

R E P O R T   O N

THE McALLISTER MINE  
Gilpin County,  
Central City, Colorado.

By

D. A. Knight.

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Report furnished by: R. L. Hardsock.

## "THE McALLISTER MINE".

Central City District, Colorado.

THIS MINING PROPERTY is located in the state of Colorado, in Gilpin County and almost within the City Limits of the town of Central City, in the above County. Central is about fifty miles from Denver and can be reached at all times of the year over a good auto highway or over a narrowgauge branch of the Colorado & Southern Railroad. The town is about two miles west of the town of Black Hawk and only a few miles north of the town of Idaho Springs. This location places it almost in the heart of one of the best known and oldest mining districts, not only of Colorado, but of the United States. Being situated on the north flank of Mammoth Hill, the mine is surrounded by such famous companies as the Mammoth, Mine, Next President, O'Neil, Bates-Hunter and many other good ones which have jointly and severally produced immense amounts of ore. It is in the heart of that portion of the district which was first to produce pay Ore from veins and which, from the date of its discovery to the present time, has continued to bring to the surface thousands of tons annually of good ore.

### GENERAL GEOLOGY:

THE MINING DISTRICT named above, including the location of the McAllister Mine, are all situated in a strip of mineralized territory which extends diagonally across the state from North-east to South-west and which includes practically all the prominent camps of the State, such as Leadville, Aspen, Boulder, Breckenridge and others.

These camps are situated within what in mining and geological circles is known as the "porphyry belt", because it consists largely of groups of intrusive rocks of porphyritic structure which occupy previously existing openings or fissures within masses of rocks of different character. THE MINES of this region show quite clearly a definite relation between the ore deposits encountered within them and the fissures along which these porphyries have been intruded. There is a definite reason for this association in that the fissures have afforded lines of weakness along which mineralizing solution could migrate and the material filling the fissures has furnished the materials for mineral deposition. The region is generally covered by more or less scattered areas of schists, gneisses and pegmatites of the Idaho Springs Formation and by sheets of granite gneiss of pre-Chambrian age. Through these formations have been injected veins, dikes and other forms of rocks of a different and varying character. It is along the extrusive forms of these latter rocks that the mineral deposits of the region are sought and found. To anyone interested in the details of the gneisses, age and form of the various formations of the region, the various publications on the subject are available.

### McALLISTER GEOLOGY:

THE VEINS of the McAllister Mine are typical of those found productive in other parts of the region and are of the same type, being bodies of gneiss, porphyry and pegmatite which have filled the fissures in the country rock caused by previous movement and distortion of the rocks of the region. At places in the mine the fissure filling consists of granite gneiss which may be locally more or less pegmatized by the inclusion in it of excess amounts of quartz. In some of the upper portions of the veins there are bodies of nearly pure quartz between the vein walls also bodies of softer rocks of a porphyritic nature and one vein, THE HARTFORD, which is of larger origin than those of the McAllister Mine, is filled with gouge and soft, crushed material. The later development of this Hartford vein is shown by the displacement of the vein which it crosses and by the nature of its filling.

WHEREAS THE McALLISTER and other veins in the immediate vicinity trend about North 40' East in direction, the Hartford vein runs nearly due east and west. Along its south side at several places where it cuts older and smaller veins, these veins have been disturbed and have been offset to the west by a slight movement of the country at the time the Hartford vein was formed. The movement was not extensive as at no place was displacement of more than ten feet observed and at the extensions of the crossing veins are readily located by the miners. Further note of detailed conditions of this and other parts of the mine will be made as the examination of the veins proceeds herein. In the McAllister property there are a number of small veins, usually occurring within quite well defined walls, which have not been opened

## THE McCALLISTER MINE, No. 2.

up and which do not appear to be extensions of veins not known or worked and which do not extend in directions parallel to those worked in the mine. Some of these veins should receive further consideration in planning development work in the mine, as their direction is such that they may afford junctions with known and undeveloped sections of veins which could produce good ore bodies of high-grade ore. The exact cause for the location of the ore bodies in this mine was not determined by the writer, as time for that study was not available, but it is evident that widening and fracturing of the fissures at their points of intersection with each other has played an important part in the location of prominent ore bodies by furnishing at these points more easily penetrated avenues of travel for mineralizing solutions which gradually deposited the ore minerals. In general, this localized fracturing of the vein filling has probably determined the site for the location of the ore bodies in this and surrounding veins.

There can be no doubt of the strength or continuity of these veins either laterally or vertically because of the fact that other mines in the vicinity have opened up the same veins at some considerable distance from this property and in many cases at depths far below anything attained in the McCallister mine. This is illustrated in the Bates-Hunter Mine, to the north-east of the McCallister, where the outcrop of the vein is probably at least 400 feet lower than that of the McCallister. The writer understands that the Bates-Hunter has good ore at 700 feet depth in their mine. Both veins are mineralized from surface downward, so the difference in elevation would account for something like a total of 1100 feet, which would indicate good ore existing in the McCallister for at least 600 feet below its lowest opening. The Bates-Hunter vein is opened and worked for about a quarter of a mile and is located on what appears to be a direct extension of one of the veins in the McCallister property. To the east of the McCallister a short distance is the O'Neil, mined to a depth of over 900 feet, with the GREGORY, which has been mined mostly through the Bobtail Tunnel and the GREGORY INCLINE which is more than 1700 feet deep, they extend for nearly a mile along the veins. To the southeast of the Gregory O'Neil veins is the Cook and Sleepy Hollow vein system, which are also connected by workings with the Gregory. The Cook shaft is vertical and about 1450 feet deep. It also works the Fisk and other veins, as these properties are all under one management, these veins or their possible extensions, if not a part of the same system as the McCallister, are so near to it and some of them are so nearly in line with it, while the character of the ores, ore bodies and veins are so nearly identical, that it is readily permissible to conclude from the similarity of these facts that identical conditions will undoubtedly prevail in the McCallister mine as they were developed in the properties nearby and just mentioned. It is a proper mining privilege to forecast conditions from such data.

### MINE WORKINGS:

(1) THE McCALLISTER MINE is developed by the Hartford tunnel, which starts near the bottom of a small gulch running along the eastern side of the property, and enters the hill in a westerly direction, following what is called the Hartford vein. This vein is from two to four or more feet wide and consists of a soft gouge and crushed rock filling between rather well defined walls. Its course is nearly due west and it dips to the north about 17'. At several places along its course the tunnel cuts several small streaks of mineralized vein, filling space between defined walls. About 350 feet from the portal is a branch vein which is opened by a side drift of about 25 feet in length. It shows four feet between walls and in the breast are three one inch to two inch streaks of iron sulphide, with some iron scattered through the filling. The vein runs south 75' west and dips slightly to the southwest. The filling is considerably silicified, which makes it hard, and appears to be a re-silicified granite gneisses. This vein doesn't appear to cross the Hartford and is probably contemporaneous with it. Should this vein continue along its present course to a junction with the German vein, of this property, a distance of about 200 feet, it will probably be intercepted by the German, but its union with that vein and with several other small ones which will be mentioned later may give rise to a considerable body of ore at that point.

(2). FORTY feet farther west along the Hartford tunnel another small vein which trends south 12' west is opened for about 8 feet on the south side of the Hartford tunnel. This vein is two feet wide and appears to cross the Hartford without

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much displacement. Its junction with the south 75' west vein I just mentioned should be only a few feet from the breast but has not been exposed.

(3). About 160 feet farther west along the Hartford tunnel is the junction of the German vein with the Hartford. Here the German vein is cut through the Hartford and offset about 8 feet to the west on the south side of the tunnel. The extension of the German has been opened up for a short distance to the north of the tunnel, but as the values of the German here do not run so high as they do in other parts of the mine, the work was not carried far. At this junction the southern portion of the German vein runs south 16' west and consists of 2 feet of hard quartzose filling between walls. There are several streaks, one of which is 12 inches wide, of iron sulphide in the end of the short drift along the vein but the values in same are low at this point.

(4). About 40 feet west of the German vein junction the Hartford tunnel cuts the intersection of the Hartford vein with the McCallister vein. The McCallister vein is cut by the Hartford and displaced slightly to the west, showing that the Hartford vein originated after the formation of the McCallister. A discussion of this section of the McCallister will be given with that of the principal workings of the mine and, for the present, we will proceed with a description of the Hartford to the breast of same. 15 feet west of the McCallister junction is the beginning of a zone, about 30 feet in width, of broken rock which contains many small streaks of iron sulphide crossing the tunnel and the Hartford vein in a direction of south 30' west. This zone of cross veins is apparently too far to the west to be any part of the McCallister vein and the trend is not in the proper direction for it to be a part of the Hartford. The readers attention is here called to this zone because, at the proper time the writer of this report desires to call further attention to it in connection with other possibilities which are not apparent to observation in the tunnel.

About 22 feet beyond the western limit of this fractured zone is the breast of the Hartford tunnel. Near the breast the vein has narrowed somewhat and is about 16 inches wide between well defined walls. The narrowing of the vein at this place does not signify that it will vanish, because of the fact that it is here becoming harder and containing more quartz, the writer is of the opinion that its appearance warrants the belief that it may be approaching an ore body of some magnitude, which has not previously been found along the line of this Hartford vein. In further support of this opinion it should be remembered that, up to this the vein has crossed numerous small veins which were evidently in existence before the formation of the Hartford vein. To supply these small veins with the material of making their ores the surrounding had been leached of its valuable minerals before the Hartford offered a location for the gathering of rich minerals. Therefore, owing to its later opening, one would not expect the Hartford to contain valuable bodies of ore until the conditions of deposit had been changed. The writer believes these conditions will be shown to have changed after the Hartford passes further into the country west of its junction with the McCallister vein, because there is no local evidence that the numerous veins exist which would have robbed it of its enrichment. Therefore, with the hardening of the vein filling at and near the breast of the tunnel, together with the favorable change from its previous soft gouge character, it is my belief that this vein is approaching proper conditions for the formation of adequate bodies of pay ore. It would probably constitute wise development to push further along the breast of the Hartford tunnel to determine this feature. Other data concerning certain crossing veins which appear in the lower workings of the McCallister Mine would thus be made available. Material from the breast showed a value of 0.34 ounces gold, 0.36 ounces silver of \$12.13 per ton.

(5). RETURNING now to the junction of the McCALLISTER workings with the Hartford tunnel, we find, at about 30 feet from the junction and along the McCallister vein, at a point in the McCallister where the drift makes a bend slightly more to the southwest, a small cross vein which bears South 75' East and connects with the McCallister but apparently does not cross it, this vein has been opened for about 15 feet from the line of the McCallister and shows about 2 feet of hard, quartzose filling in the breast, which assayed \$11.40 per ton. At the junction with the McCallister the writer is informed by Mr. James Oliver, the superintendant of the mine that the ore showed

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18.50 ounces Gold per ton. Should this cross vein continue on its course, or near it, for a distance of approximately 80 feet it should also intersect the branch vein mentioned in paragraph (1) and should cut or join the German at about half that distance at the level of the Hartford tunnel. This cross vein has the marks of a true vein and its development should show enrichment at its junction with either of the veins mentioned above. Near the junction of the cross vein with the McCallister vein, the McCallister is found to trend South 35' west and to dip 20' southeast. There is a small stope near the junction but no other work has been done between it and the McCallister shaft, about 129 feet southwest. This level of the McCallister has been driven for some distance along the vein to the southwest of the shaft and some stoping has been done but the drift is not in repair and would have to be cleaned up before worked. Ore shows along the drift practically continuously west from the shaft and the cleaning of the level would not amount to much.

(6). ABOVE the McCallister tunnel level, just described, there are two small drifts started from the shaft along the vein between there and the surface. One of these is at 60 feet below the shaft collar and the other is 20 feet lower than that. Both are two driven about 15 feet each way from the shaft and both show ore, in a vein averaging about two feet in width for their entire length. These stub levels are probably too near to the surface to warrant working through them, as much more overhead ground is made available by raising from the tunnel or other levels of the mine. The veins are said to average 0.75 Oz. Gold per ton where sampled and these values would indicate that the upper portions of the vein are well worth working.

(7). NEXT below the tunnel level in the McCallister vein comes the 260 foot level. This level extends for about 200 feet east of the shaft and for about the same distance west of it. Beginning about 40 feet east of the shaft, the vein has been stoped out for a distance equal to that from there to the breast of the level and to a height of about 35 feet. A considerable shipping ore is reported to have been removed from this stope and there is visible at its back several iron streaks which are evidently a part of the vein still remaining in place. There is no staging in this stope at present which prevented it from being sampled and more closely examined. However, the continuance of the vein beyond and above it can hardly be doubted, judging from what can be seen. Just east of the western end of this stope and along the foot wall of the vein, there is some evidence that the vein of the stope has been or is being joined by another vein which comes down from above and back of the foot wall of the vein in the stope. Considerable stoping has been done on this north vein below the level of the 260 foot drift and some above it, as may be seen from the drift itself, at and near the breast is a winze about 30 feet deep but as this is partly filled with water and is untimbered, it could not be examined and it prevented sampling of the breast of the drift.

It is not clear to the writer if at this point there has been a lateral movement of the ground surrounding the vein on this level or if there has been here a union of two separate veins which continue from this level upward to the surface as separate individuals, I am inclined however, to the belief that there is the union of the two separate veins, as on the one hand, we have the vein in the back of the stope along the level and, on the other, we have evidence of another vein back of this one which has separately mined below the level. This north vein may be separately indicated by the zone of mineralized stringers found in the Hartford tunnel just west of its junction at the level of the McCallister vein, and noted in paragraph (4). If this is a separate vein, as we believe, no work having been done on it above the 260 foot level, it should represent good ground for future prospecting, especially as it has apparently produced a considerable volume of good ore below that level. A sample was taken of the main vein on the 260 foot level about 40 feet east of the shaft, where the back of the stope mentioned above comes down over some old timbering in the drift. This sample returned values at the rate of 0.80 Oz. Gold, 1.90 Oz. Silver or \$29.21 per ton. This is shipping grade of ore and, at this portion of the vein is shown to be continuous with the vein in the back of the stope and in the breast of the drift, there is probably no doubt that there is here exposed a good body of profitable ore. Some blocks of rock have fallen from the walls into this section of the drift and it would have to be timbered to get to the back of the stope. The quantity of fallen rock is not large and the timbering would have to be done in order to work the stope, but neither of these items would involve any large expenditure of either time or money. This 260 foot level is extended southwest beyond the shaft but is in rather bad repair and not accessible for working until it is repaired.

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However, the vein continues along the drift and may be seen where exposed, although no samples were taken here. The writer is reliably informed that the vein in this section will average practically the same as the sample taken east of the shaft, or something over \$20 per ton. At this point of the discussion of the vein on the 260 foot level attention is again called to the possibilities in this intersection of the 2 small veins mentioned in paragraph (1), (2) and (5). If the intersection is found to exist, it will be noted from the attached diagram that a continuation of the vein on the 260 foot level would run almost exactly into this intersection at the same time tho, allowing for the pitch of the German vein at this level, we should also have that vein meeting in this intersection. As nearly as may be calculated from the known facts, this intersection should be reached within 100 feet from the present breast of the level. Therefore it presents one of the very interesting possibilities lying undeveloped in this mine. As a part of future development the writer believes it should receive serious consideration as elsewhere in this region such junctures have proven to be a site of the largest and best ore bodies. Interesting possibilities are also presented in considering the further exploration of the north vein between the level and surface and at points further east and west from the point where it makes its junction with the main vein. This is an unknown but interesting section for further work. To the southwest of the shaft this drift should be cleared so that the vein could be more thoroughly examined along its course, as this section has been mined in a large way below this level and the size of the stopes there would indicate that a very considerable tonnage of good ore had been removed. There need be no doubt that this ore is continuous thru this level and ahead of it to the southwest.

(8). THE 340 foot level of the McCallister could not be closely examined as it lacks necessary timbering to reach the backs of the stopes and other workings. NO samples were taken here, however, stopes which have been run in this ground would indicate that large ore bodies had been found along it and the same conditions are probably true of this level as of the 260 foot-- some retimbering and cleaning up will probably expose new ore bodies of pleasing magnitude. To illustrate this point it is only necessary to examine the stope along the vein which begins about 80 feet west of the shaft. This stope is approximately 60 feet long on this level and has been thru from the 440 foot level below and still continues upward from the 340 foot level. A good vein is visible in the back of the stope and in what was the breast of this level.

It must have furnished a large amount of good ore and, because mining costs have decreased while recoveries have made it possible to profitably handle ore that in the years when these workings were run would not pay. It is safe to assure that such quantity of vein matter would not have been removed unless it could well have stood the high charges of that day. The continuance of these same veins is visible in the workings and there is probably no reason to believe that their extraction would not be profitable, or that they were mined out to their very limits. These veins could not be reached because of the condition of the timbering across the stopes, but they could be made accessible with only the usual amount of timbering or they can be developed by raises and stopes from the level next below.

(9). About 55 feet west of the shaft on the 340 foot level the drift crosses a large tunnel which is known as the Rogers Crosscut. The crosscut was driven northward from the Bobtail tunnel to intercept the Epizootic vein in ground to the northwest of the McCallister vein. About 250 feet north 34' west of the intersection with the 340 foot level, it encounters the Epizootic vein, which here was running nearly at right angles to the Crosscut. This is quite reliable information that some very rich ore in large quantities was taken out of one of the veins east of the Crosscut. This information came from one of the men who found the ore. The finder thinks that the ore was located in the lower portion of the Hartford vein, previously mentioned herein. This section of ground was not accessible owing to caving, but an examination of the attached diagram of these workings will make it apparent that the distance from the Crosscut to the lower portion of the Hartford vein is not great and they could have been easily reached thru this entrance. Referring again to the change in the nature of the Hartford vein at and near the breast of the Hartford tunnel and, possibly again to the zone of cross veinlets lying near the breast, the above story lends support, not so much to the values of the ores found in the lower portion, but to the thought that the Hartford vein may at its breast be starting to

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form an ore shoot which may be the same as the one found at the level of the Cross-cut or 340 foot McCallister level. Should development of an ore body be indicated by work on the Hartford tunnel level, this shoot could be rather easily opened by drifting thru the eastern portion of the 340 foot McCallister level to get under it. Because of the nature of the information and because the workings are not accessible for examination determination of the possibilities of developing a profitable ore shoot at this point in the mine will have to await further work on the Hartford and, perhaps, should that work not prove satisfactory, it should not be taken too seriously to condemn this section because the Hartford may be too near the surface to prove the existence of ore. If the operations of this property were under the directions of the writer, he would much prefer to crosscut from the 340 foot level to this section, as such work would have the double advantage of opening up any ore bodies in the Hartford while it would also prospect the ground lying between the 340 foot level of the McCallister and that territory between there and the Hartford, especially having in mind the north section of vein or north vein, which is exposed on the 260 foot level. No work has ever been done in this section and it should be undertaken as it appears to be not without considerable possibility of proving profitable. In this discussion of the 340 foot level it should be noted that at this point a brief examination of the German vein showed the immense stopes there exposed and furnished an idea of the lateral and vertical extent of the ore shoots which occur in this ground. Here, again, might be illustrated the advisability of opening the Hartford vein at some elevation below the tunnel because in the tunnel the German vein carries only low values in Gold and Silver while at the level of the 340 foot or Bobtail drift it gave up some very rich ores and furnished thousands of tons of ores of the average tenor of the territory.

(10). One hundred feet below the level just discussed is the 440 foot level of the McCallister Mine. The eastern section of this drift was not examined because of caving and poor timbering. Some large stopes are in evidence but nothing is here known to the writer of the character of values of the vein. Southwest of the shaft a short distance a large stope mentioned in paragraph (8) had caved down and obstructed the drift. At the time of visit this cave was being cleared and had been cleared up for about 90 feet from the shaft.

Between this point and the shaft the vein had maintained a width of about two and one-twelfth feet between walls and had reversed its dip so that it now dips northwest about the same as it dipped to the section of the mine above this level. At a point near the cave in the vein appears to be widening out so that it has here a width of 4 feet or more. Samples were taken in the floor of this level at the cave in and in the widened portion of the vein to determine if the wider portion also carried values. Along the foot wall southwest side of the vein there is an 8 inch streak of iron sulphide which assayed 0.46 Oz. Gold, 3.74 Oz. Silver, or \$18.49 per ton. Next to this is a streak of less mineralized granite gneiss vein filling of about 10 inches in width, followed by about a 4 inch streak of sulphide which assayed Gold 1.16 Oz. Silver 1.38 Oz. or \$41.61 per Ton. There follows another small streak of gneiss and then another 2 or 3 inch streak of sulphide. As the above streaks of iron sulphide and granite gneiss would make up the usual width of the vein, as samples was taken entirely across about two and one twelfth feet, including the seams mentioned above as well as those of the Granite gneiss filling. This sample assayed Gold 0.66 Oz., Silver 2.22 Oz. or \$21.03 per ton. Another sample was taken to test the widened portion of the vein and this was run across about 2 feet of vein matter lying on the hanging wall or northwest side of the last mentioned sample. It included several small streaks of the sulphide and all the rock across the 2 foot mentioned. The assay for the same gave Gold 0.76 Oz., Silver 1.12 Oz. or \$27.30 per ton. These values would give the vein an average of something over \$24. per ton over a width of four and one-twelfth feet. For what distance or to what extent the widening of the vein at this point carried cannot be determined at this time because of the cave which is down here, but as this is the top of a block of ground which has never been worked and will from the downward extension of the stope which runs upward from this level for more than 100 feet, cutting thru the 340 foot level, it represents one of the best places in the mine at which to begin the removal of pay ore. Reports from miners who have worked in this part of the mine have it that some very high values were carried by this section of the vein that the limits of

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the shoot have never been determined by mining operations. This is easily understood when the size of workings on the vein of this locality and the apparent values are considered. The workings and ore extraction on the nearby veins also substantiate this statement. From the assays given above it is logical to conclude that, at least so far as this part of the mine is concerned, the values are improving somewhat with the greater depth. Mr. Oliver reports that this block of ground has not been touched in the workings below and from the evidence at hand the cave-in on this level cannot extend for more than about 50 or 60 feet from where it is now. Greater depth from the surface is reached in the workings on the west side of the shaft because these are getting under the crest of the hill. Therefore for each foot that these are advanced laterally they gain additional overhead working room and vein capacity. It might be interesting to attempt an elevation of the block of ground just now under discussion allowing 100 feet in length 199 feet in depth between this level and the next below and an average width or thickness of only 2 feet the vein should here contain 3000 tons of ore. If a value of \$20 per ton equal to that of the two and one twelfth foot streak in the floor of the 440 foot level, we find that there is here available ore to the total value of \$60,000.00. With the removal of the bad air from the fifth level, this ore is available to mining from that level. The removal of the bad air is no problem as it is being done now by a stove which is kept going on the fourth level. This method is slow but it is sufficient to keep the bad air from rising into the fourth level, so the volume to be handled for its entire removal cannot be great. The continuance of these ore bodies to great depths probably is outside the realm of doubt, as instance of their continuity have previously been given in this report. The cave in on this level should be penetrated and then work should be begun to push the level ahead along the vein in order to get under another section of the vein for mining operations.

(11). THE fifth level of the McCallister Mine was not inspected because of its being filled with bad air mentioned just above. Mr. Oliver says that the level is in good condition and that very little work has been done to remove any of the ore, while the vein is strong and shows along the level. The writer does not believe that the removal of the bad air presents any expensive or difficult operations.

Working along the fifth level one would have a large amount of good ground above them and a large portion of them would be getting under good blocks of ore which have been expected above. These should be removed at the fifth level and hoisted from there to the best advantage.

### SUMMARY:

THE writer of this report declares that this property looks like a mine because it has ore ready for removal and sale and also has the possibilities of good discoveries to be made in the future. This combination of facts presents the ability of the mine to begin actual production in a very short time, the possibility which is offered of finding additional reserves of ore with minimum expenditure and the probability that the known ore bodies will continue their production for a long time to come. In a region where ore deposits are known to reach depths of a thousand feet or more, and with a mine which is opened up for less than half that depth, while its ore shoots are very evident in continuation below any of its workings, does warrant the full expectation that much good ore remains available in the shoots which have been proven to date. If such work as developing the intersection of veins, such as mentioned in the paragraph above the 260 foot level, prospecting the western portion of the Hartford vein, pushing ahead on the western ends of the several levels as mentioned as well as deepening the shaft at some later date to be presented as ability and time demand it would appear from the evidence gathered in this neighborhood that the finding of new additional bodies of ore was as much a certainty in this mine as is to be found anywhere. Where work of a similar nature in many mines of this region has previously produced these desired results the writer sees no reason to anticipate that similar results will not be assured in the McCallister Mine. Recommendations as to work to be done and developments to be undertaken have been made throughout this report in the paragraphs dealing with the various parts of the mine, so need not be repeated here. It remains to be stated that the shaft of this property has recently been put in good condition by a thorough timbering. There is a good steam hoist of ample capacity and good boiler ready for operating. These are located at surface in a good shaft house of ample proportions. Water for the boiler is secured from City lines and is good, costing about \$5.00 per month while

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electric power is available with the setting of one pole and necessary transformers at the shaft house.

At present ore and supplies would have to be transported the short distance from the main road over one that is in need of widening and some grading. However, a more feasible and probably a cheaper installation would consist of about 500 feet of inclined track or cableway laid along the slope of the hill, which would lay the ore down at the side of one of the streets of the town, readily and cheaply accessible for transportation.

No fear for winter operations of this tram need be entertained as this side of the hill receives the wind from the west and is continually swept clear of deep snow.

THE writer wishes to conclude this report by saying that it is his firm belief that you have in the McCallister Mine a property which should be steadily at work and which warrants your every consideration as a mine with sound present and future possibilities.

Respectfully Submitted.

D. A. Knight.

E. C.

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