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GEOLOGICAL REPORT ON THE  
ELECTROLYTIC ZINC COMPANY'S  
READ-ROSEBERRY  
MINING PROPERTIES

27-037

Geol Rep on E. Z. Co's Read - Roseberry  
Mining Properties  
by  
C. C. Gibson 2/4/27

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GEOLOGICAL REPORT ON THE ELECTROLYTIC ZINC COMPANY'S  
READ-ROSEBERY MINING PROPERTIES.

2/9/27

SUMMARY.

Geological. The district is geologically divided into three main groups west to east, (a) the Dundas Slates (b) the Read-Rosebery schists and (c) the porphyries. Originally all part of one big sedimentary series now uptilted and sheared; the uptilted beds strike roughly north and south and dip east at about 45 degrees. The shearing follows the strike of the beds and at the Rosebery end also follows the dip, but at the Hercules end its dip is steeper than the dip of the beds.

The Read-Rosebery schists consist of argillaceous and quartzitic beds with interbedded lavas. The ore bodies are confined to the argillaceous series; the quartz schists, the Dundas slates and the porphyries are non mineral-bearing.

Ore Bodies. The ore bodies are replacements of the argillaceous schists along major shear planes. At the Rosebery end these are parallel to the bedding and no change takes place in depth. In the Hercules-Mt. Read area the shear planes are steeper than the bedding and the ore bodies therefore out slightly across the dip of the beds. When their pitch and dip bring them into contact with the under-lying quartz schists the ore bodies out out.

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The argillaceous belt at the Hercules end appears to be thinning out in depth and the likelihood of finding other deeper ore bodies is therefore remote. The same thing seems to apply also to its southerly extension beyond the Mt. Read leases. The "New lode" (No.14 bore lode) appears to lie within an area of sheared porphyry and therefore not likely to prove of any great extent or value.

At the Rosebery end the argillaceous series and its accompanying ore bodies also appears to be dying out a little to the south of the present mine workings. It is proposed to put down a couple of diamond drill holes with the object of definitely settling this question. It is also proposed to put in at least one drill hole from the No.6 Adit on the Hercules to test the width of the argillaceous belt at this depth and to see if other ore bodies exist at this level. It is also suggested that development work be continued northerly on the line of F ore body on the Hercules No.4 level for the purpose of testing the argillaceous belt in this direction. No other diamond drilling is recommended at the present time.

It is suggested that the Dalmeny leases are of no value but that the Koonya property might be worth some further investigation.

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GEOLOGICAL REPORT ON THE ELECTROLYTIC ZINC COMPANY'S  
READ ROSEBERY MINING PROPERTIES.

In November, 1925, after a very hurried visit of inspection of the district, I submitted some brief notes on the field to the Company's then General Manager, Mr. H.W. Gepp, and a copy of these is attached to this report.

As the results of some eight weeks further detailed work in the district it is found that certain of these statements require slight amendment, especially in regard to those portions dealing with the relationship of the ore bodies to the enclosing schists, e.g. the statement in paragraph 2 that the "shearing largely followed the strike and dip of the original beds" is only in part correct; at the north end of the district, i.e. in the Rosebery area, it applies, but at the Hercules it has been found that the shear planes dip at a somewhat steeper angle than the beds while still following the line of strike. As this fact has considerable bearing on the mode of occurrence of the ore bodies it will be referred to in more detail when dealing with the Hercules Mine.

With regard also to the view expressed that the better grade portions of the ore bodies represented "replacements of highly calcareous beds" further work has shewn that this is not so but that they are, in general, direct

replacements of the argillaceous schists themselves; the "limestone" - massive carbonate rock - to be seen in certain portions of the workings - particularly in the Hercules Mine where Gillespie's open cut affords a good example - is not residual but essentially secondary and due largely to the final action of the mineralising solutions. Possibly - or rather probably - the argillaceous schists were in their original state slightly calcareous and on this account favorable to the deposition of ore. A detailed examination of the ore bodies shews - often within a few feet - all transitions from clean unaltered schist through partly replaced schist to solid ore, the replacement starting on the argillaceous and calcareous material of the schists; the change can be noted under the microscope as well as in hand specimens. The "banding" which is frequently noticeable in the solid ore is in many cases clearly due to the schistose structure of the replaced rock.

The mineral bearing solutions were probably introduced as the aftermath of the big West Coast granitic intrusions in Devonian time. They were probably alkaline solutions carrying under pressure excess of CO<sub>2</sub> - these being known solvents for the metallic sulphides - and the large development of carbonates in the proximity of the ore bodies is probably due to reactions subsequent to the

deposition of the sulphides.

General Geological Sequence. Hills and other official writers have divided the area into three main belts, these consisting west to east of (a) Dundas Slates (b) Read-Rosebery Schists and (c) Keratophyre, or porphyry, series.

Adopting this main classification we find that the Dundas Slates consist of a thick series of dark coloured argillites, quartzites, and tuffaceous grits and breccias; they are conformable with the Read Rosebery schists and being part of the one great sedimentary series the boundary between them is a more or less arbitrary one. The main point with regard to their differentiation is that the series is - as far as is known at present - practically non mineral-bearing and therefore of no economic value.

The Read Rosebery Schists consist of a series of siliceous and argillaceous sediments with which are associated lava flows and then thin beds of tuffaceous grit; the siliceous sediments (with thin interbedded lavas) are on the western side and form the greater part of the series; they are as a general rule non-mineral-bearing; the lava flows associated with them are acid, and being very similar in texture and composition are, in their sheared form, indistinguishable in hand specimens from certain

varieties of the quartz schists, more particularly when weathered.

The economically important horizon in the Read Rosebery schist area is the argillaceous portion lying on the eastern side of the belt in the immediate proximity of the porphyry series. These argillaceous varieties were originally calcareous mudstones and shales and have a maximum thickness of 150 to 200 feet; it is to this series that the whole of the important ore bodies of the district are confined. The series is at times sharply separable from the quartz schists and at times passes imperceptibly into them on both strike and dip. The difference between the two is merely one of degree - in the one case argillaceous material (calcareous mud) is in excess and in the other quartz (sand); it is natural therefore to find at times a gradual transition one to the other. Within the quartz schist area are also to be found small slightly argillaceous bands (argillaceous quartz-schists) which represent merely thin beds in which a slightly larger amount of argillaceous material has been deposited with the sand. (A small amount of this is of course present in almost all the quartz schists, the original sediments rarely being clean sand - except in the occasional beds of clean massive quartzite). These argillaceous bands are usually slightly mineralised and in

some cases carry small ore bodies, e.g. at William's Shaft, Mount Read. This is explained by the fact that they are of a less resistant nature than the quartz schists proper and are consequently more sheared and thereby rendered better carriers for the mineralising solutions; also by the fact that it is the argillaceous material that the mineral solutions chiefly replace.

Lying between the argillaceous schists proper and the porphyries there exists at the northern end of the area a bed of dense black slates; this, as far as known, has at its northern end a maximum thickness of about 200 ft. and it gradually thins out and disappears going southwards - vide general plan. These slates are closely related in their general nature to the argillaceous schists except in that they have not been to any great extent mineralised; this being explainable by the fact that owing to their density mineral bearing solutions have not been able to freely traverse them.

The general outline and extent of the argillaceous belt and the accompanying slates - are shewn on the geological plan accompanying this report. It will be noted that the belt is shewn to die out at a point between the Primrose Mine and the old Mt. Black Lease. The evidence is at present not quite clear on this point owing to the uncertainty of the exact meaning of the terms used in the original

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records of C, D and E bores; the point will be definitely cleared up when the results of the proposed bores 36 R and 37 R are available. On present evidence however I am of the opinion that the argillaceous series has out out in this direction and that the quartz schist series has consequently come into direct contact with the porphyries. If this is so the continuation of the Primrose ore bodies southerly is not to be expected.

The Keratophyre - or, to use a more commonly understood term - the porphyry - series occupies the whole of the eastern portion of the area under review. The rocks are essentially massive though highly sheared varieties occur - particularly along the western margin. They represent acidic lava flows - probably several - and are conformable with the schist series. In their highly sheared varieties they are at times indistinguishable as hand specimens from certain of the argillaceous and quartz schists. As far as we know at present they carry no mineral deposits of economic importance.

The whole of these rocks, the Dundas slates, the Read Rosebery schists and the porphyries, were originally laid down as one conformable sedimentary complex. Subsequently they were uptilted and probably slightly folded, subsequently again they were subjected to intense and wide spread shearing. The uptilting has of course varied but in the area under review

the beds are found to have a more or less universal dip to the east of roughly 40 to 45 degrees; their strike is as a general rule a little to the west of north. The shearing has been fairly general and as is to be expected, is most highly developed in the softer and less resistant beds; it follows the strike of the beds and in the Rosebery area it to all intents and purposes also follows their dip; at the Hercules end however it has a good deal steeper dip than the beds. (This point will be referred to more in detail when dealing with the Hercules ore bodies).

In addition to the general (regional) shearing that has taken place certain major lines of intense localised shearing have formed; these are of course parallel to, and part of, the general shearing but they have formed the main channels along which the mineralising solutions have travelled and along which the more important ore bodies occur.

It may be remarked at this point that Dr. Loftus Hills in his official report on the district gives to the beds of the schist series a double system of anticlinal and synclinal folding in both a north-south and east-west direction, distinguishing them as "alpha" and "beta" folds. He attaches considerable importance to these folds in that he considers they affect the occurrence of the ore bodies, particularly at the Hercules-Mt. Read end. Information now available as the result of further underground development and from the

records of diamond drilling, not available at the time of Dr. Hills' examination, proves beyond argument the non-existence of these folds and thereby largely detracts from the value of the whole of Dr. Hills' theory.

The Ore Bodies. Rosebery Leases.

The Rosebery (Primrose) ore body in its mode of occurrence calls for no special description. It is the usual tabular body occurring as a replacement of the argillaceous schist along a well defined major shear line. Both the strike and dip of the shear plane coincides with the strike and dip of the argillaceous beds - the latter roughly 45 degrees to the east - and while this continues, i.e. while the shear line continues in the argillaceous series, a corresponding permanency in the ore bodies is to be expected. Already the ore body has been proved to have an almost continuous length of over 3000ft. and a maximum depth of over 800 ft. (The deepest borehole to intersect the channel - 29 R - certainly showed no ore at the point of intersection (960 ft) but this is not to be taken as final evidence that the ore is cutting out at this depth; there is more than one blank spot in the channel in the upper levels with solid ore making again shortly below it.)

The local variations in ore widths, local variations in dip, in grade, in general appearance etc. call for no special mention here; they are the usual everyday feature

of lodes of this class.

The Northward limit of the ore body has not yet been defined (the results of bores 34 R and 35 R are not yet available) and its further extension in this direction will have to be proved by diamond drilling as - owing to extensive surface debris - no outcrops can be followed. (This matter is referred to later on in this report - P 14 - under the heading of Diamond Drilling).

The Southern extension - or non-extension - of ore beyond the present known points is a matter of some importance at present. There appears to have been a belief that the ore body had been faulted somewhere about the south end of the present No. 8 level workings; such however is not the case as the ore channel clearly continues southward and has been picked up in bores 23, 24 and C and probably also in D and E, though this point is not quite clear. The most southerly portion of the mine workings on 6 and 8 levels and bores 23, 24 and C shew that the amount of ore along the channel is clearly lessening in this direction and in my opinion it has probably completely died out at about, or a little south of, C bore. I have already referred, p 5, to the probability of the argillaceous schist belt - and the accompanying ore bodies - dying out in this direction, so there is no need to repeat it; the matter was also referred to in an interim report dated 2nd April, 1927 and is again

referred to in this report under the heading "Diamond Drilling" on p 14.

Dalmeny Leases. A lead-zinc sulphide ore body of fair width and value is said to have been picked up in a diamond drill hole at a shallow depth on this property. No details however are available and no outcrops of any importance are to be seen as the whole of the locality is covered with glacial drift. A shallow shaft on the bank of the Stitt River shews irregular splashed of lead-zinc ore occurring in a highly sheared and carbonated rock resembling a sheared porphyry. The only rock specimens obtained were too carbonated and altered - by mineralising solutions - to enable anything definite to be made of them under the microscope. From general field evidence however I am strongly of the opinion that the property is situated in the sheared porphyry area and that any ore bodies occurring there are likely to be small, erratic and of no appreciable value.

A property in this vicinity that appears to me worth some further examination is the Koonya. The underground workings on this lease were not examined by me but - judging from material on the dumps - the ore bodies are associated with argillaceous schists and therefore may possibly be of some importance.

Hercules-Mt.Read Leases.

The ore bodies at the Hercules-Mt.Read end of the

field are also confined to a comparatively narrow belt of argillaceous schists occupying a similar position to that at the Rosebery end, i.e. lying between the quartz schists on the west and the porphyries on the east. The various beds of these series have the usual easterly dip of 40 to 45 degrees while their strike is a little to the west of north. The shear planes follow the strike of the beds but their dip is a good deal steeper, averaging about 60° (to the east). The ore bodies follow the strike of the shear planes and therefore cut across the dip of the beds. It is found in the case of the Hercules - and other mines at this end - that when the channels (shear lines) along which the ore bodies occur pass from the argillaceous schists into the underlying quartz schists they cease to be mineral bearing; in other words there has been no mineralisation in the quartz schist series. Reference to the cross sections attached to this report shows that the dying out of the Hercules bodies takes place where their pitch and dip bring them into contact with the quartz schists. As the shear planes along which they occur pass downward definitely into the latter series there is no reasonable hope of the ore bodies making again in depth.

The western boundary of the argillaceous belt is pretty clearly defined and has been picked up at a number of

points underground but its eastern limits are not so definite. Just on the eastern side of the E ore body the argillaceous schists proper pass imperceptibly into an indefinite slightly chloritic carbonated schist which in hand specimens is almost identical with the argillaceous variety; although microscopic examination of thin sections of these schists is not in every case satisfactory, owing to the alteration of the original constituents that has taken place, it nevertheless shews that some of them are undoubtedly sheared porphyries; this fact, coupled with the field evidence, makes me express the definite opinion that the whole of these eastern calcitic schists are sheared porphyries and as such are not likely to carry any ore bodies of appreciable extent or value. The boundary between this sheared porphyry and the argillaceous schists is not well marked, particularly with regard to its dip, but it appears to run approximately as shewn on the plan and sections herewith.

The section shews the argillaceous belt to be pinching out rapidly in depth, and, if correct, this means little hope of finding other ore bodies below the present ones. Further evidence is needed to clear up this point as with the exception of the No.4 level of the Hercules, very little work has been done on the east side of the main ore channel. The proposed diamond drilling on the No.6 level will give very valuable and definite information on the matter. Should these

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bores pick up the porphyry series in such a position as to prove that the argillaceous schists are thinning out as suggested by the cross section, then I think any hope of finding further ore bodies in depth in the Hercules leases must be abandoned. (This is of course based on the assumption that the porphyry series is going to continue unproductive throughout.) Along the several lode channels already proved (on the No.4 level) to exist in the series, viz. the "antimonial lode", the "Barytes lode" and the "New - or No.14 Bore - Lode" (probably a continuation of the "Barytes lode") nothing more than sporadic splashes of ore have so far been met with.)

With regard to the various ore bodies in the Hercules mine, usually referred to as the A,B,C,D,E and F, I may briefly say that these cannot in any way be considered separate bodies. They are - with the possible exception of A - essentially part and parcel of one big deposit, representing merely portion of one big replacement; the various "bodies" frequently merge into each other and the difference between the so called "bodies" and the low grade ore and mineralised schist separating them is merely one of degree, the individual "bodies" being merely the more completely replaced areas.

The Mount Read Mine.

This deposit is similar in every way to the Hercules bodies. It is a replacement in argillaceous schists along a major shear plane. Although the present

workings do not reveal the fact, the body clearly cuts out on the quartz schist contact in exactly the same manner as the Hercules bodies, probably at a point roughly/some 200 ft below the outcrop.

The lower adit shows a very flat east dipping contact between the quartz schists and the argillaceous belt and also it shows that the latter has pinched out very considerably in depth in exactly the same manner as it appears to be doing in the Hercules. In fact, if a much altered and carbonated rock showing in the face of the adit is to be rightly taken as a sheared porphyry, the width of the argillaceous belt at this point has been reduced to about 50 ft., a fact that does not augur well for the possible occurrence of deeper ore bodies.

From the small amount of evidence available from surface outcrops etc., it appears also that the argillaceous schist belt is cutting out completely a short distance south from the Mt. Read workings; information is not definite on this point but I am inclined to the opinion that such is the case and if so the occurrence of other important ore bodies to the southward is not to be looked for.

Diamond Drilling Campaign on Future Prospecting Work. Primrose end Drilling operations have here proceeded far enough for present requirements; if bores 34 R and 35 R show the ore body to have cut out northerly the matter will be settled, but if they show it still continuing the question of its further extension can be left over till the Company's plan of campaign in this

direction has been decided upon; the present known continuation of the ore in this direction is already getting beyond the economical limits of extension of the present mine workings. A decided further extension of it will probably involve the opening up of a practically new mine at this end.

With regard to the proposed bores at the south end; as already pointed out in my preliminary report dated 2nd April, 1927, I do not anticipate any very favorable developments. The first bore (36 R) will probably shew a little ore, but the second one (37 R) I think will give only negative information, i.e. will shew that the argillaceous schists and accompanying ore bodies have cut out. My reason for recommending this second bore is largely to obtain definite information on this point; if we can prove that the schists have cut out we know it is no use expecting further ore bodies in this direction and the matter is finally cleared up. I think the two holes are justified by this object.

At the Hercules end the only drilling that I consider warranted at present is that from the No.6 level. The present proposal is to continue Nos 16 and 18 holes; if the first of these cuts no appreciable ore bodies and picks up the sheared porphyry in comparative close proximity to the quartz schists - thus proving the pinching out of the argillaceous beds - I think we may safely say the end of the Hercules at this point is proved and the second hole can be cut out;

should, however, No.16 prove a considerable thickness - say 200 ft - of argillaceous beds then I think No.18 should be extended even if No.16 cuts no appreciable ore body.

In view of the fact that the "New Lode" (No.14 bore) in the No.4 level new west crosscut appears to be entirely in the sheared porphyry area. I do not think any boring to test it in depth is justified unless developments on it at the No.4 level improve considerably in the meantime. About the only point at present where I think any further prospecting on the Hercules property is warranted is at the north end of the F body. If the old F workings can be satisfactorily picked up I think driving should be continued northerly along the line of the lode and a crosscut put out westerly when the drive is considered to have been carried far enough. We know little or nothing concerning this northern portion of the mine beyond the fact that the argillaceous schists continue in this direction and such being the case there is a possibility of other bodies being found northward along the present known channels.

With regard to the boring on the Mt. Read and South Hercules leases; the Mt. Read body has been pretty thoroughly delimited and the South Hercules - as already pointed out in a preliminary report dated 15th April, 1927, has had a thorough try out; no further boring on either of these leases is at present warranted.

(Signed) Chas G. Gibson.

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SOME NOTES ON THE ZINC LEAD SULPHIDE DEPOSITS/  
OF THE READ ROSEBERY DISTRICT, WEST COAST TASMANIA.

(Submitted to Mr. Gepp Nov.1925)

The general geological features of the Read Rosebery series of schists have been fully described by Dr. Loftus Hills in Bulletins 19 and 23 of the Tasmanian Geological Survey; there is therefore no need to go into the matter in detail here. Sufficient to say that the ore bodies are - in the main - confined to one definite horizon in the schists. This horizon consists of a well marked belt of argillaceous and calcareous schists originally shales, mudstones and calcareous beds. Underlying and bounding this series on the west is a wide belt of quartz schists, originally sandstones, grits and fine grained conglomerates; these as far as we know at present are void of any important mineral deposits. The overlying and bounding series on the east consists of "chloritic schists", originally acidic tuffs and lavas; these are in turn overlain by a considerable thickness of a partly sheared and partly massive acidic lava (keratophyre); there appears to me to be no hard and fast boundary line between the "chloritic schists" and the sheared (and massive) keratophyre, the change being one of degree rather than kind.

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The whole of the "schist" group has been subject to regional shearing and this has in my opinion largely

followed the strike and dip of the original (uptilted) beds. As the uptilt of these beds has not been uniform there is now an irregularity in dip in the schists and a consequent slight irregularity in strike. As the ore bodies follow approximately the dip of the beds their dip is similarly variable, often to a marked degree.

.....

Conforming to the strike and dip of the general shearing of the schists are certain lines of major, or localised, shearing. These, as may be expected, are most highly developed in the softer argillaceous and calcareous series, to whose general strike and dip they approximately conform. These major shear lines have formed the main channels up and along which the mineralising solutions have travelled, and the ore bodies have been formed as replacements of the enclosing rocks along them. Where the enclosing rock has been of a more "favorable" nature, i.e. where it has been highly calcareous, the replacement has been more complete and the higher grade zincy deposits have been formed; where it has been less favorable, i.e. more argillaceous, the deposits are lower grades with pyrite the predominating mineral.

.....

At the northern end of the field - in the Primrose and Tasmanian Copper mines in particular - the calcareous beds appear to have been fairly regular and continuous in the

original sediments and the ore bodies resulting from their subsequent replacement are likewise more continuous and persistent. At the southern end - Hercules leases - on the other hand the calcareous beds would appear to have been deposited as irregular lenticular masses in the original series the main ore bodies thus possessing similar lenticular habits but occurring along one main strike line. The search for new makes of ore must therefore be confined to operations along this particular strike and within the argillaceous calcareous series.

.....

Dr. Hills, in his original Bulletins relating to these deposits, gives to the original beds forming the Read Rosebery schists a system of anticlinal and synclinal folds, in both a north-south and an east-west direction, distinguishing them as alpha and beta folds. While admitting the possible presence of alpha folds - i.e. folds with a N-S axis - I am unable to see any justification for the beta folding; the whole structure in my opinion being much simpler than Dr. Hills' reading of it.

My view of the position - based admittedly on a very hurried and incomplete examination of the area - as opposed to the "A" and "B" syncline theory" is simply this :- one regular and defined series - or band - of argillaceous and calcareous schists of varying, and possibly undulating,

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dip and varying strike, the latter being however in a general north and south direction but ranging at extreme points between N.E. - S.E. and N.W.-S.E.; the dip is easterly and varies from roughly 70 degrees to 40 degrees. This series, as already noted, carries - along more or less regular major shear planes - all the important ore bodies and it is to it that all future prospecting operations should be restricted. In this latter contention I think Hills and myself are entirely agreed.

(Sgd) C.G.G.

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305ROSEBERY,  
2nd April, 1927.

To  
H. St. J. Somerset Esq.,  
General Manager, S.Z.CO.,  
RISDON. HOBART.

AN INTERIM REPORT ON THE DIAMOND DRILLING  
OPERATIONS ON THE ROSEBERY LEASES.

Although the bores already put down have not yet defined the northern limits of the ore bodies they have - in spite of a few disappointments - proved the existence of sufficient ore for the mines' present requirements. The northern extension of these ore bodies is becoming inaccessible to the present main workings and their further prospecting is a matter which can well stand over for the present.

The much more important work just now is to ascertain if any appreciable ore bodies exist immediately south of the existing mine workings. Any ore bodies located here can easily be reached from the present workings and it is now important to know if any do exist or if this area is to be looked upon as unproductive - as present developments seem to indicate,

The "channel" - or shear zone - along which the ore bodies occur undoubtedly continues southward; it can be seen "going strong" in the most southerly workings on the No. 6 and No. 8 levels although the amount of ore along it is actually small at both points. This channel has also undoubtedly been cut in several - if not all - of the boreholes south of the present workings, viz. C.D.E. and 26 R; the records of these bores are not very complete but they appear to indicate that the channel was intersected in most cases fairly near the surface, i.e. in the approximate vicinity of 100 ft. vert. In every case the bores shewed the non-existence of any appreciable bodies of ore within the channel; it is however quite possible that such may exist at a greater depth and for the purpose of proving this (or - what is almost equally important - proving that the area is barren) at least two bores are necessary to cut the channel at, say, 500 ft. vert.

The surface of the country is moderately flat in this neighbourhood and the holes could be put down almost anywhere as required. I would suggest that they be put, (a) behind (i.e. N.E. of) D bore to intersect the assumed

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line of the lode channel at about 500 ft. vert. and (b) about 500 ft. further south to cut the lode at about the same depth. If both these holes prove the existence of the channel but the non-existence of appreciable ore in it then I think the area can be looked upon as a blank one and boring operations discontinued for the present at all events. The geological conditions existing further to the north appear to be changing somewhat in this southern area but this point cannot be accurately determined till the rock-slides come to hand from Melbourne. Practically no information is available as the result of surface examination owing to the covering of talus and glacial drift. It would appear though that the argillaceous schists are here being replaced by thick beds of sheared porphyry (keratophyre) and that the ore channels in this rock are likely to prove less productive than in the schists proper. It is hoped to have this point more definitely settled by the time the drills are ready to start on the proposed work; at all events something definite concerning the structure of the country will be learned from the first borehole and this may possibly influence us in the choice of sites for the following holes.

It should be mentioned that the greater part of the area under consideration is covered with glacial drift and that when the first bore site is fixed on preliminary shaft sinking should be put in hand in order that the drills should not be hung up.

(Sgd) CHAS. G. GIBSON.

2nd April, 1927.

COPYROSEBERY  
15th April, 1927

H.St.J.Somerset Esq.,  
General Manager,  
Electrolytic Zinc Company,  
Collins House,  
MELBOURNE.

Dear Sir,

With regard to the Diamond Drilling programme now being carried out on the Hercules leases, I wish to offer the following remarks and suggestions.

Re South Hercules Adit operations; without going into the "why and wherefore" of the matter, which will be dealt with in detail in my full report, I may say that bores 35H, 36H and 37H have merely proved the downward continuation of lode channels exposed in the adit itself; with the exception of the patch of medium grade ore cut out at 490-506 ft. in 35H, these channels are apparently unproductive in depth - as they are in the adit. Bore 38H will cut the same channel - or channels - at a slightly greater depth than any of the other three bores but I see no special reason why any better results are to be expected.

Assuming that this bore cuts no appreciable high grade ore, I think nothing further should be done here for the present.

The evidence obtained from (a) the bores already down; (b) from the adit itself and (c) from the No.4 Tunnel (Hercules) is not such as to lead one to reasonably expect high grade ore bodies in depth along the proved channels - although their occurrence is of course possible, but not probable - and I think that it may be safely taken that this area is a barren one; operations should therefore be suspended here for the time being.

The Mount Read and South Hercules bodies have been pretty well delimited by the boring already done and I do not think any more on these bodies is at present either necessary or justified.

Some further prospecting drilling should, in my opinion be done from the end of the Hercules No.6 Adit to test the full width of the argillaceous schist belt exposed here.

The last fifty feet or so of this adit shows well mineralised dark argillaceous schists and the face shows fairly massive pyrite with a little blende and galena. These schists form the ore-bearing horizon of the Hercules Mine, and they have been touched at no other point on this level. I would suggest (a) a horizontal hole E from the end of the adit to test the full width of the schists (this is at present unknown; it may be 100 ft., it may be 500 ft.)

(b) the continuation of No.16 (Mount Lyell) bore to also cut the full width of the schists at a point some 200 ft. further north. (This bore, according to Mt. Lyell records was in barren quartz schists for its full length, but the end of it must be fairly close to the argillaceous belt).

In these proposed bores I do not anticipate cutting the downward continuation of any of the present known Hercules bodies, these - for reasons which will be given in my full report - having practically entirely cut out above the this level. I see no reason however, why other bodies should not be met with in these schists. In any case, the bores will give useful information as they will define the width of the argillaceous belt and thus define the limits within which any future prospecting operations must be confined.

Should either of these bores intersect payable ore, the question of future holes could be considered; if the results are negative, nothing further should be done here for the present.

In addition to these holes I would suggest a depressed hole westerly from the No.2 Adit (No.4 level) at a point some 150 ft. back from the face to cut the assumed downward continuation of the ore shown in No.14 Bore, and now being driven to on the No.4 level. This body appears to me to be probably the continuation of that shown as the "Barytes lode" in the No.2 tunnel. A bore could be put in to cut about midway between the No.2 Adit and the crosscut and at about the horizon of No.5 level; the spot suggested in the No.2 Adit is the easiest in the mine from which to reach it, and a 200 to 300 ft. hole would suffice. If this holes were successful further "fan" boring to prove the northerly extension of the ore could be considered,

I would suggest letting this No.4 level boring stand over till the No.6 level work is finished, by which time the crosscut on No.4 will have reached the orebody and shown us what it is like.

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I should mention that I have discussed this matter fully with Mr. Giblin and that he agrees with the suggestions.

With regard to my complete report on the field, much of the detail is being delayed by the non-receipt of the micro-slides from Melbourne. I hope, however to have the work in such trim as will permit of my leaving for Melbourne on 27th instant.

Yours faithfully,

(Sgd.) CHAS. G. GIBSON.

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