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7/23 48

Offered inf in ? reports to H. H. Bradt of 150 ?

Reports ? copied

Condensed. He will advise me

re Eng

June 25, 1948.

Mr. D. Moreau Barringer, President
Standard Iron Company
Suit 601, 1528 Walnut Street
Philadelphia 2, Pennsylvania

RE: Meteor Crater

Dear Reau:

Our friend, Mr. Moeur, makes many promises which he does not keep, although he has always met his financial obligations fully and promptly, but otherwise I have a hard time in doing business with him, and although he has said repeatedly he would write a letter binding his company not to operate in any manner which would interfere with the tourist business, I am satisfied he will not write such a letter except after a great deal of prodding on my part.

Therefore, I have prepared a letter for his acceptance and herewith enclose two copies of the first draft, which you and Brandon can amend or alter as you may think it advisable to do so.

In connection with all this matter it is very unfortunate that we should not have been more careful when writing the contract of March 26, 1946, since in Article 5 of that agreement specific reference is made only to the exploration and mining work which might be carried on by the Standard Iron Company, and there is no reference to tourists. For this omission I feel that I am largely to blame.

Referring to your recent program for providing tourist facilities, I do not think that Moeur's pit or crushing plant is likely to be visible from any point along the north rim near the stone cabin, or for over 500 yards further to the east, but if you should build a 56 foot tower I am afraid the visitors standing on the lookout platform at the top might easily be able to see over the south rim, and in that case Moeur's operations would come into view.

This is a matter to be considered since he, of course, has made a very substantial investment and would probably have valid objections to moving his present layout.

Personal regards.

GMC:LR

Enclosure

Yours very truly,

G. M. Colcord

7/23. 48

Offered [illegible] in [illegible] report

to H. H. Bratt [illegible]

Reports [illegible] offered [illegible]

Condemned .. He will advise me

[illegible]

•CRUSHED ROCK •WASHED GRAVEL
•CONCRETE AND PLASTER SAND
•HIGH TEST SPECIFICATION MATERIAL
•PLANT LOCATED at ROCKFIELD, CALIF.

GRANT-SERVICE ROCK
•COMPANY, CONSOLIDATED
•T. W. PATTERSON BUILDING
•FRESNO, CALIFORNIA •Telephone 2-4167

September 29, 1936

Kay Copper Co. - file

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

Dear Sir:

Thanks for yours of September 19th.

The property was represented to me to contain 75,000 tons of blocked ore ready for stoping, value to average 5% copper plus $3.00 per ton gold.

I was asked to furnih $20,000. for a mill and was offered 50% interest as a consideration.

As I am not interested in doing any development work on hard rock prospects I shall reject the proposition.

Yours truly,

R. F. Felchlin

RFF:J

ANNEX A

SUMMARY REPORT OF THE PROPERTY OF THE KAY COPPER COMPANY

MARCH 20, 1920

LOCATION: The property of the Kay Copper Company is situated on the main road between Phoenix and Prescott, in Yavapai County, Arizona. It lies on the Agua Fria River, three miles north of the Yavapai-Maricopa County line. Turkey, 22 miles northward, is the nearest shipping point.

The holdings of the company comprise 41 mining claims aggregating 750 acres and an adjoining tract of land of 670 acres, purchased for townsite and mill purposes. The latter acreage lies in a fertile valley, bordered on one side by the Agua Fria River.

GEOLOGY: The property lies in a Pre-Cambrian schist belt which extends north and south along the eastern edge of a large granite mass known as the Bradshaw Mountains. Northward, included in this belt are the mines near Mayer, the Blue Bell, the Arizona Binghamton, the DeSoto and still further north the mines of Jerome. Although there are many features of similarity, each represents various types of mineralization.

Two distinct phases of schist are found on the Kay Copper Company's property. A schisted quartz porphyry thus far has proven to be the most favorable phase, although some promising showings are found in the chloritic or greenstone schists.

Worthy of attention is the presence of a large diorite mass, younger and less disturbed than the schist, but pre-mineral, the northern edge of which cuts across the quartz porphyry schist at an angle of 30 degrees. This is a favorable structural condition, undoubtedly having some influences on impounding and concentrating the primary mineral solutions.

ORE OCCURRENCE: The ore occurs as a replacement of the quartz porphyry. Primary chalcopyrite, banded and disseminated in the schist, forms the ore bodies. Some are lenticular in shape showing increasing width as depth is attained, while one explored by the diamond drill has indications of having the shape of a large irregular mass of heavily mineralized schist. The two distinct systems of thrust faulting has resulted in displacement of the orebodies on a small scale, a fact which limited the development of the ore in the older workings to one side of the fault, the faulting system at that time not having been worked out.

Post mineral diabase dikes with various dips are found throughout the formation.

DEVELOPMENT: The main ore tonnage to date has been developed in No. 1 shaft. The main ore body lies entirely on the south side of the shaft, as can be seen by the following description of the various levels.

THE OUTCROP: Iron and copper stained gossan, the largest part of which is covered by the river bed, in a bay probably formed by erosion of the ore body.

100 LEVEL: Drifted south 25 feet, then crosscutted 18 feet both in ore.

200 LEVEL: The drift south extends 120 feet from the shaft. The northern end of the ore shoot was encountered at 50 feet. From this point to the face, the drift remains in the ore body. At the face the fault was encountered and the work discontinued. Crosscutting exposed a width of 20 feet or ore.

250, 300 and 350 LEVELS: As on the 200 level the south drifts in each case extended to, and then along the orebody until the fault was reached, then the work discontinued. Cross sections of the ore body on these levels give an average of 4.8% copper. The south drift on the 350 level was extended across the fault and the displaced ore partially developed, the face remaining in ore.

600 LEVEL: The main development work has been done on this level. The ore body was reached by a south drift at 130 feet from the shaft. Crosscutting showed a width of 32 feet, averaging 4% copper. A length of 50 feet was shown on the north side of the fault. 130 feet of drifting was done along the displaced portion south of the fault. The southern end is still undetermined, as the face is still in the ore body. Crosscutting from the drift was done by short diamond drill holes and revealed a width of 40 feet.

At one place on the 500, and at four places on the 600, another orebody of 20 feet east and in the footwall of the main ore body, was opened by crosscuts. This lense shows an average width of 15 feet of 3% copper. The extreme north and south crosscuts signify a length of 180 feet. The zone between these orebodies shows increasing mineralization with depth and it is probable that they may merge to form one orebody.

Considerable work was also done on the north side of the shaft on the various levels, but mainly on the 600 level. Several smaller but promising lenses were cut, and with further development may yield additional tonnage.

DIAMOND DRILLING: From the 600 level, 3000 feet of diamond drilling was done. Thirteen holes in all were drilled, two of which were inclined at 45° to cut both the main ore body and also the foot lense, 120 feet below the 600 level. The presence of the two orebodies at that depth was satisfactorily determined.

A flat hole was also drilled 300 feet eastward, across the river, to intersect a promising surface showing. At 250 feet, a 60 foot heavily mineralized zone was cut. Several other zones of promising character were shown and practically the entire hole revealed fair mineralization.

An inclined hole from surface was then drilled across

the same section, cutting the 60 foot zone at a depth of 300 feet. This hole likewise showed very promising mineralization through its entire depth.

In all, about 3500 feet of drilling and crosscutting and 3000 feet of diamond drilling has been done in Shaft No. 1.

No. 3 Shaft, located 2100 feet north of No. 1 Shaft, was sunk to a depth of 530 feet in chloritic schist. About 360 feet of drifting has been done, disclosing from 3 to 4 feet of 3% ore. This zone is but slightly explored and is worthy of attention at a later date.

A new vertical, three compartment shaft called No. 4 is being sunk. It has reached a depth of 130 feet and will continue to the 1000 foot level. A crosscut from this point will explore the territory cut by the east drill holes and also the lower extension of the two orebodies from No. 1 Shaft.

The shaft is at present, and has been from a depth of 65 feet, in well mineralized quartz porphyry schist.

The equipment of the plant consists of 25 H. P. Western Hoist and two 300 cubic foot Chicago Pneumatic air compressors, and five Ingersoll-Rand BCR 430 jack hammer drills.

The new shaft is located three quarters of a mile from the Fossil Creek Power Line. A permanent plant, electrically driven, will shortly replace the present equipment.

ORE RESERVES:

Approximately 215,000 tons of 4% ore in the main orebody and a conservative estimate of 61,000 tons of 3% ore in the foot lense, making a total of 296,000 tons are in sight to date.

Throughout the orebodies an average value of $3.00 in gold plus silver (silver @ $1.00 per oz.) is found. With copper at 20 cents per pound, the total value of the above tonnage amounts to $5,300,000.00.

CONCLUSION:

Because of the fact that the mineralizing solutions came from moderate to great depth, and that all of the ore is entirely primary in character, great depth to the orebodies is reasonably assured.

The diamond drill holes eastward disclosed a very large area of well mineralized ground, and it can be confidently expected that a large, although possibly lower grade, tonnage can be developed there. This large area lies close to the diorite mass, and it is in this locality that the most favorable signs of impounding and concentrating of the mineral bearing solutions are found. The new No. 4 Shaft, together with crosscuts from it, will test this promising zone.

Respectfully submitted,

By (Signed) John R. Poss, E.M.

ANNEX B

EXTRACTS FROM THE FILES OF THE CONSOLIDATED ARIZONA SMELTING COMPANY (HUMBOLDT)

KAY COPPER CO.
CANYON, ARIZONA

January, 1916 — Access to Hayden being cut off by washouts, shipped one carload to Humboldt, loading at Glendale.

Au.	-	.055 oz.
Ag.	-	.90 "
Cu.	-	8.78
Insol.	-	31.8
Fe.	-	21.9
CaO	-	0.7
S	-	14.9
Zn	-	0.53
As	-	3.1

S. J. Tribolett, Sec'y. P.O. Box 966, Phoenix, Ariz.

It is reported that the mine has shipped about 700 tons of ore of about the composition given above, or better. Type of deposit - chalcopyrite and pyrite replacing schist (?).

In August, 1915, it is reported that development included 318 feet of shaft, 629 feet of drifts, 346 feet of cross cuts.

April 25, 1917 — Visited by G. M. Colvocoresses and V. De Camp.

Replacement in schist. Primary chalcopyrite with larger proportion of pyrite, but best bunches of ore show little but chalcopyrite. The copper is often associated with calc-spar and quartz in the schist. Outcrop at shaft not particularly striking. To West, iron stained schist, not prospected, looks better than at shaft.

Bottom Level, called 350' has drift in schist S 5° E, 62' long to "fault zone" which may be quartzite ledge. "Fault zone" consists of highly silicious brecciated schist with several feet of silicious gouge material, and is penetrated for 8' on this level. Less than half of the drift shows ore consisting of small lenses and stringers of chalcopyrite. 250' level has south drift about 130' thru "fault zone" and said to show stringers of ore beyond, but now caved. Ore shoot about 50' long, this being the longest exposure in mine. Rais 28' high to get over old stope. At manway small stringers of chalcopyrite in small proportion to total width of face. Ore widens to perhaps 18" on the little stope to the south. On 150' level short south drift shows a little ore. First production seems to have been made from here, encouraging development of mine. The drift north of shaft shows little of interest. There are short crosscuts east and west in schist showing a very little chalcopyrite with more pyrite.

My samples of the dump assayed:

(H82) Fines: Au .02 oz; Ag .22 oz; Cu 2.22%
Coarse: Au .03 oz; Ag .15 oz; Cu 1.96%; Fe 21.3%

The percentage of iron indicates the large amount of pyrite compared with chalcopyrite. W. V. D.

May 14, 1918

Visited by B. T. Rocca.

The present working shaft was sunk on the Southern end of a copper stained outcrop in a chloritic schist (strike N 20 E, dip 70° W) on the West bank of the Agua Fria River. This incline shaft is now being sunk by contract from the 350' level to the 500' level. Mr. Phillip Hickey, in charge, said it was not worth while to go underground, as the 350' level drift was damned off and full of water while shaft sinking was in progress. He added that this drift to the S had cut the ore body developed in the upper levels, that it had increased in width to 18', assaying 7% Cu. A 70' drift on the ore ended in ore. The ore formed on the footwall of a 2' fault gorge striking S 20' E. (40° from strike of formation on the surface) the best one being about 5' wide assaying better than 15% Cu., the footwall being irregular, the chalcopyrite impregnated schist assaying 4% Cu. for a considerable width. He stated further that the ore from this shoot could be sorted to a product containing at least 15% Cu., and that within two months he expected to have the ore opened up on the 500' level, and to start shipping to Humboldt, by way of Turkey, a 22 mile haul, which he figured would cost $6.00 a ton less than the haul to Glendale, 40 miles.

600' to 700' N. of the shaft, an incline shaft, now 45' deep, is being sunk by hand steel, on a few feet of well copper-stained schist. Stringers of sulphides up to several inches in width are coming in, mostly pyrite, coated with and partly replaced by chalcocite.

300' to the E. of the main outcrop, in the E. bank of the Agua Fria, several pits have been dug on an outcrop of copper-stained schist a few feet wide, which Hickey stated was considered the footwall of the mineralized zone and which was to be prospected by diamond drilling from the workings on the W. bank of the river.

A third outcrop occurs about 1/3 mile N.E. of the shaft being considerably to the E. of the line of the main outcrop. A shaft now inaccessible was put down to a considerable depth, by the old operators. B. T. R.

June 19, 1918

Visited by J. L. White.

The working on the 500 and 600 foot level of the No. 1 shaft and the 100 foot level of the No. 2 shaft were visited. The only so-called ore body lies south of the No. 1 shaft where small bodies of very rich ore were seen. These bodies of almost solid chalcophyrite ore varied in width from 7 feet to 1 foot and appeared to be the core of a mineralized section of ground, reported to carry considerable copper. It did not appear to me to carry 3% Cu. and I am rather inclined to believe that all of the <u>real ore</u> in sight is in these small bunches of chalcophyrite. A picked piece of this chalcophyrite assayed Au 0.12; Ag 6.68; Cu 13.47; Insol 17.4; Fe 22.6.

Some diamond drill work was being done on the 600' level but nothing important had yet been uncovered, I was told. From this work I received the impression that they were not looking for any definite ore bodie but rather were simply covering ground.

In No. 2 shaft, mineralization in schist is exposed on the 100 foot level, but surely no ore. On the 200 foot level, here conditions are said to be better.

Kay did not impress me with its possibilities.
J. L. W.

October, 1918

Visited by E. S. Smith

Inspected 500 foot level (the lowest workings) in company with C. H. James (apparently consulting engineer for the present operators) and the foreman in charge.

A short distance south of the shaft a body of dense sulfide ore carrying 10 to 15% Cu. has been cut adjacent to a fault in the schist. This has been partially developed by drifting, crosscutting and test holes in the walls of the drift, indicating, according to James and Fessenden, an ore shoot 10 to 15 feet wide, at least 90 feet long, and averaging 12% Cu. The basis for this assumption is largely test holes and from what can be seen actually opened up, I believe the dimensions are exaggerated.

There is a crosscut to the east from the south drift 90 feet long at the time of this visit. The last 25 feet was barren, but James stated that the first 65 feet was carrying 3-1/2 to 4% Cu. This 65 feet was said to be made up of, first, 15 feet of high-grade (15% Cu.); then about 20 feet of 3-1/2 to 4% ore, then 15 feet carrying not less than 1-1/2 to 2% and 15 feet replacement in schist. Primary chalcopyrite with larger proportion of pyrite, but best bunches of ore show little but chalcopyrite. The copper is often associated with calc-spar and quartz in the schist. To west, iron-stained schist, not prospected looks better than at shaft. E. S. S.

April, 1921

Visited by V. De Camp.

Additions to former report. Diamond drilling consisting of 13 holes from 600' level is said to have exposed three lenses of ore. One lense east of the river said to be 80' wide and carry 3% copper. Main lense 400' long 10 to 50' wide 7% ore.

Reported a total of 250,000 tons of 5% ore developed to date.

Present work consists in sinking a 3 compartment shaft on east side of river now down 175' in sericite schist showing some barren pyrite. W. V. D.

October, 1921

Visited by H. R. Banks.

Mr. John Poss, Supt., stated they would not be in position to ship any ore until their present plan of development has been carried out. This development, as illustrated on the accompanying sketch will probably take some 5 to 6 months to accomplish and it is the intention of the management to concentrate all their efforts on this work.

Since my last visit to the property (June, 1919) two shafts 1 and 3 have been abandoned and work h been concentrated on the new shaft #4 indicated the sketch. This new shaft (three compartment) gone to 800 feet. This work has just been comp and drifting is to start at once.

Mr. Poss claims 200,000 tons of commercial ore developed in the #1 and #3 shafts and workings but his hopes are centered on what the development from the #4 shaft will disclose. From rather meagre information gained from underground work in the two old shafts and from a small amount of diamond drilling the management feels justified in their new work and in putting off until some future date any returns which might have been received from the mining and treating of the ore already developed. If the development planned from the new shaft results in disclosing the "hoped-for" ore bodies, the policy at present being pursued should yield splendid results. The new shaft well located in view of the theories advanced relative to the enrichment areas has been excellently constructed and will be conducive to rapid mining. The double drum hoist to handle the balanced cages should give ample capacity and it would be the policy to later substitute skips for the cages.

From the point of view of opening a mine in an unproved area, the policy of the Kay is a bold one to say the least. With two shafts, one of which is down 600 feet (#1) and the other 500 feet (#3) in the known ore bodies, to sink a three compartment shaft 800 feet in depth to tap the bottom of the ore bodies again and to develop a prospect based on theory would seem to be adding considerable risk to the natural gamble involved in developing a mine in an isolated area.

In discussing the Mine as a prospective producer and from the standpoint of the Smelter, Mr. Poss is firmly convinced that the present policy will not be departed from. Should the hopes at present guiding the work materialize in disclosing commercial ore bodies, the management would then bend their efforts to erecting a mill and start production. Presumably if they fail to find the ore bodies already disclosed by the No. 1 shaft will be worked from the new shaft while the ore in the No. 3 shaft will have to be worked from that shaft.

The known ore bodies should mine at about 4% Cu. with Au and Ag at about $3.00 according to statements made by Mr. Poss. His idea of a Mill would be one of 300 tons capacity from which it might be inferred that a concentration of 6 or 7 to 1 would result. The shipping point would, in all probability be Turkey Creek and Mr. Poss stated that he has done considerable talking with merchants in Phoenix from whom he purchases most of his supplies relative to the improvement of the road. His present hauling cost is approximately 40 cents per ton mile. This distance to Turkey Creek is about 22 miles. They feel that this present cost could be very greatly reduced by the use of their own trucks and with roads in good condition, making it possible to ship to Humboldt, that Smelter being the natural outlet for their product.

The Arizona Power Co. has installed a power line and the KAY machinery is electrically equipped. At present the Plant includes the Double Drum Hoist (Denver Machinery Co.) 500 Cuft Ingersoll Rand air compressor and mine pump handling approximately 100 gallons of water per minute from the 800 foot level.

The original Chicago Pneumatic Hot Heads have been set up at the new shaft and can be used as auxiliary equipment at any time. The blacksmith and carpenter shops seem well enough equipped and the buildings seem ample for present needs, but I understand they are to be gone over in the near future.

From all appearances the Kay Mine is following out a well established policy and doing so in the most economical and rapid method possible. Whether the policy is justified or not will have to be decided by what the future discloses. It would seem, however, that unless some radical changes take place in the policy of the Mine, this Smelter will not be able to draw ore from that source for possibly a year or longer and then it is pure conjecture as to what tonnage may be counted on.

ANNEX C

A COMPARATIVE ESTIMATE OF ORE RESERVES IN THE
KAY COPPER MINE, LOCATED AT CANYON, ARIZONA
AS COMPILED FROM MAPS AND AVAILABLE RECORDS

At the time the mine closed down 1928-29, the total ore reserves were apparently not estimated or brought up to date; therefore it is necessary to be extremely conservative in accepting the partially completed records of the more recent work.

The accompanying report by John R. Poss, E.M. can without doubt be accepted in its entirety as covering what is known as the Number One orebody, extending from the 600 level to the surface and developed from the #1 shaft. Subsequent work included the sinking of three other shafts, one #4, which was sunk to the 1200 level. The 1500 level is reached by a winze sunk from the 1200 level and is the present bottom of the mine. The #2 shaft reached a depth of 180 feet and some ore is reported here though not taken into account in the estimate and not connected with the general workings. #3 shaft is located some 2000 feet north of #1 shaft and is 520 feet in depth. There is ore developed on several levels from this shaft but not considered in estimate nor are these workings connected with main workings as yet, though a drift has been driven from #4 shaft on the 1200 level to a point under them.

The #1 orebody includes 215,000 tons that will average 4% copper and $1.00 per ton, and 81,000 tons averaging 3% copper and $1.00 per ton, making a total of $2,502,000.00, assuming copper at 10 cents per pound. There is some silver in all the ore but this is not considered in estimate.

As indicated on the accompanying vertical section map, the orebodies continue down to the 1000 and beyond. From the 600 to the 1000 the values shown are somewhat lower than those above the 600 level and below the 1000 level; in view of this, this block of ore will not be considered.

From the 1000 level to the 1500 level, a block of ore 60 feet in length by 5 feet in width on the 1000 level by 170 feet long and 5 feet wide on the 1500 level, this 5' width assumed shows the actual width sampled in drift, although the drill holes, etc., indicate many times this width. This block will provide 23,500 tons that will average 3.1% copper and $1.00 per ton, totaling $169,200.00 and each additional foot in width that is given to this block on the above basis will increase the value of $33,840.00.

The total value on a basis of 10 cent copper and $1.00 per ton gold is as shown above $2,671,200.00. It may be well to mention that the ore on the 1500 level and above will probably mine 25 feet instead of 5' as assumed, and as indicated on map, the drill holes below 1500 level show a width and value of 20-25 feet and 6-8% copper respectively, and gold values increasing to $3.00 per ton; besides this considerable lead ore is coming in on the lower levels that carries very good silver and gold values. All of this shows a constantly increasing metal content and size of orebodies as depth is gained.

Respectfully submitted.

E. H. Lundquist

ANNEX D

COPIES OF LETTERS AND NOTES BY G. M. COLVOCORESSES

September 19, 1936

Mr. R. F. Felchlin
Patterson Building
Fresno, California

Dear Sir:

Mr. Evald Anderson of the Western Precipitation Company with whom I have been well acquainted for many years has asked me to write you concerning the Kay Copper Mine which is supposed to be located near Phoenix and in which it is represented that there are large bodies of ore carrying five per cent copper and Three Dollars in gold.

I am assuming that the property which has been brought to your attention is that which was operated and developed by the Kay Copper Company from about 1918 to 1930. This mine is located at Canyon near the southern limit of Yavapai County and is fifty miles north of Phoenix.

I am pretty well acquainted with the said property since we purchased a considerable amount of its comparatively small output while I was General Manager of the custom smelter at Humboldt and I followed its development work fairly closely until the Kay Copper Co. failed entirely about 1929 or early 1930 after which I believe that the mine and equipment were sold for the benefit of creditors and it has since been entirely idle.

While I should not care to make any positive statements regarding the present condition of the mine without making a complete investigation in so far as the workings are now accessible I can state very positively that there are no large ore bodies developed of any such grade as mentioned above and this statement can readily be confirmed by digging up the records of the Kay Copper Co. and the proceedings which attended the closing of their operations.

There are some favorable surface showings on the claims which were formerly owned by the Kay Co. and particularly on the north side of the Agua Fria River where very little development was done in recent years and purely as a development proposition these showings might be considered to have merit and might justify a careful investigation.

I understand that the property has recently been optioned by its present owners and should be interested to learn something of the manner in which it is now being presented to prospective investors.

I am glad to comply with Anderson's request in sending this information and hope that it may prove of value. Am sending Anderson a copy of this letter.

Yours very truly,

G. M. Colvocoresses

Dear Anderson:

This mine was made the subject of one of the rottenest and most notorious promotions in this part of the country and the President of the company, a man named Godfrey, barely escaped going to prison in '29 or '30. The stock was very extensively advertised for some years and the statements made concerning the mine were absolutely untrue. None the less I believe that there are some fair possibilities and if the new operators are honest and experienced there may be a chance for success.

However, the statement of ore reserves which are quoted in your letter

an unqualified lie and I hope that none of your friends will be led to invest on any such representation.

Sincerely,

G. M. Colvocoresses

November 24, 1944

Mr. Frank M. Stephens
C/o American Smelting & Refining Co.
Valley National Bank Building
Tucson, Arizona

Re: Kay Copper

Dear Stephens:

After returning to Phoenix I looked over my file on the Kay Copper Mine and although it is not very extensive and contains no assay maps I think that you may possibly find some of the information of general interest, and I am very glad to send it to you.

Kay Copper shipped some 9% copper ore to Humboldt in 1916 and apparently a larger tonnage of similar high-grade ore was carefully sorted out and shipped to Hayden. This all came from upper levels of the ore shoot on the north bank of the Agua Fria River. Various field engineers from Humboldt examined the surface and underground workings at frequent intervals from 1915 to 1921. I have a report made by Poss, the Superintendent, in March, 1920.

After the property was taken over by J. J. Godfrey and his stock-swindling associates - which I believe was in 1923 - neither I nor any of my engineers were permitted underground, and although they made great claims as to the results of their development work, I had very good reason for doubting such statements. The mine was closed down in 1928 or 1929 when the officials of the company barely missed going to prison, and I believe that at that time the Department of Justice or some other government agency had an examination made by an independent engineer, but I have no definite information in that regard.

In October, 1930 E. H. Lundquist prepared a brief summary of reports made by other engineers showing a large tonnage of developed ore and in 1936 the property was presented to friends of mine in California to whom it was represented that there was 75,000 tons of 5% copper ore fully blocked out containing an average value of $3.00 in gold.

Subsequently I discussed this property with T. S. Davey who had been superintendent and also with George Harbauer who was for a time engineer and assayer, and according to these men whom I know to be reliable, the only high grade ore occurs in somewhat scattered shoots through the schist and none of these are large enough to pay for necessary work preliminary to mining.

There was quite a lot of low grade material between small shoots mentioned above, none of which have any great vertical dimension since the Number Six Ore Body on the north side of the river was apparently bottomed at 650 foot depth, while the shoots noted in the lower levels do not come to the surface.

On the 1200 foot level a body of 2% copper ore was developed for a length of about 300 feet and for a width of nearly 50 feet. This was by far the largest showing that averaged anything better than 1% copper.

Both Davey and Harbauer were very emphatic in stating that they did not believe that it would ever pay to reopen or attempt to operate this mine unless the price of copper should be far higher than can reasonably be anticipated.

Please give my personal regards to Ring and Loerpabel and to Rickard when he returns to the office. I hope that we may meet some time in December and take the trip to Tumco as per recent discussion.

With personal regards.

Sincerely,

G. M. Colvocoresses

NOTES BY G. M. COLVOCORESSES

4/1/39
KAY COPPER MINE

T. S. Davey who was superintendent of the Kay tells me that it has possibilities as a large producer of low grade ore and on that basis only.

There are some small shoots of comparatively high grade ore scattered through the schist and between these there is much low grade material. Mine was developed with drifts and crosscuts to 1500' level and drilled to 1800' level and Davey recalls on the 1200' there was one ore shoot about 300' long by 50' wide which would average close to 2% copper.

Many of the ore lenses are blind and some which come to the surface do not go down, for example the old #1 shoot on the north side of the river petered out into low grade at 650' depth.

Davey thinks that there may be a very large tonnage of 1.5% copper ore with values of about $0.50 in gold and silver. (Doubtful)

Mine now partly owned by Tom Foster, the Mine Inspector, who can give more details which Davey also will look up.

Davey in '42 admitted that even low grade ore was limited and not likely to pay under any foreseeable conditions

6/4/48

At Kay Mine Forbach is said to have spent $40,000.00 with little or no production and he is now having some difficulties with his financial backers in Globe and has written to de Vaux suggesting an investment which de Vaux is probably in no position to make.

Forbach has run a drift in the 350' level which is supposed to be on top of an ore body that has developed down to the 500' level by the operators (beofre Godfrey) and according to the then Superintendent (some of whose reports are in my files) contains 30,000 tons of 5% copper ore.

GEORGE M. COLVOCORESSES
MINING AND METALLURGICAL ENGINEER
1102 LUHRS TOWER
PHOENIX, ARIZONA

Notes by apc Dec. 1949

Kay Copper Co.

According to George French Jr. England & French Mc with outside money, invested the Kay this last summer and started work on the 350? This was out of the small old shaft across from the river from the main shaft. The drift was timbered and after opening it up they found old stopes above the level. Decided to unwater & the 500? level and see what they had. They shipped to Clarkdale during October? one car of dump material which I believe ~~yes~~ netted $700?
George thought his father was about to pull out.

ANNEX A

SUMMARY REPORT OF THE PROPERTY OF THE KAY COPPER COMPANY

MARCH 20, 1920

LOCATION: The property of the Kay Copper Company is situated on the main road between Phoenix and Prescott, in Yavapai County, Arizona. It lies on the Agua Fria River, three miles north of the Yavapai-Maricopa County line. Turkey, 22 miles northward, is the nearest shipping point.

The holdings of the company comprise 41 mining claims aggregating 750 acres and an adjoining tract of land of 670 acres, purchased for townsite and mill purposes. The latter acreage lies in a fertile valley, bordered on one side by the Agua Fria River.

GEOLOGY: The property lies in a Pre-Cambrian schist belt which extends north and south along the eastern edge of a large granite mass known as the Bradshaw Mountains. Northward, included in this belt are the mines near Mayer, the Blue Bell, the Arizona Binghamton, the DeSoto and still further north the mines of Jerome. Although there are many features of similarity, each represents various types of mineralization.

Two distinct phases of schist are found on the Kay Copper Company's property. A schisted quartz porphyry thus far has proven to be the most favorable phase, although some promising showings are found in the chloritic or greenstone schists.

Worthy of attention is the presence of a large diorite mass, younger and less disturbed than the schist, but pre-mineral, the northern edge of which cuts across the quartz porphyry schist at an angle of 30 degrees. This is a favorable structural condition, undoubtedly having some influences on impounding and concentrating the primary mineral solutions.

ORE OCCURRENCE: The ore occurs as a replacement of the quartz porphyry. Primary chalcopyrite, banded and disseminated in the schist, forms the ore bodies. Some are lenticular in shape showing increasing width as depth is attained, while one explored by the diamond drill has indications of having the shape of a large irregular mass of heavily mineralized schist. The two distinct systems of thrust faulting has resulted in displacement of the orebodies on a small scale, a fact which limited the development of the ore in the older workings to one side of the fault, the faulting system at that time not having been worked out.

Post mineral diabase dikes with various dips are found throughout the formation.

DEVELOPMENT: The main ore tonnage to date has been developed in No. 1 shaft. The main ore body lies entirely on the south side of the shaft, as can be seen by the following description of the various levels.

THE OUTCROP: Iron and copper stained gossan, the largest part of which is covered by the river bed, in a bay probably formed by erosion of the ore body.

100 LEVEL: Drifted south 25 feet, then crosscutted 18 feet both in ore.

200 LEVEL: The drift south extends 120 feet from the shaft. The northern end of the ore shoot was encountered at 50 feet. From this point to the face, the drift remains in the ore body. At the face the fault was encountered and the work discontinued. Crosscutting exposed a width of 20 feet or ore.

250, 300 and 350 LEVELS: As on the 200 level the south drifts in each case extended to, and then along the orebody until the fault was reached, then the work discontinued. Cross sections of the ore body on these levels give an average of 4.8% copper. The south drift on the 350 level was extended across the fault and the displaced ore partially developed, the face remaining in ore.

600 LEVEL: The main development work has been done on this level. The ore body was reached by a south drift at 130 feet from the shaft. Crosscutting showed a width of 32 feet, averaging 4% copper. A length of 50 feet was shown on the north side of the fault. 130 feet of drifting was done along the displaced portion south of the fault. The southern end is still undetermined, as the face is still in the ore body. Crosscutting from the drift was done by short diamond drill holes and revealed a width of 40 feet.

At one place on the 500, and at four places on the 600, another orebody of 20 feet east and in the footwall of the main ore body, was opened by crosscuts. This lense shows an average width of 15 feet of 3% copper. The extreme north and south crosscuts signify a length of 180 feet. The zone between these orebodies shows increasing mineralization with depth and it is probable that they may merge to form one orebody.

Considerable work was also done on the north side of the shaft on the various levels, but mainly on the 600 level. Several smaller but promising lenses were cut, and with further development may yield additional tonnage.

DIAMOND DRILLING: From the 600 level, 3000 feet of diamond drilling was done. Thirteen holes in all were drilled, two of which were inclined at 45° to cut both the main ore body and also the foot lense, 120 feet below the 600 level. The presence of the two orebodies at that depth was satisfactorily determined.

A flat hole was also drilled 300 feet eastward, across the river, to intersect a promising surface showing. At 250 feet, a 60 foot heavily mineralized zone was cut. Several other zones of promising character were shown and practically the entire hole revealed fair mineralization.

An inclined hole from surface was then drilled across

the same section, cutting the 60 foot zone at a depth of 300 feet. This hole likewise showed very promising mineralization through its entire depth.

In all, about 3500 feet of drilling and crosscutting and 3000 feet of diamond drilling has been done in Shaft No. 1.

No. 3 Shaft, located 2100 feet north of No. 1 Shaft, was sunk to a depth of 530 feet in chloritic schist. About 360 feet of drifting has been done, disclosing from 3 to 4 feet of 3% ore. This zone is but slightly explored and is worthy of attention at a later date.

A new vertical, three compartment shaft called No. 4 is being sunk. It has reached a depth of 130 feet and will continue to the 1000 foot level. A crosscut from this point will explore the territory cut by the east drill holes and also the lower extension of the two orebodies from No. 1 Shaft.

The shaft is at present, and has been from a depth of 65 feet, in well mineralized quartz porphyry schist.

The equipment of the plant consists of 25 H. P. Western Hoist and two 300 cubic foot Chicago Pneumatic air compressors, and five Ingersoll-Rand BCR 430 jack hammer drills.

The new shaft is located three quarters of a mile from the Fossil Creek Power Line. A permanent plant, electrically driven, will shortly replace the present equipment.

ORE RESERVES:

Approximately 215,000 tons of 4% ore in the main orebody and a conservative estimate of 61,000 tons of 3% ore in the foot lense, making a total of 296,000 tons are in sight to date.

Throughout the orebodies an average value of $3.00 in gold plus silver (silver @ $1.00 per oz.) is found. With copper at 20 cents per pound, the total value of the above tonnage amounts to $5,300,000.00.

CONCLUSION:

Because of the fact that the mineralizing solutions came from moderate to great depth, and that all of the ore is entirely primary in character, great depth to the orebodies is reasonably assured.

The diamond drill holes eastward disclosed a very large area of well mineralized ground, and it can be confidently expected that a large, although possibly lower grade, tonnage can be developed there. This large area lies close to the diorite mass, and it is in this locality that the most favorable signs of impounding and concentrating of the mineral bearing solutions are found. The new No. 4 Shaft, together with crosscuts from it, will test this promising zone.

Respectfully submitted,

By (Signed) John R. Poss, E.M.

ANNEX B

EXTRACTS FROM THE FILES OF THE CONSOLIDATED ARIZONA SMELTING COMPANY (HUMBOLDT)

KAY COPPER CO.
CANYON, ARIZONA

January, 1916 Access to Hayden being cut off by washouts, shipped one carload to Humboldt, loading at Glendale.

Au.	-	.055 oz.
Ag.	-	.90 "
Cu.	-	8.78
Insol.	-	31.8
Fe.	-	21.9
CaO	-	0.7
S	-	14.9
Zn	-	0.53
As	-	3.1

S. J. Tribolett, Sec'y. P.O. Box 966, Phoenix, Ariz.

It is reported that the mine has shipped about 700 tons of ore of about the composition given above, or better. Type of deposit - chalcopyrite and pyrite replacing schist (?).

In August, 1915, it is reported that development included 318 feet of shaft, 629 feet of drifts, 346 feet of cross cuts.

April 25, 1917 Visited by G. M. Colvocoresses and V. De Camp.

Replacement in schist. Primary chalcopyrite with larger proportion of pyrite, but best bunches of ore show little but chalcopyrite. The copper is often associated with calc-spar and quartz in the schist. Outcrop at shaft not particularly striking. To West, iron stained schist, not prospected, looks better than at shaft.

Bottom Level, called 350' has drift in schist S 5° E, 62' long to "fault zone" which may be quartzite ledge. "Fault zone" consists of highly silicious brecciated schist with several feet of silicious gouge material, and is penetrated for 8' on this level. Less than half of the drift shows ore consisting of small lenses and stringers of chalcopyrite. 250' level has south drift about 130' thru "fault zone" and said to show stringers of ore beyond, but now caved. Ore shoot about 50' long, this being the longest exposure in mine. Rais 28' high to get over old stope. At manway small stringers of chalcopyrite in small proportion to total width of face. Ore widens to perhaps 18" on the little stope to the south. On 150' level short south drift shows a little ore. First production seems to have been made from here, encouraging development of mine. The drift north of shaft shows little of interest. There are short crosscuts east and west in schist showing a very little chalcopyrite with more pyrite.

My samples of the dump assayed:

(H82) Fines: Au .02 oz; Ag .22 oz; Cu 2.22%
Coarse: Au .03 oz; Ag .15 oz; Cu 1.96%; Fe 21.3%

The percentage of iron indicates the large amount of pyrite compared with chalcopyrite. W. V. D.

May 14, 1918

Visited by B. T. Rocca.

The present working shaft was sunk on the Southern end of a copper stained outcrop in a chloritic schist (strike N 20 E, dip 70° W) on the West bank of the Agua Fria River. This incline shaft is now being sunk by contract from the 350' level to the 500' level. Mr. Phillip Hickey, in charge, said it was not worth while to go underground, as the 350' level drift was damned off and full of water while shaft sinking was in progress. He added that this drift to the S had cut the ore body developed in the upper levels, that it had increased in width to 18', assaying 7% Cu. A 70' drift on the ore ended in ore. The ore formed on the footwall of a 2' fault gorge striking S 20' E. (40° from strike of formation on the surface) the best one being about 5' wide assaying better than 15% Cu., the footwall being irregular, the chalcopyrite impregnated schist assaying 4% Cu. for a considerable width. He stated further that the ore from this shoot could be sorted to a product containing at least 15% Cu., and that within two months he expected to have the ore opened up on the 500' level, and to start shipping to Humboldt, by way of Turkey, a 22 mile haul, which he figured would cost $6.00 a ton less than the haul to Glendale, 40 miles.

600' to 700' N. of the shaft, an incline shaft, now 45' deep, is being sunk by hand steel, on a few feet of well copper-stained schist. Stringers of sulphides up to several inches in width are coming in, mostly pyrite, coated with and partly replaced by chalcocite.

300' to the E. of the main outcrop, in the E. bank of the Agua Fria, several pits have been dug on an outcrop of copper-stained schist a few feet wide, which Hickey stated was considered the footwall of the mineralized zone and which was to be prospected by diamond drilling from the workings on the W. bank of the river.

A third outcrop occurs about 1/3 mile N.E. of the shaft being considerably to the E. of the line of the main outcrop. A shaft now inaccessible was put down to a considerable depth, by the old operators. B. T. R.

June 19, 1918

Visited by J. L. White.

The working on the 500 and 600 foot level of the No. 1 shaft and the 100 foot level of the No. 2 shaft were visited. The only so-called ore body lies south of the No. 1 shaft where small bodies of very rich ore were seen. These bodies of almost solid chalcophyrite ore v ried in width from 7 feet to 1 foot and appeared to be the core of a mineralized section of ground, reported to carry considerable copper. It did not appear to me to carry 3% Cu. and I am rather inclined to believe that all of the real ore in sight is in these small bunches of chalcophyrite. A picked piece of this chalcophyrite assayed Au 0.12; Ag 6.68; Cu 18.47; Insol 17.4; Fe 22.6.

Some diamond drill work was being done on the 600' level but nothing important had yet been uncovered, I was told. From this work I received the impression that they were not looking for any definite ore bodies but rather were simply covering ground.

In No. 2 shaft, mineralization in schist is exposed on the 100 foot level, but surely no ore. On the 200 foot level, here conditions are said to be better.

Kay did not impress me with its possibilities.

J. L. W.

October, 1918

Visited by E. S. Smith

Inspected 500 foot level (the lowest workings) in company with C. H. James (apparently consulting engineer for the present operators) and the foreman in charge.

A short distance south of the shaft a body of dense sulfide ore carrying 10 to 15% Cu. has been cut adjacent to a fault in the schist. This has been partially developed by drifting, crosscutting and test holes in the walls of the drift, indicating, according to James and Fessenden, an ore shoot 10 to 15 feet wide, at least 90 feet long, and averaging 12% Cu. The basis for this assumption is largely test holes and from what can be seen actually opened up, I believe the dimensions are exaggerated.

There is a crosscut to the east from the south drift 90 feet long at the time of this visit. The last 25 feet was barren, but James stated that the first 65 feet was carrying 3-1/2 to 4% Cu. This 65 feet was said to be made up of, first, 15 feet of high-grade (15% Cu.); then about 20 feet of 3-1/2 to 4% ore, then 15 feet carrying not less than 1-1/2 to 2% and 15 feet replacement in schist. Primary chalcopyrite with larger proportion of pyrite, but best bunches of ore show little but chalcopyrite. The copper is often associated with calc-spar and quartz in the schist. To west, iron-stained schist, not prospected looks better than at shaft. E. S. S.

April, 1921

Visited by V. De Camp.

Additions to former report. Diamond drilling consisting of 13 holes from 600' level is said to have exposed three lenses of ore. One lense east of the river said to be 80' wide and carry 3% copper. Main lense 400' long 10 to 50' wide 7% ore.

Reported a total of 250,000 tons of 5% ore developed to date.

Present work consists in sinking a 3 compartment shaft on east side of river now down 175' in sericite schist showing some barren pyrite. W. V. D.

October, 1921

Visited by H. R. Banks.

Mr. John Poss, Supt., stated they would not be in position to ship any ore until their present plan of development has been carried out. This development, as illustrated on the accompanying sketch will probably take some 5 to 6 months to accomplish and it is the intention of the management to concentrate all their efforts on this work.

Since my last visit to the property (June, 1919) the two shafts 1 and 3 have been abandoned and work has been concentrated on the new shaft #4 indicated in the sketch. This new shaft (three compartment) has gone to 800 feet. This work has just been completed and drifting is to start at once.

Mr. Poss claims 200,000 tons of commercial ore developed in the #1 and #3 shafts and workings but his hopes are centered on what the development from the #4 shaft will disclose. From rather meagre information gained from underground work in the two old shafts and from a small amount of diamond drilling the management feels justified in their new work and in putting off until some future date any returns which might have been received from the mining and treating of the ore already developed. If the development planned from the new shaft results in disclosing the "hoped-for" ore bodies, the policy at present being pursued should yield splendid results. The new shaft well located in view of the theories advanced relative to the enrichment areas has been excellently constructed and will be conducive to rapid mining. The double drum hoist to handle the balanced cages should give ample capacity and it would be the policy to later substitute skips for the cages.

From the point of view of opening a mine in an unproved area, the policy of the Kay is a bold one to say the least. With two shafts, one of which is down 600 feet (#1) and the other 500 feet (#3) in the known ore bodies, to sink a three compartment shaft 800 feet in depth to tap the bottom of the ore bodies again and to develop a prospect based on theory would seem to be adding considerable risk to the natural gamble involved in developing a mine in an isolated area.

In discussing the Mine as a prospective producer and from the standpoint of the Smelter, Mr. Poss is firmly convinced that the present policy will not be departed from. Should the hopes at present guiding the work materialize in disclosing commercial ore bodies, the management would then bend their efforts to erecting a mill and start production. Presumably if they fail to find the ore bodies already disclosed by the No. 1 shaft will be worked from the new shaft while the ore in the No. 3 shaft will have to be worked from that shaft.

The known ore bodies should mine at about 4% Cu. with Au and Ag at about $3.00 according to statements made by Mr. Poss. His idea of a Mill would be one of 300 tons capacity from which it might be inferred that a concentration of 6 or 7 to 1 would result. The shipping point would, in all probability be Turkey Creek and Mr. Poss stated that he has done considerable talking with merchants in Phoenix from whom he purchases most of his supplies relative to the improvement of the road. His present hauling cost is approximately 40 cents per ton mile. This distance to Turkey Creek is about 22 miles. They feel that this present cost could be very greatly reduced by the use of their own trucks and with roads in good condition, making it possible to ship to Humboldt, that Smelter being the natural outlet for their product.

The Arizona Power Co. has installed a power line and the KAY machinery is electrically equipped. At present the Plant includes the Double Drum Hoist (Denver Machinery Co.) 500 Cuft Ingersoll Rand air compressor and mine pump handling approximately 100 gallons of water per minute from the 800 foot level.

The original Chicago Pneumatic Hot Heads have been set up at the new shaft and can be used as auxiliary equipment at any time. The blacksmith and carpenter shops seem well enough equipped and the buildings seem ample for present needs, b I understand they are to be gone over in the near future.

From all appearances the Kay Mine is following out a well established policy and doing so in the most economical and rapid method possible. Whether the policy is justified or not will have to be decided by what the future discloses. It would seem, however, that unless some radical changes take place in the policy of the Mine, this Smelter will not be able to draw ore from that source for possibly a year or longer and then it is pure conjecture as to what tonnage may be counted on.

ANNEX C

A COMPARATIVE ESTIMATE OF ORE RESERVES IN THE
KAY COPPER MINE, LOCATED AT CANYON, ARIZONA
AS COMPILED FROM MAPS AND AVAILABLE RECORDS

At the time the mine closed down 1928-29, the total ore reserves were apparently not estimated or brought up to date; therefore it is necessary to be extremely conservative in accepting the partially completed records of the more recent work.

The accompanying report by John R. Poss, E.M. can without doubt be accepted in its entirety as covering what is known as the Number One orebody, extending from the 600 level to the surface and developed from the #1 shaft. Subsequent work included the sinking of three other shafts, one #4, which was sunk to the 1200 level. The 1500 level is reached by a winze sunk from the 1200 level and is the present bottom of the mine. The #2 shaft reached a depth of 180 feet and some ore is reported here though not taken into account in the estimate and not connected with the general workings. #3 shaft is located some 2000 feet north of #1 shaft and is 520 feet in depth. There is ore developed on several levels from this shaft but not considered in estimate nor are these workings connected with main workings as yet, though a drift has been driven from #4 shaft on the 1200 level to a point under them.

The #1 orebody includes 215,000 tons that will average 4% copper and $1.00 per ton, and 81,000 tons averaging 3% copper and $1.00 per ton, making a total of $2,502,000.00, assuming copper at 10 cents per pound. There is some silver in all the ore but this is not considered in estimate.

As indicated on the accompanying vertical section map, the orebodies continue down to the 1000 and beyond. From the 600 to the 1000 the values shown are somewhat lower than those above the 600 level and below the 1000 level; in view of this, this block of ore will not be considered.

From the 1000 level to the 1500 level, a block of ore 60 feet in length by 5 feet in width on the 1000 level by 170 feet long and 5 feet wide on the 1500 level, this 5' width assumed shows the actual width sampled in drift, although the drill holes, etc., indicate many times this width. This block will provide 23,500 tons that will average 3.1% copper and $1.00 per ton, totaling $169,200.00 and each additional foot in width that is given to this block on the above basis will increase the value of $33,840.00.

The total value on a basis of 10 cent copper and $1.00 per ton gold is as shown above $2,671,200.00. It may be well to mention that the ore on the 1500 level and above will probably mine 25 feet instead of 5' as assumed, and as indicated on map, the drill holes below 1500 level show a width and value of 20-25 feet and 6-8% copper respectively, and gold values increasing to $3.00 per ton; besides this considerable lead ore is coming in on the lower levels that carries very good silver and gold values. All of this shows a constantly increasing metal content and size of orebodies as depth is gained.

Respectfully submitted.

E. H. Lundquist

ANNEX D

COPIES OF LETTERS AND NOTES BY G. M. COLVOCORESSES

September 19, 1936

Mr. R. F. Felchlin
Patterson Building
Fresno, California

Dear Sir:

Mr. Evald Anderson of the Western Precipitation Company with whom I have been well acquainted for many years has asked me to write you concerning the Kay Copper Mine which is supposed to be located near Phoenix and in which it is represented that there are large bodies of ore carrying five per cent copper and Three Dollars in gold.

I am assuming that the property which has been brought to your attention is that which was operated and developed by the Kay Copper Company from about 1918 to 1930. This mine is located at Canyon near the southern limit of Yavapai County and is fifty miles north of Phoenix.

I am pretty well acquainted with the said property since we purchased a considerable amount of its comparatively small output while I was General Manager of the custom smelter at Humboldt and I followed its development work fairly closely until the Kay Copper Co. failed entirely about 1929 or early 1930 after which I believe that the mine and equipment were sold for the benefit of creditors and it has since been entirely idle.

While I should not care to make any positive statements regarding the present condition of the mine without making a complete investigation in so far as the workings are now accessible I can state very positively that there are no large ore bodies developed of any such grade as mentioned above and this statement can readily be confirmed by digging up the records of the Kay Copper Co. and the proceedings which attended the closing of their operations.

There are some favorable surface showings on the claims which were formerly owned by the Kay Co. and particularly on the north side of the Agua Fria River where very little development was done in recent years and purely as a development proposition these showings might be considered to have merit and might justify a careful investigation.

I understand that the property has recently been optioned by its present owners and should be interested to learn something of the manner in which it is now being presented to prospective investors.

I am glad to comply with Anderson's request in sending this information and hope that it may prove of value. Am sending Anderson a copy of this letter.

Yours very truly,

G. M. Colvocoresses

Dear Anderson:

This mine was made the subject of one of the rottenest and most notoriou promotions in this part of the country and the President of the company a man named Godfrey, barely escaped going to prison in '29 or '30. The stock was very extensively advertised for some years and the statements made concerning the mine were absolutely untrue. None the less I believe that there are some fair possibilities and if the new operators are honest and experienced there may be a chance for success.

However, the statement of ore reserves which are quoted in your letter is

an unqualified lie and I hope that none of your friends will be led to invest on any such representation.

Sincerely,

G. M. Colvocoresses

November 24, 1944

Mr. Frank M. Stephens
C/o American Smelting & Refining Co.
Valley National Bank Building
Tucson, Arizona

Re: Kay Copper

Dear Stephens:

After returning to Phoenix I looked over my file on the Kay Copper Mine and although it is not very extensive and contains no assay maps I think that you may possibly find some of the information of general interest, and I am very glad to send it to you.

Kay Copper shipped some 9% copper ore to Humboldt in 1916 and apparently a larger tonnage of similar high-grade ore was carefully sorted out and shipped to Hayden. This all came from upper levels of the ore shoot on the north bank of the Agua Fria River. Various field engineers from Humboldt examined the surface and underground workings at frequent intervals from 1915 to 1921. I have a report made by Poss, the Superintendent, in March, 1920.

After the property was taken over by J. J. Godfrey and his stock-swindling associates - which I believe was in 1923 - neither I nor any of my engineers were permitted underground, and although they made great claims as to the results of their development work, I had very good reason for doubting such statements. The mine was closed down in 1928 or 1929 when the officials of the company barely missed going to prison, and I believe that at that time the Department of Justice or some other government agency had an examination made by an independent engineer, but I have no definite information in that regard.

In October, 1930 E. H. Lundquist prepared a brief summary of reports made by other engineers showing a large tonnage of developed ore and in 1936 the property was presented to friends of mine in California to whom it was represented that there was 75,000 tons of 5% copper ore fully blocked out containing an average value of $3.00 in gold.

Subsequently I discussed this property with T. S. Davey who had been superintendent and also with George Harbauer who was for a time engineer and assayer, and according to these men whom I know to be reliable, the only high grade ore occurs in somewhat scattered shoots through the schist and none of these are large enough to pay for necessary work preliminary to mining.

There was quite a lot of low grade material between small shoots mentioned above, none of which have any great vertical dimension since the Number Six Ore Body on the north side of the river was apparently bottomed at 650 foot depth, while the shoots noted in the lower levels do not come to the surface.

On the 1200 foot level a body of 2% copper ore was developed for a length of about 300 feet and for a width of nearly 50 feet. This was by far the largest showing that averaged anything better than 1% copper.

Both Davey and Harbauer were very emphatic in stating that they did not believe that it would ever pay to reopen or attempt to operate this mine unless the price of copper should be far higher than can reasonably be anticipated.

Please give my personal regards to Ring and Loerpabel and to Rickard when he returns to the office. I hope that we may meet some time in December and take the trip to Tumco as per recent discussion.

With personal regards.

Sincerely,

G. M. Colvocoresses

NOTES BY G. M. COLVOCORESSES

4/1/39
KAY COPPER MINE

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Davey thinks that there may be a very large tonnage of 1.5% copper ore with values of about $0.50 in gold and silver. (Doubtful)

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6/4/48

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Annex C

Phoenix, Arizona.
October 13, 1930.

A COMPARATIVE ESTIMATE OF ORE RESERVES IN THE KAY COPPER MINE, LOCATED AT CANYON, ARIZONA. AS COMPILED FROM MAPS AND AVAILABLE RECORDS.

At the time the mine closed down 1928-29, the total ore reserves were apparently not estimated or brought up to date; therefore it is necessary to be extremely conservative in accepting the partially completed records of the more recent work.

The accompanying report by John R. Poss, E.M. can without doubt be accepted in its entirety as covering what is known as the Number One orebody, extending from the 600 level to the surface and developed from the #1 shaft. Subsequent work included the sinking of three other shafts, one #4, which was sunk to the 1200 level. The 1500 level is reached by a winze sunk from the 1200 level and is the present bottom of the mine. The #2 shaft reached a depth of 180 feet and some ore is reported here though not taken into account in the estimate and not connected with the general workings. #3 shaft is located some 2000 feet north of #1 shaft and is 520 feet in depth. There is ore developed on several levels from this shaft but not considered in estimate nor are these workings connected with main workings as yet, though a drift has been driven from #4 shaft on the 1200 level to a point under them.

The #1 orebody includes 215,000 tons that will average 4% copper and $1.00 gold per ton, and 81,000 tons averaging 3% copper and $1.00 per ton, making a total of $2,502,000., assuming copper at 10 cents per pound. There is some silver in all the ore but this is not considered in estimate.

As indicated on the accompanying vertical section map, the orebodies continue down to the 1000 and beyond. From the 600 to the 1000 the values shown are somewhat lower than those above the 600 level and below the 1000 level; in view of this, this block of ore will not be considered.

From the 1000 level to the 1500 level, a block of ore 60 feet in length by 5 feet in width on the 1000 level by 170 feet long and 5 feet wide on the 1500 level, this 5' width assumed shows the actual width sampled in drift, although the drill holes, etc., indicate many times this width. This block will provide 23,500 tons that will average 3.1% copper and $1.00 per ton, totaling $169,200.00 and each additional foot in width that is given to this block on the above basis will increase the value of $33,840.00

The total value on a basis of 10 cent copper and $1.00 per ton gold is as shown above $2,671,200. It may be well to mention that the ore on the 1500 level and above will probably mine 25 feet instead of 5' as assumed, and as indicated on map, the drill holes below 1500 level show a width and value of 20-25 feet and 6-8% copper respectively, and gold values increasing to $3.00 per ton; besides this considerable lead ore is coming in on the lower levels that carries very good silver and gold values. All of this shows a constantly increasing metal content and size of orebodies as depth is gained.

Respectfully submitted.

E. H. Lundquist.

Annex D

Copies of letter and note by W M Colcord

September 19th, 1936

Mr. R. F. Felchlin
Patterson Building
Fresno, California

Dear Sir:

Mr. Evald Anderson of the Western Precipitation Company with whom I have been well acquainted for many years has asked me to write you concerning the Kay Copper Mine which is supposed to be located near Phoenix and in which it is represented that there are large bodies of ore carrying five per cent copper and Three Dollars in gold.

I am assuming that the property which has been brought to your attention is that which was operated and developed by the Kay Copper Company from about 1918 to 1930. This mine is located at Canyon near the southern limit of Yavapai County and is fifty miles north of Phoenix.

I am pretty well acquainted with the said property since we purchased a considerable amount of its comparatively small output while I was General Manager of the custom smelter at Humboldt and I followed its development work fairly closely until the Kay Copper Co. failed entirely about 1929 or early 1930 after which I believe that the mine and equipment were sold for the benefit of creditors and it has since been entirely idle.

While I should not care to make any positive statements regarding the present condition of the mine without making a complete investigation in so far as the workings are now accessible I can state very positively that there are no large ore bodies developed of any such grade as mentioned above and this statement can readily be confirmed by digging up the records of the Kay Copper Co. and the proceedings which attended the closing of their operations.

There are some favorable surface showings on the claims which were formerly owned by the Kay Co. and particularly on the north side of the Agua Fria Riverwhere very little development was done in recent years and purely as a development proposition these showings might be considered to have merit and might justify a careful investigation.

I understand that the property has recently been optioned by its present owners and should be interested to learn something of the manner in which it is now being presented to

prospective investors.

I am glad to comply with Anderson's request in sending this information and hope that it may prove of value. Am sending Anderson a copy of this letter.

Yours very truly,

GMC

GMC:DF

Dear Anderson:

This mine was made the subject of one of the rottenest and most notorious promotions in this part of the country and the President of the company, a man named Godfrey, barely escaped going to prison in '29 or '30. The stock was very extensively advertised for some years and the statements made concerning the mine were absolutely untrue. None the less I believe that there are some fair possibilities and if the new operators are honest and experienced there may be a chance for success.

However, the statement of ore reserves which are quoted in your letter is an unqualified lie and I hope that none of your friends will be led to invest on any such representation.

Sincerely,

GMC

November 24th, 1944

Mr. Frank M. Stephens
c/o American Smelting & Refining Co.
Valley National Bank Building
Tucson, Arizona

Dear Stephens: Re: Kay Copper — File

After returning to Phoenix I looked over my file on the Kay Copper Mine and although it is not very extensive and contains no assay maps I think that you may possibly find some of the information of general interest, and I am very glad to send it to you.

Kay Copper shipped some 9% copper ore to Humboldt in 1916 and apparently a larger tonnage of similar high-grade ore was carefully sorted out and shipped to Hayden. This all came from upper levels of the ore shoot on the north bank of the Agua Fria River. Various field engineers from Humboldt examined the surface and underground workings at frequent intervals from 1915 to 1921. I have a report made by Poss, the Superintendent, in March, 1920.

After the property was taken over by J. J. Godfrey and his stock-swindling associates,-which I believe was in 1923,-neither I nor any of my engineers were permitted underground, and although they made great claims as to the results of their development work, I had very good reason for doubting such statements. The mine was closed down in 1928 or 1929 when the officials of the company barely missed going to prison, and I believe that at that time the Department of Justice or some other government agency had an examination made by an independent engineer, but I have no definite information in that regard.

In October, 1930 E. H. Lundquist prepared a brief summary of reports made by other engineers showing a large tonnage of developed ore and in 1936 the property was presented to friends of mine in California to whom it was represented that there was 75,000 tons of 5% copper ore fully blocked out containing an average value of $3.00 in gold.

Subsequently I discussed this property with T. S. Davey who had been superintendent and also with George Harbauer who was for a time engineer and assayer, and according to these men whom I know to be reliable, the only high grade ore occurs in somewhat scattered shoots through the schist and none of these are large enough to pay for necessary work preliminary to mining.

There was quite a lot of low grade material between small shoots mentioned above, none of which have any great vertical dimension since the Number Six Ore Body on the north side of the river was apparently bottomed at 650 foot depth, while the shoots noted in the lower levels do not come to the surface.

On the 1200 foot level a body of 2% copper ore was developed for a length of about 300 feet and for a width of nearly 50 feet. This was by far the largest showing ~~but did not~~ that averaged anything better than 1% copper.

Both Davey and Harbauer were very emphatic in stating that they did not believe that it would ever pay to reopen or attempt to operate this mine unless the price of copper should be far higher than can reasonably be anticipated.

Please give my personal regards to Ring and Loerpabel and to Rickard when he returns to the office. I hope that we may meet some time in December and take the trip to Tumco as per recent discussion.

With personal regards.

Sincerely,

GMC

GMC/b

Notes by G.M.C

~~To mine file~~

KAY COPPER MINE

4/1/39

T. S. Davey who was Supt. of the Kay tells me that it has possibilities as a large producer of low grade ore and on that basis only.

There are ~~many~~ some small shoots of comparatively high grade ore scattered thru the schist and between these there is much low grade material. Mine was developed with drifts and crosscuts to 1500' level and drilled to 1800' level and Davey recalls on the 1200 there has one ore shoot about 300' long by 50' wide which would average close to 2% copper.

Many of the ore lenses are blind and some which come to the surface do not go down. for example the old (~~#6~~ #1) shoot on the north side of the river ~~which~~ petered out into low grade at 650' depth.

Davey thinks that there may be a very large tonnage of 1.5% copper ore with values of about $0.50 in gold and silver. (doubtful!

Mine now partly owned by Tom Foster, the Mine Inspector, who can give more details which Davey also will look up.

~~His present address is 328 E. Taylor St., Reno, Nev. and he expects to be back here within the next two weeks in connection with his investigation of the Dixie Mine near Ft. McDowell.~~

Davey in fact admitted even low grade ore was limited & not likely to justify any prospecting activities

6/4 48

At Kay Mine Rabach is said to have spent £40,000 with little or no production & he is now having some difficulties with his financial backers in Lobe & has written to Le Roux for aid suggesting an investment which Le Roux is

particularly g

me the chance to do what I have done, since you saved my l

was only 25 years old."

"Yes," said Jim, "I think that I can understand, but tell me this, Steve. If the Monte Carlo Mine had proved to be a failure, if you had lost your stake instead of making a winning, would you have ever told me what you have done tonight?"

"Well, perhaps not," replied Steve. "To me it really wouldn't have made much difference; it was a gamble as you first told me in your office and I knew it, the loss of the money wouldn't have hurt me even a little bit, but I can guess how you would have felt,--you would always have thought that I just took the chance to help you out, from gratitude, let us say, but, Jim, it wasn't that, it wasn't gratitude or sentiment but just re-paying a debt, the oldest debt of my life except to my father and mother

probably in no position to make.

Forbach has run a drift in the 350' level which is supposed to be in ore body that has developed down to the 700' level by the operators (before Indian) and extending to the town Lift (some of those reports are in my files) contains 30000 tons of 5% copper ore. ~~May hear more about this later.~~ (Call f. Brodt 7/20. 48)

~~Brodt~~

16-BREAD UPON THE WATERS

For the first 50 feet the shaft was nearly clear of the nitric-oxide gas which always hangs low until it is blown out with compressed air, and then he had sensed it, noted the familiar acrid taste and smell and felt it going to his head, but only for a momemt before he pushed against the rock wall on one side and the bucket landed close to the man's body. He could remember his feeling of relief that the man was not yet dead, for he groaned and moved a little as Jim jumped off and grabbed him.

A lift like that would have been easy under ordinary circumstances but already Jim felt dizzy and weak and twice he failed before a final heave had gotten the helpless body over the edge of the 3 foot ore bucket, and letting it slide none too gently to the bottom, Jim had piled in after him too dizzy to trust himself to stand and had pulled the signal cord to hoist. Only dimly could he recall the short journey up the shaft and the fresh air that struck him and which he gulped in like a man coming up from a long dive as he pulled off his handkerchief. Willing hands helped him to stagger out half falling on the platform, [illegible] Steve and laid him out beside Ned, who was now [illegible] arrived by that

NOTES ON PUMPING EXPERIENCE AT KAY COPPER

The Kay Copper Mine was pumped down in 1948 with a fifty horse power Krough pump rated at 275 GPM at 500 Ft. The following notes were kept on the operation by the writer.

The water stood 85 Ft. from the surface at the start. The first days pumping reduced the water level about 4 Ft. per hour. After that the water level went down about 60 Ft. per day while shaft pumping.

At the 212 Ft. level, the water remained stationary for a period of 24 hours while the drifts were draining.

It took 4½ days pumping to reach the 250 Ft. level. It took about a day and a half to drain the drifts and reach the 262 Ft. level.

From 262 Ft. to completely drain the 500 Ft. level for peliminary inspection, took just 10 days of pumping.

The experience showed that it took about 24 to 36 hours to drain the long levels.

James W. England, Jr.

DOUGLASS VAN DYKE
ATTORNEY AT LAW

910 WELLS BUILDING
TELEPHONE DALY 1650
MILWAUKEE
2

April 21, 1949

VIA AIR MAIL

Mr. Alden P. Colvocoresses
Box 537
Superior, Arizona

My dear Alden:

I received your letter of April 19, 1949, in respect to the Kay Copper mine, and also received the reports and datum submitted by Mr. England.

After studying these reports, my cousin and I both agreed that it is nothing that we would be interested in, not only because the time up to June first was altogether too short to make any investigation of the property, but also because the mine looks spotty, and one could probably sink a large amount of money in it without a reasonable chance of success. I fear that it is something like the old Reymert mine on which a great deal of money has been expended without any large returns.

My cousin and I both wish to thank you for the very interesting letter which you have written in this connection, and I will ask you to kindly send me your bill for services in this matter.

Sincerely,

Douglass Van Dyke

DVD:R

April 19, 1949

Mr. Douglass Van Dyke
910 Wells Building
Milwaukee 2, Wisconsin

Dear Mr. Van Dyke:

Your son Deric phoned me on April 15th regarding the Kay Copper Mine and requested me to furnish you with what reports and other information regarding this property that I might have available from my father's files.

Enclosed are copies of the various reports and data pertaining to the property. I will attempt to correlate these enclosures for you and summarize this letter with recommendations such as I believe my father would have made for you.

According to Deric, Bill Forbach and a Mr. England, to whom I also talked, have this property under lease. Forbach has had an interest in the property for about two years as a lessor, but very little actual work has been done on the property since about 1929. According to Mr. England, the area that they are immediately interested in is that section of the property lying North of the Agua Fria river and specifically the ground adjacent to Number 1 shaft. This particular area has apparently not been worked since 1921 or thereabouts, and it also happens that this is the area covered by the data in my father's files.

As my father's files on the Kay are not extensive and contain no survey or assay maps, I requested Mr. England (through Deric) to furnish me with all available maps and data so that I could correlate their information with mine and thus give you as complete a picture of the property as possible. Forbach and England rather hurriedly made up a report for you which they loaned me for only 24 hours, as they insist that time is all important in this matter. I have forwarded their report on to you under separate cover, but I was able to pick out the information I wanted while the report was in my hands.

The background, location and other pertinent data relative to the property is included in Mr. Poss's report, Annex A.

From about 1914 to 1921 this property was developed by the sinking of at least four shafts and several thousand feet of drifts and crosscuts. According to Mr. Poss, the mine superintendent, this development work uncovered a sizeable tonnage of mineable ore.

His views and estimates are covered in Annex A. With the exception of one shaft this work was all done on the North side of the Agua Fria river, which is that portion of the property with which the present lessors are concerned. In addition to Annex A are enclosed statements of various engineers who were then working for the Consolidated Arizona Smelting Company under my father's direction, and who made several trips to the property. They were not at liberty to take samples but they were all experienced men who could tell copper ore when they saw it. Their statements constitute Annex B. Such well known engineers as Val De Camp and J. L. White are included. My father's belief was that Mr. Poss and his associates were chiefly interested in stock promotion and that Poss's report is a gross exaggeration, although there undoubtedly was a small amount of actual ore developed. Actual shipments during this period apparently totaled under 1000 tons, one car of which went to Humboldt and assayed 8.78% copper.

From 1923 to 1928 or 1929 the property was in the hands of some big time stock promoters who spent enormous sums of money and found very little. Practically all the work they did was at depth and has little bearing on the immediate operations. However, they did employ a T. S. Davey and George Harbour as Mine superintendent and engineer respectively. These two men were respected personal friends of my father and their opinions are covered in my father's letters and notes, Annex D.

In 1930 a Mr. E. H. Lundquist wrote a short report on the Kay, Annex C. This report is based largely on Mr. Poss's report and I would evaluate it accordingly, as I doubt if Mr. Lundquist was ever on the property.

The letters and notes of my father, Annex D, contain the information in which I believe you are most interested, and they add up to the fact that Dad believed there might be some small pockets of mineable ore in the region in which Mr. Forbach is now interested.

I personally am acquainted with several miners and engineers who, from time to time, have told me of their experiences at the Kay and have ventured their opinions of the property, which generally confirm the enclosed letters of my father. I have never been on the property myself, but I have a definite opinion of the Kay, based on the above and also on several rather lengthy discussions of the property with my father and other engineers familiar with the property. I offer the following as my own estimate of the property and proposed developments.

The Kay includes a rather large tonnage of mineralized ground (replacement in schist) which has led to the unwarranted expenditure of enormous sums in efforts to turn it into a large producer. The actual portions of this mineralized ground containing sufficient values to be classified as ore are undoubtedly quite small, and, as such, I do not believe the Kay will ever be anything more than a small producer.

All reports agree that there is an ore shoot between the 550 and 600 foot levels just to the South of No. 1 shaft, known as the #1 ore body. This is the ore body that Forbach and England propose to mine, and it is undoubtedly the most likely prospect on the property. Estimates as to the size of this ore body range up to 200,000 tons and grade up to 8% copper. I personally do not believe that any such sizeable ore body exists. This ore body was developed between 1910 and 1921, during which time only about 700 tons of ore was shipped. Since that date the property has passed through numerous different hands, several of whom were practical mining men, yet I do not believe that a single shipment has been made since 1917. Moreover, I have not found evidence of any first hand examination, made by a reputable engineer, that attempted to accurately size and value this ore body. You will note that De Camp and the other Humboldt engineers who mention tonnage figures do so only as hearsay. The only real samples that I have found record of appear on the big plan map furnished you by Forbach and England. These assays are probably accurate, but their location, size and value certainly do not indicate a mineable ore body. Note that no assays appear on the 500' level. Estimating ore tonnages without complete sample data is not sound engineering and that is ~~exactly~~ apparently what Poss and the others who wrote similar reports did. Forbach and his former associates apparently spent around $40,000.00 unwatering the Kay to the 500' level, yet they are unable to supply a satisfactory assay map of the very area which they intend to mine.

Judging from the reports that I (and my father) would consider reliable, the No. 1 ore body consists of small lenses and stringers of ore and is not continuous. Mining these small lenses would be a piece-meal proposition, suitable for lessors who have an interest in the property, rather than an organized company. Hard ground and a fixed pumping cost would further increase the cost per ton and even with 7 or 8% ore the margin of profit would be necessarily small.

Regarding the terms which Forbach and England propose to you, I certainly cannot recommend it as a sound mining venture. I doubt that the Kay could be put into proper production for less than $50,000.00 and could then only show a small operating profit due to the limited production possible. The lease calls for minimum royalty payments of $10,000.00 per year, which would probably eat up a good part of what operating profits there might be, and in my opinion is far too high for a mine of this calibre.

Should you decide to make the initial investment and dewater the mine, I strongly recommend that you then have an examination made by a disinterested engineer and that such questions as incorporation and equity be thoroughly ironed out before going any further with the project.

Should you be coming West, I would be more than pleased to make your acquaintance and perhaps be of further assistance to you. In the meantime, I will attempt to answer what questions you may have by correspondence.

Very truly yours,

Alden P. Colvocoresses

APC/kc
Enclosures

Annex A

Phoenix, Arizona.

March 20th, 1920.

SUMMARY REPORT

OF THE

PROPERTY OF THE KAY COPPER COMPANY

LOCATION:

The property of the Kay Copper Company is situated on the main road between Phoenic and Prescott, in Yavapai County, Arizona. It lies on the Agua Fria River, three miles north of the Yavapai-Maricopa County line. Turkey, 22 miles northward, is the nearest shipping point.

The holdings of the company comprise 41 mining claims aggregating 750 acres and an adjoining tract of land of 670 acres, purchased for townsite and mill purposes. The latter acreage lies in a fertile valley, bordered on one side by the Agua Fria River.

GEOLOGY:

The property lies in a Pre-Cambrian schist belt which extends north and south along the eastern edge of a large granite mass known as the Bradshaw Mountains. Northward, included in this belt are the mines near Mayer, the Blue Bell, the Arizona Binghamton, the DeSoto and still further north the mines of Jerome. Although there are many features of similarity, each represents various types of mineralization.

Two distinct phases of schist are found on the Kay Copper Company's property. A schisted quartz porphyry thus far

has proven to be the most favorqble phase, although some promising showings are found in the chloritic or greenstone schists.

Worthy of attention, is the presence of a large diorite mass, younger and less disturbed than the schist, but pre-mineral, the northern edge of which cuts across the quarts prophyry schist at an angle of 30 degrees. This is a favorable structural condition, undoubtedly having some influences on impounding and concentrating the primary mineral solutions.

ORE OCCURRENCE:

The ore occurs as a replacement of the quarts porphyry. Primary chalcopyrite and pyrite, banded and disseminated in the schist, forms the ore bodies. Some are lenticular in shape showing increasing width as depth is attained, while one explored by the diamond drill, has indications of having the shape of a large irregular mass of heavily mineralized schist. The two distinct systems of thrust faulting has resulted in displacement of the orebodies on a small scale, a fact which limited the development of the ore in the older workings, to one side of the fault, the faulting system at that time not having been worked out.

Post mineral diabase dikes with various dips are found throughout the formation.

DEVELOPMENT:

The main ore tonnage to date has been developed in No. 1 shaft. The main ore body lies entirely on the south side of the shaft, as can be seen by the following description of the various levels.

THE OUTCROP:

Iron and copper stained gossan, the largest part

of which is covered by the river bed, in a bay probably formed by erosion of the ore body.

100 LEVEL

Drifted south 25 feet, then croscutted 18 feet both in ore.

200 LEVEL

The drift south extends 120 feet from the shaft. The northern end of the ore shoot was encountered at 50 feet. From this point to the face, the drift remains in the ore body. At the face the fault was encountered and the work discontinued. Crosscutting exposed a width of 20 feet of ore.

250, 300 and 350 LEVELS:

As on the 200 level the south drifts in each case extended to, and then along the orebody until the fault was reached, then the work discontinued. Cross sections of the ore body on these levels give an average of 4.8% copper. The south drift on the 350 level was extended across the fault and the displaced ore partially developed, the face remaining in ore.

600 LEVEL:

The main development work has been done on this level. The ore body was reached by a south drift at 130 feet from the shaft. Crosscutting showed a width of 32 feet, averaging 4% copper. A length of 50 feet was shown on the north side of the fault. 130 feet of drifting was done along the displaced portion south of the fault. The southern end is still undetermined, as the face is still in the ore body. Crosscutting from the drift was done by short diamond drill holes and revealed a width of 40 feet.

At one place on the 500, and at four places on the

600, another orebody of 20 feet east and in the footwall of the main ore body, was opened by corsscuts. This lense shows an average width of 15 feet of 3% copper. The extreme north and south crosscuts signify a length of 180 feet. The zone between these orebodies shows increasing mineralization with depth and it is probable that they may merge to form one orebody.

Considerable work was also done on the north side of the shaft on the various levels, but mainly on the 600 level. Several smaller but promising lenses were cut, and with further development may yield additional tonnage.

DIAMOND DRILLING:

From the 600 level, 3000 feet of diamong drilling was done. Thirteen holes in all were drilled, two of which were inclined at 45° to cut both the main ore body and also the foot lense, 120 feet below the 600 level. The presence of the two orebodies at that depth was satisfactorily determined.

A flat hole was also drilled 300 feet eastward, across the river, to intersect a promising surface showing. At 250 feet, a 60 foot heavily mineralized zone was cut. Several other zones of promising character were shown and practically the entire hole revealed fair mineralization.

An inclined hole from surface was then drilled across the same section, cutting the 60 foot zone at a depth of 300 feet. This hole likewise showed very promising mineralization through its entire depth.

In all, about 3500 feet of drilling and crosscutting and 3000 feet of diamong drilling has been done in Shaft No. 1.

No. 3 shaft, located 2100 feet north of No. 1 shaft, was sunk to a depth of 530 feet in chloritic schist. About 360 feet of

drifting has been done, disclosing from 3 to 4 feet of 3% ore. This zone is but slightly explored and is worthy of attention at a later date.

A new vertical, three compartment shaft called No. 4 is being sunk. It has reached a depth of 130 feet and will continue to the 1000 foot level. A crosscut from this point will explore the territory cut by the east drill holes and also the lower extension of the two orebodies from No. 1 shaft.

The shaft is at present, and has been from a depth of 65 feet, in well mineralized quartz porphyry schist.

The equipment of the plant consists of 25 H.P. Western Hoist and two 300 cubic foot Chicago Pneumatic air compressors, and ~~4~~ five Ingersoll-Rand BCR 430 jack hammer drills.

The new shaft is located three quarters of a mile from the Fossil Creek Power line. A permanent plant, electrically driven, will shortly replace the present equipment.

ORE RESERVES:

Approximately 215,000 tons of 4% ore in the main orebody and a conservative estimate of 61,000 tons of 3% ore in the foot lense, making a total of 296,000 tons are in sight to date.

Throughout the orebodies an average value of $3,00 in gold plus silver (silver @ $1.00 per oz.) is found. With copper at 20 cents per pound, the total value of the above tonnage amounts to $5,300,000.00.

CONCLUSION:

Because of the fact that the mineralizing solutions came from moderate to great depth, and that all of the ore is entirely primary in character, great depth to the orebodies is rea-

sonably assured.

The diamond drill holes eastward disclosed a very large area of well mineralized ground, and it can be confidently expected that a large, although possibly lower grade, tonnage can be developed there. This large area lies close to the diorite mass, and it is in this locality that the most favorable signs of impounding and concentrating of the mineral bearing solutions are found. The new No. 4 shaft, together with crosscuts from it, will test this promising zone.

Respectfully submitted,

By (Signed) John R. Poss, E.M.

April 19, 1949

Mr. Douglass Van Dyke
910 Wells Building
Milwaukee 2, Wisconsin

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In 1930 a Mr. E. H. Lundquist wrote a short report on the Kay, Annex C. This report is based largely on Mr. Poss's report and I would evaluate it accordingly, as I doubt if Mr. Lundquist was ever on the property.

The letters and notes of my father, Annex D, contain the information in which I believe you are most interested, and they add up to the fact that Dad believed there might be some small pockets of mineable ore in the region in which Mr. Forbach is now interested.

I personally am acquainted with several miners and engineers who, from time to time, have told me of their experiences at the Kay and have ventured their opinions of the property, which generally confirm the enclosed letters of my father. I have never been on the property myself, but I have a definite opinion of the Kay, based on the above and also on several rather lengthy discussions of the property with my father and other engineers familiar with the property. I offer the following as my own estimate of the property and proposed developments.

The Kay includes a rather large tonnage of mineralized ground (replacement in schist) which has led to the unwarranted expenditure of enormous sums in efforts to turn it into a large producer. The actual portions of this mineralized ground containing sufficient values to be classified as ore are undoubtedly quite small, and, as such, I do not believe the Kay will ever be anything more than a small producer.

All reports agree that there is an ore shoot between the 550 and 600 foot levels just to the South of No. 1 shaft, known as the #1 ore body. This is the ore body that Forbach and England propose to mine, and it is undoubtedly the most likely prospect on the property. Estimates as to the size of this ore body range up to 200,000 tons and grade up to 8% copper. I personally do not believe that any such sizeable ore body exists. This ore body was developed between 1910 and 1921, during which time only about 700 tons of ore was shipped. Since that date the property has passed through numerous different hands, several of whom were practical mining men, yet I do not believe that a single shipment has been made since 1917. Moreover, I have not found evidence of any first hand examination, made by a reputable engineer, that attempted to accurately size and value this ore body. You will note that De Camp and the other Humboldt engineers who mention tonnage figures do so only as hearsay. The only real samples that I have found record of appear on the big plan map furnished you by Forbach and England. These assays are probably accurate, but their location, size and value certainly do not indicate a mineable ore body. Note that no assays appear on the 500' level. Estimating ore tonnages without complete sample data is not sound engineering and that is ~~exactly~~ apparently what Poss and the others who wrote similar reports did. Forbach and his former associates apparently spent around $40,000.00 unwatering the Kay to the 500' level, yet they are unable to supply a satisfactory assay map of the very area which they intend to mine.

Judging from the reports that I (and my father) would consider reliable, the No. 1 ore body consists of small lenses and stringers of ore and is not continuous. Mining these small lenses would be a piece-meal proposition, suitable for lessors who have an interest in the property, rather than an organized company. Hard ground and a fixed pumping cost would further increase the cost per ton and even with 7 or 8% ore the margin of profit would be necessarily small.

Regarding the terms which Forbach and England propose to you, I certainly cannot recommend it as a sound mining venture. I doubt that the Kay could be put into proper production for less than $50,000.00 and could then only show a small operating profit due to the limited production possible. The lease calls for minimum royalty payments of $10,000.00 per year, which would probably eat up a good part of what operating profits there might be, and in my opinion is far too high for a mine of this calibre.

Should you decide to make the initial investment and dewater the mine, I strongly recommend that you then have an examination made by a disinterested engineer and that such questions as incorporation and equity be thoroughly ironed out before going any further with the project.

Should you be coming West, I would be more than pleased to make your acquaintance and perhaps be of further assistance to you. In the meantime, I will attempt to answer what questions you may have by correspondence.

Very truly yours,

Alden P. Colvocoresses

APC/kc
Enclosures

C

KAY COPPER COMPANY

October 14th., 1921.

Mr John R. Poss, Superintendent, Kay Copper Company stated that they would not be in a position to ship any ore until the present plan of development has been carried out. This development, as illustrated in the accompanying sketch, will probably take some 5 or 6 months to accomplish and it is the intention of the management to concentrate all their efforts on this work.

Since my last visit to the property (June - 1919) the two shafts #s 1 & 3 have been abandoned and work has been concentrated on the new shaft #4 indicated in the sketch. This new shaft (Two Compartment) has been sunk to 800 feet. This work has just been completed and drifting is to start at once.

Mr Poss claims 200,000 tons of commercial ore developed in the #s 1 & 3 shafts and workings but his hopes are centred on what the development from the #4 shaft will disclose. From rather meager information gained by underground work in the two old shafts and from a small amount of diamond drilling the management feels justified in their new work and in putting off until some future date any returns which might have been received from the mining and treating of the ore already developed. If the development planned from the new shaft results in disclosing the 'hoped-for' ore bodies the policy at present being pursued should yield splendid results. The new shaft, well located in view of the theories advanced relative to the enrichment areas, has been excellently constructed and will be conducive to rapid mining. The double drum hoist to handle the balanced cages should give ample capacity and it would be the policy to later substitute skips for the cages.

From the point of view of opening a mine in an unproved area the policy of the Kay Mine is a bold one to say the least. With two shafts, one of which was down 900' (#1) and the other 500' (#3) in the known ore bodies, to sink a two compartment shaft 800' in depth to tap the known ore bodies again and to develope a prospect based on theory would seem to be adding considerable risk to the natural gamble involved in developing a mine in an isolated area.

In discussing the mine as a prospective producer and from the standpoint of the smelter Mr Poss is firmly convinced that the present policy will not be departed from. Should the hopes at present guiding the work materialize in disclosing commercial ore bodies the management will then bend their efforts to erecting a mill and start producing. Presumably if they fail to find new ore bodies the ore bodies already disclosed by No 1 Shaft will be worked from the new shaft while the ore in No 3 shaft will have to be worked from that shaft.

The known ore bodies should mine at about 4% copper with gold and silver at about $3 according to statements made by Mr Poss. His idea of a mill would be one of 300 tons capacity from which it might be infeered that a concentration of 6 or 7 to 1 would result. The shipping point would in all probability be Turkey Creek and Mr Poss stated that he has done considerable talking to the merchants in Phoenix, from whom he purchases most of his supplies, relative to the improving of the road. His present hauling cost is approximately 40 cents per ton-mile. This distance to Turkey Creek is about 22 miles.- They feel that this present cost would be very greatly reduced by the use of their own trucks and with roads in good condition, making it possible to ship to Humboldt, that smelter being the natural outlet for their product.

The Arizona Power Company has installed a power line

and the Kay Machinery is electrically equipped. At present the plant includes the Double Drum Hoist (Denver Machinery Co) 500 Cu ft Ingersoll Rand Air compressor, and mine pump handling approximately 100 gallons per minute, from the 800' level. The original Chicago-Pneumatic Hot Heads have been set up at the new shaft and can be used as auxilliary equipment at any time. The Blacksmith and Carpenter Shops seem well enough equipped and the buildings seem ample for present needs but I understand they are to be gone over in the near future.

From all appearances the Kay Mine is following out a well established policy and doing so in the most economical and rapid method possible. Whether the policy is justified or not will have to be decided by what the future discloses. It would seem, however, that unless some radical change takes place in the policy of the mine, this smelter will not be able to draw ore from that source for possibly a year or longer and then it is purely conjecture as to what tonnage may be counted on.

H R Banks