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REVIEW OF SUMMER EXPLORATION PROGRAMME
EXPLORATION LICENCE E.L.5/63

1968 - 1969

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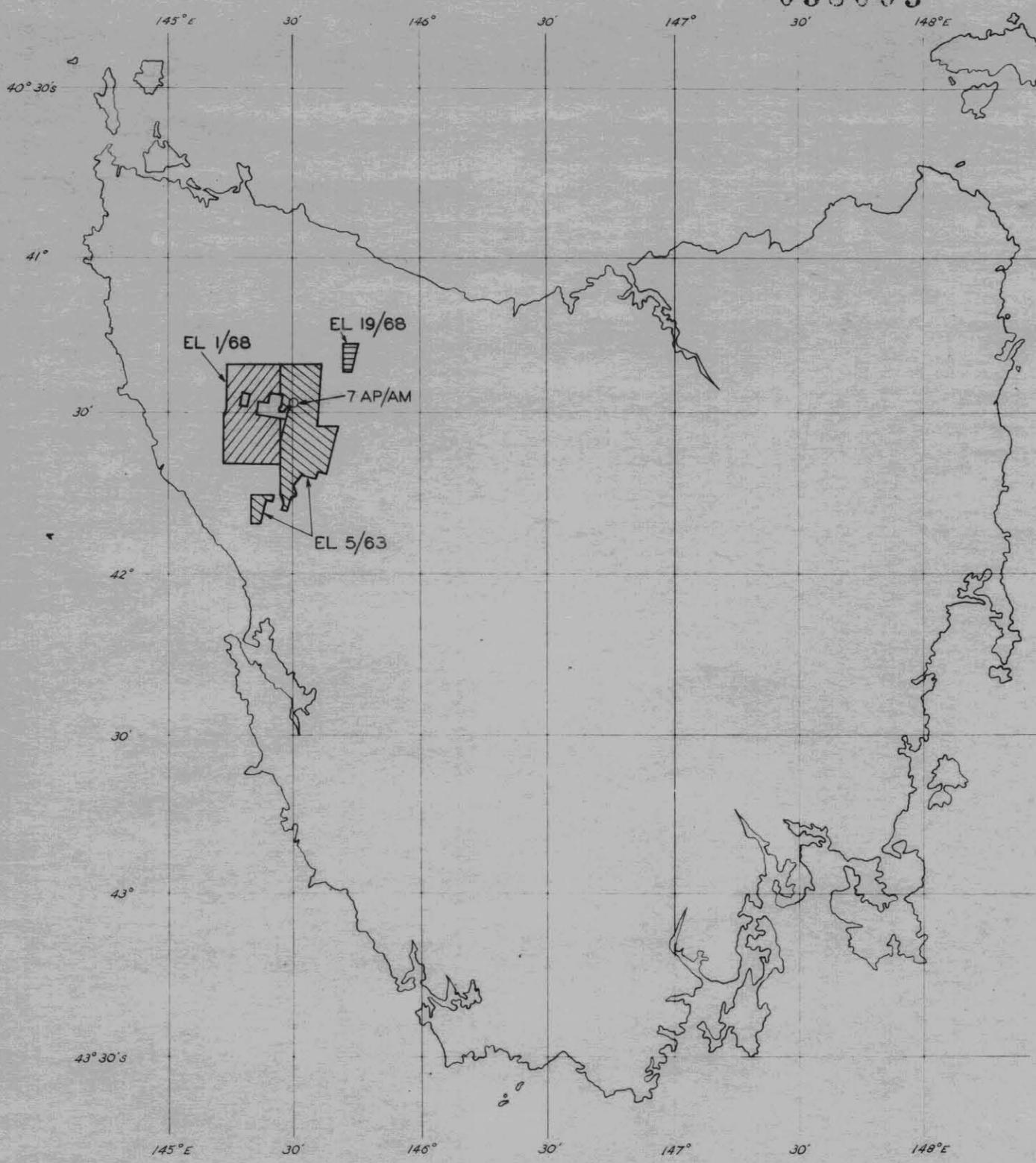
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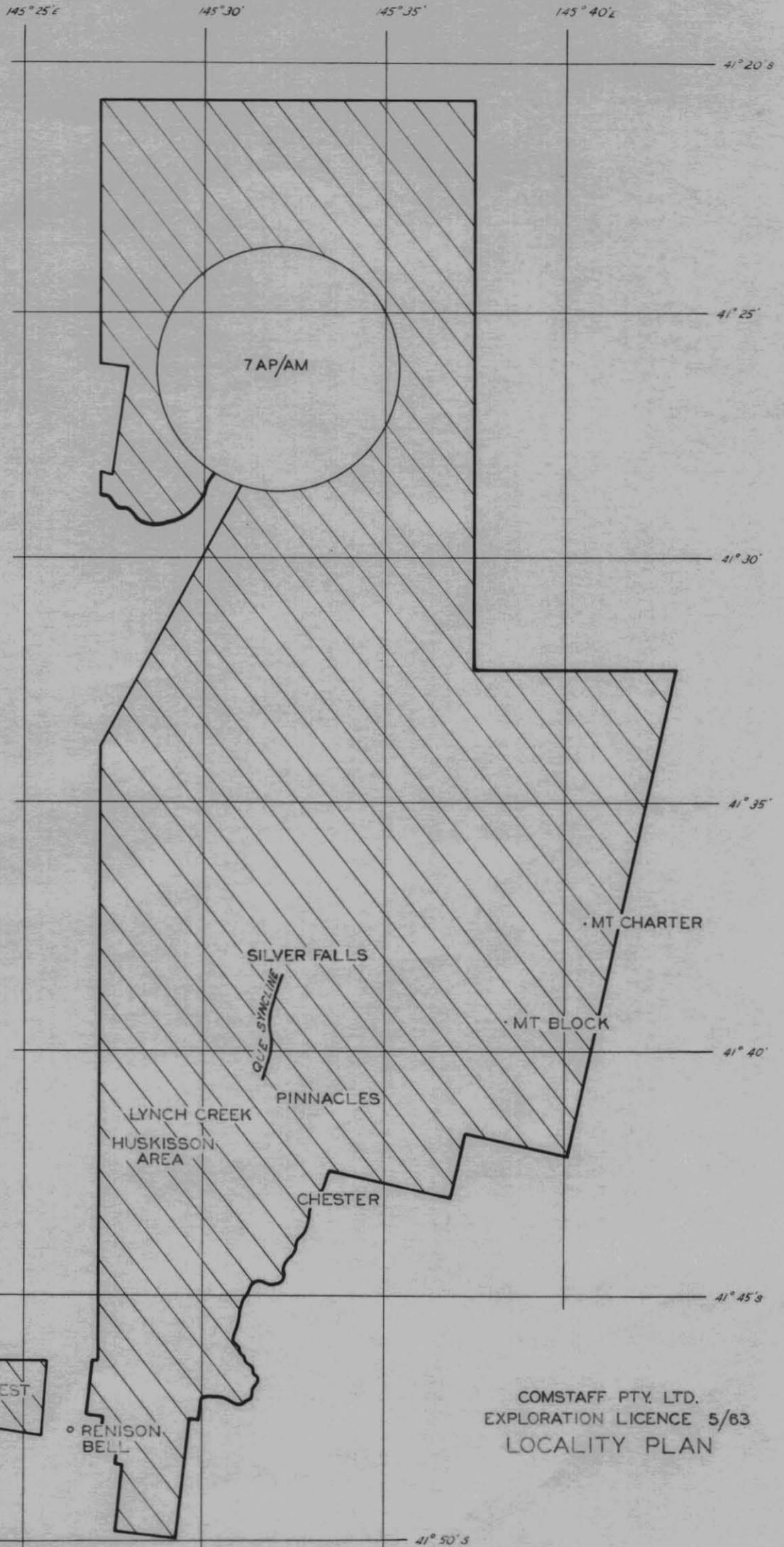


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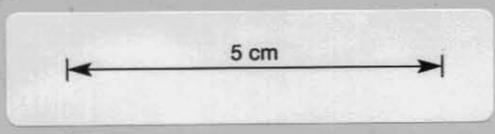
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EXPLORATION LICENCE E.L.5/631. INTRODUCTION

A resumé is given of the geochemical sampling programmes and other field work carried out in Exploration Licence E.L.5/63 in the following areas:-

Chester Mine Area and environs
 Huskisson Serpentinite and environs
 Pinnacles Shale Basin
 North Pinnacles
 Mt. Block Area
 Mt. Charter Area
 Renison Bell West Area

2. THE CHESTER AREA

This area is situated in the vicinity of Mt. Kershaw 4½ miles north of Rosebery.

This field season a grid covering an area of approximately 1.4 sq. miles was soil sampled and exposed rocks mapped. The grid entailed cutting 48,000 ft. of lines on which 1,590 soil samples were taken; geological mapping involved a further 35,600 feet of creek cutting. Approximately 70 sediment samples were taken on these creeks. This project was carried out between December and February and required approximately 350 man-days field work.

2.1 GEOLOGY

The rocks form part of the Reid Volcanic Belt of West Tasmania and are thought to be Lower to Middle Cambrian in age. The area has been recently glaciated and much is covered by moraine.

The Reid Volcanic Succession consists of a number of silicified acid to intermediate lavas and tuffs interspersed with occasional acid to intermediate intrusions of relatively small dimensions. Highly altered conglomerates and siltstones also exist. The whole sequence has undergone one or more periods of alteration and most rocks are of the Chlorite-Epidote Green Schist Facies of Metamorphism. In the west of the area the Reid Volcanics abut against a different stratigraphic sequence consisting of shales, sandstones and conglomerates. This stratigraphic change is probably due to the north-south trending Owen Rift Fault previously noted to the north and south of the area.

The general strike in the Chester area is approximately north-south, but swings between north north east-north east, in the north. The dearth of bedded rocks makes a structural interpretation difficult. However, certain minor structures in the Chester Mine area indicate that the rocks are probably quite strongly folded and that the Chester pyrite body (2½ million tons 40% sulphides) may be situated within or near the hinge zone of an anticline which plunges gently to the north north east. The pitch of the orebody seems, however, to be much greater than the plunge of the postulated anticline.

The area is cut by an unknown number of relatively intense steeply dipping shear zones. In the south these strike north-south whereas in the north they trend

north north east. Associated with these shear zones in the south, one sometimes finds phyllitic and schistose rocks which somewhat resemble the Lyell schists. The schists at Chester contain minor chalcopryrite and bornite in part and associated rocks have sphalerite and galena.

Soil samples taken from Gossanous areas which are considered to be shear zones are anomalous in Cu, Pb and Zn.

2.2 GEOCHEMISTRY

The sample grid consists of six lines each 1,000 feet apart and 8,000 feet long, aligned in an east west direction. The purpose of the grid was to cover the area in the vicinity of the Chester Mine.

Two types of soil sample were taken, auger samples of the soil at or near bedrock at 50 feet intervals and A₀ soil samples at 100 feet intervals. The purpose of the latter was to locate soil anomalies in areas where the auger sampling is ineffective due to the thick glacial cover.

Both sampling techniques picked up areas of high geochemical values in Cu, Pb and Zn which were not always coincident. Copper values are rarely as high as associated Pb and Zn.

Preliminary interpretation suggests that there are a number of irregular north-south zones 1,000 feet to 4,000 feet long and open to the south, in which high geochemical values occur. An example of the highest values obtained within such a zone is given below.

A zone 1,000 feet long and open to the south; situated 3,500 feet south of the Chester Mine. The zone intersection on the line is approximately 200 feet wide in which three consecutive samples over 150 feet were in gossanous material.

| Highest Geochemical Value in ppm | | Approximate Background in ppm | |
|-------------------------------------|---------------------------|----------------------------------|---------------------------|
| Auger Samples | A ₀ Samples | Auger Samples | A ₀ Samples |
| Cu 60 | 40 | 5 | 5 |
| Pb 660 | 540 | 10 | 15-20 |
| Zn 500 | 334 | 10 | 10 |

Certain of the north west trending zones in which high geochemical values were found and the slightly mineralised schists to the south of the grid are considered of interest.

In addition the few active sediment samples taken in the vicinity of the grid have not been evaluated to date.

3. THE HUSKISSON AREA

The area is situated about four miles to the west of the Chester Mine.

The purpose of the work was to evaluate the economic potential of the serpentinite in the area and carry out a sediment sampling reconnaissance traverse across the Cambrian rocks between the Chester Mine area in the east and the Ordovician sediments in the west.

It was hoped to carry out a sediment sampling programme over the serpentinite but extremely thick vegetation precluded this and a reconnaissance grid sampling programme seemed more effective.

A grid covering an area of 0.6 square miles was cut and sampled. It consisted of three lines each approximately 4,000 feet long and 2,000 feet apart. The lines were aligned north east-south west; and required 17,150 feet of cutting and 340 samples were taken.

The sediment sampling programme which extended to the east and south of the serpentinite involved 33,100 feet of creek cutting and 72 sediment samples.

This took one week in January and one week in February and involved approximately 108 man-days field work. Access was by helicopter only.

3.1 GEOLOGY

A serpentinite probably Cambrian in age exposed over an area of approximately 8,500 feet by 3,000 feet strikes north north west. It is bordered in the east by a sedimentary series of possible Dundas age which has been intruded by small serpentinites and quartz syenites. The intrusions appear to be associated with the major body of serpentinite. To the west this serpentinite abuts against a limestone probably of Ordovician age.

AMDEL has suggested that the serpentinite was probably derived from peridotites, pyroxenites and possibly dunites. The rocks are cut in veins of both cross-fibre and slip fibre asbestos, together with veins of fibrous looking magnetite and veinlets of magnesite.

The asbestos is chrysotile associated with limonite and with magnetite, but not always. The observed cross-fibre veins vary from one eighth to one third inches in width, whereas the slip fibre may exceed two inches in length in veins approximately one inch wide.

Both slip fibre asbestos and minor shearing appears to be more common towards the eastern margin. Orange-brown ferruginous lateritic material overlies part of the serpentinite in the west but is apparently absent in the east where weathered serpentinite is found associated with a black slightly lateritic soil.

One exposure of the eastern part of the serpentinite dips moderately to the north east or east.

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The presumed Ordovician limestone at or near the serpentinite contact in the west is similar to the Gordon Limestone. No other rocks of this succession were seen. The eastern contact of the serpentinite is against a series of shales often graphitic, greywackes, red argillites, tuffs and fragmental cherts of probably Dundas age. This sequence passes easterwards into a more psammatic series which presumably is the same as the conglomerate, sandstone, shale sequence seen west of the Chester Area. The peletic sequence was observed to be intruded by minor bodies of serpentinite and quartz syenite, both probably being related to the main body of serpentinite.

The only mineralisation observed was minor chalcopyrite and bornite associated with sheared greywacke containing andesitic and dacitic volcanic fragments.

3.2 GEOCHEMISTRY

3.2.1 Soil Sampling

B Horizon soil samples were taken at 50 foot intervals on the lines and 100 foot intervals on the base-line. These samples were analysed for Cu, Pb, Zn, Ni and Co.

Two highly anomalous zones of nickel values were obtained on or near the eastern margin of the serpentinite. The southern zone values are approximately 1% Ni or greater over 500 feet, 100 feet of which averages 1.67% Ni (two samples). The northern zone 2,000 feet to the north is 450 feet wide, samples from which have approximately 1% Ni or greater, 100 feet of which averaged 1.27% Ni (two samples). The most northerly line did not extend to the theoretical projection of the anomalous marginal zone of the serpentinite. The background value for nickel on the serpentinite is about 3,500 ppm. It is considered that the anomalous zones may be related to the contact and hence be at least 8,500 feet long, or much longer should a whole belt of ultrabasics exist as is indicated by the aerial magnetics map.

Such elements as are associated with the nickel are not anomalous, e.g. Cu 5 ppm and Zn 40-50 ppm. These are near background values. There is one slight exception in that cobalt values are higher than background, being 500-700 ppm, compared with a background of 200-300 ppm.

Fresh bedrock (relatively fresh) samples have been taken over one of the zones of high nickel values, these will be studied petrographically and mineralogically in an attempt to find out what mineral is responsible for the high nickel values in the soil samples.

The marginal zone high in nickel is considered to be of possible economic interest.

3.2.2 Sediment Sampling of Active Sediment

This programme covered the area to the south and each of the serpentinite. Creeks were cut, some were measured and sampled at 600 foot intervals and others paced and sampled at approximately 500 foot intervals.

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Samples were analysed for Cu, Pb, Zn, Sn and Ni. The Zn results were the most interesting, values of 300-500 ppm were obtained in areas where the approximate background is 50 ppm. Some of these highs were associated with above background values in Pb, 120-140 ppm (background approximately 30 ppm).

Higher than background values for Cu, Sn and Ni were also obtained: Ph 5.5 - 7.25.

| | <u>High Values ppm</u> | <u>Background values ppm</u> |
|----|------------------------|------------------------------|
| Cu | 40-70 | 25-30 |
| Sn | 10-25 | 1 |
| Ni | 1,000 | 100 |

These results have not been evaluated to date.

4. THE PINNACLES SHALE BASIN (25N AREA)

This area situated three miles north of Chester Mine has been geochemically sampled and partly costeamed in previous years. It was not considered that these results gave a sufficiently clear indication of the mineralisation in the area, so this field season a programme of additional costeaning was carried out.

Prior to the trenching detailed geochemical profile sampling was carried out along the lines of the future costeans. It was hoped that by doing this a relationship between bedrock values (obtained by channel sampling within the costeans) and soil sample values would be obtained and hence a more definite interpretation of all the soil sample results that we have from the Pinnacles - Chester area could be made.

The anomalous area shown up by previous sampling extends over the hinge zone and flanks of the north north east gently plunging Que Syncline. For this reason three lines for costeaning were laid out such that one followed the hinge, a second crossed one flank and a third crossed the other flank of the syncline. This programme entailed 6,450 feet of line cutting which was auger sampled (near to bedrock soil samples) at 25 foot intervals (240 samples), the anomalous zones found by this sampling extended over 5,000 feet of cut lines. This part was sampled in detail, 600 samples were taken. These zones were then costeamed.

The programme was carried out in approximately one week in January and four days in February, altogether it involved approximately 62 man-days field work and 24 days bulldozing with two medium sized bulldozers.

Channel sampling and geological mapping of the costeans will be carried out this winter.

4.1 GEOLOGY

The area is situated within the large Que Syncline which plunges at 15-20° to the north north east. The syncline has two major stratigraphic components in this area, the underlying Reid volcanic group of Lower to Middle Cambrian age and the overlying shales, tuffs and sandstone sequence of probable Middle to Upper Cambrian age. The syncline where mapped as a steeper

east limb and a gentler west limb. The costeans are situated within the shale-tuff sequence which in this area has a width of about 2,000 feet and a thickness in the order of 500 feet. To the north north east, down plunge, the shale tuff sequence greatly increases in width and thickness.

The whole area was recently glaciated and is sporadically covered by moraine.

4.2 GEOCHEMISTRY

The partial glacial cover in the area leads to a number of difficulties with respect to soil sampling. Previously the only technique used was auger sampling to obtain a sample from as near to bedrock as possible (maximum auger depth attempted five feet). This system has a number of disadvantages, it is slow, sometimes it is not possible to reach bedrock and owing to the fact that a sample is taken near bedrock, dispersion becomes insignificant. This means that the sample spacing has to be reduced, theoretically to half the width of the orebody one is trying to locate. This, however, is not usually feasible and a compromise of 25 foot spacings was used in this area.

An auger sample that does not reach bedrock is necessarily within a different part of the soil profile and thus is likely to give different geochemical values which will be related to different background conditions. Thus it is not possible to directly compare such a sample with a near bedrock sample. Owing to this, interpretation of data is greatly complicated.

It is hoped that the soil profiling carried out in this area will indicate whether auger sampling to near bedrock is the most effective technique or whether soil sampling of say the A_0 horizon is sufficiently effective to be a useful exploration tool, the latter being far quicker.

Auger samples at or near bedrock were first taken on the full length of the lines at 25 foot intervals. The anomalous zones located by this means were then sampled in detail. A_0B_0 and B_1 soil samples were taken at each 25 foot station.

The results from these samples have been plotted in a graphical form. Each line has graphs showing the Cu, Pb and Zn values for A_0 , B_0 , B_1 and auger near bedrock samples. These results can be overlain and compared. When the underlying costeans have been channel sampled it will be possible to directly compare the soil sample values with the actual bedrock values and a relationship worked out.

In order to assess which sampling technique showed the greatest anomalies, graphs for each line were plotted showing the percentage anomalous values obtained for each sample by the various techniques A_0 , B_0 , B_1 and auger samples. A percentage anomalous value is a value in ppm, expressed as a percentage of its background value, 100% being equal to the background. Thus the different sampling techniques can be compared independently of their background values. These percentage anomalous

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values can also be compared with the channel sample results and the technique which gives the greatest anomalies and the fewest spurious highs can be selected.

To indicate the order of geochemical anomaly found a chart showing approximate values of some of the highs on the line crossing the eastern flank of the syncline are given:-

Actual values in ppm of some of the higher geochemical values obtained by the various techniques are:

| | <u>A_o</u> | <u>B_o</u> | <u>B₁</u> | <u>Auger</u> |
|----|----------------------|----------------------|----------------------|--------------|
| Cu | 30 | 110 | 650 | 620 |
| Pb | 80 | 90 | 600 | 1,600 |
| Zn | 40 | 30 | 90 | 1,300 |

The percentage anomalous values of some of the higher geochemical values obtained by the various techniques:-

| | <u>A_o</u> | <u>B_o</u> | <u>B₁</u> | <u>Auger</u> |
|----|----------------------|----------------------|----------------------|--------------|
| Cu | 500 | 110 | 650 | 620 |
| Pb | 280 | 320 | 1,620 | 3,326 |
| Zn | 200 | 210 | 500 | 4,120 |

The effectiveness of the various techniques has not yet been evaluated.

Costeaning:-

Four thousand eight hundred feet of the proposed 5,000 feet of the costeaning has been completed. It is hoped that approximately 70% of this can be channel sampled.

5. THE NORTH PINNACLES AREA (R87N DRAINAGE)

This area situated 4½ miles north of Chester Mine, was prospected last year by cutting four lines each 2,000 feet long and 500 feet apart, aligned east north east - west south west. Auger samples from near bedrock were taken at 25 foot intervals along the lines. These lines constitute part of the Chester-Pinnacles grid.

Analysis for Cu, Pb, Zn and Ag revealed anomalous results, examples of the high values being Cu 75-120 ppm, Pb 1,600-1,900 ppm, Zn 200-4,200 ppm, Ag 8 ppm.

This season a detailed stream sediment sampling programme together with A_o soil sampling near the banks of the creeks was carried out. The purpose of the project was firstly to further delimit the anomalous region and secondly to ascertain whether such a combined technique as described above would be as effective, quicker and cheaper than grid sampling which in this area is used for primary and secondary reconnaissance.

Nine thousand one hundred and fifty feet of drainage was cut out on which 91 A_o soil samples were taken at 100 foot intervals and 46 sediment samples taken at 200 foot intervals. The area covered by the sampling was approximately 0.14 square miles. The labour required was 26 man-days field work.

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5.1 GEOLOGY

This zone is situated within the hinge region of the Que Syncline, about 1.2 miles down-plunge from the costeanned area (Pinnacles Shale Basin 25N Area).

Geological mapping of the creeks could not be carried out due to an excess of flood water. However, previous mapping (last year) in the vicinity indicates that the rocks present are shales, acid tuffs, very fine grained siltstones, dacites and dacitic tuffs. The syncline is thought to continue plunging at about 15-20° to the north north east, further mapping should confirm this.

5.2 GEOCHEMISTRY

Both the A₀ soil samples and the sediment samples were analysed for Cu, Pb, Zn and Ag. Results indicated a similar zone of geochemical highs as had been obtained by the previous year's grid sampling programme. The A₀ samples were taken approximately 20 feet from either bank of the creeks. The sediment samples were collected from active sediment, but their effectiveness may have been reduced owing to the flooded nature of the creeks when they were taken. Examples of the high results obtained illustrate the magnitude of the anomalies located: Ph of water 5.75.

Sediment Samples

| | <u>The Higher values, ppm</u> | <u>Background Values, ppm</u> |
|----|-------------------------------|-------------------------------|
| Cu | 11- 17 | 4 |
| Pb | 35-182 | 10 |
| Zn | 290-422 | 10 |
| Ag | 2.25-3.0 | 0.9 |

A₀ Soil Samples

| | <u>The higher values, ppm</u> | <u>Background Values, ppm</u> |
|----|-------------------------------|-------------------------------|
| Cu | 11- 30 | 5 |
| Pb | 85-600 | 25 |
| Zn | 50-270 | 20 |
| Ag | 2.25-3.5 | 0.9 |

The effectiveness of the two types of sampling in showing up the anomalies indicated by the previous year's grid sampling is variable. This is illustrated by the following chart:-

| <u>Sediment Samples</u> | <u>Effectiveness</u> |
|-------------------------|----------------------|
| Cu | 4 |
| Pb | 2 |
| Zn | 2x |
| Ag | 1 |

| <u>A₀ Soil Samples</u> | <u>Effectiveness</u> |
|-----------------------------------|----------------------|
| Cu | 3 |
| Pb | 1 |
| Zn | 2x |
| Ag | 1 |

Approximate Index to Effectiveness:

- Shows all or nearly all anomalies indicated by the previous year's auger grid sampling.

- 2. Gives no indication of one of the moderate anomalies.
- 3. Shows weak indications of some of the anomalies.
- 4. Apparently ineffective.
- 1^X Shows some anomalies not indicated by the auger sampling.

Dispersion of anomalous values in the stream sediment is found over approximately 100-300 feet. The A₀ soil samples may have a fairly large area of influence due to the fact that they are located within the collection zone of elements being dispersed down-slope from the surrounding hills.

The sediment and A₀ soil sampling indicated a north west - south east zone approximately 2,000 feet long and 400 feet wide, open to the north west and south east. A similar zone was located by the auger sampling of the previous year, except that an interpretation of the grid results outside the zone being considered suggests that the anomalous region may extend further to the north west.

A comparison of the sediment and A₀ soil sampling technique with the previously used grid sampling technique:

Evaluation of the two techniques has not been completed, but results indicate that the sediment and A₀ soil sampling method is adequate, far quicker and cheaper so that it could be used in this area as a useful geo-chemical reconnaissance method.

The following chart illustrates some of the salient features:-

| | <u>Sediment and A₀ Sampling</u> | <u>Auger Grid Sampling</u> |
|---|--|----------------------------|
| Area considered | 0.14 sq. miles | 0.11 sq. miles |
| Line or creek cutting required | 9,150 ft. * | 9,500 ft. |
| Samples taken | 137 | 380 |
| Man-days field work | 26 | 62 |
| Line or creek cutting/sq. mile | 65,400 ft. | 86,400 ft. |
| Samples/sq. mile | 978 | 3,454 |
| Man-days field work/sq. mile cutting and sampling | 185 | 563 |

* These creeks would in all probability be cut open for geological mapping anyway during the auger sampling programme. Thus both 9,500 feet and 9,150 feet of cutting would be required for the grid sampling project. It should also be noted that creek cutting is much quicker than grid cutting.

The sediment and A₀ sampling were carried out under very adverse conditions, heavy rain and flooded creeks, slowing down the progress of the cutting and sampling parties.

6. THE MOUNT BLOCK AREA

Situated in the east of our lease, this prospect is mentioned in a report by Blake (1928) which states that "extensive
Blake

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deposits of barite are reported in the area". No development work has been carried out and no mention is made of the geology.

A high speed reconnaissance sediment sampling programme was carried out this season in an attempt to locate the "barite" as is seen at Rosebery Mine. Thick vegetation reduced the distance it was possible to traverse upstream from a single base, the technique used for this project. Thus the area traversed was not as great as planned.

27,600 feet of creeks were cut and paced out. Seventy eight sediment samples were taken at approximate 500 foot spacings. The whole operation was carried out in two days in February and required 20 man-days field work.

6.1 GEOLOGY

No mapping was carried out, but the geological survey map indicates that the rocks of the area are quartz porphyries and quartz felspar porphyries with occasional sedimentary bands. These rocks form part of the Reid Volcanics, Lower to Middle Cambrian in age.

The whole area has been partially covered by recent morains.

6.2 GEOCHEMISTRY

Sediment samples were taken of active stream sediment and analysed for Cu, Pb, Zn, Ag, Sn and Ba. Several anomalies in Cu, Pb, Zn and Ag were located, but a high in one element is not necessarily associated with a high in another.

A chart illustrates the order of the anomalies located:- Ph of water 4.5 - 6.0.

| | <u>Higher Values</u> ppm | <u>Approx. Background</u> ppm |
|----|-----------------------------|----------------------------------|
| Cu | 11, 50, 60 | 5 |
| Pb | 50 - 220 | 25 |
| Zn | 128 - 1,140 | 25 |
| Ag | 2.5 - 3.0 | 1.0 |
| Sn | 6, 15 | Less than 1.0 |
| Ba | Less than 1,000 | Less than 1,000 |

One anomaly in Zn and another in Ag appear to be the most significant, but their importance, if any, can only be ascertained after a final interpretation.

7. THE MOUNT CHARTER AREA

This area is situated just north of Mount Charter in the east of our lease. Known as the "Gold Hill Prospect", this mineralised region was reported on by Henderson (1938). He stated that the area has been mapped by digging shafts and trenches through the overburden. Low Au and Ag values were obtained from bedrock, averaging Ag 3 dwt/ton and Au trace/ton. The highest values obtained were Ag 6 oz/ton and Au 1 dwt 4gr./ton.

A rapid high speed reconnaissance sediment sampling programme was carried out in the hope of locating this area and finding out whether the Ag values were associated with Cu Pb and Zn mineralisation. 8,500 feet of creek was cut and

paced out. Twenty six sediment samples were taken at approximate 500 foot spacings. The programme was carried out during two days in February and required 5 man-days field work.

7.1 GEOLOGY

No mapping was carried out this season but the geological survey map indicates that the area sampled is composed mainly of quartz porphyries of the Reid Volcanic Group (Lower to Middle Cambrian in age), which are dipping gently to the east. The western edge of the area is, however, composed of mudstones, shales and sandstones also of Cambrian age.

The whole area has been partially covered by recent moraine.

7.2 GEOCHEMISTRY

Samples of active sediment were taken at approximate 500 foot intervals and were analysed for Cu, Pb, Zn and Ag. Several anomalies were found, the most interesting of which are a small Cu anomaly in the northern part of the area and a larger Pb, Zn, Ag anomaly in the east.

The following chart illustrates the order of the anomalies found: Ph of the water 5.75 - 6.25.

| | <u>Higher Values</u> | <u>Approx. Background</u> |
|----|----------------------|---------------------------|
| | <u>ppm</u> | <u>ppm</u> |
| Cu | 17 - 30 | 5 |
| Pb | 100 - 700 | 25 |
| Zn | 74 - 228 | 25 |
| Ag | 2.0 - 3.0 | 1.0 |

Insufficient samples were taken to obtain a clear indication of the background values, but since similar rocks are present to those found in the Mount Block area, similar background values might be expected. The Mount Block values are shown.

8. RENISON BELL WEST

The area is situated about three miles west of Renison Bell. The geochemical soil sampling grid was completed to the north-west to the licence boundary. The grid entailed cutting 70,500 feet of lines on which 1,410 soil samples were taken. In addition 165 stream sediment samples were collected from 82,500 feet of cut stream courses.

Geological Mapping was carried out on the soil sample grid lines.

8.1 GEOLOGY

A saccharoidal grey quartzite outcrops along the axial zone of a south-east plunging anticline. Overlying, but sometimes interbedded with, the quartzite are laminated hard greenish grey or black shales with a slaty cleavage. Where exposed these have weathered to a white clay.

Well compacted black shales with a slaty cleavage form the next unit in the series. Thickness increases to the north-west along the flank of the anticline and beds rich in pyrite were noted.

A thick series of compacted and indurated very fine grained mudstones overlies the shales with structural conformity. Narrow bands of tuffaceous material and black shales were noted. For the most part the mudstones are purple but greenish colouration appears in bands. A slaty cleavage is developed in places. Dip is uniformly steep to the north-east ranging from 50° to 90°. These argillites are relatively rich in iron and rapidly weather to a stiff yellow clay.

Locally in the south-east a soft black gossanous material occurs along the contact zone between black shales and argillites. To the north-west but separated by Quaternary moraine is an outcrop of hard black volcanic rock exhibiting a few olivine crystals. This rock weathers to red sub-rounded boulders and cobbles.

Silver-lead mineralisation is associated with strong bedding plane shears in the black shales. Post ore transverse faults have displaced the shales in a number of places.

8.2 GEOCHEMISTRY

The sample grid cut consists of 16 lines with a north-east strike supposedly 500 feet apart and each 4,000 feet long. The grid was to cover the northern flank of the anticline within the licence.

As a general rule soil samples were taken from a depth of 15" at intervals of 50 feet along the cut lines. This depth was found to be the B₁ horizon and gave the best response during an orientation survey conducted earlier in 1968. In places where the soil profile was less than 15" the sample was collected from just above bedrock.

Geochemical stream sediment sampling was used as a reconnaissance tool to investigate the area to the south and west of the grid.

As expected tin values in the soil samples are low to below detection limits over most of the area. Anomalous zones are indicated in the south-east towards Renison Bell. In the north-west one zone and a number of localities of interest are indicated.

Anomalous copper values are sporadic. Lead and zinc values reflect known mineralisation in the north-west as well as indicating other probable areas of interest.

Stream sediment sampling in the south was inconclusive as streams draining the suspected Lower Cambrian sequence were not all sampled due to difficulty of access and lack of time.