(5) 2960.0001

Geological Report
Union Amalgamated
Manhattan

Item 1 2960 0001 (4) (240) Item 1

R E P O R T

On Properties Of The

Manhattan Union Amalgamated Mines Syndicate

Controlled By

Nevada Coalition Gold Mines Company,

Manhattan, Nye County, Nevada.

8-13-56

Map = White Caps Area

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LOCATION.

The properties are situated in Nye County, Nevada, 44 miles, by automobile road, from Tonopah, Nevada, a station on the Tonopah And Goldfield Railroad. The nearest active mine is the White Caps, a few thousand feet distant from the property. The altitude is 7500 feet above sea level.

HOLDINGS.

The following claims, both patented and unpatented lode locations, are included in the area under consideration:

1. Patented Claims:

Grammy
Union No. 4
Union No. 5
Silver Pick No. 1 (portion of)
Turtle Dove
Union No. 2
Union No. 3
Mari
Showman
Big Mogul
Flying Cloud

Dexter No. 7
Dexter No. 8
Uno
Annie Laurie
Snowdrift

2. Unpatented Claims:

Eva
Bell
Bell No. 1
Hill Top

3. Fractions - Unpatented Claims:

Baseball
AM. Ex.
AM. Ex. No. 1
AM. Ex. No. 2
AM. Ex. No. 3
Gold Coin Fraction

These holdings embrace an area of 262.33 acres.

HISTORY:

The Manhattan District received some attention in the year 1906 when rich surface float was found carrying free gold. A large number of small companies were organized consisting of one or two claims and each of these companies turned their claims over to leasers for development. Small bunches of rich ore were extracted from fissures in the White Caps limestone, a belt of which is continuous through the district. Some gold ore was also encountered in the western section of the camp in the schist area. A relatively small amount of work was done. This had the backing of San Francisco capitalists and the district was just coming into prominence when the San Francisco fire and earthquake occurred in 1906. No further attention was given the district following this disaster, with two exceptions. Mr. C.F. Wittenberg kept alive the corporate identity of the Manhattan Union Amalgamated Mines Syndicate and let portions of the property out to leasers.

In 1925 one lessor extracted $25,000 worth of gold, working on a fracture in the limestone. The other exception was that of the White Caps where Mr. John G. Kirchen, General Manager of the Tonopah Extension Mining Company, persistently kept after the development of the White Caps mine. He was originally interested in a lease on the property and after careful study of the conditions there, was convinced the gold ores went to great depth and he was supported in this conviction by Mr. Henry C. Ferguson, Geologist for the U.S. Geological Survey. The White Caps mine is now developed to a depth of 1310 feet where orebodies are being encountered, assaying $95 per ton or better in gold.

GEOLOGY.

The property of the Manhatten Union Amalgamated Mines Syndicate constitutes a continuous tract of mining ground, extending in a northwest southeast direction for a distance of 5000 feet and for a width of approximately 5000 feet. The ground covers the outcrop of the White Caps limestone, a favorable limestone of the district for containing replacement orebodies, and covers the dip of the White Caps lime on the hanging wall side as far south as extensive mining development will probably occur within the property.

* "The oldest rocks of the Manhatten district are a series of schistose slate, quartzite, and sandstone which crop out in a wedge-shaped area 1 mile wide at the eastern border of the district and pass under the next higher formation west of Gold Hill, a short distance north of the Tonopah road.

The base of the formation is not exposed. In the Manhattan district the lowest members are truncated by the overthrust

* Excerpt from U.S.G.S. Bulletin 723 - "Geology and Ore Deposits of the Manhattan District Nevada" by Henry G. Ferguson.

fault that separates this formation from the Ordovician sediments to the north. Nor is the upper limit determinable with certainty, for along at least the greater portion of its southern border a fault separates the upper members of the Gold Hill formation from the knotted schists here named Mayflower schist and referred to the Ordovician.

In the vicinity of the White Caps mine, where the formation was studied in most detail, the lowest members are quartzose schists with subordinate calcitic and lime silicate schists and a few thin beds of quartzite. To the east, where the divergence of strike between the overthrust fault and the beds to the south permits the outcrop of lower beds, there seems to be a greater proportion of quartzite. The outcrops are obscure, however, and the relative preponderance of the resistant quartzite both in outcrop and in talus tends to give a false impression of its abundance. Nowhere was there observed massive quartzite comparable to the Prospect Mountain quartzite of the Eureka section.

A short distance above the lowest member the formation becomes more calcareous and a group of three limestone beds, in places slightly dolomitic, comes in. As many of the ore bodies have been formed by the replacement of limestone, these bodies have been prospected extensively, and in spite of the complex faulting in the productive part of the district they can be traced with certainty as far eastward as the White Caps Extension shaft. Owing to their economic importance these members are here given the local names Pine Nut limestone, Morning Glory limestone, and White Caps limestone. The lowest of the three, the Pine Nut limestone member (named for its exposures on the Pine Nut claim), is about 10 feet thick and is an impure white crystalline limestone, carrying little knots of silicate minerals.

The greater resistance of these clusters of silicates gives the weathered surfaces a characteristic knobby appearance. The Morning Glory limestone member (named for its outcrops near the Morning Glory mine) is separated from the Pine Nut by 140 feet of siliceous schist and consists of about 15 feet of white to blue-gray crystalline limestone without mixture of silicates. Between this and the White Caps limestone member (the bed which contains the ore deposits at the White Caps mine) is nearly 200 feet of schist with several thin beds of quartzite. The White Caps limestone is the best-defined lithologic unit of the Gold Hill formation and consists of about 30 feet of pure blue-gray crystalline limestone. The separation from the underlying schists is in most places sharp, but at the top and in places at the base there is a gradation from the pure limestone through calcareous schist to siliceous schist.

Above the White Caps limestone comes a series of siliceous schist, sandstone, and quartzite probably 2,500 feet thick, although closely compressed folds, such as that exposed in the Big Pine Glory hole, makes estimates doubtful. The schist predominates. In the lower part of the section, as seen in the underground workings of the White Caps and Manhattan Consolidated mines, it is commonly dark gray to purple in color, but it weathers on the outcrop to a rusty brown. As exposed in the Big Pine and Big Four workings the schist to a considerable depth below the surface is brown from the oxidation of pyrite.

Beds of white quartzite at a maximum not exceeding 50 feet thick occur here and there throughout the schist. These beds are of no value as horizon markers, as they thin out within short distances. The thickest and most numerous of the quartzite lenses appear

to lie in a zone a short distance above the top of the White Caps limestone. Several thin beds of dark sandstone are present in the central part of the formation. These show cross-bedding and rarely mud cracks, and though they are thinner and less conspicuous than the quartzite beds, they appear to be more persistent. In a very few places the sandstone grades into a fine-grained quartzose conglomerate.

Above the horizon represented by the schist and quartzite at the Big Pine mine calcareous layers again appear, but most of them are inconspicuous and can not be followed far. Close to the top of the formation, however, are two continuous thin beds of crystalline limestone, altered in places to a rock consisting largely of diopside. Between and above these beds is schist similar in appearance to that below. "

The above sediments in the Manhattan Basin are between 3500 and 4000 feet in thickness, under which was intruded a sheet of rhyolite which brought in intensive gold mineralization.

"At some time within the Mesozoic era the older rocks were intensely folded. The folds are closely compressed, and most of them trend a few degrees to the north of west, nearly at right angles to the present mountain range. Many of the folds, particularly in the Ordovician limestones and slates, are overturned toward the north. An overthrust fault that brought the Cambrian rocks above the Ordovician was contemporaneous with this folding.

At a distinctly later date than the folding came the intrusion of great masses of granite and related rocks. The outcrops of these rocks are not well represented in the area studied in detail, but large masses occur close by, both north and south of the Manhattan

district, and probably also beneath the Tertiary rocks in the northern part of the area covered by the detailed map. The intrusion of the granite may have caused minor normal faulting in the sediments but apparently little if any doming or crushing. The sediments are intensely altered for a short distance from the granite contact and show over the whole area a greater or less degree of alteration, due to thermal metamorphism. " In structural geology the district closely resembles the Tintic district, Utah.

DEVELOPMENT.

The early development work on the Union No. 4 and Union No. 5 claims was through some lessees' shafts to an incline depth of 750 feet, or not more than 400 feet vertically, from the surface. Development was continued until water was struck, the lessees then quitting. There is ore exposed at the bottom of the Bath shaft and it is apparent that the oxidized area is cut off of larger shoots which are deep-seated. Mill returns on some of the ore shipped from the property run as follows:

Gold	1.67 ounces.....	$ 37.40
Silver	2.78 "	1.41
Gross value per ton		$ 38.81

This closely corresponds to the values of the ore in the upper levels of the White Caps mine. Some smaller shipments were made running as high as 5 ounces in gold and 5 ounces in silver, or a total gross value of $153.56 per ton. One shipment from the Bath shaft went as high as:

Gold 14.245 ounces
Silver 7.4 " - total value of $290.00

Another shipment went as high as:

Gold	18.17	ounces.....	$363.40
Silver	6.19	"	4.31
Total value per ton.....			$367.71

The shoots from which this ore came, lie in the White Caps limestone which dips to the south at an angle of 45° and it intersects somewhere at depth a large underlying fault known as the Zanzibar fault. A map is appended to this report showing the relation of the White Caps limestone to the Zanzibar fault. It is thought that the solutions travelled up along the Zanzibar fault until intersecting the White Caps limestone, which was soluble, and formed the orebodies in the limestone. In the White Caps mine the Zanzibar fault has not been intersected in the winze and lies possibly 500 feet below the 1300 ft. level.

GENERAL.

The operating shaft for the development of the property is well located with a view of intersecting the White Caps limestone at a depth of 1000 ft. It can be extended below the 1000 ft. level readily and give economic mining distances from the shaft into the White Caps limestone. A vertical shaft is easier to sink and keep in alignment, especially when bad ground is encountered, than is an incline shaft. Experience has shown in the White Caps shaft, which is an incline shaft following the dip of the White Caps limestone from the 800 ft. level to the 1300 ft. level, that very heavy ground is at times encountered and it is very difficult to hold an incline shaft open in this ground.

The plan of development on the Union Amalgamated ground is to run a crosscut out from the 750 ft. level to intersect the White Caps limestone at a distance of approximately 170 ft. from

the shaft to explore the White Caps limestone at that horizon. After ore is opened up on this level the shaft can be sunk deeper and lower levels established.

The geology of the Union Amalgamated ground was studied and mapped by Mr. Gordon White, who spent a year at field work with Mr. Henry C. Ferguson of the U.S. Geological Survey, and in his cross-section, showing the dip of the White Caps limestone towards the operating shaft, he followed out the dip of the limestone to conform with the dip of the quartzite beds as we are at present encountering them in the shaft. This may be slightly in error as the present dip, which is a slightly flatter angle than 45°, may be local, and experience in the White Caps mine shows that the limestone conforms pretty regularly to a dip of 45° to the south.

The Company owns a 50-ton mill equipped with a battery of ten stamps and cyanide equipment to handle the oxidized ores from the upper levels. This mill is situated in the Manhattan Gulch, one mile distant from the operating shaft. Should sulphide ores be encountered the mill will have to be equipped with roasting furnaces to make the ore amenable to cyaniding.

CONCLUSIONS.

I consider that the property of the Manhattan Union Amalgamated Mines Syndicate is of sufficient merit to justify a large expenditure for thorough exploration. This should comprise sinking of the present vertical shaft to a depth of 800 ft. and crosscutting from the 750 ft. level east to the White Caps limestone, a distance of approximately 170 ft., and drifting in the limestone to encounter ore shoots. The property is situated near a proven mine and has

identically the same formations traversing the ground in which gold ore shoots exist today. Further work must be done to demonstrate that these shoots proceed to depth and in commercial quantities. I regard the prospects as very promising with more than even chances of developing into a profitable mining operation.

Fred J. Cole

Tonopah, Nevada,
December 20th, 1926.

Outline of progress in acquiring the mining properties now owned by Nevada Coalition Gold Mines Company and situated in the Manhattan Mining District, Nye Co., Nevada, approximately 44 miles from Tonopah, Nevada:

In August, 1925, the property consisted of the following claims:

1- Patent Claims;

Granny
Union #2
Union #3
Earl
Part of Silver Pick

2- Unpatented Claims;

Turtle Dove
Big Mogul

All of the above mentioned claims were owned by the Manhattan Union Amalgamated Mines Syndicate.

This property was considered to be a very valuable one, having the outcrop of the vein and also there having been shipped a large tonnage of high grade gold ore therefrom. The capital stock of this company was 2,000,000 shares and was selling from 12 to 24 cents per share on the open market.

During portions of the years 1924 and 1925 a part of the ground was operated by lessers who made a number of shipments, the gold content being as high as 18 ounces per ton in some of this ore equaling a value in gold of $360.00 per ton with approximately six ounces in silver to each ton.

In August 1925, Mr. T. F. Cole was appealed to and after examining the property and going into the matter thoroughly he took an option on a substantial number of shares of Treasury Stock, which option he later exercised. A large number of shares of stock purchased by Mr. T. F. Cole and others was at a price ranging from 12 cents to 25 cents per share.

At Mr. Cole's suggestion it was deemed advisable to purchase a large number of claims adjoining or adjacent to our property due to their value from a mineral and operating standpoint (a number of them having already been shippers of good grade of gold ores) and also for the purpose of acquiring a large compact mineralized area and to avoid the possibilities of litigation through questions of apex rights and otherwise.

We therefore proceeded to acquire claims in a very quiet way, giving out no information in order to obtain the property at reasonable figures which we believe we did because we purchased at a time the owners wanted to sell owing to the dormant condition existing in mining in Nevada at that time. We are confident that it would require a vastly larger sum to duplicate these purchases today.

From the time Mr. Cole became interested in the Company he and associates furnished at various times as money was required to pay some obligations and purchase additional mineral ground, the sum of $93880.00 and in addition 80,000 shares of the unissued capital stock was also used in the acquisition of the contiguous mineral ground.

The new holdings together with the claims formerly owned constituted a very valuable compact area of well located mineral claims as follows:

1- Patent Claims;

Granny
Union No. 4
Union No. 5
Silver Pick No. 1 (Portion of)
Union No. 2
Union No. 3
Earl
Snowman
Flying Cloud
Dexter No. 7
Dexter No. 8
Uno
Annie Laurie
Snowdrift
Eva

2- Unpatented Claims;

Big Mogul
Bell) Listed on Map also as Mattie Ethel, Texas.
Bell No. 1)
Hill Top
Hill Top Extension
Turtle Dove
Blue Bird

3- Fractions- Unpatented Claims;

Baseball
AM. EX.
AM. EX. No. 1
AM. EX. No. 2
AM. EX. No. 3
Gold Coin Fraction
Last Chance
Friday

With this area of approximately 262.33 acres of mineralized ground it was decided to organize a company to finance the development work. It was the concensus of opinion of the owners and others who knew the district, its history and character of its ores that the Par Value of the new company (Nevada Coalition Gold Mines Company) should be $5.00 per share because it is expected that when the ore bodies are reached and developed that this par value on all shares that may be issued will probably be substantiated.

Therefore the Nevada Coalition Gold Mines Company, a Delaware Corporation of 1,000,000 shares of a par value of $5.00 per share, was organized with Mr. T. F. Cole as President, C. F. Wittenberg Vice President and Fred L. Cole Vice President and General Manager. Said company reserved and set aside 444,359 shares of its stock to be exchanged for Manhattan Union Amalgamated Mines Syndicate stock on the basis of 4½ shares of Manhattan Union Amalgamated Mines Syndicate stock for 1 share of Nevada Coalition Gold Mines Company stock as it was estimated that the property was conservatively worth at this period in its history, the sum of $360,000.00.

Of the 2,000,000 shares of the Treasury Stock of the Manhattan Union Amalgamated Mines Syndicate, all except 384 shares are outstanding. Of the outstanding stock all but 4000 shares have been exchanged or offered for exchange for Nevada Coalition Gold Mines Company stock and as soon as we locate these 4000 shares we feel sure that they also will be exchanged.

155,641 shares of the stock of the Nevada Coalition Gold Mines Company was underwritten at 80 cents per share by Mr. T. F. Cole and associates in the East to finance the purchase of equipment and to prosecute development work which is now in progress, a three compartment shaft having reached a depth of 600 feet. It is proposed to sink the shaft to the 700 foot horizon and crosscut on the 650 foot level to the ore bodies known to exist.

None of the stock of Nevada Coalition Gold Mines Company has been sold or underwritten for less than 80 cents per share and there remains in the Treasury of this Company 400,000 shares to be used for corporate purposes.

We trust this concise statement will give you a comprehensive ides of the procedure by which this splendid property was acquired. We are accompanying this statement with a report of the Engineer in charge, Mr. Fred L. Cole, and a map of the property for your reference.

Yours very truly,

C. F. Wittenberg President.
of Manhattan Union Amalgamated
Mines Syndicate.

Tonopah, Nevada, May 25, 1927.

Approved
T. F. Cole

GEOLOGY OF THE UNION AMALGAMATED MINES SYNDICATE

The Union Amalgamated Mines Syndicate, of Mnahattan, Nye Co., Nevada, consists of the following named claims; Union #2, Union #3, Union #4, Union #5, Granny, Turtle Dove, Showman, Flying Cloud, Eva, Earl, Am. Ex., Am. Ex. #1, Am. Ex. #2, Am. Ex. #3, Gold Coin Fr., Bell, Bell #1, Dexter #7, Dexter #8, Big Mogul, Hill Top, Hill Top Ex., Friday, Texas, Mattie Ethel, and Blue Bird. The property is located about ½ mile east of the town of Manhattan, and is easily accessible over good roads.

Summary of the structure of the region.

On the Union Amalgamated ground and in the immediate vicinity the only formations represented are the Gold Hill, (Cambrian) and the Zanzibar. (Ordovician) The contact between these formations is formed by a thrust fault, known as the Zanzibar Fault. The older Gold Hill formation has been thrust over the Zanzibar deposits at about a 35 degree angle. Movement from the S.W. to the N.E. This thrust can be traced for about three miles, the strike varying from N 30 W to N 50 W. This thrust contact can not, however, be traced in an unbreakable line as there is a complicated system of normal faulting, apparently later than the thrusting, which has dropped the Zanzibar Fault into various positions. The result is the ragged, zig zag contact plotted on the surface geology maps of the region. (U.S.G.S. Bull. #723)

The Cambrian formation consists of a series of schists, quartzites, slates, and limestones. There are three limestone beds, known as the White Caps, Morning Glory, and Pine Nut Limestones. These are separated by the schists, etc. The formation holds a strike of about N 50 W, and a dip of about

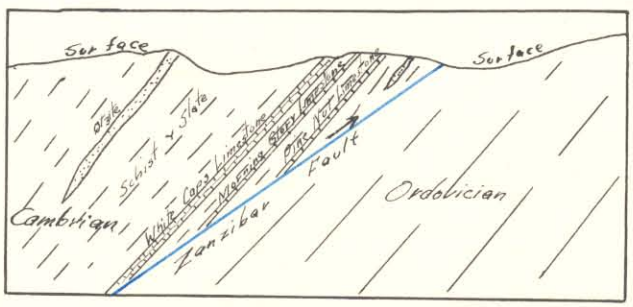
45 degrees to the S.W., thruout the whole series with the exception of the western end of the exposure. At this point, near the western limit of the Union Amalgamated property, the beds take an abrupt turn to the south and then swing back toward the north, giving the appearance of the nose of an anticlinal structure. This hypothesis can not be tested, however, as within a few hundred yards the formation passes under a tertiary rhyolite flow. The upermost bed of limestone, the White Caps, is the largest, as well as the most important. The surface outcrop shows a horizontal width of about 100 feet, and is highly mineralized along the fracture planes. The two lower members, the Morning Glory, and the Pine Nut, respectively, are relatively unimportant except for carrying out the faulting system. They are less in width and are not mineralized to any extent.

The Zanzibar Fault is the most important feature in the camp, for as pointed out by H.G.Ferguson, (U.S.G.S. Bull. #723) it forms the northern limit of the mineralization. In other words, the mineralizing solutions have come up along the hanging wall of the fault, the gouge acting as a dam, and the brecciated zone above it acting as the passage way. These solutions will of course, find other more direct passages to the surface along the more steeply dipping normal faults. Thus one will note the numerous mines scattered along the hanging wall of the fault.

The mines located in the schist are noted for their shallow mineralization. This feature might be explained by the fact that the ascending waters find nothing in the chemical composition of the schist to cause deposition. It, then, will not be until surface conditions of oxidation, etc, are reached that an appre-

ciable amount of depositon will occur.

All indications in the deepest workings of the White Caps Mine, which is located about a mile eastnof the Union Amalgamated in the same belt of White Caps Limestone, point to a continuance of the mineralization to the intersection of the limestone with the Zanzibar Fault. The reason for this, and also for the fact that the White Caps Limestone is the only limestone bed to be highly mineralized can be explained by means of the following sketch. It can be seen that the White Caps Limestone will be the first bed to recieve the ascending solutions. This bed



of limestone, then, will be the first definitely basic, and the first easily replaced member that the acid waters will encounter in their upward course. It is natural to conclude that there will be a sudden unloading, and with the continuous upward percolation, a gradual replacement of the limestone, with the values lessening toward the surface. The condition of gradual increase in size and values of the ore bodies with depth at the White Caps Mine bears out this theory. The brecciation and damming effects caused by the cross fracturing and faulting will account for the concentration of the ores along these zones.

(For more detailed information concerning the general features of the district, see U.S.G.S. Bull. #723)

The Union Amalgamated claims take in a little less than ¾ of a mile along the White Caps Limestone. The hanging wall is well protected by claims extending nearly 3000 feet in a direction at right angles to the strike of the limestone. This hanging wall protection does away with the danger of litigation in the future.

The property has been worked in the past by the Union #4, the Bath, and the Earl shafts. The Earl and the Bath workings form the greater part of the development, tho a good deal of ore has been taken out of the Union #4. These mines are all in the White Caps Limestone.

Both the Earl and the Bath shafts have been sunk to a depth of approximately 600 feet. The 350 and the 600 levels of the two are connected, but the 350 level has been caved to such an extent that it is impossible to go from one shaft to the other on that level. The Earl shaft has been caved to within 150 feet of the surface, leaving the geology of that portion a blank. All of the geological data has, of necessity, been taken from the stopes and levels of the Bath workings, and from the 600 level, which is now open as far as the bottom of the Earl shaft.

The mines mentioned above have in no place cut the Zanzibar Fault. Their development has been carried on well in the hanging wall of the fault. By means of projection from the surface, its intersection with the White Caps Limestone figures approximately 1200 feet in the eastern portion of the ground and 2000 feet in the western part. These are vertical distances, assuming an elevation equal to that of the surface outcrop of the limestone. The thrust has changed strike toward the north, between the eastern and western limits of the ground, causing a divergence of

the surface exposures of the limestone and the fault, hence a greater depth at the point of intersection.

The normal faulting, with the exception of two major faults, is of small displacement. There are many of these small fractures that contribute towards the mineralization, at the same time the lack of much displacement is a great factor toward keeping the cost of development down.

Of the two major faults the so called Earl fault is the one of which most is known. It holds a dip to the S.E. at about 60 degrees and roughly parrallels the East fault of the White Caps Mine, in strike, or about N 70 W. There is a horizontal displacement of about 250 feet to the N.E. The Earl incline shaft has been sunk about 30 feet in the footwall, at the surface, and holding about the same distance to the bottom. There is a considerable amount of broken up material near the fault with a consequent caving making impenetrable the drifts and cross cuts on the hanging wall side.

The Manhattan Gulch Fault, as it has been named for convienience, is seen on the surface in the extreme western limits of the property. There is a considerable break here, over 300 feet, accompanied by some flexuring of the beds to the west. A good deal of the turn noted has been undoubtedly due to folding before the faulting, but the faulting must have had some influence to account for the abrupt change in strike. This fault has in no place been exposed, thus it is impossible to gain any definite information as regards the actual dip; the strike, however, is quite plainly in a N 20 E direction. What relation this has to the Earl fault could not be determined, due to the lack of marker beds in the hanging wall schists.

The minor faults seem to have been the main mineralizers. Although of small displacement, they have caused a considerable amount of disturbance, brecciation, etc, giving ideal conditions for the passage and deposition of solutions and minerals. The largest of these, exposed on the 600 level to the east of the Bath shaft, strikes about E.-W., and dips 68 degrees to the south. There has been a horizontal displacement of 60 feet, and a replacement of the limestone to an average width of 3 feet. The underground geologic map shows the numerous smaller fractures which have contributed to the mineralization. The limestone at the surface is exceedingly well mineralized along the fault zones. Most of these have been exposed by trenching, rendering it easy to see the significance of the faulting with reference to the attitude, displacement, and mineralization.

It will be noted that the faulting system has not been carried far into the hanging wall country. This is due, as mentioned before, to the lack of marker beds, or of any definite member in the slates and schists that can be traced. The quartzites are of little help, as they occur in the form of lenses and are thus found scattered sporadically in the series. With the exception of the major faults it is impossible to carry the faulting system further without an elaborate system of trenching.

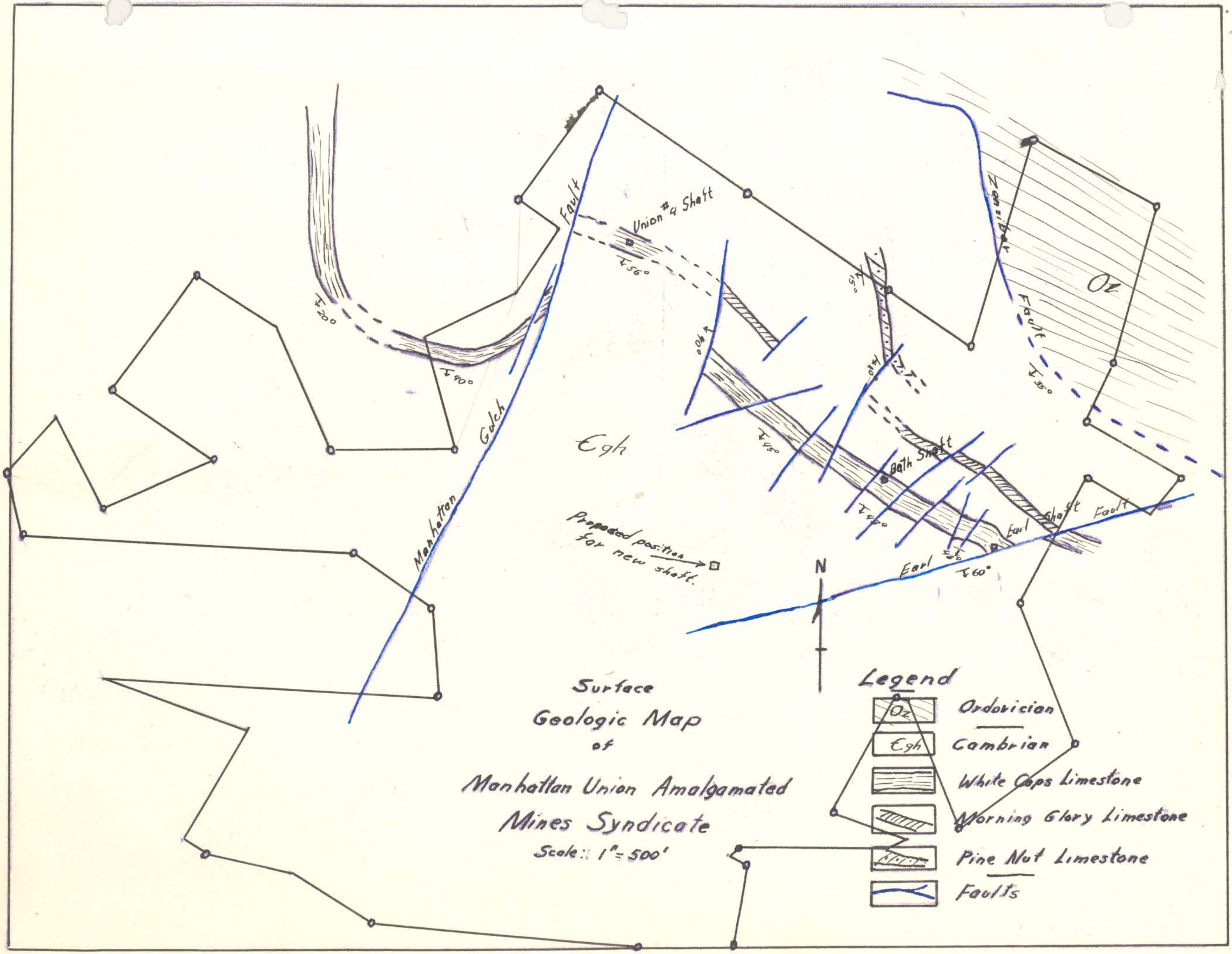
The ore in the Bath workings is found in small cross fractures and also along bedding plane slips. The latter form the largest ore bodies. The mineralization on the bedding plane slips usually occurs near the hanging of the limestone. Quartz forms the principal gangue mineral of the ore. A good deal of calcite and some flourite is also found. If the size of the stopes is any indication

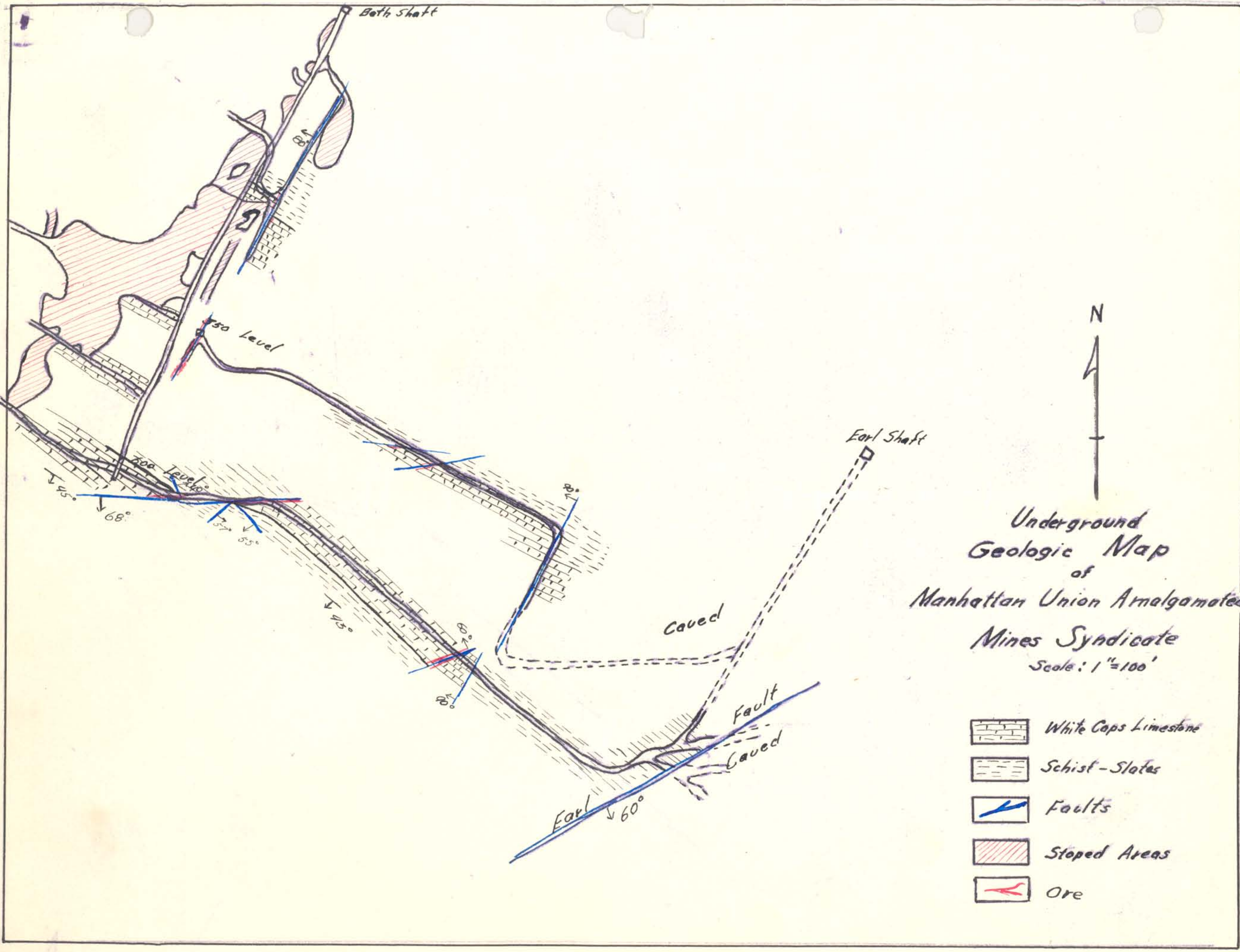
there has been a considerable amount of ore taken out. An idea of the latteral extent can be gathered from the underground map while from wall to wall they vary from 4 to 20 feet.

The proposed new shaft:

In regards to the plotting of a new shaft to adequately work the property, one can not have all conditions exactly as he would wish them. The position plotted on the surface map is not far enough in the hanging wall to give the desired vertical depth before the limestone is cut. On the other hand, were it placed any further south, one would find the elevation much higher than the surface exposure of the limestone, consequently giving an over amount of unnecessray sinking. At a distance of about 500 feet further south there would be an added elevation of about 200 feet. At this point suggested for the new shaft, the limestone would be intersected at about 525 feet, vertically. By careful inspection, it will be noted that this position is practcally in the center of the ground, and is also in a position to miss the as much of the faulting as is possible. It is in the footwall of the Earl fault, and is far enough from the Manhattan Gulch fault to keep clear of it. Either of these faults would cause considerable trouble in the sinking, thus it is important to keep away from them if possible. The only minor faults which could interfere are of no consequence.

Signed,
Gordon H. White
5/14/26


Surface
Geologic Map
of
Manhattan Union Amalgamated
Mines Syndicate
Scale:: 1" = 500'
Legend
Ordovician
Cambrian
White Caps Limestone
Morning Glory Limestone
Pine Nut Limestone
Faults
Oz
Ꞓgh
Zanzibar Fault
Manhattan Gulch Fault
Union #4 Shaft
Bath Shaft
Earl Shaft Fault
Earl Fault
Proposed position for new shaft.
N


Underground
Geologic Map
of
Manhattan Union Amalgamated
Mines Syndicate
Scale: 1"=100'
N
White Caps Limestone
Schist-Slates
Faults
Stoped Areas
Ore
Beth Shaft
Earl Shaft
750 Level
700 Level
Caved
Caved
Fault
Earl
60°
45°
68°
57°
55°
43°
80°
80°
80°
90°
40°

GEOLOGY OF THE MANHATTAN UNION AMALGAMATED MINES SYNDICATE.

G.H.White