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GEOPHOTO MINERALS REPORT 1973/9

THE STATUS OF PROSPECTS WI
WITHIN THE ALLUVIAL TIN PROGRAMME
E.L.6/68, N.E. TASMANIA
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Prepared by

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for

TEXINS DEVELOPMENT PTY. LIMITED

I.R.Mortimore

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LOCATION OF PROSPECTS

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INTRODUCTION

The purpose of this mineral report is to put into perspective, in as brief but complete terms as possible, the position at which we stand regarding the potential of various pockets of tin bearing alluvials within the northern sections of EL6/68 and the feasibility of working a number of small, but in themselves economic, deposits of alluvial tin.

At the time of writing it appears possible that within a few months we shall be operating a small tin washing plant. Further it seems likely that this plant will be that which is operating for the South Mt. Cameron Syndicate on shallow marine terraces at South Mt. Cameron.

Therefore, it is logical that additional tin-bearing ground, capable of being worked on a similar scale and size to the operation at South Mt. Cameron, be defined for testing and evaluation.

Work periodically over the past three years has been carried out along these lines with varying success. Areas prospected to date have been the Eastern Leads, the Dorset Flat, the Swains Creek area and the Bald Hill eluvial deposits, all evaluated by a comprehensive exploration programme which has brought them to the stage of a policy making decision on their potentials.

Preliminary work has begun in the early months of 1973 on two further prospects, the Wyniford River and the Echo Lead.

There also remain other areas of interest upon which no work has been completed by Texins but about which certain information is available from past and present activities by

small mining syndicates or individual miners.

Further additional yardage may be obtained from areas outside the boundaries of EL6/68 upon which options could be negotiated.

The prospects, with the stage to which exploration has been taken, are listed as follows:

PROSPECT	PROGRAMME	REPORTS
Eastern Leads	a) Gridding	1969/3, 1969/54
	b) 101 Auger Drill Holes	1971/28
	c) 15 Cable Tool Percussion Holes	
Dorset Flat	a) Gridding and Geology	Summary of Dorset Flat Drilling Results by W.E. Bush
	b) Backhoe (13 Holes)	
	c) 46 Open Holes (Dry Plugging)	
	d) 212 Cable Tool Percussion Holes.	
Swains Creek	a) 99 Cable Tool Percussion Holes	No report to date
Bald Hill	a) 386 Backhoe Holes	Report by I.
Eluvial Tin	b) 114 Hand Dug Holes	Mortimore at present being drafted.
	c) 4 Costeans	
Wyniford River	a) Reconnaissance	None to date.
	b) Preliminary Random Sampling.	

PROSPECTS	PROGRAMME	REPORTS
Echo Lead	a) Preliminary Random Sampling	None to date
Pioneer Lead-Extensions	None to date	None to date
Ringarooma River	None to date	None to date
Shallow Marine Terraces, Pioneer To South Mt. Cameron	None to date	None to date
Emu Flat, Frome River	None to date	None to date
Weldborough Area	None to date	None to date

OPTIONS:

- 1) L. Barnett - Black Creek
- 2) D. Mullins - Pearce Cascade Creek
- 3) R. Lawry - South Mt. Cameron
 - Amber Hill
 - Star Hill
 - Fly-by-Night-Creek

PROSPECTSEASTERN LEADS 1

The Eastern Leads area is the only deep lead prospect upon which Texins have conducted a comprehensive evaluation. Lying between the Pioneer Deep Lead and the Endurance Deep Lead it was viewed upon as the only known deep lead in the area which remained basically untested yet at its shallower eastern end carried economic tin values.

Full details of the exploration programme and results have been documented in Geophoto Minerals Report 1971/28.

As stated in the conclusion of this report, the main gutter is now clearly established but still cannot be said to be conclusively proved as being uneconomic as no single drill hole has sampled the basal washes directly within the main lead.

A single line of holes could eradicate any doubt on its potential.

As for the existence of other deep leads within the Herrick-Pioneer-South Mt. Cameron area, these undoubtedly exist but whether bearing economic grade material is open to question.

Mapping of granite outcrops would define areas between them over which seismic traverses could be run, should a cheap efficient seismic tool be acquired. This would outline channels upon which drilling could be directed.

However, at the same time, it must be noted that in every

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case where a major tributary (potential tin source) meets the Ringarooma River (and has been beheaded by such) a mine is situated on a pre-tertiary lead (i.e. Black Creek-Arba Lead, Cascade River-Briseis Mine, Main Creek-Mutual/Lone Brother Mine, Weld River-Echo Mine, Wyniford River-Pioneer Mine), but a review of the drainage pattern of this area does not reveal any major tributary which could offer prospects of a deep lead and has not been opened up as such.

The Surrey Mine/Golden Sovereign Mine near Herrick and areas further to the north-east along the Gladstone Road have been held under mineral lease in past years and may deserve limited testing but again they lie opposite the basically restricted catchment areas of the O.K. Creek and Greenstone Creeks respectively.

In general, the possibilities of finding new economically exploitable deep leads must be rated slim and any programme to define them have a low priority.

DORSET FLAT 2

The position with this prospect is as follows.

Exploration of this area continued periodically throughout 1972 finally being concluded in October. In this time, the area was gridded, mapped (geologic and topographic), backhoe sampled (13 holes), drilled by the Longyear rig, dry plugging (46 holes) and finally drilled using a contract cable tool percussion rig (212 holes).

Grades from assay figures were calculated both in the field and in head office.

An estimate of yardage was calculated at St. Helens

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for an area of 198,000 sq. yds, this area carrying holes which bore economic grades but at the same time these holes being intermingled with poor grading holes, therefore reducing the overall grade.

Over this area, reserves of 710,000 cubic yards of average grade 0.50 lbs/cu. yd. SnO_2 were delineated assuming a 72% Sn concentrate. Average width of pay dirt was 3.58 yards. The whole was covered by overburden (varying in thickness but averaging 3.2 yards) amounting to 630,000 cu. yds.

The grade calculated here is marginal when the additional cost of overburden stripping is taken into account.

However, the calculations made in Brisbane yielded smaller yardages but higher grades from an area close to the main workings in the south-western sector of the Dorset Flat where higher grades had been encountered, more consistently.

A copy of a "Summary of Dorset Flat Drilling Results" by W.E. Bush has recently been completed. In this summary two sets of figures are quoted, one set up-grading the first but also reducing the yardage at the same time.

These are;

Overburden	364,900 cu. yds.
Wash	375,600 cu. yds.
Average Wash Grade	0.60 lbs/cu. yd. SnO_2
Average Overall Grade	0.30 lbs/cu. yd. SnO_2

and up-graded figures of;

Overburden	206,300 cu. yds.
Wash	154,100 cu. yds.

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Average Wash Grade	0.95 lbs/cu. yd. SnO_2
Average Overall Grade	0.39 lbs/cu. yd. SnO_2

Gold values occur throughout but as stated in the summary, are erratic. Values up to 0.187 dwt. Au/cu. yd. were recorded from randomly selected samples, the average value probably being around 0.02 dwt. Au/cu. yd.

These figures, although reducing the yardage substantially, make for an economically more profitable operation with the yield per cubic yard greater.

It is these figures which form the basis for a continued exploration programme aimed at proving reserves of at least $\frac{1}{2}$ million cubic yards of around 1 lb/cu. yd. SnO_2 grade before further feasibility studies are considered.

Taking the figure of 154,100 cu. yds. of 0.95 lbs/cu. yd SnO_2 , at the rate at which the equipment at South Mt. Cameron could possibly treat the material, one would be looking at approximately 15 months work (60 cu. yds/hour-10,000 cu.yds./month) yielding approximately \$125,000 on today's tin prices plus a small gold recovery.

Although not a hard and fast rule, it is often found that the grade of material mined is greater than that proven by drilling or other techniques. In fact, although all samples were panned to reduce any loss of cassiterite, recovery was only 55%.

From figures at present on hand, it would appear they could support a small operation of the type anticipated.

One query at this stage however, is whether the two 5

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acre leases of R.C. Lawry, the option agreement upon which has expired, are worth \$10,000, the sum agreed as a purchase price.

It is suggested that a check is made on the figures calculated in Brisbane to ascertain whether the reserves are restricted to 154,100 cu. yds.

SWAINS CREEK 3

Cable tool percussion drilling commenced late in May of last year continuing through to the beginning of October, the programme being planned following a reconnaissance of the area and an assessment made of results of the Utah Dev. Co. drilling programme in 1965.

99 holes were drilled by Texins during this time.

Again, as in the case of the Dorset Flat, assays from holes drilled were converted to grades per cu. yd. SnO_2 (72% concentrate) here in St. Helens and in Brisbane.

No comprehensive evaluation of the results has at present been made.

A rough appraisal has been made indicating a potential yardage of around 300,000 cu. yds. of 0.5 lbs/cu. yd. SnO_2 grade. However, the pockets of tin bearing ground appear to be dispersed across the area and the ratio of overburden varies considerably, not having the consistency found on the Dorset Flat.

A complete revision, more accurate, of the results is

required to determine whether there exist reserves which are of a size and grade to be worked on the scale of operation we envisage, whether further exploration in the form of drilling is warranted before a decision is made or whether the area should be dropped from our plans for the alluvial tin programme.

A few days office work would bring us to this stage.

BALD HILL ELUVIAL PROSPECT 4

A report on all aspects of this project has been written and is at present being drafted in the Sydney office.

Yardages and grades were put at;

131,000 cu. yds. - average grade \$2.15 cu. yd.

104,000 cu. yds. - grading \$0.50 to \$1.00 cu. yd.

(based on a tin price of \$1.25/lb metallic tin).

The bulk of this yardage (96%) was found in four main pockets across the hill, the cassiterite being found in the upper residual soil horizons (average depth 19 inches).

Some dilution (put at 15-20%) should be applied to the above grades due to the sampling techniques which required the discarding of boulder contents from certain samples.

At the time when the programme was conducted, it was decided that the yardages did not warrant capital outlay on equipment to work them.

However, should the equipment be available, then an

operation based on these eluvial deposits may be feasible, although there are a number of problems to be surmounted before a mining venture became a reality. Problems of distance (25-28 miles from South Mt. Cameron-moving plant; 5 miles from Weldborough-power supply) and water problems (3000 feet above sea level-little storage although rainfall good) would require overcoming.

Since the time when the sampling was done, the area to the west of EL6/68, which was held under licence to another company, has been dropped. Certain areas of economic values remained open to the west. Should this area now deserve further attention the yardage may be increased by further testing in this direction.

However, a complete review into the cost of mounting an operation in this area is warranted with the present situation regarding other areas.

WYNIFORD RIVER 5

Work on this prospect is still at an early stage. A reconnaissance of the area has been made to ascertain some idea of the yardage and grade which might be expected from tin bearing gravels along the lower reaches of this river.

Blue Metal Industries, who hold a 10 acre lease on the river, several years ago expressed a desire to jointly explore and work these gravels both here and along the Ringarooma River. However, when informal discussions were had with them it appeared we were to prove up the area while they merely lent their expertise to the operation when it came to a mining stage. The discussions went no further.

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The initial reconnaissance covered an area upstream from Argus Bridge (approx. $1\frac{1}{2}$ miles from Pioneer along the Tebrakunna Road) for approximately $4\frac{1}{2}$ miles.

The river is young in its development with a poorly developed flood plain. The width of this plain varies from 200 feet to in excess of 1000 feet at its widest. The area extent is estimated at approximately 1,160,000 sq. yds. (240 acres) a long sinuous block following the river, 5,800 yds. long with an average width of 200 yds. It is difficult to assess an average depth but an estimate would be 6 to 8 feet. We are thus looking at a possible yardage in excess of 2,000,000 cu. yds. Small pockets have been worked out by the old miners but the amount of ground previously worked is small.

A number of prospects were taken during the reconnaissance work from river gravels within the present bed or from work faces about old mines. These were panned on the spot, generally yielding good to very good results—estimated 1-2lbs/cu. yd. Sno_2 average.

Nine larger samples (WR5-WR13) were taken for a more accurate determination of expected grade. Again these were largely recovered from river gravels, 1 to 2 feet below the present river bed, but there is no reason to believe that river gravels away from the present course should not carry comparable grades. The granitic country of the Blue Tier has remained the constant source of the Quaternary gravels found in this river valley.

Results from this sampling were encouraging, ranging from 0.3 lbs/cu. yd. Sno_2 to 10.58 lbs/cu. yd. Sno_2 assuming

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a 72% Sn concentrate. An average value was 2.82 lbs/cu. yd. SnO_2 for the nine samples.

The ground is often very stony which will present problems in both proving and mining the gravels. Drilling would be inconclusive due to the presence of large boulders (12 inches plus) which would make assessment of bottom difficult unless large diameter drilling tools (i.e. Conrad Pit Digger) were used. Further the probable shallowness of the ground makes for uneconomical drilling with constant moving of the rig from location to location.

The ground is probably best tested by bulldozing/backhoe methods.

A programme involving the excavating of pits by a backhoe has been decided upon. A baseline of 5200 metres is planned of which 2600 metres over the central section of the prospect area has been cut. 14 turn-offs, spaced at 200 metres, have been dozed and access tracks also cleared.

Sampling is due to begin in the week starting Monday, 26th March.

Dependent on the results from this initial work, the baseline can be extended north and south or the 200 metre spacing closed up.

ECHO MINE (LEAD) 6

The Echo Mine at Moorina was worked periodically between 1902 and 1922 producing 343 tons of tin concentrate from workings which cover an area of approximately 45 acres

to a maximum depth of around 60 feet. Assuming the ground was worked from top to bottom an average grade of 0.35 lbs/cu. yd. SnO_2 is indicated.

Actual production records are not on hand but figures have been requested from the Mines Department.

The deep lead, a former course of the Weld River (pre-Tertiary), subsequently beheaded by the present Ringarooma River, reportedly joins the Ringarooma Deep Lead (pre-Tertiary) approximately $2\frac{1}{2}$ miles north-west of Herrick. The source of evidence supporting this theory is unknown. If correct this would be encouraging as the ground lying directly to the north of the old workings is a thick sequence of Tertiary sediments, similar to those within the mine. This would provide scope for exploratory drilling.

However, should the lead trend towards the west (higher ground) it would be covered by a thicker sequence of Tertiary rocks including approximately 50 feet of basalt—approximately 800 feet west of the old workings.

To date, 7 channel samples (EM1-EM7) have been taken vertically up the work faces along the northern and western edges, none extending to the basal washes which were not exposed due to the flooding or collapse of the workings. Wash sections were sampled along the shallower southern limits of the mine (EM8-EM13).

Results from EM1-EM7 ranged from 0.051 lbs/cu. yd. SnO_2 to 0.38 lbs/cu. yd. SnO_2 while the basal washed EM8-EM13 ranged from 0.076 lbs/cu. yd. SnO_2 to 0.44 lbs/cu. yd. SnO_2

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substantially below the 0.35 lbs/cu. yd. SnO₂ computed from the little known from production records.

With this type of grade one must be looking at providing up a very large yardage, in the order of 30,000,000 cu. yds., to support a dredge operation.

It is unknown whether the basal washes carry sufficient grades to warrant stripping of the over-burden to recover such. Samples taken from the basal washes to the south of the mine indicate this unlikely but cannot be regarded as conclusive as the faces sampled are ground not worked by the old miners due to poor grade.

Looking at the geographical, topographical and mining boundary aspects of the area, a number of problems exist.

First, the St. Helens to Launceston main road cuts the prospect area in two which would create problems in any mining operation, particularly if a dredge was involved.

From the topographical view point, the ground to the north rises, increasing the ratio of overburden to pay dirt if it was intended to work only high grade basal washes.

Finally, the northern limit of EL6/68 in this area lies only 900 feet north of the old workings. Ground further to the north is held by Blue Metal Industries within EL24/70. Renewal date for this exploration licence is April 14th.

All things taken into consideration, this area would not warrant a high priority. At the moment there are too many "ifs", if the lead continues north away from the basalts, "if" B.M.I. drop the ground to the north etc. etc.

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In this area, it is considered the basal washes should be the target for testing. The area extent does suggest a yardage to support a dredge operation is available but the grades indicated to date are low and should be expected to further decrease away from the source.

A seismic unit could define the main lead to the north which could be then tested by a single line of closely spaced (50 feet) drill holes to give some indication of grade within the basal washes.

A weeks seismic work with follow-up drilling for two weeks (\$1300) could give us the information we need.

PIONEER MINE (LEAD) - EXTENSIONS 7

The Pioneer Mine, which was opened up on the Wyniford Deep Lead, was worked until 1929 producing 9050 tons of tin concentrate. Grades varied between 2.16 lb/cu. yd. SnO_2 in the early days to 0.74 lbs/cu. yd. SnO_2 in 1928. Whether this is top to bottom it is unknown, but it is assumed so.

Pay dirt, basal washes, along the western limits of the mine are covered by up to 100 feet of overburden.

The mine area itself is covered by 784 acres of mineral leases in the name of Vernon Wood. He is at present operating what apparently is a profitable venture working on a smaller scale than was originally operated in the early 20th Century.

Texins interest in this area would be in possible extensions to the present lead. Outside of Wood's leases the area in which this lead might be established is restricted, being sandwiched between these leases and B.M.I.'s EL24/70. Assuming the lead headed directly west, (probably not so), a

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possible yardage of 450,000 cu. yds. of pay dirt may be present taking the parameters for the lead as being 100 yards wide, pay dirt 5 yards thick (estimated from present workings) and a distance of 900 yds. from Wood's leases to EL6/68's boundary. This would be beneath a probable overburden of around 3,000,000 cu. yds. Both the figures for pay dirt and overburden are probably on the pessimistic side.

Should an option be negotiated to test the extensions within Wood's leases then these yardages would be at least doubled.

Reports of drilling ahead of the mine indicate grades of 0.26 lbs/cu. yd. SnO_2 over 120 feet. Assuming the overburden carries only minor values then the basal washes grade around 1.5 lbs/cu. yd. SnO_2 .

Wood was approached early in 1972 concerning an option agreement over his mine an equipment when rumours were about that he was planning to sell out. He appeared interested but the matter was not pursued.

Being an operational mine, it is difficult to obtain results of exploratory drilling or details of production, to answer questions on direction of extending lead, grade, depth etc.

One point of interest from discussions with Wood was that by sluicing the overburden away and catching any minor tin values present in long tail races he was able to remove overburden at the rate of 4 cents/cu. yd.

On the figures worked out above, assuming a grade of 1.50 lb/cu. yd. SnO_2 for the basal washes and a rate of moving material at 100 cu. yds/hour or 210,000 cu. yds/year (probable with present set-up at Pioneer Mine) then a return of around \$270,000 is possible for the year. Removal of overburden (4 cents/cu. yd.) would amount to around \$55,000 to expose 210,000 cu. yd. (assuming a ratio of 7:1-105 feet overburden

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to 15 feet pay dirt). Then out of \$215,000 would come the cost of working the pay dirt by hydraulicking, gravel pump, jigs etc.

This is playing around with figures but gives some guide as to whether such a venture can be profitable.

However, it is considered the Pioneer Lead would only offer prospects for Texins if it took over the existing mine. To strip by mechanical means the overburden from a new mine outside of Wood's leases would make for a marginally economic venture. To move 3,000,000 cu. yds. overburden from over 450,000 cu. yds. of pay dirt, assuming these figures are close to what exists, one doubts if profitability could be maintained.

Because of the lack of data on the Pioneer Mine, much of the above is based on assumptions. Should it be decided more reliable data on yardages and grades is required then a programme similar to that for the Echo Lead could be devised.

RINGAROOMA RIVER 8

This prospect again was the subject of a B.M.I. plan to work, in conjunction with Texins, the river gravels within the present course of the Ringarooma River. B.M.I. have secured options over virtually all the small 10-20 acres leases which are found upstream from Herrick, within the boundaries of EL6/68.

The Ringarooma River is comparatively young, the present course being post-Tertiary. It was abandoned courses of the Ringarooma River which were the subject of drilling on the Dorset Flat in the past year.

Near Herrick and upstream towards Derby, the gravels within the river and along its banks have been worked by small

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mining syndicates and part-time miners, Records of their returns are not known but they would be small. One syndicate headed by R. Hyde of Moorina has diverted the river and is using a dragline and gravel pump to an elevated sluice box in his operation. A senior Mines Department geologist has indicated that Hyde is recovering good gold values with the tin returns.

Following the river downstream from the west, one passes through leases held by Messrs. Maumill and Kerrison before coming on a stretch of just over 1 mile included within EL24/70 (B.M.I.). From this point we enter ground held by Texins within EL6/68 with a stretch of approximately five-eighths of a mile before coming on the lease held by R. Hyde. East of this lease lies a stretch of approximately 2 miles where the river is narrow and rocky with little or no alluvium present. As Herrick is approached, the river is held under lease to B. Trevena and/or R. Hyde for just over 1 mile. From this point through to the northern boundary of EL6/68, approximately 9 miles, the whole Ringarooma River lies within Texins held ground.

Little is at present known about the yardage and grade potential of the gravels within the Ringarooma River. The yardage within the section from Herrick northwards is potentially large (5 million cu. yds. plus over $3\frac{1}{2}$ mile stretch to the Pioneer Bridge) but the grade is likely to be low. Over the final $1\frac{1}{2}$ miles near the northern EL6/68 boundary, that Dorset Flats, worked by the Dorset Tin Dredge for over 20 years, gave grades reportedly as low as 0.135 lbs/cu. yd. Sn (Utah Dev. Co. reports) while other reports quote 0.25 lbs/cu. yd. as the average grade (Geology of Australian Ore Deposits).

The source area for the cassiterite concentrations within the Ringarooma River is complex since a number of large streams enter the Ringarooma (i.e. Wyniford, Weld, Main Creek, Cascade, Black Creek) at points along its course, all draining areas of the Blue Tier Batholith with its tin associations. The confluence (and downstream from such) with any of these major tributaries would represent good areas for tin (cassiterite) deposition.

However, although one has here a long river receiving supplies of cassiterite from a number of sources, it must also be borne in mind that it is also the main drainage course for a very large catchment area and there is therefore considerable dilution from material which does not originate from a tin source.

Further, through the past 90 years the river has been used as the tailing dump for many of the large mines within N.E. Tasmania. The thickness of these tailings lying over any possible basal washes cannot be estimated at this stage. On the Dorset Flat, drilling alongside the river encountered up to 30 feet of tailings carrying only minor tin values. Economic values below could not be exploited because of these overlying tailings. The same could be the case with the Ringarooma River.

Any programme planned for Ringarooma River should be divided into two sections, one for testing the area west of R. Hyde's lease (five-eighths of a mile) and one for the section of river north from Herrick.

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The first section mentioned would carry a restricted yardage (200,000 cu. yds. assuming a width of 200 feet and average depth of 9 feet) but the grade (tin/gold) would probably be good if the existence of Hyde's mine is indicative of what is to be found.

It is in this area that B.M.I. probably have most interest. Limited testing may be warranted to check on grade and yardage with a view to releasing it to B.M.I. with some small financial interest retained.

The second section of the river from Herrick northwards should be tested at selected locations, beginning as close to Hyde/Trevena leases as possible (one assumes these leases have been worked profitably by the operators). Timing of this work, if it includes drilling, is important as at certain times of the year the river is likely to rise swiftly with the advent of adverse weather conditions. The months of February to April probably present the best conditions, although as in the case of last year drilling is often possible over periods of 6 to 8 months (October to May). Initially it is suggested a reconnaissance of the river between the above mentioned leases and the Pioneer Bridge be made with favourable locations, such as sandbanks on the inside curves of sweeps in the river, being selected for preliminary drilling. If a line of holes is required across the river then the rig will have to be mounted on some kind of sledge and towed from the bank by a bulldozer.

SHALLOW MARINE/RIVER TERRACES, PIONEER TO SOUTH MT. CAMERON 9

A number of small operators, L. Groves, R. Lawry, S. Kerrison, E. Watt and also B.M.I. have in recent years been working shallow marine and/or river terraces along the western bank of the Ringarooma River, north of Pioneer along the Gladstone Road.

It is ground of this type which R. Lawry is working at South Mt. Cameron, the leases which Texins may take over.

Average depth for these deposits would be around 10-15 feet, sometimes shallower at 6-8 feet. Deeper ground is found as the river terraces of the Dorset Flat are approached. One operator, S. Kerrison at Corduroy Creek is working ground to 25 feet with reported grades to 4 lb/cu. yd. SnO₂ over a 10 acre lease. The Aberfoyle Company have recently began drilling this lease under option.

The tin values are found in a basal wash ("shingle") in most cases of marine origin often covered by an overburden of sandy or gritty clay. Grades vary from locality to locality with occasional very rich pockets found. Most operators are working on grades of around 1 lb/cu. yd. SnO₂.

The prospective area within EL6/68 and not held under lease would amount to around 200 acres, potentially yielding a large yardage.

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Testing could be accomplished by a backhoe on a grid pattern with a drill being used where basement was not attained. Should a seismic tool be available this could also be utilised although here we are not attempting to define gutters for test drilling, but need more of a blanket type coverage by a cheap efficient testing device i.e. a backhoe.

Such ground, if proved, would further add value to any equipment purchased from R. Lawry.

EMU FLAT, FROME RIVER 10

The Emu Flat lies close to the headwaters of the Frome River, approximately 2 miles N.E. of Weldborough.

At this moment little is known of its potential. It has merely been picked out as a river flat of some 110 acres which lies close (within 1-3 miles) of the Blue Tier with its numerous hard-rock tin mines and prospects.

From geological maps of the area, the flat appears to be underlain by the mineralising tin granites.

A ground reconnaissance would be necessary followed by preliminary testing, probably by a backhoe, if considered warranted.

Even at this early stage it should be noted that as in the case of Bald Hill, the area lies away from the general

Pioneer-South Mt. Cameron area. Access to the area would require upgrading of the present track especially if there was any consideration of moving a tin washing plant into the area. Further the cost of laying on power (electrical) for such a plant could prove an expensive additional cost with the area lying 2 miles N.E. of Weldborough across rough terrain and $4\frac{1}{2}$ miles from Moorina, these being the closest H.E.C. power lines.

WELDBOROUGH AREA 11

As in the case of the Emu Flat, this is again basically an unknown quantity.

Various types of tin deposits (alluvial, eluvial, residual and hard-rock prospects) have been worked over the years. No comprehensive review of these prospects has been made but there may exist moderate yardages which could be exploited on a small scale.

A ground reconnaissance would again be the preliminary step.

OPTIONS (BRIEF NOTES)

a) BLACK CREEK - L. BARNETT - 16 ACRE MINERAL LEASE

Location : Approx. 1 mile west of EL6/68 (Bald Hill area) on western fall of Bells Hill.
 Yardage : Estimated at 160,000 to 240,000 cu. yds.
 Depth : 12 to 14 feet.
 Grade : 2 to 3 lbs/cu. yd. SnO₂ overall. Up to 8 lbs/cu. yd. SnO₂ in basal sections - reported values.

Other : Ground stony - 65%+
Immediate : Distance from Pioneer-South Mt. Cameron
Problems : area - 20-25 miles. Distance from power
supply - Branzholm - approx. 7 miles,
Ringarooma - approx. 5 miles Water supply.
Agreement : Preliminary testing prior to option
agreement.
Price : None discussed.

b) PEARCE CASCADE CREEK-D. MULLINS-46½ ACRES OF MINERAL LEASES (3)

Location : Approx. 3 miles south of Branzholm.
Yardage : Estimated at 250,000 cu. yds.
Depth : Variable-river gravels to 20 feet, average
8 feet-eluvial, average 3 feet.
Grade : 1 lb/cu. yd. SnO₂ in basal washes-reported
values.
Other : Ground stony - 50%+. Source close - very
coarse cassiterite with good crystal form.
Drilled by Mines Dept. as hard-rock prospect.
Immediate : Distance from Pioneer-South Mt. Cameron -
Problems : approx. 20 miles. Water supply.
Agreement : Preliminary testing prior to option
agreement.
Price : \$22,000 (with \$2,000 option inclusive).

c) FLY-BY-NIGHT CREEK - R. LAWRY - 90 ACRES OF MINERAL LEASES (3)

Location : Approx. ½ mile from Gladstone.
Yardage : No assessment made.
Depth : Up to 70-80 feet.
Grade : Not known.
Other : Area covers contact zone of "tin" granite,

soft decomposed, extensively greisenised with stockwork of quartz and greisen veins. Soft enough to be worked by sluicing. Numerous faces and tunnels which could be channel sampled as preliminary testing.

Immediate: None. Power close at hand. Approx. 5
 Problems miles from South Mt. Cameron on main Pioneer-Gladstone road. Water supply from Ringaroona River - 200 feet lift.
 Agreement : Free option.
 Price : None discussed.

d) STAR HILL - R. LAWRY - 305 ACRES OF MINERAL LEASES

Location : Approx. 2 miles from Gladstone.
 Yardage : No assessment made. Reserves by R. Lawry put at 500 tons plus Sn concentrate - conservative.
 Depth : Varies to 30 feet.
 Grade : Varies 6 ozs. to 1½ lbs (cu. yd. SnO₂ - reported values)
 Immediate : Water supply at mine purchased. Mine
 Problems leases at present held under option to B.M.I. Due for expiry in 3-4 months. B.M.I. at present negotiating for extension. Lawry not keen to give extension as B.M.I. have had the area tied up for 2 years.
 Agreement : No agreement with Texins arranged but with situation with B.M.I. as it is, open to negotiation.
 Price : Terms to B.M.I. \$1,000 option. \$40,000 purchasing price. Lawry indicated terms could be renegotiated. Limited machinery at mine (1 mile of power line, 150 H.P. pump, length of 15" pipe, 130 H.P. motor on pump) could be included in purchasing price.

e) AMBER HILL - R. LAWRY - 62 ACRES OF MINERAL LEASES

Location : Approx. 4 miles from Gladstone (south).
 Yardage : No assessment made. Partly worked out.
 Depth : 70 feet maximum, 30-40 feet of overburden.
 Grade : Overall unknown. Basal washes reportedly
 up to 20 lbs/cu. yd. SnO₂.
 Immediate : Mine leases held under option to B.M.I.
 Problems possibly.
 Agreement : None.
 Price : Unknown.

f) SOUTH MT. CAMERON - SOUTH MT. CAMERON SYNDICATE - 111 ACRES -
MINERAL LEASES

Location : South Mt. Cameron
 Yardage : Estimated at approx. 50,000 cu. yds.
 Depth : Varies to 14 feet, 6-10 feet of overburden.
 Grade : Overall 1 lb/cu. yd. SnO₂, pay dirt
 2-2½ lbs/cu. yd. SnO₂ - reported values.
 Immediate : None. Equipment included in price, set
 Problems up to work remaining ground.
 Agreement : 3 months option with \$1,000 cash payment.
 Price : \$26,500 covering equipment and leases.

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CONCLUSIONS AND RECOMMENDATIONS

The summary above gives as much relevant data on the various prospects included within the alluvial tin programme, as is known at the present time.

A list of priorities for exploratory work (excluding the Dorset Flat, Swains Creek and Bald Hill areas on which we have completed exploration work) would be:

1. Wyniford River
2. Shallow marine/river terraces (including South Mt. Cameron leases).
3. Fly-By-Night Creek (assuming option arranged).
4. Ringarooma River.
5. Star Hill (assuming option arranged).
6. Echo Mine/Pioneer Mine/Eastern Leads/Other Deep Leads.
7. Amber Hill (assuming option arranged).
8. Weldborough area.
9. Emu Flat, Frome River.
10. Pearce Cascade Creek (assuming option arranged).
11. Black Creek (assuming option arranged).

These priorities have been made taking into account yardage and grade potential, ease of testing and feasibility of mining.

The Wyniford River gives a potentially large yardage and good grade and should be easily tested using a backhoe. The shallow terraces offer similar prospects.

The Fly-By-Night Creek area rates high on the list due to its potentially large yardage, its position and ease with

which initial testing could be carried out.

The Ringarooma River has potentially a large yardage although grade is probably low. Problems exist regarding testing and mining due to unforeseen weather conditions.

Star Hill, although little is known about it at present, has potential regarding yardage and grade and is again the type of ground which could be worked with the type of equipment we may acquire.

The deep leads, at the present, appear to offer only limited yardages of unknown grade with a possibly high cost of recovery. Testing of these leads however should not present any problems.

Amber Hill is basically an unknown quantity but has potential in that it is operating as a mine.

Until more is known about the Emu Flat and the Weldborough area they must remain low on the priority list with Pearce Cascade Creek and Black Creek, although it is safe to assume that workable yardages and grades exist here, the problems of water supply, power supply and accessibility makes them less attractive.

Regarding men and equipment, the following would be the requirements (very approximate):

Wyniford River	- Backhoe (4-5 weeks-\$1500)
Shallow marine terraces	- Backhoe (6 weeks-\$1800)
Fly-By-Night Creek	- 1 Field Assistant.
Ringarooma River	- Drilling (4 weeks (20 holes \$2600) Bulldozer ? 1 Field Assistant.

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- Star Hill - Drilling (6 weeks (45 holes) \$3900) 1 Field Assistant.
- Deep Leads - Seismic survey (3-4 weeks) 1 Field Assistant, 1 Geologist. Drilling (6-8 weeks (20 holes) \$5200 1 Field Assistant.
- Other Prospects - 1 Geologist and 1 Field Assistant from time to time.

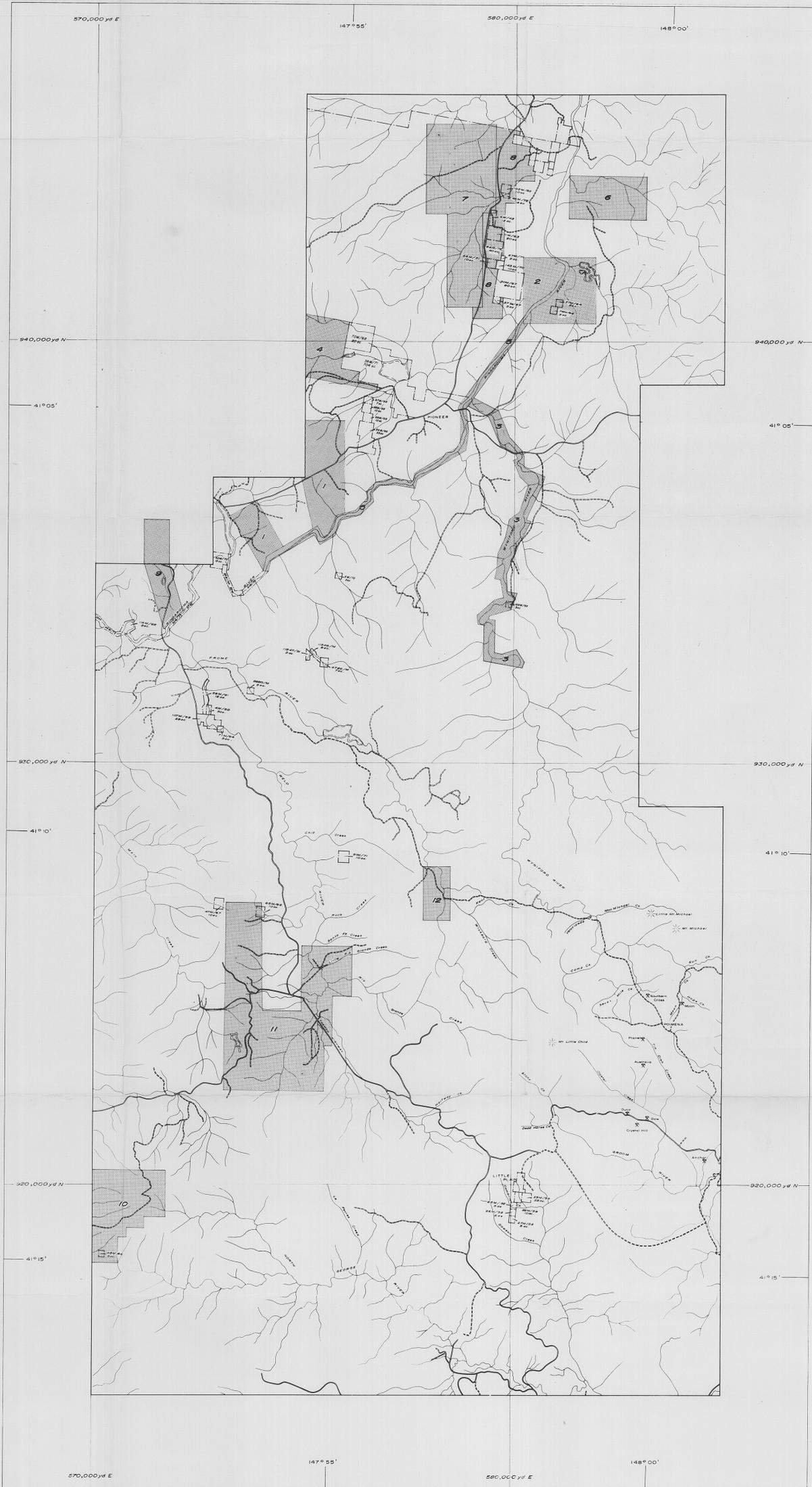
One geologist would be employed throughout supervising the programme, assisting in the sampling, logging and preparing maps, plans, reports, etc.

In all we are looking at 33 weeks work assuming, a) work finishes on one prospect before commencement on the next and b) the work runs to schedule with no additional work-most of the times stipulated above are for preliminary assessments only, not taking into consideration any follow-up work.

Two prospects could be run at one time but this would involve the doubling up of man-power to process the samples. Certain work such as sampling at Fly-By-Night Creek and the seismic surveys could be conducted at the same time as other backhoe or drilling work.

Hopefully this report illustrates where we are going, how and roughly how long in our alluvial programme.

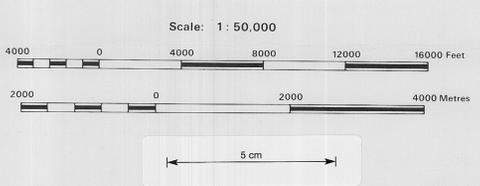
I.R. MORTIMORE.



LEGEND

- Boundary of EL 6/68 - April '73.
- - - Mineral Lease boundary excluded from EL 6/68.
- ~ Watercourse
- == Road
- ==== Vehicle track

PROSPECT AREAS	
1	Possible Deep Lead
2	Dorset Flat
3	Wynford River
4	Pioneer Lead (Extensions)
5	Ringarooma River
6	Swains Creek
7	Eastern Leads
8	Shallow Marine/River Terraces
9	Echo Lead
10	Bald Hill (Eluvial)
11	Weldborough (Alluvial/Eluvial/Residual)
12	Emu Flat



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TEXAS INSTRUMENTS INCORPORATED
GEOPHOTO RESOURCES
 SYDNEY, AUSTRALIA
 TEXINS DEVELOPMENT PTY. LTD.
 EL 6/68 NORTH EAST TASMANIA

Alluvial Tin Prospect - Locations
 (STATUS REPORT - 22ND MARCH 1973)
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PROJECT 6/68 AUTHOR I. Mortimore DATE Nov. 1973 DWG. N° A200