1140 TRANS
or
1498.

UR 1950/01-41

24/5

21 21

The Great South Comet Mine - DUNDAS

B.L. Taylor B.Sc.(N.Z.) A.M.A.I.M.M.

GEOLOGIST

TABLE OF CONTENTS

INTRODUCTION

The Great South Comet area consists of two consolidated 20 acre leases. The Mine, which is a zinc-lead show, is at present being operated by Lead and Nickel Co. (Zeehan) N.L. who are recovering lead concentrates only. This investigation has been undertaken to serve as a basis for recommendations to the operating company in regard to mining and milling practice.

Accompanying this report is a general plan showing topography and surface features on a scale of 80 feet to the inch, and an underground plan with long and cross sections on a scale of 40 feet to the inch. The origin of surveys was the NW corner peg of lease 5829M and the initial true bearing was taken from the western boundary of that lease. The main survey from the South Comet Creek to the Adelaide Creek was carried out by theodolite and stadia. An underground plan of Nos. 1, 2, and 3 adit drives prepared by G.A. Laffer was available. This survey was picked up and included in the present work. Crosscuts and stopes were tied in by compass and tape survey.

Initial height was obtained from Mt. Zeehan triangulation station (2270') and the assumed R.L. of the NW corner peg is fairly close to the actual height above sea level.

LOCATION AND ACCESS

The South Comet Mine is located some seven miles east of Zeehan township, on the western side of Mount Dundas, and on the lower slopes thereof. Access is by 9½ miles of road from Zeehan. The first eight miles of this road as far as Maestrie's Mill (the end of the old Zeehan-Dundas Railway) is fairly level and, though rough, is passable to

normal vehicles in all weathers. The remaining 1½ miles from Maestrie's to the mine was put in about two years ago by the syndicate. This section of the road crosses two steep ridges, has a maximum grade of 1 in 3, and can only be negotiated by four-wheel drive vehicles fitted with dual gear ranges. The foundation of the road are solid, however, and it is passable for the above type of vehicle in all weathers. The journey from Zeehan to the mine takes about 50 minutes and the workmen travel from Zeehan each day.

GENERAL TOPOGRAPHY

From Mount Dundas a divide of average elevation 2500 feet runs in a general northerly direction to Mount Read. On the western fall of this divide flow several creeks each separated by ridges. These creeks, from south to north are - Adelaide Creek, South Comet Creek, Comet Creek, and the various unnamed headwaters of the Dundas Rivulet. In their upper reaches, these creeks are subparallel and flow in a westerly direction. The Comet, South Comet and Adelaide Creeks converge about a mile south of the site of Dundas township, join the Dundas Rivulet and flow on to the Little Henty River. In the upper reaches, the streams have a steep gradient and the dividing ridges are sharp - where they leave the main divide there is a sudden flattening of gradient but the dividing ridges still maintain fairly steep sides.

The main divide is covered with heavy rain forest of the usual West Coast type. On the lower slopes and around the Dundas area where a large number of mines were formerly operating, the forest has been cleared and is now clad with second growth - manuka, bauera and associated scrub - about thirty years old. In contrast to the rain

forest which is reasonably open, the second growth is thick and difficult to penetrate.

TOPOGRAPHY OF THE SOUTH COMET LEASES

The South Comet area consists of two consolidated 20 acre leases numbered 5628M and 5629M the original survey of which is dated 27/1/1912. 5628M adjoins the southern boundary of 5629M and is offset 353 links to the east. The South Comet Creek cuts across the extreme NW corner of the area and the Adelaide Creek crosses the eastern boundary of 5628M at 624 links from the SE corner peg and the southern boundary at 1290 links from the same peg. Between these two creeks which flow parallel at about the same elevation, rises a sharp E-W trending ridge rising 550 feet above creek level. The crest of this ridge lies slightly north of the boundary line between the two leases. The northern side of this ridge has been cleared and, except for some patches of scrub is reasonably open. The southern side is clothed with rain forest.

PREVIOUS LITERATURE

The only published report dealing with the area is Bulletin No. 36 of the Tasmanian Department of Mines entitled "The Dundas Mineral Field" by A.M. Reid and published in 1925. The South Comet Mine is dealt with on pages 85 to 88. Reid briefly describes the mineral assemblage and the development of the adits as at the time of his visit. Dealing with reserves of ore he states "The rather extensive workings have proved the length of the vein over 800 feet and have provided evidence to indicate its existence in the intervening unexplored part. Moreover, these workings show that the vein maintains its width and the quality of its ores to

a depth of 400 feet. Allowing for 50 per cent of poor ore it is estimated that 72000 tons of crude ore is available above No. 1 adit level. The average value of the crude ore has not been determined ...."

GENERAL GEOLOGY

The General geology of the Dundas area as a whole is complex and far from being completely understood at the present time. It appears, however, that representatives of the Davey Group, Pieman Group, and the Dundas Series are present associated with intrusive ultrabasic rocks much serpentinised. It is not clear at present whether there is unconformity between each of the three groups of sediments. There is, however, evidence of decreasing grade of metamorphism as one passes upwards from the oldest(Davey) rocks to the youngest (Dundas).

Over the area of the South Comet leases, rocks of the Dundas Series only occur. On the crest of the ridge and near the eastern boundary of 5629M is a prominent outcrop of breccia which includes narrow bands of sandstone and grit and thus shows a rude stratification. Observations on the finer layers indicate that the breccia strikes NE and dips south at 54°. The breccia grades downwards into coarse and then fine greyish-yellow micaceous sandstones which show marked cleavage crossing the bedding planes at high angles. This material can best be observed underground at the end of No. 1 E crosscut.

On the western side of the lease there occurs a series of consolidated mud and silt stones best exposed underground in No. 1 and 2 W crosscuts. This series consists of a large number of thin layers varying from a fraction of an inch to several inches in thickness. The bands are alternations of fine

and very fine grained sediment and are alternately light and dark grey in colour. Individual layers sometimes show fine lamination. This series shows no sign of the development of cleavage or metamorphism - they are merely compacted. Apart from the underground exposures, this series is well developed along the bed of Adelaide Creek where they strike from NE to E and dip south at 40° to 60°.

Crossing the lease in a general SW direction is a major fault zone of variable width. It is convenient to refer to this as the "South Comet Fault". From the crest of the ridge, the direction of the fault zone swings south to Adelaide Creek. The average dip of the zone is 65° to the west. No. 1 E crosscut and No. 2 W crosscut provide the only complete section across the fault zone underground. The country rock on the east is the micaceous sandstone and on the west the mud and silt stones described above. From the fact that the sandstones show marked cleavage while the mudstonesdo not, it is inferred that the latter are younger than the former and therefore that the western is the downthrow side of the zone. There is no evidence to show whether the fault is normal or reverse.

This fault zone continues north as far as the South Comet Creek where it ends abruptly. Along the northern side of the access road opposite the entrance to No. 1 adit drive a series of grey and black phyllites of the Pieman Group appear for a distance of 200 feet. This series is bounded on the east and west by grey quartzites and serpentinised sediments respectively. The contact on each side of the phyllites is a fault, each fault agreeing in strike and dip with those of the main South Comet Fault. Both these faults are cut off at the South Comet Creek. Downstream some 800

feet from the bridge the Kosminski lodes (not shown on the plan) are developed on the north side of the creek along a fault zone paralleling the South Comet Fault. The composition and structural features of the Kosminski lodes appear similar to those of the South Comet lodes. The Kosminski lodes also are cut off by the creek.

It is clear, therefore, that there are a series of NW-trending fractures each dipping about 60°-70° to the west. Each fracture is mineralised as will be indicated later and each is cut off by the South Comet Creek. It is evident that there is a transverse fault along the course of the South Comet Creek which has offset the lodes on either side. This transverse fault is younger than the NW-trending series and is evidently subsequent to the period of mineralisation. From the similarities between the South Comet and the Kosminski lodes it is deduced that they are actually along the same fracture plane. The horizontal displacement of the transverse fault is therefore of the order of 800 feet in this area. It is probable of course, that there is a vertical displacement also but there is no evidence of the amount of such displacement.

DEVELOPMENTAL WORK

On the crest of the ridge between the two creeks are numerous shallow trenches along and across the lode zone and near the gossan outcrops. These were undoubtedly the first workings in the area and were designed to indicate the direction and extent of the lode in the gossan area. They are not shown on the present plan. Also on the crest of the ridge and 140 feet west of the first gossan outcrop is a shaft about 50 feet in depth. This depth was not measured and is deduced from

the size of the dump heap. The shaft was apparently put down to intersect the lodes. The dump heap shows only fine mudstones with no sign of ore so it is presumed that work in the shaft was abandoned before the lodes were met.

On the northern side of the ridge four adit drives have been driven and on the southern side, a little above the level of Adelaide Creek, three further adits are located.

No. 1 Adit Drive

This commences at a height of 25 feet above the level of the South Comet Creek and is a drift along the lode zone. At a distance of 180 feet from the entrance, No. 3 lode is intersected and the drive then follows the lode. At 850 feet from the portal, a rise follows the lode for a vertical distance of about 130 feet from rail level. Ten feet past the foot of the rise, the roof of the drive has fallen and it is not known how far the drive penetrates past this point. At 520 feet from the portal, No. 1 West Crosscut penetrates country rock for 172 feet. No sign of lode material appears in this crosscut. Thirty feet north of the foot of the rise, No. 2 West Crosscut cuts No. 3 lode for 8 feet and continues about 30 feet in country rock. The entrance to this crosscut is almost filled with mullock and the actual length could not be measured. Twelve feet from the entrance of the crosscut, a short drive parallel to the main drive is at present being put in. The object of this drive is to bypass the fallen portion of the main drive and it is intended to crosscut back to the main lode a little further on. At the time of writing, the face of this drive was almost opposite the foot of the rise and a chamber had been driven 6 feet east. No. 1 East

Crosscut leaves the main drive opposite the entrance to No. 2 West Crosscut and penetrates a distance of 44 feet. At 18 feet from the entrance a nine inch pyritic lode (No.2 lode) has been cut. At 34 feet No. 1 lode was intersected and short drives put along it. The north drive is 21 feet in length and the south drive 26 feet. Along the main drive occur six stopes numbered one to six on the plan. They rise to a maximum height of 30 feet above rail level.

No. 2 Adit Drive

The portal of this drive is 280 feet SE of No. 1 portal and 122 feet vertically higher. The drive is only 40 feet long and while the lode material shows in the drive, the values are very poor. There are no crosscuts or stopes.

No. 3 Adit Drive

The portal is 440 feet SE of No. 1 portal and 210 feet vertically higher. At 110 feet from the portal, No. 1 lode is intersected by the main drive and followed for 210 feet. The main drive then crosscuts west to No. 3 lode and continues along it a further 140 feet. At this point, 460 feet from the portal, the roof of the drive has fallen. From the point at which the drive intersects No. 1 lode, a drive has been put northwards a distance of 46 feet. Twenty feet from the end of this drive a rise has been put through to the surface. From the point where the main drive crosscuts to No. 3 lode, a short drive follows No. 1 lode a further 46 feet. No. 1 lode has therefore been opened up along a distance of 302 feet. 208 feet from the portal, No. 3 West Crosscut has been driven 34 feet and has revealed the presence of Nos. 2 and 3 lodes in short drives. At 320 feet from the portal, No. 4 West Crosscut

also shows these two lodes. At 16 feet north from the present end of the drive a winze is at present being sunk to connect to the rise from No. 1 Adit Drive. At the time of writing, the connection had not been made.

It will be seen that the total length of drive open from portal to fall is 460 feet. A.M. Reid in "The Dundas Mineral Field" page 87 states (1924) that this drive is 605 feet in length. There is therefore at least a further 145 feet of drive though it is of course impossible to estimate how much of this length is fallen.

Almost the whole length of the exposed portion of the drive has been stoped. The stopes are numbered 7 and 8 on the plan.

No. 4 Adit Drive

The portal of the drive is 670 feet SE of No. 1 portal and 350 feet vertically higher. The drive penetrates the lode almost straight for 143 feet. At 78 feet from the portal, a chamber has been cut in the east wall and a winze sunk to a depth of 50 feet. No stoping occurs. It will be seen from the plan that No. 4 Adit Drive is almost vertically above No. 3 Adit Drive and the winze in No. 4, if continued downwards would strike No. 3 very near the entrance to No. 4 West Crosscut.

Nos. 5, 6 and 7 Adit Drives

These all occur in the lode zone at or near the level of Adelaide Creek. Nos. 5 and 6 are on the north side of the creek and are both inaccessible. No. 5 is at creek level and No. 6 is 12 feet higher. The dump heaps are quite small and it is estimated that these drives do not penetrate more than 100 feet each. No.7, at creek level on the south bank has been driven 30 feet.

DESCRIPTION OF LODE OCCURRENCES

It has been shown that a fault, or fault zone with a downthrow of some 600 feet to the west traverses the leases in a NNW-SSE direction. Mineralizing solutions have risen along this zone and have formed three well-defined zinc-lead lodes. These lodes are exposed in the crosscuts and in the main drives. In general, the lodes maintain fairly straight and parallel courses but pinch and swell from time to time. The walls are well-defined and are sometimes marked by several inches of bluish pug. The structure of the zone as a whole is very "tight" and only rarely are vughs or cavities seen. It may be classed as a "sheeted zone". Although the walls are well-defined, ore is not confined entirely to the lodes themselves. During the course of the fracturing the walls of the fracture were naturally shattered and are traversed by numerous small discontinuous cracks. The mineralizing solutions have penetrated these cracks in places and given rise to thin stringers and blebs of ore. In places, it is worth while mining the country rock for ore. Numerous measurements show that the lodes dip west at an average of 65° but local variations from this occur. In No. 1 East Crosscut, for instance, No. 1 lode dips east at 85°. These variations are not considered of major importance.

There is considerable variation in the width of the lodes. The maximum width noted as that of No. 3 lode at the foot of the rise in No. 1 Adit Drive where the width is 12 feet. At the top of No. 1 stope, this same lode is only 6 inches in width, Similarly, No. 2 lode is present in No. 1 East crosscut showing a width of only 9 inches whereas the same lode in No. 3 West Crosscut is 4 feet in width. The average widths of Nos. 1

and 3 lodes throughout the workings are 3 feet and 4 feet respectively. No. 2 lode is exposed in three places only and its width is estimated at an average of 3 feet.

The width of the lode zone is also variable. The full width can be measured in three places only and is as follows:-

(a) No. 1 East Xcut and No. 2 West Xcut - 60 feet
(b) No. 3 West Crosscut - 20 feet
(c) No. 4 West Crosscut - 35 feet

With only three measurements it is difficult to form an accurate estimate of average. It is suggested, however, that the average width of the zone is between 30 and 40 feet.

As far as can be ascertained, the compositions of the three lodes are similar. The lode matrix is mainly siderite and other carbonate minerals such as barite with probably some secondary calcite. Veins of calcite half an inch in width occur in the country rock near the hanging wall in No. 1 Adit bypass. The siderite is paler than is usual for this mineral being a very pale yellow. It is dense, compact and hard.

Associated with the siderite are sphalerite and galena. The sphalerite is deep brown in colour and has a resinous lustre. It appears to be mainly the iron-rich variety marmatite. Assays show that there is a minor amount of silver present also. No silver minerals were noted in the hand specimens, however, and they are probably present in a finely divided state. Very fine-grained pyrite occurs in blebs sparsely distributed throughout the lodes. In places it is present in importance amount as, for instance, in No. 2 lode exposed in No. 1 East Crosscut. However, on an average, there is only a very minor amount of this mineral.

A.M. Reid (page 86) refers to the presence

of jamesonite. A little of this mineral was noted in the dump heap at the mouth of No. 1 Adit but it was not seen in any of the faces or backs examined. Assays show that traces only of antimony occur and its presence can be disregarded in calculations of ore reserves.

The only economic minerals present, therefore, are sphalerite and galena which, on an averagem occur in roughly equal amounts. The two minerals are fairly coarse grained and easily distinguishable by eye. In this respect they differ from the Rosebery type of ore in which there is a very fine intergrowth of the two minerals. In general, stringers of ore lie parallel to the lode walls and vary from a fraction of an inch to several inches in width. The stringers are discontinuous and more in the nature of flat lenses, the lenses being separated by the lode matrix - siderite. In only one case was clean metal (galena) seen in a vein of more than six inches width. This occurs in the floor of No. 1 Adit at the base of the rise where 2'6" of fairly clean metal is showing.

The sphalerite and galena do not normally occur as intergrowths of subequal amounts of both minerals, though it is equally true to say that no stringers or blebs of one mineral occurs unassociated with the other. In general, each stringer consists almost entirely of one mineral with very small blebs of the other. Intimate intergrowths do not normally occur. The content of the lodes vary along their length. Rich patches or shoots of ore occur and appears to be alternately of galena and sphalerite. Such shoots of galena as have been met with have been stoped out. When the mine was worked earlier on, there was no sale for zinc ore - in fact the

miners were penalised for zinc content in the galena. Consequently shoots of sphalerite have not been stoped. Also when the shoots of galena which were being stoped became rich in sphalerite, the stopes were stopped. As a result, samples taken along the backs show reasonable zinc values but poor lead values (see samples 1 to 5 and 22, 23 of Table 1). For this reason also, the crosscuts such as No. 1 East and Nos. 3 and 4 West were not proceeded with. They cut lodes which were predominantly of zinc ore.

The results of assays are given in Table 1 which also shows width of sample and lode number. The average value of each lode is shown in Table II. Positions of samples are shown on the accompanying underground plans and long section.

It was stated to the writer that, when excavating for the mill site a lode zone was exposed paralleling the course of the main lodes. The zone was "27 feet in width and showed stringers of zinc ore over the whole width the width of zinc being about one third of the total width of the zone". This exposure is now covered by a concrete floor and could not be seen. However, careful search was made in the vicinity both above and below the mill site and no sign of ore, or indeed of any fracture could/be noted. The writer is unable, therefore, to express an opinion on this alleged occurrence.

Two further mineralized zones must be described both of which occur just north of the lease boundary. Mention has been made (page 4) of an outcrop of phyllites occurring north of the South Comet Creek bounded on each side by a fault. The eastern fault cuts the access road quite near the bridge and in the road cutting it is seen that there are several inches of pyritic material developed in the fault. No zinc or lead ore occurs but the lode

may "make" further north. On the western boundary fault, two prospecting drives have been put in one above and one below the access road. The upper drive penetrates for 60 feet. On the dump heap some good coarse galena is showing but at the face only a few inches of pyritic material markes the presence of the lode. The lower drive penetrates for about 30 feet but is inaccessible.

TABLE 1 ASSAY RESULTS

Sample No.	Lode No.	Width in inches		Pb	Zn	Sb	Ag
1	1	42		3.4	12.4	Tr	1.2
2	1	41		2.6	7.2	Tr	0.9
3	1	59		3.0	10.6	Tr	0.1
4	1	24		7.5	15.8	Tr	0.5
5	1	23		1.7	4.7	Tr	1.0
6	1	48		17.0	13.4	0.08	18.3
7	3	108		0.4	5.1	--	0.3
8	2	60		1.4	4.5	--	0.4
9	3	56		5.1	4.3	Tr	3.5
10	2	40		1.3	2.8	--	0.5
11	3	31	x	11.7	2.2	0.03	12.9
12	3	30	x	18.1	6.4	--	13.3
13	3	38	x	3.3	1.5	--	2.6
14	3	33	x	6.9	5.0	Tr	5.4
15	3	37	x	7.0	5.4	Tr	7.2
16	3	34	x	8.9	3.1	0.03	8.9
17	3	72	x	8.6	5.9	Tr	8.5
18	3	54	x	6.0	3.7	--	4.1
19	3	120		3.7	9.0	--	2.1
20	1	27		3.0	13.2	0.03	1.8
21	3	30	x	46.2	12.6	0.18	42.4
22	3	68		1.3	9.9	--	1.7
23	3	48		0.6	4.8	--	0.4
24	3	72		10.7	7.8	0.11	10.4
25	3	33		1.4	3.8	--	0.8
26	3	46		7.6	29.1	0.03	7.1

TABLE II AVERAGE VALUES OF LODES

Lode No.	Pb	Zn	Ag
1	5.5	11.0	3.4
2	1.4	3.7	0.5
3	8.4	7.4	8.0

NOTES

(a) Assays by Mines Department Laboratory, Launceston
(b) Calculation of average values by B.L. Taylor
(c) "x" indicates sample not taken over full width of lode
(d) Pb, Zn and Sb expressed in percentage. Ag expressed in ounces per ton.

ORESHOOTS

An endeavour was made to trace some systematic relationship between shoots of galena and of sphalerite. It is regretted that no success was achieved. Beyond repeating that statement made earlier on that shoots of one mineral appear to alternate with those of the other no assistance can be given. There is considerable variation in the size of shoots also as will be seen by reference to the size of stopes shown on the long section. Again here in the size of shoots, no systematic variation could be found. It appears that a rule of thumb method would have to be followed in dealing with the shoots which could be stoped out as they made their appearance along the drives. Diamond drilling in advance of mining would give valuable information.

ORE RESERVES

In calculation of tonnages, it is always necessary to make a number of assumptions. It is stressed at the outset, therefore that the following figures are approximately correct only and are included to show the order of quantities of ore available. It is convenient to divide the reserves into three classes - ore proved, ore probable and ore possible - and to apply the classification to each of the three lodes.

Ore Proved

Ore can be considered proved when it has been blocked out by drives etc. or when it has been revealed by closely spaced diamond drill holes. In the present case, no drilling has been done. Taking the ore which has been blocked out by drives therefore, the following quantities are available.

No. 1 Lode - This is exposed in No. 3 Adit only and in one crosscut. There is therefore

no blocking out and no proved reserves can be given.

No. 2 Lode Exposed only in three crosscuts - no proved reserves.

No. 3 Lode This has been blocked out by No. 1 Adit, portion of No. 3 adit and by the winze and rise. Assuming that the ore extends from No. 1 Adit level to midway between Nos. 3 and 4 adits there is available 60,000 tons of ore bulking 8% lead. 4% zinc and 8 oz. silver.

Ore Probable

Into this class fall portions of the lodes which have been cut in various places but which have not been fully blocked out.

No. 1 Lode Assuming the same vertical and lateral extent as for the proved ore in No. 3 Lode, there is a probable 45,000 tons of ore bulking 5% lead. 11% zinc and 3 oz silver.

No. 2 Lode Assuming the same lateral and vertical extent, a further 45,000 tons of probable ore occurs. Only two assays are available from this lode and they are insufficient on which to indicate bulk percentages.

No. 3 Lode No probable ore.

Ore Possible

This falls naturally into two divisions.

(a) Assuming that the lode zone continues through the hill to Adelaide Creek - a very reasonable assumption - and that the lodes maintain their average width. In this case there would be a further 45,000 tons of ore available in each of Nos. 1 and 2 lodes and 60,000 tons in No. 3 Lode. It is impossible to give bulk figures as no assays are available, but the figures are not likely to

deviate markedly from those given above.

(b) Assuming that the ore goes underfoot in No. 1 Adit. This, of course, actually happens. It is quite impossible with the data available to give any estimate of the depth to which the lodes are likely to extend and thus of the quantities of possible ore which may occur.

MINING PRACTICE

These lodes are ideally situated for working by means of adits and full advantage has been taken of this fact. From the floor of No. 1 adit level, nearly 500 feet of backs are available up to the level of the gossan outcrops on the crest of the ridge. Also it is a "dry" mine, makes very little water, and the working conditions are not unpleasant. Both the lode material and the country rock are hard and solid and there are no cross fractures causing shatter zones. Thus there are no problems of timbering to be solved. The immediate plan of developmental work outlined in the following section appears to be a sound and efficient method of developing the proved reserves of ore in No. 3 Adit.

PROSPECTIVE DEVELOPMENTAL WORK

The intentions of the management as stated to the writer are as follows:-

(a) When the winze-rise connection is made a northerly drive will be put in 100 feet below the level of No. 3 Adit along the course of No. 3 lode. Ore shoots will be stoped and the ore sent down the ore pass in the rise and trucked out to the mill along No. 1 Adit. This plan allows a maximum of 100 feet of backs along the prospective drive. Either subsequently or simultaneously, a further drive will be put out from the same point following the lode in a southerly direction.

(b) Mention has been made of the intention to put a drive parallel to No. 1 Adit drive from near the foot of the rise and thus to bypass the fallen portion and later crosscut back to the lode. This work is in progress at the present time.

(c) If good ore is met with in the chamber being cut opposite the foot of the rise, it is intended to winze down on this ore and, at a later date drive along the lode north and south.

CONCLUSIONS AND RECOMMENDATIONS

(1) The outstanding conclusion which the intelligent observer reaches in a very short time and which is confirmed by assay data is that this mine is a zinc-lead show and must be considered as such. With wise planning and efficient operation there is every possibility that it will become a profitable small mine. It is equally definite that, if it is regarded as a lead show only as has been done in the past and if it continues to be operated for lead content, it will struggle along for a period consuming increasing quantities of capital for decreasing returns and will eventually fail.

(2) In the section blocked out there is 60,000 tons of ore with a further probable 90,000 tons. In the section between the crest of the ridge and Adelaide Creek there is a further possible 150,000 tons. If the probable and possible ore can be proved, there would be approx 300,000 tons of ore available. This would be sufficient to give a considerable life to the mine.

(3) The assays are fairly low but much lower ore is worked profitably in other parts of the world. It is stressed however that with lower grade ore correspondingly higher grade methods of mining and milling must be adopted. If this is not done in the present instance the mine will fail.

(4) For profitable working all three lodes must be worked, perhaps simultaneously, in order to provide a constant feed to the mill. This is more a problem for a mining engineer rather than for a geologist.

Recommendations arising out of the above conclusions may be classified into two divisions:-

(1) Short-term Policy

(a) Continuation of the present acheme to put in drives 100 feet down from the top of the winze.

(b) Further exploration of the lodes by means of crosscuts east from No. 1 Adit and west from No. 3 Adit to get a better idea of their extent and content with a view to proving them for future work.

(c) Carrying out of the above programme by diamond drilling is much to be recommended if drilling plant is available.

(d) The formulation of a comprehensive plan of working by a competent mining engineer after these lodes have been proved.

(2) Long-term Policy

This should be devoted to proving the whole of the lodes in the fracture zone and can only be done efficiently by means of diamond drilling. Drilling from the surface on the southern fall of the ridge should be undertaken in order to prove the extension of the lodes to Adelaide Creek. Subsequently drilling from No. 1 Adit Level underground should be undertaken in order to prove the existence of the lodes at depth.

Sgd. B.L. Taylor B. Sc.(N.Z.) A.M.A.I.M.M.
GEOLOGIST

The Director of Mines,
HOBART

Zeehan 24th May, 1950