattle) representing the Philippine Co. seemed to be favorably impressed with the property and told Merrill that he would recommend it to his principals for further investigation and although nothing further has been heard from them Merrill thinks that they may yet go ahead during the cooler weather.

MERRILL PLACER

NOTE BY G. M. C. November, 1937.

The David Co. was poorly financed and worse managed and having spent all their money on investigations and unsuccessful attempts to secure additional funds in New York, Canada, and England, they went out of business in 1935. The property has reverted to Merrill and his associates, but some of the claims are said to have been jumped by others who have been trying to finance their operations by soliciting funds in Los Angeles.

My examination and sampling of these claims was by no means conclusive since it was confined to a limited area and no opportunity was afforded to properly work out the best method of mining or treatment of the gravel.

I am of the opinion that these holdings have merit even on the basis of my estimate of values which is much lower than thaf of several other engineers, and I believe that it should be possible to work a substantial yardage with a reasonable margin of profit thru securing an adequate water supply by the purchase of some ranches on the Hassayampa River and mining the surface dirt by edonomical methods now in practice elsewhere.

There is a chance of finding higher grade material at depth along the true bedrock, but this at present is merely a gamble.

I am also of the opinion that better opportunities for placer mining exist in California and elsewhere due to much higher benches of pay gravel and gravity flow of water.

I understand that Merrill would be very glad to negotiate a new deal on much better terms than he made to the David Co.

December 14, 1924.

Dr. H. E. Reitz
Story Bldg.,
Los Angeles, Calif.

Dear Sir:-

In accord with your request I left Los Angeles on December 3rd for Congress, Arizona, to make an investigation for you of a placer deposit on Weaver Gulch about seven miles east of Congress and adjoining the Octave Mine. Owing to the extent of the deposit and the fact that you wanted just a general inspection rather than a complete examination and report, you will appreciate that my statements cover general conditions and impressions from such a casual examination.

Samples taken from different points on the ground under investigation confirm the statement of the owners and their engineer that there is placer gold of a very fine quality apparently quite uniformly distributed over the claims. You will understand that in order to arrive at anything like an accurate estimate of the average gold content of the deposit, that a systematic plan of developement, either by drilling or test pit, would have to be carried on which would entail months of work and considerable expense. However, as to the point of the gold being present, I feel satisfied from the samples which I took that the ground when thoroughly prospected will prove rich enough to work at a profit, provided water can be obtained.

In my judgement water is the main problem to be solved before even the expense of drilling and prospecting the ground is undertaken; from the information secured relative to the water supply in Antelope Creek where the company anticipated construction of their dam, I am inclined to believe that this source of water would be quite negligible and could not be counted upon as a source of supply.

In reference to the water in the Octave Mine which was spoken of as a possible source of supply, I wired Mr. J. Nelson Nevius, Washington, D.C., Mr. Nevius was for many years general manager and consulting engineer of this property. I asked for information relative to the amount of water the mine might make. He informed me that the water had not been pumped out of the mine since 1905 and that there was no record of which he had knowledge as to the amount of water they were pumping when the old company closed down at that time. I also tried to secure information in Kingman from an engineer by the name of Sherman who was interested around Octave many years ago, but he could give no information on the amount of water in the mine.

I am trying to get in touch with some of the old timers who had charge of the operation prior to 1905 and see whether any data could be secured, but unless there were letters or written records giving the facts, any verbal information would be of little value because in eighteen years figures carried in a man's mind are not usually very accurate or reliable. Investigation may prove that water might be available from sources quite remote from the deposit which could be brought in by gravity through pipe or flume. If so, unquestionably the gold shown by the preliminary sampling would justify the expenditure of money to make such survey of a water supply. It appears to me that this point is the vital one to the success of the enterprise and should be determined before any other work is done on the proposition.

You may recall we were informed that Mr. Bulkley Wells, a well-known and successful engineer, made an examination of this deposit some years ago. I have written to Mr. Wells, care of his Denver address for the conclusions of his report and the reason why he did not proceed with the undertaking. Upon hearing from him I will advise you what I learn.

In conclusion I might say that I was very much surprised to see the richness of the ground from the very surface down through the cemented material as far as we were able to sample it, and attach herewith the value per cubic yard of the ten samples that were taken the second day we were on the work and when we were alone. It is not possible to designate these samples or to tell which particular piece of ground they came from owing to lack of information on the survey locations, but they will be interesting to you in showing how rich some of the ground is. I trust that some way will be found by which this deposit of gold can be handled as it undoubtedly is very attractive looking proposition.

Thanking you very much for the opportunity of representing you in this matter, I am

Yours very truly,

(Signed) E. H. Kennard.

K:N

Los Angeles, Cal. Dec. 15, 1923.

Result of samples on Weaver Placer estimating 200 pans per Cu. Yd.

No. 1 Sample from top cemented material under surface soil, pit 30" deep, two colors, value per cu. yd. ..... .45

No. 2 Sample from east side of pit 4' of cemented material below soil. Three fine colors, three coarse colors, two nuggets, per cu. yd. 13.60

No. 3 Sample surface soil near Octave corner post all soil no gravel. Six colors fairly coarse, value per cu. yd. 2.20

No. 4 Sample from top of west side steep bank on Weaver Creek taken by Dr. Greer, eighteen small colors value per cu. yd. 12.40

No. 5 Sample from bottom of bank, west side Weaver Creek, taken by Dr. Greer, four colors, value per cu. yd. ..... .90

No. 6 Sample from half way up bank west side of Weaver Creek, taken by Dr. Greer, five colors, value per cu. yd. 3.60

No. 7 Sample taken from pit 8' deep to check sample taken previous day. Seventeen colors all coarse, value per cu. yd. 18.80

No. 8 Sample from gravel in creek bed at lower end of property showed nine colors, estimated value per cu. yd. 2.00

Kennard Engineering Co.

(Signed) E. H. Kennard.

PERMITS GRANTED AND IN EFFECT 12-31-32

App. No.	Name	Amt Water	Div. Pt. Sec. Tp R	Use	Permit		
✓ 260	Ariz. Water Cons. Dist	100 S.F.	28 7N 4W	Irrigation	342	✓	OK
506	✓	100 SF	23 10N 3W	Power	410		OK
✓ 1034	✓	17 SF	28 7N 4W	Irrigation	701	✓	OK

APPLICATIONS TO APPRORIATE

1158	Ariz. Water Cons. Dist.	40 S.F.	23 10N 3W	Power	✓	
1289	Fred C. Bolen	— ?	5N-6N 4W	Mining	✓	In good standing - not exam. ✓
1341	Wm E. Moore	1 S.F.	30 12½N 2W	Mining		
1380	Claud Gobble	1/4 S.F.	28 7N 4W	Domestic	✓	In good standing - not exam. ✓
A-1402	~~Flake~~ Jos. W. Hobbs	2/5 S.F.	2 12N 3W	Mining	✓	
C-60	Lloyd D. Simmonds	65 AF/yr.	26 8N 5W	Irr.	✓	} Rights ?
C-61	Ephian Baker	220 AF/YR.	23-26 8N 5W	Irr.	✓	}
C-7	Mary P. Obrien	800 AF/YR	12 7N 5W	Irr.	✓	Rights good if filed affidavit is okay
O-41 ed Right.	Romain H. Lowdermilk	400 Miner Inches Claimed	26 8N 5W	Irr. Stock	✓	Rights good for some amount - find out how much irr.

Wickenburg Rights? -

Filings on books of Recorders - Yavapai and Maricopa ?

C-1	Cal J. Carr	75 AF/YR	26 8N 5W	Irr.	✓	Rights ?
C-2	C.E. Evans (1914 well)	90 AF/YR	30 5N 1E		✓	Rights ?
C-3	M.J. Rhoades	80 AF/YR	14 8N 5W	Irr. Stock Dom	✓	Rights (1907-08) ?
C-4	John Grace	60 AF/YR	14 8N 5W	✓	✓	Rights (1907) ?
C-5	Romaine H. Lowdermilk	110 AF/YR	26 8N 5W	Irr.	✓	Rights ? (Filed 1913 in Yavapai)
O-21	A.W. Lawe	300 Miner Inches		Mining	?	Right? (Yavapai Recorder) Bk 53 / 58 Page 352 / 330 } 74-181-2

HASSAYAMPA RIVER

Date	App. No.	Name of Applicant	Source	Amt. Water	Dir. Pt. Sec. Tp. R.	Permit No	Cff. No.	Action	Taken
7-15-19 — 12-31-20	113	E. Payne Palmer		1 sec. ft.	22 6N 4W	101		✓	Cancelled
1-1-21 — 12-31-22	260	Joseph Whitman		100 ✓ ✓	18 7N 4W	342		✓	Incomplete ok
✓	330	Mid-Arizona Mining Co.		—	? 8N 4W			✓	Rejected ✓
✓	(67)	Jos. Whitman		120,000 AF	23 10N 3W				Incomplete
✓	(92)	Frank E. Carrow		100,000 AF	27 6N 4W			✓	Cancelled
1-1-23 — 12-31-24	398	W. H. Griffin, etc.		25 sec. ft.	18 7N 4W			✓	Rejected
✓	469	Jos. Whitman		5 sec. ft.	3 8N 4W			✓	Cancelled
✓	505	✓		40 ✓	23 10N 3W				
✓	506	✓		115 ✓	12 8N 5W			✓	ok
✓	(123)	W. H. Griffin, etc.		65,000 AF	23 10N 3W				
✓	(124)	✓		6,300 AF	12 8N 5W			✓	Rejected
✓	(171)	Jos. Whitman		50 AF	34 6N 4W			✓	Rejected
1-1-25 — 12-31-26	527	Wm F. Braniff		200 sec. ft.	12 8N 5W			✓	Rejected
✓	532	City of Prescott		.75 ✓	11 13N 2W	443	214		
✓	578	Alexander W. Law		.1 ✓	—	435			Cancelled
✓	581	Hassayampa Placer G.M.Co.		15 ✓	10 5N 4W	430		✓	Cancelled
	582	✓		15 ✓	27 6N 4W	431		✓	Cancelled
✓	603	W. H. Griffin		15,000 AF	29 7N 4W			✓	Rejected
✓	(175)	City of Prescott		—	2 12N 2W				
✓	(189)	Alex. W. Lawe		20 AF		106			Cancelled
✓	(196)	Hass. Placer G.M. Co.		9000 AF	10 5N 4W	103		✓	Cancelled
✓	(197)	✓		7200 AF	27 6N 4W	104		✓	Cancelled
1931 - 1932	1121	D. C. MacIver		1 sec ft.	35 12½N 2W	745	491		

STREAM FLOW RECORDS - HASSAYAMPA RIVER AT WALNUT GROVE DAM SITE
RECORD BY W. A. FARRISH OF WITTMAN PROJECTS

ACRE FEET

YEAR \ MONTH	OCT.	NOV.	DEC.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	TOTAL
1915-16						15470	7610	1100	500	720	720	2950	
16-17	6140	470	540	2620	1220	1600	10840	3220	780	1540	1740	360	
17-18	370	360	370	490	370	650	390	260	270	240	2710	440	
18-19	280	310	1160	800	1890	670	420	290	210	4720	5210	520	
19-20	1170	13610	4530	19840	18590	7720	4740	2260	530	490	8420	980	
20-21	560	610	740	870	860	1050	640	420	290	6690	2330	490	
21-22	2190	320	2730	3010	8120	10850	4660	1940	660	1280	900	530	
22-23	340	380	610	540	1100	4020	1420	530	390	260	2850	410	
23-24	240	260	10680	1540	1290	1450	2680	570	560	450	410	460	
24-25	240	130	280	410	360	410	320	170	520	2970	1140	9040	
25-26	2900	170	170	240	250	260	5800	510	240	810	530	1720	
26-27	220	140	1830	360	19130	6160	2520	700	450	480	2750	1500	
27-28	580	440	1060	610	1740	850	380	340	210	1220	990	120	