

822666

REPORT
on the
NORTH STAR AND STEMWINDER GROUP OF CLAIMS
KIMBERLEY
B.C.

Schofield 1925

Table of Contents

---oOo---

1. Recommendations for the exploration of the
Stemwinder Mine.
2. Recommendations for the exploration of the
North Star Group of claims.
3. Recommendations for the exploration of the
group of claims south of the
North Star Group.
4. General geology of region.
5. Character of deposits.
6. North Star Mine.
7. Stemwinder Mine.
8. General recommendations.

Recommendations for the exploration of the
Stemwinder Mine.

---oOo---

A. Determine the size and the relationship of the known
Stemwinder ore body.

This is important at the present stage because the information so far obtained does not determine whether the ore body is similar in occurrence to the Sullivan or to the North Star. Further exploration will be greatly facilitated by this knowledge and can be obtained by the following exploration.

(1) On the surface.

(a) Put down D.D. hole (^{located on the ground} ~~Location as shown on the~~ map) to intersect the ore body at the 250 level. Fan two other holes to the same level, direction depending upon the results obtained with the first hole.

(2) On the 125 level.

(a) Drive crosscuts at 50 foot intervals to expose the ore on this level. This will give the size and relationship of the ore body on this level.

(b) At a point 100 feet beyond the north crosscut in the north drift, drill to the west to intersect the possible extension of the ore body to the north. Then drill to the east.

(c) Drive south along the main drift in the iron using the iron as an indication of the possibility of commercial ore. This drift to be continued as long as the iron sulphide lasts.

B. Determine the extension of the ore bearing zone to the north and to the south of the present workings.

(1) On the surface.

Diamond drilling to the north and to the south of the present workings is recommended but the position of the holes and their direction will depend upon the results obtained from the above recommended exploration.

Recommendations for the exploration of the
North Star Group of claims.

---oOo---

A. Explore drift covered area on which little if any work has been done. The area most favourable for exploration lies below the North Star workings in the neighborhood of the tram line.

(1) The eastern ore body in large measure is a blanket vein lying parallel with the surrounding strata. There is a possibility that the continuation of this ore body may lie beneath the drift covered area mentioned above, since the dip of the strata as far as could be ascertained is greater than the slope of the hill which is practically 15 degrees from the horizontal.

(2) The pitch of the ore bodies of the Sullivan Mine is 45° to the west and this has been taken in consideration when locating the drill base O.K.

(3) That the strata dip steeper than the slope of the hill is supported by the following facts.

(a) The strata in the vicinity of the North Star Mine are heavy bedded in character, whereas just above where the tram line crosses the North Star road, the strata are thin bedded and platy, showing that it is a different horizon in the series.

(b) The diorite sill, which is the only horizon marker in the stratigraphic series, does not outcrop in the vicinity of the North Star Mine but does outcrop lower down the hill near the Stemwinder Mine.

(4) The diamond drill holes put down below the North Star ore bodies prove conclusively that the mineralization is not in the form of a fissure vein ^{but more closely resembles a blanket vein} parallel to the bedding planes of the strata.

The holes mentioned below are recommended and are shown on the accompanying map. They have been placed to test out the ground under the drift covered area. The base is situated at the tram tower 600 feet northeast of the upper terminus of the North Star tram line. Two holes are recommended.

<u>Hole</u>	<u>Direction</u>	<u>Length</u>	<u>Angle of dip</u>
O.K. No. 1	N.75° W.	600 ft.	-80°
O.K. No. 2	S.57°W.	600 ft.	-80°

B. In the Sullivan and North Star mines the lead stopes are associated with close folding which is exhibited in anticlines, synclines and overturned folds. In the study of the area between the North Star and Stemwinder Mines the most pronounced folding occurs in a belt which crosses the junction of the Quantrell and North Star wagon roads. The belt is considered to be the most favourable area for exploration and the following drilling is recommended, the drill base to be situated close to the junction of the North Star and Quantrell wagon roads.

<u>Hole</u>	<u>Direction</u>	<u>Length</u>	<u>Angle of dip.</u>
1	N 83°W	800 ft.	-30°

C. Recommendations for the exploration of the new
group of claims south of the North Star Group.

---oOo---

The continuation of the Sullivan vein beneath the ground held by the Porcupine gold fields is of some importance. The vein is parallel to the bedding planes of the strata which in the neighborhood of the Sullivan ^{strike} ~~is~~ N 2° 58' E. ~~and dip 23° E.~~

In the ground under consideration the strike changes to N 20°W which would swing the ore bearing horizon. The data on which the approximate position of this vein has been determined is as follows. The diorite sill exposed in Mark Creek, east of the Stemwinder Mine, is the only horizon marker in the whole series. The position of the Sullivan vein in regard to this diorite sill was determined approximately. The diorite sill was located on the Porcupine gold fields ground as shown on the map and the position of the projected Sullivan vein was determined and shown on the map. Whether or not the vein continues into the Porcupine gold fields ground can only be determined by drilling, since the outcrop in this ground is covered deeply by gravel and sand. The following hole is recommended to determine the presence or absence of the Sullivan vein in the ground. The base is located near the pond on the Trent claim and its position is shown on the accompanying map.

<u>Hole</u>	<u>Bearing</u>	<u>Length</u>	<u>Angle</u>
T.1	S 75°W	800	-77 degrees

It must be realized that the only value these claims have, in my opinion, is the possibility of the extension of the Sullivan vein into this ground. From what can be learned, the mineralization of the Sullivan vein as it comes south becomes weaker with no reported bodies of zinc or lead. This is not particularly encouraging. It is also true that a single vein or stratum mineralized over such a distance as would occur if the Sullivan vein came as far as the Porcupine Goldfields ground, is extremely rare or unknown.

General Geology of Region.

---oOo---

The Kimberley area is underlain by the argillaceous quartzites and argillites of the Aldridge formation. These rocks are intruded by several Purcell sills composed of gabbro, which are well exposed on Mark creek above Kimberley. The Aldridge quartzites of the Kimberley area form the eastern limb of the large anticline the axis of which is located in the vicinity of Matthew creek. In general, the strike of rocks near Kimberley is nearly north and south, with the most prevalent dip to the east; but minor folds modify this simple structure, as can be well seen in the vicinity of the North Star mine, where a number of anticlines and synclines are impressed on the eastern limb of the main anticline mentioned above.

Character of the Deposits.

---oOo---

The deposits of the Kimberley area are replacement deposits in argillaceous quartzites. The ore-bodies in general conform to the dip and strike of the quartzites. This relationship is not proved in the case of the Stemwinder. The hanging-wall and foot-wall are not usually well defined; but the ore gradually passes into the normal country rocks so that the distinction between rock and ore is commercial rather than structural. Exceptions to this occur where the walls consist of the thin-bedded slaty quartzites which are evidently difficult to replace. The deposits are arranged in distinct zones. The centre of each

body may be occupied by a fine-grained mixture of galena and zinc-blende, masses of purer galena or zincblende^{which} occur as lenses.

This inner portion gradually passes exteriorly into a fine-grained intimate mixture of pyrite, pyrrhotite and zinc-blende. The sulphides gradually diminish in amount and finally give way to a fine-grained chert which is present where the country rock is a heavy-bedded, purer quartzite, and especially on the foot-wall of the ore-bodies. The chert passes exteriorly into the normal argillaceous quartzites.

North Star Mine.

---oOo---

Location.-- The North Star mine is located on the east slope of the North Star hill at an elevation of 5,260 feet above sea-level or about 1,500 feet above Kimberley, which lies at the foot of the North Star hill on Mark creek.

Geology.-- The country rocks are argillaceous quartzites of the Aldridge formation forming part of the eastern limb of the anticline described in the general description of the Kimberley area. In the vicinity of the mine, small anticlines and synclines modify this general structure. On the whole the quartzites strike north and south and dip at various angles to the east. In the immediate contact with the ore-bodies, the quartzites are bleached to a greyish white colour and were known locally as "porphyry".

Ore.- (a) The ore was primarily a very clean solid argenteriferous galena rather fine grained with only a small amount of zinc-blende. The assay value from smelter return was, silver 23.50 to 45.3 ounces per ton, lead 53 to 68 per cent.

(b) The upper part of the ore shoot was composed of a reddish brown, black and yellow mixture of oxides and carbonates of iron and lead, with beautiful specimens of wire silver, crystals of cerussite formed by the oxidation of galena, and sulphides of iron. There was a large amount of this ore which carried a higher value than the crude galena. The values from smelter returns of this "carbonate" ore are as follows : silver 52 to 60 ounces per ton, lead 49 to 57 per cent.

Ore-Bodies.- The main ore-bodies are the west and the east ore-bodies, 400 feet long, 70 feet wide, and 50 feet deep, and 180 feet long by 40 feet deep respectively. The longer axes of these are parallel, both striking a little east of north. These bodies apparently occur in synclinal basins formed of argillaceous quartzites. These two basins are separated by an anticline. The ore-bodies probably represent remnants of a once continuous ore-body, the larger part of which has been removed by erosion.

Stemwinder Mine.

---oOo---

The Stemwinder is situated about $1\frac{1}{2}$ miles northwest of Kimberley on Mark creek and hence between the Sullivan group on the east and the North Star on the west.

The country rock consists of argillaceous quartzites of the Aldridge formation intruded by several sills of hornblende gabbro. The ore-body is entirely enclosed by the quartzites and closely resembles the Sullivan in its occurrence and mineralogy. The interior of the ore-body consists of a fine-grained zinc-blende passing exteriorly into a fine-grained mixture of pyrrhotite, pyrite, and zinc-blende. This is succeeded by a cherty layer which in turn passes into the normal quartzite. The amount of development is not sufficient to expose the relations of the ore-body.

General Recommendations.

---oOo---

1. Survey mine accurately.
2. Contour Stemwinder area.
3. Resurvey and replace corner posts of the Stemwinder Group. If developments warrant it later on, resurvey and replace the corner posts of the North Star Group.

Stuart J. Schofield,

Vancouver July 24, 1925.

The University of British Columbia



DEPARTMENT OF GEOLOGY

VANCOUVER, CANADA

July 25, 1925.

F.R. Weekes, Esq.,

Porcupine Goldfields D. & F. Co.,

Toronto.

Dear Sir :

I beg to enclose 3 copies of my report on the Stemwinder and North Star Group of claims.

I have recommended some drilling on the North Star Group as well as on the group to the south of the North Star. These groups are worth some exploration simply on their proximity to such well known mines as the Sullivan and the North Star. Surface indications are wanting.

The Stemwinder is well worthy of development in my opinion, but this development should be carried out carefully and systematically, since the relationships are not clear. The work outlined in this report should yield the necessary information which will make future diamond drilling or drifting much more economical and productive of results.

I am also enclosing a statement of my account.

Yours truly,