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ARIZONA-GLOBE

9/27/39

Presented by W. J. Bush - 29 S. 1st Ave. Phoenix.

Owned by George Golfinos - same address.

Formerly known as Cole & Goodwin, located 12 miles southeast of Globe.

EXHIBIT B.

COPY OF GEOLOGICAL REPORT ON THE PROPERTY OF THE GLOBE-ARIZONA COPPER COMPANY.

BELLEVUE, ARIZONA.

REPORT OF G.M. BUTLER. DEAN AND DIRECTOR, ARIZONA SCHOOL OF MINES, TUCSON, ARIZONA.

DIVISIONS.

1. Introductory Statements,
2. Topography.
3. Geology of the District.
4. Character of the ore deposits.
5. Possibility of secondary enrichment.
6. Probable Persistence of the Main Ore Deposit.
7. Recommendations.
8. Conclusions.

INTRODUCTORY STATEMENTS. This report is based on data collected during two consecutive days spent on the property at the request of John Stockdale, Esq. The time thus occupied was insufficient to permit me to trace the many smaller veins existing on the property or to visit surrounding mines. As I am planning to make another trip to the property in the course of the next few days I hope to secure considerable additional data which I will embody in a supplementary report.

TOPOGRAPHY: The topography on the property is decidedly mountainous, many of the slopes making at least a 30° angle with a horizontal plane. One prominent gulch roughly parallels the main fault mentioned later, to the Southeast; and a smaller gulch tributary to the one just mentioned cuts across the fault from the Northwest. These two gulches will, in this report, be called the main gulch and the tributary gulch respectively.

GEOLOGY OF THE DISTRICT: The property of the Arizona Globe Copper Company lies in the midst of an extensive area of Pinal Schist near the Southwestern corner of the Globe Quadrangle, as mapped by the United States Geological Survey. A large dike of diabase is mapped as occurring Northwest of the property, but no rock other than schist was seen during my stay on the ground. The schist was undoubtedly once covered with thick deposits of quartzite, limestone, and other rock, but they have all been removed by erosion.

On the property is a prominent fault which strikes on an average about S. 40°W., and dips 40° to the Northwest. The slipping or faulting has not taken place along a single cleancut fracture, but, on the other hand, the movement has occurred along a large number of rather closely spaced fault planes throughout a zone some fifty feet wide. This fault is shown in the Globe folio of the United States Geological Survey, written by F. L. Ransom in 1902, and is there given as being about a mile long. Just how much of this fault is included in the property under consideration cannot be determined until the boundaries of this property have been accurately located; but it seems certain that many hundred and possibly one or two thousand feet are present.

main mineralized shear zone near the Southern boundary of the Pyrite Claim. I observed at the point where this intersection would occur an unusual degree of mineralization on the surface. The outcropping there were heavily iron-stained over a considerable area, and I regard this as an extremely favorable point to do development work sometime in the future.

I doubt whether this main mineralized shear zone pinches out on the Downey Claim as shown on the map, but so much wash obscures the surface on the eastern portion of this claim that the deposit could not be traced further.

As shown on the map, the main mineralized shear zone traverses the property for a distance of about 4000 feet, and it is known to extend at least several thousand feet further to the West.

The Gentlemen familiar with the property were rather inclined to place little value upon the deposits in the upper part of Lawrence Gulch, but the engineers who made the survey state that several of these looked very promising, and recommend that they be investigated further. I am now sorry that lack of time caused me to neglect to examine this portion of the area.

Stated briefly, I am deeply impressed with the high degree of mineralization shown throughout that part of the property North-west of the main mineralized shear zone. Too little work has been done here to make it possible to speak definitely of the value of individual deposits or of the nature of the ores; but I am inclined to believe that the principal sulphied mineral encountered at greater depth will be pyrite and that the proportion of copper found will be low; The high grade of the copper ore said to have been mined on the Sulphate Claim indicated, however, that this theory may be incorrect in some cases. The small shear zones or FAHLBANDS, are so close together at some points that it is quite possible that the intervening rock is sufficiently mineralized to constitute very large low grade deposits.

RECOMMENDATIONS: I see no reason to modity the recommendations made in my previous report, but from knowledge now in my possession I believe that it would be best to begin work on the property through the main incline shaft rather than through the crosscut tunnel, which appears to have been driven at a point where the vein has been faulted or where some other unusual conditions exist. If subsequent developments make it seem desirable to work the main deposit through an adit, this can be driven from the gulch Southeast of the main incline shaft, although this will give a vertical stoping distance of only about 275 feet.

It may be of interest to mention that the slope distance from the collar of the main incline shaft to the sump is 468.5 ft. and that the vertical distance between these two points is 308.9 ft. The sump is said to be 12 ft. deep, but was so filled with muck and water that no measurements could be made in it. 615.5 ft. of drifts and levels are connected with the main inclined shaft.

Respectfully submitted,
by

January 17, 1919

(ORIGINAL SIGNED BY) G.M. Butler, M.E

G. Montague Butler,
GEOLOGIST AND MINING ENGINEER,
TUCSON, ARIZONA

SUPPLEMENTARY GEOLOGICAL REPORT ON THE PROPERTY OF THE ARIZONA-GLOBE COPPER COMPANY.

INTRODUCTORY STATEMENT. This Supplementary report is based on data collected during three consecutive days spent on the property and in making an examination of the mines at Bellevue, which occur in Pinal Schist, and bear a close resemblance to the deposits owned by the Arizona-Globe Copper Company. So much of this time was spent in getting two Engineers property started on the survey of the property that there was little opportunity to collect any additional geological data, but the following facts are offered for what they are worth.

ADDITIONAL DATA ON THE GEOLOGY OF THE DISTRICT In my first report I stated that no rock other than schist was observed by me, but during my second trip I notice a diabase dike running a little South of West from the main incline shaft. This dike was also seen on the Eastern end of the Sulphate claim, and the two Engineers who made the survey traced it continuously as shown on the map which accompany this report. This rock has a close genetic connection with good ore bodies in some districts, and while it would be unsafe to assume any such connection in the area under consideration, it may be at least considered a favorable sign.

ADDITIONAL DATA ON THE ORE DEPOSITS Everything seen on my second trip serves to strengthen my belief in the merits of the property. A second, rather hasty examination of the numerous small veins and shear zones in Spring Gulch leads me to believe that there are largely the type of deposits known as FAHLBANDS, that is, relatively porous bands of schist which have been mineralized by deposition from solutions working through them. Although the presence of surface wash and the lack of development work upon them made it impossible to trace them for any considerable distance beyond the gulches, I believe that they will be found to intersect and cross the main mineralized shear zone, and that there is a likelihood of concentration of minerals in such intersections. It is not improbable that the Mineralized solutions worked out from the main mineralized shear zone in to these smaller deposits; and that for some unknown reason the flow of these solutions was largely westward rather than eastward. Whether any of the veins, FHALBANDS, or shear zones shown on the map as recognizable South-east of the main mineralized shear zone have economic value, can only be ascertained by further development.

I did not have time to trace the main mineralized shear zone throughout its entire length on the property, but believe from the examination of the outcroppings at the mouth of Spring and Lawrence Gulches that it crosses these gulches as shown on the accompanying map. The Engineers who made the survey are inclined to think that it turns sharply near the south boundary of the Pyrite Claim, and crosses Spring and Lawrence Gulches at the points indicated by the relatively wide zones of dashed lines. It is my belief that the latter represents an unusually large Shear zone which intersects the

CHARACTER OF THE ORE DEPOSITS. The principal deposit, or at least, that which has been most extensively developed, occurs in connection with the fault zone just described. The mineralizing solutions doubtless worked upward from far below along the lines of weakness represented by the fault planes, and deposited ore and gangue minerals in one or more of these planes, forming fault fissure veins.

The ore minerals are principally pyrite (iron sulphides) and chalcopyrite (copper sulphides), with a very little chalcocite (copper sulphide), and occasional small amounts of sphalerite (zinc sulphides), and galena (lead sulphides) in the upper levels. Near the surface the ore minerals have been entirely leached out with the exception of the iron which has been oxidized and now exists as either limonite (hydrus iron oxide) or hematite (iron oxides). A few feet below the surface copper carbonate and a little copper silicate appear, and these are plentiful down to about the 200-foot level, although they are more or less closely associated with sulphide ores which appear comparatively close to the surface and become increasingly prominent as depth is attained. On the 400 foot level these oxidized ores seem to be entirely lacking excepting in the workings where the sulphides have been altered by exposure to the air. There is NO doubt but that the ore from here down is entirely primary, although some of the sulphides show an irridescent tarnish which represents incipient alteration.

The gangue minerals are quartz with decidely subordinate amounts of calcite and rhodechrosite. It is worthy of note that the last named mineral seems to accompany good ore in the Globe district.

Numerous veins which seem to bear a close resemblance to the deposit previously described outcrop in the tributary gulch. They strike nearly East and West and are nearly vertical. Whether they are simple fissure veins or faults fissure veins cannot be ascertained without further investigations, but as they appear to be identical in character with the main deposit already described. One of these deposits has been worked out rather extensively, and is said to have yielded good ore.

POSSIBILITY OF SECONDARY ENRICHMENT. I do not believe that any enriched deposit of copper ore will be encountered at greater depth; I base this conclusion upon the following facts:

I. There has been very little actual leaching of that portion of the deposit above the 400 foot level. In fact, most of this leaching is confined to a few feet directly below the outcrop. Below the leached outcrop there has been considerable oxidation, but the grade of this ore seems to compare so favorably with that of the unoxidized sulphides below that it seems likely that little copper has been carried downward in solution.

2. There is no doubt of the primary character of the ore exposed in the lowest working and for some distance above these points. Enrichments usually occur between oxidized ore and primary sulphides. It seems very improbable that copper bearing solutions have descended through the primary sulphides without leaving some trace of their passage that the possibility does not seem worthy of consideration.

PROBABLE PERSISTENCE OF THE MAIN ORE DEPOSIT. Fault fissure veins are probably the most persistent of all types of ore deposits. They may be expected to go down to a depth of at least as great as their horizontal length, and the last mentioned dimension is usually large. They are, however, very apt to show great irregularity, especially in thickness. Swells and pinches

usually alternate frequently, both horizontally and vertically; and the richest mineralized portions may be expected to take a tortuous course throughout the faulted zone. It is to be expected that almost barren stringers will lead into good ore shoots, and that at some points there may be several good parallel ore shoots separated by lower grade milling ore.

There is no reason to expect any great difference in the average grade ore shoots as the property is developed to a greater depth, and future development plans should be laid on the basis of the ore exposed or which will be exposed with a little additional work, rather than upon the assumption that better ore will be encountered at greater depth.

RECOMMENDATIONS: I should recommend that the entire faulted zone be crosscut at the 400 foot level and the 450 foot level, and that these crosscuts be carefully sampled if a considerable quantity of ore which can be milled profitably is this exposed, I should further recommend that either the present shaft be sunk deeper, and the fault zone crosscut every fifty feet; or that the tunnel started near the bottom of the gulch be driven to intersect the vein. When the survey about to be made is completed it will be possible to decide which of these two plans should be followed. Some drifting along the fault will also be desirable.

The transportation problem is so serious that I do not believe it is wise to try to develop any shipping ore. The property should be regarded as a milling proposition and a small mill should be installed near the bottom of the main gulch when sufficient ore has been developed to justify such action. I believe that enough water to run such a mill can be obtained throughout the year by pumping.

CONCLUSION: I regard the property of the Arizona-Globe Copper Company as one of the most promising that I have had the privilege of examining for some time. While I took no samples and made no attempt to measure up the ore now exposed, there seems to me to be little doubt that at least the main fault zone can be worked profitably as a milling proposition, provided the price of copper does not fall too low. If the smaller veins exposed in the tributary gulch fork off from or intersect the main fault zone, large ore bodies may be expected at their intersection. An attempt will be made to locate these points when the property is surveyed.

As the amount of money required to do the development work suggested is not large, and as the cost of the property does not appear to be unreasonable, I regard the proposition as an extremely promising speculation, and heartily recommend its further consideration.

Respectfully submitted,

(Original signed)

G.M.Butler

December 16th, 1918.

EXHIBIT C

PORTIONS OF REPORT ON THE PROPERTY OF ARIZONA-GLOBE COPPER COMPANY, BELLEVUE, ARIZONA.

FORMERLY KNOWN AS COLE-GOODWIN COPPER MINES, OPERATED BY COLE DEVELOPMENT CO. ----------THIS REPORT BY THEO H.M.CRAMPTON, E.M.

SAMPLING: Samples were taken from the lower workings in the Mine with a view to ascertain the values as they existed upon the lower levels. The oxidized portions of the ore body extends to an approximatedepth of about four hundred (400) feet. This oxidized portion of the deposit did not receive much of my attention, but practically all of my time was devoted to that unaltered portion of the vein exposed below the oxidized zone. It is upon this unaltered part of the ore body that the conclusions will have to be drawn, as to the nature of the ore which is to be expected from the future development.

The property is developed in such a way as to make it impossible to obtain any idea of the quantity of the ore which could be obtained from the present workings. The previous operations of the property were conducted solely toward the extraction of high grade oxidized and re-enriched copper ore. As the work was carried to the unaltered portion of the vein which naturally comprises the primary ores, the parties who were doing the development did not carry any of the workingsto any extent into the sulphide ores exposed in their development. This was naturally the case, as the sulphide ores were of too low a grade to permit extraction and shipping at a profit. These operations were not interested in the quantity of low grade material which might be developed, and consequently devoted no efforts toward crosscutting or blocking out the ore body.

In lieu of the facts above mentioned, we find it a physical impossibility to obtain samples which would represent any quantity of ore blocked out. It is therefore immediately apparent that all samples which were taken from the mine will be of a qualitative nature and will not represent any quantity of ore. I have endeavored to obtain samples from various parts of the mine which would indicate the character and grade of the ore which could be exposed and developed from future operations; such as sinking or drifting on the vein at any point below the oxidized zone.

It will be impossible to sample this property with a view to blocking out any quantity of ore until some additional work is done, which additional work would involve the cross-cutting of the ore body at a number of points below the oxidized zone.

In very few places in the mine was it possible to measure the true width of the ore body, and at no place in the primary ore body did we find workings which cross-cut the vein.

SUMMARY AND CONCLUSIONS. The Arizona-Globe Copper Co. Mine may be considered a prospect of special merit. With a small amount of development work, as advocated in the body of this report there will be a possibility of advancing this property from a prospect to a mine in a very short period of time, and at a small outlay of capital. The shaft upon the ore body has been sunk to a considerable depth, and has disclosed a character and grade of ore very satisfactory for milling. The quantity of ore exposed is limited, but the geological conditions and physical condition all point toward extensive ore bodies. The development work advocated will very rapidly develop large tonnage.

I believe that this mine when developed will afford sufficient tonnage of copper ore, which will average in the neighborhood of 3.75% in copper to furnish a concentrating mill, which will handle

in the neighborhood of about one hundred and fifty (150) tons a day. This conclusion is based upon favorable developments from the preliminary work which is advocated in the body of this report, and upon the very favorable features which are apparent throughout the ore body.

ADVANTAGES: We find on the property a true fault fissure cutting the schist diagonally. The vein is very extensive. The mineralization is cintinuous, although the width of the ore at various points will fluctuate. The grade of the primary ores as disclosed in the lower workings of the mine are satisfactory for concentration.

The characteristics of the ore are such as to permit concentration by flotation or by tables, or practically any other mechanical concentrating devices.

The general characteristics of the vein as disclosed in the shaft are indicative of a very large deposit of copper ore. We find conditions throughout the deposit which are to be found in the larger copper deposits. We find at the bottom of the shaft and at a number of points throughout the mine a width of ore in excess of eight to ten feet. The primary ore as exposed in the shaft carries chalcopyrite as a primary mineral, and consequently we can expect all primary ore to be copper bearing. The unaltered part of the vein appears at a relatively shallow depth below the surface, from three hundred and fifty (350) feet to four hundred (400) feet.

SETTLEMENT SHEETS: From the record of the shipments herewith attached we see that the amount of silver which occurs in the ore cannot be expected to run more than four ounces of silver to each ten percent of copper. I believe that this ratio would be very close to the amount of silver in proportion to the percent of copper in such concentrates as might be obtained in the lower portion of the main workings.

The amount of gold which occurs in combination with the copper is quite negligible, but might be estimated at about .05 of an ounce to every 10% in copper. This is only a rough estimate based upon the shipments upon which returns for gold were given. The samples taken were not assayed for either gold or silver, because their presence in such small quantities would carry very little weight in the final decision which would have to be based on the percent of copper in the primary ores.

NUMBER OF ORE BODIES: At a number of places along the outcrop of the vein we find that the vein is considerably wider than at other points, and it is safe to figure that the ore will be more or less continuous throughout the extent of the fault fissure. In other words, I believe that the ore will be practically continuous throughout the extent of the mine. There will naturally be some places where the ore will be too narrow to mine at a profit, and some places where the ore body will be very wide.

SIZE OF ORE BODIES: No definite information can be given as to the size of the ore bodies or their value, but the surface outcrops and the showings as disclosed in the mine, indicate ore bodies averaging eight (8) feet in width, with a linear extent of several hundred feet and a depth we have no way of determining at this time.

It is well to keep in mind the nature of the fault and its extent, because faults which are extansive on the surface are invariably extensive in depth. If a fault of this character is mineralized for an extensive distance along its strike it is a natural conclusion to believe that the ore will extend to great depth.

TONS OF ORE IN SIGHT: There is no ore actually blocked out of any consequence, but the development of the property would soon block out a large tonnage, and until some preliminary development work has been done it will be out of the question to make any estimates of any value upon the possible tonnage, and the probable tonnage and the actuall tonnage blocked out.

MINE DEVELOPMENT:

SHAFT DEVELOPMENT: The mine development on the property comprises one shaft about four hundred and sixty five feet in depth, sunk on the inclination of the vein at angles varying from 40 to 60 degrees, but averaging about 45 degrees. At intervals of about 50 feet down this shaft are levels which have been run along the strike of the vein in both directions. These levels are invariably short. From most of these levels ore has been extracted from raises which are of limited extent. The development in the shaft has been solely for the purpose of disclosing high grade ores and has not opened up any quantity of the ore, which was encountered in the lower workings of the shaft.

CROSSCUT TUNNEL: At a point about 1500 feet from the shaft a cross-cut tunnel was sunk at an elevation of about 500 feet below the collar of the shaft, and at a point near the creek bed below the mine workings, and this tunnel was run into the hill a distance of about 400 feet. I wish to call your attention to the fact that the vein is dipping into the hill and that this tunnel was run to intersect this vein, and naturally would have to be extended a great distance before it would reach the vein. I wish to refer to the map which is now in the progress of completion as that will show the relation of the tunnel to the shaft in greater detail than can be described.

SURFACE DEVELOPMENTS: There are several open cuts along the outcrop of the vein, but they are of little consequence, except to demonstrate the continuity of the ore bodies.

OTHER WORKINGS: There is a shaft and other workings upon the property which appear on another vein. These workings were not visited, but from reports they have opened up considerable high grade ore of an oxidized character. Dr. Butler, examined these. I consider that the main fault must receive the greatest consideration and that any secondary veins upon the property should be considered at this time solely as a side issue, and that the merits of the property to become a big producer must be judged chiefly upon the main fault and the ore body which is disclosed in the bottom of the shaft.

ADVICE RESPECTING DEVELOPMENT: It is strongly advocated that future extensive development work be carried ahead through the driving of the proposed adit tunnel, and that the process of blocking out the ore be carried forth from this tunnel. The advantages of this tunnel are immediately apparent when consideration is given to the huge tonnages which can be opened up above it.

The development work which is advocated will cost in the neighborhood of thirty thousand Dollars ($30,000.00).

This examination was made on December 11th and 12th and this report was written on December 19th, 1918.

(Original Signed) Theo. H.M. Crampton, E.M.

(This is an extract from the copy of the original filed with the Arizona State Corporation Commission by W. J. Bush. Phoenix, Ariz. September 25th, 1939.)

EXHIBIT C

PORTIONS OF REPORT ON THE PROPERTY OF ARIZONA-GLOBE COPPER COMPANY, BELLEVUE, ARIZONA.

FORMERLY KNOWN AS COLE-GOODWIN COPPER MINES, OPERATED BY COLE DEVELOPMENT CO. ----------THIS REPORT BY THEO H.M.CRAMPTON, E.M.

SAMPLING: Samples were taken from the lower workings in the Mine with a view to ascertain the values as they existed upon the lower levels. The oxidized portions of the ore body extends to an approximatedepth of about four hundred (400) feet. This oxidized portion of the deposit did not receive much of my attention, but practically all of my time was devoted to that unaltered portion of the vein exposed below the oxidized zone. It is upon this unaltered part of the ore body that the conclusions will have to be drawn, as to the nature of the ore which is to be expected from the future development.

The property is developed in such a way as to make it impossible to obtain any idea of the quantity of the ore which could be obtained from the present workings. The previous operations of the property were conducted solely toward the extraction of high grade oxidized and re-enriched copper ore. As the work was carried to the unaltered portion of the vein which naturally comprises the primary ores, the parties who were doing the development did not carry any of the workingsto any extent into the sulphide ores exposed in their development. This was naturally the case, as the sulphide ores were of too low a grade to permit extraction and shipping at a profit. These operations were not interested in the quantity of low grade material which might be developed, and consequently devoted no efforts toward crosscutting or blocking out the ore body.

In lieu of the facts above mentioned, we find it a physical impossibility to obtain samples which would represent any quantity of ore blocked out. It is therefore immediately apparent that all samples which were taken from the mine will be of a qualitative nature and will not represent any quantity of ore. I have endeavored to obtain samples from various parts of the mine which would indicate the character and grade of the ore which could be exposed and developed from future operations; such as sinking or drifting on the vein at any point below the oxidized zone.

It will be impossible to sample this property with a view to blocking out any quantity of ore until some additional work is done, which additional work would involve the cross-cutting of the ore body at a number of points below the oxidized zone.

In very few places in the mine was it possible to measure the true width of the ore body, and at no place in the primary ore body did we find workings which cross-cut the vein.

SUMMARY AND CONCLUSIONS. The Arizona-Globe Copper Co. Mine may be considered a prospect of special merit. With a small amount of development work, as advocated in the body of this report there will be a possibility of advancing this property from a prospect to a mine in a very short period of time, and at a small outlay of capital. The shaft upon the ore body has been sunk to a considerable depth, and has disclosed a character and grade of ore very satisfactory for milling. The quantity of ore exposed is limited, but the geological conditions and physical condition all point toward extensive ore bodies. The development work advocated will very rapidly develop large tonnage.

I believe that this mine when developed will afford sufficient tonnage of copper ore, which will average in the neighborhood of 3.75% in copper to furnish a concentrating mill, which will handle

in the neighborhood of about one hundred and fifty (150) tons a day. This conclusion is based upon favorable developments from the preliminary work which is advocated in the body of this report, and upon the very favorable features which are apparent throughout the ore body.

ADVANTAGES: We find on the property a true fault fissure cutting the schist diagonally. The vein is very extensive. The mineralization is cintinuous, although the width of the ore at various points will fluctuate. The grade of the primary ores as disclosed in the lower workings of the mine are satisfactory for concentration.

The characteristics of the ore are such as to permit concentration by flotation or by tables, or practically any other mechanical concentrating devices.

The general characteristics of the vein as disclosed in the shaft are indicative of a very large deposit of copper ore. We find conditions throughout the deposit which are to be found in the larger copper deposits. We find at the bottom of the shaft and at a number of points throughout the mine a width of ore in excess of eight to ten feet. The primary ore as exposed in the shaft carries chalcopyrite as a primary mineral, and consequently we can expect all primary ore to be copper bearing. The unaltered part of the vein appears at a relatively shallow depth below the surface, from three hundred and fifty (350) feet to four hundred (400) feet.

SETTLEMENT SHEETS: From the record of the shipments herewith attached we see that the amount of silver which occurs in the ore cannot be expected to run more than four ounces of silver to each ten percent of copper. I believe that this ratio would be very close to the amount of silver in proportion to the percent of copper in such concentrates as might be obtained in the lower portion of the main workings.

The amount of gold which occurs in combination with the copper is quite negligible, but might be estimated at about .05 of an ounce to every 10% in copper. This is only a rough estimate based upon the shipments upon which returns for gold were given. The samples taken were not assayed for either gold or silver, because their presence in such small quantities would carry very little weight in the final decision which would have to be based on the percent of copper in the primary ores.

NUMBER OF ORE BODIES: At a number of places along the outcrop of the vein we find that the vein is considerably wider than at other points, and it is safe to figure that the ore will be more or less continuous throughout the extent of the fault fissure. In other words, I believe that the ore will be practically continuous throughout the extent of the mine. There will naturally be some places where the ore will be too narrow to mine at a profit, and some places where the ore body will be very wide.

SIZE OF ORE BODIES: No definite information can be given as to the size of the ore bodies or their value, but the surface outcrops and the showings as disclosed in the mine, indicate ore bodies averaging eight (8) feet in width, with a linear extent of several hundred feet and a depth we have no way of determining at this time.

It is well to keep in mind the nature of the fault and its extent, because faults which are extansive on the surface are invariably extensive in depth. If a fault of this character is mineralized for an extensive distance along its strike it is a natural conclusion to believe that the ore will extend to great depth.

TONS OF ORE IN SIGHT: There is no ore actually blocked out of any consequence, but the development of the property would soon block out a large tonnage, and until some preliminary development work has been done it will be out of the question to make any estimates of any value upon the possible tonnage, and the probable tonnage and the actuall tonnage blocked out.

MINE DEVELOPMENT:

SHAFT DEVELOPMENT: The mine development on the property comprises one shaft about four hundred and sixty five feet in depth, sunk on the inclination of the vein at angles varying from 40 to 60 degrees, but averaging about 45 degrees. At intervals of about 50 feet down this shaft are levels which have been run along the strike of the vein in both directions. These levels are invariably short. From most of these levels ore has been extracted from raises which are of limited extent. The development in the shaft has been solely for the purpose of disclosing high grade ores and has not opened up any quantity of the ore, which was encountered in the lower workings of the shaft.

CROSSCUT TUNNEL: At a point about 1500 feet from the shaft a cross-cut tunnel was sunk at an elevation of about 500 feet below the collar of the shaft, and at a point near the creek bed below the mine workings, and this tunnel was run into the hill a distance of about 400 feet. I wish to call your attention to the fact that the vein is dipping into the hill and that this tunnel was run to intersect this vein, and naturally would have to be extended a great distance before it would reach the vein. I wish to refer to the map which is now in the progress of completion as that will show the relation of the tunnel to the shaft in greater detail than can be described.

SURFACE DEVELOPMENTS: There are several open cuts along the outcrop of the vein, but they are of little consequence, except to demonstrate the continuity of the ore bodies.

OTHER WORKINGS: There is a shaft and other workings upon the property which appear on another vein. These workings were not visited, but from reports they have opened up considerable high grade ore of an oxidized character. Dr. Butler, examined these. I consider that the main fault must receive the greatest consideration and that any secondary veins upon the property should be considered at this time solely as a side issue, and that the merits of the property to become a big producer must be judged chiefly upon the main fault and the ore body which is disclosed in the bottom of the shaft.

ADVICE RESPECTING DEVELOPMENT: It is strongly advocated that future extensive development work be carried ahead through the driving of the proposed adit tunnel, and that the process of blocking out the ore be carried forth from this tunnel. The advantages of this tunnel are immediately apparent when consideration is given to the huge tonnages which can be opened up above it.

The development work which is advocated will cost in the neighborhood of thirty thousand Dollars ($30,000.00).

This examination was made on December 11th and 12th and this report was written on December 19th, 1918.

(Original Signed) Theo. H.M. Crampton, E.M.

(This is an extract from the copy of the original filed with the Arizona State Corporation Commission by W. J. Bush. Phoenix, Ariz. September 25th, 1939.)

EXHIBIT B.

COPY OF GEOLOGICAL REPORT ON THE PROPERTY OF THE GLOBE-ARIZONA COPPER COMPANY.

BELLEVUE, ARIZONA.

REPORT OF G.M. BUTLER. DEAN AND DIRECTOR, ARIZONA SCHOOL OF MINES, TUCSON, ARIZONA.

DIVISIONS.

1. Introductory Statements,
2. Topography.
3. Geology of the District.
4. Character of the ore deposits.
5. Possibility of secondary enrichment.
6. Probable Persistence of the Main Ore Deposit.
7. Recommendations.
8. Conclusions.

INTRODUCTORY STATEMENTS. This report is based on data collected during two consecutive days spent on the property at the request of John Stockdale, Esq. The time thus occupied was insufficient to permit me to trace the many smaller veins existing on the property or to visit surrounding mines. As I am planning to make another trip to the property in the course of the next few days I hope to secure considerable additional data which I will embody in a supplementary report.

TOPOGRAPHY: The topography on the property is decidedly mountainous, many of the slopes making at least a 30° angle with a horizontal plane. One prominent gulch roughly parallels the main fault mentioned later, to the Southeast; and a smaller gulch tributary to the one just mentioned cuts across the fault from the Northwest. These two gulches will, in this report, be called the main gulch and the tributary gulch respectively.

GEOLOGY OF THE DISTRICT: The property of the Arizona Globe Copper Company lies in the midst of an extensive area of Pinal Schist near the Southwestern corner of the Globe Quadrangle, as mapped by the United States Geological Survey. A large dike of diabase is mapped as occurring Northwest of the property, but no rock other than schist was seen during my stay on the ground. The schist was undoubtedly once covered with thick deposits of quartzite, limestone, and other rock, but they have all been removed by erosion.

On the property is a prominent fault which strikes on an average about S. 40°W., and dips 40° to the Northwest. The slipping or faulting has not taken place along a single cleancut fracture, but, on the other hand, the movement has occurred along a large number of rather closely spaced fault planes throughout a zone some fifty feet wide. This fault is shown in the Globe folio of the United States Geological Survey, written by F. L. Ransom in 1902, and is there given as being about a mile long. Just how much of this fault is included in the property under consideration cannot be determined until the boundaries of this property have been accurately located; but it seems certain that many hundred and possibly one or two thousand feet are present.

CHARACTER OF THE ORE DEPOSITS. The principal deposit, or at least, that which has been most extensively developed, occurs in connection with the fault zone just described. The mineralizing solutions doubtless worked upward from far below along the lines of weakness represented by the fault planes, and deposited ore and gangue minerals in one or more of these planes, forming fault fissure veins.

The ore minerals are principally pyrite (iron sulphides) and chalcopyrite (copper sulphides), with a very little chalcocite (copper sulphide), and occasional small amounts of sphalerite (zinc sulphides), and galena (lead sulphides) in the upper levels. Near the surface the ore minerals have been entirely leached out with the exception of the iron which has been oxidized and now exists as either limonite (hydrus iron oxide) or hematite (iron oxides). A few feet below the surface copper carbonate and a little copper silicate appear, and these are plentiful down to about the 200-foot level, although they are more or less closely associated with sulphide ores which appear comparatively close to the surface and become increasingly prominent as depth is attained. On the 400 foot level these oxidized ores seem to be entirely lacking excepting in the workings where the sulphides have been altered by exposure to the air. There is NO doubt but that the ore from here down is entirely primary, although some of the sulphides show an irridescent tarnish which represents incipient alteration.

The gangue minerals are quartz with decidely subordinate amounts of calcite and rhodechrosite. It is worthy of note that the last named mineral seems to accompany good ore in the Globe district.

Numerous veins which seem to bear a close resemblance to the deposit previously described outcrop in the tributary gulch. They strike nearly East and West and are nearly vertical. Whether they are simple fissure veins or faults fissure veins cannot be ascertained without further investigations, but as they appear to be identical in character with the main deposit already described. One of these deposits has been worked out rather extensively, and is said to have yielded good ore.

POSSIBILITY OF SECONDARY ENRICHMENT. I do not believe that any enriched deposit of copper ore will be encountered at greater depth; I base this conclusion upon the following facts:

I. There has been very little actual leaching of that portion of the deposit above the 400 foot level. In fact, most of this leaching is confined to a few feet directly below the outcrop. Below the leached outcrop there has been considerable oxidation, but the grade of this ore seems to compare so favorably with that of the unoxidized sulphides below that it seems likely that little copper has been carried downward in solution.

2. There is no doubt of the primary character of the ore exposed in the lowest working and for some distance above these points. Enrichments usually occur between oxidized ore and primary sulphides. It seems very improbable that copper bearing solutions have descended through the primary sulphides without leaving some trace of their passage that the possibility does not seem worthy of consideration.

PROBABLE PERSISTENCE OF THE MAIN ORE DEPOSIT. Fault fissure veins are probably the most persistent of all types of ore deposits. They may be expected to go down to a depth of at least as great as their horizontal length, and the last mentioned dimension is usually large. They are, however, very apt to show great irregularity, especially in thickness. Swells and pinches

usually alternate frequently, both horizontally and vertically; and the richest mineralized portions may be expected to take a tortuous course throughout the faulted zone. It is to be expected that almost barren stringers will lead into good ore shoots, and that at some points there may be several good parallel ore shoots separated by lower grade milling ore.

There is no reason to expect any great difference in the average grade ore shoots as the property is developed to a greater depth, and future development plans should be laid on the basis of the ore exposed or which will be exposed with a little additional work, rather than upon the assumption that better ore will be encountered at greater depth.

RECOMMENDATIONS: I should recommend that the entire faulted zone be crosscut at the 400 foot level and the 450 foot level, and that these crosscuts be carefully sampled if a considerable quantity of ore which can be milled profitably is this exposed, I should further recommend that either the present shaft be sunk deeper, and the fault zone crosscut every fifty feet; or that the tunnel started near the bottom of the gulch be driven to intersect the vein. When the survey about to be made is completed it will be possible to decide which of these two plans should be followed. Some drifting along the fault will also be desirable.

The transportation problem is so serious that I do not believe it is wise to try to develop any shipping ore. The property should be regarded as a milling proposition and a small mill should be installed near the bottom of the main gulch when sufficient ore has been developed to justify such action. I believe that enough water to run such a mill can be obtained throughout the year by pumping.

CONCLUSION: I regard the property of the Arizona-Globe Copper Company as one of the most promising that I have had the privilege of examining for some time. While I took no samples and made no attempt to measure up the ore now exposed, there seems to me to be little doubt that at least the main fault zone can be worked profitably as a milling proposition, provided the price of copper does not fall too low. If the smaller veins exposed in the tributary gulch fork off from or intersect the main fault zone, large ore bodies may be expected at their intersection. An attempt will be made to locate these points when the property is surveyed.

As the amount of money required to do the development work suggested is not large, and as the cost of the property does not appear to be unreasonable, I regard the proposition as an extremely promising speculation, and heartily recommend its further consideration.

Respectfully submitted,

(Original signed)

G.M.Butler

December 16th, 1918.

G. Montague Butler,
GEOLOGIST AND MINING ENGINEER,
TUCSON, ARIZONA

SUPPLEMENTARY GEOLOGICAL REPORT ON THE PROPERTY OF THE ARIZONA-GLOBE COPPER COMPANY.

INTRODUCTORY STATEMENT. This Supplementary report is based on data collected during three consecutive days spent on the property and in making an examination of the mines at Bellevue, which occur in Pinal Schist, and bear a close resemblance to the deposits owned by the Arizona-Globe Copper Company. So much of this time was spent in getting two Engineers property started on the survey of the property that there was little opportunity to collect any additional geological data, but the following facts are offered for what they are worth.

ADDITIONAL DATA ON THE GEOLOGY OF THE DISTRICT In my first report I stated that no rock other than schist was observed by me, but during my second trip I notice a diabase dike running a little South of West from the main incline shaft. This dike was also seen on the Eastern end of the Sulphate claim, and the two Engineers who made the survey traced it continuously as shown on the map which accompany this report. This rock has a close genetic connection with good ore bodies in some districts, and while it would be unsafe to assume any such connection in the area under consideration, it may be at least considered a favorable sign.

ADDITIONAL DATA ON THE ORE DEPOSITS Everything seen on my second trip serves to strengthen my belief in the merits of the property. A second, rather hasty examination of the numerous small veins and shear zones in Spring Gulch leads me to believe that there are largely the type of deposits known as FAHLBANDS, that is, relatively porous bands of schist which have been mineralized by deposition from solutions working through them. Although the presence of surface wash and the lack of development work upon them made it impossible to trace them for any considerable distance beyond the gulches, I believe that they will be found to intersect and cross the main mineralized shear zone, and that there is a likelihood of concentration of minerals in such intersections. It is not improbable that the Mineralized solutions worked out from the main mineralized shear zone in to these smaller deposits; and that for some unknown reason the flow of these solutions was largely westward rather than eastward. Whether any of the veins, FHALBANDS, or shear zones shown on the map as recognizable South-east of the main mineralized shear zone have economic value, can only be ascertained by further development.

I did not have time to trace the main mineralized shear zone throughout its entire length on the property, but believe from the examination of the outcroppings at the mouth of Spring and Lawrence Gulches that it crosses these gulches as shown on the accompanying map. The Engineers who made the survey are inclined to think that it turns sharply near the south boundary of the Pyrite Claim, and crosses Spring and Lawrence Gulches at the points indicated by the relatively wide zones of dashed lines. It is my belief that the latter represents an unusually large Shear zone which intersects the

main mineralized shear zone near the Southern boundary of the Pyrite Claim. I observed at the point where this intersection would occur an unusual degree of mineralization on the surface. The outcropping there were heavily iron-stained over a considerable area, and I regard this as an extremely favorable point to do development work some time in the future.

I doubt whether this main mineralized shear zone pinches out on the Downey Claim as shown on the map, but so much wash obscures the surface on the eastern portion of this claim that the deposit could not be traced further.

As shown on the map, the main mineralized shear zone traverses the property for a distance of about 4000 feet, and it is known to extend at least several thousand feet further to the West.

The Gentlemen familiar with the property were rather inclined to place little value upon the deposits in the upper part of Lawrence Gulch, but the engineers who made the survey state that several of these looked very promising, and recommend that they be investigated further. I am now sorry that lack of time caused me to neglect to examine this portion of the area.

Stated briefly, I am deeply impressed with the high degree of mineralization shown throughout that part of the property North-west of the main mineralized shear zone. Too little work has been done here to make it possible to speak definitely of the value of individual deposits or of the nature of the ores; but I am inclined to believe that the principal sulphied mineral encountered at greater depth will be pyrite and that the proportion of copper found will be low; The high grade of the copper ore said to have been mined on the Sulphate Claim indicated, however, that this theory may be incorrect in some cases. The small shear zones or FAHLBANDS, are so close together at some points that it is quite possible that the intervening rock is sufficiently mineralized to constitute very large low grade deposits.

RECOMMENDATIONS: I see no reason to modity the recommendations made in my previous report, but from knowledge now in my possession I believe that it would be best to begin work on the property through the main incline shaft rather than through the crosscut tunnel, which appears to have been driven at a point where the vein has been faulted or where some other unusual conditions exist. If subsequent developments make it seem desirable to work the main deposit through an adit, this can be driven from the gulch Scutheast of the main incline shaft, although this will give a vertical stoping distance of only about 275 feet.

It may be of interest to mention that the slope distance from the collar of the main incline shaft to the sump is 468.5 ft. and that the vertical distance between these two points is 308.9 ft. The sump is said to be 12 ft. deep, but was so filled with muck and water that no measurements could be made in it. 615.5 ft. of drifts and levels are connected with the main inclined shaft.

Respectfully submitted,
by

January 17, 1919

(ORIGINAL SIGNED BY) G.M. Butler, M.E