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BLUE DICK - BLACK DIAMOND

State Creek

Creek

Dosoris

U.S. M. M. No 2

S 61° 33' E - 666.7'

Jumbo
M.S. No 2943

Ontario
M.S. No 2943

Blue Dick
M.S. No 2943

Fairview
M.S. No 2943

Scale: 1" = 500'

Three Metals No 2

Three Metals
Ext. No 1

Three

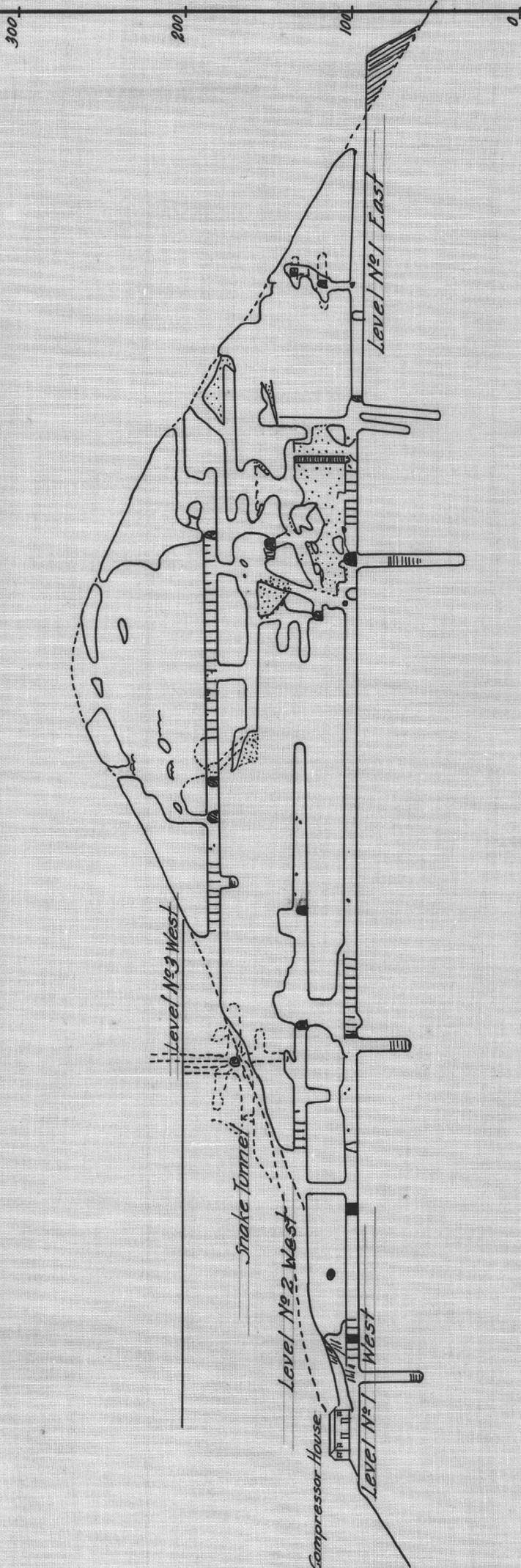
Fairview
Metals

Black Diamond
Ext. No 1

Nugget
M.S. No 2942

Black Diamond





BLUE DICH ~ BLACK DIAMOND.

T12N, R2W

DOSORIS
300 P.T.

U.S.M.M.
No. 2

Sec. 4

RAVEN
MS
301 P.T.

BUZZARD
MS
302 P.T.

DOSORIS
MS
301 P.T.

P.T. ONTARIO
2943

JUMBO P.T.
2943

BLUE DICK
2943 P.T.

BLUE DICK
423

FAIRVIEW
2943 P.T.

RAVEN
302 P.T.

BUZZARD
304 P.T.

NUGGET
2942 P.T.

Sec. 9

Sec. 5

U.S.L.M.
No. 1169

RAIL ROAD
1646 P.T.

GOLD
TREASURE
1169

JERSEY LILLY
P.T. 1169

Sec. 8

in Block Diamond

The Mark Twain group, consisting of the Mark Twain, Moos and Empress lode claims, is situated in the Hassayampa Mining District, Yavapai County, Arizona about 12 miles South of Prescott.

The surface is high and rugged being at about 7000 ft. elevation, covering a series of ridges between Hassayampa and Slate Creeks. This section of the country for several miles in area is covered with a dense growth of oak brush, making it difficult to get across except by following roads or beated trails, and effectually hiding the rock formation underneath it.

The property is reached by a wagon road which has been in use for several years, with small expenditure for repairs and has been still further damaged by the heavy rains of this season.

Portions of the road were apparently laid out with no attempt to secure minimum grade and would have to be relocated to be of any value for the hauling of ore or supplies.

Development work on the property has been confined to the Southerly end of the Mrk Twain claim, which is contiguous to the Blue Dick claim owned by other parties. The workings of the two properties are practically contiguous being on the same mineralized zone and supposed to be on the same vein.

The formation in the vicinity of the workings consists of the Yavapai Schist which is well known as the country rock thruout the ore producing area of the County. Generally speaking I found a green dioritic tock predominating on the North side of the workings and sericite schist and undetermines schistose rocks on the South side. The inderbrush makes it difficult to see the formation except in the immediate vicinity of the workings.

The accompanying map shows the two runnels on the Mark Twain. The old tunnel, known as the Intermediate Tunnel is 30 ft. above the Lower Tunnel in which you are not working.

The Intermediate Tunnel starts in a brecciated quartz which becomes solid a few feet further in. This quartz body continues for about 90 ft and appears to be 6 to 10 ft. wide. The runnel follows the north edge of the quartz which takes on a banded vein structure with alternate bands of white quartz and sulphides.

The vein is followed for a length of 250 ft. For 150 ft. it remains a width of 2 ft. to 5 ft. and then decreases in width to a narrow quartz stringer at the face of the tunnel. The course of the vein is somewhat orregular, apparently following the planes of schistosity for a few feet and then cutting across them at a

sharp angle. The gold and silver values are found in the dark colored sulphide bands, which are from a fraction of an inch to six inches in width and consist mainly of iron and arsenical iron sulphides with chalcopyrite, (sulphide of Iron and Copper) in less quantity.

The silver values are doubtless carried with the other sulphides and are hard to identify except that the dark colored ores carry the highest values.

The ore in the Intermediate Tunnel is low grade. I took a sample 3.8 ft in width across the back of the drift at about 85 ft. from the mouth, which assayed 4.20 oz. silver and later secured 6.2 oz. silver from nearly the same place. These were both large samples taken uniformly across the vein and should fairly represent its value.

The map shown where two small stopes have been cut above the back of the level. The presumption is that the ore may have been of somewhat higher grade at these points. It will be noted also that the tunnel goes on to Blue Dick at about 105 ft. from the mouth of the tunnel.

The lower Tunnel starts further down the West slope of the hill and is 30 ft. vertically below the Intermediate Tunnel. It runs 120 ft. in an Easterly direction to where it firsts cuts the quartz vein material and then follows the vein in a southeasterly direction to the present face. As in the Intermediate Tunnel the Quartz is wide and massive for 75 ft. and is then concentrated into a vein with width of four to five feet. The vein shows the same banded structure as above with a somewhat greater porportion of sulphide streaks and proportionate higher values. The face of the drift shows a well defined foot wall of bleached and altered schistose rock containing disseminated sulphides, having a dip of 79° to the NE. Next to the footwall is a white quartz nearly barren streak six to eight inches wide, the sulphides increase toward the hanging wall and the left side, particularly in the lower corner is nearly solid sulphides. Following are assays of samples taken on this level.

Sample No. 8----- At the bend in the drift back from the face 6 ft wide across back of drift, alternating

bands of barren quartz and sulphide ore. Au. .16 oz.-Ag. 4.3 oz. Total value \$7.50

Sample No. 1----- Face of drift(Aug. 19) 3.3 ft. in width

Gold .15oz Silver 8.6 oz. Total value \$11.60

Also 2.1% Copper.

Sample No. 6- Face of drift (Aug 23) in two samples. 2 ft. wide footwall side of drift.
Au..14 oz., Ag. 4.1 oz.,
Total value \$7.20

Sample No. 7 2 ft. wide, hanging wall side of drift. Gold 1.0 oz. Silver 3.0 oz.
Silver 3.0 oz. Total value \$23.00

Average face of drift \$15.10 in Gold and silver. Not assayed for Copper.

The above assays indicate a very material increase in value, particularly in gold value, over the assays from the Intermediate level.

Sample No. 11 This was a picked sample taken from the lower left hand corner of the face, consisting of heavy sulfides and no quartz.
Gold 1.2 oz. Silver 19.6 oz.
Total value \$ 43.60
The following miscellaneous samples were also taken.

Sample No. 9 Lead Silver ore from small streak 2 in. to 3 in wide, in drift near mouth of tunnel. (Lower)
Gold .08 oz. Silver 11.2 oz.
Total value \$12.80

Sample No. 10 Picked sample of sulphide ore from Dump.
Gold .14 oz. Silver 9.0 oz.
Total value \$11.80

Sample No. 12 Picked Sample from Dump, black sulphides around nucleus of chalcopyrite.

Gold 1.6 oz. Silver 114.2 oz
Total value \$146.20

From the results of assays and examination I conclude:

First:- That there is little or no ore of commercial value above the Intermediate Tunnel.

Second:- That the nature of the vein filling permits of hand sorting, whereby the grade of the ore may be raised considerably above the average value as sampled.

Third:- That the values show an increase in the lower levels and particularly toward the face of the drift.

It is hardly necessary at this time to discuss the question as to what grade of ore can be mined and marketed at a profit for the reason that at best you have only a limited quantity above the face of your lower tunnel and are within eight feet or ten feet of the end line of the Mark Twain Claim, which limits your drifting in that direction. Therefore your only chance of developing more ore is by sinking a winz below your present lower level. The question arises as to the probability of your ore shoot lengthening in a Northerly direction & for if it pitches Southeasterly or stands vertical, no depth of winze could develop enough ore to pay for itself. I think the values have indreased somewhat at the North end of the shoot from the Intermediate Level down, that is the proportion of sulphide content to quartz content is greater. There is no question about the increase at the South end of the shoot because the amount and grade of sulphides at the face of your drift is much better than at any point on the Intermediate tunnel level. I am of the opinion that with increased depth, the body of quartz occupying the Northerly end of the vein may be-

come impregnated with sulphided which will eventually make a shoot of ore approximately 130 ft. in length.

In selecting a place on the lower level in which to sink a winze, it should be remembered that the object is to find out whether or not the low grade quartz is improving with depth.

In order to accomplish this, the winze should be started in the low grade quartz at some distance back from the face of the drift, and not in the good ore at the face. If sunk where I suggest an added depth of fifty feet should indicate whether the values are increasing or not.

If more ores should be developed by a winze and the occasion arise for calculating the amount of investment necessary to place the property on a paying basis, it should be remembered that the road to Prescott is in no condition to haul a load over and either it will have to be rebuilt at a considerable expense or some more feasible route selected and improved.

It has been suggested that a better road can be built to the southwest, connecting with some of the old roads in that direction, but I am not sufficiently familiar with the conditions to express an opinion at this time.

I have left until the last the discussion of the relation existing between the Mark Twain and Blue Dick ore bodies.

The accompanying map shows the result of a compass survey of the part of the Blue Dick Workings near the North end line.

The tunnel shown, starts on Mark Twain ground within a few feet of the end line, at an elevation of 80 ft above the Lower Tunnel and 50 ft. above the Intermediate Tunnel. The first indication of a vein is found at 110 ft. from the mouth- 40 ft. further in is the northerly end of a stope which is cut out over the back of the drift in a south-easterly direction for 120 ft. I take it for granted that the stope represents the length of the ore on this level, though I have taken no samples.

An additional vertical depth of 76 ft. is gained by the incline winze, which starts with a dip of 56° and flattens out to 40° at the bottom where it connects with the lowest Blue Dick adit level. At this point a crosscut has been driven in a southwest direction a distance of 140 ft. It will be noted that the bottom level and hanging wall crosscut are practically on the same level with the Lower Tunnel level of the Mark Twain. The important point to be noticed is that the crosscut thoroughly prospects the country across the course of your Mark Twain vein-without finding it. I am inclined to believe that the conditions shown on the map can only be explained by the assumption of faulting, of which there is considerable evidence. The Blue Dick ore body is cut off by a southeasterly dipping contact and no trace of it is to be found north of this point. On the other hand the Mark Twain vein is cut off on its southeast end. The inference may be made therefore that the Blue Dick ore body originally formed the southeasterly extension of the Mark Twain vein, and that it has been faulted in a northeast direction to its present position, the extent of horizontal displacement being about 130 ft.

The above discussion is of no particular interest to the Mark Twain property as long as the boundary line remains as it is at this time. It is evident that it should be obliterated in order to give sufficient opportunity and encouragement for proper development.

I have practically given my conclusions in the body of this report which may be summarized as follows:

The quantity of profitable ore developed at present is small.

The only possible way to develop more ore is by sinking.

Mark Twain.

I consider the chances favorable for the ore shoot increasing toward the Northwest with added depth.

The increase in values should be rapid and constant to warrant the continues sinking of a winze.

The expense of a new road should be considered as an important item in determining the ultimate investment required.

Respectfully

(signed) Alfred B. Colwell
Mining Engineer.

Jerome, Arizona.

DISTRICT

HASSAYAMPA, Yavapai County.

PROPERTY

Mark Twain

LOCATION

12 miles south Prescott, on Jersey Lily Road, now in bad condition. Healey stated that ore could be hauled to Prescott for \$7.00 per ton, presumably after road has been considerably repaired. Adjoins Blue Dick Mine.

OPERATORS

J. F. Healey and ^{O.E.} Smith. Apparently idle at present.

DATE VISITED

July 22, 1918. By L. F. S. Holland.

NOTES

Three tunnels, about 60 feet apart, in Yavapai schist and diorite. Lowest tunnel is crosscut about 150 ft. N.E. to big quartz vein, on which is drift 136 ft. S.E. The vein matter has a maximum width of 15 feet, generally consisting of lean quartz with streaks and bunches of pyrite, and, in smaller amounts, chalcopyrite, bornite and mispickel. Some selected ore carries considerable silver, but the average grade of the ore as mined is evidently very low grade in this tunnel as in the other two.

The Middle Tunnel is in about 300 feet, mostly on lean appearing quartz averaging four feet wide. The dump outside shows much mispickel with some pyrite and chalcopyrite.

The Upper Tunnel is in about 200 feet, at the end of which there is a winze connecting with the Middle Tunnel. Considerable stoping has been done above this level for a length of about 100 feet. The average width of the vein was apparently about 6 feet, with ore in bunches and small streaks. The stope is now in poor condition for taking out more ore, of which there can be only a small tonnage left above this level.

Under the local conditions the prospect does not appear likely to produce any considerable amount of ore suitable for Humboldt.

Reed

To have Transfer

BLUE DICK MINE

See Black Diamond in
Buddham Mine File

LOCATION: Hassayampa District.

DATE VISITED: April 19, 1924 - By J. L. White.

Country Rock - Yavapai Schist.

The Blue Dick workings are in bad condition and while a considerable amount of tunnel was seen, the ground in the vicinity of the old stopes was badly caved in. About 1000 feet of tunnel was examined.

Very little sulphides were seen and it is apparent that the veins were mineralized for only a small portion of their extent. Several winzes below the tunnel level disclosed no ore.

While there is one very prominent vein on the Mark Twain ground the Blue Dick appears to have several veins of very irregular strike and dip.

There was no ore observed in place underground and very little on the dump.

At the old smelter site there is an ore heap of several hundred tons ^{generally 300 tons} or more of sorted ore showing Quartz, Pyrite, Chalcopyrite, Stibnite and Arsenopyrite. It is said to carry about \$12.00 gold and silver value and I judge would have about 40% insoluble.

Sample No. 2 was taken here and is of the most basic material in the dump. It assayed 25.28% As.

The Blue Dick tunnel attains only a shallow depth, 150 feet maximum. Some of the stopes come to the surface and the sulphides were mined to the grass roots.

The ore consists of Iron, Arsenic and Copper Sulphides in a barren white Bull Quartz. It is an ideal ore for concentration as the sulphides occur in bands and bunches and are not materially mixed with the Quartz.

The Blue Dick is credited with a production worth several hundred thousand dollars in the early days.

In the immediate neighborhood are several mines: Jersey Lilly, Dos Oris, Buzzard etc., which have a history of some small pockets of high grade silver ore mined years ago.

MARK TWAIN GROUP

The Mark Twain vein is the extension of the Blue Dick.

Openings consist of two tunnels. The lowest is 150 feet below the crest of the hill and 400 feet distant from it. At the time of my visit I was un-

able to examine it very closely as the tunnel was blocked by caveins from the roof.

Material on the dump showed the ore to be a mixed sulphide in a white quartz. The sorted ore will carry fifty percent insoluble. The sulphides consist of a mixture of pyrite, arsenopyrite, stibnite, chalcopyrite and occasionally tetrahedrite.

Sample No. One was taken from the dump of the upper or intermediate tunnel and is of sorted ore. It is a representation of ore that could be sorted from all of these dumps.

Sample No. 1: .35 Au., 1.15 Ag., 1.26 Cu., 49.4 Ins. 19. Fe.
6.01 As.

The upper tunnel which had a maximum back of fifty feet could not be examined owing to bad conditions, later proved to be on the Blue Dick ground.

The intermediate tunnel was examined where open.

In the different places where the vein was observed it was from one to seven feet wide and only occasionally showed sulphides and these showings were generally near the ends of old stopes.

There is practically no ore in place and the amount that has been stoped is very small.

The dumps contain several hundred tons of ore which would have to be sorted from the waste.

The vein shows for 150 feet on Mark Twain ground before passing the side line of the Blue Dick.

CONCLUSION:

There is little or no ore in sight on either the Mark Twain or Blue Dick workings and where ore has been mined it occurred in small lenses close to the surface.

The history of the immediate district indicates small high grade pockets and no continuous ore chutes.

The location of the properties would make operation expensive.

There is no water nearer than the Hassayampa River which is three miles distant and 1500 feet lower.

Trucking from Prescott, thirteen miles away, would be expensive, although the new Highway along the Hassayampa River, now building, will greatly improve this condition.

I do not believe that either property has possibilities for other than small production of high grade ore by leasers.

J. L. White

Blue Dick Mine.

LOCATION: Hassayampa District.

DATE VISITED April 19, 1924. - by J.L. White.

J. L. White

Country rock-- Yavapai Schist.

The Blue Dick workings are in bad condition and while a considerable amount of tunnel was seen, the ground in the vicinity of the old stopes was badly caved in. About 1000 feet of tunnel was examined. Very little sulphides were seen and it is apparent that the veins were mineralized for only a small portion of their extent. Several winzes below the tunnel level disclosed no ore.

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Sample No. 2 was taken here and is of the most basic material in the dump. It assayed 25.28% As.

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The ore consists of Iron, Arsenic and Copper Sulphides in a barren white bull quartz. It is an ideal ore for concentration as the sulphides occur in bands and bunches and are not materially mixed with the Quartz.

The Blue Dick is credited with a production worth several hundred thousand dollars in the early days.

In the immediate neighborhood are several mines: Jersey Lilly, Dos Oris, Buzzard etc., which have a history of some small pockets of high grade silver ore mined years ago.

MARK TWAIN GROUP

The Mark Twain vein is the extension of the Blue Dick. Openings consist of two tunnels. The lowest is 150 ft. below the crest of the hill and 400 feet distant from it. At the time of my visit I was unable to examine it very closely as the tunnel was blocked by cave ins from the roof.

Material on the dump showed the ore to be mixed sulphide in a white quartz. The sorted ore will carry fifty percent insoluble. The sulphides consist of a mixture of pyrite, arsenopyrite, stibnite, chalcopyrite and occasionally tetrahedrite.

Sample No. One was taken from the dump of the upper or intermediate tunnel and is of sorted ore. It is a representation of ore that could be sorted from all of these dumps.

Sample No. 1 .35 Au., 1.15 Ag., 1.26 Cu., 49.4 Ins. , 19.0 Fe. , 6.01 As.

The upper tunnel which had a maximum back of fifty feet could not be examined owing to bad conditions, later proved to be on the Blue Dick ground.

The intermediate tunnel was examined where open.

In the different places where the vein was observed it was from one to seven feet wide and only occasionally showed sulphides and these showings were generally near the ends of old stopes.

There is practically no ore in place and the amount that has been stoped is very small.

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There is no water nearer than the Hassayampa River which is three miles distant and 1500 feet lower.

Trucking from Prescott, thirteen miles away, would be expensive, although the new Highway along the Hassayampa River, now building, will greatly improve this condition.

I do not believe that either property has possibilities for other than small production of high grade ore by leasers.

Signed J+L+ White.

BLACK DIAMOND (Mark Twain) and BLUE DICK MINES

"Extract from report of Bradshaw Mines Inc. made in 1936
presumably by Morris Elsing."

* * * * *

The Black Diamond Mine is owned in fee by Bradshaw Mines, Inc. and comprises a group of five unpatented claims.

The Blue Dick property is held under a lease purchase option agreement granted by Thomas H. Bushnell. Consists of five patented claims in Yavapai County. Purchase price \$30,000 with 6% interest. \$1,500 principal has been paid, balance payable \$3,500 on October 15, 1936 and \$5,000 on October 15 each year thereafter for five years. Also provides for a 10% royalty which applies on purchase price and the royalty terminates when all of the purchase price has been paid.

(This summary does not attempt to set forth all of the terms or provisions of the lease purchase option. For such provisions you are referred to the exhibits filed with the Registration Statement).

The Black Diamond and Blue Dick Mines which adjoin and are now connected are located about 15 miles south of Prescott on a narrow ridge separating the Slate Creek drainage system from that of the main Hassayampa. By airline these properties are two miles from the Davis-Dunkirk mill.

These mines, which have 3,764' of development work, 98.9% accessible in good working order, are very old properties, worked in the early days for the high grade ores in the oxidized portions of the vein.

The geology of the property has been variously interpreted by different engineers, due probably to the badly distorted condition of the ridge as a whole with heavy mineralization over a considerable area. The country has suffered both vertical and horizontal movements which have interrupted the continuity of the vein.

The country rock is a dense, dull greenstone, in places schistose, evidently an amphibolite of the Yavapai schist. The vein occupies a fissure striking generally NW-SE and dipping to the southwest. The ore consists of coarse sulphide aggregates (pyrite,

arsenopyrite, sphalerite, galena and chalcopyrite) in a gangue of massive white quartz. The values are not consistent, indicating mineralization at different dates and necessitating a constant check on the gold and silver content of the ore as mined. The ore in general is in veins from 1' to 8' in width. The ore as shown by 303 assays made by the Company of samples taken indiscriminately from various parts of the Blue Dick Mine including cut samples, chute samples, and samples from mine cars and trucks contain an average value of \$10.96 per ton. However, because these samples give no weight to the extent of the ore bodies or veins sampled, this value of \$10.96 cannot be accepted as affording a true average of the ore which can only be determined by actual milling operations. The ore as shown by 246 assays made by the Company of samples taken indiscriminately from various parts of the Black Diamond Mine including cut samples, chute samples, and samples from mine cars and trucks contain an average value of \$9.93 per ton. However, because these samples give no weight to the extent of the ore bodies or veins sampled, this value of \$9.93 cannot be accepted as affording a true average of the ore which can only be determined by actual milling operations. Ore from both properties is readily amenable to flotation concentration as proved in the pilot mill at the Davis-Dunkirk.

The Blue Dick has produced a considerable amount of ore of shipping grade; the quality of ore in the dump verifies smelter shipments of sorted high grade ores. Assays made by the Company of samples taken from the dump have shown values up to \$10.00 per ton. The vein above the present levels in the Blue Dick is nearly mined out, but five winzes have been sunk below the lowest level to a maximum depth of 65' in order to prove continuity of the vein. The faulted condition of the ground hindered the former operators from any successful exploration of the lower reaches of the vein. A strong vein such as this should, however, be located by a minimum of diamond drilling. A continuation of development work on this property appears advisable from results of work carried on to date.

The vein on the Black Diamond (westerly) slope of the ridge is opened by three tunnels driven on the vein at depth of 88', 142', and 174' below the crest. The upper tunnel, (Level No. 3 west) follows the vein for 300' and is completely mined out. Near the face a connection has been made with a short tunnel on the east side of the ridge and 20' above. Level No. 2 west follows the vein proper for 155' then bears more southerly for about 100' on a narrow stringer. Number 1 west enters a badly faulted region. A 60' cross-cut to the northwest (near the tunnel portal) strikes a segment of the vein which is followed another 150' until it is again displaced. A cross-cut tunnel has been recently driven to connect with the Blue Dick main level, (No. 1 east) on the other side of the ridge. At present the vein is being worked largely from the Black Diamond side and a winze in the lower tunnel is now being explored for continuation of the vein below. This winze, the deepest point of development in the mine, is in ore 7' wide from which assays have been made by the Company averaging over \$20.00 per ton. The future of the mine depends on continued development below present levels, and such development appears to be justified. Exploratory development work can be most economically accomplished by diamond drilling. About 140' northwest of the portal of level No. 3 west, a 125' cross-cut tunnel opens another displaced segment of the vein on which a raise has been driven to surface, with a winze of unknown depth below it. A little stoping has been done here and some ore is now being removed near the surface.

The main working levels of both mines are equipped with suitable track, tram-cars and pipe lines. A new 300' semi-portable gasoline powered air compressor located on the Black Diamond property serves all drills and pumps. Two new sheet iron bunk houses nearby provides quarters for 16 men.

A good haulage road connects the mine with the Groom Creek-White Spar cut-off and affords transportation of ore to the Davis-Dunkirk mill, about 18 miles by road. A more direct road only 3½ miles long should be built in the near future, cutting haulage costs and allowing closer supervision of mining operations. A two-mile aerial

tram, which could deliver the ore to the mill for about 10c a ton can be installed complete for approximately \$18,000.

BLUE DICK MINE - (MARK TWAIN)

LOCATION: Hassayampa District

DATE VISITED: April 19, 1924 - by J. L. White.

Country rock -- Yavapai Schist

The Blue Dick workings are in bad condition and while a considerable amount of tunnel was seen, the ground in the vicinity of the old stopes was badly caved in. About 1000 feet of tunnel was examined. Very little sulphides were seen and it is apparent that the veins were mineralized for only a small portion of their extent. Several winzes below the tunnel level disclosed no ore.

While there is one very prominent vein on the Mark Twain ground the Blue Dick appears to have several veins of very irregular strike and dip.

There was no ore observed in place underground and very little on the dump.

At the old smelter site there is an ore heap of several hundred tons or more of sorted ore showing Quartz, Pyrite, Chalcopyrite, Stibnite and Arsenopyrite. It is said to carry about \$12.00 gold and silver value and I judge would have about 40% insuluable.

Sample No. 2 was taken here and is of the most basic material in the dump. It assayed 25.28% As.

The Blue Dick tunnel attains only a shallow depth, 150 feet maximum. Some of the stopes come to the surface and the sulphides were mined to the grass roots.

The ore consists of Iron, Arsenic and Copper Sulphides in a barren white bull quartz. It is an ideal ore for concentration as the sulphides occur in bands and bunches and are not materially mixed with the Quartz.

The Blue Dick is credited with a production worth several hundred thousand dollars in the early days.

In the immediate neighborhood are several mines: Jersey Lilly, Dos Oris, Buzzard etc., which have a history of some small pockets of high grade silver ore mined years ago.

MARK TWAIN GROUP

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Openings consist of two tunnels. The lowest is 150 ft. below the crest of the hill and 400 feet distant from it. At the time of my visit I was unable to examine it very closely as the tunnel was blocked by cave-ins from the roof.

Material on the dump showed the ore to be mixed sulphide. The sulphides consist of a mixture of pyrite, arsenopyrite, stibnite, chalcopyrite and occasionally tetrahedrite.

Sample No. 1 was taken from the dump of the upper or intermediate tunnel and is of sorted ore. It is a representation of ore that could be sorted from all of these dumps.

Sample No. 1 .35 Au., 1.15 Ag., 1.26 Cu., 49.4 Ins., 19.0 Fe., 6.01 As.

The upper tunnel which had a maximum back of fifty feet could not be examined owing to bad conditions, later proved to be on the Blue Dick ground.

The intermediate tunnel was examined where open.

In the different places where the vein was observed it was from one to seven feet wide and only occasionally showed sulphides and these showings were generally near the ends of old stopes.

There is practically no ore in place and the amount that has been stoped is very small.

The dumps contain several hundred tons of ore which would have to be sorted from the waste.

The vein shows for 150 feet on the Mark Twain ground before passing the side line of the Blue Dick.

CONCLUSION:

There is little or no ore in sight on either the Mark Twain or Blue Dick workings and where ore has been mined it occurred in small lenses close to the surface.

The history of the immediate district indicates small high grade pockets and no continuous ore chutes.

The location of the properties would make operation expensive.

There is no water nearer than the Hassayampa River which is three miles distant and 1500 feet lower.

Trucking from Prescott, thirteen miles away, would be expensive, although the new Highway along the Hassayampa River, now building, will greatly improve this condition.

I do not believe that either property has possibilities for other than small production of high grade ore by leasers.

(Signed) J. L. White

BLACK DIAMOND (Mark Twain) and BLUE DICK MINES

"Extract from report of Bradshaw Mines Inc. made in 1936
presumably by Morris Elsing."

* * * * *

The Black Diamond Mine is owned in fee by Bradshaw Mines, Inc. and comprises a group of five unpatented claims.

The Blue Dick property is held under a lease purchase option agreement granted by Thomas H. Bushnell. Consists of five patented claims in Yavapai County. Purchase price \$30,000 with 6% interest. \$1,500 principal has been paid, balance payable \$3,500 on October 15, 1936 and \$5,000 on October 15 each year thereafter for five years. Also provides for a 10% royalty which applies on purchase price and the royalty terminates when all of the purchase price has been paid.

(This summary does not attempt to set forth all of the terms or provisions of the lease purchase option. For such provisions you are referred to the exhibits filed with the Registration Statement).

The Black Diamond and Blue Dick Mines which adjoin and are now connected are located about 15 miles south of Prescott on a narrow ridge separating the Slate Creek drainage system from that of the main Hassayampa. By airline these properties are two miles from the Davis-Dunkirk mill.

These mines, which have 3,764' of development work, 98.9% accessible in good working order, are very old properties, worked in the early days for the high grade ores in the oxidized portions of the vein.

The geology of the property has been variously interpreted by different engineers, due probably to the badly distorted condition of the ridge as a whole with heavy mineralization over a considerable area. The country has suffered both vertical and horizontal movements which have interrupted the continuity of the vein.

The country rock is a dense, dull greenstone, in places schistose, evidently an amphibolite of the Yavapai schist. The vein occupies a fissure striking generally NW-SE and dipping to the southwest. The ore consists of coarse sulphide aggregates (pyrite,

arsenopyrite, sphalerite, galena and chalcopyrite) in a gangue of massive white quartz. The values are not consistent, indicating mineralization at different dates and necessitating a constant check on the gold and silver content of the ore as mined. The ore in general is in veins from 1' to 8' in width. The ore as shown by 303 assays made by the Company of samples taken indiscriminately from various parts of the Blue Dick Mine including cut samples, chute samples, and samples from mine cars and trucks contain an average value of \$10.96 per ton. However, because these samples give no weight to the extent of the ore bodies or veins sampled, this value of \$10.96 cannot be accepted as affording a true average of the ore which can only be determined by actual milling operations. The ore as shown by 246 assays made by the Company of samples taken indiscriminately from various parts of the Black Diamond Mine including cut samples, chute samples, and samples from mine cars and trucks contain an average value of \$9.93 per ton. However, because these samples give no weight to the extent of the ore bodies or veins sampled, this value of \$9.93 cannot be accepted as affording a true average of the ore which can only be determined by actual milling operations. Ore from both properties is readily amenable to flotation concentration as proved in the pilot mill at the Davis-Dunkirk.

The Blue Dick has produced a considerable amount of ore of shipping grade; the quality of ore in the dump verifies smelter shipments of sorted high grade ores. Assays made by the Company of samples taken from the dump have shown values up to \$10.00 per ton. The vein above the present levels in the Blue Dick is nearly mined out, but five winzes have been sunk below the lowest level to a maximum depth of 65' in order to prove continuity of the vein. The faulted condition of the ground hindered the former operators from any successful exploration of the lower reaches of the vein. A strong vein such as this should, however, be located by a minimum of diamond drilling. A continuation of development work on this property appears advisable from results of work carried on to date.

The vein on the Black Diamond (westerly) slope of the ridge is opened by three tunnels driven on the vein at depth of 88', 142', and 174' below the crest. The upper tunnel, (Level No. 3 west) follows the vein for 300' and is completely mined out. Near the face a connection has been made with a short tunnel on the east side of the ridge and 20' above. Level No. 2 west follows the vein proper for 155' then bears more southerly for about 100' on a narrow stringer. Number 1 west enters a badly faulted region. A 60' cross-cut to the northwest (near the tunnel portal) strikes a segment of the vein which is followed another 150' until it is again displaced. A cross-cut tunnel has been recently driven to connect with the Blue Dick main level, (No. 1 east) on the other side of the ridge. At present the vein is being worked largely from the Black Diamond side and a winze in the lower tunnel is now being explored for continuation of the vein below. This winze, the deepest point of development in the mine, is in ore 7' wide from which assays have been made by the Company averaging over \$20.00 per ton. The future of the mine depends on continued development below present levels, and such development appears to be justified. Exploratory development work can be most economically accomplished by diamond drilling. About 140' northwest of the portal of level No. 3 west, a 125' cross-cut tunnel opens another displaced segment of the vein on which a raise has been driven to surface, with a winze of unknown depth below it. A little stoping has been done here and some ore is now being removed near the surface.

The main working levels of both mines are equipped with suitable track, tram-cars and pipe lines. A new 300' semi-portable gasoline powered air compressor located on the Black Diamond property serves all drills and pumps. Two new sheet iron bunk houses nearby provides quarters for 16 men.

A good haulage road connects the mine with the Groom Creek-White Spar cut-off and affords transportation of ore to the Davis-Dunkirk mill, about 18 miles by road. A more direct road only 3½ miles long should be built in the near future, cutting haulage costs and allowing closer supervision of mining operations. A two-mile aerial

tram, which could deliver the ore to the mill for about 10c a ton can be installed complete for approximately \$18,000.