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April 10, 1947

Mr. Fred Z. Steele  
Post Office Box 529  
Phoenix, Arizona

RE: Copper Ledge

Dear Steele:

The recent very substantial advances in the price of copper appear to me to furnish an opportunity for you to interest some responsible people in your Copper Ledge property which I examined some five years ago. There is a good deal of mining activity these days and it seems to me that there are some showings on your claims which you could either work to advantage yourself and produce a shipping grade of ore or otherwise you might find someone who would be willing to develop and lease these claims.

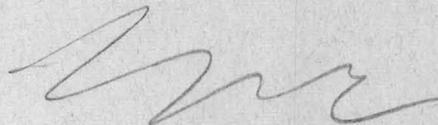
At the present time I have no particular concern in mind since most of the larger companies with whom I am in contact are looking for big, low grade ore bodies particularly those which can be worked by open pit mining from the surface, but I am sure that there must be a number of other concerns which would be interested in a smaller deposit, and I hope you are not overlooking the opportunity to contact some such individual or organization unless you and your brothers plan to work the mine yourselves.

In either case I want to assure you that if I can be of any help or assistance, it will be a pleasure to do so since I have always thought that you had the makings of a good, little mine and the possibility of developing something much bigger.

Personal regards.

Yours very truly,

GMC:IM



COPY

October 1, 1942

The Copper Ledge Mining Corporation  
P. O. Box 529  
Phoenix, Arizona

Gentlemen:

This is intended to revise and supplement the report which was submitted to your company on January 26, 1939. It contains important information obtained on the occasion of my recent examination of your property on September 26, 1942, when I was able to visit for the first time portions of your workings which had been made accessible by your recent development work and thus to examine and sample ore showings which could not be inspected on previous occasions.

I shall herein confine my statements to matters pertaining to the showings and development of shipping ore since the prospect of eventually proving up a large body of disseminated ore in the porphyry and at depth has not materially changed during the past few years and is not of immediate importance, whereas there is now a great demand for the prompt production of copper which has become of primary importance in furthering the war program. The Government will now pay the bonus price of 17¢ per pound for the output of such mines as the Copper Ridge from which the higher grade ore can be shipped direct to a custom smelter.

COPPER RIDGE VEIN

As previously stated this vein occurs in a rhyolite ridge that projects up through the surrounding conglomerate (fanglomerate) which forms the greater part of the surface of your claims.

Although the outcrop of this vein can be traced for several hundred feet the principal work has been confined to a length of 250' (as shown on the attached Exhibit b) where numerous pits and trenches were sunk and the highest grade ore was gouged out near the surface, in some cases to a depth of over 20'.

This vein or mineralized fissure strikes north  $60^{\circ}$  west and has a width of three to six feet, the pay streak along the footwall has a width of from six inches to two feet and contains high grade silicates and carbonates of copper which constituted the ore that was shipped before 1918, having an average value of \$3.79 in gold and silver and 8.19% copper. The balance of the fissure over a width of at least three feet in the fault breccia carries copper values and while no average grade can be actually determined at present there is little doubt that by sorting a substantial production of 4 to 5% copper ore can be made.

At the northwest end of the trenched section the vertical shaft with depth of 104' has now been cleaned out and this has been retimbered so that I was able to go to the bottom. The lower portion of the shaft is in conglomerate although at the very bottom some rhyolite is coming in but whether this is merely a fragment or boulder or actually rock in place could not be determined.

At a depth of 20' below the collar the footwall of the main vein crosses the shaft with a dip of about  $65^{\circ}$  and good ore was noted here on the sides of the shaft with a width of over two feet from which I chipped a sample which assayed:

Au.	0.04 oz.
Ag.	1.2 oz.

Cu. 4.90%

Below this section the rhyolite is shattered and broken for a distance of 10' when another vein or branch of the main vein is encountered apparently lying on or near the contact with the conglomerate and here a width of six inches of high grade ore was sampled. This sample assayed:

Au. 0.07 oz.

Ag. 12.70 oz.

Cu. 29.15 %

This lower vein has not been noted on the surface as it has a dip of only about  $30^{\circ}$  and would therefore outcrop under the surface gravel to the southwest of the rhyolite ridge but these two veins should intersect a short distance to the northeast of the shaft and the rock between them seems to be all mineralized to a certain extent and should yield a substantial percentage of 5% ore.

Both of my samples contained a substantial quantity of chalcocite as well as silicates and carbonates of copper and while some of the ore in the upper vein has been mined out from the surface pits and trenches on the southeast side of the shaft the continuation of the vein to the northwest is all virgin ground.

Along the northwest wall of the shaft there is a cross slip or seam which probably represents a small fault and may throw the veins out of line, but probably for only a few feet.

Other showings along the outcrop and in the pits located along this vein for several hundred feet to the northwest and approaching the main pit of the New Cornelia Copper Company have proved that similar surface ore exists in that section of the vein and that there is every

reason to expect that a substantial quantity of medium grade ore, similar to that which was represented by the former shipments can be developed and mined between the surface and a level which might be run from the shaft at an approximate depth of 50' in order to catch both upper and lower veins at their point of junction.

The continuance of this ore at greater depth is entirely problematical but since we know that many of the high grade veins in rhyolite and monzonite which were originally worked in this district have produced good ore to a depth of as much as 300' there is every reason to follow downward the vein in the Copper Ridge, which doubtless had a similar origin, with good hope that this may have at least a substantial depth either in the rhyolite or along the contact between the rhyolite and the conglomerate.

#### MAYFLOWER VEIN

This showing is located over half a mile northeast of the Copper Ridge Vein with which it has no connection.

The outcrop is entirely in conglomerate which forms both walls of the fissure in which the silicate and carbonate ores occur striking N. 60° E. and dipping 50° to the northeast.

The outcrop of this vein can also be traced for a considerable distance and at one point a shaft has been sunk along the vein to a depth of about 50' and can be descended with the aid of a rope. I did not personally go all the way to the bottom but from a point about half way down I was able to see practically all of the exposed section of the vein and can thus confirm the statement of Albert Steele who found over one foot of high grade ore showing in the short drifts at

the bottom. Along the walls of the shaft the best ore again occurs as a narrow seam with lower grade material extending for some distance in the adjacent rock.

The condition of the shaft did not make it possible to cut any representative samples but from a dump of about five tons which was piled on the surface I took an average sample which assayed as follows:

Au. 0.05 oz.

Ag. 0.20 oz.

Cu. 10.53%

By a little sorting I am well assured that a somewhat lower grade of ore could be produced from a width of at least two feet.

The attached sketch Exhibit (d) will show the scope of this working and indicate that drifting should be continued both ways on the 50' level. It will also be in order to deepen the shaft as long as the vein continues to carry a width and grade of ore which makes its further development attractive.

#### OTHER SHOWINGS

Elsewhere on the Copper Ridge Claims there are a number of surface showings of oxidized copper ore occupying fractures in the conglomerate and similar in character but of lesser extent than the above described Mayflower Vein.

Several shallow shafts and pits have been sunk on these and from some of them a little good ore was mined. From one of these pits about 400' to the southeast of the Copper Ridge Shaft I took a sample across a width of about two feet which carried:

Au. 0.01 oz

Ag. 1.5 oz.

Cu. 8.22 %

At a later date some further work on this and other similar showings should be considered but for the time being I believe that it will be best to confine the developments to the two most promising localities, namely the Copper Ridge and the Mayflower at both of which you are reasonably sure of producing some shipping ore and of developing a substantial but uncertain tonnage by lateral work and at greater depth.

The only other recent development carried on by your company consists in the drilling of a diamond drill hole to a depth of 130' below the surface. This hole was located 350', N. 55° E. of the Copper Ledge Shaft and, as I should have expected, it penetrated conglomerate continuously and gave no information concerning the ore deposits.

#### WORK RECOMMENDED

In view of the information concerning this property which I was able to obtain on the occasion of this last examination by having been able to descend the Copper Ridge and Mayflower shafts I am able to form a different and on the whole a much more favorable opinion of your showings and to substantially revise the program of development which I had previously advocated, some of which you have already carried out and are continuing to do so.

I do not consider that your main Copper Ridge Shaft should be deepened until you have crosscut to the vein and drifted a considerable distance on the 50' level from the shaft for if this work should give

able mining operation.

The gross value of one ton of 5% copper ore with \$1.50 value in gold and silver and considering the 5¢ bonus on copper will be \$18.50 per ton and the gross value of 4% ore will be \$15.10. The total expense, after the ore has been mined, including trucking to railway, freight to smelter, toll charge and deductions and converting and refining the copper will reduce the net value to \$8.50 and \$5.60 but in both cases this should leave a substantial margin over the actual cost of mining the ore.

In support of my opinion and advice I refer to my previous report and to the report of Mr. Flagg dated May 10, 1938, and I also quote as follows from a report by George G. Wold, M. E., apparently made in 1920.

"The exploration of the contact should be based on the development of the fault veins in the thylolite. High grade ore will be found in the veins but it's extent can only be proven by development".

The tonnage of pay ore that your property can produce is as yet entirely uncertain and the determination of this point will be the principal object of the work which I now recommend. I believe it to be fully justified by your present showings which give promise of becoming progressively more attractive as the work advances.

Yours very truly,

satisfactory results it will serve to develop a considerable tonnage of ore and similar work can later be conducted at greater depth with much better assurance of success.

A similar situation exists at the Mayflower Shaft. I therefore recommend to you that you should equip both of these shafts with small hoists and compressors which I understand that you can purchase second-hand on favorable terms. The crosscut to the vein on the 50' level at the Copper Ridge will probably not exceed a length of 30' and you should then drift along the vein at least 100' in each direction,--unless the fault in the northwest edge of the shaft should have thrown the vein much farther out of line than I anticipate. The cost of procuring and installing the equipment necessary to carry on this work should not exceed \$1000 and the cross-cutting and drifting should be completed for approximately \$2300.

At the Mayflower Shaft some timbering will be required which together with the purchase and installation of similar or somewhat smaller equipment will involve an outlay of approximately \$1200 and on the 50' level, -- i.e. at the bottom of the present shaft, 50' of drifting in each direction may be estimated to cost about \$1000. Additional drifting and the deepening of the shaft can be undertaken later.

An additional \$500, apportioned to the above operations, should be allowed to cover the necessary overhead expenses including Social Security and Unemployment Taxes, accounting and engineering expenses making a total outlay of about \$5000 which in my judgment will be quite sufficient to either disprove the present apparent value of the property or to make it reasonably certain that further work will continue to develop pay ore and that you will have the basis for a small but profit-

# Copper Ledge Mining Co.

## Proposed PROSPECTUS

### Property

By virtue of a duly recorded contract executed March 21st, 1939, the Copper Ledge Mining Company have acquired a six year lease and option to purchase from the Copper Ridge Mining Company, their lawful owner, ten patented and five unpatented full sized mining claims, aggregating about 300 acres, located in the Ajo Mining District, Pima County, Arizona.

The title to all of the patented claims is perfect and free of all liens and encumbrances. The unpatented claims are held by right of location subject to the paramount title of the U. S. Government and are in good standing with assessment work done and recorded or exemption claimed in accordance with the statutes.

The terms of the said lease and option are unusually favorable to the lessee in that, before any payment of purchase price is due the owner, the lessee is entitled to fully reimburse itself from operating income for all expenditure hereafter made to develop, equip or operate the leased property. If and when such reimbursement has been completed, it is provided that 20% of the net revenues from operations shall be applied to the payment of the purchase price of the property which is fixed at a maximum of \$77,000 and when and if such payment is completed during the six year period of the lease, through payment of the 20% royalty or in any other manner, the title to all of this property will pass free and clear to the Copper Ledge Mining Company.

The organizers of the Copper Ledge Mining Company and their predecessors and associates and the stockholders of the

Copper Ridge Mining Company have heretofore expended approximately \$30,000 to purchase or otherwise acquire this property and to initiate and carry forward a program of development which was halted by the depression and which it is now desired to carry to completion, for which purpose we are inviting the public to subscribe to the stock of this Company in accordance with the terms of a subscription agreement hereto attached.

All legal transactions and documents pertaining to this enterprise have been approved by our Attorneys and authority to offer this stock as per this prospectus and the attached subscription agreement has been obtained from the Arizona Corporation Commission whose permit is printed below.

Our mining claims have recently been examined independently by two Consulting Mining Engineers who are in no way financially interested in this company nor in the success of the venture. Both have expressed favorable opinions in respect to the geology and ore occurrence and have recommended that we should further explore and develop this property with the justifiable expectation of proving up and operating a copper, gold, silver mine with a moderate quantity of high grade shipping ore in the upper levels and the chance for a very large deposit of low grade ore at depth.

The complete reports of both Engineers as well as the contract with the Copper Ridge Mining Company may be inspected by any interested party. Both reports have stressed the importance of our location immediately adjoining the New Cornelia Mine of the Phelps Dodge Corporation which is one of the greatest porphyry copper mines of the world with a recorded production of ~~some~~ <sup>about</sup> one billion pounds of copper <sup>since</sup> from its opening in 1915 and a current output of 17,000 tons of ore per day.

While the Engineers believe that the New Cornelia disseminated ore body extends over into our ground, yet they and we fully recognize that here it is covered with a very heavy overburden of conglomerate and recent alluvial deposits and its proper exploration, development and equipment for large scale operations would of necessity involve a very large expenditure of capital which is not contemplated in our present program.

The principal vein of ore which outcrops on our claims, - and there are several smaller ones, - has been proved to be persistent in length for over 1000 feet and in certain shoots and lenses a narrow width of ore has been mined producing about 100 tons of ore which as shipped to the smelter averaged better than 8% copper with gold and silver content worth \$3.62 per ton at present prices, making a gross value of say \$20.00 per ton.

The attractive feature in these showings lies in the fact that according to those who have long been familiar with this district, they appear to be essentially similar to the surface showings which first attracted miners to Ajo and from which within a distance of less than two miles of our claims several hundred thousand dollars worth of copper, gold, silver ore was mined with substantial profit even though all operating conditions were much less favorable than at present when we are located within one mile of an operating railroad, a natural gas line and electric power lines.

It is the belief of our engineers that our veins may develop in a similar manner as depth is gained, the surface silicates and oxides giving place to sulphides and the pay streak widening to from three feet to six feet as was the case in the old developments mentioned.

In order to definitely prove or disprove this assumption one of our technical advisers has estimated that approximately \$20,000 should be expended in a carefully considered program of underground development and to put this program into effect, repay the organization and listing expenses and provide against unforeseen contingencies we have decided to limit our present subscription to the sale of a sufficient amount of stock to net us the sum of \$30,000, all of which will be carefully and economically expended for the actual development of the ore and which is to be repaid in full to the investors from the first earnings of our operations.

If the results of our work meet our expectations, this expenditure will put this property on a basis of substantially profitable operation and subsequently permit the acquisition of title and pave the way for the development of the large porphyry ore body which we believe to exist at greater depth, and the stock-holders may thus hope not only for the return of their original investment for a subsequent participation in long continuing and extremely profitable mining operation. If unsuccessful they will at least have participated in an honest legitimate and carefully considered effort to develop and utilize the natural resources of our state and we promise them a good run for their money.

The organizers of this Company, as a consideration for past expenditure, and contract with the Copper Ridge Company are to receive \_\_\_\_\_ shares of Common Capital Stock when and if sufficient stock has been bought and paid for under the terms of this subscription agreement to net the Company \$30,000, in addition they are to be repaid for services and out of pocket expenses of organization, listing, etc., a sum which is not to exceed a total of \$5000. The commission,

*Sum 94600 @ 1.00*

if any, which will be paid to brokers or others who may sell this stock is limited to <sup>20%</sup>~~15%~~ of the net amount received from such sales but the Company will make every effort to dispose of all or a large part of this offering direct to the purchasers thus saving such commissions. No preferred stock can be offered under our present authority and the Company hereby binds itself not to offer any such preferred stock until after the money paid in by the Common Stockholders has been repaid to them and the development program has been carried to a point where it is deemed advisable to purchase the title to the property and then only upon the affirmative vote of a majority of the stockholders and with privilege to the stockholders to subscribe pro rata for any and all such preferred stock as may be offered.

We who have already made our play will only stand to win if you do, we have taken our chance in all good faith and with confidence of ultimate success and we invite you to join us in the same spirit and on the same basis but only with full realization that the development of any and every mining prospect is a gamble, - the right kind of a gamble, - and that mining is essentially a speculative industry in which no one can or should be sure of a winning or invest one dollar more than they can afford to lose.

We are not going to tell you about the Utah Copper, Homestake or the United Verde Mines, for <sup>you</sup>we might properly say that for every such bonanza there are a hundred abandoned holes in the ground; nor about the mining millionaires, for you probably know a lot of other people who have bought worthless mining stock and lost whatever money they risked in such enterprises.

We are not going to quote poetry or maxims nor make any appeal to your state pride and national patriotism but we come to you merely as one business man to another with a business opportunity which we hope you will investigate just as fully as you may think proper and then decide to accept or decline. You may lose everything that you put into this stock, you may get your stake back with or without a small profit and you may double your money or quadruple it or even multiply it one hundred fold but it is up to you to make your own decision based on your faith in us and our opinion, but in the final analysis in your own good judgment.

SUBSCRIPTION AGREEMENT

WHEREAS, The Copper Ledge Mining Company has been organized under the laws of the State of Arizona with an authorized Capital Stock of \_\_\_\_\_ shares of Preferred Stock

WHEREAS, said Company has executed a contract with the Copper Ridge Mining Company whereby it has acquired a six year lease with option to purchase 10 Patented and 5 Unpatented Mining Claims located near Ajo, Arizona and proposes to explore, and develop the said claims and to mine and dispose of the ores and other commercially valuable material which may be found therein and the products which may be derived therefrom and for this purpose now solicits subscriptions for the purchase of its Common Capital Stock up to the aggregate amount of \_\_\_\_\_ shares at a price of \_\_\_\_\_ per share for which right to legally solicit such subscription permit has been sought and obtained from the Arizona Corporation Commission on \_\_\_\_\_, 1939, which said stock is to be fully paid and non-assessible and entitled to share pro rata in all net profits earned by the said Company up to an amount equivalent to the purchase price before any payment is made to the owners of the mining claims on account of the purchase price thereof.

NOW, THEREFORE, in consideration for these premises and the mutual agreements herein contained, I or we the undersigned do hereby subscribe for and agree to purchase and pay for, within ten (10) days after this date, the shares of Common Capital Stock of said Copper Ledge Mining Company at a price of \_\_\_\_\_ per share, thereby obligating myself to make a total payment of \_\_\_\_\_ in exchange for which there are to be promptly issued to me shares of stock as above.

No such subscriptions shall become effective and binding until the duplicate copy has been accepted by the proper officer of the said Company and returned to the Subscriber and the Company reserves the right to refuse such acceptance of any or all subscriptions.

Accepted:

COPPER LEDGE MINING COMPANY

by \_\_\_\_\_  
Secretary.

Encl # 7.

Coffin Copy

October 1, 1942

The Copper Ledge Mining Corporation  
P. O. Box 529  
Phoenix, Arizona

Gentlemen:

This is intended to revise and supplement the report which was submitted to your company on January 26, 1939. It contains important information obtained on the occasion of my recent examination of your property on September 26, 1942 when I was able to visit for the first time portions of your workings which had been made accessible by your recent development work and thus to examine and sample ore showings which could not be inspected on previous occasions.

I shall herein confine my statements to matters pertaining to the showings and development of shipping ore since the prospect of eventually proving up a large body of disseminated ore in the porphyry and at depth has not materially changed during the past few years and is not of immediate importance, whereas there is now a great demand for the prompt production of copper which has become of primary importance in furthering the war program. The Government will now pay the bonus price of 17¢ per pound for the output of such mines as the Copper Ridge from which the higher grade ore could be shipped direct to a custom smelter.

COPPER RIDGE VEIN

As previously stated this vein occurs in a rhyolite ridge that projects up through the surrounding conglomerate (fanglomerate) which forms the greater part of the surface of your claims.

Although the outcrop of this vein can be traced for several hun-

X dred feet the principal work has been confined to a length of <sup>2</sup> 150' (as shown on the attached Exhibit B) where numerous pits and trenches were sunk and the highest grade ore was gouged out near the surface, in some cases to a depth of over 20'.

This vein or mineralized fissure strikes north 60° west and has a width of three to six feet, the pay streak along the footwall has a width of from six inches to two feet and contains high grade silicates and carbonates of copper which constituted the ore that was shipped before 1918, having an average value of \$3.79 in gold and silver and 8.19% copper. The balance of the fissure over a width of at least three feet <sup>in the fault breccia</sup> carries copper values and while no average grade can be actually determined at present there is little doubt that by sorting a substantial production of 4 to 5% copper ore can be made.

At the northwest end of the trenched section the vertical shaft with depth of 104' has now been cleaned out and retimbered so that I was able to go to the bottom. The lower portion of the shaft is in conglomerate although at the very bottom some rhyolite is coming in but whether this is merely a fragment or boulder or actually rock in place could not be determined.

At a depth of 20' below the collar the footwall of the main vein crosses the shaft with a dip of about 65° and good ore was noted here on the sides of the shaft with a width of over two feet from which I chipped a sample which assayed:

Au.	0.04 oz.
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Cu.	4.90 %

Below this section the rhyolite is shattered and broken for a distance of 10' when another vein or branch of the main vein is encountered

apparently lying on or near the contact with the conglomerate and here a width of six inches of high grade ore was sampled. This sample assayed:

Au. 0.07 oz.

Ag. 12.70 oz.

Cu. 29.15 %

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Both of my samples contained a substantial quantity of chalcocite as well as silicates and carbonates of copper and while some of the ore in the upper vein has been mined out from the surface pits and trenches on the southeast side of the shaft the continuation of the vein to the northwest is all virgin ground.

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run from the shaft at an approximate depth of 50' in order to catch both upper and lower veins at their point of junction.

The continuance of this ore at greater depth is entirely problematical but since we know that many of the high grade veins in rhyolite and monzonite which were originally worked in this district have produced good ore to a depth of as much as 300' there is every reason to follow downward the vein in the Copper Ridge, which doubtless had a similar origin, with good hope that this may have at least a substantial depth either in the rhyolite or along the contact between the rhyolite and the conglomerate.

#### MAYFLOWER VEIN

This showing is located over half a mile northeast of the Copper Ridge Vein with which it has no connection.

The outcrop is entirely in conglomerate which forms both walls of the fissure in which the silicate and carbonate ores occur striking N. 60° <sup>W</sup> E. and dipping 50° to the <sup>north-east</sup> southeast.

The outcrop of this vein can also be traced for a considerable distance and at one point a shaft has been sunk along the vein to a depth of about 50' and can be descended with the aid of a rope. I did not personally go all the way to the bottom but from a point about half way down I was able to see practically all of the exposed section of the vein and can thus confirm the statement of Albert Steele who found over one foot of high grade ore showing in the short drifts at the bottom. Along the walls of the shaft the best ore again occurs as a narrow seam with lower grade material extending for some distance in the adjacent rock.

The condition of the shaft did not make it possible to cut any representative samples but from a dump of about five tons which was piled on the surface I took an average sample which assayed as follows:

Au. 0.05 oz.  
Ag. 0.20 oz.  
Cu. 10.53 %

By a little sorting I am well assured that a somewhat lower grade of ore could be produced from a width of at least two feet.

X The attached sketch Exhibit (d) will show the scope of this working and indicate that drifting should be continued both ways on the 50' level. It will also be in order to deepen the shaft as long as the vein continues to carry a width and grade of ore which makes its further development attractive.

#### OTHER SHOWINGS

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Au. 0.01 oz.  
Ag. 1.5 oz.  
Cu. 8.22 %

At a later date some further work on this and other similar showings should be considered but for the time being I believe that it

will be best to confine the developments to the two most promising localities, namely the Copper Ridge and the Mayflower at both of which you are reasonably sure of producing some shipping ore and of developing a substantial but uncertain tonnage by lateral work and at greater depth.

The only other recent development carried on by your company consists in the drilling of a diamond drill hole to a depth of 130' below the surface. This hole was located 350', N. 55° E. of the Copper Ledge Shaft and, as I should have expected, it penetrated conglomerate continuously and gave no information concerning the ore deposits.

#### WORK RECOMMENDED

In view of the information concerning this property which I was able to obtain on the occasion of this last examination by having been able to descend the Copper Ridge and Mayflower shafts I am able to form a different and on the whole a much more favorable opinion of your showings and to substantially revise the program of development which I had previously advocated, some of which you have already carried out, *and are*

*X* *Continuing to do so.*  
I do not consider that your main Copper Ridge shaft should be deepened until you have crosscut to the vein and drifted a considerable distance on the 50' level from the shaft for if this work should give satisfactory results it will serve to develop a considerable tonnage of ore <sup>and</sup> similar work can later be conducted at greater depth with much better assurance of success.

A similar situation exists at the Mayflower Shaft. I therefore recommend that you should equip both of these shafts with small hoists and compressors which I understand that you can purchase second-hand

on favorable terms. The crosscut to the vein on the 50' level at the Copper Ridge will probably not exceed a length of 30' and you should then drift along the vein at least 100' in each direction,--unless the fault in the northwest edge of the shaft should have thrown the vein much farther out of line than I anticipate. The cost of procuring and installing the equipment necessary to carry on this work should not exceed \$1000 and the cross cutting and drifting should be completed for approximately \$2300.

At the Mayflower Shaft some timbering will be required which together with the purchase and installation of similar or somewhat smaller equipment will involve an outlay of approximately \$1200 and on the 50' level,--i.e. at the bottom of the present shaft,--50' of drifting in each direction may be estimated to cost about \$1000. Additional drifting and the deepening of the shaft can be undertaken later.

An additional \$500, apportioned to the above operations, should be allowed to cover the necessary overhead expenses including Social Security and Unemployment Taxes, accounting and engineering expenses making a total outlay of about \$5000 which in my judgment will be quite sufficient to either disprove the present apparent value of the property or to make it reasonably certain that further work will continue to develop pay ore and that you will have the basis for a small but profitable mining operation.

The gross value of one ton of 5% copper ore with \$1.50 value in gold and silver and considering the 5% bonus on copper will be \$18.50 per ton and the gross value of 4% ore will be \$15.10. The total expense, after the ore has been mined, including trucking to railway, freight to smelter, toll charge and deductions and converting and refining the

copper will reduce the net value to \$8.50 and \$5.60 but in both cases this should leave a substantial margin over the actual cost of mining the ore.

In support of my opinion and advice I refer to my previous report and to the report of Mr. Flagg dated May 10, 1938, and I also quote as follows from a report by George G. Wold, M. E. apparently made in 1920.

"The exploration of the contact should be based on the development of the fault veins in the rhyolite. High grade ore will be found in the veins but it's extent can only be proven by development".

The tonnage of pay ore that your property can produce is as yet entirely uncertain and the determination of this point will be the principal object of the work which I now recommend. I believe it to be fully justified by your present showings which give promise of becoming progressively more attractive as the work advances.

Yours very truly,

*S. H. Colver*

No. Co 157

Phoenix, Arizona,

CHAS. A. DIEHL

Sept. 28, 1942.

# ARIZONA ASSAY OFFICE

Phone 3-4001

815 North First Street

P. O. Box 1148

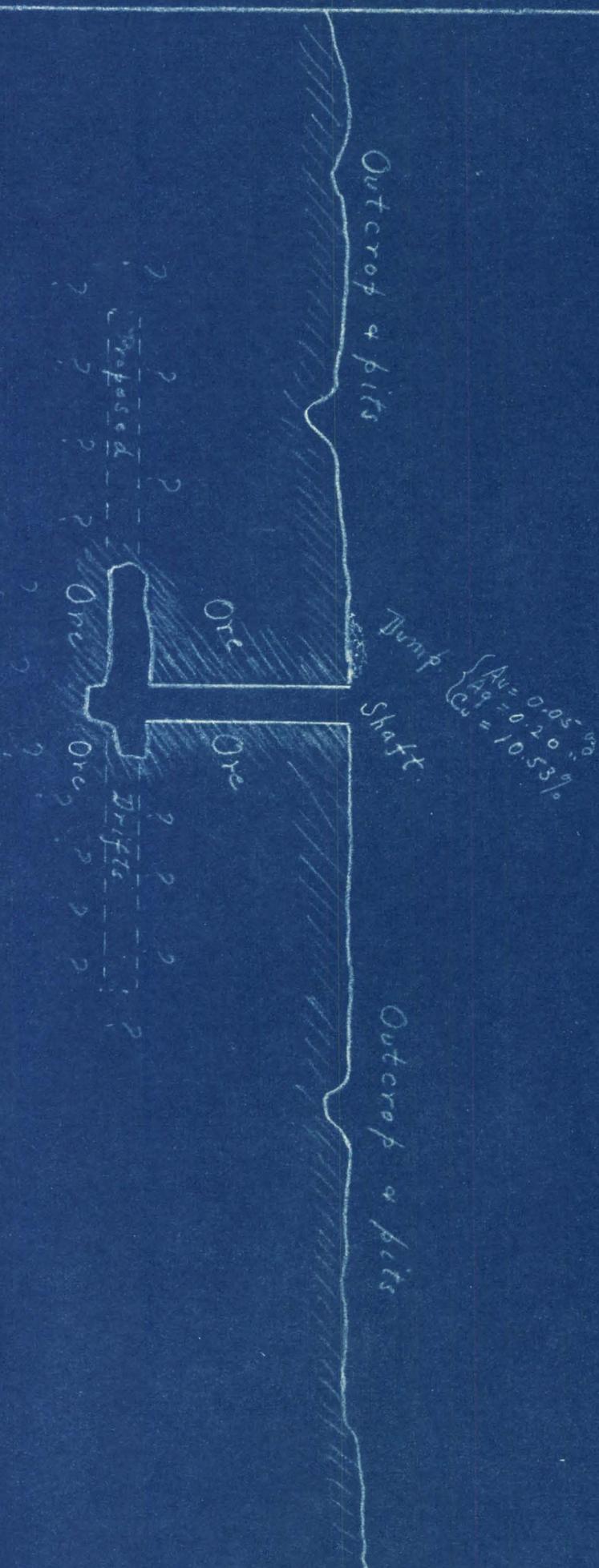
This Certificate That samples submitted for assay by **Mr. G. M. Colvocoresses.** contain as follows per ton of 2000 lbs. Avoir.

MARKS	SILVER		VALUE (Oz.)	GOLD		VALUE (Oz.)	TOTAL VALUE Of Gold and Silver	%	PERCENTAGE	REMARKS
	Ounces	Tenths		Ounces	Hundredths					
CR 1	12	7		.07	\$2.45			29.15	High grade ore in footwall seam Copper rich shaft, width 8"	
CR 2	1	2		.04	\$1.40			4.90	Ore from main vein in shaft, width 3'	
CR 3	1	5		.01	\$.35			8.22	" " Surface pit.	
CR 4		2		.05	\$1.75			10.53	Sample of dump ore at Maryflower shaft.	

Charges \$ 8.00

Assayer ARIZONA ASSAY OFFICE

*Chas. A. Diehl*



Copper Ledge  
Ex (c)  
 Magflower Workings

Scale 1" = 30'

CLASS OF SERVICE

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# WESTERN UNION

(57)<sup>1201</sup>  
(09)

SYMBOLS

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- NT=Overnight Telegram
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CA214 13=KEOKUK IOWA 24 206P

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G M COLVOCORESSES=

1102 LUHRS TOWER PHENIX ARIZ=

LEAVING KEOKUK FRIDAY MORNING. ARRIVE PHOENIX 8 AM SUNDAY  
MORNING LOVE FROM ALL=

SALLIE.

8 AM.

had sent into Cyprus  
for some

## REPORT ON THE COPPER RIDGE MINING COMPANY

The property of the COPPER RIDGE MINING COMPANY, consists of fourteen (14) claims held by the performance of the annual assessment work and is located in the Ajo Mining District, Pima County, Arizona, one mile south of the town of Ajo, which is the terminous of the Tucson, Cornelia and Gila Bend Railroad, via wagon road from Ajo to the main shaft on the property, the distance is three miles over a fair desert road.

### TOPOGRAPHY

The claims lie in the gently rolling wash covered foot hills of the Ajo Mountains, at an elevation of 2000 feet above sea level. Desert brush and cactus are the only vegetation, except in the washes where there is a sparse growth of palo verde and mesquite.

### GEOLOGY

Except for a recent conglomerate, all the rocks in the district are of igneous origin. In early geologic times the rhyolite country rock was intruded and uplifted by a lacolith of monzonite porphyry both rocks were later, in tertiary times, cut by a series of diorite dikes probably associated with the flows of andesite and basalt which covered the country.

While the porphyry was still covered, the ore bearing solutions came up from below along a chimney shaped channel, through the monzonite silicifying and mineralizing the monzonite the spreading out under the overlying rhyolite, in the shape of a huge mushroom. There followed a period of vigorous erosion, when the conglomerate beds were formed and the porphyry exposed for a length of from 8 to 10 miles and a width of from one to four miles.

### ORE OCCURENCE

The ore bodies occur in the porphyry and on the contact between the porphyry and rhyolite on the southeastern extremity of the porphyry outcrop. In the porphyry the copper occurs as bornite and chalcopyrite and the ore carries about  $1\frac{1}{2}\%$  copper and \$0.15 per ton in gold and

silver. Both the oxidized capping and the sulphide ore carry nearly the same values indicating that it is a primary ore and that there has been little secondary enrichment.

On the rhyolite-porphry contact, the ore bodies are smaller but higher grade, shipments containing up to 60% copper have been made. The contact dips steeply to the southwest and about 20 degrees to the southeast. Native copper, cuprite and at depth chalcocite are present in the contact ore bodies and the mineralization extends into both the monzonite and rhyolite walls.

#### DEVELOPMENT

The claims of the COPPER RIDGE MINING COMPANY lie in the rhyolite covered country to the southeast of the southeast extremity of the porphyry outcrop. Two strong east and west faults are developed on the property, one on the Mayflower Claim, the second on the Copper Ridge claims 4 and 5. That on the Mayflower dips steeply to the north and an inclined shaft has been sunk 65 feet on the vein which carries up to 6-8 inches of copper carbonate. An assay taken of approximately 5 tons of high grade ore sacked on the dump ran 14.53% copper.

The fault on the Copper Ridge claims has been opened up by open cuts and stopes for 800 feet in length on the surface and small pits to the north of the main shaft show parallel fracturing in the rhyolite, all carrying copper carbonate, for a width of 300 feet.

The main fault is strong and well marked, near surface copper carbonate occurs in lenses near the walls and in veinlets in the fractures of the rhyolite. At a depth of 50 feet some chalcocite and specularite is apparent. The fault strikes North 80 degrees West and dips about 60 degrees to the northeast.

A two compartment vertical main shaft is sunk to a depth of 56 feet through reddish rhyolite heavy in iron oxide and well brecciated. The shaft cut through the main fault and several parallel slips all carrying copper values. A grab sample of the shaft dump ran 0.11%

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A second shaft 50 feet deep is sunk 250 feet Northeast of the present working shaft and is all in light colored unmineralized rhyolite. A diamond drill hole was sunk on the property but no log of the hole is available, from the core specimens it did not penetrate the rhyolite. A sample cut from Pit #1, 110 feet North 20 degrees West of the main shaft, ran 2.08% copper and a 4 foot sample cut in Pit #5, 400 feet North 60 degrees east of the main shaft ran 1.60% copper.

#### HISTORY AND ADJOINING PROPERTIES

Ajo was one of the first of the copper camps operated in the Southwest, in the early '60's ore from the high grade veins in the rhyolite was shipped overland and smelted on the coast and abroad. The porphyry deposits were not put on a producing basis until 1917 but since then to the end of 1919 had produced 100 million pounds of copper.

The property of the New Cornelia Copper Company with 51 million tons of 1 $\frac{1}{8}$ % copper ore developed adjoins the claims on the Northwest. The Little Ajo Copper Company is reported to have encountered low grade ore at a depth of 1000 feet in their diamond drilling.

#### WATER AND WOOD

No fuel is obtainable locally and fuel oil and gasoline must be used. Water sufficient for development purposes can be obtained from a well one mile distant.

#### CONCLUSIONS

The contact of the rhyolite and porphyry if it maintains its dip to the southeast as exposures will, at the northwest end line of the Copper Ridge Group, be at a depth of approximately 1000 feet, but an igneous contact cannot be figured as regular and it may be much deeper or shallower. The exploration of the contact should be based on the development of the fault veins in the rhyolite. High grade ore will be found in these veins but its extent can only be proven by develop-

ment. The shaft would be continued to the water level and drifts driven on the faults with cross cuts in the wall rock.

Respectfully submitted,

(SIGNED)

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The claims lie in the gently rolling wash covered foot hills of the Ajo Mountains, at an elevation of 2000 feet above sea level. Desert brush and cactus are the only vegetation, except in the washes where there is a sparse growth of palo verde and mesquite.

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### ORE OCCURENCE

The ore bodies occur in the porphyry and on the contact between the porphyry and rhyolite on the southeastern extremity of the porphyry outcrop. In the porphyry the copper occurs as bornite and chalcopyrite and the ore carries about 1½% copper and \$0.15 per ton in gold and

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driven on the faults with cross cuts in the wall rock.

Respectfully submitted,

(SIGNED)

George S. Wold M.E.

(~~Wold~~)

no date but said to have

been made in 1920

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ment. The shaft would be continued to the water level and drifts driven on the faults with cross cuts in the wall rock.

Respectfully submitted,

(SIGNED)

5 Copies

AGREEMENT

This agreement made and entered into this 21st day of March 1939 by and between the Copper Ridge Mining Company, an Arizona Corporation, ~~and~~ hereinafter called FIRST PARTY and the Copper Ledge Mining Company, an Arizona Corporation, hereinafter called SECOND PARTY, witnesseth as follows:

Whereas FIRST PARTY is the lawful owner of certain patented and unpatented lode mining claims known as the

- |                 |                      |
|-----------------|----------------------|
| Copper Ridge #1 | Copper Ridge #9      |
| " " 2           | " " #10              |
| " " 3           | " " #11              |
| " " 4           | Mayflower            |
| " " 5           | Eagle                |
| " " 6           | Gloriana #1          |
| " " 7           | Gloriana #2          |
| " " 8           | Triangle<br>fraction |

all being located in the Ajo District, Pima County, Arizona, and record of which is contained in the office of the County Recorder, and is desirous of disposing of the same, and

Whereas, the SECOND PARTY has been organized for the purpose of developing and operating the said mining claims and is desirous of acquiring the title and ownership thereof, and,

Whereas, in accordance with the duly recorded minutes of a special stockholders meeting of this date, it was legally resolved that such sale of the described property should be made in accordance with the terms and conditions hereinafter stipulated.

Whereas, FIRST PARTY recites that it has approximately 150 stockholders holding duly issued stock which formerly had a par value of <sup>approximately</sup> \$670,000 which said stock by unanimous consent of the shareholders has heretofore been declared

to have an accepted sale value of 10¢ per share for the purpose of making effective this agreement and thereby giving to said stock an aggregate value of approximately Sixty Seven Thousand Dollars (\$67,000) but in any event, not exceeding a total of Seventy Seven Thousand Dollars (\$77,000.00) and FIRST PARTY further recites that at a special stockholders meeting the present Board of Directors of the Copper Ridge Mining Company were by resolution and in accordance with minute entry of this date duly elected as TRUSTEES to represent the said stockholders of said Copper Ridge Mining Company with full power and authority to act for said stockholders in carrying out this agreement and otherwise, three of whom shall be sufficient to transact any business connected herewith,- and that they are further empowered to receive and disburse all money received from a sale of said mining property and to settle with the said stockholders as their interest appears in proportion to their stock holdings valued at ten cents per share; that within one year after settlement they are further empowered, after notice and publication of settlement, to distribute in accordance with <sup>law</sup>~~Statue~~, the sums due to any stockholders to whom the TRUSTEES cannot legally make payment; that these provisions are deemed for the best interest of FIRST PARTY and its stockholders due to the fact that some small minority shareholders are no longer available and their addresses are unknown and for the further reason that before the expiration of <sup>the</sup>~~this~~ agreement, the Copper Ridge Mining Co. may have ceased to exist as a corporation and, further, that all payments agreed to be made by <sup>the</sup>~~SECOND~~ PARTY shall be made and deposited to the credit of said TRUSTEES, the names of whom are as follows: Fred Z. Steele, Lemuel P. Mathews, John Tait, Leo Rager and H. E. Steele, which funds are to be

held by them for the benefit of the stockholders of FIRST PARTY and shall be distributed to said stockholders from time to time.

Now, therefore, this agreement further witnesseth:-

#### ARTICLE I

For and in consideration of the payment by SECOND PARTY of One Dollar cash, receipt of which is hereby acknowledged and compliance with the other terms and provisions of this agreement, FIRST PARTY hereby agrees to sell and SECOND PARTY hereby agrees to purchase the above described property for the following consideration and in accordance with the following terms and conditions.

#### ARTICLE II

The total sale and purchase price of the property described above shall be the sum of Seventy Seven Thousand Dollars (\$77,000) lawful currency of the United States or such lesser amount as may be found to represent the sum of 10¢ per share for each share of stock of FIRST PARTY now outstanding.

The payment of this sum shall be made by SECOND PARTY through payment to the Valley National Bank, -Ajo Branch, - as Escrow Agent and for the credit of the TRUSTEES herein named twenty per cent (20%) of all net revenue of SECOND PARTY which may be derived from the described property less the amounts expended in the development of the said property, over a period of six years from date or such lesser period as may be required to complete the said purchase payment without interest.

### ARTICLE III

As soon as possible after the execution of this agreement, the FIRST PARTY shall draw and execute in favor of SECOND PARTY a good and sufficient deed and conveyance to the above described property free and clear of all liens and encumbrances as of this date excepting only the taxes assessed thereon subsequent to January 1st, 1938 and the said deed shall be deposited with the Escrow Agent together with an original copy of this agreement to be delivered to SECOND PARTY upon the completion of the payment of the purchase price herein stipulated and the full compliance with the terms of this agreement.

Thereafter all right, title and interest of FIRST PARTY to the described premises shall cease and determine.

### ARTICLE IV

Upon the execution of this agreement SECOND PARTY shall become entitled to the full and complete use and possession of the demised premises and shall pay for all further improvements and dispose of all products for its benefit and shall post and keep posted thereon proper and legal notices releasing FIRST PARTY from all liability for work performed upon said premises or for supplies furnished or injury or damage to any employees or others or from any other cause arising from the ownership or operation of the described property.

### ARTICLE V

It shall be the duty of the TRUSTEES for FIRST PARTY to examine from time to time all books and records of SECOND PARTY for the purpose of determining the compliance of SECOND PARTY with the terms hereof and the said books and records shall be open to inspection by said TRUSTEES at all reasonable times.

ARTICLE VI

Time is of the essence of this agreement and if the sums as agreed to be paid and the things agreed to be done on the part of the SECOND PARTY are not promptly made and done within the times herein fixed, then and in that event, upon due proof thereof being made and notice thereof served upon the SECOND PARTY, The Valley National Bank, Ajo Branch, is hereby instructed to deliver all papers including said deeds to the TRUSTEES herein named, and the property shall forthwith revert with complete possession to said TRUSTEES for the benefit of said stockholders of FIRST PARTY.

In witness whereof the parties to this agreement, being duly authorized by the stockholders and the Board of Directors of said parties hereto, have caused this agreement to be signed, sealed and executed in original triplicate this ~~the~~ day and year first above written, *the same to be binding upon their <sup>respective</sup> successors & assigns*

WITNESSES:

By: \_\_\_\_\_

FIRST PARTY

By: \_\_\_\_\_

SECOND PARTY

*Should be notarized so that it may be filed for record.*

*(and in writing copy)*

5/10/38

GEOLOGICAL REPORT

COPPER RIDGE GROUP

Ajo District, Pima County,

Arizona.

Phoenix, Arizona,  
May 10th, 1938.

C O N T E N T S.

1. Report,
2. Description field specimens,
3. Ore shipments,
4. Estimates,
5. References,
6. Plate I : Claim Map,
7. Plate II : Geologic Map,
8. Plate III : Geologic Map.

## GEOLOGICAL REPORT

### COPPER RIDGE GROUP

Ajo District, Pima County,

Arizona.

A.L. Flagg, Cons. Engineer.

The Copper Ridge group of mining claims is situated in the Ajo mining district, Pima county, Arizona. (1) By road it is about three miles from the "company town" of Ajo to the property. Several roads cross these claims and the nature of the ground is such that a truck can be driven almost anywhere on the property at the present time. Ajo is served by a branch railroad connecting with the Southern Pacific at Gila Bend, has telephone and telegraph facilities, and a large store operated by the Phelps Dodge Corporation.

There are fifteen full sized lode claims and two fractions. Ten of the regular claims are patented, U.S. Mineral Survey 3881 and 3881 $\frac{1}{2}$ , 1933. The rest of the claims are held by right of location. No investigation was made of the titles by the writer. The claims, except fractions are shown on Plate I of this report.

There are no buildings or equipment on the property. No water is developed but it is possible that sufficient water for camp and mining purposes during a prospecting period, might be obtained from Darby Well to the south. This is a dug well, 100-ft deep. Possibly water might be developed along the Darby Wash, which flows across the end of Copper Ridge No 3 and 8.

The sum total of the development work amounts to several hundred feet but it is composed of a great number of shallow pits, open cuts or similar surface workings. The deepest shaft is 103-ft deep. This is on the Copper Ridge No. 4. The next deepest work is a shaft about 65-ft deep on the Mayflower No. 5 claim.

The mean elevation at the property is approximately 1750 feet above sea level. The local relief is slight, as the claims lie in a low pass in the Little Ajo Mountains which separates Black Mountain from the main body of the range. Darby Wash flows northeasterly through this pass and is the main drainage channel of the area.

The surface of the Copper Ridge Group is covered with either alluvium or (2) fanglomerate. The fanglomerate outcrops might constitute as much as 25% of the total area. The alluvium mantle increases the difficulty in tracing the boundaries of geological formations. On this account it is impossible to say definitely whether certain observed formations (Spec. 2671-3) are dikes or mass inclusions in the fanglomerate.

The east end of the Eagle claim falls along the base of a small, rounded hillock of "malpais" which is an outlier of Black Mountain. In like manner the eastern extremities of Copper Ridge Nos., 3, 8 and 9 lie along the fringe on the northwestern pediments of Black Mountain.

The area of largest outcrops of fanglomerate is on Copper Ridge Nos. 4 and 5, with subordinate amounts on Copper Ridge Nos. 1, 2 and 7 (Plate II) and on Mayflower No.5, Plate III.

In making the investigations on which this report is based the greater part of the time was spent on Copper Ridge Nos. 1, 2, 4, 5 (Plate II) and the southern part of Mayflower No.5 (Plate III) In these areas are the most extensive outcrops and the greater part of the limited exploratory work.

On the Copper Ridge No.5 claim a ragged ridge with its axis approximately parallel to the center line of the claim rises from the west side of the road (See Plate II) and extends northwesterly beyond the limits of this property into the N.C.C.Co., ground. The north slope of this ridge at its crossing of the west end line of the Copper Ridge No.5 is rhyolite (Spec. 2676) This formation can be traced the full length of the Copper Ridge No.5 claim, across the end line onto the Copper Ridge No.4 for a distance of about four hundred feet. Beyond that point it is covered by alluvium. The width of the rhyolite is from two hundred to three hundred feet, while its known length on this property is about two thousand feet, with a reasonable expectation that it extends south easterly for some hundreds of feet beyond where it disappears under the alluvium.

This rhyolite is cut by a fault (Plate II) which strikes North 60 West, and dips North at from 60 to 72 degrees. Along the fault, more particularly on the foot-wall side, both the fault breccia and the firm rhyolite have been more or less silicified. The cementing material of the breccia is generally silica, though in some places (Spec.2679) there is an abundance of specularite. Chalcocite occurs as grains 2 mm or larger and in narrow veinlets. Larger masses, up to half a pound in weight are reported but none were seen by the writer. Chrysocolla is abundant in small blotches and as a thin coating on the larger old fracture planes. On the fault plane proper there is a large quantity chrysocolla and specularite and some chalcocite.

In some of the coarse breccia (Spec.2677) fracture planes are coated with (1) chrysocolla (2) "limonite" and chrysocolla with "limonite", the former predominating. The finer (Spec.2679) breccia may be cemented by (a) quartz, (b) specularite or (3) chrysocolla or a combination of all of these three. Limonite (7) is less abundant in this type of breccia, except on the larger fractures.

At a distance of four feet or more from the fault plane, in the foot-wall side, the rhyolite breccia (Spec.2678) is grey with a slightly pinkish tinge, due to grains of brick-red pulverent "limonite". This brecciated material has been more or less silicified and there are conspicuous veinlets of later quartz. Small flakes of specularite are abundant. Rare chalcopyrite and bornite (?) were noted but copper carbonates and the copper silicates are lacking.

At about the center of Copper Ridge No.5 there is a dike of more basic composition (Spec.2675) cutting across the rhyolite in a NW - SE direction. It is exposed for a length of only about 125-ft. This dike does not seem to bear any relation to mineralization, so it can be dismissed.

Proceeding southeasterly along the strike of the fault to the common

end line between Copper Ridge No.5 and Copper Ridge No.4 all bedrock is covered by alluvium. On the opposite side of a diminutive wash bedrock appears abruptly again, suggesting the possibility of a concealed fault. Boundaries between fanglomerate and rhyolite are not entirely clear but can be exposed with a very little work.

Immediately above this wash, to the north of the fault, a perpendicular shaft was begun in the rhyolite. It was proposed to explore, through this shaft, both the fault and the fanglomerate-rhyolite contact or any other contact to be discovered, which might be a logical place in which to expect to find ore. The work was not prosecuted for any length of time and there seems to be no very definite knowledge as to just what conditions were encountered. The shaft was discontinued at a depth of 103-ft and is badly caved around the collar now.

Again following the strike of the fault southeasterly we find other shallow workings (Plate II) on the fault. These are sunk in the fault proper from which the heavily impregnated breccia was taken out and shipped. From these openings it is possible to get some idea of the occurrence of copper along the fault plane and in the adjacent breccia, yet there is not enough evidence to make a definite statement as to the origin of this mineralization. There is unmistakable evidence of extensive silicification of the rhyolite and the introduction of ore minerals.

The indications of a fanglomerate "horse", an apparent change in the kind of alteration in the rhyolite and the disappearance of the rhyolite under the alluvium to the southeast and these openings, last observed, on the fault are problems to be investigated early in any exploratory program.

On the Copper Ridge No.4 claim the first definite occurrence of copper minerals of any consequence in the fanglomerate was noted. In a shallow opening, N 70 E from the discovery on this claim (Plate II) there is a well-defined copper-stained fracture in the fanglomerate. This strikes S 75 E and dips N at 70 degrees. Chrysocolla and subordinate specularite were observed here. However at opening No.5 (Plate I) there is another copper-stained fracture striking N 80 E with a surface dip of 45 degrees to the north in which chalcocite and native copper were identified. Also in the No.6 opening (Plate I), which is an open cut in the fanglomerate there is a considerable amount of copper stain.

The first outcrop of quartz monzonite was seen on the Copper Ridge No. 4 claim about 75-ft N 30 W from the Section Corner between sections twenty-five and twenty-six and thirty-five and thirty-six (Plate II). From a small outcrop specimen No. 2680 was taken. This is a dark grey rock having medium grained granitic structure. Exposed surfaces are oxidized to a light brown or tan on which the resistant phenocrysts of quartz and feldspar stand out in marked contrast. Old fractures of the rock are found to be thinly coated with chrysocolla and calcite. Fresh fractures show a considerable alteration of the normal rock. Some specularite is present in minute flakes. There are abundant spots of chrysocolla 0.5 to 1.5 mm with a brown fringe of hematite. Alteration of feldspars is indicated. No sulphides were found in this material.

Near the common corner No.1 of Copper Ridge Nos. 1, 2, 4, and 5 (Plate II) there is an outcrop of an andesite dike which strikes N 50 E and dips S 45 degrees. This cannot be traced for any considerable distance. There is some

copper-stained material in the vicinity of the dike but the most interesting feature is the occurrence of quartz and calcite with prominent radiating clusters of epidote crystals and native copper. The relationships of this outcrop cannot be determined without some further prospecting.

Northeast of this same claim corner (Corner 1 of Copper Ridge Nos. 1, 2 4 and 5) about seventy-five feet is another occurrence of quartz monzonite, represented by specimen No. 2681. This material is light gray and of fine granitic texture. The old fractures do not show films of chrysocolla but the fresh breaks show an abundant sprinkling of copper carbonate and silicate as small spots surrounded by iron oxide fringes. There is an abundance of sericite and other evidences of alteration. A few partly oxidized crystals of chalcopyrite were noted but specularite, elsewhere plentiful, seemed lacking.

The structural relation of the occurrence of quartz monzonite on the No. 3 Copper Ridge (Plate II), specimens 2671 and 2672, cannot be worked out without some prospecting. Further information on this subject is of sufficient importance to warrant a more careful investigation early in any program for the exploration of the property.

Of the northeastern part of the property, Eagle, Gloriana No. 1, Gloriana No. 2 and Mayflower No. 5, the most prospected area is the southern half of the Mayflower No. 5 and the northwestern corner of Gloriana No. 1. The greater part of the Eagle claim is covered by alluvium. Its eastern end skirts the base of a low, rounded "malapais" hill. The greater part of the two Gloriana claims is also covered by alluvium. In the overlap of the Bright Star No. 3 of the N.C.C.Co., (Plate III) there is considerable fanglomerate outcropping. Nothing of special importance is to be seen here.

On the southern half of the Mayflower No. 5 there are a number of old openings, the most pretentious of which is an incline shaft between sixty and seventy feet deep, with some irregular stoping, from which 18.5 tons of ore (See shipment July 1917) carrying 8% copper was shipped. On the dump is a pile of perhaps five or six tons, sorted ore, which is presumably about the same as that shipped. This consists of copper carbonates, chrysocolla, "copper pitch" and rare chalcocite in small grains. Specularite is also present but not abundant.

This deepest shaft is sunk on a fracture in the fanglomerate, striking N 60 W which dips 65 degrees NE. There is an inconspicuous outcrop about 150 feet east along the strike and the break can be identified a short distance westerly. Otherwise there is no surface expression of the break. The width of the crushed zone in which copper minerals occur seems to be about ten inches at the surface. Underground it varies in width from a few inches to nearly two feet.

In the fanglomerate, about fifteen feet northerly from corner 4 of the Mayflower No. 2 is a dense black material, - dike or large included mass, about four feet in width. The attitude of the longest diameter is N 80 W. South of this same corner, about thirty-five feet, is an outcrop, possibly of a dike, of rhyolite represented by specimen 2682. The strike is S 50 E. There seem to be some strong copper indications here, enough to justify some additional prospecting.

In opening No. 8 (Plate I and III) on the Mayflower No. 5, in the fanglomerate there are north dipping slips (60 to 70 degrees) which strike N 60 W and what may be a lense of rhyolite (Spec. 2684) dipping south at about 55 degrees. This rhyolite breccia shows quartz veinlets, much

silicification and copper minerals, including some grains of pyrite or chalcopyrite.

Another outcrop of rhyolite (Spec. 2682) shows to the southeast of opening No. 3. At openings Nos. 5 and 6, Mayflower No. 5, are found copper stained inclusions of this same material. The principal outcrop has the appearance of being too large for an inclusion.

Several openings along or near the west side line of Mayflower No. 5 are not shown on Plate III. In many of these there are definite NW trending north dipping copper stained fractures. Specularite is usually present. None of these openings are extensive enough to afford much information.

In the general appearance of the area covered by these claims there is little to suggest the possibility of a large disseminated deposit of copper ore though it is not wholly without the realm of possibility. The available exposures point more directly to a possible aggregated (3) deposit, of a higher grade, particularly in the fault breccia in the rhyolite on the Copper Ridge Nos. 4 and 5, and to a lesser degree in the fracture which has the same dip and strike, but traverses the conglomerate in opening No. 3 on the Mayflower No. 5 claim.

In the past a number of limits have been set beyond which it has been said no ore would be found. These limiting boundaries were probably established with an inadequate knowledge of a great many essential facts. Some limits as well as possibly fruitful areas have been set out in the Bureau of Mines Report (4) but these are probably not intended to be interpreted as the "last word" in this connection. It is admitted that (5) there is little to guide one in prospecting in unexplored areas.

Discussing the relation of New Cornelia ores and rock formations, Mr. Gilluly recognizes that (6) "the emplacement of commercially valuable minerals was governed primarily by the penetrability of the rocks to mineralizing solutions rather than by their chemical composition". In this connection it is to be noted that several mineralogical and geological associations observed on these claims are not mentioned in the report.

From the observations made on the property and after a study of the known geology of the closer in areas it becomes very evident the the exploration of the Copper Ridge Group is a problem by itself, in the solution of which no great amount of immediate help can be had by any comparison with the New Cornelia developments. There is enough evidence of an encouraging nature to warrant the expenditure necessary to do additional prospecting on the property. Therefore, the following recommendations are made for such work.

In the beginning work should be concentrated on Copper Ridge claims Nos. 1, 2, 3, 4 and 5. A small, inclined prospecting shaft should be sunk on the fault in the rhyolite. The best site is not far from the 103-ft vertical shaft. This should be sunk 200-ft before any lateral work is done. From that point at least one crosscut should be driven at right angles to the strike of the fault. If possible the contacts, north and south, should be explored. If shipping ore is reached in any of the sinking operations, and it can be handled at a profit there is no reason why this should not be sold and the proceeds applied to the exploration costs.

Supplementing the shaft work a considerable amount of relatively inexpensive surface prospecting in the form of trenching and shallow pits

should be planned. A number of outcrops have been visited which might yield data of importance and these problems should be worked out.

It would seem advisable to put down at least a few diamond drill holes not for the purpose of locating ore, but to assist in the solution of the structural problems on this property.

On the Mayflower No.5 a small prospecting shaft might be put down on the break through opening No.3 (Plate I), the 60-ft incline shaft. If lateral work is indicated as sinking progresses this should be carried out. Some diamond drilling might not be out of place on this claim. However, it would seem advisable to defer starting on the Mayflower until a better understanding is had of the geology in the other section.

It is desirable and important that as the work progresses a very accurate record be kept of all geologic data. The success of the property depends upon an intelligent interpretation of the meager data now available, co-ordinated with that to be obtained in the further exploratory work in shafts, diamond drill holes and similar work.

**CONCLUSION:**

The sum of the geological evidence obtainable on the property at the present time justifies a reasonable expenditure for proving up the property. The proximity to the developed area of the N.C.C.Co., is of no especial importance for the property has enough merit to justify its exploration. Any program should be of a progressive nature and flexible enough to permit adjustment to meet changing conditions. Therefore the program recommended herein should be looked upon as suggestive rather than final but amply justified.

Phoenix, Arizona,  
May 10th, 1938.

Respectfully submitted,

*A. H. Flagg*  
Consulting Engineer.



DESCRIPTION OF FIELD SPECIMENS.

- LS 2670            Basalt (?) Andesite (?)  
Dark greenish gray, non-porphyrific rock with very fine grained structure. On weathered surfaces has conspicuous coatings of iron oxide. Lath-shaped sub-hedral crystals of hornblende. Soft, pale green crystals of calcite(?) Neither feldspar nor quartz can be identified. Seems to approximate description of andesite dikes Bul. 141 p 45. Occurs as a dike.
- LS 2671            Quartz monzonite.  
Medium grained, granitic structure, pink to gray on weathered surfaces, gray on fresher surfaces. Light colored minerals in excess. A pink orthoclase, white plagioclase, biotite and quartz identified. Biotite chloritized in a varying degree. Specks of magnetite.
- LS 2672            Breccia  
Silicified breccia, heavily stained by copper carbonates and silicates. Large grains of chalcocite. Groundmass generally soft. Not definitely located in place. Much softer than any other breccia seen on property. Identification as uncertain as are field relations.
- LS 2673            Rhyolite Breccia.  
Gray to ochreous yellow brecciated material in irregular and poorly defined outcrop, Copper Ridge No. 8. Badly weathered and for the most part shows few identifiable minerals. Shows some sericite. Tentatively grouped with rhyolite.
- LS 2674            Rhyolite  
Dense gray felsitic rock of high specific gravity. Tough, homogeneous. Impossible to identify component minerals.
- LS 2675            Andesite.  
Dark, dense rock; porphyritic. Groundmass fine; brownish. The porphyritic appearance due to fragments of quartz with rounded outlines and softer green material. Dike.
- LS 2676            Rhyolite.  
Dense, fine grained material with locally a pink or greenish tinge. Principally quartz with minute specks of magnetite. Also slender black needles with non-metallic luster. Possibly some pyrite. Silicified.
- LS 2677            Rhyolite Porphyry.  
Copper stained, siliceous material, silicified and showing some quartz veinlets and comb structure in "limonite" streaks. Some chalcopyrite. Copper silicate abundant. Some specularite.
- LS 2678            Rhyolite Breccia.  
Gray breccia with slight pinkish tinge due to iron oxide films. Silicified. Specularite in quartz veinlets. Chalcopyrite and bornite(?)

- LS 2679                    Rhyolite Breccia.  
Copper stained breccia. heavy specularite, chrysocolla  
and copper pitch.
- LS 2680                    Quartz Monzonite  
Light gray, rather fine grained granitic texture. On fresh  
fractures thin copper stain. On exposed surfaces iron oxide  
stain. Specularite in small masses. Chrysocolla in small  
patches surrounded by iron oxide fringe. Blebs clear quartz.
- LS 2681                    Quartz Monzonite.  
Light gray, fine granitic texture as LS 2680. No seams with  
copper stain but on fresh fractures abundantly spattered  
with copper carbonate. Chrysocolla in small spots with iron  
oxide rims. Abundant sericite. Some partially altered chal-  
copyrite. Considerable glassy quartz as blebs and massive.  
Specularite not abundant.
- LS 2682                    Rhyolite.  
Light gray, very fine grained, compact. Exposed surfaces show  
light tan discoloration. Minute grains of specularite and  
rare pyrite and chalcopyrite unaltered, too small for very  
positive identification. Surface alteration does not penetrate  
1/4 inch. Stringy, brownish-black material not identified.
- LS 2683                    Rhyolite.  
Light gray, fine grained, almost felsitic. Silicified. Fractures  
stained by chrysocolla. Fresh fractures show small grains of  
chrysocolla with iron oxide fringe. Specularite rare.
- LS 2684                    Rhyolite Breccia.  
Light gray but firm brecciated. Faintly stained throughout by  
chrysocolla. Same on fractures in thin films. Some breccia  
fragments conspicuously rounded, others angular. Angular  
fragments more susceptible to copper stain. Rare unaltered  
pyrite and chalcopyrite.
- LS 2685                    Rhyolite Breccia.  
Conspicuous angular green fragments to 1/4 inch in brown  
groundmass. Considerable sericite. Blebs of clear quartz.  
Some specularite. Groundmass fine rhyolite fragments in a  
soft brown matrix.
- LS 2686                    Rhyolite Breccia.  
Very much like LS 2685 in general but lighter colored. Veinlets  
of quartz and specularite. Specularite also in grains. The  
individuality of coarse breccia fragments less pronounced than  
in LS 2685. Fragments somewhat different material also. Less  
soft brown material in groundmass. Fractures coated with  
chrysocolla.

(Note: Above specimens studied with hand lense only. No thin  
sections prepared, no comparisons made with type specimens  
from any source.)

ORE SHIPMENTS.

	July 1917	October 1917	December 1917	
Dry Tons,	18.415	22.708	1.156	17.171
Gold, oz per ton	0.045	0.045	0.06	0.035
Silver, per ton	0.48	3.16	17.14	3.07
Copper, %	8.01	8.19	28.14	8.14
Si O <sub>2</sub>	63.1	59.0	33.4	59.2
Al <sub>2</sub> O <sub>3</sub>	10.1	13.4	4.2	9.1
Fe	6.8	4.0	6.2	3.9
S	0.7			0.3

ESTIMATES.

Hoist house,	350.00	
Head-frame	650.00	
Compressor house	800.00	
Warehouse	650.00	
Blacksmith shop	250.00C	
Change house	375.00	
Office and laboratory	1200.00	
Watchman's residence	395.00	\$4670.00
Compressor and power,	5500.00	
Hoist and power	4000.00	
Fuel tanks etc	500.00	
Blacksmith outfit	2500.00	
Skip	110.00	
2 mine cars @ 110	220.00	
Track	250.00	
Office and lab. equipment	300.00	
Misc. small tools	500.00	
Water supply tank	750.00	14630.00
2 drills @ \$195	390.00	
accessories	375.00	
Extra parts	185.00	
Steel	280.00	1230.00
Shaft on Copper Ridge No.4		
Two comp. 4 x 4 and 4 x 2.5		
First 200-ft @ \$25	5000.00	
2nd 200-ft @ \$40	8000.00	
3d 200-ft @ \$60	12000.00	
Pump equip. (?)	1000.00	26000.00
Drifting,xcuts etc	6500. 00	6500.00
Diamond drilling		20000.00
Misc. Surface prospecting		15000.00
Exploration on Mayflower		15000.00
Total		\$ 103030.00

(In above estimates all equipment is figured new. Substantial savings can be made in buying used equipment in some cases. Working costs are figured with safe margins)

#### REFERENCES.

- (1) The most recent publication, which is also the most comprehensive treatise on the general geology of the Ajo district is "Geology and Ore Deposits of the Ajo Quadrangle, Arizona" by James Gilluly of the U.S. Geol. Survey, Arizona Bureau of Mines Bul.141. Frequent reference is made to this bulletin on this report.
- (2) Bul.141 Arizona Bureau of Mines p 40
- (3) Leached Outcrops as Guides to Copper Ores (Locke) p 167
- (4) Bul.141 Arizona Bureau of Mines p 82
- (5) Bul.141 Arizona Bureau of Mines p 82
- (6) Bul.141. Arizona Bureau of Mines p 78
- (7) Leached Outcrops as Guides to Copper Ores (Locke) p 167

The Ajo Copper Mining District. I.B. Joralemon  
Trans. A. I. M. E. XLIX (1914) p 539-610

Mining Methods and Costs at New Cornelia Branch of  
Phelps Dodge Corp, Ajo, Arizona  
U.S.B.M. Inf. Cir. 6666

Resume of Arizona Geology  
Arizona Bureau of Mines Bul.119 (1925)

U.S. DEPARTMENT OF THE ARMY  
HEADQUARTERS  
WASHINGTON, D.C.

U.S. DEPARTMENT OF THE ARMY  
HEADQUARTERS  
WASHINGTON, D.C.

NOTES RE COPPER RIDGE WORKINGS

Shaft A was sunk in 1916 or 1917 by the Ajo-Cornelia Co. who then owned the property and who made some shipments which they took from the pits and open-cuts along the vein.

Shaft has two compartments each 4' x 4.5' inside dimension and was sunk vertically in rhyolite to a depth of 60'. No timber below collar set which would have to be replaced. If vein continues with apparent dip of  $70^{\circ}$  to northeast it would intersect with downward extension of shaft at about 400 ft.

For the time being this shaft has no value.

Shaft B. said to be 103' deep vertical and in rhyolite. One hoisting compartment 6' x 4' and manway 6' x  $2\frac{1}{2}$ '. Only one set hung below collar set and all timbers badly broken and new ones would be required. At depth of about 80' there appears to have been a bulkhead and shaft is blocked but it would be comparatively easy to clean out and retimber.

The vein appears to dip through the shaft from foot wall at depth of about 20' but it looks tight and lean.

Shaft was sunk with hand-steel in 28 or 29, and no record of what it showed in depth.

Flagg gives the vein a dip of  $70^{\circ}$  to N.  $30^{\circ}$  E but my reading is more like  $65^{\circ}$  to N.  $40^{\circ}$  E.

Assuming the  $70^{\circ}$  dip the vein would ~~offset~~ offset about 37.5' in 100' and therefore should lie some 30' in the hanging wall at the present bottom of the shaft and nearly 70' away at a depth of 200'.

C. shaft or pit on the vein has a depth of about 30'; D a depth of about 20'; and E a depth of about 20' and from all three of them some drifting along the vein has been done near to the bottom from which ore seems to have been taken as well as from a trench along the surface. The fissure filling has a width of 3' to 7' and the vein which lies along its foot wall shows copper carbonates and silicates for a width of 6" to 18" but occasionally there are stringers of ore which run out thru the fissure.

Flagg gives strike of vein as N. 60° W but right at workings I read it as N. 50° W and I read the dip to N.E. as 65° while Flagg gives it as 70°.

The Mayflower vein strikes N. 60° W and dips 63-65° to the northeast. The shaft is located near to the center of the claim and follows the vein on the incline. It is 40' deep and some ore was taken out and shipped by Sullivan. Shaft is sunk in fanglomerate thru which the vein can be traced for some distance on surface but there is very little copper showing except close to the shaft.

G.M.C.

January, 1939.

Freight	Cup & Poles				
Feb.	\$ 15	20	30	40	50
Rate	\$ 2.20	2.50	2.80	3.10	3.40

MEMO RE COPPER RIDGE

1942

Freight Rates for car load lots minimum weight thirty (30) tons.

<u>Value</u>	<u>\$15.00</u>	<u>\$20.00</u>	<u>\$30.00</u>
Ajo to Hayden	2.00	2.30	2.60
Ajo to Douglas	2.20	2.50	2.80



STATE OF ARIZONA,

County of Maricopa } SS.

Before me, \_\_\_\_\_, a Notary Public in and for the County of Maricopa, State of Arizona, on this day personally appeared

\_\_\_\_\_ known to me to be the person s whose names are subscribed to the foregoing instrument, and acknowledged to me that they executed the same for the purpose s and consideration therein expressed.

Given under my hand and seal of office, this \_\_\_\_\_ day of \_\_\_\_\_, A.D. 19\_\_\_\_\_.

(My Commission expires \_\_\_\_\_) \_\_\_\_\_ Notary Public.

No. \_\_\_\_\_

**Lease**  
SHORT FORM

FROM

TO

Dated \_\_\_\_\_ A.D. 193\_\_\_\_\_

Filed and recorded at the request of \_\_\_\_\_

A.D. 193\_\_\_\_\_

at \_\_\_\_\_ M.

Book \_\_\_\_\_

Pages \_\_\_\_\_

County Recorder.

By \_\_\_\_\_ Deputy Recorder.

Bower Co. Phoenix.

STATE OF ARIZONA, }  
County of \_\_\_\_\_ } ss.  
I, \_\_\_\_\_, County Recorder in and for the County and State aforesaid, do hereby certify that the within instrument was filed for record at \_\_\_\_\_ o'clock \_\_\_\_\_ M., on this \_\_\_\_\_ day of \_\_\_\_\_ 193\_\_\_\_\_, and duly recorded in Book No. \_\_\_\_\_ Records of \_\_\_\_\_ County, Arizona, at pages \_\_\_\_\_ of \_\_\_\_\_  
WITNESS my hand and seal the day and year first above written.  
County Recorder.

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

Encl # 6.  
January 26th, 1939

REPORT ON COPPER RIDGE GROUP OF MINING CLAIMS

The Copper Ridge Mining Company,  
Phoenix,  
Arizona.

Gentlemen:

This property I have visited in company with your President, Mr. Albert Steele, on December 19th, 1938 and January 18th, 1939, and short letters in reference to my findings were submitted to him on December 20th, 1938 and on January 20th, 1939.

In this report I shall not attempt to give any detailed description of the geology and ore showings on your property since it was not possible for me to give these matters any careful study during the brief inspections of certain portions of your claims and moreover they are fully covered in Mr. Flagg's report dated May 10th, 1938 which appears to contain an accurate account of the geological formations with descriptive mineralogy of various rocks.

My discussion will therefore be largely confined to the more practical questions concerning the best means and methods of so developing, operating or disposing of your claims as to give them some tangible value to the present owners.

PROSPECTS FOR DEVELOPING DISSEMINATED ORE

It is my opinion that you have good reason to believe that the quartz monzonite in which the disseminated ore of the

New Cornelia Mine is found does extend across the Phelps Dodge line and through a part of your claims. An exact classification of the various types of volcanics;- monzonite, rhyolite and quartz diorite seems to be a difficult matter and is probably of little practical importance since all of these may be more or less mineralized. The quartz monzonite intrusion appears to extend southward and south-eastward from the New Cornelia pit although largely covered by fanglomerate and alluvium and we were reliably informed that drilling by the Phelps Dodge Company had proved the existence of copper ore down to a depth of 1000 ft. not far from your boundary although I understand that the ore in that section of their property was low in grade and may not be classed as commercial under present conditions, since mining would involve the use of underground methods and be comparatively expensive.

To definitely prove the value of your property as a potential porphyry copper mine would necessitate deep drilling over a large area which involves an expense that would doubtless be prohibitive and even if a large deposit of commercial disseminated copper ore were proved to exist the preparations required for mining and treating this ore would cost millions of dollars.

As to the value of your claims to the Phelps Dodge Corporation or others, it will be best not to attempt any comment until some further information has been gained in respect to the situation and policy of the Phelps Dodge Company

whose local officials seem to be extremely friendly and from whom a great deal of valuable data may be secured by further conferences. But, under any circumstances, it is not likely that they would need to extend their mining operations across your line at any time during the next fifteen or twenty years.

I think that we can definitely ignore the somewhat unfavorable comment of Mr. Gilluly as to the probability of finding an extension of the New Cornelia ore body in your direction but even should such an extension be found and developed, it seems to me that Phelps Dodge are the only people who would ever be likely to be in a position to work it, unless a combination of all or a large portion of the outside owners could be made in such a manner as to control and develop a very large tonnage of proven ore which might serve to attract the capital necessary to equip and operate another porphyry copper mine in this locality.

The surface rights to a portion of your claims may also be of value to the Phelps Dodge Company as providing dumping space for the waste capping from their ore body and this matter should also be investigated as opportunity permits, since the sale or lease of these rights might provide a small fund or revenue even if it should prove impossible for you to develop any commercial ore of your own.

For the time being I can only suggest that friendly contact should be maintained with the Phelps Dodge officials, Hoval Smith and associates (who own a large group of claims to

the south of your property) and other claim owners in this vicinity and the question of sale or combination further discussed whenever a favorable opportunity presents itself but I do not think that it would be advisable to make any direct advances along these lines until the price of copper and general business conditions have much improved or your own developments have made substantial progress.

#### PROSPECTS FOR DEVELOPING SHIPPING ORE

Considered as a possible small scale producer of comparatively high grade copper ore, the situation of your property is entirely different and it is my opinion that the Copper Ridge may properly be called an attractive prospect that fully justifies the installation of a small mining equipment and a certain amount of development which in so far as possible should follow the pay ore and aim to become self-supporting and profitable as quickly as may be possible.

Mr. Flagg has given you an accurate description of the various ore showings found on the surface and in the accessible workings and I shall confine my remarks to the most promising of these where copper silicate (chrysocolla) is found in the filling of a fault fissure on Copper Ridge Claims #4 and #5. This vein occurring in rhyolite, can be traced for close to 1000 ft. on the surface, with strike N.  $50^{\circ}$  W. and dip about  $65^{\circ}$  to the northeast. The width of the fissure is from 3 ft. to 6 ft. but the ore is generally confined to a narrow seam

along the foot wall from which stringers occasionally work out into the fault breccia.

A considerable amount of development was done at this point before 1918 and a certain amount of ore was sorted and shipped carrying 8.19% copper; 0.045 oz. gold; and 3.16 oz. silver. The gross value of this ore at present metal prices would be over \$20.00 per ton and the net returns from shipment to a smelter would be about \$12.00 per ton but unless the ore seam widens, there would be no profit in mining and shipping this grade of ore.

Most of the underground work is now inaccessible and the present showing does not in itself appear attractive except when it is considered in connection with the geology and past record of the Ajo District which I have obtained mainly from the writings of Joralemon, as quoted below, and from what has been told me concerning the work on the Ajo Consolidated. These lead me to believe that there is a good chance,- but it is only a chance,- that ore of better value and greater width may be found by sinking the 103' shaft near this vein to a depth of about 200' from the surface with a certain amount of drifting along the vein on the 100' and 200' levels. This proposed work will, in my opinion, definitely determine the value of your property as a small producer of comparatively high grade ore and I am inclined to think that your success or failure is likely to depend upon the position of your rhyolite and other volcanics in the geological history of the district. If this

rhyolite, which lies north of the prominent conglomerate outcrop known as the "Copper Ridge", is a part of the old formation that was intruded by the monzonite, then the fault fissure in which the ore occurs was probably mineralized from the same deep seated magmatic solutions that formed the disseminated deposit at the New Cornelia and the high grade veins in its vicinity to which latter Joralemon refers as follows:

#### "Veins In Rhyolite"

"It was not the low-grade orebody, but the rich veins in the surrounding rhyolite, which first led to the exploitation of the Ajo District. Rich malachite and cuprite ore from 6 in. to 3 ft. wide outcrops in these veins, which follow steep fractures in hard, slightly iron and copper stained rhyolite. High-grade cuprite and copper-glance ore, with a little native copper, was encountered a few feet below the surface. At a depth of about 50 ft., the glance begins to give place to bornite. Usually the center of the vein is very rich bornite and chalcocite ore from one inch to 4 or 5 ft. wide, and on both sides of this high-grade streak the shattered rock contains stringers of bornite and chalcocite, which make it a good concentrating ore. In the early operations in the district, considerable stoping was done in several of the veins to a maximum depth of over 100 ft. The stopes are seldom more than 6 ft. wide, and the large dumps show that much of the material taken from stopes was too low grade to treat with profit.

In the Ajo Copper Company property, one rich bornite vein from 1 to 3 ft. wide was developed for nearly 300 ft. down the dip. The high-grade stringer continues to the bottom, but the mineralization of the walls appears to decrease in depth."

"Genesis of Ore and Geologic History"

"The genesis and geologic history of the Ajo ore seem unusually easy to trace. After the monzonite intrusion had uplifted the rhyolite, the slow cooling of the porphyry was accompanied by considerable contraction. This resulted in a thorough jointing and fissuring of the monzonite, especially near the rhyolite contact, and in a less complete fracturing of the rhyolite itself. Near the center of the intrusion, some of the fissures continued to great depth. Probably soon after the solidification of the outer layer of porphyry, hot mineral-bearing solutions rose along these deep fractures. The solutions were heavily charged with iron, sulphur, silica, and later copper.

"Some of the larger fractures, usually accompanied by monzonite dikes, extended for a considerable distance up into the rhyolite. Along these fractures the rich bornite veins in rhyolite were deposited, sometimes extending a long distance from the large disseminated body. The porphyry dikes accompanying the veins were more or less mineralized, and small quantities of chalcopyrite, bornite, and pyrite were deposited in the rhyolite walls of the veins."

Assuming that the Copper Ridge vein is of similar character to those described above, you have every reason to expect that the quantity and grade of ore will improve with depth and that below the rhyolite you may find a disseminated deposit in monzonite, which, even if it cannot at present be mined and treated with profit, will probably give your property an assured value for the future.

If, on the contrary, this rhyolite should prove to be merely an inclusion in the fanglomerate,- which seems most unlikely or a postmineral dyke or flow, it follows that the ore deposition is of recent origin resulting from surface or lateral circulation of mineralized solutions, probably extending for only a short distance downward and of no commercial value.

While I have not found any evidence that throws much light on this important point, it seems to me that the length and breadth of the rhyolite outcrop (2000' by 300', according to Flagg) and the occurrence of monzonite in its vicinity may properly be considered as favorable indications but if the drill-hole a short distance north of these showings actually penetrated through 800' of fanglomerate this is decidedly unfavorable except on the supposition that the location of the hole may have coincided with that of an ancient ravine. Also it must be noted that the ore in the outcrops which Joralemon describes was mostly copper carbonates and oxides while your surface ore is a silicate but may give place to sulphide with depth.

The showings on the Mayflower Claim and elsewhere in the conglomerate would seem to be only surface deposits and, for the present at least, I think that their development should be postponed.

#### CONCLUSION

I am unable to agree with Mr. Flagg in recommending a development program which would cost over \$100,000.00. I can see no justification for spending so large an amount of money in an effort to develop small veins of high grade ore and I do not believe that any worthwhile progress toward proving up a disseminated deposit could be made for less than \$300,000.00.

I therefore recommend you to confine your present efforts to the Copper Ridge vein and to arrange, if possible, to raise a minimum of \$15,000, the expenditure of which should either put your property in a position to profitably produce and ship a limited quantity of 6% or better grade copper ore or otherwise furnish conclusive evidence that further developments for this purpose would be very ill-advised.

My suggestion in regard to the proposed developments and estimate of probable cost is as follows, assuming that you erect only such structures as are necessary to protect your equipment (a watchman could sleep in a tent) and purchase serviceable secondhand machinery of which there is now an ample supply available:-

<u>Item</u>	<u>Cost</u>	
Clean up at collar of 103 ft. shaft, reset timbers and clean out old pits on vein to make them accessible for examination	\$ 300.00	<i>done</i>
Purchase and install head frame and gasoline hoist to be housed under shed and equip shaft with necessary timbers, bucket & dumping device.	1500.00	"
Purchase & install compressor with engine to be housed under shed, also receiver, drills, hose, steel, etc.	2500.00	<i>none</i>
Ore cars, rails, pipe, blacksmith equipment, & shop.	600.00	<i>wheel</i>
Clean out shaft and crosscut about 30' to vein on 100' level	400.00	
Drift about 100' along vein on 100' level (To be dependent on ore showing at this depth)	1000.00	
Sink shaft additional 100' with necessary timbers, pipe, etc.	3000.00	<i>def</i>
Cross cut about 70' to vein and drift about 150' along vein (unless showing is hopeless at this point)	3200.00	<i>de</i>
Pick-up truck, tents, water tanks, small tools,	1000.00	
Engineering, assaying, bookkeeping, taxes and other overhead and miscellaneous	1500.00	
	<hr/>	
TOTAL	\$15,000.00	
	<hr/> <hr/>	

*Comment @ 109' to ledge about 35'*

*Can get comp for 200.*

I believe that the above estimate is liberal and that the contemplated work can probably be completed for a slightly smaller figure but since unforeseen difficulties frequently arise and some additional work may be indicated as the pro-

*Cost estimate showing 160' length*

gram proceeds, I should advise that the development fund be somewhat increased if it is possible to do so. But a definite maximum can be set at \$20,000.00.

During the course of the development it is to be hoped that pay-ore may be found in sufficient quantity to permit some stoping and shipping of production, but it would not be prudent at present to count on any income from this source.

Yours very truly,

*L. M. Colverson*

GMC:MF

*Proposed letter*

*Copy given Steele 1/20, (date)*

To the Stockholders of the Copper Ridge Mining Company

*39*

Gentlemen:

During the past year your Directors have made a strenuous effort to determine the present and future worth of our mining property and to find ways and means of improving our position.

We have obtained a geological report from one Mining Engineer, an opinion on the commercial possibilities from another Engineer, a report on the feasibility of selling stock from a New York broker who visited the property and advise and <sup>*suggestions*</sup> ~~opinions~~ from several local mining men.

From all the above we have been forced to conclude that there is absolutely no way in which the stock of this Company can be given any tangible value unless and until a certain amount of money is spent to improve the condition of the mining property.

The broker frankly advised us that undeveloped copper properties were not attractive to investors at present and was only willing to agree to attempt to market our stock provided we would first pay a preliminary fee of \$1000 with no guarantee that any stock could actually be sold or that further funds would not be required to qualify the stock for sale under Federal and State regulations.

Both of the engineers were favorably impressed with the showings on our claims and have definitely advised us that we are justified in attempting to prove up commercial bodies of ore. The geologist favored a very complete program of development involving an expenditure of over \$100,000 while the other engineer was of the opinion that our work should be confined to the high grade veins and estimated that a total expense of \$15,000 to \$20,000 would either develop sufficient pay ore to permit small scale mining operations or eliminate the possibility of working this property in any such manner. He also particularly mentioned the possibility that at some future time but probably not until fifteen to twenty years had elapsed, the Phelps Dodge Corporation might work out ways and means of mining their disseminated copper deposit by underground methods and that this deposit might then be proved to extend under our ground,- Where any such ore body could hardly be expected to lie less than 1000' below the surface and the cost of thoroughly drilling it would probably be in the order of \$300,000.

The out of pocket expense involved in the above investigation has amounted to over \$300 and an additional \$400 has been spent for payment of taxes and assessment work and we are now faced with additional expense for taxes, assessment work on our four unpatented claims, to pay the delinquent Corporation taxes and other carrying charges.

We have already organized a Corporation under The Laws of Arizona known as Copper Ledge Mining Corporation. Our letter to you dated January 23, 1938 asked for your authority to enter an agreement with the above Corporation in which you were invited to buy stock, giving said Corporation control of the Copper Ridge Mining Company's property for a period of seven years within which to pay 10¢ per share for The Copper Ridge Mining Company's stock outstanding a total of Seventy Seven Thousand Dollars.

It now seems obvious that little or nothing can be done during these seven years if this agreement continues in force without substantial modifications. We have been repeatedly advised that while the amount of money involved is not a handicap to our efforts, the obligation to pay the old stockholders Twenty per cent (20%) of all money raised for exploration or derived from shipments is prohibitive. Therefore, we have decided to have a meeting for the purpose of changing this agreement to provide that the old stockholders should receive Twenty per cent (20%) of all net revenue after the amount expended in development of the property has been repaid to the Copper Ledge Mining Company or their successors and until The Copper Ridge Mining Company's outstanding stock has been paid for at 10¢ per share; whereupon The Copper Ridge Mining Company will relinquish all claim to their rights in mining claims now known as The Copper Ridge Mining Company Property situated in the Ajo Mining District of Pima County, State of Arizona.

We want you to realize that the new Corporation is an organization in which we urge you to take stock because it has been organized to allow those who do so to participate in any profits that may be made out of this property over and above the 10% per share that should be paid for the Copper Ridge stock and particularly to make it possible for us to meet the expense involved in taxes and assessment work and to obtain funds to equip the prospect and develop the ore which we hope to find.

During the past year only eight of the old share holders have advanced the \$700 expended for the benefit of the company, mostly your directors and their relatives who have loaned this money for the benefit of all. But you must realize that such a small number of the stockholders cannot be expected to continue to carry the load and that failure to cooperate on the part of others will probably result in the entire loss of the property and render the stock of the company worthless.

We shall, therefore, ask you to attend if possible the special stockholders meeting which is hereby called for

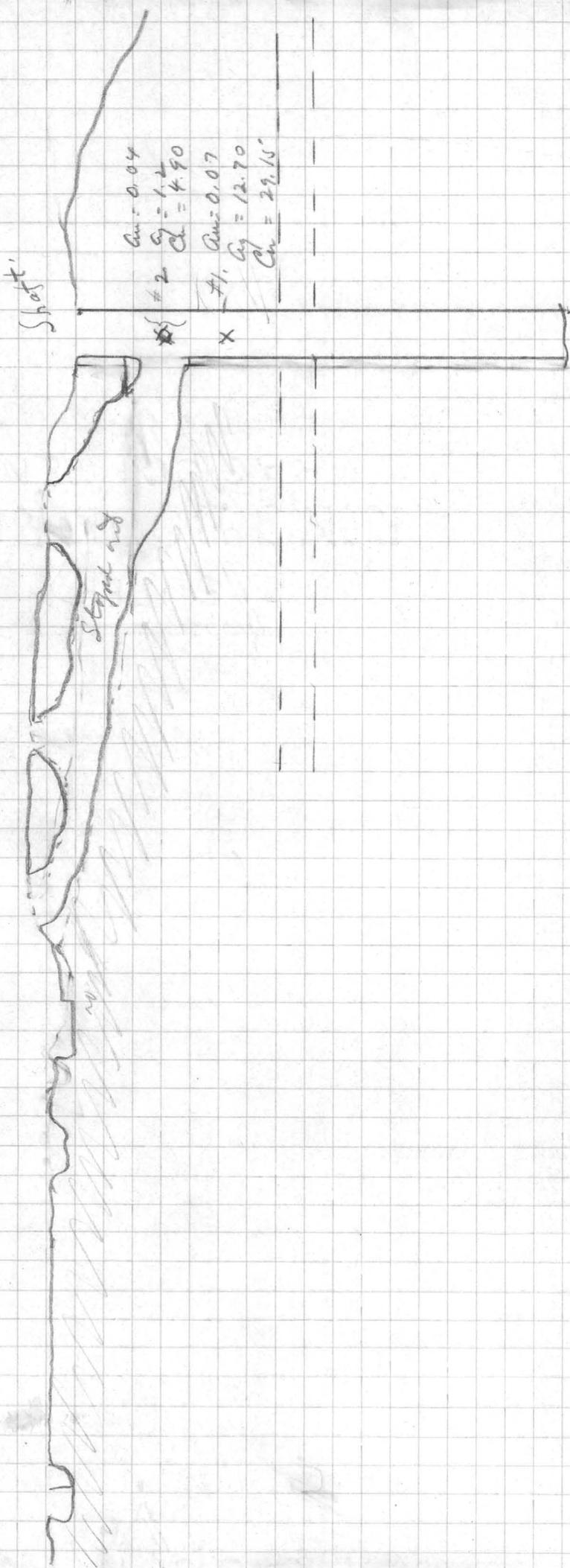
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and to vote either in person or by proxy in favor of the enclosed resolution to which <sup>and</sup> ~~this~~ proxy is attached.

Yours truly,

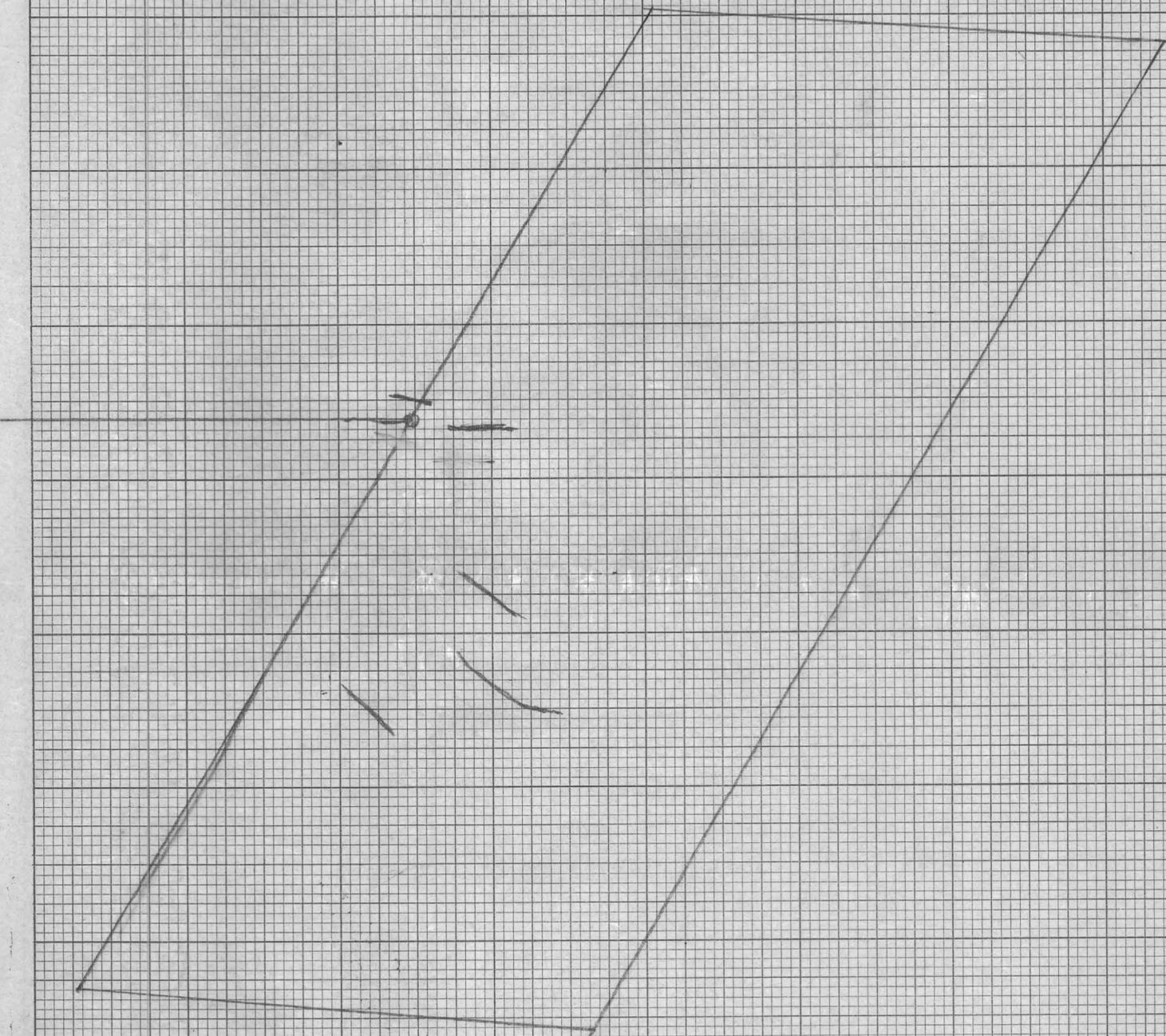
Enc. 2

*Resolution with proxy attached, to be separate.*

Copper Ridge Ind. Ex C.

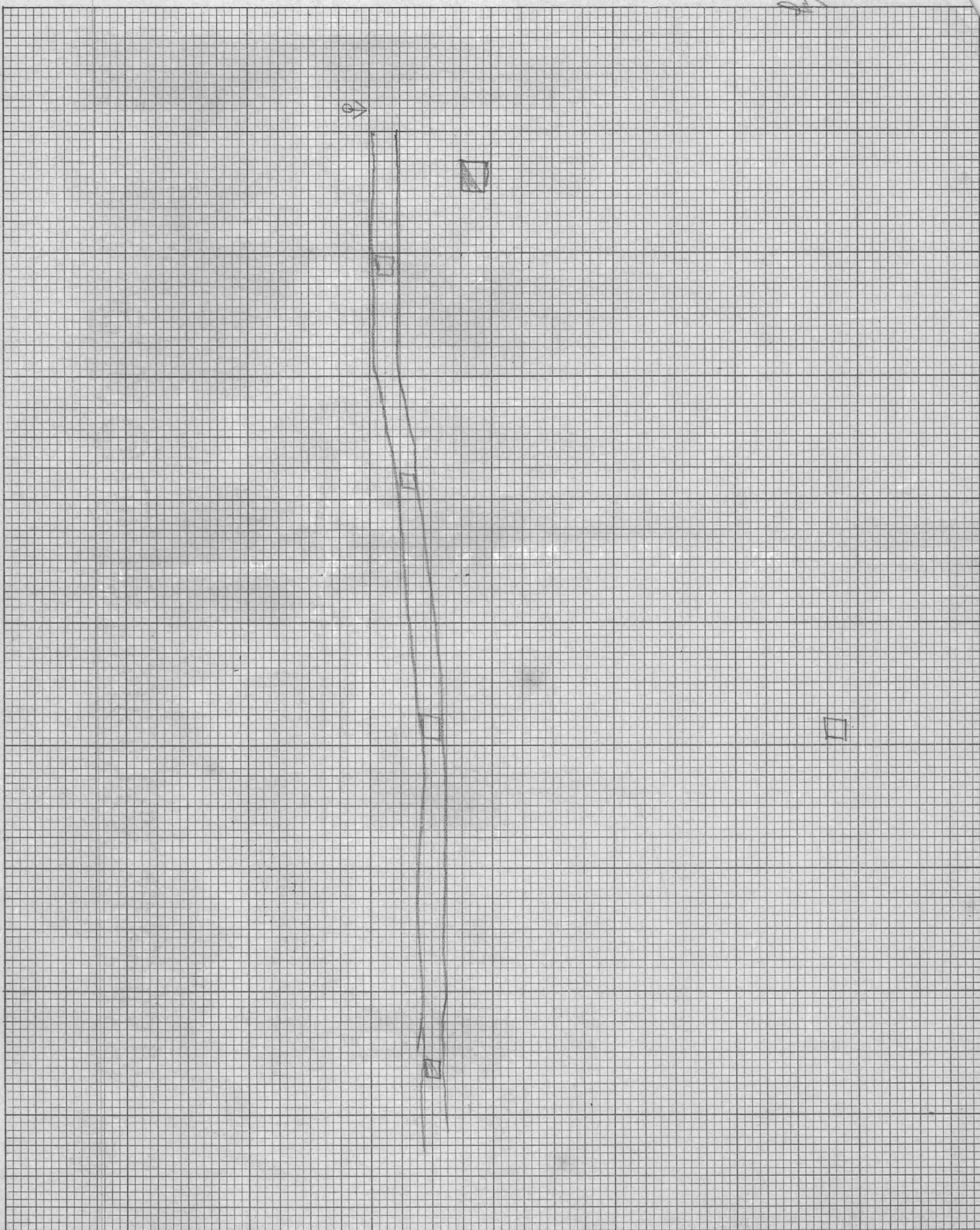


Mayflower #5 Scale 200' = 1"



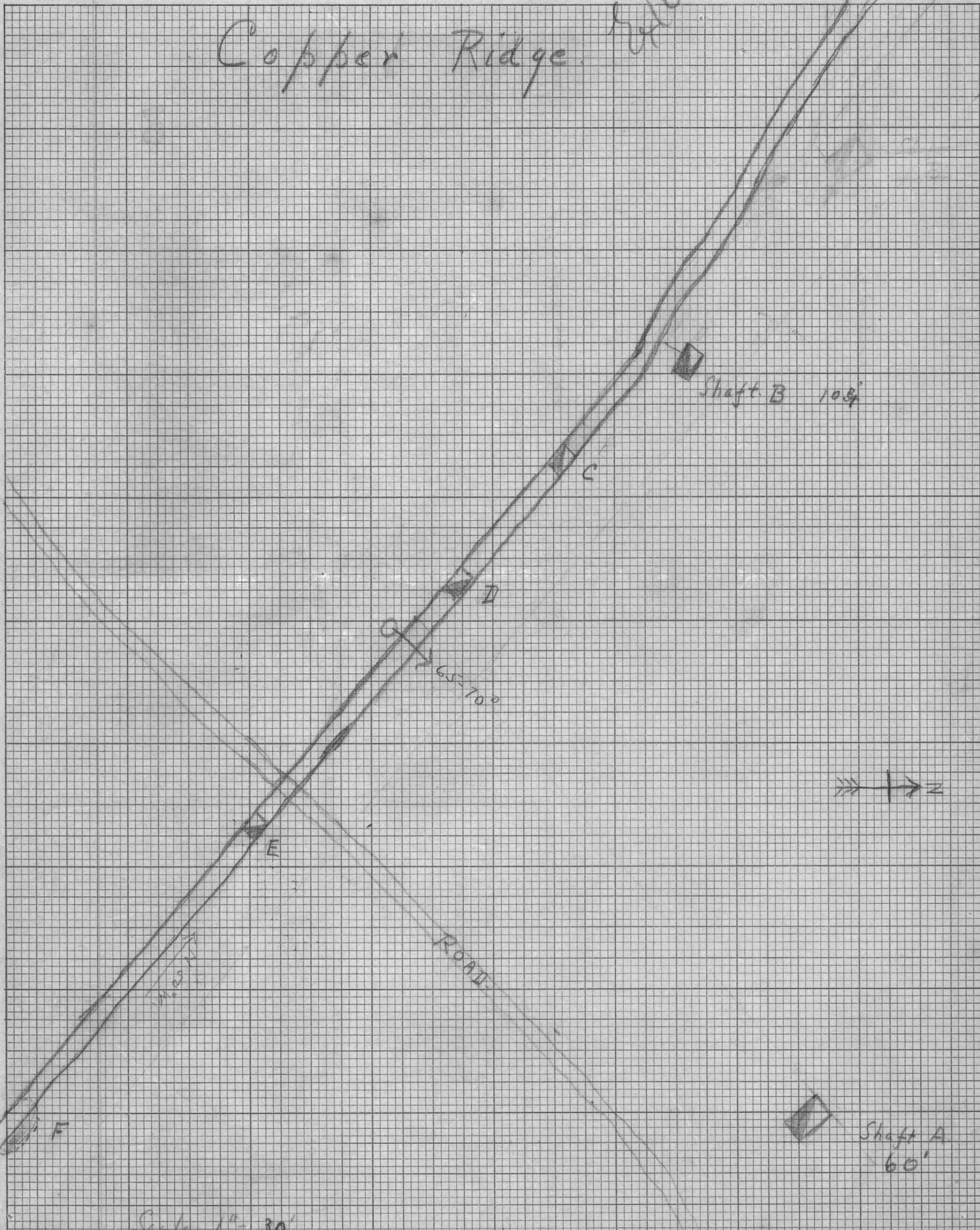
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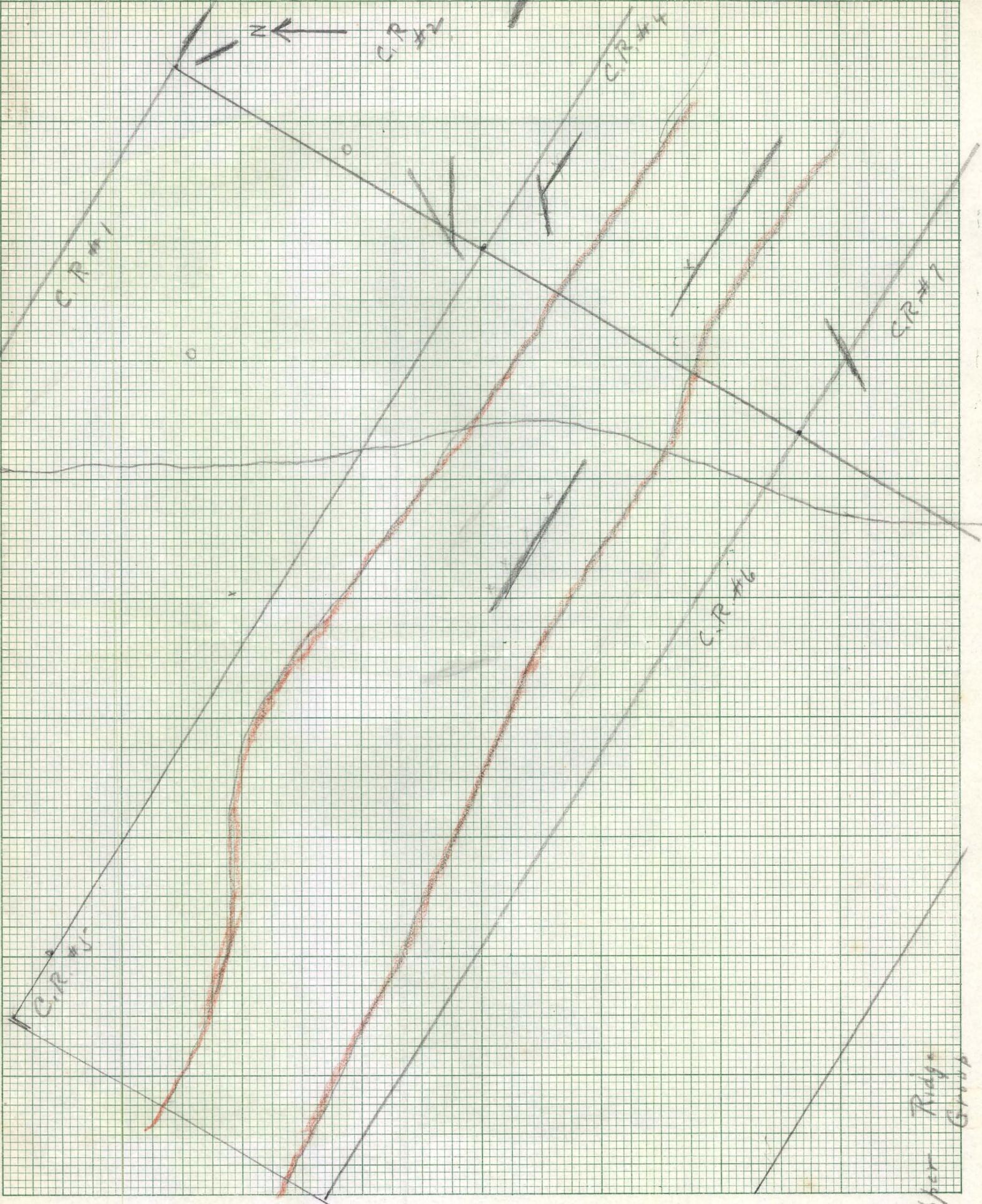


# Copper Ridge

2467



Scale 1" = 30'



16 DIVISIONS PER INCH

Copper Ridge Group

December 20th, 1938

RE COPPER RIDGE MINE

Mr. Albert Steele & Associates  
Phoenix,  
Arizona.

Dear Sirs:

Since I am obliged to hurry through to completion two reports covering work previously done and to write a long comment on some mining litigation in the East, I must ask you to let me postpone for a few days any detailed statement on the Copper Ridge Mining Claim; but in this letter I will give you a preliminary opinion covering the more essential points.

As a result of our examination of yesterday and conference with Mr. H. A. Angst of the Phelps Dodge Corporation, I am of the opinion that portions of your property may prove to have a very substantial value; particularly for the following reasons:

(1) The quartz monzonite with disseminated copper values, - now being mined in the New Cornelia pit, - appears to dip in a southerly direction and may very likely underly portions of your claims although probably at substantial depth. Values in this formation have already been proved by the Phelps Dodge Corporation to a depth of over 1000' and in due course of time (after the pit ore has been exhausted) they may find it advantageous to continue their work and perhaps extend it to your <sup>ground</sup> ~~parcel~~.

(2) Although the Geological Survey maps all your formation as fanglomerate, yet we definitely noted the existence of rhyolite (as previously described by Flagg) and apparently the contact between the monzonite and the rhyolite (or quartz-diorite) runs directly from the New Cornelia pit southeast across your claims.

In the New Cornelia workings a limited quantity of comparatively high grade copper ore was found and mined along this contact and some similar ore has been found in shallow pits and shafts in the Copper Ridge. Therefore it seems possible that a comparatively small amount of additional exploration and development may serve to prove up a sufficient quantity of say 8% copper ore to permit some small scale mining which might in itself prove profitable and yield important information as to the ultimate value of your property.

It is my intention to soon follow this letter with a more detailed discussion of the situation and to make some suggestions which I trust may prove helpful.

Yours very truly,

*J. M. C.*

January 20th, 1939

Mr. Albert Steele  
Phoenix,  
Arizona.

Dear Sir:

Following our two brief visits to the property of the Copper Ridge Mining Company and our conversations in respect to same, it appears to me that in its present state the value of your holdings is extremely limited. Everyone knows that idle mining claims are not only worthless but are a liability by reason of the taxes and other expenses which must be met and it may prove that your claims would only be of use to the Phelps Dodge Corporation as dumping ground for their waste from the New Cornelia pit. Since the Phelps Dodge Company already own a large group of claims directly north of your holdings, it is very unlikely that they would pay any large amount of money for using your ground even though this is slightly nearer to the pit.

From looking over the work which has already been done on your property it would seem to me that perhaps \$10,000 may have been expended in shafts, drifts, surface pits, etc., but in so far as can be told at present this has not served to prove up any substantial vein or body of commercial ore. The old shipments amounting to a few car-loads had an average value of about \$18.00 per ton at present prices of gold, silver and copper but this ore may have been carefully sorted. If it should be possible to mine and ship 8% copper ore with approximately \$3.00 value in gold and silver, I believe that a net profit of not over \$4.00 per ton could be expected and if any substantial amount of sorting was necessary, this would be reduced. The profit on 6% copper ore, as above, would be only about \$2.00 per ton.

It appears to me that there is a fair probability that subsequent development work will prove up in your veins a fair amount of 6% to 8% copper ore and that operations can be profitably conducted on a small scale and there will always be a chance for greater widths and better values after you have reached the zone of the sulphide ores which makes this exploration appear attractive particularly when taken in conjunction with the reported history of the Ajo Consolidated Mine where I am told that the surface showings were very similar and that great improvement in grade of ore was found at depth and a total production of some \$250,000 resulted with very substantial profit to the operators.

Mr. Albert Steele

-2-

January 20th, 1939

Similar conditions may not exist in the Copper Ridge but in my opinion you should make every effort to procure and expend for the purpose of developing your mine, a minimum of \$10,000 and up to a maximum of \$20,000. The result of this work should either definitely prove that you have no chance of producing commercial ore from the veins or otherwise put your property on a basis of moderately profitable production which may be continued for several years to come.

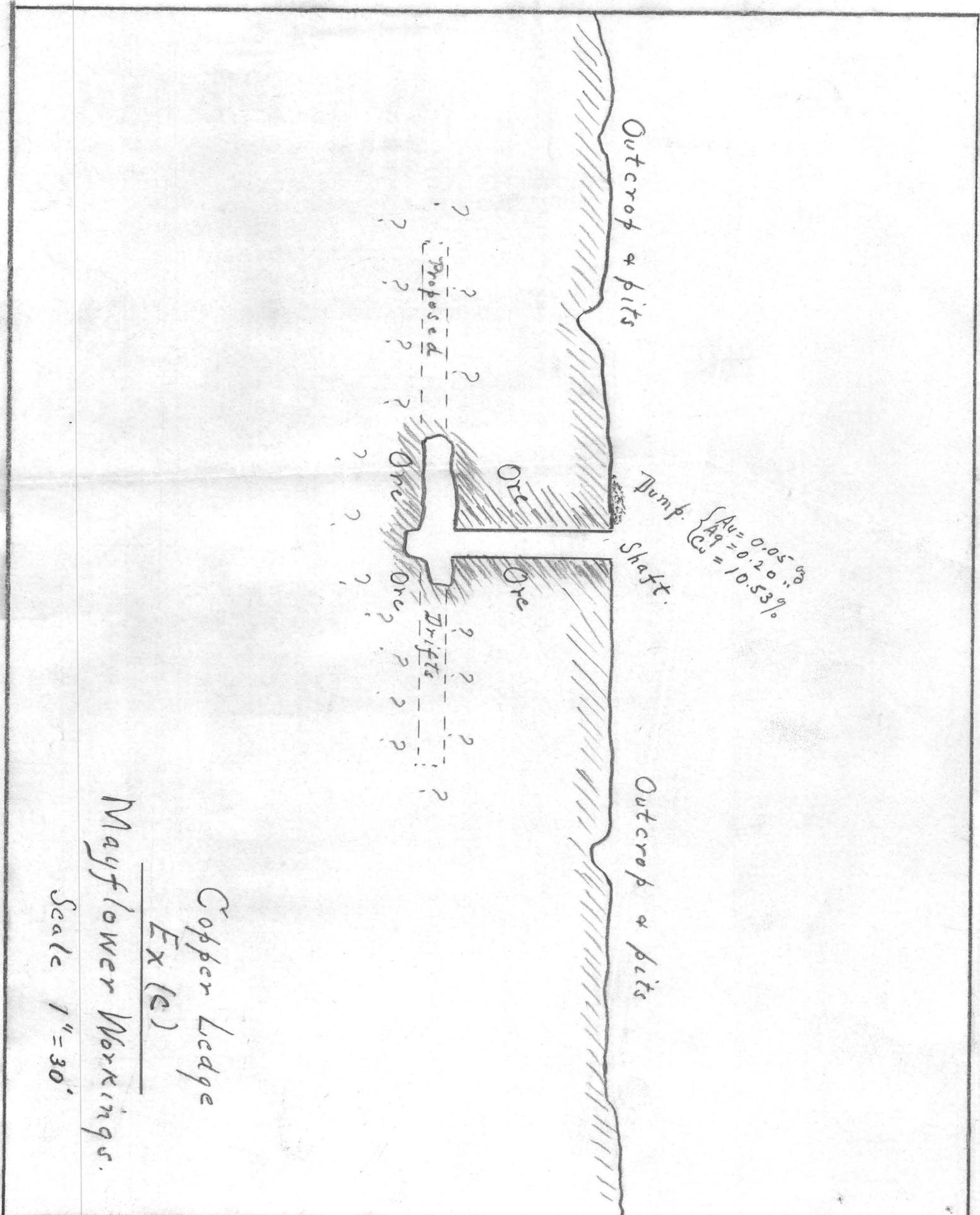
I am not overlooking the possibility and I might say probability that a disseminated deposit of copper ore extends from the New Cornelia pit across at least a portion of your claims but evidence on this point is entirely negative to date as far as your own work has been concerned and from such information as can be obtained from the Phelps Dodge Company, it appears that the disseminated copper deposit dips toward the southeast and would, therefore, underlie your claims at a very considerable depth, probably in excess of 1000 feet. Moreover, the grade of this ore is entirely uncertain and obviously the expense of underground mining at such depth is much greater than in surface pits so that such work might never become a profitable operation.

Under any circumstances, I do not believe that the Phelps Dodge would need this ore for fifteen years or more to come and the cost of properly exploring and developing such a disseminated ore body as may be supposed to exist under your claims would be in the order of \$300,000.00.

Yours very truly,

J. M. C.

GMC:MF



Copper Ledge  
Example  
 Mayflower Workings.

Scale 1" = 30'

COPPER LEDGE MINING CORPORATION

This application for a preliminary loan is submitted in duplicate.

In order to avoid confusion in respect to the exhibits and other documents which accompany it, a list of all of the enclosure is given below and these are marked with corresponding numbers to which reference is made on the application blank.

Enclosure #1 - Supplementary Statement to accompany Application

Enclosure #2 - Articles of Incorporation and By-Laws of the  
Corporation.

Enclosure #3 - Agreement between Copper Ridge and Copper Ledge  
Corporation

Enclosure #4 - Mining Deed, Copper Ridge to Copper Ledge

Enclosure #5 - Report by A. L. FLAGG

Enclosure #6 - Report by G. M. Colvocoresses, 1939

Enclosure #7 - Report by G. M. Colvocoresses, 1942

Enclosure #8 - Prints of Maps

(a) Mining claims of Corporation

(b) Plan and Section of Workings on Copper  
Ridge Vein.

(c) Section of workings on Mayflower Vein

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  - (c) Section of workings on Mayflower Vein

# APPLICATION FOR A PRELIMINARY DEVELOPMENT LOAN

NOTE—Read carefully Circular No. 14, Revised, and this application form before starting to prepare application.

Application of

(NAME) Copper Ledge Mining Corp. (Inc)  
 (ADDRESS) P.O. Box 529 Phoenix  
 (CITY AND STATE) Phoenix, Arizona

For a Preliminary Development Loan under authority of Public Law 603 approved June 11, 1942.  
The application should be prepared and executed in duplicate.

Date Oct 7th 1942  
 Name of correspondent Fred J. Steele, President  
 Address P.O. Box 529, Phoenix, Ariz.  
 Location of mine: County Pima State Ariz Mineral or metal produced Copper  
The Copper Ledge Mining Corporation (Inc) (hereinafter called "applicant"),  
 a Corporation, hereby applies to RECONSTRUCTION FINANCE CORPORATION (hereinafter called

"R. F. C."), for a loan of not more than \$ 5000.00 to be evidenced by a note or notes satisfactory to R. F. C., payable only out of proceeds of operation of the mining property.

To induce R. F. C. to make such loan, applicant submits as part of this application the attached exhibits, A and B and such other exhibits and papers as are attached hereto, and warrants and represents the statements herein and therein to be true and complete.

Applicant represents that applicant is not, at the time of making this application, indebted to R. F. C. in any amount, and neither the applicant nor any other party on applicant's behalf has heretofore applied to R. F. C. for a loan, except as follows:

*An application for a Class B loan for \$30,000 was made by this Company without recognizing that such loans were limited to a maximum of \$25,000. This application was submitted on July 6th 1942 & was rejected by the R.F.C. on August 14th 1942, their check # B-W.P. # 4252.*

Applicant hereby authorizes all constituted Federal, State, municipal, and other authorities at all times and from time to time to permit representatives of R. F. C. to have full access to and to furnish R. F. C. with any and all information, records, reports, returns, and files pertaining to or filed by or on behalf of applicant.

Dated Oct 7th, 1942 (Sign below)  
 WITNESS: \_\_\_\_\_  
 WITNESS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(Corporate application to be executed by the President and Secretary with corporate seal affixed; partnership application to be executed by a general partner)

**EXHIBIT A**

1. NATURE OF BUSINESS: Describe briefly the type of operation being conducted or contemplated. *Copper Mining*
2. LOAN:
- (a) Amount of loan applied for: \$ 5000.00 (Not to exceed \$5,000 to any one applicant.)
- (b) Submit statement explaining manner in which loan will be advantageous to the national defense.
3. PURPOSES OF LOAN: Specific purposes for which applicant proposes to expend proceeds of loan applied for. (Detailed information should be given.)

Nature of Expenditure <i>(See Report attached)</i>	Amount
<i>Equipment for Copper Ridge Mayflower Shaft</i>	<i>\$ 2000</i>
<i>Constructing a drift for Copper Ridge Shaft</i>	<i>1500</i>
<i>Repairing Mayflower Shaft &amp; drift in view</i>	<i>1500</i>

4. HISTORY AND PRESENT STATUS: This subject should be fully covered and should include the following information: A statement of previous development, operation and production of the mining property, giving dates; statement as to exact nature of applicant's interest in or ownership of the property, including date and circumstances under which acquired.
5. LOCATION AND DESCRIPTION OF MINING PROPERTY: *(See Statement attached)*
- (a) Mining district in which property is situated. If on surveyed ground, give section, township, and range. Give name and distance to railroad station.
- (b) Names and survey numbers of all patented claims, including map.
- (c) Names, dates of location, place and date of recording, book and page record of all unpatented locations, including sketch map.
- (d) Description of mineral acreage, including map, and recording data. *(See report)*
- (e) Names of any adjoining or neighboring productive properties.

6. IF APPLICANT IS A CORPORATION, SUPPLY THE FOLLOWING:

(a) General Information

1. Principal office and place of business. 446 Henshaw Road, Ph  
(Street and Number)
- Phoenix, Az.  
(City) (State)
2. When organized. 1938
3. Under what laws organized. Arizona
4. Names of States in which qualified to do business. Arizona

(b) Names and Addresses of Officers:

Name and address	Official title (if officer is also director indicate by "D")
<u>Fred J. Steele 446 Henshaw Rd. Ph</u>	<u>President D</u>
<u>Samuel P. Matthews 2902 W. 3rd</u>	<u>Secretary D</u>
<u>H. E. Steele 24 S. 13th Ave.</u>	<u>Treasurer D</u>

- (c) Articles, Bylaws, Etc.—Copies of Articles of Incorporation, bylaws, and certificates of authority to do business, with all amendments to date, certified and sworn to by applicant's Secretary, all to be attached hereto.

7. IF APPLICANT IS A PARTNERSHIP, SUPPLY THE FOLLOWING:

(a) Names and Addresses of All Partners:

Name <small>(Indicate if any partners are limited or special partners)</small>	Address
<del> </del>	<del> </del>
<del> </del>	<del> </del>

- (b) Affidavits and Agreements—Copies of all partnership affidavits and agreements, certified and sworn to by the partner signing the application, all to be attached hereto.

8. FINANCIAL STATUS: Submit current financial statement, and state terms of notes payable, mortgage debts, etc., giving maturity dates, rate of interest, etc.; and describe any other liens.

Page 2

*No cash in hand & no balance sheet.*  
*No litigation except as set forth against mine Copper Ridge Co attached*

**EXHIBIT B**

**Technical Data**

The data required by Exhibit B should be supplied in detail on separate sheets of paper attached at end of this Exhibit. Data should be lettered and numbered to correspond with respective paragraphs below.

A. REPORTS: Furnish any reports available that apply to this application, including results from any metallurgical investigations. *See Supplementary Statement & Exhibit*

B. GEOLOGY AND TOPOGRAPHY: Submit all available information and maps. *See Reports.*

C. EXISTING DEVELOPMENT:

1. Furnish all possible information with regard to the ore body or mineral deposit. If maps and sections of the mine are not available, pencil sketches are acceptable. However, such sketches should, if possible, be drawn to scale, or if not, dimensions must be shown. Give all available assays of samples, stating clearly how samples were taken, giving width and location of each sample. Show the location, value and width of each sample on maps submitted. *Report*
2. Submit certificates, when available, giving analysis of each sample and number each sample to correspond with sample numbers on the maps submitted. *Report*
3. State type of mine, whether tunnel or shaft, and show in detail the existing workings. State distance along vein between levels and to surface. Indicate condition of workings, noting on map caved areas and those areas which it is proposed to make accessible. *Report*
4. List present equipment on property and describe condition. *Report*

D. PROPOSED PRELIMINARY DEVELOPMENT OF EXISTING MINE WORKINGS: *See Reports.*

1. State clearly and in detail the proposed work such as unwatering, retimbering and making accessible such workings, together with estimated cost thereof, including purchase of tools and supplies.
2. State whether workings are dry or wet; if latter estimated volume of water that has to be pumped, total gallons and gallons per minute to keep water down, and estimated cost of initial dewatering as well as cost to keep water down.
3. Show on sketch map of existing workings the extent of ore which it is proposed to sample and assay when such workings are made accessible.

E. POWER: State kind and source of power proposed to be used. *See Reports.*

*It is proposed to power the hoists & compressors with gasoline engines.*

# Documents with Copper Ledge Office -

- 1 (1) Applic. Blanks, Sign of Pur & Lid & + Lid (S)
- 1 (2) Supplementary Statement (attached to applic.)
- 2 (3) Articles of Inc & By Laws (S)
- 3 (4) Agreement bet Cop Ridge & Cop Ledge (S)
- 4 (5) Mining Lease, Cop Ridge & Cop Ledge (S)
- 5 (6) Report by Tracy
- 6 (7) Report J. H. C. Jan 39
- 7 (8) " " J. H. C. Oct 1. 1942.
- 8 (9) Maps:
  - (a) Claims
  - (b) Cop Ledge
  - (c) Mayflower

## Returned to State:

- > Art of Incorporation & By Laws of Cop Ridge Co.
- > " " " " of Cop Ledge Co.
- > Certificate of Incorporation
- > Agreement by Cop Ridge & Cop Ledge
- > Mining Lease, " " to " "
- > Suppl. Statement (copy of same to be kept)

To do

John date of copy, hand in copy

Date & the document of copy, (copy)

Fix up: Every Day

3rd copy copy + up to copy

File + copy

Make 2 more copy x 2

hand

or

CONTINUATION OF LETTER TO Mr. G. M. Colvocoresses, Phoenix, Arizona.

Incidentally, my informant told me that Ralden Borden was in certain domestic difficulties and seemed to be going to the bad under the pressure from all sides.

I am sorry not to be able to give you more cheerful news, and if you do not get a statement this month and wish me to call at the office again and ask for it, or ask any other questions of either of the gentlemen mentioned in this letter, I should be glad to do so. It is scarcely any inconvenience as I can easily go by their office on any of my numerous trips down town.

Sincerely yours,



CLEly  
ELM

The Western Metallurgical records duly arrived and are being stored in our files.

C.L.E.

E:M

Oct 7th 1942

in Belmont

Just from the machine

Copy of Agreement

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

COPY

October 1, 1942

The Copper Ledge Mining Corporation  
P. O. Box 529  
Phoenix, Arizona

Gentlemen:

This is intended to revise and supplement the report which was submitted to your company on January 26, 1939. It contains important information obtained on the occasion of my recent examination of your property on September 26, 1942, when I was able to visit for the first time portions of your workings which had been made accessible by your recent development work and thus to examine and sample ore showings which could not be inspected on previous occasions.

I shall herein confine my statements to matters pertaining to the showings and development of shipping ore since the prospect of eventually proving up a large body of disseminated ore in the porphyry and at depth has not materially changed during the past few years and is not of immediate importance, whereas there is now a great demand for the prompt production of copper which has become of primary importance in furthering the war program. The Government will now pay the bonus price of 17¢ per pound for the output of such mines as the Copper Ridge from which the higher grade ore can be shipped direct to a custom smelter.

COPPER RIDGE VEIN

As previously stated this vein occurs in a rhyolite ridge that projects up through the surrounding conglomerate (fanglomerate) which forms the greater part of the surface of your claims.

Although the outcrop of this vein can be traced for several hundred feet the principal work has been confined to a length of 250' (as shown on the attached Exhibit b) where numerous pits and trenches were sunk and the highest grade ore was gouged out near the surface, in some cases to a depth of over 20'.

This vein or mineralized fissure strikes north  $60^{\circ}$  west and has a width of three to six feet, the pay streak along the footwall has a width of from six inches to two feet and contains high grade silicates and carbonates of copper which constituted the ore that was shipped before 1918, having an average value of \$3.79 in gold and silver and 8.19% copper. The balance of the fissure over a width of at least three feet in the fault breccia carries copper values and while no average grade can be actually determined at present there is little doubt that by sorting a substantial production of 4 to 5% copper ore can be made.

At the northwest end of the trenched section the vertical shaft with depth of 104' has now been cleaned out and this has been retimbered so that I was able to go to the bottom. The lower portion of the shaft is in conglomerate although at the very bottom some rhyolite is coming in but whether this is merely a fragment or boulder or actually rock in place could not be determined.

At a depth of 20' below the collar the footwall of the main vein crosses the shaft with a dip of about  $65^{\circ}$  and good ore was noted here on the sides of the shaft with a width of over two feet from which I chipped a sample which assayed:

Au. 0.04 oz.

Ag. 1.2 oz.

Cu. 4.90%

Below this section the rhyolite is shattered and broken for a distance of 10' when another vein or branch of the main vein is encountered apparently lying on or near the contact with the conglomerate and here a width of six inches of high grade ore was sampled. This sample assayed:

Au. 0.07 oz.

Ag. 12.70 oz.

Cu. 29.15 %

This lower vein has not been noted on the surface as it has a dip of only about 30° and would therefore outcrop under the surface gravel to the southwest of the rhyolite ridge but these two veins should intersect a short distance to the northeast of the shaft and the rock between them seems to be all mineralized to a certain extent and should yield a substantial percentage of 5% ore.

Both of my samples contained a substantial quantity of chalcocite as well as silicates and carbonates of copper and while some of the ore in the upper vein has been mined out from the surface pits and trenches on the southeast side of the shaft the continuation of the vein to the northwest is all virgin ground.

Along the northwest wall of the shaft there is a cross slip or seam which probably represents a small fault and may throw the veins out of line, but probably for only a few feet.

Other showings along the outcrop and in the pits located along this vein for several hundred feet to the northwest and approaching the main pit of the New Cornelia Copper Company have proved that similar surface ore exists in that section of the vein and that there is every

reason to expect that a substantial quantity of medium grade ore, similar to that which was represented by the former shipments can be developed and mined between the surface and a level which might be run from the shaft at an approximate depth of 50' in order to catch both upper and lower veins at their point of junction.

The continuance of this ore at greater depth is entirely problematical but since we know that many of the high grade veins in rhyolite and monzonite which were originally worked in this district have produced good ore to a depth of as much as 300' there is every reason to follow downward the vein in the Copper Ridge, which doubtless had a similar origin, with good hope that this may have at least a substantial depth either in the rhyolite or along the contact between the rhyolite and the conglomerate.

#### MAYFLOWER VEIN

This showing is located over half a mile northeast of the Copper Ridge Vein with which it has no connection.

The outcrop is entirely in conglomerate which forms both walls of the fissure in which the silicate and carbonate ores occur striking N. 60° E. and dipping 50° to the northeast.

The outcrop of this vein can also be traced for a considerable distance and at one point a shaft has been sunk along the vein to a depth of about 50' and can be descended with the aid of a rope. I did not personally go all the way to the bottom but from a point about half way down I was able to see practically all of the exposed section of the vein and can thus confirm the statement of Albert Steele who found over one foot of high grade ore showing in the short drifts at

the bottom. Along the walls of the shaft the best ore again occurs as a narrow seam with lower grade material extending for some distance in the adjacent rock.

The condition of the shaft did not make it possible to cut any representative samples but from a dump of about five tons which was piled on the surface I took an average sample which assayed as follows:

Au.	0.05 oz.
Ag.	0.20 oz.
Cu.	10.53%

By a little sorting I am well assured that a somewhat lower grade of ore could be produced from a width of at least two feet.

The attached sketch Exhibit (d) will show the scope of this working and indicate that drifting should be continued both ways on the 50' level. It will also be in order to deepen the shaft as long as the vein continues to carry a width and grade of ore which makes its further development attractive.

#### OTHER SHOWINGS

Elsewhere on the Copper Ridge Claims there are a number of surface showings of oxidized copper ore occupying fractures in the conglomerate and similar in character but of lesser extent than the above described Mayflower Vein.

Several shallow shafts and pits have been sunk on these and from some of them a little good ore was mined. From one of these pits about 400' to the southeast of the Copper Ridge Shaft I took a sample across a width of about two feet which carried:

Au.	0.01 oz
-----	---------

Ag. 1.5 oz.

Cu. 8.22 %

At a later date some further work on this and other similar showings should be considered but for the time being I believe that it will be best to confine the developments to the two most promising localities, namely the Copper Ridge and the Mayflower at both of which you are reasonably sure of producing some shipping ore and of developing a substantial but uncertain tonnage by lateral work and at greater depth.

The only other recent development carried on by your company consists in the drilling of a diamond drill hole to a depth of 130' below the surface. This hole was located 350', N. 55° E. of the Copper Ledge Shaft and, as I should have expected, it penetrated conglomerate continuously and gave no information concerning the ore deposits.

#### WORK RECOMMENDED

In view of the information concerning this property which I was able to obtain on the occasion of this last examination by having been able to descend the Copper Ridge and Mayflower shafts I am able to form a different and on the whole a much more favorable opinion of your showings and to substantially revise the program of development which I had previously advocated, some of which you have already carried out and are continuing to do so.

I do not consider that your main Copper Ridge Shaft should be deepened until you have crosscut to the vein and drifted a considerable distance on the 50' level from the shaft for if this work should give

satisfactory results it will serve to develop a considerable tonnage of ore and similar work can later be conducted at greater depth with much better assurance of success.

A similar situation exists at the Mayflower Shaft. I therefore recommend to you that you should equip both of these shafts with small hoists and compressors which I understand that you can purchase second-hand on favorable terms. The crosscut to the vein on the 50' level at the Copper Ridge will probably not exceed a length of 30' and you should then drift along the vein at least 100' in each direction,--unless the fault in the northwest edge of the shaft should have thrown the vein much farther out of line than I anticipate. The cost of procuring and installing the equipment necessary to carry on this work should not exceed \$1000 and the cross-cutting and drifting should be completed for approximately \$2300..

At the Mayflower Shaft some timbering will be required which together with the purchase and installation of similar or somewhat smaller equipment will involve an outlay of approximately \$1200 and on the 50' level, -- i.e. at the bottom of the present shaft, 50' of drifting in each direction may be estimated to cost about \$1000. Additional drifting and the deepening of the shaft can be undertaken later.

An additional \$500, apportioned to the above operations, should be allowed to cover the necessary overhead expenses including Social Security and Unemployment Taxes, accounting and engineering expenses making a total outlay of about \$5000 which in my judgment will be quite sufficient to either disprove the present apparent value of the property or to make it reasonably certain that further work will continue to develop pay ore and that you will have the basis for a small but profit-

able mining operation.

The gross value of one ton of 5% copper ore with \$1.50 value in gold and silver and considering the 5¢ bonus on copper will be \$18.50 per ton and the gross value of 4% ore will be \$15.10. The total expense, after the ore has been mined, including trucking to railway, freight to smelter, toll charge and deductions and converting and refining the copper will reduce the net value to \$8.50 and \$5.60 but in both cases this should leave a substantial margin over the actual cost of mining the ore.

In support of my opinion and advice I refer to my previous report and to the report of Mr. Flagg dated May 10, 1938, and I also quote as follows from a report by George G. Wold, M. E., apparently made in 1920.

"The exploration of the contact should be based on the development of the fault veins in the rhyolite. High grade ore will be found in the veins but it's extent can only be proven by development".

The tonnage of pay ore that your property can produce is as yet entirely uncertain and the determination of this point will be the principal object of the work which I now recommend. I believe it to be fully justified by your present showings which give promise of becoming progressively more attractive as the work advances.

Yours very truly,

RECONSTRUCTION FINANCE CORPORATION

Washington

October 30, 1942

Mr. Fred Z. Steele  
Copper Ledge Mining Corporation, Inc.  
Box 529  
Phoenix, Arizona

Re: Copper Ledge Mining Corporation, Inc.  
Docket No. C-ND-7847

Dear Mr. Steele:

The application of the Copper Ledge Mining Corporation, Inc. for a loan from the Reconstruction Finance Corporation has been given careful consideration by the Directors of this Corporation, and I am directed to advise you that the Corporation is unable to approve the loan.

Among other reasons, this application was declined because the information presented did not indicate that the loan requested would expose copper ore in sufficient quantity to warrant the loan requested.

Very truly yours,

MORTON MACARTNEY  
Chief, Self-Liquidating Division

End # 4.

MINING DEED

THIS INDENTURE, Made the 16th day of April, in the year of our Lord One Thousand Nine Hundred and Thirty Nine between Copper Ridge Mining Company, an Arizona Corporation, the party of the first part, and Copper Ledge Mining Corporation, Inc., an Arizona Corporation, the party of the second part,

WITNESSETH: That the said party of the first part, for an in consideration of the sum of Ten & no/100 Dollars, lawful currency of the United States of America, to it in hand paid by the said party of the second part, the receipt whereof is hereby acknowledged, have granted, bargained, sold, remised, released and forever quitclaimed, and by these presents do grant bargain, sell, remise, release and forever quitclaim unto the said party of the second part, and to its successors and assigns all that certain mining ground, claim or lode, situate, lying and being in the Ajo Mining District, Pima County, State of Arizona, and particularly as described as Patented claims, Copper Ridge Numbers One (1), Two (2), Three (3), Four (4), Five (5), Eight (8), and Ten (10), and Gloriana Number One (1), and Mayflower Number Five (5), and the Eagle Claim, and the Unpatented claims known as Copper Ridge Numbers Six (6), Seven (7), Nine (9), and Eleven (11), , and Gloriana Number Two (2), and Triangle claim described as being bounded on the North by the New Cornelia Property and the Gloriana No. 1 and on the East by the Eagle Claim, and on the South by Copper Ridge No. 2, containing approximately 8 $\frac{1}{2}$  acres, and Fraction Claim, described as being bounded on the West and North by the New Cornelia Property and and on the East by Copper Ridge No. 5, containing approximately 3.1 acres, all contiguous claims.

TO HAVE AND TO HOLD, all and singular, the said premises, together with the appurtenances and privileges thereunto incident, unto the said party of the second part, its successors and assigns forever:

Resolved, that the President and Secretary of the Copper Ridge Mining

Company, a corporation, be and they are hereby authorized to execute, make and deliver, and convey the above property to the Copper Ledge Mining Corporation, Inc. in accordance with an agreement dated March 21, 1939, between the stockholders of said Copper Ridge Mining Company, and said grantee, and to sign the name of this corporation thereto, and to affix its corporate seal. That at a regular called meeting of the Board of Directors of the Copper Ridge Mining Company, the above resolution was unanimously passed and adopted, and the same was recorded in the minutes and has not been revoked.

IN WITNESS WHEREOF, the said party of the first part have hereunto set its corporate seal and hand the day and year first above written.

Copper Ridge Mining Company, a corporation

By: Fred Z. Steele  
President

Attest: Lemuel P. Mathews,  
Secretary

STATE OF ARIZONA }  
County of Maricopa } SS

Before me, Phyllis R. Ede, a Notary Public in and for the County of Maricopa, State of Arizona, on this day personally appeared Fred Z. Steele, President, and Lemuel P. Mathews, Secretary of the Copper Ridge Mining Company, an Arizona corporation, known to me to be the persons whose names are subscribed to the foregoing instrument, and acknowledged to me that they executed the same for the purposes and on behalf of said corporation, Copper/<sup>Ridge</sup> Mining Company, and consideration therein expressed.

Given under my hand and seal of office this 25th day of May, A. D. 1939.

Phyllis R. Ede  
Notary Public

(My Commission Expires May 16th, 1941)

Encl # 2.

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

I, B. STEPHENSON, SECRETARY OF THE ARIZONA CORPORATION COMMISSION DO HEREBY CERTIFY THAT the annexed is a true and complete transcript of the =

ARTICLES OF INCORPORATION

OF

COPPER LEDGE MINING CORPORATION, Inc.

which were filed in the office of the said Arizona Corporation Commission on the 23rd day of March, A. D. 1938, at 3:00 o'clock P. M., as provided by law.

IN WITNESS WHEREOF,

I HAVE HEREUNTO SET MY HAND AND AFFIXED THE OFFICIAL SEAL OF THE ARIZONA CORPORATION COMMISSION, AT THE CAPITOL, IN THE CITY OF PHOENIX, THIS 23rd DAY OF MARCH, A. D., 1938.

By: B. Stephenson, secretary  
C. W. Smith, assistant secretary

# ARTICLES OF INCORPORATION

of the

COPPER LEDGE MINING CORPORATION, INC.,

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KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, have this day associated ourselves together for the purpose of forming a corporation under the Laws of the State of Arizona, and for that purpose do hereby adopt, sign and acknowledge these Articles of Incorporation.

## ARTICLE I

The names of the incorporators of this corporation, and their residence and post office addresses, are as follows:

Fred Z. Steele, who residence address is East Henshaw Road, Phoenix, Arizona, and post office address is P. O. Box 529, Phoenix, Arizona; and

Lemuel P. Mathews, whose residence address is 50 West Culver Street, Phoenix, Arizona, and post office address is 503 Title & Trust Building, Phoenix, Arizona.

## ARTICLE II

The name of this corporation is and shall be COPPER LEDGE MINING CORPORATION, Inc., and its principal place of transacting business is and shall be Phoenix, Arizona. The corporation may, however, have other offices and places of business within and without the State of Arizona as the Board of Directors of this corporation may from time to time designate and determine.

## ARTICLE III

The General nature of the business to be transacted by this Corporation is as follows:

To carry on the business of mining, milling, concentrating, converting, smelting, treating, preparing for market, manufacturing, buying, selling, exchanging, and otherwise producing and dealing in gold, silver, copper, lead, zinc, brass, iron, steel and all kinds of ores, metals and minerals, and the products and by-products thereof of every kind and description and by whatever process the same can be or may hereafter be produced, and generally and without limit as to amount, to buy, sell, exchange, lease, acquire, hold and deal in lands, mines, and mineral rights and claims, and to conduct all business appertaining thereto; to

purchase, lease, hold or otherwise acquire mining rights, timber rights, oil and gas rights, mines, buildings, dwellings, plants, machinery, tools and other properties whatsoever which this corporation may acquire from time to time or find to be for its advantage and purposes; to mine and market any mineral or other product that may be found in or on such lands, and to explore, work, exercise and develop or turn to account the same; to mine, smelt, refine and otherwise deal in gold, silver, copper and other metals, consistent with the laws of the United States, and to buy and sell general merchandise incident thereto.

To buy, sell, exchange and generally to deal in real estate, improved and unimproved, office buildings, store buildings, dwelling houses, barns, water rights and privileges; to hold, acquire, and operate under franchises and certificates of conveniences, own and operate water works and electric plants; to build, construct, operate and lease dwelling houses, apartments and business houses; to make and obtain loans on real estate of every description, and to operate, and manage such property and all interests and claims affecting the same; to improve, mortgage, insure and otherwise deal in and handle real estate and its improvements, leases, and permits, assignments of leases and mortgages, and dispose of the same for cash or upon credit.

To buy, sell negotiate, exchange, pledge, trade and deal in and with shares, stocks, debentures, scrip, bonds, and securities of any government, state, public or private corporation or any corporate body; to mortgage, pledge or otherwise incumber any and all property and rights of this corporation; to borrow money from the United States Government or from any of its agencies, or from private individuals, persons or corporations, and give as security mortgage, pledge or otherwise for the payments of the same with interest; to purchase, hold, or otherwise acquire the stock, shares, debentures, bonds, or in exchange therefor the stock and shares of this corporation, or its debentures, or bonds, notes, mortgages, or other evidences of indebtedness if payment thereof, and while the owner thereof to exercise all the rights of ownership, including the power to vote upon such stock or shares by proxy or otherwise; to issue stock, shares preferred and common, bonds, certificates, or other corporate obligations, and to secure the payments thereof by mortgage, pledge, or deed of trust of or upon the whole or any portion of the corporate property or funds; to receive, collect, transmit, pay out and disburse funds in the course of the corporations business; to retire and pay off its preferred stock on orders of the Board of Directors.

To purchase, hold, lease or otherwise acquire and to sell, mortgage, transfer and otherwise dispose of all kinds of personal property, and to do all things which the corporation may deem necessary or convenient for the purposes of its business not inconsistent with or contrary to law, and to delegate all of said powers to its Board of Directors, as from time to time may be deemed expedient or necessary.

#### ARTICLE IV

The total authorized capital stock of this corporation shall be divided into sixty thousand (60,000) shares, the par value of which shall be Ten Dollars (\$10.00) each, of which fifty thousand (50,000) shares will be common stock, which shall be the voting stock of the corporation, which shall be issued for such consideration and under such rules and regulations as may be prescribed by the Arizona Corporation Commission, and ten thousand (10,000) shares of said capital issue shall be called as Preferred Stock, which shall be issued full paid and non-assessable

and upon such terms as the Board of Directors may determine in accordance with an agreement heretofore made with the stockholders of The Copper Ridge Mining Company, a corporation; that said preferred stock shall be noncumulative for a period seven years from the date of filing these articles, which said preferred stock is proposed to be retired at par on or before that date, as the common stock is sold and disposed of, and as so retired, the money therefrom, may be used at the option of the holder to purchase common stock at the then prevailing price as determined by the Board of Directors with the approval of the Arizona Corporation Commission; that said preferred stock, if not retired within seven years, shall be entitled to receive dividends after the seven year period, when and as declared from the accrued profits of the company, at the rate of four percent (4%) per annum, payable semi-annually, and if not retired at par within five years after said seven year period said preferred stock shall upon the option and notice of the holder then become voting stock with all rights of the common stock issued, and said cumulative dividends shall thereupon cease; that the dividends during the five year period shall be payable before any dividends shall be paid or set apart on the common stock; that during said seven year period the common stock issued shall be assessable only for the annual taxes and yearly corporation fees accruing. The common stock of this corporation may be voted at any and all meetings either in person or by proxy.

#### ARTICLE V

The time of the commencement of this corporation shall be the date of the filing of these Articles of Incorporation with the Arizona Corporation Commission and a certified copy thereof with the County Recorder of Maricopa and Pima Counties, Arizona; and the termination thereof shall be twenty-five years thereafter unless renewed as provided by law.

#### ARTICLE VI

The affairs of this corporation shall be conducted by a Board of Directors consisting of not less than five stockholders and not more than eleven stockholders, as the stockholders of the corporation may hereafter

determine, and such directors shall be elected at the annual meeting of the stockholders, which shall be held at the office of the corporation in Phoenix, Arizona, on the first Tuesday in April of each year; said directors shall hold their office for the term of one year from the date of their election and until their successor shall have been duly elected or appointed unless such director shall in the meantime cease to be a stockholder, or dies, or resigns; any person ceasing to be a stockholder shall cease to be a director or officer of this corporation.

Vacancies in the Board of Directors may be filled by the remaining members until a special or regular meeting of the stockholders.

Any meeting of the Board of Directors, at which a majority of such Board may be present, shall be considered a legal meeting, provided twelve hours notice of such meeting is given.

The following named persons who are subscribers for five shares of the common stock of this corporation shall constitute the officers and directors of this corporation until the next annual meeting of the stockholders of this corporation to be held on the first Tuesday of April, 1939, and until their successors shall have been elected, to wit:

Fred Z. Steele,	President and Director, Phoenix, Arizona
Wayne Ritter,	Vice President and Director, Tempe, Arizona
H. E. Steele,	Treasurer and Director, Phoenix, Arizona
W. D. Randle,	Director, Buckeye, Arizona
Lamuel P. Mathews,	Secretary and Director, Phoenix, Arizona

#### ARTICLE VII

The officers of this corporation shall be a President, a Vice President, a Treasurer, and a Secretary, and such other officers as the Board of Directors may hereafter determine, who shall be elected annually by the Directors at their first meeting, however, the President, Vice President, Secretary and Treasurer, must be named from the Board of Directors.

#### ARTICLE VIII

The Board of Directors of this corporation shall, in addition to the powers hereinbefore and by law granted to them have the following specific powers:

1. To appoint such agents to aid in the management of the business of the corporation, as the said Board may deem advisable and determine and fix their compensation.

2. To borrow money on behalf of the corporation and contract to repay the same, and to execute all necessary papers and records and security incident to the same, and to mortgage or pledge any and all the property of this corporation, not inconsistent with the issue of the preferred stock then outstanding, for the purpose of securing the payments of any of the obligations or indebtedness of the corporation.

3. To sell, assign, convey, lease or otherwise dispose of any and all of the property and assets of the corporation, not inconsistent with the issue of preferred stock then outstanding, on such terms and conditions as may be prescribed by two thirds of the outstanding stock of the common stock of the corporation, whether for cash or property, as may be deemed advisable for the best interests of the corporation.

4. To issue preferred stock at par value in accordance with an agreement heretofore made with the stockholders of The Copper Ridge Mining Company, a corporation, in consideration for deeds and possession of certain mining property located at Ajo, Arizona.

5. To make, alter, amend and substitute any and all by-laws, rules and regulations, necessary and proper, for the efficient and lawful management and control the corporation, its officers and agents and for the proper conduct of the affairs of the business.

6. To authorize and direct any officer to make, execute and deliver for an in behalf of this corporation such papers, deeds, documents and instruments as may be required on the part of this corporation.

7. To make and execute all reports, declare dividends in accordance with these articles and any stockholders meeting, and otherwise be the executive branch of the corporation.

#### ARTICLE IX

The highest amount of indebtedness or liability, direct or contingent, to which this corporation is, at any time, liable shall be the sum of TWO HUNDRED THOUSAND DOLLARS, (\$200,000).

#### ARTICLE X

The stockholders of this corporation and their private property shall be at all times exempt from the corporate debts of and the obligations of this corporation.

IN WITNESS WHEREOF, we have hereunto set our hands, in accordance with the Laws of Arizona, this the 23rd day of March, A. D., 1938.

Fred Z. Steele

Lemuel P. Mathews

STATE OF ARIZONA,

County of Maricopa, SS.

Before me, Dorothy Palmer, a Notary Public in and for the county of Maricopa, State of Arizona, on this day personally appeared Fred Z. Steele, and Lemuel P. Mathews, to me known and known to me to be the persons and individuals whose names are subscribed to the foregoing instrument, and they severally duly acknowledged to me that they executed the same for the purposes and considerations therein named and expressed. GIVEN under my hand and seal this the 23rd day of March, A. D. 1938.

DOROTHY PALMER  
Notary Public

My Commission Expires:

January 2, 1940

(NOTARIAL SEAL)

\* E N D O R S E M E N T -

ARIZONA CORPORATION COMMISSION Incorporating Division.

Filed March 23, 1938 at 3:00 P. M., at request of Lemuel P. Mathews whose address is 503 Title & Trust Building, Phoenix, Arizona.

B. Stephenson, Secretary

By Florence E. Lange.

B Y - L A W S

of the

COPPER LEDGE MINING COMPANY

---

THE NAME of the Corporation shall be the

COPPER LEDGE MINING COMPANY

---

ARTICLE I

CORPORATE POWERS

The corporate powers of this Corporation shall be vested in a Board of five directors, who shall be Stockholders, holding one or more shares of stock in their own names on the books of the Corporation and three shall constitute a quorum for the transaction of business.

ARTICLE II

Election of Directors

The Directors shall be elected by ballot, at the annual of official meeting of the Stockholders, to serve for one year, and until their successors are elected. Their term of office shall begin immediately after election.

ARTICLE III

Vacancies

Vacancies in the Board of Directors shall be filled by the other Directors in office; and such persons shall hold office until the first meeting of the Stockholders thereafter.

ARTICLE IV

Power of Directors

The Directors shall have power:

1st. To call special meetings of the Stockholders when they deem it necessary. And they shall call a meeting at any time, upon the written request of Stockholders holding one-third of all the capital stock.

2nd. To appoint and remove, at pleasure, all officers, agents and employees of the Corporation, prescribe their duties, fix their compensations, and require of them security for faithful services.

3rd. To conduct, manage and control the affairs and business of the Corporation, and to make rules and regulations, not inconsistent with the laws of the State of Arizona, or by the By-Laws of the Corporation, for the guidance of the officers and management of the affairs of the Corporation.

4th. To incur indebtedness. The terms and amount of such indebtedness shall be entered on the minutes of the Board, and the note or obligation given for the same, signed officially by the President and Secretary, shall be binding on the Corporation.

ARTICLE V

Duties of Directors

It shall be the duty of the Directors:

1st. To cause to be kept a complete record of all their minutes

and acts, and of the proceedings of the Stockholders, and present a full statement at the regular annual meeting of the Stockholders, showing in detail the assets and liabilities of the Corporation, and generally the condition of its affairs. A similar statement shall be presented at any other meeting of the Stockholders when thereto required by persons holding at least one-half of the capital stock of the Corporation.

2nd. To declare dividends out of the surplus profits, when such profits shall, in the opinion of the directors, warrant the same.

3rd. To supervise all officers, agents and employees, and see that their duties are properly performed. To cause to be issued to the Stockholders, in proportion to their several interests, certificates of stock, not to exceed in the aggregate \_\_\_\_\_ dollars.

## ARTICLE VI

### Officers

The officers shall be a President, Vice-President, Secretary and Treasurer, which officers shall be elected by and hold office at the pleasure of the Board of Directors. The compensation and tenure of office of the Corporation (other than Directors) shall be fixed and determined by the Board of Directors.

## ARTICLE VII

### President

The Board of Directors shall, at their first regular meeting, elect one of their number to act as President, and if, at any time, the President shall be unable to act, the Vice-President shall take his place and perform his duties; and if the Vice President, from any cause, shall be unable to act, they shall appoint some other member of the Board to do so, in whom shall be vested, for the time being, all the duties and functions of his office. The President, or in his absence, the Director appointed as above provided: -

1st. Shall preside over all meetings of the Stockholders and Directors, and shall have the casting vote.

2nd. He shall sign, as President, all certificates of stock, and all contracts and other instruments of writing which have been first approved by the Board of Directors, and shall draw checks upon the Treasurer.

3rd. He shall call the Directors together whenever he deems it necessary, and shall have, subject to the advice of the Directors, direction of the affairs of the Corporation, and generally shall discharge such other duties as may be required of him by the By-Laws of the Corporation.

The President, or two of the Directors, shall call special meetings of the Directors at any time, and notice shall be given of such called meetings by leaving a written or printed notice of the last known place of business or of residence of each Director. Such service of notice shall be entered on the minutes of the Corporation; and the said minutes, upon being read and approved at a subsequent meeting of the Board, shall be conclusive upon the question of service.

## ARTICLE VIII

### Secretary

The Board of Directors shall elect a Secretary.

1st. It shall be the duty of the Secretary to keep a record of the proceedings of the Board of Directors and of the Stockholders.

2nd. He shall keep the corporate seal of the Corporation and the book of blank certificates of stock, fill up and countersign all certificates issued, and make the corresponding entries in the margin of such book on such issuance; and he shall affix said corporate seal to all papers requiring a seal.

3rd. He shall keep a proper Transfer Book, and a Stock Ledger in debit and credit form, showing the number of shares issued to and transferred by any Stockholder, and the dates of such issuance and transfer.

4th. He shall keep proper Account Books, countersign all checks drawn upon the Treasurer, and discharge such other duties as pertain to his office and as are prescribed by the Board of Directors.

5th. The Secretary shall serve all notices required by law or the By-Laws of the Company; and in case of his absence, inability, refusal, or neglect so to do, then such notices may be served by any person thereunto directed by the President or Vice-President of the Company.

#### ARTICLE IX.

##### Treasurer

The Treasurer shall receive and keep all the funds of the Corporation, and pay them out only on the check of the President, countersigned by the Secretary.

#### ARTICLE X

##### Books and Papers

The Books and such papers as may be placed on file by vote of the Stockholders or Directors shall, at all times in business hours, be subject to the inspection of the Board of Directors and of any Stockholders.

#### ARTICLE XI.

##### Certificates of Stock

Certificates of stock shall be of such form and device as the Board of Directors may direct; and each certificate shall be signed by the President and countersigned by the Secretary, and express on its face its number, date of issuance, the number of shares for which, and the person to whom it is issued.

The Certificate Book shall contain a margin on which shall be entered the number, date, number of shares, and the name of the person expressed in the corresponding certificate.

#### ARTICLE XII

##### Transfer of Stock

Shares of the Corporation may be transferred at any time by the holders thereof, or by attorney legally constituted, or by their legal representatives, by indorsement on the Certificate of Stock. But no transfer shall be valid until the surrender of the certificate and the acknowledgement of such transfer on the books of the Company.

No surrendered certificate shall be cancelled by the Secretary before a new one is issued in lieu thereof, and the Secretary shall preserve the certificate so cancelled as a voucher. If however, a certificate shall be lost or destroyed, the Board of Directors may order a new certificate issued upon such guarantees by the parties claiming the same as they may deem satisfactory.

#### ARTICLE XIII

##### Meetings

The annual meeting of the Stockholders may be held in Ajo, Arizona on the 7th of November in each year, and shall be called by a notice printed in one or more newspapers, published in the County of Pima, as the Directors may elect, for at least ten days last preceding the day of meeting, or by a notice in writing by the President, delivered to each Stockholder personally.

No meeting of Stockholders shall be competent to transact business unless a majority of stock is represented, except to adjourn from day to day, or until such time as may be deemed proper.

At each annual meeting of the Stockholders, Directors for the ensuing year shall be elected by ballot, to serve for one year, and until their successors are elected. If, however, for want of a quorum, or other cause, a Stockholders' meeting shall not be held on the day above named, or should the Stockholders fail to complete their elections, or other such business as may be presented for their consideration, those present may adjourn from day to day, until the same shall be accomplished.

#### ARTICLE XIV

##### Voting

At all corporate meetings, each Stockholder either in person or by proxy, shall be entitled to as many votes as he owns shares of stock. Such proxy shall be in writing, and filed with the Secretary.

#### ARTICLE XV

##### Amendments

The By-Laws may be altered or amended at any meeting of the Stockholders by a majority of the stock represented at such meeting, or by a two-thirds vote of the whole number of the Board of Directors, to be ratified by the first meeting of the Stockholders thereafter.

#### ARTICLE XVI

##### Seal

The Company shall have a Common Seal, consisting of a circle having on its circumference the words Copper Ledge Mining Company Incorporated November 7th, 1919.

Sup <sup>2126</sup> C.R. # 1

- to 4" ~ 7"

h.g. 11, 30'

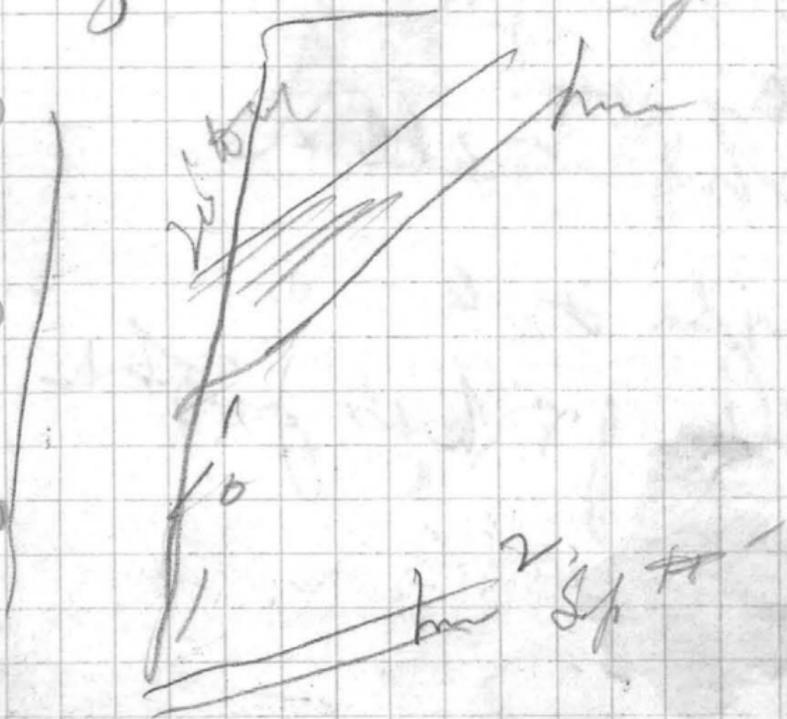
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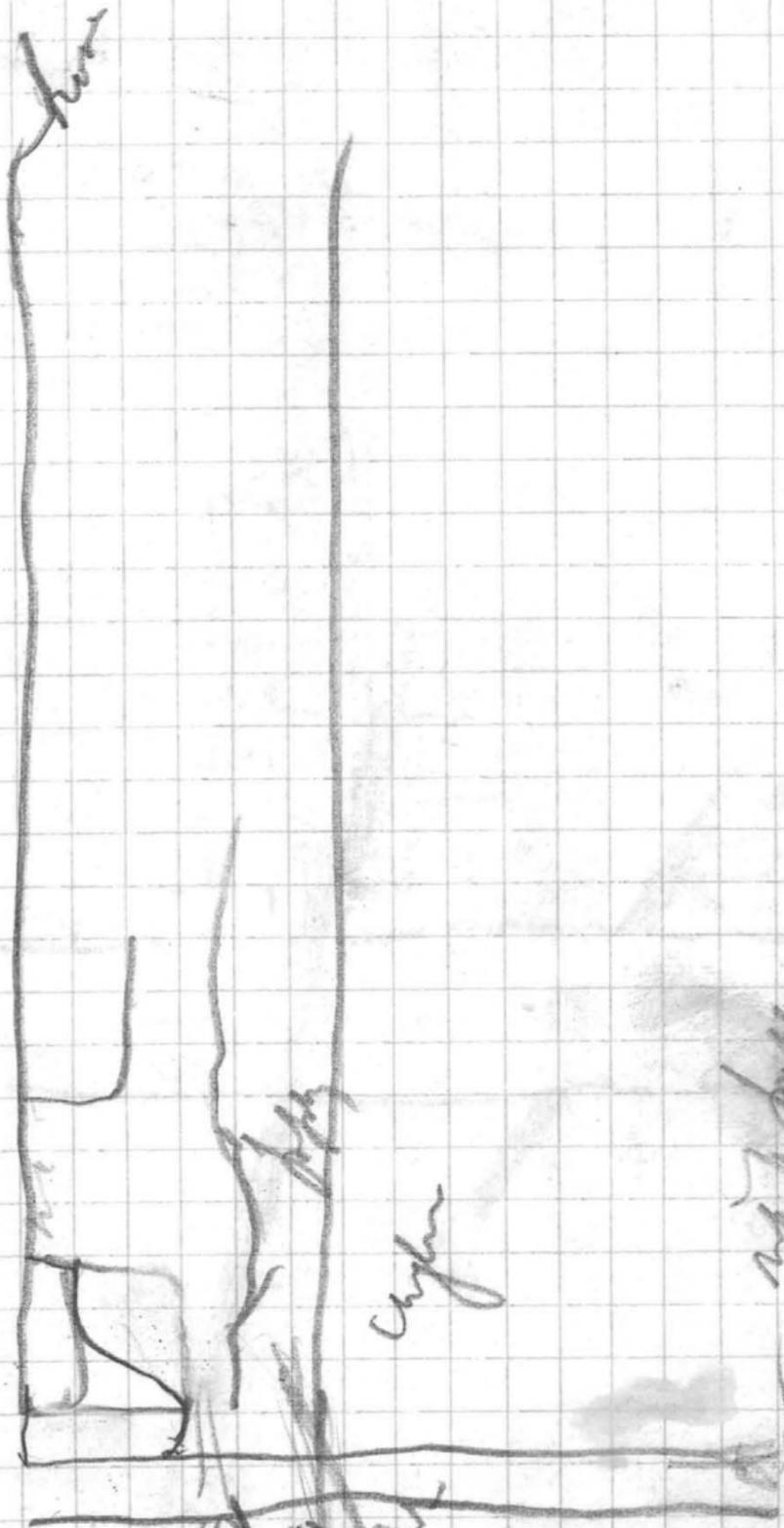
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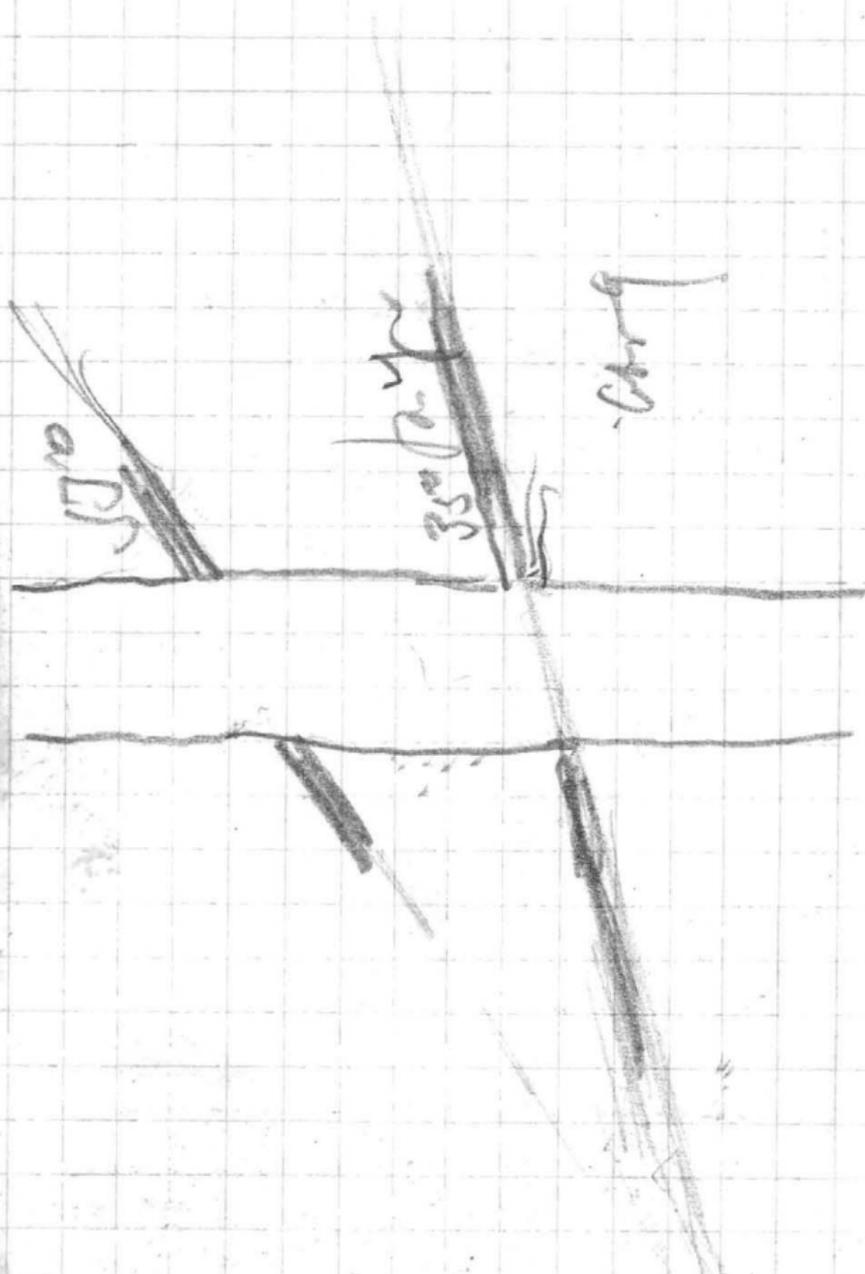
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hill



For sheet ~~1~~<sup>1</sup>

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& 400' for steps &

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middle) 2' in

3' 2' & more - for

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bottom of each run

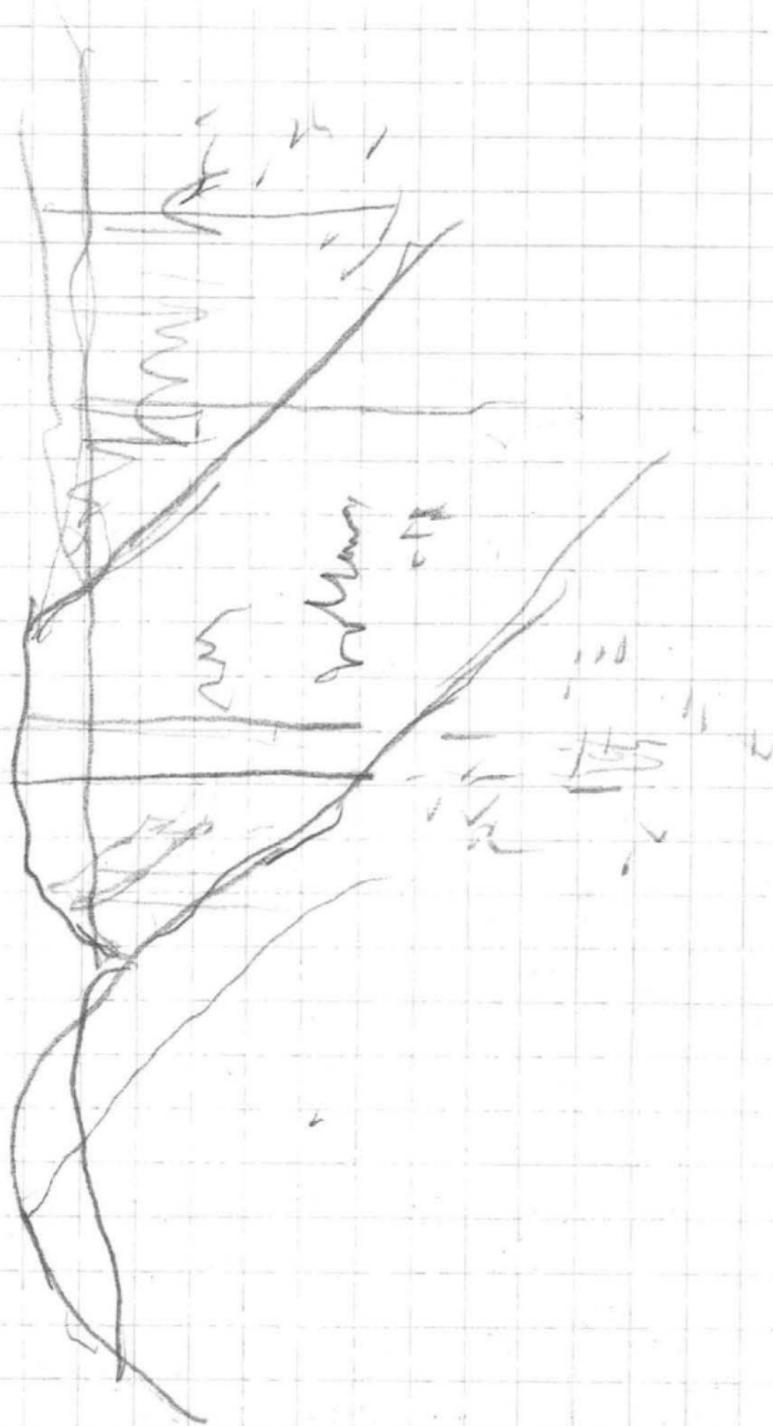
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dip

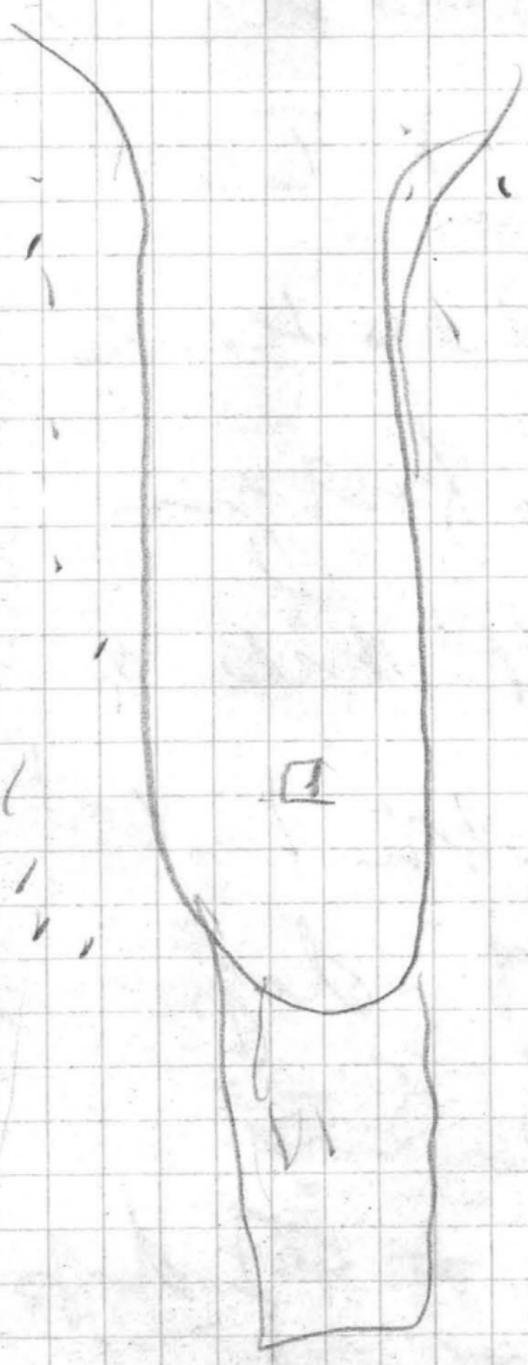
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ROBERT F. HERRICK  
JEREMIAH SMITH, JR.  
MALCOLM DONALD  
J. W. FARLEY  
EDWARD A. TAFT  
PHILLIPS KETCHUM  
EUGENE T. CONNOLLY  
BARTLETT HARWOOD  
GEORGE R. BLODGETT  
ROBERT CUTLER  
HENRY R. GUILD  
JOHN T. NOONAN

HAROLD L. CLARK  
W. SIDNEY FELTON  
ARTHUR L. HOBSON, JR.  
WILLIAM H. GULLIVER, JR.  
OSCAR A. SCHLAIKJER  
NOEL MORSS  
ROBERT R. THURBER  
WARREN D. OLIVER  
ROLAND B. HOAG  
MICHAEL J. GALVIN  
ALEX. J. MCFARLAND

# HERRICK, SMITH, DONALD & FARLEY

FIRST NATIONAL BUILDING  
1 FEDERAL STREET

BOSTON

TELEPHONE LIBERTY 4950  
CABLE ADDRESS "HESDOF"

April 23, 1936.

Copper Ridge

~~Edwin~~

1942

Apr 26

42

COPPER RIDGE FILE

Note re AJO CONSOLIDATED

Surface showing said to be very similar to those at Copper Ridge with shaft sunk on fault or fissure of which the fissure on the Copper Ridge is believed to be an extension. Only narrow seam of carbonate and silicate copper ore developed down to below the 100' level when sulfides were reached and the vein filling widened and carried a large percentage of high grade chalcocite ore which was sorted out and shipped crude with average grade of 30% copper.

Also a lot of lower grade ore was developed and put thru a 20 ton stamp mill.

Mine was worked down to depth of 265' and had produced ore and concentrates with value of about \$250,000 and large profit to operators when it was sold to Gaskill in about 1912 who later sold out to New Cornelia Co. and the workings of this property were later included in the New Cornelia Pit.

The fact that this showing was in the Cornelia monzonite may make it dangerous to draw a comparison with the Copper Ridge but otherwise it would seem as if it might be considered as very encouraging to the owners of the Copper Ridge.

Ajo Consolidated was operated by Levy and Clark and 10% to 20% of product was high grade shipping ore.

Another mine which might be investigated is the Cordega which lies to the southwest but has not operated for several years.

J. S. J.

-4-

scanty, pyritization of the monzonite mass. This pyritization was heaviest in the eastern part of the intrusion. Later, as the porportion of silica and copper in the solutions increased, these solutions rose through the larger fractures in the monzonite until they encountered the impervious, less thoroughly fractured overlying beds of rhyolite. These dome-shaped beds acted as a dam, stopping the upward flow of the mineralizing solutions and causing them to spread out through the jointed monzonite on both sides of the large, deep-seated fractures. Here they remained imprisoned until they gave up their mineral content, depositing veins of quartz, chalcopyrite, and bornite along the fissures and joint planes, and partly replacing the rock itself with the same minerals. The mineralization was greatest near the large central fractures through which the solutions had risen, and in the more thoroughly jointed portions of the monzonite near rhyolite contacts. In this manner was formed the mushroom-shaped disseminated orebody, grading on the sides and bottom to rock less thoroughly mineralized, or mineralized with iron instead of copper sulphides.

*Just*

(c) "The most recent rock found at Ajo is a coarse conglomerate which lies between the hills and the valley to the east and south. The fragments in this conglomerate are rhyolite and monzonite, and the cementing material is limonite and silica, with traces of malachite. The age relations between the conglomerate and the Tertiary lava flows is not certain. Evidently the conglomerate is a local result of rapid erosion of the mineralized rhyolite and monzonite of Copper mountain, formed by the cementing by iron and silica bearing surface waters of rocks washed down the steep mountain side."

(End #1)

SUPPLEMENTARY STATEMENT TO ACCOMPANY APPLICATION OF COPPER LEDGE MINING COMPANY FOR PRELIMINARY DEVELOPMENT LOAN.

Answers to following questions:

Exhibit A. #4 History

These claims were first known as the William Gillard Claims, in the Ajo Mining District, Pima County. In 1916 these claims were deeded to the Ajo Cornelia Mining Company, a corporation, and the Steele brothers then were stockholders along with many others. This company put down one Diamond drill hole and shipped some ore from shallow diggings, got into financial difficulty, on account of one of the officers defaulting, and the Longyear Drilling Company filed their liens and in order to hold the property most of the old stockholders organized the Copper Ridge Mining Company and took over the property and paid Longyears their money, in the year 1919, at which time a perpendicular shaft was sunk to 103' and several cars of ore was shipped. However, the claims were again allowed to stand unworked except for assessment work, for at the time the transportation cost was prohibitive, which has since been greatly reduced. The Copper Ridge Mining Company was capitalized for one and half million shares par value one dollar. At the time of organizing the new company, Copper Ledge Mining Company, Incorporated, there were outstanding issued shares of the Copper Ridge of Six Hundred sixty seven Thousand shares (667,000) all held in escrow by the Valley Bank in Ajo, and the ten largest stockholders were: Fred Z. Steele, John H. Tate, E. A. Dea., H. W. Newland, E. F. Foster, E. L. Frank, Dave Discue, Charles Beal, William Kruse and H. E. Steele. In 1938 the Copper Ridge Mining Company entered into an agreement (attached) with the present company, Copper Ledge Mining Corporation, and the articles of said corporation is submitted attached.

The old corporation Copper Ridge, then appointed trustees to look after their interest in this contract, and to do such things as the necessity demands in the further representing the interest of the old stockholders of the Copper Ridge Mining Company.

The corporate stock in its entirety is unissued as yet on account of the fact that there has been no final decision on how we are to finance any new development. It being the intention primarily to protect the interest of the old Copper Ridge stockholders up to the agreed amount of the value of their stock. All of the expenses of the new company have been met by the stockholders as named herein with the understanding that their expenditures will be repaid in stock at the proper time and with the advice of the Arizona Corporation Commission.

See also other documents attached.

#5 (a, b, and c) Location and Description of Mining Claim

LOCATION: As is shown in deed and Contract. The patented claims are represented by Patents: Survey numbers 3881 and 3881½. Unpatented claims are recorded as follows:

- November 27, 1912 -Book SS of Mines, Copper Ridge 6, Page 587
- Copper Ridge 7, Page 588
- Copper Ridge 9, Page 595
- September 25, 1916, Book of Mines, Gloriana No. 2, Page 36
- May 24, 1928, Book LLL of Mines, Oversight Fr. , Page 511
- Copper Ridge 11
- Triangle Fr.

The above shows seventeen claims or parts of claims, all located approximately two miles of Ajo, Pima County, Arizona, in the Ajo Mining District of Arizona, Section 25 and 36 of the Range 6 West, Township 2 South, Gila and Salt River Base and Meridian.

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	Copper Ridge 7, Page 588
	Copper Ridge 9, Page 595
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	Copper Ridge 11
	Triangle Fr.

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#5 cont.

- (d) See map attached to Reports
- (e) New Cornelia Mine of Phelps-Dodge Corporation adjoins Copper Ledge property on north and west.

#6 (c) Copies of same attached and attested by proper officials

EXHIBIT B (a, B, c, and d)

Enclosed is copy of recent report by G. M. Colvocoresses also copy of report by A. L. Flagg and previous report by G. M. Colvocoresses. These give all information requested in questionnaire.

The following documents are included as Exhibits to this application:

- A. Map of Claims
- B. Copper Ridge plan and section
- C. Mayflower plan and section

REPORT ON COPPER RIDGE GROUP OF MINING CLAIMS

The Copper Ridge Mining Company  
Phoenix, Arizona

Gentlemen:

This property I have visited in company with your President, Mr. Albert Steele, on December 19th, 1938, and January 18th, 1939, and short letters in reference to my findings were submitted to him on December 20th, 1938, and on January 20th, 1939.

In this report I shall not attempt to give any detailed description of the geology and ore showings on your property since it was not possible for me to give these matters any careful study during the brief inspections of certain portions of your claims and moreover they are fully covered in Mr. Flagg's report dated May 10th, 1938, which appears to contain an accurate account of the geological formations with descriptive mineralogy of various rocks.

My discussion will therefore be largely confined to the more practical questions concerning the best means and methods of so developing, operating or disposing of your claims as to give them some tangible value to the present owners.

PROSPECTS FOR DEVELOPING DISSEMINATED ORE

It is my opinion that you have good reason to believe that the quartz monzonite in which the disseminated ore of the New Cornelia Mine is found does extend across the Phelps Dodge line and through a part of your claims. An exact classification of the various types of volcanics; monzonite, rhyolite and quartz diorite seems to be a difficult matter and is probably of little practical importance since all of these may be more or less mineralized. The quartz monzonite intrusion appears to

extend southward and southeastward from the New Cornelia pit although largely covered by conglomerate and alluvium and we were reliably informed that drilling by the Phelps Dodge Company had proved the existence of copper ore down to a depth of 1000 ft. not far from your boundary although I understand that the ore in that section of their property was low in grade and may not be classed as commercial under present conditions, since mining would involve the use of underground methods and be comparatively expensive.

To definitely prove the value of your property as a potential porphyry copper mine would necessitate deep drilling over a large area which involves an expense that would doubtless be prohibitive and even if a large deposit of commercial disseminated copper ore were proved to exist the preparations required for mining and treating this ore would cost millions of dollars.

As to the value of your claims to the Phelps Dodge Corporation or others, it will be best not to attempt any comment until some further information has been gained in respect to the situation and policy of the Phelps Dodge Company whose local officials seem to be extremely friendly and from whom a great deal of valuable data may be secured by further conferences. But, under any circumstances, it is not likely that they would need to extend their mining operations across your line at any time during the next fifteen or twenty years.

I think that we can definitely ignore the somewhat unfavorable comment of Mr. Gilluly as to the probability of finding an extension of the New Cornelia ore body in your direction but even should such an extension be found and developed, it seems to me that Phelps Dodge are the only people who would ever be likely to be in a position to work it,

unless a combination of all or a large portion of the outside owners could be made in such a manner as to control and develop a very large tonnage of proven ore which might serve to attract the capital necessary to equip and operate another porphyry copper mine in this locality.

The surface rights to a portion of your claims may also be of value to the Phelps Dodge Company as providing dumping space for the waste capping from their ore body and this matter should also be investigated as opportunity permits, since the sale or lease of these rights might provide a small fund or revenue even if it should prove impossible for you to develop any commercial ore of your own.

For the time being I can only suggest that friendly contact should be maintained with the Phelps Dodge officials, Hoval Smith and associates (who own a large group of claims to the south of your property) and other claim owners in this vicinity and the question of sale or combination further discussed whenever a favorable opportunity presents itself but I do not think that it would be advisable to make any direct advances along these lines until the price of copper and general business conditions have much improved or your own developments have made substantial progress.

#### PROSPECTS FOR DEVELOPING SHIPPING ORE

Considered as a possible small scale producer of comparatively high grade copper ore, the situation of your property is entirely different and it is my opinion that the Copper Ridge may properly be called an attractive prospect that fully justifies the installation of a small mining equipment and a certain amount of development which in so far as possible should follow the pay ore and aim to become self-supporting and profitable as quickly as may be possible.

Mr. Flagg has given you an accurate description of the various ore

showings found on the surface and in the accessible workings and I shall confine my remarks to the most promising of these where copper silicate (chrysocolla) is found in the filling of a fault fissure on Copper Ridge Claims #4 and #5. This vein occurring in rhyolite, can be traced for close to 1000 ft. on the surface, with strike N. 60° W. and dip about 65° to the northeast. The width of the fissure is from 3 ft. to 6 ft. but the ore is generally confined to a narrow seam along the footwall from which stringers occasionally work into the fault breccia.

A considerable amount of development was done at this point before 1918 and a certain amount of ore was sorted and shipped carrying 8.19% copper; 0.045 oz. gold; and 3.16 oz. silver. The gross value of this ore at present metal prices would be over \$20.00 per ton and the net returns from shipment to a smelter would be about \$12.00 per ton but unless the ore seam widens, there would be no profit in mining and shipping this grade of ore.

Most of the underground work is now inaccessible and the present showing does not in itself appear attractive except when it is considered in connection with the geology and past record of the Ajo District which I have obtained mainly from the writings of Joralemon, as quoted below, and from what has been told me concerning the work on the Ajo Consolidated. These lead me to believe that there is a good chance, - but it is only a chance, that ore of better value and greater width may be found by sinking the 103' shaft near the vein to a depth of about 200' from the surface with a certain amount of drifting along the vein on the 100' and 200' levels. This proposed work will, in my opinion, definitely determine the value of your property and a small producer of comparatively high grade ore and I am inclined to think that your success or failure

is likely to depend upon the position of your rhyolite and other volcanics in the geological history of the district. If this rhyolite, which lies north of the prominent fanglomerate outcrop known as the "Copper Ridge" is a part of the old formation that was intruded by the monzonite, then the fault fissure in which the ore occurs was probably mineralized from the same deep seated magmatic solutions that formed the disseminated deposit at the New Cornelia and the high grade veins in its vicinity to which latter Joralemon refers as follows:

#### "Veins In Rhyolite"

"It was not the low-grade ore body, but the rich veins in the surrounding rhyolite, which first led to the exploitation of the Ajo District. Rich malachite and cuprite ore from 6 inches to 3 feet wide outcrops in these veins, which follow steep fractures in hard, slightly iron and copper stained rhyolite. High grade cuprite and copper-glance ore, with a little native copper, was encountered a few feet below the surface. At a depth of about 50 ft. the glance begins to give place to bornite. Usually the center of the vein is very rich bornite and chalcocite ore from one inch to 4 to 5 ft. wide, and on both sides of this high grade streak the shattered rock contains stringers of bornite and chalcocite, which make it a good concentrating ore. In the early operations in the district, considerable stoping was done in several of the veins to a maximum depth of over 100 ft. The stopes are seldom more than 6 ft. wide, and the large dumps show that much of the material taken from the stopes was too low grade to treat with profit. In the Ajo Copper Company property, one rich bornite vein from 1 to 3 ft. wide was developed for nearly 300 ft. down near the dip. The high grade

stringer continues to the bottom, but the mineralization of the walls appears to decrease in depth."

#### "Genesis of Ore and Geologic History"

"The genesis and geologic history of the Ajo ore seem unusually easy to trace. After the monzonite intrusion had uplifted the rhyolite, the slow cooling of the porphyry was accompanied by considerable contraction. This resulted in a thorough jointing and fissuring of the monzonite, especially near the rhyolite contact, and in a less complete fracturing of the rhyolite itself. Near the center of the intrusion, some of the fissures continued to great depth. Probably soon after the solidification of the outer layer of porphyry, hot mineral bearing solutions rose along these deep fractures. The solutions were heavily charged with iron, sulphur, silica, and later copper.

"Some of the larger fractures, usually accompanied by monzonite dikes, extended for a considerable distance up into the rhyolite. Along these fractures the rich bornite veins in rhyolite were deposited, sometimes extending a long distance from the large disseminated body. The porphyry dikes accompanying the veins were more or less mineralized, and small quantities of chalcopyrite, bornite, and pyrite were deposited in the rhyolite walls of the veins."

Assuming that the Copper Ridge vein is of similar character to those described above, you have every reason to expect that the quantity and grade of ore will improve with depth and that below the rhyolite you may find a disseminated deposit in monzonite, which, even if it cannot at present be mined and treated with profit, will probably give your property an assured value for the future.

If, on the contrary, this rhyolite should prove to be merely an inclusion in the conglomerate,--which seems most unlikely or a post-

mineral dike or flow, it follows that the ore deposition is of recent origin resulting from surface or lateral circulation of mineralized solutions, probably extending for only a short distance downward and of no commercial value.

While I have not found any evidence that throws much light on this important point, it seems to me that the length and breadth of the rhyolite outcrop (2000' by 300', according to Flagg) and the occurrence of monzonite in its vicinity may properly be considered as favorable indications but if the drill hole a short distance north of these showings actually penetrated through 800' of fanglomerate this is decidedly unfavorable except on the supposition that the location of the hole may have coincided with that of an ancient ravine. Also it must be noted that the ore in the outcrops which Joralemon describes as mostly copper carbonates and oxides while your surface ore is a silicate but may give place to sulphide with depth.

The showings on the Mayflower Claim and elsewhere in the fanglomerate would seem to be only surface deposits and, for the present at least, I think that their development should be postponed.

#### CONCLUSION

I am unable to agree with Mr. Flagg in recommending a development program which would cost over \$100,000.00. I can see no justification for spending so large an amount of money in an effort to develop small veins of high grade ore and I do not believe that any worthwhile progress toward proving up a disseminated deposit could be made for less than \$300,000.00.

I therefore recommend that you confine your present efforts to the Copper Ridge Vein and to arrange, if possible, to raise a minimum of

\$15,000, the expenditure of which should either put your property in a position to profitably produce and ship a limited quantity of 6% or better grade copper ore or otherwise furnish conclusive evidence that further developments for this purpose would be very ill-advised.

My suggestion in regard to the proposed developments and estimate of probable cost is as follows, assuming that you erect only such structures as are necessary to protect your equipment (a watchman could sleep in a tent) and purchase serviceable second-hand machinery of which there is now an ample supply available: -

<u>Item</u>	<u>Cost</u>
Clean up at collar of 103' shaft, reset timbers and clean out old pits on vein to make them accessible for examination	\$300.00
Purchase and install head frame and gasoline hoist to be housed under shed and equip shaft with necessary timbers, bucket and dumping device.	1500.00
Purchase and install compressor with engine to be housed under shed, also receiver, drills, hose, steel, etc.	2500.00
Ore cars, rails, pipe, blacksmith equipment, and shop.	600.00
Clean out shaft and cross cut about 30' to vein on 100' level.	400.00
Drift about 100' along vein on 100' level (To be dependent on ore showing at this depth)	1000.00
Sink shaft additional 100' with necessary timbers, pipe, etc.	3000.00
Crosscut about 70' to vein and drift about 150' along vein (unless showing is hopeless at this point)	3200.00
Pick up truck, tents, water tanks, small tools,	1000.00
Engineering, assaying, bookkeeping, taxes and other overhead and miscellaneous.	1500.00
<b>TOTAL</b>	<b>\$15000.00</b>

I believe that the above estimate is liberal and that the contemplated work can probably be completed on slightly a smaller figure but since unforeseen difficulties frequently arise and some additional work may be indicated as the program proceeds, I should advise that the

development fund be somewhat increased if it is possible to do so.  
But a definite maximum can be set at \$20,000.00.

During the course of the development it is to be hoped that pay-  
ore may be found in sufficient quantity to permit some stoping and  
shipping of production, but it would not be prudent at present to count  
on any income from this source.

Yours very truly,

G. M. COLVOCORESSES

GMC:MF

NOTES RE COPPER RIDGE GEOLOGY

Joralemon<sup>n</sup> considered that the rhyolites were the country rock of the monzonite laccolith intrusions. The fanglomerate was post-mineral.

Kirk Bryan regarded the lava<sup>n</sup> as overlying the fanglomerate.

Present Classification of Principal Rocks

	<u>Thickness</u>	<u>Description</u>	<u>Age</u>
Allu <sup>✓</sup> minum	0-800'	gravel, sand, caliche	Recent
Basalt, andesite and latite and breccia (flins)	0-1500'		<sup>no</sup> Pliocene
Andesite, fanglomerate	6000-12000'	Old conglomerate etc.	Middle Tertiary
Cornelia quartz monzonite and diorite			Early Tertiary
Volcanics and quartz monzonite ( <i>rhyolite</i> )			Pre-Tertiary
Hornblendite and gneiss			pre-Cambrian

Entire surface area of Copper Ridge Claims is mapped by Gillerly as fanglomerate or alluminum but this is an error as the rhyolite and presumably some of the monzonite are noted in the western part of these claims, especially along the "Ridge" which extends south-east from the New Cornelia Pit.

The quartz-diorite may be an early phase of the monzonite and represented an earlier intrusion while the monzonite was followed by intrusions of andesite dikes, etc.

Fanglomerate rests upon the gneiss, volcanics and monzonite and it is post-mineral and lies on an erosion surface of monzonite and other rocks that exposed a previously existent ore body in which there had already been secondary enrichment. Mineralization took place in the cupola of the quartz monzonite stock.

Ore body originally contained secondary carbonate ore above the ground water table and primary sulphide ore below, all disseminated in minute fissures of this rock and the country rock through which it intruded.

Deposit of ore depends on penetrability of rock rather than upon its chemical composition and therefore it has and may be found in the diorite to the east and in the volcanics.

Copper Ridge Geology-2

(Copper volcanics rhyolite see Flagg)

Sulphide ore is primary and not in a secondary zone of enrichment which was all represented by the carbonate ore above the water table (at about 200')

(Ore probably derived from a magma,--possibly pneumatolytic on Tertiary lime) look up general geology of porphyry copper deposits in A. I. M. E. and in Reis Geology.

Ore found in Mayflower fanglomerate and probably in Copper Ridge should be secondary and probably very limited in area but it might connect up with the monzonite in depth.

Copper Ridge appears to be a big outcrop of fanglomerate but may contain a dike of rhyolite.

Rhyolite extends on north slope of ridge from west line of Copper Ridge #5 for full length of #5 and 400' in Copper Ridge #4 beyond which it is covered by alluminum. Length shows as 2000' or more and width 200-300'.

Cut by fault (fissure) with breccia<sup>cc. 100'</sup> and rhyolite silicified and containing some chrysocolla etc.



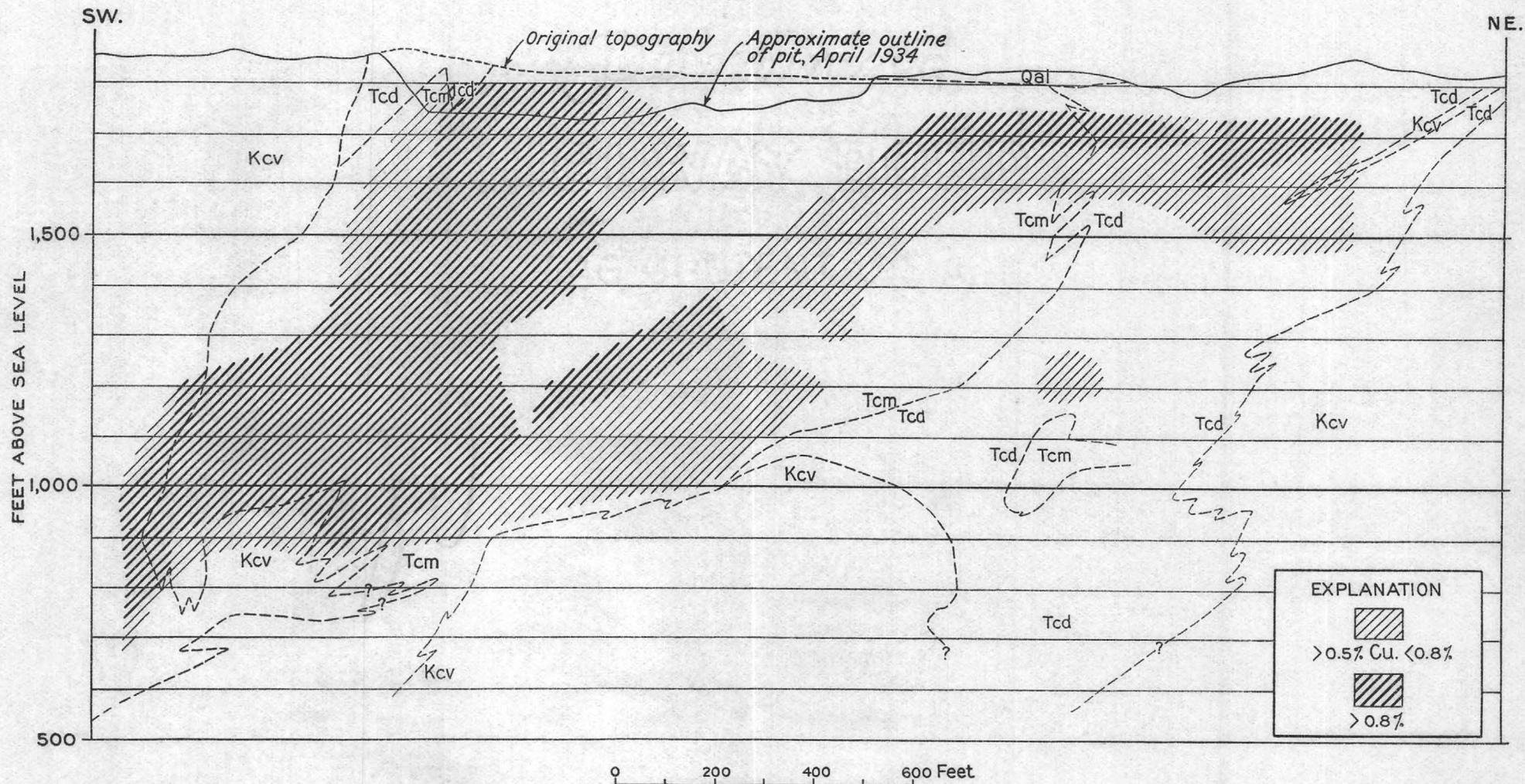


Plate XXII.—Northeast cross section through the New Cornelia Mine, Ajo, Arizona, showing distribution of ore and geology with depth. *Kcv*, concentrator volcanics; *Tcd*, dioritic facies of Cornelia quartz monzonite; *Tcm*, Cornelia quartz monzonite; *Qal*, alluvium.

# BANNER MINING COMPANY



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A. B. BOWMAN  
VICE-PRES. & GEN. MGR.

L. L. TRAVIS, PRESIDENT

TELEPHONE  
602-294-1488

October 31, 1967

Mr. William Allison Jr  
322 W. Encanto Blvd  
Phoenix, Arizona 85003

Dear Bill:

As per our telephone conversation today am sending under separate cover all the reports and maps you left here covering mining properties at Bisbee and Ajo, Arizona.

Our geologist is very emphatic about the Bisbee property being on the north side of the major fault. He is of the opinion that no large orebody exists on the property your friend's family owns there.

Kindest personal regards.

Sincerely yours,

BANNER MINING COMPANY

ABB:rd

  
A. B. Bowman