A REVIEW OF
THE GOLD POTENTIAL OF NORTH EASTERN TASMANIA

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AMG REFERENCE POINTS ADDED

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1.0 INTRODUCTION

This report constitutes a complete literature review of the gold occurences in north-eastern Tasmania. The review was conducted irrespective of any mineral tenements which may have been current. A limited number of recommendations have been able to be made as a result.

Because of GFEL's current involvement on the Beaconsfield Joint Venture, this area was not included for the purposes of this report. However, due to the writer's prior involvement with that project, it is pertinent to note that on geological grounds, the Beaconsfield district, even though very little is known about the origin of the mineralisation, is considered to represent the single most prospective area for future gold development in NE Tasmania.

The regional geology of the area is described to provide the geological framework in which to place the mineralising events. Areas of gold mineralisation are then delineated on geographical and geological grounds and these are described generally in complete separate sections. Individual data sheets have been compiled for each mine or prospect area to provide the detailed data not included in the general discussion and it is intended that these be used for reference purposes on future ocassions.

The determination of the exact location of these workings has not always been possible and not all of the areas described in the data sheets are therefore located on the corresponding geological map overlays.

It is intended that this compilation will serve as a data base for further enquiries into the gold potential of NE Tasmania and to minimize the need for time consuming literature searches. All open file reports pertinent to the topic were consulted at the time of writing.

2.0 SUMMARY OF RECOMMENDATIONS

2.1 LEFROY GOLD FIELD

The results of current alluvial gold evaluation should be monitored and reassessed if the land becomes vacant as this is seen as the only possible exploration target of interest in this area.

2.2 BACK CREEK GOLD FIELD

Sampling and assessment of reported closely developed quartz vein system of the old union and Sir John Franklin Mine structures are warranted to establish width and grades of possible stockwork gold mineralization developed about the main quartz veins.

2.3 LISLE-GOLCONDA-LEBRINA-DENISON GOLD FIELDS

In order to clarify the nature of the gold occurrences in the intrusive and immediate contact rocks in the Lisle-Golconda area, a number of bulk rock samples should be obtained in particular from the pyritic rock of the Panama workings and intensely quartz veined parts of the Golden Crest, Panama and Lisle areas.

"Mineralized silicified" sandstones reported from the Bessells Reward, Cradle Creek, Myrtlebank and Lisle areas should be sampled and mapped to establish grade and extent of these zones.

A series of bulk rock chip samples from across the N.E. strike extension of the Lebrina Mine would test the possibility of bulking gold mineralization along this structure.

2.4 GLADSTONE-PORTLAND-MUSSELROE GOLD FIELDS

Field inspection and bulk rock chip sampling of quartz veining in the Musselroe area is warranted; however the Sn-W potential of the area is probably more significant than that of Au.

2.5 WATERHOUSE DISTRICT

No recommendations to further work.

2.6 FORESTER-WARRENTINA DISTRICT:

No recommendations to further work.

2.7 ALBERTON GOLD FIELD:

Location and complete reassaying of Mines Department drill core for gold from drilling projects in this area (e.g. Long Struggle and New River) is justified.

Bulk rock chip sampling of quartz veins in the area is warranted in view of the reported significant high density of possibly gold mineralized quartz veining throughout the Alberton gold field, in particular the Forest King-Ringarooma; Mercury-Long Struggle-Mt. Victoria and the Central-New River segments of the zone.

This represents the single most prospective area for locating bulk tonnages of gold mineralized quartz veined structures of all the areas considered within the scope of this report, and as such should be accorded a high priority to any followup work.

2.8 DANS VALLEY GOLD FIELD

In conjunction with the Alberton area, Mines Department drill core should be completely reassayed for gold, also a limited amount of rock chip bulk sampling should be undertaken to further test the concept of mineralized quartz vein stockwork development about the major veins of the area.

2.9 MATHINNA GOLD FIELD

No new work can be recommended for the area about the New Golden Gate Mine, except perhaps for a limited amount of surface rock chip sampling to test for mineralization in the vicinity of the northern extensions of the South Golden Gate workings where substantial widths of quartz veinings in reported at shallow depths.

"Stockwork" quartz vein development in the vicinity of the old Tower Hill Mine should be bulk rock chip sampled and the extent of control of any such zones be established by geological mapping.

2.10 MANGANA GOLD FIELD

No recommendations for the area can be made.

2.11 UPPER SCAMANDER DISTRICT

Sampling of the quartz vein and or silicification development in the vicinity of the Golden Ridge and Brilliant workings should be carried out to establish bulk gold grades in these areas.

2.12 MISCELLANEOUS AREAS

No recommendations for further work but the possible alluvial gold potential of Camden Plains should be considered further.

2.13 CYGNET DISTRICT

Continuing monitoring and re-evaluation of the current gold exploration of this area should be carried out.

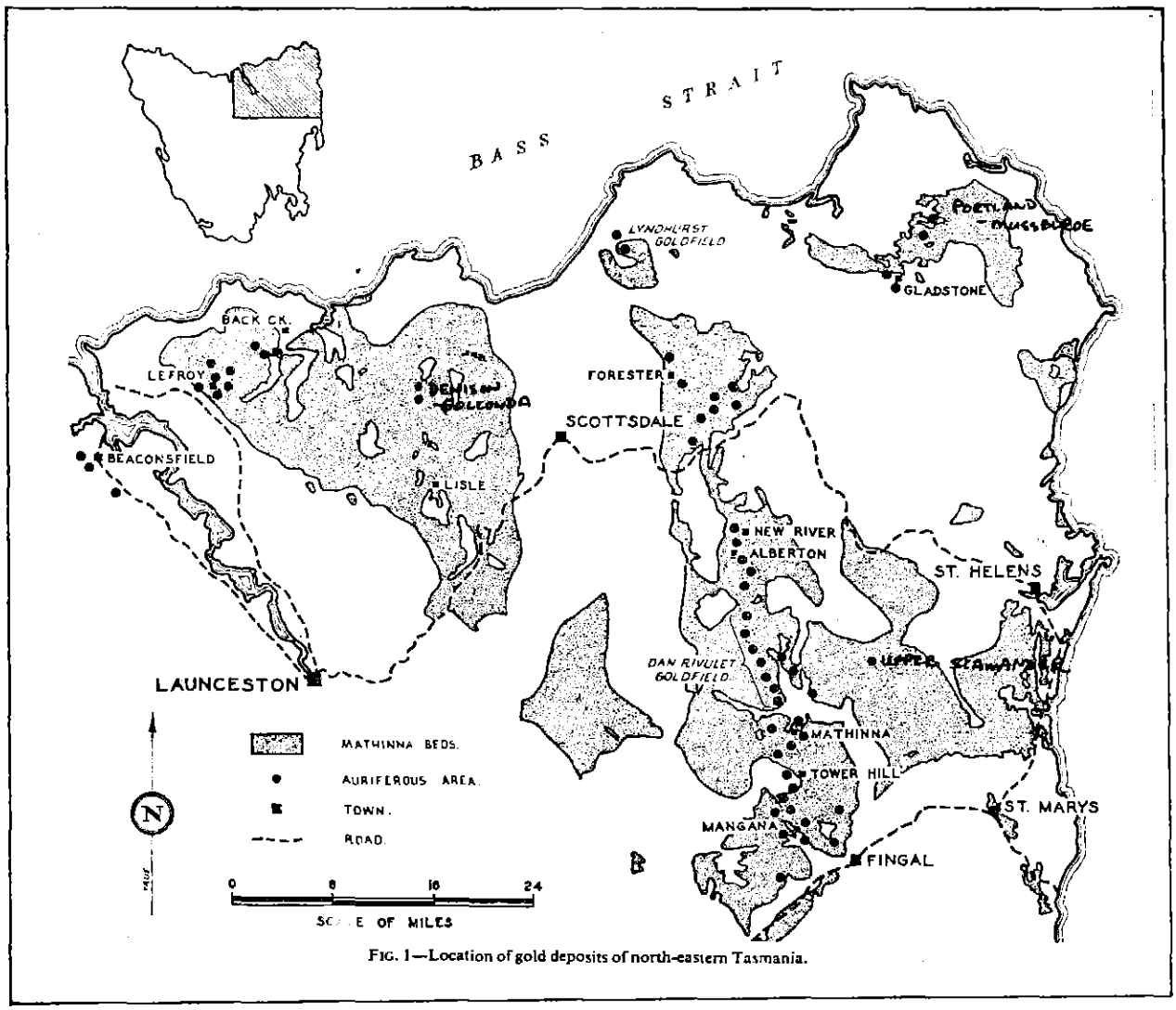

FIG. 1—Location of gold deposits of north-eastern Tasmania.

FIG. 3.1

LOCATION OF GOLD FIELDS OF N.E. TASMANIA.

3.0 GENERAL DISCUSSION

3.1 REGIONAL GEOLOGIC SETTING (Refer Plan 1)

Solomon and Griffith (1974) discussed aspects of the early history of the southern part of the Tasman Orogenic Zone. It was considered that much of this area is underlain by a Precambrian basement.

In western Tasmania the lower Palaezoic deposition began in narrow troughs developed between and within the Precambrian areas which became "geanticlines" during the Cambrian. During later periods of deformation, these Precambrian regions acted as "blocks", whilst the younger rocks were folded in a number of directions. The western margin of the Tasman Orogenic Zone is considered to be essentially a cordilleran-type continental margin which received detritus from a foreland to the west and locally from the internal highs of "geanticlines". The sequence of depositonional, metamorphic and igneous events during the late Ordovician to Devonian are considered the result of a single episode of subduction that probably ceased in the early Silurian.

In north-eastern Tasmania, the Mathinna Group sediments of early Ordovician-early Devonian age which underlie the area, are considered to represent an essentially uninterupted period of greywacke-shale (flysh) sedimenatation and constitute a portion of a large elongate depositional basin that now exhibits comparatively simple folding along a north-westerly trend through several stages of deformation of the Tabberabberan Orogeny. Correlation of these stages between west and east Tasmania has not been conclusively established although they are generally thought to be of the same age.

Mathinna Group

As described by Williams (1975), the absence of marker horizons within the Mathinna Group makes determination of their structure and stratigraphy difficult, but it has been possible to subdivide it into an older lutite (or argillaceous) sedimentary association found west of the Scottsdale Batholith, and a younger (early Devonian) arernite-lutite (or arenaceous) sedimentary association. The predominant rock types are sparsely fossiliferous fine grained conformable sequences of mudstone and of interbedded turbidite quartz-wacke, siltstone and mudstone.

There is no clear boundary between the two divisions as a broad transitional zone appears to exist between them.

Groves et al (1971) described the arenite-lutite (arenaceous) association from the north-eastern part of the area "...as being predominantly composed of sandstone or coarse siltstone, commonly graded, having fine siltstone or mudstone tops. Massive ungraded sandstone or coarse siltstone beds up to 5 m thick occur in places. Sequences of finely laminated mudstone up to 4m thick appear to be less common". "The coarser grained rocks are generally poorly sorted with a high portion of argillaceous of siliceous matrix and are most commonly impure quartz sandstones or quartz greywacke. Massive beds of quartzite, up to 10 m thick, may represent silicified sandstones in areas of mineralisation."

The total thickness of the Mathinna Group sediments is not known but it has been suggested that it may be in excess of 2000m. Likely source rocks for the Mathinna Group sediments, based on paleocurrent directions, are Precambrian and Cambrian rocks in south-western Tasmania. The outcrop of the Mathinna rocks is relatively poor.

The Mathinna Group has undergone low grade regional or dynamic metamorphism. Quartz is the dominant detrital mineral with minor feldspar and white mica comprising 10%. The argillaceous matrix has been recrystallised to chlorite, muscovite, quartz and carbonate. Where penetrative cleavage is well developed a planar preferred orientation of sericite and chlorite is apparent. The low grade of the metamorphism has precluded the formation of any diagnostic mineral assemblages for rocks of these compositions. Slaty or phyllitic fabrics are commonly developed and often mask primary bedding structures.

As described by Groves et al (1977), "...The sediments have also suffered contact metamorphism during emplacement of the younger granitic rocks and contact aureoles between several metres and 2 km in width are developed dependent on the dispostion of the rock boundaries. Adjacent to vertical granitic boundaries, contact aureoles seldom exceed 250 m in width. The rocks close to the contact zone are generally interbanded

quartz hornfels and spotted hornfels. The spotted hornfels commonly display ellipsoidal spots, up to 1cm in diameter, of muscovite, quartz and biotite with small irregular grains of cordierite partially replaced by sericite in a granoblastic groundmass of quartz with minor biotite and muscovite. In other specimens K-feldspar, plagioclase, epidote and chlorite may be present in minor amounts. Although the assemblages are not diagnostic, the presence of cordierite suggests low pressure, hornblende hornfels facies metamorphism. Further from the contact cordierite is absent and assemblages are generally quartz-muscovite-biotite-chlorite indicating albite-epidote hornfels facies".

The Mathinna Group extends westwards to the Tamar River. Immediately west of the Tamar River deposits of comparable age (eg Gordon Limestone) are very different. The contrast is so great that it is believed that the two regions were once separated by an extensive area of transitional deposits, which has since been faulted out by large scale lateral movements along a fracture system which later became the site of the Tertiary Tamar Trough.

The onset of terrestial and shallow marine Ordovician sedimentation in Tasmania indicates considerable uplift in the Precambrian source areas. East of the Tertiary Tamar Trough, north-west trending asymmetrical folds dominate the deformation of the Mathinna Group. The vergence of the folds is usually to the north-east, indicating transportation from the south-west which is directly opposite to the direction of movements resulting in the structure of probably similar age immediately west of the Tamar Trough.

Post middle-Ordovician deformation in Tasmania was epierogenic and includes structures associated with Late Devonian to Early Carboniferous granite emplacements, Jurassic dolerite intrusions, the formation of Tertiary depositional troughs and Tertiary volcanism. Later faulting along older fracture systems was probably common.

The middle-Devonian Tabberabberan orogeny was essentially one of high level tectonics accompanied by numerous granitic intrusions and it is thought (Solomon and Griffiths, 1974) that it may have been caused by the heating of the cordilleran margin and subsequent rise of magmatic diapirs rather than the collision between plates.

Cocker (1982) conducted some age dating of the Mathinna Group sediments and found that "...the isochron ages for the arenite-lutite and lutite sedimentary associations ... reflect an approach to Sr isotopic equilibrium during regional metamorphism. The younger limitof the isotopic age of the arenite-lutite association (401 ± 7 my) just overlaps with the minimum granitoid ages (395-370 my) and suggests that the early plutonism may be contemporaneous with the regional metamorphism in eastern Tasmania. Further, in consideration of the indicated stratigraphic and faunal age of the sediments there was a relatively short time interval between deposition and the onset of metamorphism and intrusion of the granitoids. In eastern Tasmania, the granitiods transect the preintrusion regional scale folds which were hence formed prior to the cooling of the granitoids (395 my). However, there is evidence that the deformation events may have spanned a longer period of time as some plutons have widespread feldspar foliations which cut internal rock type boundaries and are correlated with post-contact metamorphism foliations in some aureoles. This apparently regional stress sytem existed to at least 370 my ago."

Cocker (1982) also stated the granitiod intrusions, which will be discussed further at a later stage, recorded minimum biotite ages and well defined isochron ages that indicate the north-east Tasmania granitoids intruded and cooled in the upper crust from 395 - 370 my ago. This age range contrasts with that of Devonian granitoids in western Tasmania (375 - 340 my).

3.2 REGIONAL STRUCTURES AND DEFORMATION

As described by Williams (1979), folding of the Mathinna Group has been attributed to the Tabberabberan Orogeny (upper-middle Devonian).

It has been shown that the Mathinna Group sediments have been generally folded into a series of major folds with superimposed coaxial folds of smaller wavelength. The folds have north-westerly trending hingelines which are often horizontal or doubly plunging towards the NNW and SSE at angles of less than 30^{0}.

"The folds are typically asymmetrical, long limbed and with narrow flattened hinge zones. Their axial surfaces normally dip steeply to the south-west and a primary slaty cleavage associated with the folds displays divergent fans in the sandstone layers and convergent fans in the relatively incompetent mudstone beds. The fanning of the cleavage occurred during later movements which tightened the hinges of the earlier formed folds."

The folds are of many orders of size, normally up to 3-4km in wavelength. Much larger folds are present however, and although they might have been dislocated by many undetected large normal faults, their half wavelengths can be estimated to be about 20 km.

The regional folds have been modified by later folding associated with the emplacement of some of the plutonic rocks.

The rocks are characterised by the variable development of a slaty cleavage, although bedding is generally the more dominant planar fabric in the arenite - lutite association in contrast to the lutite associations where cleavage is generally more prominent.

After a period of erosion, the late Carboniferous to Late Triassic Parmeer Super Group, being predominantly a flat lying conglomeratic sequence about 1350 m thick, was deposited and intruded by Jurassic dolerite sheets up to 450 m thick.

A period of considerable erosion and normal faulting preceeded Cenozoic deposition. The faults which probably followed older fracture systems are of dominantly northerly, north-westerly and westerly trends.

Tertiary to Recent basinal and outwash gravels and sands were deposited particularly along the northern fringes of the area. The sediments occupy the structural and often erosional depressions produced by Eocene (?) faulting and a lower erosional base. Basalts to 50 m thick are commonly found interbedded with, or more usually, overlying the sediments. The sediments have been largely derived from the weathering products of the granitoid rocks.

3.3 GRANITOIDS

(after Williams, 1979 and Groves et al, 1977)

"The granitic rocks of north-east Tasmania are part of a large belt of essentially post-kinematic granitic bodies within the Tasman Orogenic Zone. Regionally within the zone they occupy about 35% of the exposed surface area of Palaeozoic rocks and are generally composed of calcic adamellites and granodiorites. North-east Tasmania is one of several distinctive areas where granites and alkalic adamellites occur, accompanied by tin and/or tungsten mineralisation".

The granitoid rocks of the area underlie a total area of about 2550 km^2, the largest masses being the Blue Tier and Scottsdale Batholiths occupying areas of about 1800 km^2 and 750 km^2 respectively. Radiometric dating by a number of workers indicate an upper-Devonian age (360-395 my) which is considerably older than those obtained for the western Tasmanian granitoid rocks. The large batholiths which appear to be high level intrusions (probably less than 6 km deep) are composite in composition.

They have short discordant boundaries which appear to be controlled by fractures usually parallel to the pre-intrusion folds of the surrounding Mathinna Group. Contact metamorphic aureoles are narrow (0.25 - 2 km in width).

The Blue Tier Batholith is the more intensively studied of the two and is predominantly composed of variations of biotite - muscovite adamellite composition except for the Pyengana Pluton which is a biotite - hornblende granodiorite. The batholith was intruded passively in a sequence from early mafic granodiorite to the late leucocratic granite which is associated with the tin mineralisation.

Within the batholith, Groves et at (1977) recognise 17 petrologically distinct granitic types or groups forming 18 major bodies which are generally discrete structural entities as plutons, sheets or masses. The granitic rocks may also be divided into three major groups on the basis of mineralogical composition:- hornblende bearing granodiorite; biotite granite and adamellite; and muscovite - biotite granites. These authors discuss the petrology and geochemistry of these rocks in some detail not warranted here.

The nature of thepetrogenetic relationships between the various phases represented in this batholith have been the subject of a number of recent studies. In particular, Cocker (1982), Groves et all (1977), HIggins et al (1982), HcClenaghan and Williams (1982) and G. S. Bulletin 61 include discussions on the various aspects of the subject and briefly relate this to the origin of the tin-tungsten mineralisation which is associated with the late phase alkali feldspar granite. It appears that the range of rock types found could not have been derived by fractional crystallisation from a single adamellite melt.

The Scottsdale Batholith is predominantly composed of granodioritic composition with a central zone of a coarse to medium grained pink biotite (-hornblende) adamellite and a marginal phase of biotite-hornblende granodiorite, and commonly includes remnants of roof pendants and aligned xenoliths.

Most evidence suggests passive rather than forceful emplacement of the granitoid bodies, however minor regional doming and flexuring is indicated in some areas.

3.4 MINERALISATION

The mineralisation in north-east Tasmania generally falls into two categories:

(i) gold-silver, with associated rare sulphides of iron, arsenic, copper, lead and zinc, in discordant quartz veins commonly at considerable distances from granitic rocks.

and (ii) cassiterite and/or wolframite with rare sulphides in griesenized granitic rocks or in adjacent quartz vein systems.

The Scamander area is unusual in that it also contains some quartz-sulphide veins which carry copper, lead and zinc. The zonal character displayed by this mineralisation is discussed at a later stage.

A genetic relationship between this (hydrothemral) mineralisation and the upper Devonian granitiod rocks of the area has been accepted by most workers.

(i) Gold-Silver mineralisation: (being the main subject of this report). Gold-silver mineralisation occurs almost exclusively with discordant quartz veins formed in tensional fractures in shear zones in the Mathinna Group sediments at considerable distances from exposed granitoid rocks. However, there is recorded gold mineralisation from quartz veining within granitoid rocks at Golconda, Lisle and Upper Scamander. It is a characteristic of this mineralisation that most of the precious metals occur in a free form or contained as minute inclusions within associated sulphide phases. The gangue is normally quartz which is commonly dark in colour, from inclusions of sulphide and wall rock, especially where auriferous.

The temperature of formation of the lodes in the Mathinna Group appears to be approximately 300 - 350°C.

A detailed description of the mineralisation and mineral association is included in the discussion on the various gold fields described later in this report.

(ii) Sulphide deficient cassiterite-wolframite mineralisation is closely related to upper Devonian biotite-muscovite granite (e.g. at Aberfoyle, Storey's Creek and Anchor mines). Minor molybdenite and gold may also be associated. The Aberfoyle and Storey's Creek ore bodies are sheeted fissure veing systems overlying aplitic cupolas, the veins containing quartz-cassiterite and wolframite together with sulphides such as marmatite and chalcopyrite.

In the Blue Tier district, cassiterite occurs in greisen veins and as irregular disseminations in thick sheets of altered granite lying within granite/adamellite.

This mineralisation, which appears to have taken place at considerably higher temperatures than the gold-silver mineralisation, will not be discussed or documented further except where any reference to associated gold has been found (e.g. Gladstone district).

Klominsky and Groves (1970) discussed the contrast between tin and gold associated granitic rocks in Tasmania. They found that the ".. . marked spatial relationship between the style of tin mineralisation (referred to above) and biotite granite (and adamellite) and biotite-muscovite granite (and adamellite) ..." (alkalic adamellites) has been noted by many authors and a genetic relationship between them appears probable.

"Primary gold deposits of economic significance are restricted in occurrence to eastern and northern Tasmania. The relationship between gold deposits and granitic rocks is not as clearly shown as for tin deposits. Many of the gold deposits (e.g. Lefroy, Beaconsfield) occur at great distances from exposed granitic rocks and other deposits (Mangana-Mathinna-Alberton trend) occur in an elongate line following a structural zone between the Scottsdale and Blue Tier Batholiths."

Several authors have suggested a genetic relationship between the gold deposits and hornblende bearing granodiorites and there is some limited field evidence to support such an association. (e.g. quartz-gold mineralisation in veins in granitoid rocks at Lisle and Upper Scamander). Kominsky and Groves found that the chemistry of these granitoids was similar

to that of granitic rocks from other gold provinces of the world and thus supported this relationship. They found that the compositions of the gold bearing granitoids were distinct from the majority of the tin bearing granitic rocks, although there is some overlap.

In general it was found that:

	Gold associated granitics	Tin associated granitics
K (atomic amt x1000)	90	90
Mg (" " ")	30	30

However given the available data and the paucity of recent work in this area, it is not possible to arrive at any definite conclusions concerning these associations.

The occurrence of gold bearing quartz veins , with associated pyrite, arsenopyrite and chalcopyrite, in granitic rocks in the Lisle area and the nearby auriferous quartz fissure veining, with associated pyrite, chalcopyrite, sphalerite, and galena in the Denison and Lebrina areas seem important in considering the genesis of the gold mineralisation in north-east Tasmania.

The only other areas where gold mineralisation is associated with intrusive rocks in a Gladstone and Upper Scamander.

No recent research work has been done on the determination of the origin and mode of transport of the gold mineralisation, however it is generally thought that the metals were derived from a magmatic source particularly as the host Mathinna Group sediments are otherwise particularly barren and not considered a likely source rock for the metals.

Twelvetrees (1916) discussed the gold - tin-tungsten association found at Gladstone at some length. He concluded that tin-tungsten mineralisation (and any associated gold) was probably derived from the magma and transported at high temperatures in a gaseous phase (i.e. pneumatolytic)

(e.g. Royal Standard, Royal Tasman mines); and further, that gold (-pyrite, arsenophyrite, galena, sphalerite) mineralisation (e.g. Blue Bell, Portland, Prince Imperial, etc) was deposited from a magmatic fluid phase (presumably from the same source) at a lower temperature at greater distances from the intrusions. Twelvetrees also noted in a general way a higher silver content of the gold mineralisation found close to the granitic "source". Other authors have made reference to the same observation, but as yet no definitive study to verify this has been carried out. Certainly the silver content varies considerably, probably reflecting the deposition at different periods and different temperatures of formation, but it is thought that very little useful information could be gained by such studies.

Hills (1916) noted that in general the W-Sn (-Mo -Bi) mineral association of north-east Tasmania does not contain gold values, although he did note traces of gold and high values of copper and silver, from samples taken from the Mt Stronach area.

Hydrothermal alteration features are not widely recognised throughout the area, which probably reflects the short period and/or limited extent of fluid flow associated with the mineralising systems and the fact that many existing well defined fracture channels carried the fluids. References to possible narrow zones of silicification about quartz veins have been found (refer discussion upper Scamander district).

Secondary Enrichment

Because of the often abrupt vertical cutoffs of gold mineralisation in vein structures throughout the area and the common restriction of historic mine workings to the near surface zone, it has frequently been suggested that a process of secondary surface enrichment has been operating.

Twelvetrees (1907) suggested that the exceptionally rich gold (39 oz/t) near the surface at the Golden Entrance Mine, Mangana was the result of solution and reprecipitation.

Blake (1939) stated that no economic mining was carried out below 60 m from the surface in the Mangana goldfield, this limit being presumed to be the water table below which only primary ore occurred. It is noted however that the nearby New Golden Gate reefs were payable to depths more than 300 m below the water table.

Twelvetrees (1906) quoted battery returns from the New Golden Gate Mine, Mathinna which showed a slight decrease in the gold:silver ratio over a period and was taken to represent a decrease in the silver content with depth and therefore to indicate a secondary gold enrichment. Twelvetrees also quoted similar figures from the New Pinafore Reef, Lefroy gold field. This type of trend however does not necessarily reflect any process of gold enrichment.

In his discussion on Lefroy, Broadhurst (1935), stated that the limit of payability was the permanent water table which occurred at 120 m, and he estimated that 600 m of the upper parts of the reefs would have to have been eroded away to bring about the degree of enrichment found in this field. However, he found it difficult to substantiate such a suggestion. He compared the area with Beaconsfield where deep weathering was equally possible, especially since the alluvial filled valley had its bottom at 112 m below the surface; yet no significant enrichment of gold values was reported in the Tasmania Reef although sulphides were absent from the upper 120 m, coming in strongly below that level.

At Lefroy however, primary suphides which could be expected to have been oxidized if such extensive leaching had occurred, do occur.

The association of high gold values with patches of sulphides, even at depths of 240 m in some cases, suggests the possibility that the enrichment was an original feature of the reefs, and the further fact that a number of smaller reefs, which are rich near the surface, fall off in value and become very small at depths of 30 m, suggests that the decline in depth marks the roots of the zone of ore shoots.

I consider that the effects of any secondary near surface enrichment of gold in the oxidized zone are likely to be very limited in extent and that the observed distribution of gold in the mineralised veins is more likely a coincidental reflection of the generally limited vertical extent of the mineralisation and the abrupt cut off zones at depth.

Structural Mineralisation Controls

The north-eastern region of Tasmania appears to have been subject to a relatively uniform stress regime in the period prior to, and perhaps contemporaneous with, the intrusion of the granitoid rocks.

Faults and fractures occur within the Mathinna Group throughout the area and have been locally important in controlling the distribution of the mineralisation. These fractures may be broadly divided into long persistent fractures that are subparallel to the regional fold axial surface and generally smaller, less persistent tension fractures that are variable in orientation but are generally normal to the trend of the fold axes. These two fracture systems appear to be related to folding and to have been present prior to the emplacement of granitic rocks, as they have influenced the shape of these intrusions.

In terms of a regional model, the development of the fracture systems is consistent with the exertion of a major horizontal stress from the north-east quadrant with the subsequent development of north-westerly fold axes and vertical shears north-south and east-west. In addition to these two shear directions, tensional openings are liable to occur parallel to the direction of compression. The north-south set have developed the principal veins in shear openings, with the north-easterly trending veins developed in the tensional openings. As the openings are largely along shear planes it would not be expected that they would persist for any great distance either horizontally or vertically as individual openings, but rather as zones of shear failure which would account of the large number of parallel vein developments; e.g. New Golden Gate, Mathinna where a number of parallel veins exist which have a vertical range of about 240 m and are suceeded at depths by others.

It is thought that some larger ore shoots, particularly in the Mathinna gold field, have developed where the veins change in strike or dip direction.

It has also been noted that these "fault fissure" type of vein deposits are characterised by impersistence of strike and dip extent, and their commonly slickensided and/or brecciated margins. Tension gash veins, joint fillings and saddle reefs also occur, but much less commonly.

Threader (1967) discussed the structures of the Mangana to Waterhouse mineralised belt in some detail. In this belt he documented the main fold structures to strike NNW-SSE with a wavelength of about 3 km on which were superimposed folding on several smaller scales. In addition, two directions of shearing were recognised, one striking parallel to the folding and one normal to that, with the former being in part contemporaneous with the folding and the latter being mainly of older age. It seems that recurrent movements on both sets have also occurred.

The later shearing movements (ENE-WSW) are considered to havegiven rise to several major lineaments with which later igneous activity and epeirogenic movements have been associated.

Threader considered that the mineralisation was related,in the Mangana - Waterhouse belt,to a major shear zone but that it did not appear to bear any direct relationship to granitic masses nor to fold structures.

Landstat Imagery:

Anglo-American (Mines References 82/1776; 82/1867) recently conducted a computerised analysis of the Landstat imagery of north-east Tasmania. The results of this study show the major fracture trends to be orientated 020^{0}, 080^{0}, 120^{0} and 140^{0} and with a regional strike (of bedding) at 135^{0} (true bearings).

As a result of fracture density analysis, it was found that high fracture densities and intersections appear associated with granodiorite outcrops and to a lesser extent dolerites. Directional density plots indicated fracture trends are uniform except for the 004^{0} - 026^{0} trend concentrated in the central northern and eastern part of the region.

Hunting Geology and Geophysics conducted an integrated Landstat Study of Tasmania at 1:250,000 scale which was subscribed to by GFEL. The north-eastern portion of this study is presented in Map 1 , with the locations of the various areas of gold mineralisation superimposed. As a result it is clear that Hunting recognise only north-westerly trending structures as being the major features of the area. The Mathinna-Alberton gold belt is closely associated with one of these lineaments or faults, which is in accord with previous interpretations, and the Mangana workings are apparently associated with a separate but somewhat subparallel such lineament or fault.

Also it can be seen that for the other gold fields discussed in this report, there is very little correlation with major linear structures except perhaps for the Lefroy field which is located close to a major structure. Structures in the nothern part of the region (Gladstone, Waterhouse, Portland-Musselroe) are masked by Tertiary and Recent sediments.

The distribution of the mineralisation in relation to this study probably reflects a two-fold setting for the gold mineralisation:

(i) deposits located proximal to related granitoid intrusions and not situated on major structures (e.g. Back Creek, Lisle, Golconda, Upper Scamander), and

(ii) deposits located distal to related granitoid intrusives which were channelled and controlled by existing structures. (e.g. Mangana, Mathinna-Alberton, Lefroy(?)).

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Recorded production from the Goldfields of North-Eastern Tasmania

Goldfield	No. of mines[1]	Period	Ore milled (tons)	Gold production (oz)	Average yield (dwt/ton)	(g/t)
Lefroy	7	1883–1904	77,070	162,070 4594.7	42	64·3
Dan Rivulet	8(24)	1888–1906	6,087	2,760 78.25	9	13·8
Mangana	7(15)	1884–1905	5,942	5,449 154.5	18	27·5
Mathinna (excluding New Golden Gate and Tasmanian Consols)	11(27)	1896–1909	10,924	6,033 171 7197·1	11	16·8
New Golden Gate		1880–1932	298,348	253,865	17	26·0
Tasmanian Consols		1904–1907	23,610	10,997 7699 311·7	9	13·8
Mt. Victoria	6(42)	1884–1926	8,086	10,164 296	25	38·3
Warrentina	8(10)	1892–1937	3,876	3,777 107	19	29·0

[1] The number of mines for which production figures are available. Figures in brackets indicate the number of mines in departmental records.

TABLE 3.1.

RECORDED GOLD PRODUCTION - N.E. TASMANIA.

from "The Gold Deposits of Tasmania"
Noldart & Threadgold 1965

4.0 LEFROY GOLD FIELD (Refer Plan 2)

4.1 INTRODUCTION

Alluvial gold was known from the area from about 1853 and reef gold was discovered in 1869. The field was worked in about 50 mines, operating on some 30 different lines of reefs from 1869 to 1896 during which time approximately 172,075 oz of gold was produced from about 171,465 tonnes of ore. An estimated 5000 oz of alluvial gold was also produced. Mines Department records indicate that a further 7,500 oz gold has been produced since 1900, thus giving a total production for the field of 184,575 oz. Payable values did not in general extend below 120 m depth.

4.2 DISTRICT GEOLOGY

The rocks of the district constitute the most westerly occurrence of the Mathinna Group, which here consist of a sequence of highly cleaved sandstones and slates with the gold deposits being virtually confined to a series of coarse siltstone and fine sandstone apparently overlain to the SW by coarse sandstone and underlain to the NE by slate and quartzite. The sequence strikes 320° - 340° (M) with a general westerly dip of 30° - 50°.

Basal Permian conglomerates unconformably overlie the Mathinna Beds SW of Lefroy and Tertiary gravels, conglomerate and siltstone overlie the basement in the Lefroy area. This Tertiary sequence is partially covered by basalt flows which fill old stream valleys and are themselves possibly overlain by further Tertiary-Quaternary sediments.

4.2.1 Mathinna Group

Slate and quartzite occur NE of Lefroy. The slates are dark coloured, strongly cleaved and phyllitic in places with the cleavage being commonly crenulated folded. The quartzite is a pale grey, even fine grained rock with common small quartz veins developed and minor muscovite defining a po rly developed cleavage. A fine quartz-siltstone is also associated with these sediments.

A sequence, with a structural thickness of 2500 m of cleaved siltstone, and sandstone beds with minor slate is exposed in the central part

of the area. This succession which appears to overlie the slate-quartzite sequence to the NW, hosts major auriferous veins. The siltstone is a poorly sorted, light coloured rock with a strongly developed cleavage and with secondary development of muscovite in places. Small calcite veinlets are commonly developed.

A sequence of massive blocky, coarse sandstone beds displaying a poorly developed cleavage, appears to overlie the above sequence to the SE. A maximum thickness of 250 m is exposed and the sequence is unconformably overlain by basal Permian conglomerate to the SW.

The Mathinna Group sediments are considered to be regionally folded into large open folds, with a series of gentle secondary folds developed parallel to the main structure which is thought to be an anticline between the Lefroy and Back Creek gold fields, although the primary structures are largely overfolded.

The primary cleavage predominantly parallels the bedding and dips west. The occurrence of zones of secondary crenulation cleavage may represent the axial regions of the larger folds.

Faulting is prevalent throughout the Lefroy area with three sets being predominant, these being; E-W; NW-SE; and NE-SW sets of fractures with the E-W set being considered of older age. The fractures and joints generally have steep dips but the faults generally have only low angles of dip.

4.2.2 Tertiary Sediments

Groves (1965) fully described the stratigraphy of the Tertiary-Quaternary sediments and their somewhat poorly understood relationship to the Tertiary basalts.

Certainly, a maximum development of about 30 m of gravel, sandstone and clays occur beneath the river channelled basalts, and that in some places up to 15 m of sediments also accumulated between the basaltic flows of which a minimum of four have been identified in the area. The basal Tertiary, which can be auriferous, is thought to have formed in an active environment.

A younger sequence of sediments which may also carry auriferous "leads" probably represent partially reworked basal Tertiary sediments and may be in part contemporaneous with the basaltic flows. A thickness of 30 m for the younger sediments may be realistic, however this is difficult to determine. A high proportion of angular vein quartz is included in the conglomerate phases along with other minor locally derived components.

Lenses of well compacted siltstone and sandstone, sometimes lignitic, are also common.

4.3 MINERALISATION

4.3.1 Alluvial Gold:

Groves (1965) presented a good summary of the limited alluvial workings at Lefroy and this is presented below:

> "Sub basalt leads
>
> The basal lead beneath the earliest basalt flow has been worked from several shafts, generally on the western branch of the pre-basalt stream. The East Pinafore workings intersected gravel and clay on the western bank of the old stream bed and fairly high gold values were obtained in the gravel. The old stream bed was intersected in the Golden Era workings and very coarse gravel was found containing coarse gold and giving satisfactory pan prospects on the western bank. The stream bed was also investigated in the New Golden Heart workings where coarse gravel was intersected containing 20 g/t of alluvial gold, with subsidiary gold in vein-quartz pebbles and boulders. The Pinafore Company shaft, about 200 m north of the Morning Star Shaft, also intersected the old stream bed which was filled by at least 8 m of boulder gravel containing samples of free gold up to 3.8 g. In this mine, work proved unpayable due to the immense boulders which hampered mining operations. Alluvials were also investigated in the Morning Star Mine by the King Prospecting Association but no gold was found.
>
> Diamond drilling of the deep leads has been largely unsuccessful, except in deline ating the old stream beds. The no. 4 bore (1883) is reported to have intersected a basal gravel some 2 m thick which contained some gold. A further bore No 4 (1892), was sunk 10 m south-east of the No 4 (1883) bore but no gold was found. Two boreholes drilled in 1937 intersected gold bearing gravel filling the old valley floor. Bore No. 14 intersected 76 cm of coarse gravel assaying 3.76 g/t gold at 80 m and Bore No. 16 a trace of gold at 90 m. Blake (1938) indicated that all the sediments below the lowest basalt were assayed for gold in the 1937 boreholes although the sediments between flows were not assayed.

"The drilling results, although not very encouraging, indicate the presence of gold in the sub-basalt gravel. The prospects encountered in the workings where the alluvials were investigated were far better than those reported from the boreholes although mining conditions were difficult. This suggests that results from the old boreholes should not be taken as a true indication of the quantity of alluvial gold but rather as a guide to its presence.

Tertiary Leads

Several leads have been traced on the surface to the point where they appear to pass beneath the basalt, at which point the workings have generally been discontinued. The leads of this type include the Pinafore, Golden Point and Native Youth Leads.

The Pinafore Lead has been worked from just east of the Pinafore main shaft to where it passess beneath the basalt near the Lefroy Deep Leads Company shaft. Some coarse gold was obtained from the gravel. Broadhurst suggested that the gravel passes beneath one of the higher basalt flows, but with precipitous conditions existing it is possible that it passes steeply beneath the lowest basalt. A similar lead runs along the east side of Sludge Creek and again appears to pass beneath the basalt north of the Native Youth lode.

Post-basalt leads

In some localities gold-bearing gravels occur in present day streams and probably represent a certain amount of reworking of old Tertiary leads and Recent/Quaternary deposits. "

4.3.2 The Gold Reefs

The following description is largely taken from Hughes (1952) and Groves (1965):

"About 30 auriferous reefs occur in the field. They are remarkably parallel, with a general strike of N 80° E and the majority dip to the south although the Native Youth and a few of the smaller reefs dips north. They occur in a fault system, and some, such as the Pinafore, Land-o'-Cakes, and Volunteer, show signs of repeated movement, with the formation of slickensides, and crushing of the quartz."

The fractures can be traced on the surface for about 1.5 km and proved continually to a depth of 380 m. The gold however is limited both laterally and at depth, although is present in trace amounts throughout the fractures..

"The reefs are concentrated in a belt of softer country trending NW between harder rocks to the east and west. They are strongly developed in this central area, but pinch and die out to east and west on entering the harder rocks, so that there is a broad echelon arrangement of the reefs.

The auriferous reefs were intersected by two younger systems of faults, trending NW-SE and NE-SW respectively. These faults commonly had a low W-dip, and a predominant horizontal movement. Many of the fault planes were filled with quartz.

The systems of fractures correspond in orientation to the shear and tension directions of a strain ellipsoid, the auriferous reefs corresponding to the tension fractures, and the other two fault systems to the shear directions."

"The auriferous quartz tends to be found on the walls, with barren quartz in the centre of the reef. Some of the reefs occur within shear zones, with well defined walls, as much as 60 m. apart. The reefs tend to occur on the hanging-wall or footwall of such zones, the intervening rock containing numerous veinlets of barren quartz. "

"The gold is generally associated with vughy quartz on the footwall and/or hangingwall of the fractures. It is found in association with stibnite and cervantite, a mixed antimony oxide formed by oxidation of stibnite, and more rarely with pyrite, chalcopyrite and arsenopyrite. Vitreous white quartz is common, particularly in fault zones and small fractures but is generally non-auriferous. The association of gold with sulphides was most clearly shown in the Clarence mine where free gold was extremely rare but pyrite assayed up to 673 g/t of gold. A small pocket of pyritic ore at the 800 foot (240 m) level in the New Pinafore mine is reported to have assayed 50.5 g of gold per tonne, and represents the only concentration of gold found below 120 m in the mines.

The predominant feature of the mining field is the consistent decline in gold values below the 90-120 m levels, and, in many of the smaller mines, the marked decrease at only 30 m, although quartz may fill the lode channel. The New Pinafore and Volunteer mines were extended to a depth of 370 m and 380 m respectively but yielded very little gold although the lode channel in each case was distinct. Gold values generally declined from about 30 g/t in the upper levels to less than 3 g/t at depth."

The following descriptions of the individual reef systems is taken from Groves (1965) as reported by Gee (1974):

"Many of the lodes contained satisfactory gold values at the surface but were only worked at very shallow depths, presumably due to a rapid decline in gold values below 30 m. These include the Old Comrades, Perpetual, Equilla, White Pinafore, Welcome, Nugget, Australasian and McIvor, Prince of Wales, Brisbane, Tablier, Monkland, Windermere, Rifleman and Leefloyd Reefs. These were all described in some detail by Montgomery (1897) and Broadhurst (1935). A brief description of the larger mines and exploration carried out since Broadhurst (1935) is given below.

Chum Reef

The Chum Reef is one of the longest and continuous reefs in the Lefroy field and consists largely of gold-bearing quartz with minor pyrite and stibnite. It has been worked to a maximum depth of 125 m and from the mine plans appears to have been stoped out almost continually over the explored length and depth. Three boreholes were drilled by the Department of Mines in 1935 to intersect the lode along its proved length at a depth of 240 and 275 m with very little success: 2.4 m of core at 250 m in No 1 bore assayed 0.6 g of gold and 0.4 g of silver per tonne and No 3 and 4 bores intersected only a trace of gold.

Pinafore Reef

The Pinafore Reef comprises a series of quartz veins in a wide fault zone, and is generally obscured by overlying Tertiary gravel and basalt. It has been worked extensively to a depth of 90 m with fair success. The reef was tested in depth by underground mining to 365 m, small pockets of fairly rich ore occurring at 240 and 330 m. Extensive driving and crosscutting was carried out at 370 m and five lodes were intersected, all proving unpayable. Small amounts of gold were found in the Pinafore lode at this level but were uneconomic.

Golden Era Reef

This reef has been worked to a maximum depth of 76 m where gold values were high in the east drive on the main lode. The auriferous quartz extended underfoot but the mine was closed due to water problems and lack of capital. Four boreholes were drilled by the Department of Mines in 1936-37 to intersect this lode at depths ranging from 53-106 m, generally with poor results. Borehole No 11, however, intersected one metre of pyritic material at 101 m assaying 11.2 g gold and 10.4 g silver to the ton.

Clarence Reef

Broadhurst suggested that the Clarence Reef has been faulted to form two main branches, the North Clarence and South Clarence Reefs. The North Clarence Reef has been worked from the Clarence Shaft to a depth of 64 m and two small patches

of ore stoped out to the east of the shaft. The gold was associated with pyrite which assayed up to 685 g/t. The South Clarence Reef has been worked from the East Clarence and Golden Heart Shafts to a maximum depth of 67 m. In the East Clarence Mine the main ore shoot pitches shallowly to the west and several good crushings have been taken from this shoot.

Morning Star Reef

This reef has been worked to a depth of 128 m in the Morning Star Mine. Satisfactory gold values were obtained to the east of the shaft in the upper levels and to the west in the lower levels. The available information suggests a west plunging orebody which became unpayable at the 128 m level. Four boreholes were drilled by the Department of Mines to intersect the orebody along the probable extension of the westerly plunge. Results of the drilling were not encouraging, borehole No 4A intersecting the only gold recorded, which occurred in a zone 10 m wide averaging 0.75 g of gold and 0.26 g silver per tonne at a depth of 171 m.

New Native Youth Reef

The New Native Youth Reef was one of the richest in the field and included the City of Launceston, New Native Youth and Excelsior mines. The reef, a hard quartz lode, was investigated to a depth of 243 m. Stoping was carried out along its length to a depth of 120-150 m but below this the lode proved uneconomic. A few small patches of gold are recorded from the 243 m level.

Golden Point and Crown Reef

This reef is unusual as it trends NE. It is a short reef and occurs in strongly fractured siltstone and slate, with numerous irregular quartz veins. The longitudinal section of the reef indicates two near-vertical shoots of ore to a maximum depth of about 100 m. It is not recorded whether the reef was investigated at a greater depth.

Land-O'-Cakes Reef

This line of lode has been traced for nearly 1.5 km on the surface but was only worked to any extent in the Land-O'-Cakes Mine It was stoped to a depth of about 60 m, exploration down to the 121 m level indicating a rapid decline in gold values. Four boreholes were drilled by the Department of Mines in 1938, three to test the lode at depth and one to test the western extension of the lode. A trace of gold was found in most of the boreholes but the results were not encouraging.

Volunteer Reef

The Volunteer Reef has been worked over a length of about 1220 m and lodes probably continuous with the reef have been cut over a greater distance. The main workings were the Volunteer West Volunteer and East Volunteer Mines which worked the lode to a depth of about 190 m although the better gold values occurred above 140 m, with the richest ore between 70 to 90 m. The lodes was explored at depth by underground mining to 381 m but only very small quantities of gold were found at this depth. The longitudinal section of the reef indicates a fairly shallow westerly plunge. A possible extension of the ore along this plunge was drilled by the Department of Mines in 1936-37, two boreholes failing to intersect any gold-bearing lode.

4.3.3 Secondary Enrichment of Gold:

The decline in gold values at the 120 m level at Lefroy is generally attributed to a process of surface enrichment and Broadhurst (1935) quoted figures showing a marked decrease in fineness (i.e. increase in impurities) of the gold with depth. He calculated that at least 600 m of the upper lodes must have been eroded and the gold carried from an original 3 g/t, down in solution to attain the gold values encountered. He suggested that the sulphides may have acted as precipitants for the gold.

However it is difficult to imagine the downward percolation of gold through these distances without the complete oxidation of the sulphide minerals in the reef. The association of high gold values with patches of sulphides, even at depths of 243 m, suggest the possibility that the enrichment was an original feature. Also the fact that a number of smaller reefs rich near the surface fall off in value and become very small at depths of 30 m suggests the possibility that the decline in depth marks the roots of the zone of gold shoots.

4.4 PREVIOUS INVESTIGATIONS

4.4.1 Government Activities:

The area was first examined by Thureau (1882, 1883) who recommended deep drilling on the main lines of lode. Montgomery (1897) after an extensive study also recommended prospecting at greater depths in the existing mines.

The deep development of the Volunteer mine was examined by Twelvetrees (1900) to the depth of 380 m and, although, no payable lode was found below 140 m, recommended still deeper prospecting.

Nye (1925) examined the Golden Zone mine but no major work was carried out until Broadhurst (1935) undertook a general survey of the field. This investigation drew attention to the possible importance of the sub-basalt deep leads.

Hughes (1953) later summarised the known information on the area but again no work was carried out until Groves (1965) made a detailed study of the area to determine prospecting targets.

Diamond drilling was carried out by the Department of Mines on the deep leads in 1883, 1892 and later in 1935 (Blake, 1938), and a series of 23 holes was drilled in 1935-37 mainly on reef targets at depths ranging from 37-245m.

4.4.2 Planet Gold (1969)

(Mines Ref: 69-550)

This company investigated the possible bulking potential of the vein systems at Lefroy. A number of costeans were placed across the Pinafore Line, the Golden Era-North Clarence Line, the Reward line, the Land O'Cakes line and the Volunteer line and as a result produced gold assays ranging from a trace only and silver assays to a maximum of 4.6 g/t over widths varying up to 1.2 m across, from 35 costean samples.

4.4.3 Antony, McKenna and Partners Pty Ltd (1970).

(Mines Ref: 70-656)

In making an alluvial gold proposal it was recommended that drilling should take place in the Blanket and Sludgel Creek areas to locate deep leads below basaltic cover and to follow up early Mines Department drilling.

4.4.4 Comalco (1977)

(Mines Ref: 71-802)

77-1211?

Investigated the concept of obtaining a bulk tonneage of stratabound gold (size 10Mt at 4-5 g/t). The work essentially consisted of the reassaying of sections from three Mines Department drill holes but it was found that no more than trace amounts of gold occurred in these. It was considered however that these amounts may have been sufficient to account for the gold concentrated into the quartz veins after remobilisation.

4.5 CONCLUSIONS AND RECOMMENDATIONS

4.5.1 The vein deposits of the area have been extensively prospected both with respect to extensions of the known systems and to the possibility of bulking grades in these systems; but all with very little success.

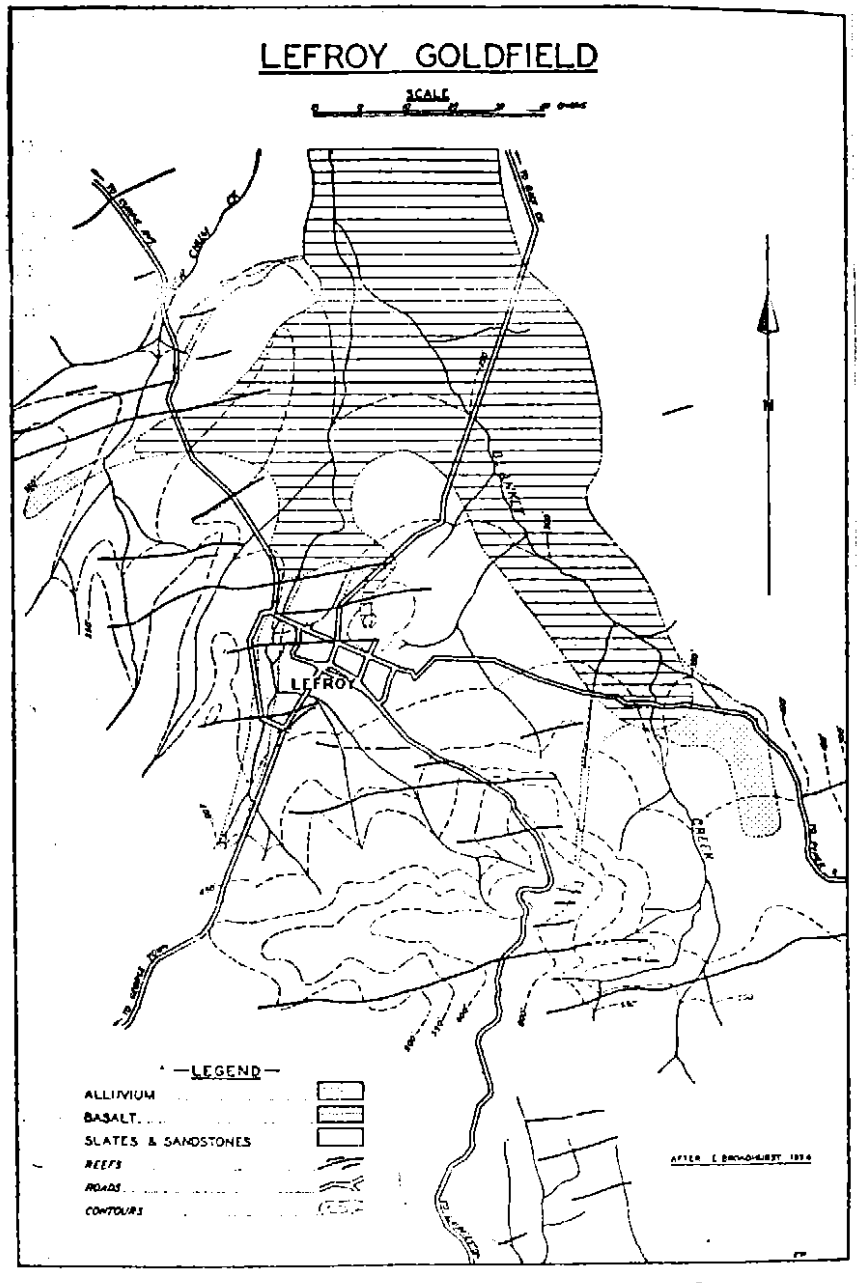
In view of the nature of the vein systems and the apparent distribution of gold it is not considered that the area represents a viable exploration target.

4.5.2 Several authors (e.g. Groves, 1965) have pointed to the potential for alluvial deep leads below the basaltic rocks to the north and east of Lefroy. Several workings intersected auriferous gravels upstream from the confluence of Sludge and Blanket Creeks.

Drilling results from downstream were rather discouraging but probably did not give a true indication of the quantity of gold present. Further drilling is probably warranted in this area. The area is currently held under EL 35/81 by CRA (expiry date 8.6.84) and the results of this work should be monitored particularly for any alluvial results.

477042

5 cm



from Hughes 1952.

Figure 4.1. General geology Lefroy.

Reefs	Recorded gold product (oz)	tonnes ore	av. grade (g/t) Au.	max strike length (m) worked	max. depth worked (m)	average width (m)
Australasian & McIvor	-	-	(2 oz/t)	-	33	(0.05-0.5)
Bain & Richardson	-	-	-	-	105	(0.05-0.38)
Brisbane	-	-	-	-	45	0.02
Chums	15,000(+)	-	(6.5 oz/t)	533	125	(0.1-0.3)
Clarence	-	-	-	-	60	1.0
Enterprise (Josephine)	-	-	-	-	-	-
Equilla	-	-	(0.5-1.5oz/t)	-	18	0.2
Golden Era			(3 oz/t)	-	76	(0.45-0.75)
Golden Zone	-	-	(12 g/t)	-	58	0.15
Hit or Miss	8.5	33	-	-	82	0.3
Land O'Cakes	-	-	(0.5oz/t)	120	121	-
Lee Floyd	-	-	(1oz/t)	-	22	(0-0.45)
Londonderry	-	-	-	-	14	-
Monarch (Bugler)	-	-	-	-	121	-
Monkland	-	100	(3.8-9.1)	-	45	-
Morning Star	400	-	(6.1-26)g/t	60	128	(0.6-3)
Never Go Bung/Kitto Chum	-	-	(1oz/t)	(32)	60	(0.12-0.6)
New Golden Point/Crown	1210	-	(1oz/t)	-	105	-
[redacted]ndustry	-	-	-	-	60	-
New Native Youth	25000	-	-	426	243	(to 1)
Nugget	-	-	-	182	45	-
Old Comrades	-	-	-	116	29	(1.8-3.6)
Orlando	-	-	-	-	-	-
Perpetual/Hacketts	-	-	(0.8-15oz/t)	34	30	(0.02-0.5)
Pinafore	60000	-	(1oz/t)	457	365	(0.9-1.2)
Prince of Wales	100	100	(1oz/t)		30	(1.5)
Queens Birthday	-	-	-	-	42	(0.05)
Recruit	-	(250)	(6.1-24.4)g/t		94	(0.3)
Rifleman	-	-	-	-	-	0.22
Sentinel	-	-	-	-	26	(1.8-3.6)
Specimen Hill	5	11	-	-	76	(0.05-0.3)
Tablier	-	-	-	-	30	(0.6-0.9)
Vidette	-	-	-	-	-	(0.9)
Volunteer	40000	-	(2.6-4oz/t)	243	381	-
Welcome	-	-	-	-	56	(0.9-1.2)
[redacted]te Pinafore	-	-	-	-	60	-
[redacted]amere	-	-	-	-	9	0.2
Alluvials	5000	-	-	-	-	-
TOTAL:	141,723.5					

SUMMARY OF DETAILS FROM REEF WORKINGS IN THE LEFROY GOLDFIELD

TABLE 4.1

477044

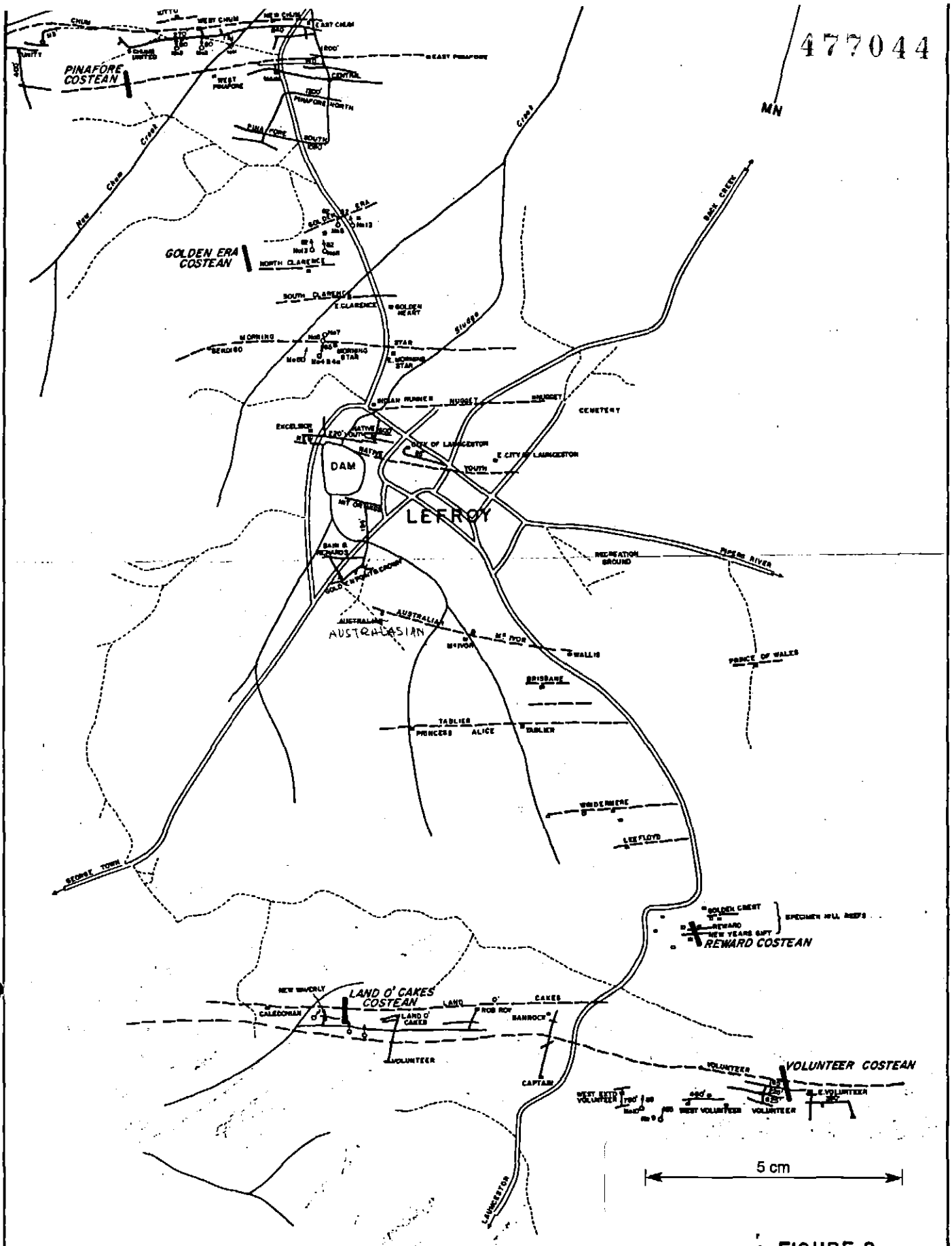


FIGURE 2

LEGEND

- SURFACE LINE OF REEF
- UNDERGROUND LEVEL
- MAIN SHAFT
- MINOR SHAFT
- SURFACE BORE HOLE
- TRACK
- ROAD
- CREEK
- COSTEAN

69-550

ASSAY RESULTS :—
All 35 Samples from costeans less than 0·2dwts. Au/short ton.

REEFS ETC. TAKEN FROM D. I. GROVE'S LEFROY GOLDFIELD PLAN TASMANIAN MINES DEPARTMENT

SCALE OF FEET (880ft. to an inch)
0 500 1000 2000

PLANET GOLD LTD.

LEFROY GOLD FIELD
PLAN OF COSTEANS

Prepared by: G. Clark | Drawn by: H. M. N.

LEFROY GOLD FIELD

DATA SHEETS FOR
INDIVIDUAL OCCURRENCES

477046

LITERATURE SEARCH

PROSPECT : LEFROY AREA - ALLUVIALS

NUMBER :

LOCALITY : LEFROY.

MAP SHEET : Boorcarsfield 1:63360

COMMODITIES : alluvial gold.

MINING HISTORY :

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

① Prebasaltic deep leads : worked by various companies: Namely on the Deep lead. by -

- Lefroy Deep lead Coy. - 87m. deep shaft.
- East Pinafore Mine: - bedrock at 72m. with 2.4m. wash resting on basement. Some good values but water a mining problem.
- Golden Era :- from workings on the Pinafore Reef; at 56m. below the surface wash with large boulders, common coarse gold and pyrite. Abandoned due to mining problems.
- New Golden Heart by: encountered alluvial wash in reef workings. subsequently worked to 70m. - coarse grained gold in bouldery ground depths of 5.4m. of wash mentioned are at least 13m. length.
- Pinafore Coy: a 79m. shaft in very bouldery wash with good coarse gold driven on for 85m.
- Morning Star Company: a 12m. wide gutter at 18m. depth in mine - no gold.

Drilling on the above deep lead : 2 sets of holes 1883, 1892. (8 holes) to max. depth 85m. but these generally only returned a trace of gold, & uncertain if gutter met.

Other Deep leads: have been traced on the surface to where they pass below the basalt & include: Pinafore lead, Golden Point lead, Native Youth Lead; Kerrigans lead.

Conclusions: Definitely some good gold in these gravels but the coarse "bouldery" ground indicates an active environment not really conducive to alluvial concentrations. & it is suggested better prospects perhaps lie lower down the system. near where Sludge Creek & Blanket Creeks join. It is also noted that on the flats on Blanket Ck. 4.8m. of auriferous gravels occurs which maybe marginal to a deep lead below the basalt.

PREVIOUS COMPANY REPORTS :

② Post Basaltic Leads :

Broadhurst describes Demijohns lead, noted to depth 4.8m. and Poverty Gully - where shallow surface gravels noted.

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Broadhurst 1935.

477047

LITERATURE SEARCH

PROSPECT : AUSTRALASIAN AND McIVOR REEF NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Three mines and numerous trenches. The McIvor mine sunk a shaft 30m and crosscut to reef. and drove for 21m. on it. The Australasian Mine to the east where shaft sunk to 53m. with some driving on reef, this closed 1896. The Bluejacket Mine situated 20m. E. of Australasian but not limited.

PAST PRODUCTION : GRADE :

Surface grades ~ 2oz/t Au.

RESERVES :

STYLE OF MINERALIZATION : gold in capping on quartz-pyrite vein.

STRUCTURE :

SUMMARY :

- very narrow (0.05 - 0.5m) reefs dipping northerly which locally carrys a large amount of pyrite.
- Gold values restricted to a capping on the lode in all the three mines.
- Runs below alluvial flats to the west.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477048

LITERATURE SEARCH

PROSPECT : BAIN and RICHARDS LODE NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Worked from the old Wideawake Shaft; and Golden Point and Crown Mine, first to 21m, the latter had a shaft to 105m.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein.

STRUCTURE :

SUMMARY : - Very narrow, 0.05m – 0.38m. wide, quartz vein carrying a little gold.

- Several prospecting shafts sunk but no deep mining except in Golden Point & Crown workings.

- A south dipping structure.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477049

LITERATURE SEARCH

PROSPECT : Brisbane Reef

NUMBER :

LOCALITY : Lefroy.

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Brisbane shaft said to be 45m. deep. Five prospecting shafts to the west put down in the 1930's, but no further reports. In the Wallis Mine a shaft sunk 27m. on a 0.02m. wide leader which was followed at the 15m. level but no reefs reported.

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION : gold in a very narrow quartz vein.

STRUCTURE :

SUMMARY : A very small, south dipping, reef from which only one small payable crushing reported. Wallis shaft passed through a flat dipping fault in good sandstone country.

Considered a possible extension of the Prince of Wales Reef.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477050

LITERATURE SEARCH

PROSPECT : Chums LINE OF REEF

NUMBER :

LOCALITY : LEFROY

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au

MINING HISTORY : Being on of the largest reefs in the field, this was worked by many companies : pre 1883 – 1897. mainly. Numerous Shafts up to 125m. Sunk. Main coys were East Chums ; Chums Proprietary ; Unity Mine.

PAST PRODUCTION :

>15,000 oz Au.

GRADE :

6·5 oz/t near the surface but dying out with depth.

RESERVES :

STYLE OF MINERALIZATION : Au in quartz vein with significant pyrite and stibnite associated.

STRUCTURE :

SUMMARY : - Unlike most reefs in the field, the Chums consists of SOLid quartz, not broken up by repeated movements along the fault plane in which it lies. Country rock is Slates and Sandstones dipping SW 30°.

Reef shows tendency to split and branch out but generally is 0·1 – 0·3m wide, but does vary. Best gold formed near surface (to 18m. in the Proprietary Mine). The western end of the reef breaks up.

- Reef generally strikes E-W with local variation in dip from N-S. (steeply).

- Stibnite association is interesting.
- Mines dept. drilling reported in 1937, resulted in only a trace of gold in holes intersecting at depths of around 198 – 243m. They believed that mining was on an enriched surface zone while primary zones at depth are unproductive.

- Reef Stoped along a distance of at least 533m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477051

LITERATURE SEARCH

PROSPECT : CLARENCE REEF

NUMBER :

LOCALITY : LEFROY

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Three mines worked on this line with many small trenches and shafts. Workings reach a maximum depth of 60m. with a fair amount of development and stoping. One mine reopened in 1913 (New Golden Heart) but without success. Some alluvials tested in the mines.

PAST PRODUCTION : -

GRADE : (locally up to 22oz/t Au in pyrite concentrates.)

RESERVES :

STYLE OF MINERALIZATION : Au in quartz vein with auriferous pyrite. Patchy mineralization.

STRUCTURE :

SUMMARY :

Faulted reef, forming two main branches, the North and South Clarence Reefs. It is one of the soft broken reefs, faulted subsequent to quartz emplacement and lies in a fault zone. Lode of variable width, but generally 0.9 - 1.2m. The broad shear zone dips steeply to the south.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477052

LITERATURE SEARCH

PROSPECT : ENTERPRISE REEF (JOSEPHINE) NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY :

Some deep shafts and tunnels (possible extension of the Orlando).

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : some high values of gold recovered.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477053

LITERATURE SEARCH

PROSPECT : EQUILLA REEF. NUMBER :

LOCALITY : LEFROY. MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY :
Discovered 1917 and several shafts up to 18m were sunk. Much trenching.

PAST PRODUCTION : GRADE : 0.5 – 1.5 oz/t. gold.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

Gold in a narrow quartz vein. (0.2 m. wide), which dips southerly.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477054

LITERATURE SEARCH

PROSPECT : GOLDEN ERA REEF. NUMBER :

LOCALITY : LEFROY. MAP SHEET : Beaconsfield 1163360

COMMODITIES : Au.

MINING HISTORY : worked along its length, with Shafts to 76m by several companies, but none appear to have been particularly successful. Most operations over by 1896. Said to be closed due to water and lack of capital.

PAST PRODUCTION : GRADE :
Higgs leader gave 3 oz/t. Au.

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein

STRUCTURE :

SUMMARY : Lode of variable width (0.45m - 0.76m) carries patches of rich stone but generally poor except for the small Higgs leader.

Four of Mines Departments holes targetted for this reef at 91m depth but only a trace of gold recorded. Not encouraging.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477055

LITERATURE SEARCH

PROSPECT : Golden Zone Reef.

NUMBER :

LOCALITY : Leprosy.

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : First worked 1898-99, with shaft sunk to 30 m. and levels driven at 18m and 30m. Reopened 1925 and shaft sunk to 58 m with a level at 54m. Worked onwards from 1930.

PAST PRODUCTION : -

GRADE : 2oz/t Au at 18m level
- 0-12.2g/t Au at 30m level

RESERVES :

STYLE OF MINERALIZATION : Au; reported that some free gold observed, pyrite and arsenopyrite in thin quartz vein. Patchy distribution.

STRUCTURE :

SUMMARY : Thin quartz vein (0.05 - 0.15 m wide at 30m level), strike 075-080° / dips 75°S.

Clear HW & FW 0.6 - 1.2 m. apart with similar rock to country being found between contain quartz vein. The country sandstones strike NW - SSE / dip W. Fissure may represent a minor fault plane.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477056

LITERATURE SEARCH

PROSPECT : VOLUNTEER REEF. NUMBER :

LOCALITY : LEFROY. MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Main workings are Volunteer; East Volunteer; West Volunteer. Other mines included Adjindant; Colonel; Marshall; Brigadier; Chaplain.

PAST PRODUCTION : estimated 40,000 oz Au.

GRADE :
- 2.65 oz/t Au, Volunteer
- 4 oz/t Au, West Volunteer are some reported values.

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein in possible shear zone.

STRUCTURE :

SUMMARY :
- Reef was worked for a length of 1.2km. The Volunteer worked the reef to the 141m. level and sunk an inclined shaft for a distance of 381m; but there was no significant gold at these depths. Mine was stoped along 243m.
- The East Volunteer (formaly the Shamrock) obtained good gold from the surface but not from depth. Other workings went to 228m. depth but only the Volunteer and West Volunteer obtained good gold.
- A southerly dipping reef channel 9m - 18m. wide which contained the gold bearing quartz veins. The upper levels (volunteer) contained good gold but below the 141m. level was practically barren.
- Drilling by Mines Department in 1930's was unsuccessful.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477057

LITERATURE SEARCH

PROSPECT : VOLUNTEER REEF.

NUMBER :

LOCALITY : LEFROY.

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Main workings are Volunteer; East Volunteer; West Volunteer.
Other mines included Adjudant; Colonel; Marshall; Brigadier, Chaplain.

PAST PRODUCTION :
estimated 40,000 oz Au.

GRADE :
- 2.65 oz/t Au, Volunteer
- 4 oz/t Au, West Volunteer
are some reported values.

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein in possible shear zone.

STRUCTURE :

SUMMARY :
- Reef was worked for a length of 1.2 km.
The Volunteer worked the reef to the 141m. level and sunk an inclined shaft for a distance of 381m; but there was no significant gold at these depths. Mine was stoped along 243m.
- The East Volunteer (formerly the Shamrock) obtained good gold from the surface but not from depth. Other workings went to 228m. depth but only the Volunteer and West Volunteer obtained good gold.
- A southerly dipping reef channel 9m - 18m. wide which contained the gold bearing quartz veins. The upper levels (Volunteer) contained good gold but below the 141m. level was practically barren.
- Drilling by Mines Department in 1930's was unsuccessful.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477058

LITERATURE SEARCH

PROSPECT : HIT OR MISS REEF NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : worked up to 1896 by Hit or Miss Co., but later by New Pinafore from the Golden Crown Shaft. Worked to a depth of 82m. with levels at 56m. and 80m. containing a fair amount of development but little stoping.

PAST PRODUCTION : GRADE :

Ore crushing of 33t. gave 8.5oz gold.

RESERVES :

STYLE OF MINERALIZATION : gold in quartz reef.

STRUCTURE :

SUMMARY : "Companion Reef" to New Native Youth having both same strike and dip; but pinches severely to E. and N. of Shaft. Reef is 0.3m. wide in a lode channel up to 1.2m wide containing patchy gold. Some cross courses mentioned but not significant. Reef swings in strike to 060° East of the Shaft and dies away to a more joint in the country. Gold seemed to improve at the 80m. level but late work was presumably unsuccessful.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

LITERATURE SEARCH

477059

PROSPECT : LAND O'CAKES REEF. NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : One of the early found reefs (pre 1883). Main Mines include : Mole Creek & Zeehan; Admiral; Clansman; Caledonian; New Waverly; Land O'Cakes; Fortune of War; Rob Roy and Bannock. Only Land O'Cakes profitable. Later sporadic workings on the reef but generally unsuccessful.

PAST PRODUCTION :

GRADE :

~ 0.5 oz/t Au in Clansman

~ 0.5 - 2.0 g/t Au in Caledonian

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - Deepest shaft to 121m, but most above 60m.

- Reef traced for the longest distance in the field. (1500m)

- Reef consists of a large "lode channel" or fault zone without much quartz; this dips to the south and varies in quartz vein width but is generally very narrow.

Gold distribution is very patchy with one large shoot of gold in the Land O'Cakes Mine, but is in general a poor reef with no values at depth. This mine stoped along at least 120m. in length.

- Drilling by the Mines Department in 1930's failed to intersect any significant gold values.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477060

LITERATURE SEARCH

PROSPECT : LEE FLOYD REEF NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au

MINING HISTORY : Discovered 1931 with several shafts sunk up to 22m and driven 15m level.

PAST PRODUCTION : GRADE : 1oz/t Au. at 15m Level.

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein.

STRUCTURE :

SUMMARY : Reef pinched and was very small at 22m. Level.

- A southerly dipping reef up to 0·45m. thick but diminishes along strike and down dip to zero.
- Gold at surface down to 15m. level only.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477061

LITERATURE SEARCH

PROSPECT : LONDONDERRY REEF NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au

MINING HISTORY : Wander Mine and Londonderry Shaft
No particulars on mining beyond a 14m. shaft and closed by water.

PAST PRODUCTION : - GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Large mullocky formation - gold bearing in parts as Large lumps of arniferous - Stibnite .

This is the largest of reef south of Volunteer ..

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477062

LITERATURE SEARCH

PROSPECT : MONARCH (OR BUGLER) REEF NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Originally worked to 38m. with levels at 18m, 21m, and 35m. Reef was lost in fault but picked up again in New Monarch workings but which go to 121m. level.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : gold in narrow quartz vein.

STRUCTURE :

SUMMARY : Reef unpayable (in New Monarch) from 91m - 121m. but some stoping in upper levels.

Reef narrow.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477063

LITERATURE SEARCH

PROSPECT : MONKLAND REEF NUMBER :

LOCALITY : LEFROY. MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Worked a few times, major work being the New Monkland with a Shaft to 33m and a level at 28m. with 21m. of driving on the lode. Previous to this 45m. shaft sunk with some stoping.

PAST PRODUCTION : ~ 100 t. quartz

GRADE : From small shaft on reef grades varied 3.8g/t to 9.1g/t Au

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein.

STRUCTURE :

SUMMARY : Possible extension of the Windemere Reef. South dipping but almost barren.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477064

LITERATURE SEARCH

PROSPECT : MORNING STAR REEF

NUMBER :

LOCALITY : LEFROY

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Mined over several periods from 1876 (Reliance) to 1912. Two major workings - the Morning Star ; & the Bendigo.

PAST PRODUCTION : Min. 400 oz Au.

GRADE : variable. Quotes from Morning Star of 6.1-26g/t, and 10g/t Au on one 400t crushing.

RESERVES :

STYLE OF MINERALIZATION : gold in fissure quartz vein.

STRUCTURE :

SUMMARY : - The Morning Star workings sank a shaft to 128m with levels at 21m, 45m, 70m, 97m and 128m. Reef payable in places but by 128m. values had diminished and mine closed. Briefly reopened 1896.

- The Bendigo workings consist of shaft sunk at various times to 70m. but poor gold in few patches. Also some work on alluvials but little success.

- The reef in the Morning Star was 0.6-3.0m wide, dipping steeply to the south with a short shoot of ore pitching west.

- In the Bendigo it varied near surface 0.05-0.3m, widening in places to 1.2m, but in this mine gold was very patchy and unpayable. No payable returns below 121.m.

- Stoped along about 60m length.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477065

LITERATURE SEARCH

PROSPECT : NEVER GO BUNG & KITTO CHUM REEF. NUMBER :

LOCALITY : LEFROY. MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Worked by the New East Chum Extended (eastern end); the Never Go Bung; and Kitto Chum (1908).

PAST PRODUCTION : GRADE : Never Go Bung reported 103/t Au

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Quartz vein dipping steeply (85°) to South.

SUMMARY : Reef is of variable width, from stringers to >0.3m. wide, in relatively short distances. In the lower levels of the East Chum was 0.45 - 0.6m. wide, but only 0.12m. wide in Never Go Bung.

Much of the payable gold was near the surface. Shoot of rich stone in this mine pitched to the East (East Chum).

To the East the reef goes under Basalt.

- East Chum mine workings included a shaft to 60m. The 45m. level was driven 6m. South to reef. Driving east on the reef for 21m before good reef broke up at 32m. At the 60m. level reef was hit 7m S. and looked good in driving E but too much water encountered and so was shut down.
- A number of small shafts to W. of Never Go Bung where a shaft was sunk to 24m., but only payable above the 12m. level
- Kitto Chum, has shaft sunk to 60m, but values only carried in the first 24m. This extension lies west of the Never Go Bung.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

LITERATURE SEARCH

PROSPECT : NEW GOLDEN POINT AND CROWN REEF. NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Amalgamation of two companys worked the reef, and later by the Pinafore Co. Main shaft to 105m with levels at 82m; 57m; and 28m. A level may also be developed at 100m. Golden Point shaft went to 54m. Mines closed 1897, reopened 1901 by New Pinafore and again closed 1903.

PAST PRODUCTION : GRADE :

up to 1896 - 1210oz gold. recovered ~ 1oz/t gold.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

- This the only reef in the Lefroy field to depart from an east-west strike, running NE-SW, dipping to the NW. Appears to be a tensional feature between the "Bain and Richards" and the "Australasian and McIvor" reefs.
- Host rock is severely shattered and quartz distribution is highly irregular. Host is siltstones and slates.
- The reef structure is not a clear single structure, and contains some of the highest grade material in the field.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477067

LITERATURE SEARCH

PROSPECT : NEW INDUSTRY REEF NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY :

Main shaft to 60m. and many smaller ones.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Quartz reef

STRUCTURE :

SUMMARY : Narrow reef but very little gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477068

LITERATURE SEARCH

PROSPECT : NEW NATIVE YOUTH REEF NUMBER :

LOCALITY : LEFROY. MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Major mines were City of Launceston, New Native Youth, Excelsior, of which the New Native Youth was the most productive with levels down to 243m; with 69m. of driving at this level. Other operations less extensive and ceased by 1890. Overall one of the richest in the field.

PAST PRODUCTION : GRADE :

estimated total 25,000 oz.

RESERVES :

STYLE OF MINERALIZATION : Gold in quartz veins with associated Cu, Pb, Zn, Fe in sulphides.

STRUCTURE : Reef dips to the north (70°), and although not broken by subsequent faulting, 3 small cross faults do displace reef ~ 6m horizontally. Host rocks dip from 45° SW to NE. but are disturbed near the reef.

SUMMARY :

- Reef is of "good solid quartz"
- At the 243m. level reef reaches 1.0m in width but becomes very small and is poor in gold reflecting the general trend of decreasing grade with depth.
- At the 97 m. level lode consists of two veins each side of the slaty zone; and has been stoped along its length to between 121–152m. in depth, with values dropping to unpayable below this
- A large system which has been well prospected with poor grades at depth.
- New Native Youth, City of Launceston, Excelsior workings stoped along at least 426 m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477069

LITERATURE SEARCH

PROSPECT : Nugget Reef

NUMBER :

LOCALITY : Leroy

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au

MINING HISTORY :

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION : gold poor quartz vein.

STRUCTURE :

SUMMARY :

Worked in the Nugget mine but nothing payable to 45m. depth and so closed.
Later the Pinafore Coy. worked the reef along strike with shaft to 21m. and 182m. drives on reef; but only minor gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477070

LITERATURE SEARCH

PROSPECT : OLD COMRADES REEF NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Situated 300m S. of the Golden Zone. Found 1898 and shaft sunk to 29m. where reef was faulted off. Levels driven at 18m (stoping) and 26m. (driven to W.) Also driving to locate displaced portion of reef, but this attempt in 1932-33, unsuccessful

PAST PRODUCTION : – GRADE : (1.6 oz/t Au per ton of sulphide concentrate).

RESERVES :

STYLE OF MINERALIZATION : Au in quartz vein with pyrite, arsenopyrite, galena. Mostly free gold but very patchy.

STRUCTURE : Reef cut by fault; 030°/25°W both horizontal & vertical components.

SUMMARY : Sparse information.
Reid (1926) describes reef 1·8m – 3·6m. wide striking 070°/S. (steep) was exposed in 4 shafts over 56m. and by trenching another 60m. East. Main shaft to 29m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477071

LITERATURE SEARCH

PROSPECT : ORLANDO REEF. NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:25360

COMMODITIES : Au.

MINING HISTORY : Cut by some fairly deep shafts and a tunnel.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein - and abundant stibnite associated.

STRUCTURE :

SUMMARY : Some "good stone" obtained from it.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

4770-2

LITERATURE SEARCH

PROSPECT : PERPETUAL OR HACKETTS REEF.

NUMBER :

LOCALITY : LEFROY.

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : 2.4km north of Lefroy. By 1882 numerous shafts to 19m had been sunk on the line, but little work. Later the Perpetual Mine opened with a shaft to below 30m. Reef driven on at 30m. level for 22m E., 12m W. with crosscuts 31m N. and 13m S.

PAST PRODUCTION : –

GRADE : One crushing said to yield 24g/t Au.
Overall range 15oz/t – 24g/t Au
1
g ?

RESERVES :

STYLE OF MINERALIZATION : Au in very narrow quartz vein.

STRUCTURE :

SUMMARY : Reef in the Perpetual Mine is very narrow (0.05m - 0.2m) but it carried good gold. Breaks up to the west; Dips at "One in three" to south. Country rock is "soft white-reddish argillaceous slate and sandstone".

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

LITERATURE SEARCH

477073

PROSPECT : PINAFORE REEF.

NUMBER :

LOCALITY : LEFROY.

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Four main companies worked this line; the E. Pinafore, New Pinafore, W. Pinafore and W. Pinafore Extended. Only the New Pinafore was successful with gold from upper levels. Main shaft was sunk to 365m. - but only little gold & closed. Numerous other shafts & workings.

PAST PRODUCTION :

estimated 60,000oz Au.

GRADE :

overall ~ 1oz/t Au.

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein with pyrite associated.

STRUCTURE :

SUMMARY : A soft wide reef, is very broken, consisting of several quartz veins in a shear zone. Not traceable on the surface due to basalts and deep gravel. Reef contained good gold near the surface, but at depth split into three zones known as footwall, intermediate, and hanging wall. F.W. reef 0.9 - 1.2m wide and very brecciated but with very little gold. Then undisturbed ground before the intermediate reef which would appear to be the main fault plane, again broken with little gold. H.W. reef also poor in gold. These were tested from 243 to 365m. with little success. Dip would be ~70°S.

Reef was stoped along at least 457m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477074

LITERATURE SEARCH

PROSPECT : PRINCE OF WALES REEF. NUMBER :

LOCALITY : LEFROY. MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Prince of Wales mine opened in 1881 with shaft sunk to 30m, levels at 15m, 22m, 30m. To the east a small shaft sunk through alluvials to reef but no records. 1930's saw opening of the mine again but still no records of success. Original closure due to water.

PAST PRODUCTION : ~ 100 t of rock for estimated ~100oz. Au.

GRADE : 29g/t Au at 15m level & "better at 22m. level.

RESERVES :

STYLE OF MINERALIZATION : gold in quartz veins.

STRUCTURE :

SUMMARY : Well defined reef 1.5m. in width at 15m. level with almost 1oz/t. gold; but reef is "broken up" at the 30m. level. Reef dips southerly.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : (open at depth but not encouraging).

REFERENCES :

477075

LITERATURE SEARCH

PROSPECT : Queens Birthday Reef NUMBER :

LOCALITY : Lefroy MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Queen's Birthday shaft sunk to 42m. and driven east. Later the Reward Coy. sank 21m. to cut the lode, but soon closed up.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein.

STRUCTURE :

SUMMARY : Soft mullocky thin lode containing a few centimetres of quartz but little gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477076

LITERATURE SEARCH

PROSPECT : Recruit Reef.

NUMBER :

LOCALITY : Leroy.

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : 300m S. of Old Comrades. Two major mines on this reef; the Recruit (formerly the Perserverance) and the East Recruit. The former started early 1880's, ending with 5 shafts up to 94m with crosscutting on E and W but not much stoping. The East Recruit is smaller with a shaft to 29m.

PAST PRODUCTION :

~ 250t quartz (?)

GRADE :

Grades 6.1 - 24.4 g/t Au recorded with some higher grade batches.

RESERVES :

STYLE OF MINERALIZATION :

Au in a faulted zone.

STRUCTURE :

SUMMARY : Large soft lode structures with 0.3m. quartz mentioned. as dipping 1 in 4 to South. Commonly brecciated and slickensided with very patchy gold distribution commonly in "pug and rubble" as opposed to quartz. Halted due to lack of gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

47707

LITERATURE SEARCH

PROSPECT : RIFLEMAN REEF

NUMBER :

LOCALITY : LEFROY

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Away to the east of the main belt of reefs.
A number of small shafts sunk but no information.

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION : gold in quartz vein.

STRUCTURE :

SUMMARY :

A 0.22m. wide quartz vein occupies a fault plane cutting slates.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477078

LITERATURE SEARCH

PROSPECT : SENTINEL REEF

NUMBER :

LOCALITY : LEFROY

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au

MINING HISTORY : Shaft to 26m; with driving on 22m. level.
A 22m. underlay shaft nearby. Some trenching also.

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : 1·8m – 3·6m. wide lode with some rich patches but generally barren.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477079

LITERATURE SEARCH

PROSPECT : SPECIMEN HILL REEFS NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Mainly worked in the Golden Crest, Reward, and the Gift Mines. The Gift discovered in 1909.

PAST PRODUCTION : GRADE :

503 gold from 11t quartz in Gift Mine.

RESERVES :

STYLE OF MINERALIZATION : gold in quartz veins.

STRUCTURE :

SUMMARY : Numerous small reefs, on Specimen Hill, having no particular dip.

- The Golden Crest worked at shallow depths and unpayable at depth.
- The Reward Shaft went to 76m with levels at 32m and 76m. The reefs were hit in this mine in the upper levels and were less distinctive at deeper levels.
- The Gift was sunk to 30m. and worked from the Reward Mine at the 76m. level.
- Reefs are 0.05m – 0.3m. in width and carry "patchy" gold values that die with depth.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477080

LITERATURE SEARCH

PROSPECT : TABLIER REEF NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au

MINING HISTORY : Two mines on the reef, both unsuccessful.
The Tablier and the Princess Alice Mines. Both these had shafts to 30m.
Some driving was done & several prospecting shafts between them.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz vein.

STRUCTURE :

SUMMARY : A long, wide, mullocky reef with a width of 0.6-0.9m quartz dipping to the south.

Nothing of value found in the workings.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477081

LITERATURE SEARCH

PROSPECT : VIDETTE REEF

NUMBER :

LOCALITY : LEFROY

MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY :

many small shafts.

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION : Quartz vein

STRUCTURE :

SUMMARY :

Fairly strong reef developed up to 0.9m. thick but no gold found.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477082

LITERATURE SEARCH

PROSPECT : WHITE PINAFORE REEF. NUMBER :

LOCALITY : LEFROY. MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : Discovered 1900. with Shafts Levels at 36m and 60m. with reef faulted between these levels. Some stoping on the 36m. Level. Numerous trenches and Shafts.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

- Faulted reef.
- possible to trace under gravels to the west but not an attractive reef.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

477083

LITERATURE SEARCH

PROSPECT : WINDERMERE REEF NUMBER :

LOCALITY : LEFROY MAP SHEET : Beaconsfield 1:63360

COMMODITIES : Au.

MINING HISTORY : At the western end of the reef is New Windermere workings with a main shaft and tunnel in side of hill 30m. long which cut the lode and some driving took place, and a 9m. deep winze. Wallis Co. tried to reopen but not favourable. Many trenches and shafts along reef to east.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : gold in irregular quartz vein.

STRUCTURE :

SUMMARY : In tunnel reef is very irregular and ≅0.2m. in width, sometimes represented by 0.05m. of drug.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

5.0 BACK CREEK GOLD FIELD (Refer Plan 3)

This gold field dates back to about 1869. It had been twice abandoned by 1884 but workings continued from time to time up until the 1920s'.

5.1 LOCAL GEOLOGY

The Mathinna Group basement consists of a mixed series of slates and sandstones. The beds strike 320° (m) and dip 65° NE. From comparison with bedding attitudes in the Lefroy area, it is considered that the beds have been folded into a number of open wide amplitude folds.

The relationship between the auriferous Tertiary gravels and the basalts has been discussed in some detail in the literature but they are concluded to represent contemporaneous flows.

5.2 MINERALISATION

5.2.1 Alluvial Gold Workings:

It is estimated that about 10,000 oz gold were recovered from an area of approximately 20 ha,worked to an average depth of about 4.5 m. The alluvial leads are largely worked out and there is only a limited potential for additional reserves below a basaltic covering.

The four main leads (White, Red or Albion; Blackman or Back Creek; and Cardigans or Prince of Wales) are of Tertiary age. They are deep leads covered by later drift and are now reexposed in slightly different stream channels towards the south and east. The leads pass laterally into penecontemporaneous basalt flows.

The auriferous "wash" distribution is similar in all the leads, being largely concentrated in the lower horizons overlying sometimes apparently clay rich (?altered) Mathinna Group sediments. The leads steepen towards the basalt and a false bottom with two auriferous horizons may be developed.

The source of this gold is considered to be locally derived from the small auriferous quartz veins found in the locality.

The possible extension of the leads below the Tertiary basalts has been the subject of several stages of drilling programmes discussed in detail by Marshall (1969). It was considered that there is little chance of finding substantial thicknesses of auriferous gravel along the Back Creek leads and further drilling was not recommended.

5.2.2 Quartz Veins

The quartz veins occur in more or less parallel fissures and comprise a number of narrow irregular and discontinuous auriferous quartz veins in the Mathinna sandstones and shales. The dominant trend of the quartz veining is NE whilst a second set of veining appears to parallel the strike of bedding. The maximum width of individual veins is in the order of 0.8 m.

Some clay rich sandstones which host zones of closely developed mineralised quartz stringers over about 3.5 m widths may represent zones of hydrothermal alteration and probably constitute the only potential for possible bulking in the area (e.g. Union Mine and the Sir John Franklin Mine where grades of 9 g/t were bulked from a 3.6 m wide zone which carried 13 veins the largest being 0.6 m wide.

The various authors who have studied the area considered that some secondary surface enrichment of gold had taken place as indicated by the fact that in general gold values decreased below the 15 m level.

The main areas of mineralisation are closely associated with the Tertiary alluvial leads and are considered to have contributed the gold found in these deposits.

Montgomery (1894) noted the common appearnace of many much wider (to 1.8 m) more persistent quartz veins throughout the area, but where prospected these were found to be barren.

A minor occurrence of chalcopyrite in a nearby slate quarry is mentioned but this is not considered to be significant nor related to the gold mineralisation.

5.3 PREVIOUS INVESTIGATIONS

5.3.1 CRA (1982)

(Mines Ref: 83-1955)

CRA gave some consideration to the potential for deep leads in EL 53/80 which covered the Back Creek area. A reconnaissance ground magnetic survey was conducted to define the margins of the deep lead basalts. It was considered that the deep lead represented the best potential in the field but that it contained only a very limited tonneage potential. A limited amount of scout drilling to define and evaluate sub-basaltic deep lead gravels of the Back Creek system were recommended. However CRA relinquished the licence without conducting this work.

5.4 CONCLUSIONS AND RECOMMENDATIONS

5.4.1 Alluvial potential:

It is considered that only very limited potential exists for reserves of alluvial gold to be found as extensions of the formerly worked areas. No new work is recommended.

5.4.2 Quartz-vein potential:

The only real potential is considered to be zones of closely developed mineralized quartz veining as described from the Union and Sir John Franklin Mines. The relocation and sampling of such zones would be justified to establish vein density and grades, and to look for structural extensions of such zones if they appeared to be significantly mineralized.

	Recorded Au produced (oz)	tonnes ore	av. grade (g/t) Au.	max. strike length (m)	max. depth worked (m)	average width (m)
Back Creek Alluvials	10,000	-	0.346(g/m³)	-	-	-
Lady Emily (All Nations Moonlight)	-	-	(10)	60	-	0.6
Major (Leura)	-	-	-	365	30	0.76
Never Mind (Albion)	-	-	-	-	-	0.6
New Hidden Treasure	53.9	17	97	40	45	0.45
Sir John Franklin	22	30	22.4	28	52	0.07
Union	-	-	-	-	24	0.6
TOTAL:	10,075.9					

SUMMARY OF DETAILS FROM WORKINGS IN THE BACK CREEK GOLDFIELD

TABLE 5.1

BACK CREEK GOLD FIELD

DATA SHEETS ON

INDIVIDUAL OCCURRENCES

477089

LITERATURE SEARCH

PROSPECT : BACK CREEK GOLD FIELD - ALLUVIALS. NUMBER :

LOCALITY : MAP SHEET :

COMMODITIES : Au - alluvial

MINING HISTORY : Discovered 1870 with most production 1870-1872. Leads were worked by shafting and sluicing.

PAST PRODUCTION : estimated 9-10,000oz. from an approximate area of 20ha (assuming a 4.5m. depth.) GRADE : overall for ground worked est. 0.346 g/m³.

RESERVES : Largely worked out. Marshall 1969(b) considered reserves if any would exist under basalts to SE.

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Four main leads of Tertiary age, being deep leads or main channel alluvial deposits, covered by later drift, and now reexposed along slightly different stream channels, pass laterally into penecontemporaneous basalt flows. Auriferous "wash" distribution is similar in all leads being largely concentrated in the lower horizons overlying sometimes apparently clay-rich (altered?) Mathinna sandstones/slates. The leads steepen towards the basalt and a false bottom with two auriferous horizons may be here developed. Source of the gold is considered local or locally reworked.

The four leads are:

(1) White lead: 600m. long x 40m. wide x av. 4.3m. deep (deepest 7m). Wash characterized by white clay in gravels and white (?altered) bedrock slates.

(2) Red (Albion) lead: 1600m. long x 80m. wide x max 4.5m. deep. Similar to the White lead except that strong red colour due to iron oxide staining.

(3) Blackmans (Old or Back Creek) lead: 640m. long but broader and deeper than other leads. Wash consists of 1-2m. of water-worn pebbles and boulders of quartz, slate and sandstone 5.5-7.6m. deep. Bottom deepens to Basalt (to 15m. and a false bottom developed.

(4) Cardigans (Prince of Wales) lead: comparatively shallow and small. Values relatively low grade and not intensively worked.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Thureau 1882; Montgomery 1894; Broadhurst 1935; Marshall 1969(a), 1969(b).

477090

LITERATURE SEARCH

PROSPECT : LADY EMILY; ALL NATIONS; MOONLIGHT. NUMBER :

LOCALITY : BACK CREEK GOLD FIELD. MAP SHEET :

COMMODITIES : Au

MINING HISTORY : Shafts.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Vein attitude strikes E-W and dips N.

SUMMARY :- A number of old shafts sunk in white sandstone and soft micaceous shale as at Union and Hidden Treasure.

Reef is 0.45 - 0.6 m. wide with "unpayable" gold values traced over 24m. length.

- Nearby a number of small irregular reefs contain trace amounts of gold.

- The Moonlight Reef, which crosses the Lady Emily Reef with 15cm. of fault displacement, has been traced over 60m. and is reported to carry values up to 10 g/t over its 0.45 m. width.

- Note: Kennetts and Hacketts Reef: to the South, and from float at surface - is thought to be about 0.15m. wide and to carry 3 g/t gold. (Montgomery compares this with the Maju Reef).

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Montgomery 1894; Broadhurst 1935.

477091

LITERATURE SEARCH

PROSPECT : MAJOR (LEURA) MINE NUMBER :

LOCALITY : BACK CREEK GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : discovered in alluvial shafts which extended to 20m, with up to 1.5m. auriferous "wash" and cemented quartz rubble on a slate bottom.

PAST PRODUCTION : estimated in total: GRADE :
85.5oz gold from 42 t. quartz.

RESERVES :

STYLE OF MINERALIZATION : Fissure quartz reef.

STRUCTURE :

SUMMARY : - A main quartz vein striking E-W/steep N dip, traced over 365m. to depths of 30m. A south vein strikes E-W and appears to merge with the main vein towards its western end. Vein width is narrow and varies to a maximum 0.76m. and is referred to as laminated and shisted. Mineralization is not uniform, varying from a trace to several oz/t Au. (Maximum recorded 9.3oz/t).

- The possibility of parallel structures and reefs mentioned by Broadhurst (1935).

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Montgomery 1894 Broadhurst 1935 [illegible]

477092

LITERATURE SEARCH

PROSPECT : NEVER MIND OR ALBION REEF NUMBER :

LOCALITY : BACK CREEK GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : A number of shafts to depths of 30m.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : . A 0.3m - 0.6m. wide quartz vein, striking SE, which appears to be affected by minor faulting, contains irregularly developed high gold values. The vein is broken and irregular in nature

- other sets of EW trending quartz veins also observed.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Montgomery 1894, Broadhurst 1935.

477093

LITERATURE SEARCH

PROSPECT : NEW HIDDEN TREASURE. NUMBER :

LOCALITY : BACK CREEK GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Several shallow shafts to 14 m.

PAST PRODUCTION : GRADE :
total recorded 53.9 oz from 17 t quartz.

RESERVES :

STYLE OF MINERALIZATION : Quartz veinlets.

STRUCTURE :

SUMMARY : Two sets of reefs :
(a) a somewhat "flat" reef approximately 1m. thick striking E-W and dipping N., contains a short shoot averaging 15cm. wide from which 7 tons returned 28.9 oz Au;
and (b) 40m. east of the shaft a small (0.45m) quartz has been stoped to 4.5m. height over 40m. and 10t. returned 25 oz Au. - but beyond this vein are barren stringers.

The values of both sets of veins drops off with depth.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Montgomery 1894

477094

LITERATURE SEARCH

PROSPECT : SIR JOHN FRANKLIN MINE NUMBER :

LOCALITY : BACK CREEK GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : A number of shafts. A 71m. long tunnel connects to the Main Shaft (52m) at the 30m. level. Situated at the head of the Red Lead Channel.

PAST PRODUCTION : GRADE :
mining between 30m and 52m levels returned 22 oz gold from 30t. quartz.

RESERVES :

STYLE OF MINERALIZATION : occurrence of gold in a series of narrow pyritic quartz veinlets.

STRUCTURE : Attitude of veinlets is 050°/70°N.

SUMMARY : Sandstones (in the tunnel) carry a series of small (to 7cm) quartz veinlets over 28m. Individually these veinlets are iron stained and carry up to 9 g/t Au. A veining density of 13 veins over 3.6m. interval is mentioned, the zone bulking at 9 g/t Au. from 30t of mixed quartz and sandstone. Maximum width of individual quartz vein is 0.6m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Montgomery 1894; Marshall 1969.

477095

LITERATURE SEARCH

PROSPECT : UNION MINE NUMBER :

LOCALITY : BACK CREEK GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : ~1894. A shaft to at least 24m. depth situated at the head of the drainage of the channel of the White Lead.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Quartz veinlets.

STRUCTURE : attitude of veins in two sets : -090° Strike
- 295°/ SW dip.

SUMMARY : - Occurrence of gold throughout a finely quartz veined white sandstone and associated with a 0.6 m. wide quartz vein. Total width of auriferous zone is 3-4.5m (over a depth of 27m). Clay alteration considered present.
- At depth possibility of a second set of quartz veining present but this is rather narrow and irregular.
- Sampling on the 24m. level of the mine (Blake, 1937) recorded several poorly defined zones of quartz veinlets in sandstone with no detectable gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Montgomery 1894, Broadhurst 1935, Blake 1937, Marshall 1969.

6. THE LISLE - GOLCONDA - LEBRINA - DENISON GOLD FIELDS (Refer Plan 3)

6.1 GENERAL GEOLOGY

The NW striking (NE dipping) Mathinna Group sediments, which here comprise predominantly impure quartz sandstones and minor siltstones are intruded by small apophyses of Devonian granitoids related to the Scottsdale Batholith (370 my).

The Lisle and Golconda areas of mineralisation are undertaken by either intrusive rocks or thermally metamorphosed sediments, whilst the Lebrina and Denison areas, although not within the contact metamorphic aureole, are probably underlain by intrusives at shallow depths.

The contact metamophic assemblages in order of decreasing intensity are: thinly foliated quartz-feldspar-biotite schist; dark quartz-plagioclase-biotite (-cordierite) hornfels; spotty hornfels; and partial hornfels with remnant cleavage. This zone reaches up to 2 km in width marginal to the intrusive rocks.

The intrusive rocks are predominantly biotite-hornblende granodiorites, but a number of variations are known and as these rocks have not been studied in any detail it is not known if mineralisation can be correlated with any particular phase.

Thureau (1882) described the granitoid rocks underlying the Lisle gold field as being friable and light grey-reddish coloured; containing a large percentage of dark green mica, with some quartz and hornblende and also being pyritic. He called these rocks "syenitic" and noted, as have subsequent workers (Twelvetrees 1909; McIntosh-Reid, 1926) that they do not appear comparable with the tin bearing granitic rocks of NE Tasmania, particularly in as much as they are distinctly lacking in muscovite. These intrusive rocks are sometimes referred to as being clay rich, and it is therefore considered that this, in addition to their basinal, low relief, topographic expression may indicate widespread hydrothermal alteration. The mineralisation found in these rocks will be noted separately.

The alluvial gold deposits are essentially contained in Tertiary-Cenozoic basin formations contained in the granitic embayments.

6.2 MINERALISATION

6.2.1 Alluvial;

Alluvial gold workings were concentrated in the Lisle Basin where the main workings included Lockwood Terrace, Donnelly's Terrace, Cox's Creek, Callaghan's Creek, Main (Lisle) Creek, Red Cliffs, Thomas Creek, Watts Creek, and Bessells Creek. The New Bonanza G.M.Coy; Lisle Hydraulic G.M., Mt Arthur Properties; Tasmanian Consolidated Ltd, and Lisle Dredging Coy, were the main operaters during the period 1878-1909. Other workings were at Lone Star Creek and Tobacco/ Cradle Creeks.

An estimated figure of 250,00 to 300,000 of gold production has been made from the Lisle Basin. The gold was recovered from various levels of alluvial,elluvial and "lead" deposits,where generally a 1.8 m thick auriferous gravel wash which rested on a soft weathered granitic basement was covered by upto 7 m of gravels. Gold was commonly concentrated with carbonaceous material.

These alluvials were of limited extent and were largely worked out. Reference to weakly auriferous quartz veining in both granite and contact rocks suggests a local source of the gold.

The alluvial gold production from Tobacco and Cradle Creeks is estimated to be 2000 oz. This being derived from a small area of well worked 0.45 m thick gravels, resting on a slaty bottom, covered to 3 m of clay overburden. This area appears to be outside the contact metamorphic zone.

6.2.2 Quartz Vein

The district would appear to contain two styles of auriferous quartz vein development -

(i) those associated with the granitoid intrusives and the immediate contact metamorphic zone, and

(ii) those from the unmetamorphosed Mathinna Group.

(i) Lisle - Golconda Areas:

Thureau (1882) described weakly auriferous quartz-pyrite veins from both the intrusive and country rock from the Lisle Basin. These were described as being irregular, limited in size and extent (largest being 0.6 m wide) and displaying no apparent structural control. In fact, he noted "...the whole of the granitoid formations are traversed by attenuated quartz veins charged with very fine gold".

Examples of auriferous quartz veins were seen in the Titmus and Dodgshuns Tunnel on intrusive contacts where narrow kaolinitic quartz veins in sandstones and granitic rock carried 4.6 g/t gold; and also in Donnelly's adits where a number of up to 5 cm wide, auriferous quartz veinlets occurred over a 1.5 m wide zone which was 120 m in length.

Thureau (1882) held the view that if any significant bodies of mineralised quartz were to be developed these woul probably occur at the intrusive margins. He also referred to the presence of 9 m wide hard dense dark grey dykes composed of quartz with a black mica, hornblende and some opaque corundum. (The alluvials are also reported to contain sparse rubies and sapphires). The significance of this assocation is not known but may be worthy of further consideration regarding the genesis of the mineralisation.

Molybdenite and tourmaline have been reported from joint surfaces of biotite granite in the area, and rare tin was reported from the alluvial workings. In addition, small veins of quartz-tourmaline-molybdenite cut granitic rocks in the Lone Star Creek basin and also the Mathinna Group at the Enterprise Mine near to the Golconda intrusive.

McIntosh-Reid (1926) described the quartz vein deposits of the Golconda area. He noted that only a small proportion of the quartz veins were auriferous but also, significantly, that these may occur in both the intrusive and sedimentary rocks, except that they tend to be more

widely developed in the sediments. The quartz vein development is restricted to a zone near the contact, but may lie either parallel or normal to it. The quartz veins are normally narrow (2.5-10cm; max 0.6 m) and the maximum recorded length is about 60m.

The gold is predominantly found in sulphides (chalcopyrite, arsenopyrite) in the fissure filled quartz veins and surface oxidation has reduced some gold (presumably important for alluvial gold source material). An increase in gold content in the area of greatest contact metamorphic effect was also noted.

He notes that the Denison gold field differs in that it is probably of lower temperature formation with pyrite replacing chaclcopyrite and arsenopyrite and more gold being contained in the quartz.

In addition to the above quartz vein development, McIntosh-Reid referred to beds of siliceous sandstone, 0.3 - 1.8 m thick (e.g. Cradle Creek, Myrtlebank, Lisle) as being impregnated with gold to a varying extent - but it is very fine and is unevenly distributed and generally higher in iron oxide stained varieties and in the contact metamorphosed zone. These rocks are noted as being porous, friable sandstones. Values of between 15-41 glt gold are stated but the average is less than 3 glt.

Marshall (1969) concluded (from the literature) that the "auriferous sandstone" was found in close association with quartz veining and that it was this that carried the gold.

(ii) Lebrina - Denison Areas:

The Lebrina Mine was worked from 1909 - 1916 on an auriferous fissure quartz vein , with associated pyrite and arsenopyrite. It is stated that a number of mineralised subparallel discontinuous quartz veins occur in the area along an 800 m long zone but the density or grades of veining is not known. The main vein

(0.15 - 0.6 m wide and carrying at least 6 glt) was worked along an 180 m length to depths of 30 m.

The Denison field was worked from 1878 - 1880 on a number of auriferous quartz veins developed in the slates of the Mathinna Group in an area which appears to be outside the immediate influence of the granitoid intrusive rocks found at Golconda and Lisle to the south. McIntosh-Reid considered this to represent a lower temperature assemblage. The quartz veins are described as narrow, with short irregular productive sections, irregular distribution of gold and interuption of veins by faults. Several workings reported quite high grades (e.g. Wiangata Mine) but these were either located on very narrow veinlets or decreased rapidly with depth.

6.3 PREVIOUS INVESTIGATIONS

6.3.1 Comalco (1977)

(Mines Ref 77-1238)

Comalco conducted stream sediment and pan concentrate surveys with no encouraging results over the area of EL 25/76 which included the Lisle and Golconda fields. It was noted however, that in general anomalous arsenic values ($\geq$10ppm) did indicate areas of known gold mineralisation.

In addition, mapping and sampling, of the contact metamorphic rocks in particular, was carried out to determine if any fine grained gold may have been previously undetected. Occasional values of 0.4 ppm Au were recorded but these did not substantiate any bulk potential. Intrusive rocks were not in general sampled.

6.3.2 CRA (1982):

(Mines Ref: 83-1955)

CRA considered that the contact aureoles of granodioritic cupolas centred on Lisle and Golconda did have potential for disseminated gold mineralisation, but apart from a low density coverage stream sediment survey, (1 to 2 samples/km^2) which did reflect an association of elevated arsenic values to the auriferous associated granodiorites, very little follow up work or rock sampling was conducted.

It was also considered that the Pipers Brook and Foresters River systems may contain deep alluvial gold leads, but that these were very low priority targets.

6.3.3 Current Research:

The Lisle Basin is currently an area exempted from the Mining Act, as DR. W E Baker of the Tasmanian Department of Mines is conducting a survey on a biogeochemical prospecting technique in the area. In particular it has been found that 'pinus radiata' shows a marked response to the present of gold and work in this area is continuing (Baker, 1982).

6.4 CONCLUSIONS AND RECOMMENDATIONS

6.4.1 The Lisle alluvial gold production may be viewed as originating from a somewhat "closed" system being the eroded granitoid and contact metamorphic zone, however some of the gold originally present would be expected to have been transported out of the basin.

The basin extends approximately 4 km x 2.4 km and Thureau (1882) estimated at least 183 m of erosion to have taken place. Hence on the basis of a total gold production of the maximum figure of 300,000 oz it can be seen that the overall grade of the body would bulk out at very low grades. Airborne geophysics may well delineate such intrusives below the Denison-Lebrina area, but even if it could not be considered that the potential for discovering an unexposed system such as this even at shallow depths would constitute an attractive exploration target.

In order to complet y clarify the nature of the gold occurrences in the intrusive rocks and immediate vicinity in the Lisle-Golconda area, a number of bulk rock chip samples should be taken from the area and in particular I note the reference of McIntosh-Reid (1926) to country tuffs "veined with pyrite" in the Panama Workings; and the stockwork vein potential of areas such as Golden Crest, Panama and Lisle.

6.4.2 Further in consideration of alluvial concentrations, only the Quaternary alluvials of Lisle Creek or Lone Star Creek would appear to have any potential for hosting lead concentrations of alluvial gold. McIntosh-Reid (1926) reported that the flats at the confluence of these two streams had been tested by drilling and that only small quantities of gold was obtained from gravels of depths between 4.5 and 9 m. However the creeks drain basins in intrusive systems which probably have not been eroded to sufficient depths to contribute substantial amounts of gold if they were gold enriched as the Lisle intrusion was. The potential of sufficient alluvial material is therefore considered very remote.

6.4.3 It is considered that the "mineralised silicified" sandstones described from the Bessells Reward, Cradle Creek, Myrtlebank and Lisle areas could possibly represent the only potential in the area for perhaps starting to consider bulk tonneages of low grade gold mineralisation. Field verification of this mineralisation would be required, followed by sampling and mapping to determine the extent and thickness of the "alteration" in order to determine the likely tonneage potential.

6.4.4 The potential for quartz vein gold in the field overall must be considered very low due to the irregular nature of the veining, the narrow and limited extent of the veins, and the irregularity of gold values, which are in general not particularly high in any case.

The only zone with any strike potential would appear to be to the north-east of Lebrina Mine, but here the grades are relatively low (6 g/
A series of bulk rock chip samples from across this zone would adequately test any bulking potential of the area.

	Recorded Au (oz) produced	tonnes ore	av. grades (g/t)Au.	max. strike length (m)	max. depth worked (m)	av. width(m).
LISLE Alluvials.	250,000	-	0.34-0.51 (g/m³)	-	-	-
Tobacco/Cradle Creeks	2,000	-	-	-	-	-
Lone Star Creek	-	-	-	-	-	-
Bessel Reward	-	-	(3.1)	-	-	0.1
Enterprise	-	-	(9.2)	(30)	25	0.15
Fairthorne	-	-	-	-	-	0.18
Golden Crest	92	785	3.6	21	-	0.6
Kelly	2.4	5	14.7	-	-	0.6
Panama	-	-	(9)	-	-	0.6
Drinkwater Ck.	50	-	-	-	-	-
Lebrina	40	200	6.1	183	30	0.45
Alacrity	-	-	(30)	-	61	0.45
Brooklyn	-	-	(6.1)	-	-	0.18
Globe	-	-	-	-	24.4	-
Lady Hamilton	-	-	-	-	-	0.45
Sir William Denison	-	-	(40+)	-	28.6	0.48
Star	-	-	(7.6)	-	21	0.45
West Wiangata	-	-	-	-	30.5	0.3
Wiangata	-	-	(67.3)	-	79.2	0.07
TOTAL:	252,184.4					

SUMMARY OF DETAILS FROM WORKINGS IN THE LISLE-GOLCONDA-LEBRINA-DENISON GOLDFIELDS

TABLE 6.1

LISLE-GOLCONDA-LEBRINA - DENISON GOLDFIELDS

DATA SHEETS

INDIVIDUAL OCCURRENCES

477106

LITERATURE SEARCH

PROSPECT : LISLE ALLUVIAL FIELD NUMBER :

LOCALITY : LISLE BASIN MAP SHEET :

COMMODITIES : Au. - alluvial

MINING HISTORY : Discovered 1878 and actively worked until 1918. Small scale mining since then. Predominantly ground sluicing, low pressure hydraulic sluicing and hydraulic elevators used. The Lisle Dredging Company operated a suction dredge 1901-1904.

PAST PRODUCTION : GRADE :

Estimated 250,000 to 300,000 oz.
(officially reported 88,000 oz to 1894).

RESERVES :

STYLE OF MINERALIZATION :

Total area was estimated to contain ~ 200ha. with an average depth of 3.5m. gravels containing an estimated 0.34 - 0.51 g/m³ which may suggest that the estimated value of production above is high, with the overall reserves to have originally been ~ 115,000oz. gold.

STRUCTURE :

SUMMARY : - Alluvial production from three levels of alluvial, elluvial and "lead" deposits along (Main) Lisle Creek, on the eastern basin flank, along Bessells and Thomas Creek to the west and from terraces above. Payable "wash" to 1.8m. on a soft granite bottom generally overlain by ~ 7m. gravels which may also carry some values. Deepest recorded workings to 20m.

- Surrounding the basin are high walls of thermally metamorphosed Mathinna Beds. Granite: is a soft decayed hornblende - biotite low quartz granite, which with the contact rocks hosts minor irregularly developed narrow quartz veining (max 0.6m) which carry minor gold and pyrite : eg. Titanus and Dodgshuns adit where 6 x 1cm wide veins carry up to 5g/t Au over a small width for 120m.

- Note presence of occassional Sapphires/rubies and corundum in late veins of intrusive rock.

- Note also association of minor molybdenite on fracture surfaces in granite and minor amounts of tin reported in gravels.

Conclusions: It is considered that the Lisle Basin may represent the eroded top of a small kaolin altered granitic intrusion which was accompanied by minor Au (Mo, Sn) mineralization. The gold liberated by erosion was contained within a natural embayment defined by the hard altered sediments. The gold was locally derived from the zone of contact between the intrusive rocks and the sediments, however the actual locations or forms of the gold deposits is not known.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE : Exempted from Mining Act.

RECOMMENDATIONS :

REFERENCES : Thureau 1882, Montgomery 1894, Twelvetrees 1909, Mc'Reid 1926, Marshall 1969, Jack 1961.

477107

LITERATURE SEARCH

PROSPECT : LONE STAR CREEK NUMBER :

LOCALITY : GALGADDA GOLD FIELD. MAP SHEET :

COMMODITIES : Au - alluvial.

MINING HISTORY : Small amount of alluvial workings and occassional Shafts to 15m. Full extent of workings obscured by recent farming.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - geological setting similar to the Lisle Basin - underlain by granite and surrounded by high ridges of thermally metamorphosed Mathinna Beds, the basin filled with talus and gravels which are sometimes auriferous. Mining has only occurred on a narrow "lead" near the present Stream. Gold is reportedly coarser than that at Lisle and appears to be closely associated with a white sandstone, with a suggestion that the gold may have originated from this rock.

- little evidence of attempts to mine any vein deposits.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : McLeod 1926, Marshall 1969

LITERATURE SEARCH

PROSPECT : TOBACCO & CRADLE CREEKS NUMBER :

LOCALITY : GOLCANDA AREA. MAP SHEET :

COMMODITIES : Au (alluvial).

MINING HISTORY : Discovered by Bessell in 1877.

PAST PRODUCTION : ~ 2000oz. GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - A small area of auriferous wash has been worked over at least four times.

- Some trenching over the ridge between the creeks has occurred in an attempt to locate the source of the gold.

- 0.15m - 0.45m of auriferous wash, on a slate bottom, is overlain by 3m. of clay overburden and extends about 400m. along Tobacco Creek towards its head. Gold is coarser than at Lisle and commonly has quartz adhering - the source being the ridge between the two creeks where some small auriferous quartz veins have been prospected.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Mc I-Reid 1926

477109

LITERATURE SEARCH

PROSPECT : BESSELL REWARD PROSPECT (LODE) NUMBER :

LOCALITY : GOLCONDA GOLDFIELD MAP SHEET :

COMMODITIES : Au

MINING HISTORY : Originally discovered 1877 (as alluvials) with the source of gold located in 1925. Workings consist of shallow trenches.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Narrow quartz veining; possible "impregnated" porous sandstones. Reference to some alteration and white porphyry dykes. Some mention of limonite (?after pyrite) but no other mention of sulphide minerals.
STRUCTURE : Quartz vein attitudes 050°/NW dip.

SUMMARY :

- Reid (1926) described (1) Bedded Deposits: narrow beds of 0.3 – 1.8m. of sandstone interbedded in slates. Openings always showed gold in varying amounts ranging up to 26 g/t (an average of 10 samples gave 3.1 g/t). Beds Strike 295°/80°NE. Noted the development of some secondary mica and quartz;

and (2) Vein Deposits: narrow persistent quartz veins (2.5–10cm) cut the "auriferous" sandstones and themselves carry varying amounts of gold.

Marshall (1969) concluded (from the literature) that the auriferous sandstones were found in close association with quartz veining and that it was these that carried the gold.

- Additional occurrences of "Sandstone-derived gold" are noted in prospects west of Bessells (viz. Cottrell-Dormer and Brock prospects) and in Partridge and Faulkner Creeks to the east. (these not located).

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : Field checking on "Bedded" deposits (or stockworks therein) is warranted.

REFERENCES : Reid 1926, Marshall 1969.

477110

LITERATURE SEARCH

PROSPECT : ENTERPRISE MINE NUMBER :

LOCALITY : GOLCONDA GOLD FIELD MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : four veins have been opened in shafts to 25m; and two veins by adits.
Several unsuccessful attempts in 1919.

PAST PRODUCTION : GRADE : av. 9.2g/t Au.

RESERVES :

STYLE OF MINERALIZATION : Quartz veins & associated blebs/veinlets of pyrite, arsenopyrite & chalcopyrite.

STRUCTURE :

SUMMARY : Six narrow (15cm.) quartz veins occur. No indication as to spacing or wall rock geology. A few of the ore shoots are greater than 30m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : McReid 1926, Marshall 1969

477111

LITERATURE SEARCH

PROSPECT : FAIRTHORNE PROSPECT. NUMBER :

LOCALITY : GOLCONDA GOLD FIELD MAP SHEET :

COMMODITIES : Au

MINING HISTORY :
a short adit developed.

PAST PRODUCTION : GRADE : —

RESERVES :

STYLE OF MINERALIZATION : quartz vein with associated pyrite, chalcopyrite and arsenopyrite

STRUCTURE : vein attitude 285°/72°S.

SUMMARY : An 18cm. wide quartz vein developed in slates.
No value recorded but presumably carried some gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Mt. Reid 1926

477112

LITERATURE SEARCH

PROSPECT : GOLDEN CREST MINE NUMBER :

LOCALITY : GOLCONDA GOLDFIELD MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : discovered 1885, mined until 1918 but never successfully. Access by way of two main adits.

PAST PRODUCTION : at least 785t. for 92oz Au

GRADE : extracted 3.6g/t Au.
average of #1 adit:
6.8g/t Au
18g/t Ag.

RESERVES :

STYLE OF MINERALIZATION : "vein-dyke" type, gold and silver with associated arsenopyrite, pyrite and chalcopyrite. Values from cracts and fractures in the quartz veins at granodiorite margin

STRUCTURE :

SUMMARY : Gold bearing quartz vein in hornblende granodiorite near contact with Upper Mathinna sandstones. The main quartz vein varies 0.1m - 0.6m. in width. At least one other vein is referred to.

The veins consist of short narrow shoots of ore in almost barren quartz (being unevenly distributed).
In #2 adit the vein is 21m. in length and abruptly feathers out into small irregular barren veinlets at either end. In lowermost winze, vein decreases from 0.6m. - to 5cm over 3m (but grades 32g/t Au & 39g/t Ag.)

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Mc-Reid 1926, Marshall 1969.

477113

LITERATURE SEARCH

PROSPECT : KELLY PROSPECT NUMBER :

LOCALITY : GOLCONDA GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : workings not located by Reid (1926) but is near Lone Star alluvial field. Workings consisted of a number of shallow shafts and trenches.

PAST PRODUCTION : 5t parcel returned 2.4 oz Au. GRADE : ranged to 41 g/t from a trace. averaged ~ 15 g/t.

RESERVES :

STYLE OF MINERALIZATION : quartz veins with pyrite, arsenopyrite, chalcopyrite as bunches and veinlets.

STRUCTURE : Attitude of vein 275°/dip S.

SUMMARY : A quartz vein, 0.45 - 0.6m wide, carries unevenly distributed gold values. The ore shoot is 61m. long.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Mt. Reid 1926

477114

LITERATURE SEARCH

PROSPECT : PANAMA FIELD NUMBER :

LOCALITY : GOLCONDA GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : poorly documented, but workings are extensive

PAST PRODUCTION : GRADE :
grades 9-21 g/t recorded.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Attitudes of granodiorite intrusive = 005°/45°E, 225°/80°NW, 045°/60°NW

SUMMARY : - Mineralization is associated with the top and contact zone of a small outlier of granodiorite. The "soft altered" intrusive has been eroded.

- A series of relatively flat "veins" remain - these carried gold and were prospected. The mineralized quartz veins, up to 0.6m. wide, carry galena, sphalerite, pyrite arsenopyrite and gold and occur both in the soft granodiorite and in hard tuffs and grey slates of the upper Mathinna Beds.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : Reid (1926) refers (p 45) to tuff "veined with pyrite" & a check for gold is warranted.

REFERENCES : Mt-Reid 1926, Marshall 1969.

477115

LITERATURE SEARCH

PROSPECT : DRINKWATER CREEK. NUMBER :

LOCALITY : LEGRINA GOLD FIELD MAP SHEET :

COMMODITIES : Au. (alluvial)

MINING HISTORY : Shallow alluvial workings along creek.

PAST PRODUCTION : 50 oz. GRADE :

RESERVES :

STYLE OF MINERALIZATION : alluvial.

STRUCTURE :

SUMMARY : Small amount of alluvial gold derived from an area of quartz veining extending NE from the Legrina Mine.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1924.

477116

LITERATURE SEARCH

PROSPECT : LEBRINA MINE NUMBER :

LOCALITY : 1km N.W. Wyena. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Mined 1909 - 1916. workings included several prospecting shafts, two adits and a main shaft to 30m.
A large amount of surface prospecting carried out in the general area.

PAST PRODUCTION : 40 oz. returned from 200t GRADE : 6 g/t Au.

RESERVES :

STYLE OF MINERALIZATION : fissure quartz vein with associated pyrite and arsenopyrite.

STRUCTURE :

SUMMARY :- A main quartz vein, being one of a series, 0.3-0.45m. wide which strikes 053°/80°SE in an ENE trending mineralized zone.
Host rocks are blue slate and sandstone.

- Nye (1927) states that vein varied in workings from 0.15m - 0.6m (av. 0.25m) wide and was proven over a length of 183m to a depth of 30m. - the values were erratic but averaged ~6g/t Au at 30m. in main shaft.

- Vein is offset 6m. by barren quartz fissure filled fault.
- An "East" reef, being a quartz veined quartzite formation to 2m. wide with a 3cm. rich stringer, junctions with the "Main Reef"
"Numerous other veins... have been exposed N.E. of the Lebrina Mine... representing parallel but discontinuous reefs along a general mineralized belt, rather than an extension of the Lebrina Reef."
This zone is of about 800 m. strike length.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1924, Marshall 1962, Mt-Reid 1926

477117

LITERATURE SEARCH

PROSPECT : ALACRITY MINE

NUMBER :

LOCALITY : DENISON GOLDFIELD

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION :

GRADE : #1 Vein av. ~ 30 g/t Au.

RESERVES : Between the 45.7 m and 61m. levels ~406 t left unstoped.

STYLE OF MINERALIZATION : quartz vein with pyrite and arsenopyrite.

STRUCTURE : Quartz veins strike NE and dip NW.

SUMMARY : A shaft sunk to over 61m. with the veins opened at the 30.5m, 45.7m and 61m levels.

- The #1 vein reported to be 0.30 m - 0.45 m. in width and apparently quite uniform.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : MI - Reid 1926

477118

LITERATURE SEARCH

PROSPECT : BROOKLYN MINE NUMBER :

LOCALITY : DENISON GOLDFIELD MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : a few shallow pits and trenches only.

PAST PRODUCTION : GRADE : (av. 6.1g/t Au)

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Worked the #1 vein of the Denison Mine. The vein is narrow (0.15 - 0.18m.) and carries short shoots of ore to 23g/t. A maximum grade of 92 g/t Au in one ore shoot, but values of 6.1g/t Au were considered more representative.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Mt-Reid 1926

LITERATURE SEARCH

PROSPECT : GLOBE MINE NUMBER :

LOCALITY : DENISON GOLDFIELD MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : SE. of the Brooklyn Mine.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz vein

STRUCTURE :

SUMMARY : Shaft sunk to at least 24.4m where a vein was intersected and driven on ≈ N - S directions. Gold values all reported to be "poor and irregular" - but actual values not given.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : MJ - Reid 1926

477120

LITERATURE SEARCH

PROSPECT : LADY HAMILTON MINE NUMBER :

LOCALITY : Denison Goldfield. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Adjoining the Alacrity Mine property consists of shallow workings only.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz vein.

STRUCTURE :

SUMMARY : - A 0·3m - 0·45m wide quartz vein crosses the property in a NW. direction.

- Grades referred to as "patchy".

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : McLeod 1926

477121

LITERATURE SEARCH

PROSPECT : Sir William Denison mine NUMBER :

LOCALITY : Denison Goldfield MAP SHEET :

COMMODITIES : Au, Ag.

MINING HISTORY :
worked 1878 - 1880

PAST PRODUCTION : initial crushings returned Au GRADE :
from 40g/t to 320g/t by amalgamation
and 92g/t to 612g/t from pyrite concentrate.
Samples show great variation in grade with to 30 oz/t Ag. reported.

RESERVES :

STYLE OF MINERALIZATION : Pyritic quartz vein with associated arsenopyrite & galena

STRUCTURE : vein structure is 065°/steep S dip.

SUMMARY : Shaft to 28.6 m. with drives at 15.2 m. and 28.6 m. levels,
#1 vein opened both E & W of shaft at both levels

Two auriferous quartz veins striking 065° & 070°, and being 0.3-0.48m wide and 0.15-0.30m. wide respectively have been worked. No. 2. vein dips to the south.

Reference is made to a zone at the junction of two veins where a 0.9m section of quartz vein and a quartz veined "horse" (slate) yield values of 34.5 g/t.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Mt. Reid 1926

477122

LITERATURE SEARCH

PROSPECT : STAR MINE

NUMBER :

LOCALITY : DENISON GOLDFIELD

MAP SHEET :

COMMODITIES : Au

MINING HISTORY : located west of and adjoining Sir William Denison Mine

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz vein with prominent pyrite

STRUCTURE : as for Sir William Denison Mine.

SUMMARY : Shaft sunk to 21m. on #2 vein with drifting on this vein at 18.3m. level where grade was 7.6 g/t Au. over 0.45 m. width.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Mt Reid 1926

477123

LITERATURE SEARCH

PROSPECT : WEST WIANGATA MINE

NUMBER :

LOCALITY : DENISON GOLDFIELD

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : adjoining Wiangata Mine

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz vein

STRUCTURE :

SUMMARY :

- One shaft to 30.5m, three other shafts and numerous shallow pits and trenches

- Veins 0.15m – 0.30m. wide.
- In depth, the main vein said to be rich to 13.7m, but very poor to 30.5m. Generally poorer than the Wiangata Mine.
- Observation made that veins thinned in tuffs but were strong and uniform in the slates.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : MI - Reid 1926

477124

LITERATURE SEARCH

PROSPECT : WIANGATA MINE

NUMBER :

LOCALITY : DENISON GOLDFIELD

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Shaft to 79.2m. & shallow pits.

PAST PRODUCTION :

GRADE : Several Cots @ 67.3g/t Au

RESERVES :

STYLE OF MINERALIZATION : quartz vein.

STRUCTURE :

SUMMARY : Vein Opened to 79.2m. depth, this being of constant width 7.6cm., striking NE & dipping SE.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : McIntosh-Reid 1924

7. THE GLADSTONE - PORTLAND - MUSSELROE GOLD FIELDS (Refer Plan 7)

7.1 INTRODUCTION

The gold deposits of the district consist of auriferous quartz veins within the Mathinna Group slates and quartzites where these are intruded by nearby granitic bodies of the Blue Tier Batholith.

Mining activity has largley been focused on the alluvial tin deposits since about 1876, which will not be discussed further. Gold mining does extend back to 1870 with most of it concluded by about 1917.

7.2 DISTRICT GEOLOGY

7.2.1 Mathinna Group

The Mathinna Group has not been well documented from this area, probably largely due to the limited amount of outcrop because of the extensive Quarternary cover in the area. The beds have a general N-S strike and it seems probable that they have been regionally folded.

7.2.2 The Granitoid Intrusive

7.2.2.1 The Gladstone goldfield is situated on the northern margin of the Blue Tier Batholith near the eastern extremity of the Mt Cameron sheet where a small body of an associated greisenised granite intrudes the Poimena Pluton.

The Poimena pluton is generally a porphyritic biotite granite/adamellite with a fine to medium grained groundmass. The main Mt Cameron Sheet is represented by a medium to coarse grained biotite granite/adamellite with minor porphyritic biotite granite/adamellite; and the smaller greisen associated with the Mt Cameron Sheet in the immediate vicinity of Gladstone is a medium grained muscovite-biotie greisenized granite with greisen veins.

The Portland gold field extends along the NNW flank of the Gardens Pluton, north of Gladstone. A reconstruction of the granodiorite pluton prior to the emplacement of the Poimena Pluton, proposed by Groves et al (1977) would return the Gardens

Pluton to the western edge of the batholith , and would bring the Portland goldfield adjacent to the Forester and Warrentina gold fields, if they existed prior to granite/adamellite emplacement.

7.2.2.2 The Musselroe Pluton and the Rocky Lagoon Pluton, consisting of porphyritic biotite granite/adamellite with a fine to medium grained groundmass and coarse grained (porphyritic) muscovite granite/adamellite respectively, occur in the northern part of the district near to the Musselroe and Portland gold fields.

The muscovite granitoids here are reported to carry sporadic tourmaline and near its contact with the Mathinna Group slates, a little wolframite in small nests and veins of quartz.

7.3 MINERALISATION

7.3.1 General:

The primary deposits include those of tin, tungsten and gold and although the gold mineralisation is generally spatially separated from the tin mineralisation, where the Mt Paris Mass projects into the Mathinna line of gold mineralisation small deposits of both metals occur in juxtaposition. It is possible that in this area the tin mineralisation is superimposed on gold mineralisation, and that the emplacement of the Mt Paris Mass disrupted the almost continuous line of gold mineralisation along the western margin of the Blue Tier Batholith. The Gladstone area may provide the only possible area in which to study the relationship between these two metal associations and this has been briefly discussed earlier.

The auriferous quartz veins occur in an apparently structurally controlled zone, possibly related to the granitoid rocks, in a belt of country which extends in a general NNE direction from Gladstone through Lochaber, Portland, Blue Bell and Grand Flaneur, and to the Musselroe River areas.

The veins in each area are generally similar in strike direction but this varies from area to area. The veins are generally of the sulphide rich quartz - arsenopyrite - gold type and are considered to represent relatively high temperature deposits. They are however quite short and narrow with an irregular distribution of the gold.

7.3.2 The Gladstone and Portland Areas

The primary tin deposits are almost entirely restricted to the granitic rocks, particularly in Fly By Night Creek immediately adjacent ot the contact with the Mathinna Group Slates. The deposits consist of cassiterite in greisenized granite, quartz and greisen veins, and in narrow greisen veins also occurring in the adjacent slates.

The only tungsten deposit is a quartz vein containing cassiterite and wolfram.

The gold deposits consist of quartz veining in the Mathinna Group sediments. The relation between them is shown by the fact that some of the gold-quartz veins in the Fly By Night Creek also contain cassiterite. Thureau (1881) considered that the gold mineralisation at Gladstone was confined to the contact metamorphic zone where "chiastolite" slates in particular were developed.

The main veins of Galdstone are the Royal Standard, the Wolfram Reef, the North Tasman (or Royal Tasman No 2), the Royal Tasman No 1, Flemings Reef and the Royal Mint. The quartz is a typical white reef quartz, which often has a fine-grained marble-like appearance. Gold is the principal mineral of economic significance in those reefs except that cassiterite and wolfram occur in the Wolfram Reef, and cassiterite and gold are present in the Royal Standard. Nye (1932) reported that a small amount of cassiterite appeared to be present in all the reefs.

The gold is finely disseminated throughout the quartz and is also associated with the sulphide minerals. Arsenopyrite is ubiquitous and the relative order of abundance of the sulphides is arsenopyrite, pyrite, chalcopyrite, galena and sphalerite. Chalcopyrite appears to be restricted to the reefs of the Royal Tasman group however while galena and sphalerite are reported from the Portland Mine.

The proportions of gold and silver have a considerable range but with the gold generally much in excess of the silver except in the Portland Mine area where silver content was often found to be three times that of the gold.

Thureau (1881) considered that the auriferous quartz veins predated the tin greisen mineralisation and also noted the presence of traces of tellurium, rubies, calcite and topaz. He also made reference to a granitoid porphery dyke which contained gold values. Twelvetrees (1899) noted the occurrence of platinum in one crushing from the Royal Tasmania.

Reference is also made to gold having been recovered from numerous zones of possibly altered micaceous sandstones, but the significance of this is not likely to be very high.

7.3.3 The Musselroe Area:

The Mathinna Group slates are cut by several gold bearing quartz veins , of which the Musselroe Reefs, the Blue Bell, the Prince Imperial and the Portland are the most important. These may also carry arsenopyrite, galena, and sphalerite. The gold carries a high proportion of silver which is generally considered to indicate a proximity to granite.

It is a characteristic of these reefs to pass very rapidly into a sulphide rich - gold poor zone at shallow depths. Thureau (1881) noted that in general this area is characterised by an extensive network of gold bearing quartz veins and leaders rather than strong lodes.

Scott (1938) made reference to a large body of silicified sandstone in the Blue Bell area which, although traced for a considerable distance, carried no gold.

7.3.4 Alluvial Deep Leads:

The Gladstone area is well known for its extensive alluvial tin deposits which extend largely from the Ringarooma River system of deep leads. Reference is commonly made to minor amounts of gold being also associated with these, but the Dorset Tin Dredge is the only major producer for which tin returns have been found. The average calculated grade of return from this dredge was 0.25 lb/yd^3 SnO_2 and 0.0004 oz/yd^3 (or 0.015 g/m^3) gold; which at a ratio of SnO_2:Au of 625:1, indicates the low grade nature of these deposits.

7.4. PREVIOUS INVESTIGATIONS

Apart from the older reporting quoted from the literature, no reference has been found of previous investigations which have considered the gold potential of the area.

7.5. CONCLUSIONS AND RECOMMENDATIONS

The mineralisation in the area is undoubtedly related to the late stage intrusive activity which may be either marginal to the granitoids as seen, or lie in a roof zone above a shallow buried intrusive body.

7.5.1 The expression by Thureau (1881) of the Musselroe area containing a greater density of auriferous quartz vein development than the Gladstone area should be followed up be field inspections of the area and bulk rock chip sampling where possible. The Musselroe area has already been mentioned because of the reference to prior recorded wolframite mineralisation. If any geological encouragement was met with, then a deep sampling of bed rock below the alluvial cover would have to be utilised to gain further information.

7.5.2 The auriferous quartz veins at Gladstone appear to have very limited potential and in view of the paucity of gold in the alluvial tin workings, no work can be recommended in the area for either hard rock or alluvial targets.

GLADSTONE-PORTLAND-MUSSELROE

DATA SHEETS ON INDIVIDUAL OCCURRENCES

GLADSTONE GOLD FIELD

Royal Tasman, North Tasman, Flemingo, Royal Mint, Royal Standard, Wolfram Lodes all occur in the same general vicinity of Gladston township.

These are parallel, N-S, with the wolfram lode being oblique and perhaps a little older.

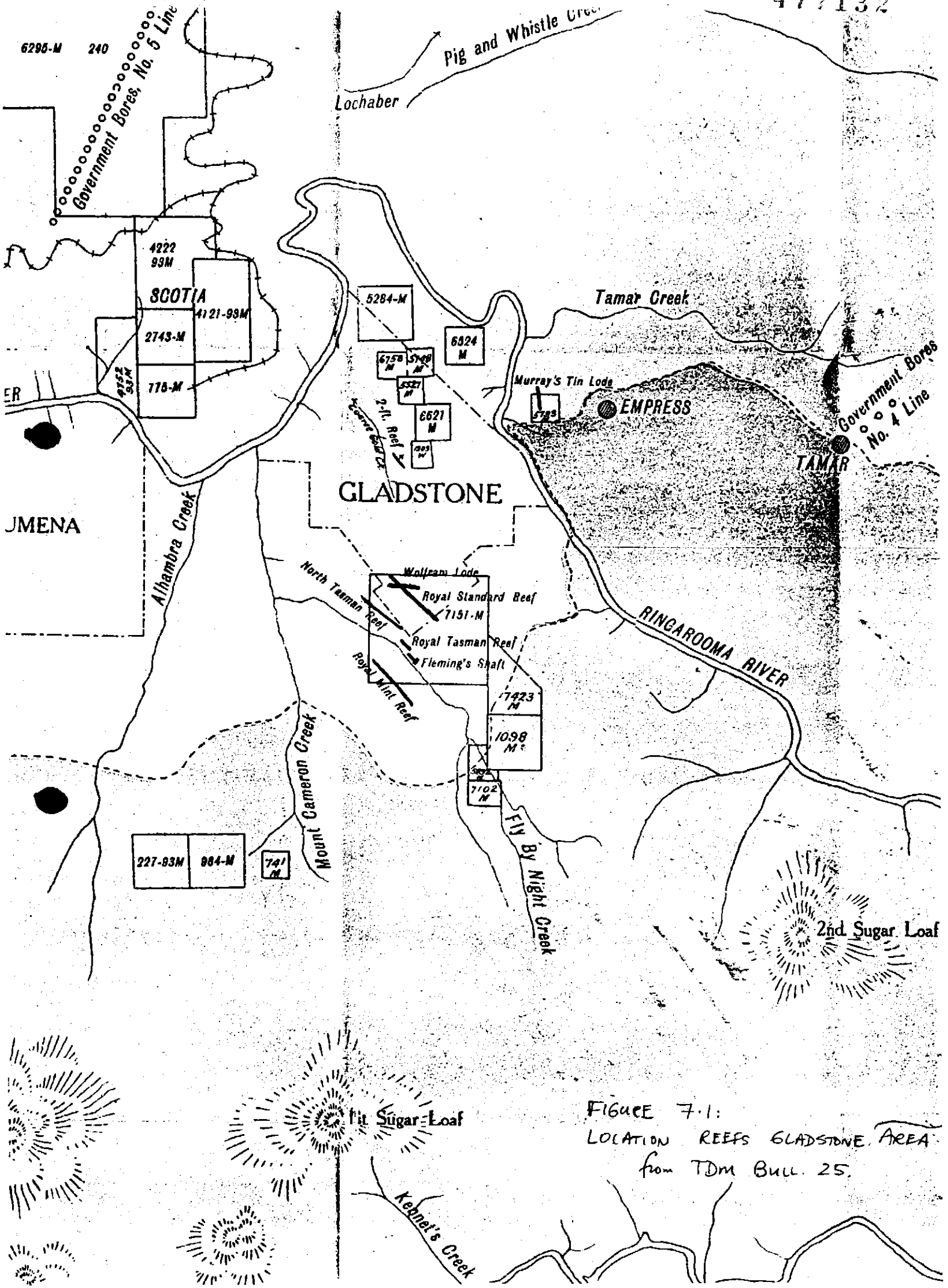


FIGURE 7.1:
LOCATION REEFS GLADSTONE AREA
from TDM BULL. 25.

	Recorded production Au (oz)	Tonnes ore	av. grade (g/t) Au.	max. strike length (m)	max. depth worked	av. width(m)
Big Musselroe	-	-	-	-	-	15
Blue Bell	-	-	-	-	30	0.6
Coarse Gold Creek	12	-	-	8	30	(0.15)-0.9
Deskford	-	-	-	-	16	0.6
Dorset Flats	3313.5	-	-	-	-	-
Flemings	74	235	9.6	7	-	0.6
Grand Flaneur	-	-	-	-	19	0.9
Lease 10919M	32	-	-	-	10	0.2
Moores	-	-	-	-	-	0.3
North Tasmania	-	-	-	40	33	1.8
Popes Prospect	-	-	-	-	-	-
Portland	94	90	1.04oz/t	30	64	0.3
Prince Imperial	-	-	-	-	6	(1.0)
Royal Mint	-	-	-	-	20	1.2
Royal Standard	-	-	-	300	30	4.5
Royal Tasman(~~ian~~)	1672	2958	17.3	73	22	0.6
Wolfram	-	-	-	-	-	0.3

TOTAL: 5197.5

SUMMARY OF DETAILS FROM WORKINGS IN THE GLADSTONE-MUSSELROE GOLDFIELDS

TABLE 7.1

477134

LITERATURE SEARCH

PROSPECT : NORTH TASMAN (ROYAL TASMAN NO 2) NUMBER :

LOCALITY : GLADSTONE GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Royal Tasman G.M. Co.; North Royal Tasman G.M. Co. 1880-82; Dreadnought G.M. Co. 1909; O'Halloran about 1930.

PAST PRODUCTION : -

GRADE :

Reported values vary.
- Twelvetrees (1916) obtained 15.3g/t Au over 1.5m. vertical from drive face.
- more recent dump sampling gave traces only.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef strikes 310°-335° / dips 70°W to vertical.

SUMMARY : - This reef runs parallel to the Royal Tasman Reef and starts about 67m. to the N.W; outcropping for 40m and being 1.2-1.8m wide. At a depth of 30m. the reef is suddenly cut off presumably by faulting. The truncated portion has been thrown to the north by 3.6m. having a dip of 60°-70° W. This has an apparent depth of at least 19m. (from surface) and a width of 1.8m. It has been suggested that the North Tasman Reef is the faulted extension of the Royal Tasman, but Nye (1932) felt this to be unlikely.

- Reef in white quartz with occasional flakes of muscovite, is vuggy and greisenized and may contain a little wolfram.
- Royal Tasman G.M.Co. workings on the reef consist of a vertical shaft to 33m; with levels at the 11m, 20m, 33m. (the latter being adit level) Stoping occurred along lengths of 18-24m. down to 20m. level.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1932; Twelvetrees 1916.

477135

LITERATURE SEARCH

PROSPECT : POPES PROSPECT, LOCHABER AREA. NUMBER :

LOCALITY : GLADSTONE GOLD FIELD. MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - numerous shallow surface workings exist along a line of bearing 055°. The only evidence of reefs is presence of some quartz on dumps.

- grab sampling returned 10.4 g/t Au, 3.9 g/t Ag.
- No dimensions of reefs or workings really known.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1933.

477136

LITERATURE SEARCH

PROSPECT : THE PORTLAND MINE NUMBER :

LOCALITY : GLADSTONE - MUSSELROE AREA. MAP SHEET :
(6.4 km NE. Gladstone & 4.8km S of Blue Boar).

COMMODITIES : Au, Ag.

MINING HISTORY : Reef discovered 1880, but not fully worked until 1896.
Subsequently worked by Portland Gold Coy. and Brisbane Consol. GM Co. but closed soon after 1903. due to poor returns.

PAST PRODUCTION :
in 1902 : 94oz from 90t.

GRADE :
Surface samples rel. high grade :
10z/t Au ; 30z/t Ag.
Deeper levels reduce to 6g/t Au.

RESERVES :

STYLE OF MINERALIZATION : Quartz fissure reef, free gold near surface with increasing amounts of arsenopyrite, galena, sphalerite at depth. Ag >> Au.

STRUCTURE : Quartz reef strikes 320° / steep dip to South.

SUMMARY : Depth is at least 60m ; length greater than 30m ; average width 0.3m.

- Shaft sunk to 64m ; with levels at 24m, 45m, 60m and surface workings and prospecting shafts to maximum of 18m. Indications are that down to 45m. level free gold in fair abundance (1 - 20z/t.) with associated arsenopyrite, galena, sphalerite. Below this values are patchy and at the 60m. level the vein ran 6g/t. Au, was heavily sulphide enriched.

Note that in this occurrence Ag >> Au by 3-5 times.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1933; Twelvetrees 1916 ; Thureau 1881 ; Scott 1930.

477137

LITERATURE SEARCH

PROSPECT : THE PRINCE IMPERIAL MINE

NUMBER :

LOCALITY : GLADSTONE - MUSSELROE FIELD (400m N. Blue Bell Mine)

MAP SHEET :

COMMODITIES : Au ; Ag

MINING HISTORY : Reefs discovered 1870 with various operations carried out until 1907 when it was known as the New Imperial. Other activities continued until at least 1933. Workings are prospecting pits and shafts.

PAST PRODUCTION :

GRADE : trial crushing 1930's returned 3g/t. Some values in excess of 10z/t.

RESERVES :

STYLE OF MINERALIZATION : Fissure quartz reef with associated arsenopyrite, galena, pyrite, and cassiterite.

STRUCTURE : Quartz reef strikes NW across slates and sandstones which Strike N. Country rock probably folded in the vicinity.

SUMMARY :

- The mines in the area occupy a narrow belt trending SSW to NNE.
- At a depth of 6m. the reef consists of many auriferous veins in the formation is meta-sandstone. These are heavily mineralized with arsenopyrite, galena, pyrite. The sandstone between these veins is also mineralized. The reef is 0.15 - 1.0m. wide; and a 0.15m. wide quartz vein is situated nearby which carried values up to 20g/t. (irregular).
- Nye (1933) didnot consider the reefs prospects as being favourable.
- Twelvetrees (1916) notes a body of indurated sandstone veined with quartz veins and which has the aspect of an irregular silicification of the sandstone but possesses 2g/t Au; 1.2g/t Ag.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1933; Twelvetrees 1916.

477138

LITERATURE SEARCH

PROSPECT : Royal Mint Reef

NUMBER :

LOCALITY : Gladstone Gold Field

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Royal Mint G.M. Co. 1881-83; Dreadnought G.M. Co. 1909; Victory G.M. Co. 1931.

PAST PRODUCTION : -

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Quartz reef strikes 320°.

SUMMARY : Reef averages 1.2m. width in places and 0.15-0.3m wide in others. Two cross veins traverse this reef, one being 0.45m thick and almost vertical. These are 27m. apart.

The length extent of the workings can not be determined but workings appear to have extended to depths in excess of 20m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1932

477139

LITERATURE SEARCH

PROSPECT : Royal Standard Reef NUMBER :

LOCALITY : Gladstone Gold Field MAP SHEET :

COMMODITIES : Au

MINING HISTORY : Active 1880-81, work stopped due to poor returns. No work done until 1931 when leases taken up by Victory G.M. Co. In 1933 to the Gladstone Gm Co. Workings consist of several shafts and surface workings

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Fissure reef with associated arsenopyrite, chalcopyrite and accessory cassiterite.

STRUCTURE : Reef strikes NW-SE.

SUMMARY : Reef occurs in slates and sandstones and consists of massive quartz followed for 300m. being 3-4.5m. wide at the surface; being 6.7m. wide at the 15m. level; and 0.9m. wide at the 30m. level but is also broken here.

Visible gold is present with accessories cassiterite, arsenopyrite and chalcopyrite.

At the north of the reef, at 18m, it is 4.2m wide and plunges to the north.

This reef faults across the Flemings Wolfram Lode.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1932.

477140

LITERATURE SEARCH

PROSPECT : Royal Tasman Reef

NUMBER :

LOCALITY : Gladstone Gold Field

MAP SHEET :

COMMODITIES : Au

MINING HISTORY : 1881 active work by Royal Tasman G.M.Co, but stopped 1883 due to poor returns at depth. Leases taken up in 1931 by Victory G.M.Co. & in 1933 by Gladstone G.M.Co.

PAST PRODUCTION : 1880 - 1882 : 1,672 oz free gold recovered from 2958t. ore. Sulphide concentrates were never treated.

GRADE : 20oz/t Au at surface falling to 4.5g/t at depth. One initial sample carried 146 oz/t Au. 4,466g/t

RESERVES : ?4100t ore left.

STYLE OF MINERALIZATION : Quartz reef gold associated with sulphides (to 3½% pyrite). A trace of platinum, some chalcopyrite and reference is made to Sn. mineralization in the vicinity.

STRUCTURE : Reef attitude is 140°/vertical. At one place the reef has been displaced by 3.6m. by a fault which trends 064°, is up to 1.8m wide and filled with brecciated material. There is also a suggestion that reef is faulted at both ends.

SUMMARY :

- Reef occurs in slates and sandstones and outcropped 73m. over widths ranging from 0.2 - 2.4m. with actual quartz vein occupying up to 0.6m. of this.
- Reef has been stoped for 76 m. to the 9m. level and for 45m above the 22 m level.
- Grades appear to drop with depth but sulphides increased and the returns did not include gold content in the sulphides.
- Thureau (1886) suggested the old workings may not have located offset portion of the main reef.
- Victory G.M. Coy: In general - included the properties of several old mines: Quartz is typically white reef quartz and often has a peculiar fine-grained marble like appearance. Cassiterite and wolfram occur in the "Wolfram lode" and cassiterite in the Royal Standard Reef. Arsenopyrite is the most abundant sulphide in the field and is particularly coarse at Flemings Reef; minor but important pyrite and lesser chalcopyrite also. Gold appears in finely divided state.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1932, Twelvetrees 1916, Thureau 1886.

477141

LITERATURE SEARCH

PROSPECT : WOLFRAM REEF

NUMBER :

LOCALITY : GLADSTONE GOLD FIELD.

MAP SHEET :

COMMODITIES : Au, W, Sn.

MINING HISTORY : Victory Gold M. Co.

PAST PRODUCTION : ~ 0.3t of Sn/W concentrate.

GRADE :

RESERVES :

STYLE OF MINERALIZATION : cassiterite and wolfram

STRUCTURE :

SUMMARY : A 0.2 – 0.3m. wide reef crosses the Royal Standard Reef. Mineralization is patchy and reported as being Sn/W type separated as to hanging and footwall concentrations.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Thelwall 1916.

477142

LITERATURE SEARCH

PROSPECT : GLADSTONE AREA : NUMBER :

LOCALITY : MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : GOLD ASSOCIATED WITH ALLUVIAL TIN :

In general gold is not reported to be associated with the alluvial tin which occurs in old river channels (deep leads) and marine estuarine/beach deposits. Occassionally reference is made to a small show of a color of gold but nothing more.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye ; Twelvetrees ...

477143

LITERATURE SEARCH

PROSPECT : THE BIG MUSSELROE REEF

NUMBER :

LOCALITY : GLADSTONE - MUSSELROE FIELD.

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : -

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Very wide quartz reef, incorporating much country rock. strikes N-S.

SUMMARY : - Quartz veins through sandstones across widths of up to 15m. Twelvetrees reports values of 3 g/t Au; 4·2 g/t Ag from prominent cliff face; and 5 g/t Au, 7·2 g/t Ag from reef to the north.

- Reef contains gold bearing sulphides and is in places heavily charged with pyrite, arsenopyrite, galena.
- Twelvetrees considers reef probably narrower than indicated
- A great number of small reefs and outcrops are reported in the general area; but these are generally poor in gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1933; Twelvetrees 1916.

477144

LITERATURE SEARCH

PROSPECT : THE BLUE BELL MINE. NUMBER :

LOCALITY : GLADSTONE – MOSSELROE. MAP SHEET :
(located 400m. S. of Prince Imperial).

COMMODITIES : Au.

MINING HISTORY : Reefs discovered 1870, Shallow prospecting until 1881 when Blue Bell G.M.Co. sank shaft (± 30m). Results of work unknown but assumed unsuccessful work ceased 1884.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Quartz fissure reef, gold associated with arsenopyrite & galena

STRUCTURE : Reef strike ~090°/87°S.

SUMMARY : Two parallel reefs 39m. apart which strike E-W in Mathinna Slates and Sandstones.

The South Reef was 0.6m. wide at 4.8m. level and carried 1.25oz/t Au; at the 9.7m. level reef is 0.76m. wide. At the 30m. level the two reef are 24m. apart.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1933; Twelvetrees 1916.

477145

LITERATURE SEARCH

PROSPECT : COARSE GOLD CREEK. NUMBER :

LOCALITY : GLADSTONE MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1930's.

PAST PRODUCTION : approx. recorded 12oz Au. GRADE : averaged - 30z/t Au.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - Coarse grained gold recovered with Alluvial tin.
- Sluicing exposed auriferous quartz veins in bedrock where small veinlets (0.05 - 0.15m wide) of attitude 300°/Vertical. Shallow shafts sunk to 10m and a larger body of quartz (000°/48°W) to 0.9m. wide carries coarse gold but no sulphides. Over an 8m. length. The full extent of the reef not uncovered.
- Some quartz veined quartzites referred; and some silicification of slates in proximity of quartz veins.
- Nye (1933) reported progress on shaft (then 30m) being sunk on the larger quartz vein referred to - but no further results seen.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1933; Twelvetrees 1916.

477146

LITERATURE SEARCH

PROSPECT : DESKFORD REEF NUMBER :

LOCALITY : GLADSTONE GOLD FIELD. MAP SHEET :
(located 45m. SE. Fleming Shaft)

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - Reef consists of quartz leaders from 0.15m - 0.6m. in width interspersed with the hard country rock.

- Driving was carried out along 30m. across the reef rather than along it, at a depth of 16m.

- A considerable amount of chalcopyrite found in quartz in surface dumps.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1932

477147

LITERATURE SEARCH

PROSPECT : The DORSET FLATS

NUMBER :

LOCALITY : Ringarooma River near junction with Corduroy Creek.

MAP SHEET :

COMMODITIES :

MINING HISTORY : Alluvial tin & associated minor gold.

PAST PRODUCTION : as below.

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

		SnO_2	^{oz}. Au.	av. grade. (lb/cu yd.)	depth. (m)
① Ringarooma Bucket Dredging Coy.	1907 - 1910	114.2 t	209.4 ^{oz}	0.27	
② Dorset Bucket Dredging Coy	1906 - 1910	150 t	170 ^{oz}.	1.19	4.8
③ South Cameron Dredging Coy.	1910 - 1912	6.4 t	11.25 ^{oz}.	-	-
④ Dorset Tin Dredge	1943 - (1952)	766.5 t	2922.9 ^{oz}	0.25	15.

Thus average gold grades for ①, ②, ④ respectively are
0.008 g/m^3 ; 0.022 g/m^3 ; 0.015 g/m^3

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1931, Reid 1952

477148

LITERATURE SEARCH

PROSPECT : FLEMINGS REEF NUMBER :

LOCALITY : GLADSTONE GOLD FIELD (located 48m. SSE of the Royal Tasman.) MAP SHEET :

COMMODITIES : Au, Ag

MINING HISTORY : located 1916. In 1931 Victory G.M.Co. continued stoping and treated all quartz that had been brought to the surface.

PAST PRODUCTION : 74oz Au from 235t.

GRADE : Av. return of 9.2g/t. Au Grab samples of sulphide concentrate yielded to 60oz/t Au.

RESERVES :

STYLE OF MINERALIZATION : Quartz fissure reef, gold associated with the sulphides; arsenopyrite, pyrite.

STRUCTURE : Reef strikes 320° at its southern end and 340° at the northern end. with a variety of dips 70°SW to 80°E.

SUMMARY :

- Reef width varies 0.2m – 0.6m. and is quite flawed.
- A small cross vein is also reported to be possibly related to the Royal Tasman Reef
- Sampling of the reef showed great variability with rich patches of 6-10 oz/t and being < 1g/t in others.
- The maximum depth of working appears to be 7m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1932.

477149

LITERATURE SEARCH

PROSPECT : THE GRAND FLANEUR MINE NUMBER :

LOCALITY : GLADSTONE - MUSSELROE FIELD (1.4km. N. Blue Bell Mine). MAP SHEET :

COMMODITIES : Au, Ag.

MINING HISTORY : Discovered about 1870, with greater part of workings 1881-83. Main shaft sunk to 19m; but results of work unknown.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Fissure quartz reef with gold associated with pyrite & arsenopyrite.

STRUCTURE : Quartz reef strikes E-W / 30°S.

SUMMARY : - Reef is irregular, being 0.6 - 0.9m. wide with vertical veins rising from the reef. No gold visible in the typically semi-vitreous quartz but abundant arsenopyrite and some pyrite.

- Some samples carry 1/2 oz/t (Au) but are generally of low grade eg. 6g/t Au. Samples containing high sulphide content carry 7.6g/t Au; 1.2g/t Ag.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1933; Twelvetrees 1916.

LITERATURE SEARCH

477150

PROSPECT : LEASE 10919 M. (to H.G. BELTZ)

NUMBER :

LOCALITY : CLADSTONE GOLD FIELD.

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : 32 oz alluvial Au.

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef attitude 045°/ vertical. Country beds attitude 000°/45°W

SUMMARY : - 0.05m - 0.2m. wide quartz veins exposed at surface and followed by shallow shafts to 10m. with grades to 9 o/t Au which diminish with depth. Reference is made to a narrow zone of altered/weathered sandstones from which gold could be washed.

- Alluvial gold (32oz) reported from alluvial tin workings here and the bedrock contains irregular quartz veinlets in slate which generally lie along the line of the reef.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1933

LITERATURE SEARCH

477151

PROSPECT : MOORE'S REEF

NUMBER :

LOCALITY : GLADSTONE GOLD FIELD. (S. of the Royal Mint)

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Discovered 1916
2 Shafts

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Quartz reef possibly bearing NW being 0.3m. wide and dipping west.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1932.

8. THE WATERHOUSE DISTRICT (Refer Plan 5)

8.1. INTRODUCTION

This gold field was discovered in the 1860's and most of the mining activity was over by about 1873 but there was a short lived revival in 1911. The gold mineralisation consists of auriferous quartz veins within the Mathinna Group. Granitic rocks intrude nearby.

8.2. DISTRICT GEOLOGY

8.2.1 Mathinna Group

Quartzites and slates of the Mathinna Group constitute the oldest rocks in the district. The quartzites are more extensive than slate, but the area is largely covered by Tertiary-Quaternary sedimentary cover. The bedding appears to have a general NE-SW strike and in the Southern Cross area it is thought that the sequence is tightly folded into a series of anticlines and synclines about northeasterly trending axes.

8.2.2 Granitoid Intrusives:

A coarse grained porphyritic, biotite-granite occupies only a small portion of the goldfield but occurs to a considerable extent to the east and south.

8.3. MINERALISATION

The gold bearing quartz veins are found in two narrow NE trending belts to the west and south of Lyndhurst. It is thought that this distribution reflects some structural trends although this is difficult to determine because of the poor amount of outcrop. The veins display generally similar strikes and in the southern area attitudes tend to conform to the folded structures. A few short mineralised veins strike N to NW and a large persistent vein on the eastern side of the area also trends NW.

The principal veins include the Railway, Alliance, Pioneer, Southern Cross and Northern Southern Cross. The veins throughout the district vary in width from a few centimetres up to 1.8 m, and in length from 6 m to 365 m,with one prominent non-mineralised vein on the eastern side exceeding 2 km in length. The veins were worked unsuccessfully in a number of old mines to maximum depths of 30 m and although rich ore shoots were found at the surface, a sulphide zone was reached at shallow depths where the values decreased which suggests that some secondary enrichment may have occurred.

The veins are of the quartz-arsenopyrite-gold type and are thought to represent relatively (?) high temperature deposits, agreeing with their proximity to the granitic rocks.

The typical quartz is a fine grained and dense, semivitreous type of blue-grey colour, although in outcrop it is commonly of a milky white appearance. Banding due to the distribution of sulphides can sometimes be observed, the most common being arsenopyrite and pyrite, in that order, with minor amounts of galena and sphalerite also being present. Some veins were reported to carry high amounts of sulphides, (up to 35%) and the gold is reported to have been associated with this phase. The quality of the gold is reported as poor with the amount of silver generally exceeding that of the gold.

8.4. PREVIOUS INVESTIGATIONS

No records of previous company investigations were located.

8.5. CONCLUSIONS AND RECOMMENDATIONS

Because of the limited extent of the mineralisation no recommendations to further work are made.

WATERHOUSE DISTRICT

DATA SHEETS ON

INDIVIDUAL OCCURRENCES

477155

LITERATURE SEARCH

PROSPECT : ALLIANCE MINE NUMBER :

LOCALITY : WATERHOUSE GOLDFIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Mined 1870 - 1890 and minor workings in 1909.

PAST PRODUCTION : GRADE : average 23.8 g/t. Au.

total recorded = 41.6 oz Au. from
54 t quartz and 19 t of pyritic concentrate.

RESERVES :

STYLE OF MINERALIZATION : Quartz reef

STRUCTURE :

SUMMARY : - In 1887 a drive in an old underlay shaft at 76m depth stoped over a length of 18m. to surface. Reef is 0.22m thick and heavily mineralized with sulphide. (pyrite) The deepest working was 11m.

- Surface workings trend NE over 15m.

- A bulk assay from pyrite - arsenopyrite bearing quartz stacked by 2 later shafts, 4.5m and 30m. west of the reef, returned 13.7 g/t Au; 21.8 g/t Ag. Other minor quartz reefs indicated in the area.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake 1947; Keid 1951.

477156

LITERATURE SEARCH

PROSPECT : MARTIAL CALL WORKINGS

NUMBER :

LOCALITY : WATERHOUSE GOLDFIELD

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION : Quartz reef

STRUCTURE :

SUMMARY : A number of shallow surface workings along 200m of a N.E. trending zone. There is evidence of three NE trending reefs.

A general sample from dumps returned 1.5g/t Au; 0.45g/t Ag

No information available on size of reef, etc.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake 1947.

477157

LITERATURE SEARCH

PROSPECT : NEW MONARCH[1] & HOPE PROSPECT[2] NUMBER :

LOCALITY : WATERHOUSE GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1870

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Quartz reef

STRUCTURE :

SUMMARY :

(1) trenches and prospecting shafts on two short reefs.
(a) trends NNW / 35W dip. Varies 0.1 - 1.2m. in width along 15m.
(b) other vein located 161 m. north west. quartz on mine dumps shows a little arsenopyrite and workings suggest a 15m. length striking N.

(2) Presence of 3-4 erratic veins is indicated in shallow excavations.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake 1947

477158

LITERATURE SEARCH

PROSPECT : Pioneer mine

NUMBER :

LOCALITY : Waterhouse Gold Field

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : activity 1869 - 1873 and later sporadic workings to 1907.

PAST PRODUCTION :

estimated ~ 500 oz. Au.

GRADE : from production
av. 3 - 5 oz/t. Au.
and 12 oz/t Ag.

RESERVES :

STYLE OF MINERALIZATION : Quartz reef

STRUCTURE :

SUMMARY :

- Gould (1869) reported surface exposures 3.6m wide diminishing to 0.9m. at 9m. depth.

- Thurean (1881) reported a shaft to 30m. with surface workings found along 91m. But a sample from dump by the main shaft gave nil Au/Ag on assay.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake 1947; Gould 1869; Keid 1951; Thurean 1881.

AR 1159

LITERATURE SEARCH

PROSPECT : Railway Mine. NUMBER :

LOCALITY : Water House Goldfields. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : discovered 1870 – (1908) worked by the Alliance G.M. Co.

PAST PRODUCTION : GRADE : 1·803/t Au.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : NE Striking quartz vein, 67° NW dip.

SUMMARY : - workings consist of a line of shallow prospecting trenches, shafts and surface stopes over a northeasterly distance of 48m. over widths of 0.3m - 1.8m.

- A 0.45m wide quartz vein 140m. NE. of the Railway Reef is of similar attitude and although carrying some arsenopyrite, galena & pyrite no gold values reported.

and 120m. west a similar reef occurs
and 91m. N.W. again, there is another 0.3m. reef.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake 1947, Reid 1951.

477160

LITERATURE SEARCH

PROSPECT : Southern Cross Mine NUMBER :

LOCALITY : Waterhouse Gold Field MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1870 - 1883 ; Royal Sovereign Co. and subsequently worked for short periods to 1911.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Quartz reef

STRUCTURE : Two parallel reefs trend NE, dip 58°SE.

SUMMARY : (A) - Reef 1; outlined by surface workings over 200m with stoping over 82m from the 30m. level where reef is 0.2m. wide. Two shafts sunk.

- Reef 2; located 60m. east with surface workings intermittently developed along 365m. with a width varying 0.2m - 0.75m. Shallow stoping appears to have taken place over a short distance.

Other mine auriferous quartz veins occur in the area.

(B) - North Southern Cross Reef: Surface workings extend NE. along 275m. Several veins are indicated but little is known about distribution, size or continuity. Assays from dump material gave zero results.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake 1947.

9. THE FORESTER-WARRENTINA DISTRICT (Refer Plan 6)

9.1. INTRODUCTION

The information available on mineralisation in this area is very scant and the localities of many of the workings to which reference has been found, are not known. The style of mineralisation and geological setting is similar to that discussed in the other districts of the Mangana-Waterhouse districts.

9.2. DISTRICT GEOLOGY

9.2.1 The Mathinna Group

This is again represented by a sequence of alternating beds of quartz-wacke and poorly sorted siltstones and mudstone which were deposited in a turbidite environment. A possible thickness of 350 m is present. The Mathinna Group is folded and cleaved and has undergone lowgrade dynamic metamorphism prior to the emplacement of adjacent granitic rocks.

Fold trends range from NNE to NNW in the Ringarooma-Lyndhurst tract with the folds being from open to tight and displaying a shallow northerly or southerly plunge. Vergence is to the east.

Folding and cleavage that was developed prior to the granitic emplacement and associated thermal contact metamorphism,may have undergone some regional buckling about easterly trending axial surfaces as a result of this activity. It has been noted that in this district the early cleavage is regionally discordant to the fold axial surfaces suggesting that pre-existing structures oblique to the main flattening direction controlled the direction of fold development during deformation.

9.2.2 Granitoids

The Scottsdale Batholith lies to the west of this area and the Blue Tier Batholith to the east. Regionally,the Scottsdale Batholith appears to be comprised of a central zone of a pink medium to coarse grained biotite (-hornblende) adamellite with a probable marginal phase of biotite - hornblende granodiorite.

The Blue Tier Batholith is comprised mainly of variations of biotite-muscovite granite/adamellites except for the Pyengana Pluton (in the south) which is a biotite-hornblende granodiorite. Three main subdivisions can be made on the basis of petrology and chemistry, these being: granodiorite, calc-alkaline granite/adamellite and alkali granite, the regional tin mineralisation being associated with the latter.

Thermal metamorphism accompanied the emplacement of the granitic rocks with the development of quartz-mica schist and hornfels displaying a wide range of gradational mineralogy and textures. Characteristic minerals include andalusite, cordierite, tourmaline, biotite and muscovite. No difference has been recognised between rocks in the aureoles of the Scottsdale and Blue Tier Batholiths.

The surface width of the aureoles ranges from a minimum of 800 m to a maximum of 5.1 km and this variation may be interpreted as a result of the variation in the magnitude of the dip of the contact rock, with the thickness increasing with decreasing dip. The quantitative estimates for the Scottsdale Batholith by means of gravity profiling (Leaman, 1977) are in accord with these observations but are somewhat more complex for the Blue Tier Batholith.

9.2.3 Tertiary Sediments

Over the entire region (both Waterhouse and Forester-Warrentina districts) . Tertiary sediments are remarkably similar in lithology. They consist of a sequence of angular quartz granule gravel (grits), quartz sand and buff white clay with some locally developed basal conglomerate, river gravel or mudstone.

The thickest sequence of Tertairy sediments encountered in a drill hole is 123m in the Ringarooma-Mt Cameron series and 225m in the Scottsdale Basin, however in general no detailed lithological correlations have been carried out. In the Scottsdale area these sediments merge into the underlying deeply chemically weathered granite and no precise boundary is recognisable.

This sequence includes the Ringarooma Deep Leads which carry the significant alluvial tin deposits of the district and which have been discussed briefly in the Gladstone section. The Pioneer and Hasties Open cuts give excellent exposures.

9.3. MINERALISATION

As previously mentioned, the gold workings in the area are poorly documented. The mineralisation is of the quartz-arsenopyrite-gold fissure vein type with the veins being narrow of short horizontal and vertical extent - typcial of other areas described in more detail from other parts of the belt.

The Golden Mara Vein system appears to be that most fully exploited where as many as six subparallel veins were mined to depths of 89m over widths of up to 1.5 m.

McIntosh-Reid (1925) reported a weak association of gold/silver and tin mineralisation with a small series of arsenopyrite-pyrite rich quartz veins in the Mathinna Group close to the contact of a biotite-muscovite granite exposed on Mt Horror on the eastern margin of the gold field.

9.4. PREVIOUS INVESTIGATION

There is no record of previous company investigation.

9.5. CONCLUSIONS AND RECOMMENDATIONS

Because of the limited extent of the mineralisation no recommendations as to further work are made.

477164

FORESTER-WARRENTINA DISTRICT

DATA SHEETS ON

INDIVIDUAL OCCURRENCES

477165

LITERATURE SEARCH

PROSPECT : DAWN OF PEACE MINE NUMBER :

LOCALITY : WARRENTINA GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : -.
workings include a shaft to 12m and a 39m. long adit.

PAST PRODUCTION : 6t. quartz returned 6oz Au. GRADE : return 1oz/t.

RESERVES :

STYLE OF MINERALIZATION : fissure quartz vein. small mineralized with arsenopyrite and other minor sulphides.

STRUCTURE : Country rock is slates and greywacke of attitude 020°/70W.

SUMMARY : Quartz vein is variable in attitude and width, but generally strikes N/NE. Width 0.05m - 0.5m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1926.

477166

LITERATURE SEARCH

PROSPECT : Derby mine

NUMBER :

LOCALITY : WARRENTINA GOLD FIELD.

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : worked in late 1880's.
?

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

Referred to as one of the more successful mines of the area but no information has been found.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Reference : Nye 1931.

(DAVID McMahon) ?

LITERATURE SEARCH

477167

PROSPECT : GOLDEN MARA

NUMBER :

LOCALITY : WARRENTINA GOLD FIELD.

MAP SHEET :

COMMODITIES : Au

MINING HISTORY : Several reefs discovered in 1890 and these, and other reefs, were mined by various companies until the mine was closed 1921. (probably due to poor returns). Workings consist of a 335m. long adit, and a 89m. Shaft with levels at 60m, and 83m.

PAST PRODUCTION :

3368 ozs Au from 3560t. ore.

GRADE : Average grade indicated as 0.95 ozs/t.

RESERVES :

STYLE OF MINERALIZATION : Quartz fissure reefs in a narrow zone trending northerly in the slates and quartzites of Mathinna Beds.

STRUCTURE : Bedding attitude is NW. / 45°-75° SW. Veins strike N-NW following tension and shear fractures. with ore shoots commonly developed at vein intersections.

SUMMARY :

Six reefs : - Ascot Reef: 012°/90°; at the 60m. level was to 1.5m. wide Channel with patches of good stone but the bulk was low grade indicated to be ~ 10.7g/t.

- Coronella Reef: located 12m. East of the Ascot; strike varies N/NE as it follows fractures, and dips 70°SE. Reef channel is 0.2-0.6 wide carrying 0.15m. quartz. A SW. pitching ore shoot has been stoped across 60m. (on the 12m. level) to across 12m. (at the 60m. Level). and averaged ~ 1½ozs/t. Au.

- Blue Reef: 342°/45°W: to 0.1m. wide, boot developed ~21m NE of above and stoped to 12m.

- Riley's Reef: lies about 12m. SE of the line of the Blue Reef fracture and junctions with the Little Brancholm Reef. Reef stoped along 30m. to 18m. depth. Was probably located on 83m Level.

- Little Brancholm Reef: N-S / 70°E: traced on surface 290m. No prod. figures available.

- Brancholm Reef: to 1.5m. wide, traced on surface 100m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake 1934; Nye 1931.

477168

LITERATURE SEARCH

PROSPECT : Imperial mine NUMBER :

LOCALITY : Forrest - Warrentia Gold Fields. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : A few shafts and trenches excavated 1923, but principal workings carried out from 1933 by the Imperial Gold Mining Co.

PAST PRODUCTION : Until 1933; 15oz Au. from ~ 20t. ore

GRADE : Returns av. 22.9 g/t Au.

RESERVES :

STYLE OF MINERALIZATION : Quartz fissure reef in Mallina Beds.

STRUCTURE :

SUMMARY : A Quartz Reef of 27-60 m. in length, striking 060°/75°S, has an average width of 0.15m (max. 0.38m). Shallow scrapes workings may indicate presence of a parallel reef.

Reef has been stoped along 10.6m over vertical depths of 3.6m. in one shaft; but has probably only been worked to 6m. depth.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1933.

477169

LITERATURE SEARCH

PROSPECT : JORDAN's Gold Prospect. NUMBER :

LOCALITY : Forester Gold Field; (Winnaleah, Trout Creek) MAP SHEET :

COMMODITIES : Alluvial Au.

MINING HISTORY :

PAST PRODUCTION : 30z Au recovered by sluicing. GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Gravels containing gold, cassiterite, pleonaste, magnetite, ilmenite.

Exposed basement of Devonian granite overlain by Tertiary basalt. Some tertiary clays and gravels in higher parts of the tributary valleys, having survived denudation of the basalt cover rock. Recent gravels & alluvium distributed along the bed & Trout Creek and the lower portion of its tributaries.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake 1936.

477170

LITERATURE SEARCH

PROSPECT : LINTON MINE NUMBER :

LOCALITY : FORESTER GOLD FIELD. MAP SHEET :

COMMODITIES : Au, Ag.

MINING HISTORY : Reef discovered 1922.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : - high silver content.

STRUCTURE :

SUMMARY : no available information

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1931.

477171

LITERATURE SEARCH

PROSPECT : Mt Horror Arsenopyrite Prospect. NUMBER :

LOCALITY : (in vicinity of Forester - Waratinna field). MAP SHEET :

COMMODITIES : As

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Three parallel quartz reefs, which are exposed over a total width of 2.5m for distances up to 100m, on the southern slopes of Mt Horror, carry values up to 9.6% arsenic and 13g/t silver with a trace of gold. Minor Chalcopyrite and pyrite are also associated.

The mineralization occurs in Mathinna Beds close the the granite contact and as this is approached, small amounts of tin are also recorded.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : McIntosh - Reid, A. 1925. Preliminary report on Mt Horror arsenopyrite prospect TDM unpubs report.

10. ALBERTON GOLD FIELD (Refer Plans 7 & 8)

10.1. INTRODUCTION

The field has recorded a production of over a minimum of 21,000 oz gold since 1883. The main mines were the Ringarooma United, Long Struggle, Mt Victoria, New River and the New Mercury.

Becuase of the large number of veins that have been worked in a number of various mines, the identification of these from the literature is rather tenuous and could only be done properly after a mapping programme. Unfortunately not all the Mines Department maps produced in the past were available.

10.2. DISTRICT GEOLOGY

10.2.1 Mathinna Group

Mathinna Group sediments consisting of typically interbedded slates, quartzites and sandstones (in that order of abundance) host the mineralisation in the Alberton area.

A lower series of black shales contain the most important of the mineralised veins and in these, bedding may vary from centimetres to tens of metres in thickness. Numerous veins are also found in the overlying yellow sandstone unit, but not particularly in the upper feldspathic sandstones. The sandstones are generally argillaceous in composition. Quartzites which occur in the upper portion of the sequence appear to display variable amounts of silicification.

As a result of the action of a predominantly horizontal compression force, the structure of these rocks is complex and they appear to have formed the western limb of an anticline striking at 340°. Folds lying both east and west of the major structure are more gently undulating with comparatively low dips on the limbs. However this has been subjected to subsequent cross folding.

The well developed cleavage is remarkably uniform over the area, essentially striking parallel to the main fold axial plane and with this normally being vertical. Jointing and minor faulting is very prevalent with most of the faulting being premineralisation and this will be discussed later in relation to the vein systems.

Hills (1923) considered a major thrust fault system divided the area into the more intensively folded western division and an eastern division characterised by a low bedding dip ,in a general SE direction. He considered that in conjunction with the associated anticlinal axis zone, this north dipping thrusting may have played an important role in the formation or location of the mineralisation.

10.3. MINERALISATION

In all of NE Tasmania, this district contains possibly the greatest density of high grade (~1 oz/t) gold veins, but these were worked only to depths of generally less than 60 m.

A total production of 21577 oz is reported with the main area worked being the Ringarooma Gold Mining Company Mines, the Point Reef-Reform-New Mercury area, the New River Mine area and the Mt Victoria Mine. The maximum dimensions of stoping reported is of the order of 70 m x 30 m x 0.5 m.

10.3.1 The structural controls on the distribution of the auriferous quartz veins in the district have been extensively examined by Twelvetrees (1904), Hills (1923), Hughes (1952) and Threader (1967).

The quartz veins occur in a narrow zone of some one kilometre in width,which extends southwards (on a bearing of 160^{0}) from the New River area to the neighbouring gold field in the Dans Valley. Only a limited amount of mineralisation occurs outside this zone. It is considered that the veins occupy fissures that were developed as a result of the regional horizontal compressive stress regime

with the main fissures (which generally dip against bedding) being developed along a shear zone in the western limits of the main anticlina structure,with a secondary conjugate set of tensional fissures developed normal to that. The strike of these fissures averages approximately 330° and 060° respectively. In addition,less well developed fissure veins occur in the bedding planes and in the embryonic saddles.

Although the lines of veins are not continuous throughout the field as a whole, they are fairly continuous but are often arranged en echelon connected perhaps by an almost imperceptible track. The maximum length prospected in the field is 400 m at the Point Reef, with several others of up to 100 m. The veins irregularly pinch and swell at intervals along these zones throughout the district with the average vein width being less than one metre.

Hills (1923) considered that the axis of the main anticline was a slightly bent line, its direction varying from 330°-340° over several intervals, and that the density of veining was greater at the bends. He further thought that the plane of the major thrust faults that he delineated may have provided a major passageway for the transport of the mineralising fluids and that large mineralised bodies may be developed at depth. Hughes (1954) considered the greatest concentration of veining occured where cross folding was most intense.

10.3.2 Description of the Quartz Veins

The mineralisation consists of veins of massive quartz which although commonly white is often a bluish colour due to the presence of fine-grained arsenopyrite which,although a characteristic mineral of the area,is variable in distribution. In some cases (e.g. Rosalind-Gumsucker reef) the arsenopyite appears to be closely associated with elevated gold contents. The presence of pyrite is ubiquitous,although it is not necessarily present in abundant amounts, and it may sometimes carry free gold as inclusions. Galena is commonly present as either a finely disseminated form or a coarse crystalline habit and it normally indicates a high gold content. Ankeritic carbonate minerals are reported to be associated with some quartz veins.

Hughes (1952) considered the gold to be of two generations:

- that associated with the sulphides being contemporaneous with the quartz

- that associated with a later influx of free gold from solutions where reopening of the fissures occurred.

The veins are often contained between well defined walls but it was frequently found that one wall (usually the hanging-wall) was more well defined than the other. The veins vary in width from a few centimetres to just less than a metre and the wider zones commonly contain inclusions of country rock, principally black slate. Although generally confined to fissures, the quartz sometimes penetrates the country to form small zones of stringers, or less commonly, as in the Long Struggle area, much of the country rock (a blue quartzite) has been replaced by white quartz.

The quartz veins developed in the fissures often accompanied by a few centimetres of fault gouge and sometimes end by the feathering out into a mass of tiny veins or into a single narrow thread. Of the several types of veins described by Hills (1923), none display either regular or extensive dimensions.

In the location of the ore shoots in this area, the actual size of the quartz vein is not a critical factor as they appear to be best developed at changes in strike or dip, or at the intersection of two veins. The ore shoots generally plunge to the south. Hill (1923) also noted that the wider and more persistent veins of the area occur in somewhat graphitic black shales.

As the veins were injected into pre-existing fault structures, where two such structures cross, the veins may take on a "zig-zag" form. Post-mineral faulting of any significance has not been observed and veins are rarely displaced more than a few metres.

Because of the apparent concentration of high grade gold deposits close to the surface, there has been suggestion of secondary enrichment in the Alberton field. However Hills (1923) reported that oxidation of sulphides associated with the gold mineralisation was very shallow and that original sulphides persist to the surface in many cases.

10.3.3 Origin of Mineralisation

As for the Dans Valley gold field, it has been suggested that the source of the mineralisation is related to the granodioritic intrusives found to the SE of the area and Twelvetrees (1904), noted a 2 m wide quartz porphyry dyke in the Ringarooma Mine workings.

10.3.4 Alluvial Gold

Reference is made to alluvial workings in the Dorset and New River Valleys, however the grades were very low and irregular. There is considered to be little scope for the accumulation of significant alluvial deposits in this field.

10.4. PREVIOUS INVESTIGATIONS

10.4. 1 The Mines Department drilled three diamond drill holes in the vicinity of the Long Struggle Mine (Blake, 1938). DDH 1 was drilled, across strike, to 88.4 m depth and intersected at least 12 veins, ranging in width from 0.15 m to 1.5 m and ranging in gold content from 0.8 g/t to 98.7 g/t, at depths between approximately 25 m to 81 m. A calculation of the weighted average of the assayed intersections in this interval indicates a bulk grade of 1.26 g/t gold over 56 m.

DDH 2 extended to 68.5 m depth and two narrow ($<$0.6 m) zones of quartz veining only were sampled, but no gold was detected; and DDH 3 was abandoned after 11m.

Hughes (1952) proposed further drilling and delineated an area to the south of the main Long Struggle and Caxton workings to intersect the reefs at depths of 60-90 m. This drilling was never carried out.

Scott (1933) described the results of drilling by the Mines Department in the New River area at the northern end of the field. A total of 4 drill holes were completed on the Krushka and Prendergast Reefs. In general only narrow quartz veins were intersected which where assayed, returned no gold. However, the brief logs do describe other zones of quartz veining up to 10 m thick which were not assayed.

In order to validate the concept of perhaps bulking a near surface zone of high density, mineralised veining, the core from these drilling programmes should be assayed if possible.

10.4.2 Stannon Engineering (1976)

(Mines Ref: 76-1190; 76-1191)

This group investigated the gold belt from Branxholm to Mangana and concluded that the Mercury Mine of the Alberton field represented an outstanding opportunity to test the supposed deep-seated nature of the known quartz reef and that the remainder of the field provided good possibilities for further discoveries of quartz-gold veins. An elaborate programme including diamond drilling to 180 m was proposed, but never carried out.

In 1976 a sample taken from the No. 1 adit of the Mercury Mine, supposedly consisting of country rock ..."well away from the reef" ... returned an assay of 12.1 g/t Au, however no verification or detailed description of the sample has ever been seen.

10.5. CONCLUSIONS AND RECOMMENDATIONS

A search of the literature reveals that becuase of the density of mineralised quartz veining in some zones, the Alberton area is perhaps the only one of the NE Tasmanian gold fields where there

may exist the potential to develop a bulk tonneage of mineable grade rock. The example of the reported grades in the Long Struggle drill hole has already been mentioned.

It is recommended that this core, and any other which may be available (e.g. New River area), be reassayed in whole and that further, after an initial field reconnaissance, consideration should be given to approaching the present title holders to gain access for a confirmatory rock chip sampling programme which if successful could then be persued by way of a joint venture agreement.

Hughes (1952) suggested the greatest density of quartz vein development was where cross folding was most pronounced and specifically refers to the Forest King-Ringarooma, the Mercury-Long Struggle-Mt Victoria and the Central-New River systems of veins.

It is also noted that the possible northern extension of the field carries below alluvium and perhaps basaltic cover.

	Recorded gold production (oz)	tonnes ore.	average grade (g/t) Au.	maximum length(m)	maximum depth worked (m)	average width (m)
WATERHOUSE DISTRICT						
Alliance	41.6	54	23.8	-	11	0.2
Martial Call	-	-	-	200	-	-
New Monarch	-	-	-	15	-	(0.1-1.2)
Pioneer	500	-	-	91	30	(0.9-3.6)
Railway	-	-	-	48	-	1.8
Southern Cross	-	-	-	365	30	0.75
WARRENTINA-FORESTERN DISTRICT						
Dawn of Peace	6	6	1oz/t	-	-	0.5
Derby	-	-	-	-	-	-
Golden Mara	3368	3560	29	290	89	0.15
Imperial	15	20	22.9	60	-	0.15
Jordans (alluvial)	3	-	-	-	-	-
[redacted]	-	-	-	-	-	-
ALBERTON DISTRICT						
Alberton Quartz Mine	295	-	(23)	-	36	0.15
Central Ringarooma Mine	59.2	-	(1.1oz/t)	21	28	0.17
Esk	-	-	-	60	-	0.2
Long Struggle	674.5	-	(1.25oz/t)	100	27	0.3
Long Struggle Vicinity	-	-	-	27	-	0.1
Mammoth	-	-	-	23	4.5	0.15
Mt. Victoria/Packhouse	5128	-	(26.7)	182	103	(0.5)
New River	4615	-	(1oz/t)	100	18	0.6
Point Reef, Reform, New Mercury.	1658	(2027)	-	400	57	0.3
Ringarooma Gold Mining Co.	(8974)	(3085)	(1.3oz/t)	99	60	0.45-1.5
South Ringarooma	173.8	141	(1.2oz/t)	91	30	0.15
Southern end of district.	-	-	-	30	13	0.1
[redacted] TOTAL	25,511.1					

TABLE 10.1

477180

ALBERTON GOLD FIELD

DATA SHEETS INDIVIDUAL OCCURRENCES

477181

LITERATURE SEARCH

PROSPECT : ALBERTON GOLD FIELD - ALLUVIALS

NUMBER :

LOCALITY :

MAP SHEET :

COMMODITIES : Au (alluvial)

MINING HISTORY :

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : (1). Dorset Valley : Twelvetrees makes reference to the possibility of alluvial concentrations on these river flats. Mentions one 7.6 m. deep shaft which did not bottom out, and also that alluvial gold was found in a stream draining the Bonnefatter reef area.

(2) New River : 4.5 m - 6m. deep ground with a fair quantity of coarse flaky gold, nuggets up to 7.6g. Au. Coarse quartz associated.

Nye (1926) described a property (A.L. Fowler) where a number of shafts and pits sunk which returned some values, but no size or grades given. - vicinity Ringarooma & Forest Ring Creeks.

Hills (1923) refers to some shafts sunk to 12m. which did not bottom, and noted most alluvials are quite coarse with few fine silty beds. He considered these prospective.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

477182

LITERATURE SEARCH

PROSPECT : ALBERTON QUARTZ MINE NUMBER :

LOCALITY : ALBERTON GOLD FIELD. MAP SHEET :

COMMODITIES : Au

MINING HISTORY :

PAST PRODUCTION : estimated minimum 295 oz Au. GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : vein attitude 353° / dip SE; slates bedding 340° strike.

SUMMARY : A vein sunk to 36m carried 23g/t Au; and considered to possibly be a northern extension of Premier Reef on Ringarooma Mine. An adit also revealed 0.1 - 0.15m. width @ 12.2g/t rock.

There are several other narrow discontinuous reefs in the area which may locally carry up to 20z/t Au; & be as low as 6g/t Au, including the Endeavour (0.25m. wide averaging 27.5g/t Au); and the Crown Prince leef ⇒ shaft to 27m on 27.5g/t Au rock, but at a depth of 30m, vein widened to 1.8m and was reported to be of poor quality.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Twelvetrees 1900

477183

LITERATURE SEARCH

PROSPECT : CENTRAL RINGAROOMA MINE AREA NUMBER :

LOCALITY : ALBERTON GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : pre 1900.

PAST PRODUCTION : GRADE :

Total reported 59.2oz. Au.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Pennefathers Lode : 300°/45°SW
A1 Reef : 045°/80°N.
Central Ringarooma Reef : 020°/steep W.
Almora Reef : strikes 020°-040°.
Mulannah Reef : 020°/vertical.

SUMMARY :

- Pennefather's Reef: 0.17m. reef exposed in shaft at 28m. depth and previously the Central Ringarooma Coy. obtained 1oz/t Au. at surface. A crushing 1904, returned 19.8g/t Au from 30t. Length 21m. and average grade (to 28m) 1.1oz/t [Note - Hills (1923) describes this reef in the Prendergast or New River section].
- A1 Reef: 0.15-0.38m. wide at surface, along a length of 9m. At a depth of 7m. it varies 0.17-0.6m. wide and assayed 26.7g/t Au. Reef is pyritic and rich in arsenopyrite.
- Central Ringarooma Reef: 60m. tunnel on 0.1m. wide auriferous quartz vein, varies to 0.6m. wide over short distances. Description is hard to follow appears ground is broken. Values appeared to run about 16.8-24g/t Au, with some arsenopyrite mineralization associated.
- Almora Reef: several shallow (to 6m) surface workings reveal 0.1-0.38m. quartz reefs which originally crushed at about 4.5 g/t Au over length 88m.
- Malcunnah Reef: original shaft sunk 15m on a 1.2m. wide formation 6m long Averaged 1.25oz/t Au. from 0.17m. reef but values irregular. Arsenopyritic.

PREVIOUS COMPANY REPORTS : At depth of 27m. increases in length to 27m, but is merely a thread and grades only 9g/t.
Hills refers to Holloways Long and Second Reefs being 71m & 52m long respectively and 0.3m. wide in shallow workings.

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hills 1923, Tivelvetrees 1900, 1904.

LITERATURE SEARCH

PROSPECT : THE ESK MINE NUMBER :

LOCALITY : ALBERTON GOLD FIELD. MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION : originally 4t ore returned 0.5oz/t Au. GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : vein structure 100°/50°N,
Bedding slates strikes 310°.

SUMMARY :

A tunnel driven 91m. and a shaft sunk.
Reef channel 0.9m. wide, extends along 60m, but is mullocky and broken with weakly developed quartz to a maximum thickness of 0.2m.

A nearby shaft displays quartz 0.2 - 1.2m thick of arsenopyritic bearing quartz.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Twelvetrees 1900, 1904.

477185

LITERATURE SEARCH

PROSPECT : Long Struggle Mine Area. NUMBER :

LOCALITY : Alberton Gold Field. MAP SHEET :

COMMODITIES : Au

MINING HISTORY : worked from 1884.
Cost of driving stated to be £1 per foot.

PAST PRODUCTION : from reef mentioned total is ~ 674.5oz Au. GRADE :

RESERVES : Tailings said to carry 1.5 – 4.5 g/t Au

STYLE OF MINERALIZATION :

STRUCTURE : No 1 Reef attitude · 310°/45°NE conformable with bedding.
Whip Shaft Reef no 1: 045° strike.

SUMMARY : Two main reefs worked:

* - No 1 Reef: No 1 level drive is 67m. long of which 57m stoped to surface 15m. above. Average width is 0.3m. with yield ranging 1.25 – 2.65 oz/t Au. The reef pinches to 0.05m. and widens again to 0.76m. Overall: a length of 100m. averages 0.3m. wide and grade of 1.5 oz/t. Au. Attempts to work at deeper levels unsuccessful in finding the reef. Blake (1938) details the results of Mines Dept. underground drilling.

- Whip Shaft One Reef: two shafts sunk 42m. apart. Total length reef 91m.
  (i) 15m. deep with 12m. level and driven 24m. trial crushing gave 3.35 g/t Au.
  (ii) Whip Shaft - 27m. deep with 23m. driving on reef averaging 0.15m. over a range of 0.1 – 0.4m. width. and average grade ~ 1.25oz/t. Stoping occurred along 12m. to height of 12m. (0.1m. vein). The intermediate level, at 15m, has been stoped along 36m. to where reef pinched.

[* also called the Long Struggle Reef.]

[see attached sheet for other reefs in the area. ....]

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

Other reefs worked in the area include:

East Carton Reef: 300°/80° SW; 0.15m. wide.

Carton Reef: parallel to the Long Struggle no 1 Reef but 27m. NE. Some tunnelling gave average values 15.3–24.4 g/t Au and where seen was 0.45m. wide in a 1.5m. wide zone of quartz veined country. (Values carried 7.6 g/t Au, 23 g/t Ag. Rock is pyritic, arsenopyrite, galena, sphalerite bearing. Overall length is 103m.

New Reef: 020°/vertical; 0.07m wide.

E. Stingelo Reef: trends 015°; to 0.3m. wide, sulphide rich carrying 1.5 g/t Au; 9.1 g/t Ag.

Ragged Youth Reef: 024°/40°N; 2 levels worked; Very irregular reef and values dropped 1.7 oz/t to 0.85 oz/t Au. over 15m. depth. Reef generally 0.25m. wide.

Short Struggle Reef: the Southern extension of the Long Struggle no 1. Sunk on to 45m. and reef varies 0.05–0.76m. width. Small crushings of 2oz stone have been obtained. Attitude 280°/80°N, over total length 15m.

Hughes 1952 proposed a drill hole to test the Struggle Reef.

477187

LITERATURE SEARCH

PROSPECT : REEFS ADJACENT TO THE LONG STRUGGLE MINE NUMBER :

LOCALITY : ALBERTON GOLDFIELD. MAP SHEET :

COMMODITIES : Au

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Telegraph Mine : 003°/80°W; 0.1m. wide mullocky sulphide rich quartz vein driven 27m. & grading 4.5 - 12.2 g/t Au.

Blende Reef : strikes 025°; 0.15m. wide sulphide rich, assayed 9.2 g/t Au.

Battery Reef : 025°/75°SE; 0.3m. wide, abundant arsenopyrite, assays 1 oz/t Au over 12m.

New Wilson Reef : 055°/SE; 0.45m. wide with abundant sulphides and a trace of gold.

Crown Reef : 0.1m. wide vein carrying visible gold, assayed 1 oz/t.

Upper Crown Reef : 0.1m. wide vein with little sulphides.

Numerous other reefs are thought to exist but are not documented eg. Beckers, Scotsmans, Clarks, Rich Youth, etc. as referred to by Hills 1923.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hills 1923, Twelvetrees 1904

LITERATURE SEARCH

477188

PROSPECT : THE MAMMOTH MINE

NUMBER :

LOCALITY : ALBERTON GOLD FIELD.

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Three reef : No.1 – 292°/65° NE ; Bedding Sandstone 335°/sw dip.
No.2. – Strikes NE.
No 3. – 325°/ NE dip.

SUMMARY :

- No.1. Reef : exposed for 23m and two shallow shafts (4.5m) expose quartz carrying arsenopyrite and pyrite to 0.02 – 0.15m width. Assays returned 2.8 oz/t Au; 2.3 oz/t Ag.
- No.2 Reef : located 140m. South of NO.1 Reef & 30m East. It should intersect the NO1 Reef but it carries no gold.
- No.3. Reef : located 60m. South of NO.2. Reef. Small crushings from the surface returned 10 oz/t Au. from a pyritic lode.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Twelvetrees 1904.

477189

LITERATURE SEARCH

PROSPECT : Mt Victoria Mine[1.] & Packhorse Reef.[2.] NUMBER :

LOCALITY : Albeeton Gold Field (just S. of Long Struggle). MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : Total estimated 5128 oz Au. GRADE : av. grade to 1885 - 26.7g/t Au.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : 1. Reef attitude 035°/70°NW, Bedding 350°, dip ?
2. Reef attitude 040°/SE dip.

SUMMARY : 1.) Mt. Victoria Reef:

- Upper adit (Montana): driven 67m. on a 0.25 - 0.9 m. wide vein initially 2·1 oz/t, but later averaged 23g/t Au. Reef traced on surface 140m. Surface stoping has been carried out along 30m. to depths of 68m.
- No 2 level: (27m. below Montana): limited workings in similar rock, driven 9/m.
- No 3 Tunnel: (27m. below No 2): driven 182 m. reef pinched out in one direction, driven 91 m.
- No 4 Tunnel: driven 396m. but did not find reef.
- Overall reef varies 30 - 91m. in length; in width to 1.5m. and varied downdip for 103m.. A small parallel reef carries 10 g/t Au. rock.
- Reef possibly lost due to faulting.

2) Packhorse reef: 0.3m. wide at surface and narrows to 0.07m. in a few metres. Assays of 12.2g/t Au; 4.5g/t Ag obtained. Situated nearby Mt. Victoria Reef.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hills 1923, Twelvetrees 1900, 1904.

477190

LITERATURE SEARCH

PROSPECT : THE NEW RIVER MINE. NUMBER :

LOCALITY : ALBERTON GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : total estimated (Hills, 1923) 461 oz. GRADE : av. 1 - 1.25 oz/t Au

RESERVES :

STYLE OF MINERALIZATION : Reefs are dominantly fault fissure lodes of NE. attitude

STRUCTURE : Reef attitude 060°/80°SE.

SUMMARY : Twelvetrees describes New River or Prendergast Reef (no 1 reef) as having a payable shoot 45m. long (18m. at surface) and having been stoped along 22m to surface at average width of 0.6m. (max 1.2m). Reef has average yield 1.0-1.25 oz/t Au. Thought faulted off.

Blake (1933) and Hills (1923) describe a number of adjacent reefs in detail; including the Tiger, Singline, Drunkards Dream, Crest, Reserved, Standard, Battery, Homestead, Central, Montana, Crest, Sulphide, Browns, Mystery etc... Reefs: but in general it is noted that - reefs not tested below 55m; reefs are short and narrow from a few metres in length to 100m. and in width 0.05 - 1.0m, that the smaller reefs do not usually conform to strike direction; noted a pyrite - chalcopyrite association; apart from some anticlinal hinge association no definite structural control shown; reefs are generally associated with interbedded slates and argillaceous rocks rather than sandstones. and that reefs commonly carry high grades (1 oz/t) at the surface but this rapidly diminishes at depth.

Reid (1951) reports assays from Heathhorns Prospect where maximum 5.6 oz/t Au in 0.15m. wide quartz vein (average is 9-12 g/t Au from 0.3 m. width). He refers to an earlier report with some locations (not seen).

Scott 1933: reported the unsuccessful results of 4 drill holes (Prendergast & Kruska Reefs) which showed them to be of limited vertical extent, and also that numerous small unmineralized reefs exist.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake 1933; Hills 1923; Reid 1951; Scott 1933; Twelvetrees 1900.

477191

LITERATURE SEARCH

PROSPECT : THE POINT REEF,[1.] REFORM SECTIONS;[2.] NEW MERCURY.[3.] NUMBER :

LOCALITY : ARDLETHAN GOLD FIELD. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1883 start at New Mercury; ~1903 for Reform.

PAST PRODUCTION : Reform – 30oz Au. GRADE :

New Mercury – 1628 oz Au from 2027t.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : 1. 315°/75°NE
2. 040°/SE ; 316°/NW ; 047°/NW.
3. 325°/E.

SUMMARY :

1. The Point Reef: length worked is 57m. with average width 0.3m. Two small shafts sunk to 4m. Assayed 16.8g/t Au, 3 g/t Ag. with some exceptional values of 170g/t gold. Reef has been traced over 400m. in shallow workings.

2. Reform Sections: Hills 1923 refers to 6 lodes all of which short in length (3–12m) and being narrow (0.15m wide).
NO 1 Reef: – is 0.3m. wide and poorly mineralized.
NO 2 Reef: – is to 0.3m. wide in a reef carrying to 0.15m. quartz vein. 2 shafts sunk (max. 8m). returned 17t. grading 13.7g/t Au but some high grade of 50g/t reported.
NO 3. Reef: – 2 shallow shafts (to 9m) showed reef 0.5m. wide returned 8t for 1.250z/t. but assayed 13.7g/t Au at lower levels.

3.) New Mercury Mine: two parallel reefs 70m. apart extend along 60m with an average grade 1oz/t Au. Reef is 0.3m. wide in a 0.7m. wide formation. but irregular. A Winze 13m. below lower adit gave 60m. reef 0.1m. wide. Original workings were extended 21m. depth in 3 tunnels with country reported as "hard and metamorphic". Arsenopyrite

PREVIOUS COMPANY REPORTS : particularly abundant.

Hills (1923) includes the Frog lode : 10m. sinking 10t → 30 oz Au.
Boundary lode : 0.2m wide x 12m. long . 5t → 4oz/t

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hills 1923, Twelvetrees 1900; 1904.

477192

LITERATURE SEARCH

PROSPECT : Ringarooma Gold Mining Company NUMBER :

LOCALITY : Alberton Goldfield. MAP SHEET :

COMMODITIES : Au

MINING HISTORY : Mined since 1894 - work suspended 1904 after fire destroyed the battery. workings consisted of three tunnels & connection and a deep winze.

PAST PRODUCTION : minimum of 4282 oz from min. 3085 t. other estimates from value of production suggest total production of ~ 8974 oz Au. GRADE : average stated to be 1·3 oz/t A with a cut-off value of 18·3 g/t

RESERVES :

STYLE OF MINERALIZATION : Quartz fissure reefs with associated pyrite, arsenopyrite, gold, (silver), chalcopyrite; the highest Au values reportedly associated with As.

STRUCTURE : Two main reefs - Gumsucker and Rosalind Branches, and the Premier; strike 017°/75°E At the surface the two are 68m. apart and estimated to junction at 48m. in main shaft. Strike & dip varies with depth.

SUMMARY :

Premier adit (uppermost): drive 107m. to intersect Premier Reef at 24m. depth; and it cut the unexposed, rich NO3 Reef (36m. length). Reef was worked vertically 60m. over a 0·45m. thickness. The Premier itself constituted upto 0·9m. channel and up to 1·5m of low grade quartz (< 7·6 g/t). The reef is 38m. long at surface but reduces to 6m. at the Long Tunnel level & the lode channel varies to 1·8m. in width.

Rosalind adit (middle): driven 121 m at height 43m above Long Tunnel. Additional Reefs appear & have been intersected - with description of similar widths, distances of stoping as for the Long Tunnel.

Long Tunnel (deepest): extended totally to 345m. cutting both reefs: 0·07m Gumsucker was driven on 99m. and shows bulgy quartz, to 0·6m. wide, over short distances, but this was lost in Northern end. Reef formation itself to 1·5m. wide with 0·7m. quartz at widest. Stoped along maximum lengths 30m. with values commonly to 3 oz/t Au. The Rosalind Reef intersected in a crosscut after Gumsucker runs out - was irregular but rich and stoped to the surface. Also intersected the Premier Reef at 91m (downdip) from the surface; this being a 0·3m. quartz reef in a 0·9m. wide formation. Stoped along 9m over 0·9m. but irregular, and averaging 1 oz/t Au. A winze extends in total 33m. below this level.

The Gumsucker-Rosalind Reef varies 45-97m. in length and in width 0·05 – 1·5m.

PREVIOUS COMPANY REPORTS : [see attached sheet]...

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hills 1923; MacIntosh Reid 1925; Nye 1933; Twelvetrees 1900, Twelvetrees 1904.

Other reefs described include :

Thomas Reef : 23m. E. of the Premier - shaft to 8.5m exposed 0.3-0.6m. wide vein over 27m. of drive; averaged 12.2g/t. Arsenopyritic. Strike NW/75NE

Hannah Reef : from an adit 33m. above Premier adit and 103m. SE, driven 119m. SE and a winze to 9m. on 15g/t Au vein 0.5m. wide. Some 8 - 7oz/t rock recovered. Vein attitude 040/75SE.)

NO 5 Adit Crosscut : a 0.3 - 0.45 m. wide fissure with 0.07-0.15m. quartz vein with associated pyrite, arsenopyrite, and chalcopyrite to 15g/t Au which strikes 320°.

Hills (1923) indicated 25 reefs in the area many of which are mineralized and exposed in shallow surface workings.

Some of these include :

Cross Lode : 320/vertical - (?)/m long an offshoot from the premier.

Long Shaft lode : - southern extension of Gunsecker, varies 015° - 305°/35°E, small shoots.

Big Blow lode : - trace 60m. along 360° - a gash feature with low gold.

Soft Spur Lodes (6) : includes Nelson & McCanes reefs), 310/dip E. 7.6m long with widths to 0.3m. Values to 5oz/t Au recovered.

The Bank lodes (4) : small with saddle reefs with irregular legs 4.5-9m long to depths of 22m. Those being 0.1 - 1.2m. wide. Values to 11oz/t Au recorded where intersected in Hannahs adit.

McCaulo Reef : 000°/70°E. 28m. long & 0.3 - 0.45m. wide.

Plum Pudding and Cake lodes : 350°/75°E : 6-12m. long averaging 0.1m. wide with values 1oz/t Au. which dropped off at depth.

Fowlers lode : 330°/75°E. 9m. long & widths 0.1-0.15m.

Strahan lode : 308°/80°E. 48m. long, width 0.45 - 0.76m averages 1oz/t Au but grade decreases with depth.

Endeavour lode : 6m. long; 0.15m. wide : attitude 000°/80°E.

Maggs lode : 300°/80E ; 18m. long ; 0.2-0.6m. wide ; yielded 1.5 - 3.0 oz/t Au.

Cannon lode : 030°/50°SE. 60m. long ; 0.6m. wide values to 4oz/t Au.

477194

LITERATURE SEARCH

PROSPECT : South Ringarooma Mine NUMBER :

LOCALITY : Alberton Goldfield MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : worked to ~ 1900.

PAST PRODUCTION : GRADE :

173.85oz Au from 141 t. quartz.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Dukes reef strikes 300°.

SUMMARY : Twelvetrees reports inaccessible workings as being a number of shallow shafts & stopes to 9m depth.

The reef is very irregular & intermittent for about 91m. length. A tunnel was driven 30m. below a shaft collar and reef length was only 34m. of 0.15m width barren quartz.

- Several other reefs are indicated (including Dukes Reef) generally 0.05 - 0.15m. wide commonly of silicified slate veined with quartz which generally show a little free gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Twelvetrees 1900.

477195

LITERATURE SEARCH

PROSPECT : Reefs at Southern End - Alberton Field. NUMBER :

LOCALITY : MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1880 - 1890.

PAST PRODUCTION : ? GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : SouthStar reef : 320°/80°SW.
Everetts reef : 320°/V. ; Bedding 325° strike.
Bright Star reef : 326°/80°W.

SUMMARY :

(1). McCauls Little Show : quartz vein to 0.1m wide - pyrite + arsenopyrite bearing. no development.

(2) South Star Reef : quartz vein (pyritic & arsenopyritic) is weakly mineralized. note presence of carbonate (?ankerite) in quartz veins. There are numerous small veinlets throughout the area.

(3) Everetts Reef : A shallow shaft (9m) and minor surface excavations. Reef is 1.2m. wide of bluish quartz and is strongly mineralized with pyrite and arsenopyrite. A small bridge to 3m. may be seen at a possible reef junction where values run 6g/t Au. A nearby eastern reef is 0.15 - 0.2 m. wide but is not proven.

(4) Bright Star Reef : A shallow shaft to 13m. initially returned 10z/t rock but later averaged 10 - 21g/t. Mine abandoned in 1900. A shaft near Surface shoot 30m long which had an average width of 0.3m.

(5) Farrells Reef : reported as a variable reef (0.2 - 0.4m.) trending NW. No value

McIntosh-Reid (1925) reported assays from small reefs this area ran 6-26g/t Au, 3-20g/t Ag. He noted NE trending lode fissures intersected by NW fault fissures both formed pre-mineralization and shoots at the intersection of these are very short and veins are narrow.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : McIntosh-Reid 1925 ; Nye 1926 ; Twelvetrees 1900, 1904.

The maximum stike extent of vein development would appear to be about 300 m worked in the Carnegie-Starlight.

11.3. PREVIOUS INVESTIGATIONS

11.3.1 Mines Department

Two periods of diamond drilling by the Mines Department have been carried out in the Dans Valley. These programmes (1954 and 1962) were designed to test for extensions of veins in the immediate vicinity of the O'Briens and Carnegie-Starlight workings.

In the O'Briens area, Hughes (1954) reported that three out of five drill holes intersected the vein system, however only narrow widths of mineralisation were reported except for one zone in DDH 3 of a 4.6 m drill width of 10.7 g/t Au.

In the Carnegie-Starlight area, Threader (1962) reported the results of two drill holes and although numerous "barren" quartz veins were recorded, no gold or silver values were reported in assay.

This drilling did not test the commonly expressed hypothesis that the O'Briens and Starlight-Carnegie sections may merge below the Dans Valley.

Threader (1964) recommended diamond drilling in the Una area however no work apepars to have been done in this regard.

11. 3.2 Geopeko (1973)

(Mines Ref: 73-952)

Geopeko sampled a 2 m long by 0.5 m wide sulphide rich quartz vein in the vicinity of the Una workings and assays of up to 1.5 oz/t Au, and 4.8% combined Pb/Zn were obtained. An initial high Sn value has since been discounted.

11.3.3 Geophoto Resources for Texins Development (1973)

(Mines Ref: 74-994)

Geophoto tested the alluvial gold potential of the Dans Valley by drilling 11 cable tool holes, excavating pits and running a seismic survey. The results were all low grade and no further work was warranted.

11.3.4 Sturts Meadows Prospecting (1980)

(Mitchell, 1980)

Sturts Meadows conducted an extensive programme of alluvial and lode evaluation.

(i) alluvials: the gravels of the Dans Valley were sampled in a series of 25 rotary drill holes put down in three lines with 75 m spacings along the lines and 1.5 km spacing between the lines. The programme was designed to check the earlier work of Geophoto. It was found that in general the grades were not economic, with an average grade of about 54 mg/t Au being returned although one small area did show grades of 539 mg/t and 216 mg/t over 1 m intervals. The maximum depth of drilling was about 20 m. The gravels were shown to be of a fluvio-glacial nature and considered to represent an environment not conducive to gold concentration.

(ii) veins investigated: the O'Brien's, King Edward, Starlight-Carnegie, Havelock, Strickland, Hinemoa and Una workings were studied in detail, with reopening of adits where possible, by trenching, mapping and rock sampling. The results of this work confirmed the short and irregular nature of the quartz-reefing systems and highlighted only two areas of possible interest these being

(a) the possible extension of the O'Briens-Starlight systems below the Dans valley and,
(b) the vicinity of the Una Mine where a number of mineralised veins have been found in a shear zone 550 m long and 75 m wide.

Nye (1981) (Mines Ref: 81:1649) reported on the results of prospecting work in the southern Dans Valley area by Mineral Holdings Ltd. This consisted of assays from sampling of veins in outcrop and costeans however very few contained any significant gold.

11.3.5 Current Work:

A small number of grab rock samples were taken from the Una, Hinemoa and Carnegie workings by the writer during a recent visit to the area with Mr H Raynor representing Mineral Holdings P/L. The results are presented below.

Sample No	Location	Description	Assay Results (ppm) Au	Ag	As	Sn	W
34401	Una	Grab rock chip across 1 m of mullocky quartz vein and stringer zone which parallels foliation in grey shales (No 2, Mitchells Report)	-	0.5	180	6	13
34402	Una	grab from roadside of a 0.3 m wide boulder showing extensive quartz veining (40%) in sheared sediments. Minor pyrite. Stringers to 5 cm in width. (Near previous sample)	-	-	90	3	11
34403	Una	Dump material from surface slope in the vicinity of No 1 adit as shown by Mitchell. Pyrite & Arsenopyrite prominent in a dark grey silicified quartz veined rock.	1.3	-	7500	-	-

Sample No	Location	Description	Assay Results (ppm) Au	Ag	As	Sn	W
34404	Hinemoa	Grab rock chip from end of tunnel (about 45 m long) across a 0.6 m width of faulted & stockworked quartz veinlets being a continuation of the main lode of solid quartz	0.03	-	900	4	13
34405	Hinemoa	Grab rock chip from across 1.5 m width of quartz vein in main tunnel. Reef is very broken & mullocky.	4.20	0.5	2%	-	-
34406	Hinemoa area	Grab of 0.15 m wide quartz "leader" carries arsenopyrite, pyrite of chalcopyrite. Note a widely developed stockwork of quartz veinlets in sst. over at least 50 m up this road. Location from logging road exposure just before reaching Hinemoa workings.	0.93	0.5	4.0%	-	-
34407	Hinemoa area	Grab of roadside quartz veinlet stockworks refered to in previous sample	-	-	900	-	-
34408	Carnegie	Grab from dumps outside Carnegie tunnels; of stockwork quartz veined sandstones.	0.83	1.0	8700	3	-

	Recorded Gold production (g/t)Oz	tonnes ore	av. grade (g/t) Au.	max. strike extent (m)	max. depth worked	av. width(m)
Baileys	-	-	-	48	27	0.6
Bright Star	-	-	-	1.8	-	0.07
Carnegie	49	100	14.9	(148)	-	0.45
City of Melbourne	88.5	-	-	-	30	0.2
Golden Horshoe	224	1840	3.7	-	33	0.15
Havelock	575	884	19.9	60	60	0.45
Heatons	-	-	-	-	36	0.15
Hinemoa	-	-	-	250	-	0.25
King Edward	232	235	30.2	35	-	0.6
King Solomon	-	-	-	-	7.6	0.15
Lady Havelock	-	-	-	-	9	0.25
Lady Mary	-	-	-	45	32	0.4
Larinda	-	-	-	-	9	0.35
Mabel	76.6	120	19.5	-	30	0.2
Millers Prospect	-	-	-	(200)	-	0.9
National Investment	-	-	-	30	2	0.15
New Golden King	1130	1640	21.0	9	58	1.5
O'Briens	900	1320	20.8	(48)	48	0.6
October	-	-	-	24	24	0.76
Revenue	104.5	418	7.65	114	-	0.5
Starlight	800	-	-	152	-	0.9
Strickland	-	-	-	60	27	0.15
S. 819/93G & 821/93G	-	-	-	-	-	-
True Blue	-	-	-	-	13	-
Una	21	-	-	365	-	0.6
Waterfall	-	-	-	-	21	0.2
TOTAL	4,200.6					

DAN'S VALLEY GOLDFIELD

TABLE 11.1

The most striking feature of the area is the abundance of quartz stringer development in what is thought to represent the country rock to the veins that have been worked previously. It seems that such material was not sampled in the Sturts Meadows exploration programme. Because of the results obtained from such stockwork quartz-veined sandstones, in particular No 34408 (0.83 g/t Au), it is considered worthwhile, in order to establish if any bulking potential exists, to sample sections of outcrop where intense quartz-veinlet development has occurred away from the main reefs.

In this regard it would also be instructive to reassay all of the Mines Department drill core from these areas.

11.4. CONCLUSIONS AND RECOMMENDATIONS

As with the Alberton area, the only real potential seen for an area such as the Dans Valley would be if intensively developed quartz vein stockwork or stringer zones carried sufficient values of gold to constitute a bulk tonneage body of mineralisation. In a second priority to the Alberton area, a programme to reassay any of the drill core previously referred to, and a reconnaissance rock chip sampling of zones of intensive quartz vein development would be required to test this concept. Such work could be done before entering into any formal agreement with Mineral Holdings.

DANS VALLEY GOLDFIELD

DATA SHEETS INDIVIDUAL OCCURRENCES

477203

LITERATURE SEARCH

PROSPECT : BAILEYS

NUMBER :

LOCALITY : DAN VALLEY.

MAP SHEET :

COMMODITIES : Au

MINING HISTORY : worked sporadically as a prospect 1899 - 1942. workings consist of an adit on two shallow shafts.

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - Quartz reefs attitude 360°/80°E; and another at 045°/78°NW. Local country bedding attitude is 310°/45°NE; cleavage 318°/vertical
- Prospect is on the NE limb, and near crest of an anticline plunging NW.

- A 0.6m. wide quartz vein sampled over 3.6m gave 1.2g/t Au, 1.2 g/t Ag but vein narrows to 0.07m. after 48m. length. Crosscutting fracture systems carry quartz veining but nil Au. (max width 0.6m. zone with quartz veins to 0.15m wide).
- Minor sulphide present -
- The main reef deteriorates at a depth of 27m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947

477204

LITERATURE SEARCH

PROSPECT : BRIGHT STAR NUMBER :

LOCALITY : DAWS VALLEY MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : worked from 1888 - (1897).. workings consist of an underlay shaft, trenching & a short adit.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Narrow quartz vein of attitude 090°/dip S, in quartzite with bedding 315°/75° SW.

SUMMARY :

Narrow quartz veins to 0.07m width, the only assay being 0.7g/t Au; 0.38 g/t Ag over a 1.8m strike length.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947

477205

LITERATURE SEARCH

PROSPECT : CARNEGIE

NUMBER :

LOCALITY : DEANS VALLEY.

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : main period 1889 - 1904 and again 1935-1942.
Workings consist of 2 adits and surface stopes, adits to 24m & 32m. respectively with winzes to 10m. and driving on reefs to 8m. (No.2. Adit 30 m. NW of NO.1. Adit).

PAST PRODUCTION : recorded 490z Au from 100t quartz

GRADE : ~15.3 g/t. from main reef.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Vein in NO1. Adit = 100°/80°N.
Vein in NO 2 Adit = 175°/80°E.

SUMMARY : NO. 1. Adit: Stoped from 12m to surface over 0.9 - 1.2m wide vein
Some reported values: 39 g/t Au; 17 g/t Ag over 1.75m; 2.75 g/t Au, 1.25 g/t Ag over 0.9m. (cf. Mitchell 1980: 23 g/t Au over 1.9m).
In part, production came from shoot where N-S vein cut the main vein (which is arsenopyritic) and av. ~0.45m. width.

- No.2. Adit: A 1.0m. wide quartz formation, from which Hughes (1947) obtained only "trace" assays. This appears to be on a different lode system (than NO.1.) being a 7m. wide NW trending shear zone which can be traced over 80m. Narrow stringers & quartz veinlets (to 20cm) and pods of mineralization 0.8-6.8 g/t. Note development of a rich pod at intersection with an E-W vein.
- The 115° trend of the main lode in the Starlight is seen here as 0.1m wide quartz veinlets carrying 1.1 g/t Au, but surface prospecting shows no significant mineralization in between.
- Threader (1962) Reported results of two drill holes; although numerous "barren" quartz veins are reported, no Au or Ag assays realized. Some silicified material described by brecciated g.v. rock with associated muscovite, chlorite, kaolinite & carbonate veining.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS (PREVIOUS). : [The main reefs of the Carnegie and Starlight sections have been intermittently exposed over 300m. variation of course between the two workings suggests there may be an ore shoot at junction or change of strike; and values although erratic could improve at depth. It has also been suggested that the possible relationship to Oberon's could be investigated by drilling.]

REFERENCES :

477206

LITERATURE SEARCH

PROSPECT : City of MELBOURNE NUMBER :

LOCALITY : DONS VALLEY. (0.8km SW. Golden Horseshoe) MAP SHEET :

COMMODITIES : Au

MINING HISTORY : worked 1872 – 1906 (including the New City of Melbourne G.M.Co 1894-1902) working include 2 inclined shafts (to 43m, 27m) and a vertical main shaft to 30m with levels at the 15m, 27m levels.

PAST PRODUCTION : GRADE :

total reported 88·5oz. Au.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : quartz veins strike 090° and 045° and both dip ~80° southerly.

SUMMARY : White quartz with low sulphide content developed 0.15 – 0.2m wide with occassional "blows" to 0.76m.

Zones of reef formation from 0.6m wide quartz veined throughout assayed (Nye 1941) 3.2 g/t Au, from 0.15m. quartz; 58g/t Au from 0.15m quartz, and by Henderson (1942), 27·5g/t Au who considered the reef tested to the bottom of the main shaft.

It appears that two small ore shoots are developed - these are vertical and may taper with depth, and may be influenced by change in attitude of reef.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947, Nye 1941, Henderson 1942

477207

LITERATURE SEARCH

PROSPECT : GOLDEN HORSESHOE NUMBER :

LOCALITY : DAVIS VALLEY. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Worked 1895 - 1911.
Workings include 2 shallow shafts and crosscut, and surface stoping.

PAST PRODUCTION : GRADE :
total 2240z Au from 1840 t.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Veins lie E-W and dip 60°N.

SUMMARY : - Main shaft sunk to 33m, (crosscut 12m) and prospecting shaft to 24m. (the latter situated 24 m. SW. of main shaft).

- Two quartz veins 0.05 - 0.15m wide encountered but the shafts did not succeed in proving ore.
Veins exposed in the surface stopes extend 15m being 0.15 m. wide, the quartz being vitreous and white with iron oxide staining (no sulphides seen).

- Values from near surface sampling by Hughes gave values of 0.76 g/t Au ; 13 g/t Ag ; and assay of 1.5 g/t Au ; 0.9 g/t Ag.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947.

477208

LITERATURE SEARCH

PROSPECT : HAVELOCK (OR HICKSONS) NUMBER :

LOCALITY : DAVIS VALLEY (0.8km N.W. O'Brien Mine) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : worked intermittently from 1887 to 1940's.
Workings consisted of an adit to 52m; an underlay prospecting shaft; & a main shaft to 60m. with levels at 30m and 42m.

PAST PRODUCTION : Total reported 575 oz Au from 884 t quartz. (up until 1902) GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Vein attitude : 065°/80°S

SUMMARY : Two parallel reefs revealed in :

(i) adit ; seen to be 0.3m. wide, varying from thread to 0.45m. over 12m length Some surface stoping has been carried out to 9m depth. The average payable width is 0.45m. Hughes (1947) sampled from roof of adit and obtained values of 5g/t Au, 2g/t Ag.

and (ii) shaft : at the 30m. level, reef was followed 60m of which 45m. was payable.

- at the 42m. level, reef was driven on for 57m, 0.45m.-0.6m wide, yielded 257t @ 22.9 g/t stone.

There appears to be some doubt as to whether 1 or 2 reefs worked here. Reef(s) appear to improve with depth, however only the surface high grade was picked out.

- Mitchell 1980 reported the adit level to be open with the lode driven on for 42m. on a course of 160°/60°SE. Showed erratic mineralization with numerous quartz lenses separated by zones brecciated slates. Range of values 0.12 - 9.3 g/t Au over an average width of 0.35m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947 ; Twelvetrees 1904; Mitchell 1980.

477209

LITERATURE SEARCH

PROSPECT : HEATON NUMBER :

LOCALITY : DAN'S VALLEY, (400m. NW of Lady Mary) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Worked 1895 - 1908 in a series of shallow shafts and surface workings to 12m; and a main shaft to at least 36m.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Vein attitude 090°/75°S.

SUMMARY : A surface oxidized quartz vein 0.1m. wide assayed 0.7 g/t Au; and 0.2 g/t Ag; being one of several parallel veins revealed by surface stoping. Maximum width is 0.15m and maximum reported gold assay 3 g/t.

In the area a number of parallel shear zones host minor quartz veining of no great extent, width a value near the surface.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947

477210

LITERATURE SEARCH

PROSPECT : HINEMOA NUMBER :

LOCALITY : DANS VALLEY MAP SHEET :

COMMODITIES : Au

MINING HISTORY : Worked 1903 and variously to 1942
Three adits and surface workings.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Characteristically these fissure quartz veins are discontinuous pods within a vein structure, en echelon arrangement of these gives variable widths and grades.

STRUCTURE : Reef strikes N-S dips 75°W. Vein exposures can be traced over 250m. with an average width of ~25cm.

SUMMARY : - No 1 adit: was driven on a quartz vein of great variation of width, at portal being 0.3-0.9m; at 12m being a few bunches and stringers over a distance of 12m; thence 0.6m - 0.9m. wide over 36m; and again diminishes to 0.02m. over 15m. This adit driven 60m.
- Twelvetrees refers to this adit ending in silicified slates with disseminated minor galena and irregular seams of quartz veins generally sulphide rich and he refers to assays of 26g/t Au over 4m.
- Sampling by Finucane showed average values 23g/t Au (2.2oz/t to 10g/t) over average width of 0.6-0.9m., and Ag values vary 3g/t - 1.6oz/t.
- Lower Adit (still 5.5m above No1 adit): intersected reef 7m. south of where previously known, with an average width 0.39m (max 0.78m). over lengths of 21m. and consists of several small parallel veins with bands of country rock being blue quartzite & slates which also carry arsenopyrite and pyrite. - but values very low eg. Maximum 3g/t Au over 0.6m.
- Raynor's Tunnel: referred to by Henderson (1941) where five samples varied 10g/t - 2.2oz/t. from the Northern section of the lode, while the Southern section returned (unspecified) lower values. Mitchell obtained assays of 8.5g/t across 0.25m. for 18m. of drive.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947; Twelvetrees 1904; Finucane 1932; Mitchell 1980; Henderson 1941.

LITERATURE SEARCH

477211

PROSPECT : King Edward

NUMBER :

LOCALITY : Dans Valley (304m. N. of Starlight.)

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Two adits driven ~ 35m.

PAST PRODUCTION : Total 232_{oz} Au from 235t.

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Lower Adit: driven 35m where a few cm. of rubbly quartz was intersected and driven on.
Upper Adit: a small vein, (to maximum 0.6m wide) which splits was followed for a short distance from which a short winze was sunk. Some rich ore said to have been recovered.

The lower adit values diminish with depth. The quartz vein as seen in surface exposures is white (low grade) quartz infilling a brecciated fault zone. with local small veinlets and stringers of grey sulphide rich quartz to av. of 1.6g/t Au.
A possible extension of this mineralization is the Carnegie No 2 adit.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947, Twelvetrees 1904, Mitchell 1980

477212

LITERATURE SEARCH

PROSPECT : KING SOLOMON NUMBER :

LOCALITY : DAWS VALLEY (400m. NW from Heatons) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1896 the only recorded year
A shallow shafts (to 7.6m) and a number of stopes and trenches

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Several narrow ± few cm., quartz veins strike various directions and one 0.15m. quartz vein (attitude 035°/steep NW dip) Sampled over 3m. vertically gave 1.78 g/t Au.

The quartz is dense white with no sulphides.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947.

477213

LITERATURE SEARCH

PROSPECT : LADY HAVELOCK. NUMBER :

LOCALITY : DAWS VALLEY MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : no formal titles held; prospecting underlay shaft to 3m; and an adit and winze to 36m.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Fissure quartz reefs - all arsenopyritic.

STRUCTURE : Quartz vein attitudes 090°/60°S and 045°/45°SE.

SUMMARY : - In the shaft: one formation with quartz veining 0.05m - 0.25m wide, & grey sulphide rich quartz returned a composite assay of 27.9 g/t Au, 13 g/t Ag. (Hughes 1947)

- In adit and winze: a 0.2m. wide quartz vein decreased in value from 22.9 g/t to 7.6 g/t Au over depth of 3.6m. A second vein (0.2m wide) returned 4.9 g/t Au, 3 g/t Ag.

- The values have appear to decrease with depth and only superficial work has been done.

- Henderson (1936) reported on the various workings in the area where several veins carried values above 1oz/t Au; (but generally 1.5 - 9 g/t); maximum widths to 0.25m wide (average 0.07m) A numerous number(!) of small narrow quartz veins in part highly mineralized.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947; Henderson 1936; Threader 1962; Twelvetrees 1904

477214

LITERATURE SEARCH

PROSPECT : LADY MARY MINE NUMBER :

LOCALITY : DARVS VALLEY. (1.2 km NW of Melbourne) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : worked from 1888 by way of a shaft to 32m. and a variety of surface workings.

PAST PRODUCTION : no records GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Three different veins all in same system strike 045°–065° and dip 75°SE.

SUMMARY :

Reef has been stoped along 45m. from old underlay shaft (13m) and surface workings, with values of 12g/t – 20g/t Au being returned from widths varying up to 0.9m.

Montgomery refers to an extensive zone of pyritic material on the surface.

The three veins referred to consist of vitreous white quartz of average width ~ (max) 0.4m. and returning maximum assays of 2.3 g/t Au; 0–18 g/t Ag; along 1.8m. length of 0.17m. wide vein.

A grab of arsenopyrite bearing quartz from the dump by the main shaft is reported at 29 g/t Au.

The suggestion is that this reef at 32m. depth was unpayable.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Montgomery 1892, Hughes 1947

477215

LITERATURE SEARCH

PROSPECT : LARANDA

NUMBER :

LOCALITY : DAWS VALLEY.

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : worked sporadically 1883 - 1930's.

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef formation attitude 340°/75°SW.

SUMMARY : - A 9m. shaft intersected two formations (0.1m. wide) which carried only a trace of gold on assay. Other mine veining reported also with low assays.

- Hughes (1947) reported a 0.35m. wide sulphide rich quartz vein to carry 1.2 g/t Au. Vein was irregular as bunches and stringers. A nearby prospecting cut showed a 0.8m. wide vein carrying 14g/t Au; 6.5g/t Ag.

- Surface workings also located a 0.9m. wide arsenopyritic vein.

- Twelvetrees (1904) reported a suggestion of a 2.4m. wide formation which carried veins containing some 20z/t Au rock and other assays to 30g/t Au; 250/t Ag.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947; Henderson 1936, Twelvetrees 1904.

477216

LITERATURE SEARCH

PROSPECT : MABELS (DANS REWARD) NUMBER :

LOCALITY : DANS VALLEY. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1896 - 1900.
One underlay shaft (30m) and surface workings.

PAST PRODUCTION : GRADE :
Total reported 76.6oz Au from 120t.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : vein trends 320°.

SUMMARY : One 0.2m. wide quartz vein carries no gold and another (0.4m wide) found in an irregular formation a few metres wide returned 1.2 g/t Au ; 0.38g/t Ag.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947

LITERATURE SEARCH

477217

PROSPECT : MILLERS PROSPECT (SPL 374) NUMBER :

LOCALITY : MT SADDLEBACK, MATHINNA. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :- Several mineralized quartz veins, to a maximum width of 0.9m. occur along a distance of several hundred metres parallel to the regional foliation (WNW-SSE).

- Pyrite and arsenopyrite observed, and the only gold reported is 0.38 g/t.
- Reef is a network of quartz stringers in metamorphosed quartzites of the Mathinna Beds.
- Considered near to the granites.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Threader 19

477218

LITERATURE SEARCH

PROSPECT : NATIONAL INVESTMENT NUMBER :

LOCALITY : JANS VALLEY (400m. NW O'Brien Mine) MAP SHEET :

COMMODITIES : Au

MINING HISTORY : worked 1888 - (1908)
an adit driven 30m.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Vein structure attitude 070°/45°S, essentially parallel to O'Brien's.

SUMMARY : Vein of greyish quartz carrying fine sulphides is 0.45m. wide (max).
Composite samples by Hughes (1947) along 21.3m. of vein returned 2.3g/t Au, 1.5g/t Ag; and 0.38g/t Au; 0.57g/t Ag from the bottom of a 1.8m. deep winze

- not as large or wide as O'Brien's.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947.

477219

LITERATURE SEARCH

PROSPECT : NEW GOLDEN KING NUMBER :

LOCALITY : Dans Valley area. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : The deepest and best developed mine in the South Dan valley area. worked 1901 – 1905, by way of prospecting shaft and a main shaft with levels at 37m & 58m.

PAST PRODUCTION : total from 1902,03; GRADE :
1130 oz gold from 1640t. quartz.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef strikes 360°/70°W in hard blue slates and hard blue quartzites bedded 300°/30°NE where cleavage runs 315°/vertical.

SUMMARY : Bedding is folded - considered to be on eastern limb of a NW. plunging anticline.

- Reef driven 9m. where it varies from few cm. to 1.5m in width; with best values where it widens; until it ends in joints similar to New Golden Gate.
Reef dies out near surface.

- Other thin quartz veinlets (to 0.05m) revealed in shallow pits.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947

477220

LITERATURE SEARCH

PROSPECT : OBRIENS NUMBER :

LOCALITY : DANS VALLEY MAP SHEET :

COMMODITIES : Au

MINING HISTORY : 1884 - 1911 thence sporadic prospecting til 1940's. Workings consist of adits and surface workings and a main shaft to 48m. (New Golden Gate Co. worked 1910-11).

PAST PRODUCTION : between 1888 - 1890 : 900oz from 1320t. GRADE :- overall average of ~ 1oz/t. Au.

RESERVES :

STYLE OF MINERALIZATION : Fissure quartz reef, generally sulphide rich

STRUCTURE : four main reefs ; 2 are parallel 070°/85°S, another 100°/78°N.

SUMMARY : NO.1 Adit: stoped along 48m to 13m. height on a 0.6m. wide reef which varies 0.45 - 0.6m, and returned ~900t rock for av. 1oz/t Au.

NO 2. Adit, stoped a reef along 24m. (0.6m wide) and returned ~400t at an average of 30.6g/t. Also the Ironstone Reef which trends N-S, is 0.3m. wide; returned 20t for 23oz/t but this was short lived with values to 3oz/t.

NO 3 Adit: driven on a 4th reef consisting of dense white vitreous quartz (and minor iron oxides) and 0.3 - 0.9m. wide.

Main Shaft: to 48m. with a level at 44m. (by the New Golden Gate Co.) - but there is confusion as to the results of driving and as to whether reefs were intersected.

- Other small reefs of 0.4m. / 2oz/t Au found in the area.

- for results of Mitchell's work & Mines Dept. drilling see separate sheet:

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947 ; Twelvetrees 1904 ; Nye 1941 ; Mitchell 1980. Hughes 1954

Mitchell (1980) reported the results of a fairly thorough sampling programme:

No. 1 Adit: - in No 1 winze 0.73m. @ 17.8 g/t; 0.8m. of 2.91 g/t Au at 3.3m. below adit level;
and a 16.6 g/t Au average value for material hand-picked from dumps.
Surface stoping indicates widths of 3-4m. over 50m length.

No 2 Adit: - on No 2 reef and Ironstone reef. Dump assays gave 2.8 - 5.0 g/t Au (max. 26 g/t).

No 3. Adit: - crosscut along lode for 35m. Sampled: values ranged 0.3 - 16.0 g/t over widths of 25-35cm.

Hughes (1954) reported results of 5 diamond drill holes by Mines Department. Three of these holes intersected reef (found in No 1 Adit) and the other two holes passed outside the ore shoot returning only thin veinlets and stringers of quartz.

Drill hole 1: passed through old workings to prove that driving and stoping did take place at 44m. level by New Golden Gate Co

Drill hole 2: passed through two zones of mineralized quartz veinlets at 70.1m - 70.9m and 77.7m - 78.0m. depths - these were not assayed. Represent ~ 58m. level).

Drill hole 3: intersected 4.6m (true) of 10.7 g/t Au, minor Ag, and 1% As. at about the 42.6m. level. No further definition of the shoot is known.

477222

LITERATURE SEARCH

PROSPECT : OCTOBER NUMBER :

LOCALITY : DAWS VALLEY MAP SHEET :

COMMODITIES : Au

MINING HISTORY : 1897 – 1901.
workings consist of 3 shafts, (1 vertical & 2 underlay).

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Quartz reef attitude appears to lie N-S or NE-SW / NW dip.

SUMMARY : - Main shaft level at 24m. depth.

- Reef driven on for 24m with an average width 0.76m and and estimated grade of 30g/t Au. Further development not done

- A grab of arsenopyritic quartz of dump assayed 2.4 g/t Au.

- Another 0.9m. wide quartz vein have carried only a trace of Au/Ag

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947

477223

LITERATURE SEARCH

PROSPECT : REVENUE NUMBER :

LOCALITY : DANS VALLEY MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1897 – 1904.
Workings consist of some shallow shafts and surface stopes, and an adit to 114m length.

PAST PRODUCTION : GRADE : av. 6.1 g/t. Au.
Reported 104.5oz Au from 418t.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Quartz vein attitude 090°/85°N.

SUMMARY : - Several narrow quartz veins followed on surface for 45m. along strike. with grades of 0 – 3g/t Au reported from widths 0.25 – 0.5m.
- little or no sulphide observed.
- the quartz vein system is regular, but gold content very low in the narrow veins. Country rock is dark blue fissile slate.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947

477224

LITERATURE SEARCH

PROSPECT : STARLIGHT NUMBER :

LOCALITY : Davis Valley (situated 244m. W. of reef exposed in NO1 adit Carnegie) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : as for Carnegie Workings.

PAST PRODUCTION : total yield 600 - 800 oz gold. GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Vein course estimated to be 117°.

SUMMARY : An adit 152m. in length stoped 30m. to surface and a winze to 9.7m. from which 30t quartz extracted at 24.5g/t. Vein width is 0.9m, but Twelvetrees refers to a 3.6m. vein (no values given). Other unpayable reefs found. (3-10g/t)

- Three different reefs were intersected of which only one was worked with production from an irregular lode containing lenses of mineralized quartz up to 1m. wide and stoped to a depth of 40m. along distances of up to 28m. Selective high grade extraction (eg. 10t at 85g/t Au).
  Note the location of ore shoot at intersection of quartz vein and N-S fracture system.
- A major 5m. wide E-W fracture zone with minor quartz stringers (0.3 - 2g/t Au) is also described by Mitchell (1980)

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hudson 1947 Twelvetrees 1904 Mitchell 1980

477225

LITERATURE SEARCH

PROSPECT : STRICKLAND NUMBER :

LOCALITY : DAYS VALLEY. MAP SHEET :

COMMODITIES : Au

MINING HISTORY : worked sporadically 1883 - 1941.
workings consist of 2 adits and an underlay shaft. (to 27m)

PAST PRODUCTION : no records but some production has taken place. GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef in lower adit = 032°/70°NW

SUMMARY : Upper adit: 9m. of a quartz formation consisting of a number of quartz veins, the largest being 0.07 - 0.15m. wide. Veins are grey and arsenopyritic and Hughes (1947) recorded assays of 5.5g/t Au, 3.5g/t Ag. Mitchell (1980) reported grab samples assaying 0.7g/t, 25g/t Au from small quartz lenses in the structure, but concluded it to be short & narrow.

Lower Adit: 60 m. in length. Stoping is reported to have been carried out along blocks 4.5m x 4.5m. & maximum thickness of 0.6m. from which one lot of 7t averaged 2.5 oz/t. Au with additional gold recovered from sulphide concentrate. Highest assays are 5.3oz/t. being a grab sample by Twelvetrees (1904).
Mitchell (1980), reported 3 main quartz veins only one of which was gold mineralized. A thickness of 0.2 - 1.5m (av. 0.2-0.5m) with average grades 12g/t over lengths of 15m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947, Twelvetrees 1904, Mitchell 1980.

477226

LITERATURE SEARCH

PROSPECT : Sections 819/936 & 821/936. NUMBER :

LOCALITY : Bains Valley. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : prospecting only in several shallow shafts/adits.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - Samples of arsenopyrite quartz handpicked from dumps assayed 10.4 g/t Au; 6.7 g/t Ag.

- Noted reference to a massive quartzite impregnated with a network of quartz stringers (@ 0.05m. width).

- Several parallel, narrow NW striking formations carry a trace of gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947.

477227

LITERATURE SEARCH

PROSPECT : TRUE BLUE (BELL) NUMBER :

LOCALITY : DANS VALLEY. (400m.W. of City of Melbourne) MAP SHEET :

COMMODITIES : Au

MINING HISTORY : 1896
2 shafts to 13 m.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - possible E-W trending reef. Quartz from dump returned a trace of gold.

- white vitreous quartz.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1947

477228

LITERATURE SEARCH

PROSPECT : UNA NUMBER :

LOCALITY : DAVIS VALLEY. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : worked intermittently from 1888 - 1940s.
workings consisted of upper and lower tunnels; prospecting shaft (total of 5 adits)

PAST PRODUCTION : Several crushings but no values reported. GRADE :
(min. $2 1 0_3$)

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : local country bedding 355°/ westerly dip.
The zone of mineralization appears to run 330° / steep W. dip.

SUMMARY : upper tunnel was driven on a 0.6m. wide reef (max. 1.5m. wide), with gold values to 22.9 g/t. One lot of 3t. returned $2 1 0_3$ gold.

- A lower tunnel extended 24m then drove 15m on a 0.45m wide impure quartz veined formation, which at the surface assayed 9 g/t Au over 0.9m.
- A 0.3m. wide pyritic rich quartz vein exposed along 4.2m, runs N-S and carries reported values to $9.5 0_3$/t and $2.2 0_3$/t Au but such grades are variable.
- The location is 182m. vertically above the Hikemoa workings.
- The zone can be traced along a strike length of 365m on surface over widths of 0.6 - 0.9m. of quartz veining.
- Mitchell (1980) considers the area to represent a number of separate lode deposits along a single shear zone which extends at least 550m x 75m wide containing quartz veins to 0.3m. wide carrying values ranging 0.35 - 4.6 g/t (with a maximum of 83.5 g/t) and to 1.1 g/t Au over 1m. wide quartz vein in NO 1 adit.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : Mitchell (1980) concluded the system should be tested at depth
Threader (1964) proposed 2 drill holes to test the reef at 30m. depth but this was never carried out.

REFERENCES : Threader 1964, Mitchell 1980.

LITERATURE SEARCH

477229

PROSPECT : THE WATERFALL MINE

NUMBER :

LOCALITY : S.E. Foothills of Mt. Blackboy.

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1903 - 1904.
Workings consist of an underlay shaft with some stoping, two shallow shafts, some trenching & an adit.

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Quartz veins strike 008°/ steep E dip and 075°/80°N.
Bedding & cleavage of weathered country slates 305°/60°NE.

SUMMARY : A 0.1 - 0.2m quartz vein returned values of 0 - 38 g/t Au; 0 - 0.8 g/t Ag in a surface stope.

An underlay shaft sunk 21m. on another vein returned 3.1 g/t Au and 4 g/t Ag in a pyritic association where several other irregular quartz veins to .6m. wide are found.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes, 1947.

12. MATHINNA GOLD FIELD (Refer Plans 7,8)

12.1 INTRODUCTION

The field includes numerous minor gold prospects and old mines of which the only significant producer was the New Golden Gate. Overall production of gold from the district is estimated to be about 270,895 oz. for the period 1880 to 1932, of which over 97% came from the Golden Gate - Tasmanian Consolidated mines which worked the same vein system to a depth of 630 m. The area has been intensively prospected over the preceeding 120 years, and any future exploration must aim to locate vein systems that do not outcrop at the surface.

Intrusive rocks are extensively developed about and also probably underlie the area. These are considered the probable source of mineralisation.

12.2 Local Geology Mathinna Area:

In this area the Mathinna Group sedimentary rocks are represented by a series of slates and quartzites.

The most obvious structural feature of these rocks is a pronounced foliation or cleavage which generally strikes about 334° and dips 45°-80° W or SW. A second set of joints is weakly developed across this predominant set; and in most cases the bedding is completely obscured .

The area of maximum quartz vein development appears to represent a zone of maximum cleavage development, in the thickest section of slates, associated with the axial line of folding consisting of four or more anticlines. There does not appear to be a close association of vein development with bedding features i.e. saddle reef type, although some instances of this type do exist.

The quartz veins may strike in any direction and have formed wherethe solutions from which they crystallise have followed major joint planes, shears or pre-existing faults.

12.3 STYLE OF MINERALISATION:

Mineralisation in the field is represented by gold-pyrite-arsenopyrite (-chalcopyrite-galena-sphalerite) associated in fissure quartz veins.

The quartz veins commonly occur in what is referred to as a "reef formation" which are described to a maximum thickness of about 20 m but which are composed of a great deal of sheared and broken country rock with irregularly developed quartz veins and lenses. These may be mineralised in an irregular manner.

Individual quartz veins vary in width from a few centimetres to approximately 10m; with an average of 0.3 m, and in length from 5 m to 310 m,with the longest recorded distances of reef actually followed being the East Reef and Lower West Reef in the New Golden Gate Mine for 155 m and 310 m respectively; however these are rather exceptional with the average length of quartz bearing reef being more like 30-60 m.

The maximum vertical extent of working on one reef is 336 m being the East Reef of the New Golden Gate Mine; but generally veins have not been worked for vertical extents greater than approximately 30-45 m.

Although the principal reefs in the New Golden Gate Mine strike in a general N-S direction, dip easterly at a steep angle and make an acute angle with the cleavage of the country rock, there is overall in the field, a considerable variation in vein attitude.

A main "slide" or fault appears to have exerted some control over the distribution of the important veins in the New Golden Gate Mine, however this seems to be a preexisting or at least a contemporaneous structure which formed a major passage-way for the mineralising solutions. The fault may be traced for a strike length of approximately 110 m in the workings along which it varies

from a few centimetres to 1.2 m in width and consists of a puggy zone which may occasionally carry irregular lenses and veins of quartz. This fault strikes 344° and dips 70° SW. Only a few rich lenses of quartz have been found along its SW side and the fault itself only rarely contains mineralised quartz.

The fault appears to occur along the eastern margin of the zone of intense folding and although several smaller, but similar, (subparallel) faults occur outside of the New Golden Gate workings, there is no evidence that the main fault extends any considerable distance.

Finucane (1938) considered that in general the distribution and gold content of the reefs appeared to have been influenced by the lithology of the country rock with the veining most strongly developed in slates as opposed to quartzites. It is suggested here however that this is merely a structural control reflecting the degree to which the cleavage pattern has developed in these contrasting lithologies in the zone of intense deformation.

In some cases, as at Tower Hill, specific beds of quartzite appear to exclusively host concentrations of small irregular quartz veins and although these appear to be of low overall grades, areas such as thi should be re-evaluated because of their potential to contain larger tonneages than individual quartz veins.

Mineralisation throughout the field appears to have developed within district narrow (sub)vertical ore shoots in the quartz veins and outside of the New Golden Gate Mine it is rare to find instances of stoping over vertical distances greater than 30 m, along strike distances greater than 10-15 m. Most oreshoots were between 100-1000 tonnes and even the major Golden Gate West reef was possibly only 60-80,000 tonnes.

The richest ore shoot in the field occured over a vertical extent of 172 m and length of ? ~30 m at the intersection of Loanes and Main Reefs in the New Golden Gate Mine. Other rich shoots were mined from near reef junctions with the main "slide".

Grade however was high, around 30 g/t, with the New Golden Gate averaging about 26 g/t. The cut off grade mined was about 11.6 g/t.

There are suggestions from other parts of the field of possible secondary enrichment in the zone of oxidation for vertical depths of about 30 m.

12.4 MINE WORKINGS

12.4.1 The NewGolden Gate Mine:

The discovery of a 5 cm wide auriferous quartz vein in an early adit led to the start of mine development in 1887 which was continued by the New Golden Gate Company until 1912 when the mine closed due to diminished grades at depth. Small scale prospecting operations continued rather unsuccessfully until 1923.

The total production from the mine is recorded as 253,865.1 oz (7.9 million grams) gold obtained from 298,700 t of quartz crushed to give an average grade of 0.85 oz/t (26.0 g/t).

The ore generally carried ~ 1½% sulphide which contained about 1.5 - 4.5 g/t gold.

Mining operations extended to a depth of 580 m below the collar of the main shaft and work extended on 18 different levels the lowest of which was at 548 m.

Six prinicpal reefs were worked; these being the Upper West Reef, the Central Reef, Loanes Reef, the Main Reef, the East Reef, the Lower West Reef. The reefs mainly follow the NW foliation of the country slates and quartzites and dip ~70°E. There is a suggestion that the richest portions of the reef occured where sections struck across the foliation. The distances between reefs in the upper section (to 244 m level) vary between 9-24 m.

Finucane (1938) presented a full and detailed summary of the undergroun workings, however because of the significance of this mine, a brief summary is presented on the nature of the reefs:

12.4.1.1 The Upper West Reef: was worked from the surface to the 53 m level with a maximum length of development being 53 m. The width of the reef varies from 15cm to 1.2 m and grades of 6 - 20 g/t are reported. The total dip extent of this reef is about 76 m.

12.4.1.2 The Central Reef: consisted of an irregular mass of quartz over a 3 m width, diminishing to 0.9 m at the 53 m level, below which it appeared to reduce even fruther in width and formed a branch of the Loanes/Main Reef system. The total dip extent of this reef is about 76 m.

12.4.1.3 Loanes and Main Reefs: these were the most important reefs; they did not outcrop but were worked from close to the surface to the 274 m and 243 m levels respectively.

At the 35 m and 53 m levels, both reefs contained only short shoots of payable quartz; however below this, the sub-parallel veins which are separated by a distance of about 9 m, widened to a 2.7 m width and commonly returned values of greater than 2 oz/ton (61.2 g/t).

From the 91 m to 243 m levels, Loanes Reef varied in lengths driven from 36 m - 67 m. (av. 45 m) but this reduced to 24 m at the 274 m level and thence dwindled to a "track" below this.

The Main Reef was worked along a length of about 45 m down to the 182 m level, after which it reduced to nothing at the 243 m level.

The rich ore shoot previously referred to, formed at the intersection of the Loanes and Main Reefs and was worked down to the 243 m level.

The southerly extension of the reef channels deviates into the "Main Slide", this being a 1.2m wide shear zone as previously described, however prospecting did not disclose any extensions of the reefs beyond this. The total dip extent of these reefs is about 256 m.

The average grade of quartz extracted from these two reefs is reported to be 27.6 g/t.

12.4.1.4 The East Reef: this was discovered on the 274 m level, lying about 15 m West of Loanes Reef, and it was developed from the 243 m to the 579 m levels, over a total dip extent of 353 m.

- At the 243 m and 274 m levels the reef was stoped along distances from 38 m - 70 m over widths varying from 1.2 - 4 m.

- In workings down to the 548 m level, the reef was typically driven on for distances up to a maximum of 152 m. With widths varying up to 7.9 m and typical grade values of 4.6 - 13.8 g/t gold.

- But at the 548 m level, although the reef was driven on for 120 m and found to die out at the southern end; the average grade was generally very poor being between 1.5 -3g/t. but small irregular patches of 15 g/t stone were recorded.

- The reef was prospected through the "slide" at its southern end at the 365 m level and was found to pass into it, with the reef becoming irregular and broken with diminished grade.

12.4.1.5 The Lower West Reef: lying about 67 m west of the East Reef, this reef was worked from the 396 m level to the 548 m level over which distance it was often found as two branches 9 m apart. The full dip extent of the reef over the distance was 323 m and it varied in width up to a maximum of about 4.5 m. Typical ore shoots within the reef were worked over distances of 30 m - 60 m and stoped over vertical distances of about 27 m. The grade varied from

12.2 - 36.7 g/t over average widths of 1.5 - 3.6 m.

As with the East Reef, the lowest levels were generally low grade with some small sporadic pockets of higher grade material irregularly developed.

This reef was worked in the Golden Gate Consolidated Mine to the northwest at the 469 m level where some 4.6 - 30.6 g/t gold grades were obtained.

12.4.1.6 Other Reefs: several other smaller shoots on reefs, mostly associated with the southwest side of the "main slide" were worked but these were typically of a maximum size of about 30 m in length, 120 m in vertical extent and of widths with a maximum of about 6 m and carried high grade values up to 38 g/t gold.

Finucane (1935) has noted that practically all of the payable ore (at that time) left by the New Golden Gate Company, was later extracted from the mine.

12.4.2 The Tasmanian Consolidated or North Golden Gate Mine:

The shaft to these workings lies about 80 m north of the New Golden Gate Shaft and has been worked down to the 487 m level. The mine was worked until 1908, and recorded a total production of 10,997 oz (0.34 million ~~grams~~ tonne) gold from 23,487 tonnes of quartz to give an average value of 14.2 g/t.

The West reef of the New Golden Gate entered this mine at the 426 m level, where a 3.6 m thickness of quartz carrying 15 g/t gold with some smaller high grade shoots, (to 60 m height along 7 m for a 1.8 m thickness) were worked. Below the 487 m level there was no payable ore.

There is some suggestion that reefs worked in the upper portions of the New Golden Gate being located in the Tasmanian Consolidated workings, however if so, these veins were generally weak and carried only traces of gold.

12.4.3 Other Mines in the General Mathinna Area:

These are numerous in number and a general description is included in the appended data sheets. Map ( ) shows the distribution and naming of these workings and Table ( ) shows the recorded production and average grades reported.

As reported earlier the reefs worked were normally irregular and of short strike and dip extents.

12.5 PREVIOUS INVESTIGATIONS

12.5.1 EZ (1959)

(Mines Ref: Q18/Geophysical)

An airborne mangetic and EM survey which included the tract between Mathinna and Mangana revealed several weak anomalies. Although the possible significan of these was not known, further work was recommended, but not followed up.

12.5.2 Tasmanian Mines Department

In the early 1960s the Tasmanian Department of Mines drilled six diamond drill holes to depths of between 250 and 300 m on two traverses north and south of the New Golden Gate Mine in areas thought favourable for repetition of the quartz veins. Although minor quartz stringers were intersected in sheared slates, values in all cases were nil to a trace of gold.

12.5.3 Geophoto Minerals for Texins Development (1969-1974)

(Mines Refs: 69-594, 69-566, 69-593, 70-695, 72-923, 74-994, 74-999)

As a part of a regional base metal programme, areas of weak stream sediment geochemical anomalies for Bi were detected in the Mathinna district and it was suggested that these, along with As, may be related to gold mineralisation. This suggestion was not followed up.

The Mathinna-Tower Hill-Mangana area was also actively explored for gold.

12.5.3.1 Alluvial gold: potential was investigated particiularly in;

(i) Black Horse and Long Gully Creeks where some churn drilling and backhoe bulk sampling was carried out. No further work was recommended due to erratic and low grades

(ii) Dans Valley where a program involving a seismic survey, backhoe bulksampling and an 18 hole churn drilling programme again revealed only low grades of alluvial gold, not considered worth persuing.

12.5.3.2 Hard rock gold: initially work was carried out to determine the most suitable exploration tools to be subsequently used in a broad survey to locate undiscovered gold mineralised veins or extensions of known systems. Work included geological mapping, geochemsitry, geophysics (VLF, IP) and costeaning over two test areas (City of Hobart and Jubilee-Mountaineer), however these failed to establish any reliable techniques.

It was concluded that expensive "wild cat" drilling appeared to be the only technique available, but the possible returns, based on the production figures from past mining activities, were not sufficient to warrant such a programme.

12.5.4 Tasminex (1978-1982):

(Mines Ref: 78-1318, 79-1344, 80-1428, 80-1502, 81-1551, 81-1642, 82-1760, 82-1868)

12.5.4.1 Alluvial: work was primarily focused on the alluvial potential and assessment of the old mine tailings dumps. Backhoe trenching and bulk sampling of the alluvials in Blackhorse Creek, Long Gully and Richardsons Creek (Mangana) were generally disappointing. Reserves of 191,000 cubic metres, averaging 0.67 g/m^3 gold were indicated from Blackhorse Creek.

The contents of the New Golden Gate mine tailings dump were retained under mining leases as the company has a veiw to heap leaching these. Reserves were calculated to be approximately 265,000 t grading approximately 1.5 g/t gold, a reduction to that measured by Hughes (1948) for the Mines Department which is in part believed to be due to erosion over the intervening period.

Reserves of other tailings dumps are given below.

Deposit	Volume (m^3)	Avg. Density (moist) tonne/m^3	Tonneage	Mean Au content ppm
New Gold Gate	175,263	1.44	264,888	~ 1.5
City of Hobart	4,617	1.39	6,418	~ 0.43
Mangana Reefs	6,515	1.35	8,795	~ 0.82
Volunteer	2,606	1.43	3,727	~ 0.65
Twilight	1,284	1.42	1,823	~ 2.38
City of Melbourne	520	1.43	750	~ 2.07
Fingal	-	-	-	< 0.30

SUMMARY OF VOLUME, AVERAGE DENSITY, TONNEAGE AND MEAN GOLD CONTENTS OF MINE DUMPS IN THE MATHINNA DISTRICT.

12.5.4.2 Hard rock: mapping and sampling of the old mines precluded the location of any surface zone amenable to open pitting and the emphasis was placed on the location of extensions to known subsurface vein systems. A programme of diamond drilling on the New Golden Gate/Tasmania Consolidated was proposed but was not carried out due to the company's inability to attract partners.

The reports which discuss this work provide a substantial amount of detail on the individual workings. Being too numerous to include here, they are available with the compiled references for perusal if required.

Of significance, the diamond drilling programmes that were proposed were:- the New Golden Gate Mine to explore the "East and West Reefs" north of the main shaft;

- the Jubilee Mine to explore for southern and deeper extensions of the reef system.

- City of Hobart Mine to test a southwesterly reef.

12.5.5 Anglo American (1982)

(Mines Ref: 82-1848)

Anglo conducted a two year programme of evaluating the alluvial gold potential for the South Esk River Valley gravels in the area south of the major southwards bend of the river about 7 km east of Mathinna township.

The results of three stages of a drilling programme showed the presence of an average thickness of 6 m of gravels which carried low grades of gold.

In the Marshall's Flat area a shallow "gutter" was shown to contain between one to two million cubic metres of gravels grading between 50-70 mg/m^3 of gold.

Also a limited amount of geochemical stream sediment survey work over the Mathinna Group in the area indicated a poor potential for tin but showed some basemetal and arsenic anomalies that may indicate gold vein mineralisation, however no further work was recommended.

12.6. CONCLUSIONS AND RECOMMENDATIONS

The total production of the major mine of NE Tasmania was about 0.25 million ounces of gold. This would constitute a marginal target objective for an underground mining operation on a series of narrow discontinuous quartz vein type deposits.

The immediate area about Mathinna has been intensively surface prospected and any new discoveries would be of subsurface veins. Unfortunately the distribution and form of any such new mineralisation could not be accurately predicted from surface mapping and such mineralisation does not avail itself readily to geophysical or geochemical exploration techniques.

It is considered therefore that a form of regular fence drilling across the regional strike would be required to effectively explore for either extensions of the New Golden Gate zone or new zones. Such an approach would probably not be cost effective due to the limited size of any potential discovery.

Finucane (1935) noted the relatively extensive underground and surface exploration of the area, but referred to a one block of untested ground SW of the "Main Slide" between the 304 m and 426 m levels and to possible extension of the East Reef to the north.

Hughes (1947) considered that drilling was justified to explore for northern extensions of formations located in driving in the South Golden Gate workings at a depth of 121 - 152 m. Also the reference to two wide (18m and 22.8 m) vein formations here is interesting in that they were dismissed as "unpayable" at earlier times and that they occur at relatively shallow depths. Drilling as

proposed by Hughes would be required to test these zones, but this could not be recommended until any reconnaissance rock sampling was conducted.

The described quartz vein "Stockwork" at the Tower Hill mine should be located and bulk rock chip sampled making careful note of vein density. Other possible similar zones should be looked for to contribute additionaltonneage to this perhaps lithologically controlled occurrence.

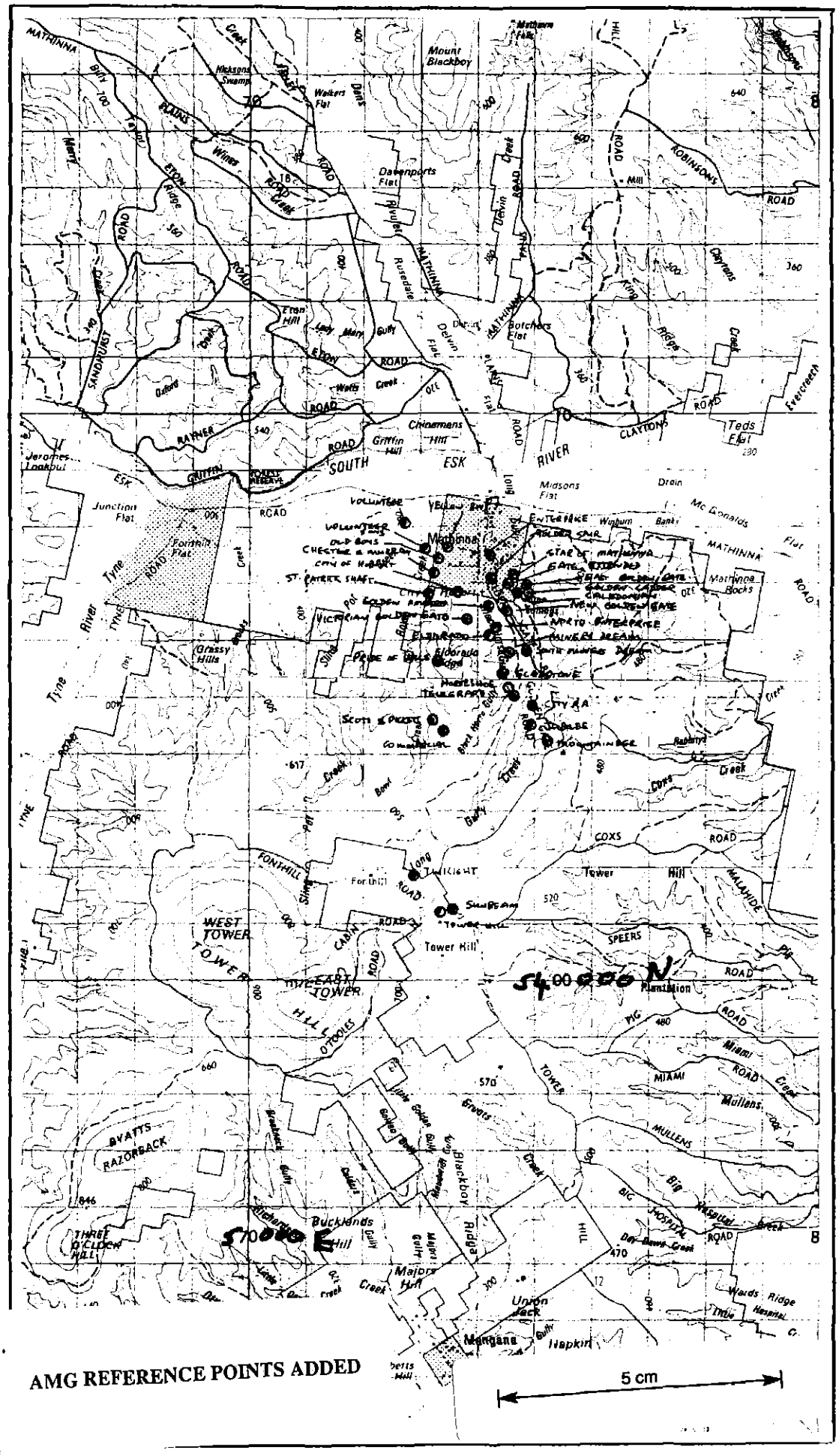


Fig 12.1 1:100,000 MAP SHOWING DISTRIBUTION OF MINES: MATHINNA GOLD FIELD

PLATE VI

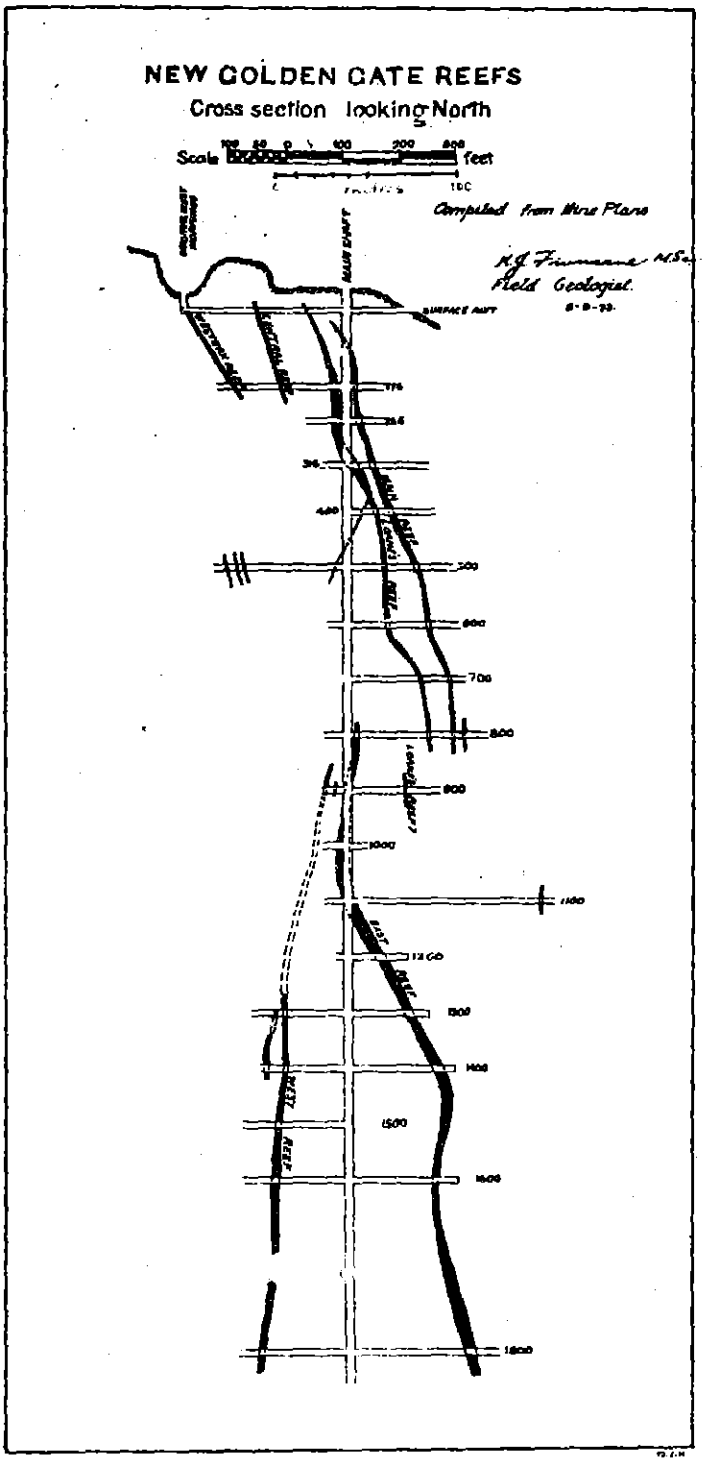


Fig. 12.2
Cross-Section New Golden Gate.

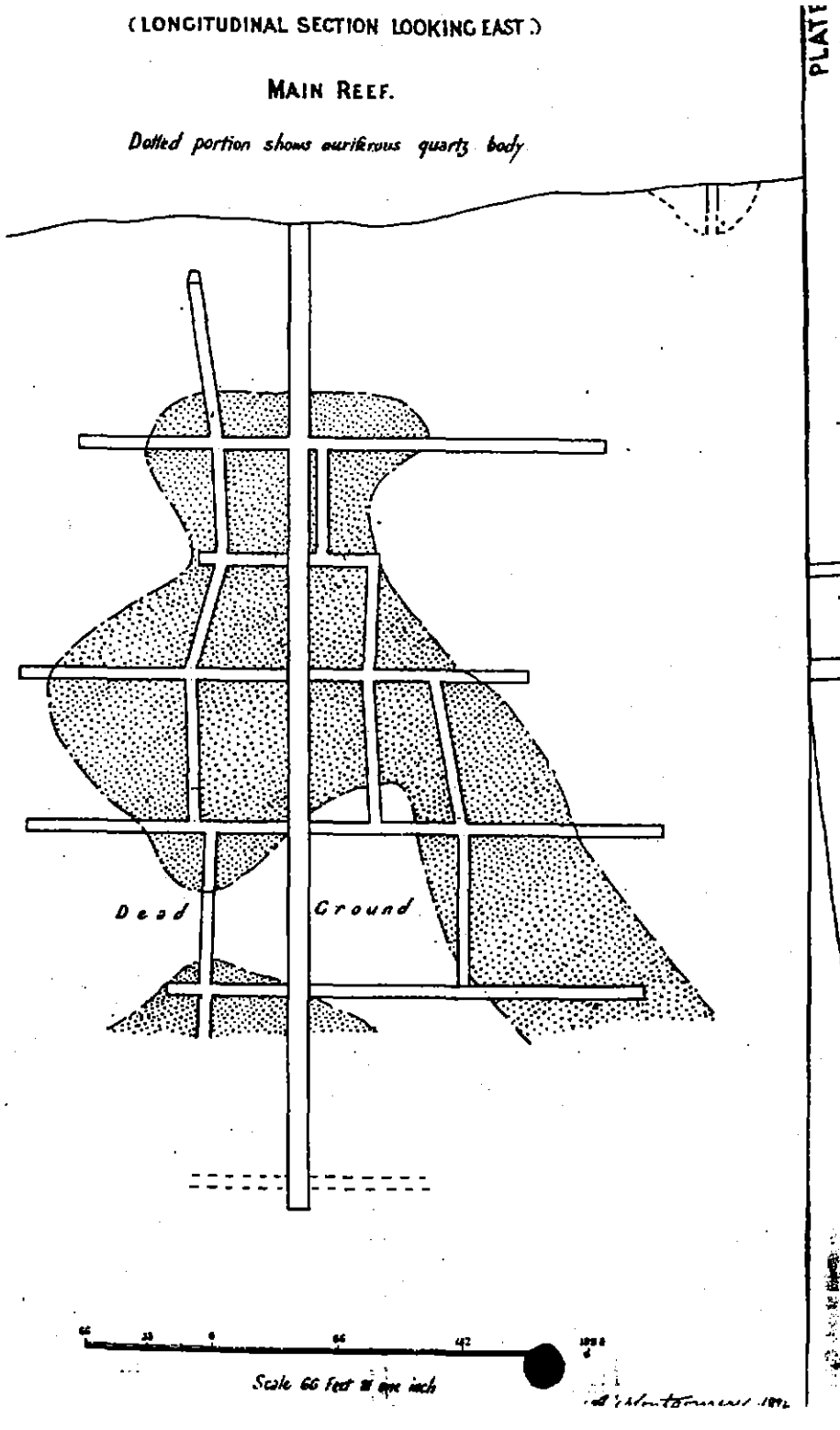


PLATE 8.

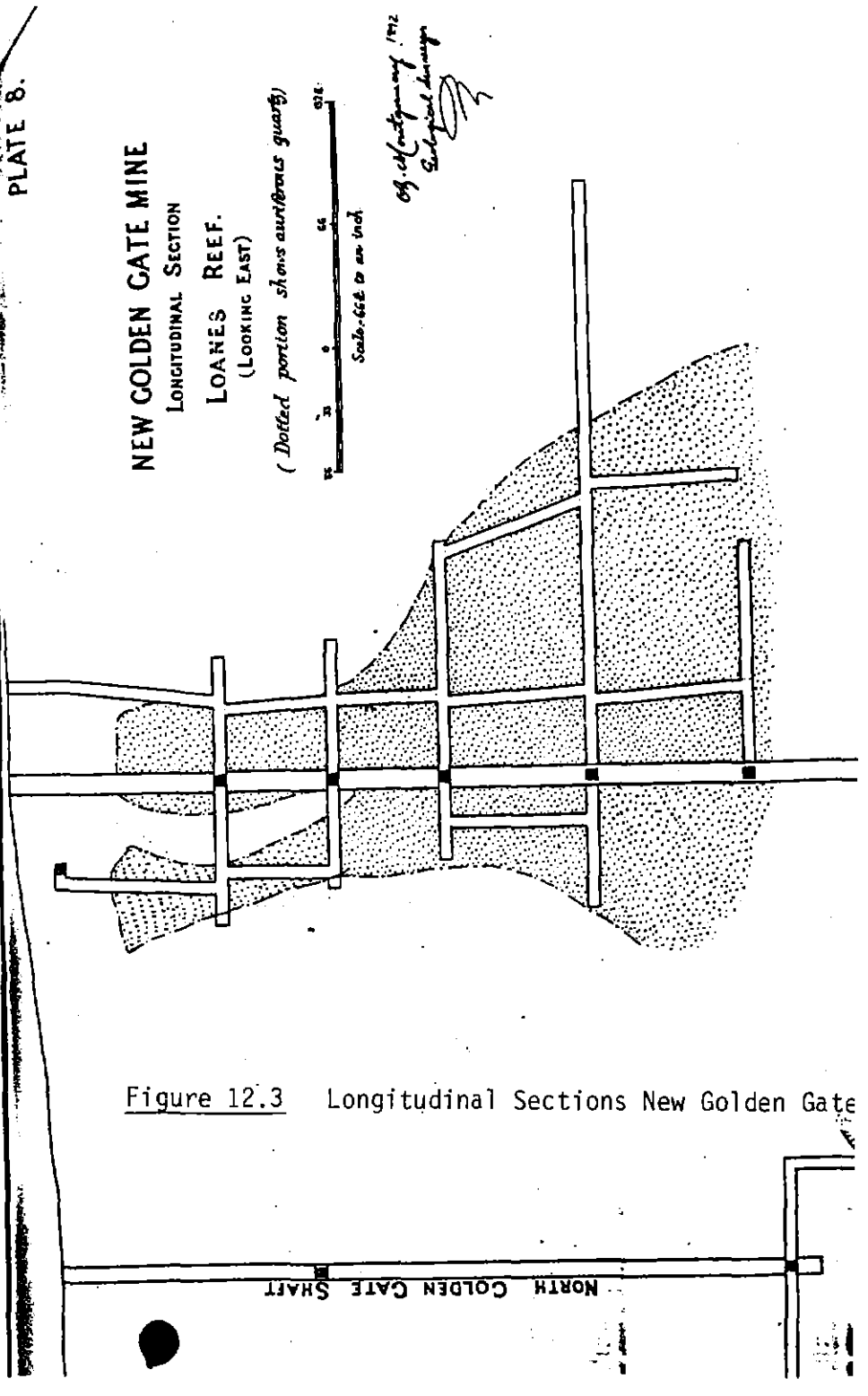


Figure 12.3 Longitudinal Sections New Golden Gate

	Recorded Gold produced (oz)	nnes ore	av. grade (g/t) Au.	max. str length (m) worked	max. depth worked	av. width(m)
Caledonian	-	-	-	60	-	0.6-1.2
Chester and Murray	90	-	-	59	106	-
City of Hobart	22,000	-	-	36	201	0.4
Commercial	-	-	-	(40)	-	0.9
East Golden Gate	-	-	-	27	91	0.3
Enterprise	3	10	9.2	21	30	0.8
Gate Extended	-	-	-	54	125	0.3
Gladstone	36	71	15.5	6	12	0.6
Golden Hinges	-	-	-	11	-	1.2
Golden Stairs	20	10	61.2	112	71	1.2
Horseshoe	50.3	89	17.3	19	21	0.9
Jubilee	59	55	32.8	213	79	0.6
Miner's Dream	433	205	64.6	52	78	0.3
Mountaineer	100	101	30.3	20	30	0.65
New Eldorado	923.5	580	48.7	40	52	0.6
New Golden Gate	253,865.1	298,700	26.0	310	580	about 1-3
North Eldorado	-	-	-	98	33.5	0.45
Old Boys	58.5	233	7.6	150	114	0.45
Pride of Hills	0.75	15	1.5	335	21	0.4
Scott & Pickett	53	159	10.2	58	189	0.7
South Golden Gate	-	-	-	10	122	1.8
Star of Mathinna	-	-	-	19	48	0.3
Sunbeam	4	12	10.2	80	(15)	1.2
Tasmania Consol.	10,997	23,987	14.0	118	487	(3.6max)
Telegraph	-	-	-	-	-	0.45
Tower Hill	-	-	-	-	30	0.3
Twilight	-	-	-	180	60	0.6
Victorian Golden Gate	-	-	-	20	-	1.2
Volunteer Consol.	1262.5	1787	21.6	42	137	1.8
Volunteer Mine	2282	7711	9.0	55	127	0.6-1.5
Yellow Boy	85	213	12.2	120	35	1.2
S. 135 P-G	-	-	-	-	-	0.3
S. 359-G	-	-	-	-	-	0.15
S. 451-G	-	-	-	(110)	24	0.6
S.1734-G	-	-	-	3.6	30	0.3
S. 10988-M	-	-	-	-	60	0.6
TOTAL	292,322.65					

TABLE 12.1 SUMMARY OF DETAILS OF WORKINGS FROM MATHINNA GOLDFIELD

MATHINNA GOLD FIELD

DATA SHEETS INDIVIDUAL OCCURRENCES

477248

LITERATURE SEARCH

PROSPECT : ALLUVIAL WORKINGS - MATHINNA. NUMBER :

LOCALITY : MAP SHEET :

COMMODITIES : alluvial gold.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Finucane refers to Black Horse Gully, Long Gully Creek; Malahide Estate, and Tributaries of the Cox Creek (Tower Hill) as having produced alluvial gold. The gravels in these areas being maximum 3-8m deep but generally ~ 1.8m. deep, although occasional shafts were sunk to 25m.
He also reported 400 oz. Au. taken from shallow workings just north of the Golden Stairs Mine shaft.

Montgomery notes that the area between Mathinna and the S. Esk River is virgin, and refers also to the valley of the S. Esk itself as being probably auriferous. once it drains the Davis Valley as well.
He notes that the amount of gold won from Black Horse Gully seems overly abundant to have been just derived from the known reefs. and reckons probably now undiscovered reefs in the area.
Twelvetrees (1906) states that about 2km x width 120m. has been worked in Black Horse Gully, where gold is coarse & waterworn. Boring (G. Webb): 87 holes 20m apart in 10 lines 200m. apart indicated av. yields 1g/m³. at depths up to 2.3m. with the values concentrated in clays immediately on the bedrock. He also refers to the valley of the S. Esk. especially Marshalls Flat where 1g/m³ panned. Twelvetrees (1914) refers to "rubby tin" in alluvials at Kennedy's Flat, presumed to be from Ben Lomond

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935, Montgomery 1892, Twelvetrees 1906, 1914.

477249

LITERATURE SEARCH

PROSPECT : CALEDONIAN MINE & ADJACENT WORKINGS NUMBER :

LOCALITY : MAHTINNA. (400m. NE. New Golden Gate) MAP SHEET :

COMMODITIES : Au

MINING HISTORY : originally worked Caledonian Co; then Gate Extended, Golden Ladder Co.
Consist of one main adit and a series of surface workings & smaller tunnels/shafts

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : In general veins trend E-W. Individually (000/65E); 126°/70NE; 073/70N; 112/60N; 093/80N; 130°/80SW; 090/70S.

STRUCTURE :

SUMMARY :

Old Caledonian Adit: extends 96m in which:
- 30-52m. are small branches and veins of quartz to 0.3m. wide. before encountering a large body of quartz and broken country. (no values given) - mullocky.
- at 60m. a reef driven on for a total of about 16m. The vein is 0.6m wide and has been stoped vertically for 22m. along distance of 8.5m, and is very irregular dividing to a more thread in the overall distance. Other similar sized quartz veins have been noted here.
- at 67m: a 16m. long drive on a 0.6-1.2m. wide ferruginous reef formation containing numerous small quartz veins.
- at 78m: irregular branches of veins and ends in black shales & quartzites.

Surface Stopes:
- Largest of these lies above intersection of adit and SE drive, and trends 073/70N. Width of Stope is 0.6-3.6m over a total length of 15m. and a quartz vein of 0.1m. width is exposed at either end. An adjacent stope lies 12m. north, is 11m. in length on quartz vein 0.1-0.3m. wide; Values of 27.5 g/t reported.
- 60m. East a line of shallow surface workings on an E. trending reef traced over 60m, of width 0.15-0.3m. and values to 35 g/t Au. Also some small shafts in the area.
- On line with reef above but 40m. E. of section boundary a deep trench 10m. long on a 0.15m. wide easterly trending reef said to contain a few g/t Au.
- Old tunnel in SE corner of section is 96m. long with irregular reef development.
- 360m. on ridge from NE corner of section are 2 shafts 4.5m. deep sunk on two 0.6m (max) wide quartz veins (easterly trending).
- An adit situated 40m. N. of the latter driven 45m to intersect 0.15m. wide reef no values reported.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : [Twelvetrees 1914 considered the area to be underexplored]

REFERENCES : Finucane 1935, Twelvetrees 1914.

477250

LITERATURE SEARCH

PROSPECT : CHESTER & MURRAY NUMBER :

LOCALITY : MATHINNA (located 200m. S. of Old Boys Mine). MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Main Shaft sunk by Tasmanian New Golden Gate who took over from original owner, Chester, in 1896. Mine then known as Hatherton. In 1900 purchased by Volunteer Gold Co. Closed in 1901. Later prospecting by Brock Bros on two small reefs NW of old main shaft.

PAST PRODUCTION : GRADE :

Total recorded 90oz Au from minimum of 52t quartz.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef attitudes 128°/72°S. - main
340°/dip W. - explored by Brocks.

SUMMARY : Tasmanian New Golden Gate Co. sunk shaft :

- at 45m. level : an E-W trending reef was driven on for 59m with an average grade of 1oz/t (but no widths given) - probably the same reef as worked at surface.
- at 106m. level : was driven to test a reef worked by Old Boys Coy. the results unknown.
- Later work involved range on the reef at 45m. level & 106m. level was extended to the reef and a new level at 76m. developed. This resulted in a large but low grade body of quartz being opened up above 45m., but at 76m. level amount of payable quartz was small.
- The Brock Bros. mat : shallow prospecting shafts on 2 small reefs as small auriferous quartz stringers to 0.1m. wide traced over 30m. before dying out. Grades of 10.7 g/t Au reported.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Fitzgerald 1935.

LITERATURE SEARCH

477251

PROSPECT : CITY OF HOBART MINE

NUMBER :

LOCALITY : MATHINNA

MAP SHEET :

COMMODITIES : Au

MINING HISTORY : Mined at least 1877-1882 when abandoned, minor workings to 1901. (workings now caved and inaccessible).
NEW CITY OF HOBART Shaft to 30m in 1910, located 80m N. of old workings - (no production)

PAST PRODUCTION :

GRADE :

no official figures - estimated 22,000 oz Au produced.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Number of veins show a variation in strike. Reef trends 020°/dip W. for 45m then turns 060°. Payable reef crosses the foliation.

SUMMARY : First developed by adit with 152m. being driven on reef of which 36.6m yielded an average of 1oz/t Au over widths of 0.9-1.2m, with the rest of the drive being poor. A smaller vein (0.1m wide) of 19.9 g/t Au. was also noted.

- The Main Shaft was sunk to 201m. Over the first 91m. the quartz was laminated with abundant arsenopyrite, and averaged 0.4m. width, with the payable shoot being 15m. long. in a country rock of hard blue slate. At a depth of 176m. the reef is reported to be displaced by a fault.
- Reasons for closure: the short shoot of payable quartz; lack of development; hard country rock; and expense in opening new levels.
- The Champion Mine in this vicinity averaged 10.7 g/t Au.
- The North City of Hobart mine averaged 3.0 g/t Au.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : [Twelvetrees (1906) considered the property undeveloped & requiring further work.]

REFERENCES : Finucane 1935, Montgomery 1892, Twelvetrees 1906.

477252

LITERATURE SEARCH

PROSPECT : THE COMMERCIAL REEF. NUMBER :

LOCALITY : MATHINNA (3.2km due S.) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef Strike 281°/80°N.

SUMMARY : Workings include a shallow shaft from which some stoping occurred and a trench extension of 9m.

Reef widths vary from a few cm. to 0.9m.

Two trenches across the line of the reef at 20m; and thence a line of trenches extends NW for 40m. Some quartz is seen on dumps but the nature of the reef "formation" is not known.

Reported values of 1.5g/t & 9.2g/t Au mentioned.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935

477253

LITERATURE SEARCH

PROSPECT : EAST GOLDEN GATE NUMBER :

LOCALITY : MATHINNA (~0·8km E.) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : fissure quartz reefs

STRUCTURE : short vein strikes 045°/vertical; in dark blue & black shales & dark qtz/ls

SUMMARY : Workings consist of two small shafts sunk on an small auriferous quartz vein. A main shaft to 60 – 91m. and an adit. Workings were early inaccessible and nothing is known of these.

- about 50m. N. of main shaft are some old workings on a vertical reef which is 0·3m. wide; and another subparallel reef 100m. NW. of shaft (of similar width) which has been traced by surface trenching along 27m.

- The New Golden Gate Co. did considerable prospecting and development work in the main shaft but obtained "disappointing" results.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES :

Fitzgerald 1935.

477254

LITERATURE SEARCH

PROSPECT : ENTERPRISE MINE NUMBER :

LOCALITY : MATHINNA MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef attitude 215°/70°W. in No 1 Shaft; 325°/80°W & 000°/80°W in No 2 Shaft; 140°/64°SW in No 3. Shaft.

SUMMARY : Three Shafts & minor trenching.

- Shaft 1 : 23m. deep with a 4.6m. long drive at the 11.5m. level. On a reef 0.2m. wide which carries 6.1g/t Au. Vein varies overall to a maximum of 0.45 - 0.8m. over which full width assays returned 3.6g/t Au, 19.8 g/t Ag. A 0.2m wide vein of 23g/t material is reported. 3 m. below this level. which has been driven on for 21m. The vein is pyritic and is really only developed over ~6m. length
- Shaft 2 : (47m. S.W. of Shaft 1) to ~ 15m. deep mine driving & stoping on veins averaging about 0.05m - 0.4m. wide carrying to 7.6 g/t Au One distances to 14m. The Mines Dept. drilled a hole to test northern extension of veins in these Shafts Hole drilled to 174m. (1923) but no assays reported, although quartz veins were recorded over a couple of 2m. intervals at ~ 100m. depth.
- Shaft 3: (140m. S. of Shaft 2), sunk by Golden Spur Co. to 30m. deep On auriferous quartz vein 0.01 - 0.05m. wide.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935.

477255

LITERATURE SEARCH

PROSPECT : GATE EXTENDED SHAFT

NUMBER :

LOCALITY : MATHINNA (NE. corner of section containing Caledonian workings.)

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : —

GRADE : —

RESERVES :

STYLE OF MINERALIZATION : quartz fissure reefs.

STRUCTURE : Shear veins Strike N. to NW.

SUMMARY : Shaft sunk to 125m; and at 122 m. level crosscut were extended 95m E, and 263m. W

- In the Western Crosscut:
  - at 55m. a drive 32m to SE on a mullocky reef formation. 0.6m wide - no values.
  - at 76m. a 0.6m. low grade quartz vein.
  - at 108m. and 110m. intersected unspecified width and grades veins of highly mineralized quartz.
  - at 143m. - lode formation: 0.3m. reef of soft clay & rubbly quartz corresponding to position of Western Reef in Golden Gate adit. (also cut in 119m & 164m levels of North Gate). A drive N. on 0.3m. auriferous quartz. - at 24m was 0.9m wide including 0.3m. solid quartz on west wall, at 19.5m. a rise put up 11m. on a mullocky reef 0.1m wide. Drive was extended to 54m. and reef remains mullocky to 0.9m. wide - no values reported.
  - At 149.6m*, 170.6m, 178.3m*, 212.1m*, 218m*, 233.8 m, 238.6m, & 254.5m. Small quartz veins were encountered some of which were mineralized (*).

In the Eastern Crosscut: - at 58.8m. a 0.6m. wide reef channel was driven to S. at 15.2m was 1.2m. wide & mineralized quartz in footwall but was broken & poor to 24.8m. - at 62.8m. several narrow (?) highly mineralized quartz veins were cut.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935.

477256

LITERATURE SEARCH

PROSPECT : GLADSTONE MINE NUMBER :

LOCALITY : MATHINNA (located 0.4km. S. of Eldorado mine) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : . 36oz Au from 70t quartz. GRADE : av. grade ~ 15.7g/t Au.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef attitude 290°/dip S.

SUMMARY : - Old shafts long inaccessible.

- A 0.6m. wide reef has been worked to depths of 12m along a distance of 6m. from the surface.
- A considerable amount of surface trenching conducted in the vicinity but nothing of a payable nature has been opened up, the veins mostly of 0.1 – 0.15m. width.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935

477257

LITERATURE SEARCH

PROSPECT : GOLDEN HINGES MINE NUMBER :

LOCALITY : MATHINNA (0.6km S. of township) MAP SHEET :

COMMODITIES : Au

MINING HISTORY :

PAST PRODUCTION : — GRADE : —

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : quartz reef 308/70°SW

SUMMARY : workings consist of an 835 m. adit :

- at 23.5m. an irregular bunch of quartz 0.6 – 1.2m. wide.
- at 33.2m. a small vein on the S. wall.
- at 41.1m. drives 4.8m. NW and 6.7m. SE on a buggy fault fissure formation 0.6m. wide containing small irregular lens of quartz.
- Only minor quartz veining in folded and contorted sheared black shale in remainder of the drive

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935

477258

LITERATURE SEARCH

PROSPECT : GOLDEN STARS AND WELCOME STRANGER. NUMBER :

LOCALITY : MATHINNA MAP SHEET :

COMMODITIES : Au

MINING HISTORY : several stages pre-1890 : initial two shafts.
post 1890 : main shaft (to 71m) suspended in 1893.
1914 : prospecting shaft North end.

PAST PRODUCTION : – GRADE : –

RESERVES :

STYLE OF MINERALIZATION : Fissure quartz reefs (short, narrow & irregular.)
[some alluvials associated].

STRUCTURE : Attitude of country rocks (slate & ssts) in upper crosscut = 325°/75°NE.
Vein attitude 330°/70°W. & Welcome Stranger strikes 077°.

SUMMARY : - Initial shafts sunk to 16m & 9m. on outcrop and veins stoped to surface

- Main shaft sunk to 71m. with crosscuts driven (252°) at 46m & 71m. Levels

The upper crosscut intersected an 2·4m. wide formation consisting of 0·3m-1·2m of quartz vein on the footwall; an intermediate zone of quartz veined sandstones, and 0·6m of quartz veins on hangwall. This was driven on for 16·5m (no values given)

In the lower crosscut the formation was driven on a total length of 112m. but the reef was ill defined and "poor" in value.

- A lode prospecting shaft was sunk to 14m. on north end of reef and 10t. quartz returned 16g/t Au. from a 0.1 – 0·15m wide reef channel

The WELCOME STRANGER shaft was sunk to 12m. but only reef channel was found and was not mineralized.

South of the Welcome Stranger another shaft was sunk to 6m on white quartz which carried some gold (no values given).

- Noted : impoverishment of reef where it transverses quartzites.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935 (summarizes Twelvetrees & Montgomery)

477259

LITERATURE SEARCH

PROSPECT : HORSESHOE MINE NUMBER :

LOCALITY : MATHINNA (0.6km. S. of Miners Dream) MAP SHEET :

COMMODITIES : Au

MINING HISTORY : Original work by Turner et al. - (Horseshoe G.M. Co.); and was taken on by the Volunteer Co. prior to 1905. Production recorded to 1906

PAST PRODUCTION : total recorded 886 ore for 50oz Au. GRADE : average of milled rock stated as - 6 g/t Au.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef formations strike 325° with limbs of reef dipping 20-30°. Saddle reef formations.

SUMMARY :- Originally an underlay shaft was sunk to 21m. with 9m. driving, however formation was lost 1.8m. from the surface. The Volunteer Co. later drove an adit from the shaft across the formations which it intersected at 9m. & 13m. and was stoped out. The formation was driven on for 19m (at 140°) in which it was 0.3-0.9m wide but extent not fully known.

- The formation consists of a number of quartz veins in a bed of quartzite (1.2m thick) underlain by slates folded in the form of an anticline. (= Saddle reef) Quartz veins occur on bedding planes between the quartzite & slates and penetrate small cracks and joints in the quartzite in particular. Small veins penetrate below the anticline.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Ethnicam 1935

477260

LITERATURE SEARCH

PROSPECT : JUBILEE MINE. NUMBER :

LOCALITY : MATHINNA (2·8km SSE of township) MAP SHEET :

COMMODITIES : Au, Ag

MINING HISTORY : Discovered pre-1870. Derby Co. 1870-1881: surface stoping, shaft on Derby Reef, adit on Flat Reef; Jubilee Mining Co. 1887-1892, tributors worked mine, mainly Flat Reef; Tasmanian Exploration Coy 1896-(1912) conducted shaft extension and development on Derby Reef; New Jubilee G.M. 1913-1916 development and discovered Lyons Reef; Messrs Brock + Soloman 1923 - ? Prospected northern end.

PAST PRODUCTION : GRADE :

recorded : 59 oz Au from 55t quartz.
Most of which came from surface workings averaging 10 g/t.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reefs are of the quartz-gold-arsenopyrite type the latter being abundant but considered less favourable to gold than base metals where they occur. Noted the presence of some calcite at deeper levels. The reefs vary in attitude, the vertical parts of the Derby & Flat reefs outcropping at 328° strike, parallel to foliation, but sections may follow bedding or cut across both. A suggestion of saddle reef formation following folding.

SUMMARY : Faulting is of minimum disruptive extent, but a small "slide" seems to have localized ore shoots in places. The localization of the various small shoots from .. ? surface enrichment, reef junctions, etc.

The Flat Reef: Its outcrop extends 213m. being parallel to the Derby reef 6m. to SE. Four adits and several shallow shafts are described - typically averages 0.3-0.6m. wide (max. 1.2m) and is commonly described as being horizontal (over 9m) at depth. The Reef is irregular with dense white quartz veins through reef formation. Typical assay values 1.5 - 3.0 g/t Au; 1.5 g/t Ag with a maximum of 23 g/t Au over 0.45m. Quartz veins typically occupy only ~ 1/3 of the reef formation width; & gold values irregular.

The Derby Reef: doesn't extend further N. than No.2. adit. Surface stoped (attitude 328°/85SW) and stoped in adits over distances typically of 30m. over widths of 0.15-1.5m. A branch with Stevens Reef (300/65SW) to 0.4m wide and junction appears to form a Saddle reef along the crest of an anticline (with minor g.v. above crest) as a flat cap pitching 20°SE. Driving at the 48m level followed the reef to the "Slide" (050/40SE) and the Derby "made" strongly to the south of the "Slide" in association with another reef (Lyons) to the east; and here was 0.76m thick carrying 6.4 g/t Au.

PREVIOUS COMPANY REPORTS : (followed on seperate sheet).

CURRENT MINING TITLE :

RECOMMENDATIONS : [Twelvetrees considered work required at that time.].

REFERENCES : Nye 1924, (in Finucane 1935), Montgomery 1892, Twelvetrees 1906, 1914.

477261

LITERATURE SEARCH

PROSPECT : Lowes Show

NUMBER :

LOCALITY : MATHINNA (16km N. of Fingal and 11.2km E. of Mathinna.)

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : 1923 - (1927)

PAST PRODUCTION : -

GRADE : -

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Reef attitude 240°/25° E varies in thickness 0.07m - 0.4m width

SUMMARY : Three underlay shafts (to 12m); one shaft (to 15m) and a number of trenches have exposed a number of narrow gold bearing reefs.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : [Nye (1927) recommended drilling to intersect at 30m. depth]

REFERENCES : Nye 1927

477262

LITERATURE SEARCH

PROSPECT : Miners Dream Mine workings NUMBER :

LOCALITY : Mathinna (1.6km SE. on Golden Gate Ridge) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Discovered 1903.
Active 1923 - 1926 as the Miners Dream G.M. Co.

PAST PRODUCTION : 1904 - 1927 : 433.3oz Au from 202t. quartz. GRADE :
Note this mine required grade of 1oz/t for economic working.
All production recorded, from underlay shaft workings.

RESERVES :

STYLE OF MINERALIZATION : quartz reef : To located on the S.E. projection of the New Golden Gate "Slide" and as it is also located on a minor fault it may represent an association with the larger feature.

STRUCTURE : Reef Structure : range 350/60E , 200/40E.

SUMMARY : - Originally a small shaft sunk to 6m. intersected a 0.2m. wide reef which was followed down in an underlay shaft for a total distance of 78m. over which the vein varied 0.3m - 4.8m. in width. Levels were developed at the 36m and 76m. distances. In the former driving was carried out along ~ 52m. over which shoot distances of upto 15m. of 0.15 - 0.3m. wide quartz vein were stoped. Veining being generally irregular + narrow. At the deeper level, the vein was seen to be 36m. in length but was only mineralized in very narrow sections. and in the irregularly fractured country rock many branch veins are found.

- a nearby adit exposed a 4.5m. long, 0.2m. wide vein with ore shoot and other veining reported to carry 18.3g/t gold. over limited distances.

- In 1923 the Miners Dream G.M.Co. sunk a new shaft (120m. distant) to 85m depth and a 92 m. crosscut was unsuccessful and mine closed 1926.

NOTE: South Miners Dream adit: lies 200m. from new shaft, was extended 123m and although a number of small quartz veins (to 0.15m) were intersected, which were auriferous, most were barren and no production recorded.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935, Reid 1925

477263

LITERATURE SEARCH

PROSPECT : THE MOUNTAINEER MINE

NUMBER :

LOCALITY : MATHINNA

MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION : 100 oz Au from 100t quartz. GRADE : ~ 1oz/t. Au.

RESERVES :

STYLE OF MINERALIZATION : Quartz reef

STRUCTURE : Quartz vein 310°/vertical.

SUMMARY : Three adits driven and a shallow shaft.

- The Shaft: was sunt on a 0.65m wide quartz vein to 30m returned values to 53g/t
- Adit NO 1: (located 12m SE of shaft) driven on reef for 20m. Quartzose formation appears to be 0.15-0.3m. of quartz (max 0.6m). Values of 13.8 g/t Au reported.
- Adit No 2: (located 21m below NO1, and 39.6m North). in intensely sheared slates with numerous large and irregular patches and veins of quartz which have no general attitude (may cross then follow cleavage). Quartz is generally white, vitreous and barren.
- Adit NO 3: (located 6m. W. of NO 2 at same level.) - extends 63m. displays occasional narrow quartz veins and at 30m. a flat vein (over 1.2m width) of irregular bunches of quartz. Between 36.5m - 58m. rock is impregnated with innumerable irregular veins and bunches of quartz of average maximum width 0.1m. (some to 1.2m) and mostly highly deformed. As in NO 2 Adit these appear barren
- Note: near the NW corner of the section a 0.6m wide quartz vein has been exposed over 7m at the surface (105°/75°S); and also other small reef exposed. No information on gold contents given. Various other trenches, adits etc are found in the area on narrow quartz veins which dont persist for any lengths.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935, Twelvetrees 1914.

477264

LITERATURE SEARCH

PROSPECT : New Eldorado

NUMBER :

LOCALITY : MATHINNA

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : began. 1871 ; New Eldorado Co. to 1892, mine workings until 1909.

PAST PRODUCTION : pre 1886 estimated 500t. quartz mined, to include 29t for 100 oz gold.
period 1886 - 1892 : 810 oz gold from 535t. quartz.
in 1909 : 13½ oz gold from 6t. quartz

GRADE :

RESERVES :

STYLE OF MINERALIZATION : Quartz vein formations. - two distinct reefs trend ~ E-W with an attitude of 300°/65°NE. - 65°SW. There is some evidence of folding and bedding control.

STRUCTURE :

SUMMARY :

(1) SURFACE : (a) The westerly reef worked in an open cut 2m. long x 6-18 m. deep and shallow pits extend along 45m. Vein is 0.15 - 0.6m. wide.
(b) Second reef 15m. N. of the open cut : two branches appear to have been worked and connect with stopes in adit. Quartz vein of 0.9m. width exposed.

(2) ADIT : driven SW to intersect veins ~ 30m. below outcrops :

(a) NO 2 reef cut at 89m. where 0.02 m. quartz vein driven SW for 10m thence bends and continues to 41m. Reef widens to 0.6 m. A "slide" cuts drive at 15m and although does not cut the reef appears to had some influence on the gold distribution, the slide being a quartzitic band occurring on a bedding plane. Payable shoot extended from 15-30m in the drive and was stoped upwards to surface stopes.
Montgomery describes the reefs as being terminated at western end of drive by faulting
(b) NO.1 Reef cut at 95m, and drives extend E-W over a total distance of ~ 59m. where the reef varies in width 0.05m - 3.6m. (av. ~ 0.3m) and can be seen to run into the bedding in places.

(3) SHAFT : sunk to 52m. near the southern boundary of the section; a drive to the N.W at the 49m. level small veins intersected but records of the work are unknown.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935.

LITERATURE SEARCH

477265

PROSPECT : New Golden Gate mine

NUMBER :

LOCALITY : Mathinna

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : discovered 1887 in older adit; worked 1888-1912 by New Golden Gate Co. Post-1904 development below the 396 m. level unsatisfactory as grade diminished, although reef strong, 1904-08 developed shaft & winze to 580m. level. Mine closed 1912.
1912-13 a syndicate worked surface - 152m level. In 1923 purchased by Golden Gate Consol. N.L. dewatered mine and carried a small amount of unsuccessful drill & prospecting. Finally closed 1926

PAST PRODUCTION :

Total mine production : 253,865.1 oz. Au from a minimum of 298,698 t of ore & treating of some tailings.

GRADE : economic cut-off was 11.6 g/t Au
average recovered = 0.850z/t Au (26 g/t)

RESERVES :

STYLE OF MINERALIZATION : Ore averages 1-1.5% sulphide, which itself contains 1-4 g/t Au.
A series of six major subparallel fissure quartz reefs were worked (see over)

STRUCTURE : Note the control of the "main slide" (330/70°SW) which varies in thickness up to 1.2m, and occassionally contains irregular lens/veins quartz. Several important veins occur NE side of "slide" & on SW. side, but it is only occassionally that the slide itself contains mineralization. It occurs along the E. margin of the zone of close folding, and the structure has not been located outside this mine.

SUMMARY :

- This mine contains the longest distances of reef actually worked in the Mathinna Field - viz the East Reef over 155m and the Lower West Reef over 310m. (into the Tas. Consol. Mine) but these are exceptional

- There has been a suggestion that the impoverishment in grade in the lower section of the mine is possibly associated with a general observation that poor values associated with quartzites as these increase at depth. (but is unsubstantiated).

- Twelvetrees notes that auriferous reefs generally strike E. of N. (ie. cross foliation).

- Finucane (1935): noted:
  (1) a long crosscut was carried out to SE & E at the 152m level (total of 250m. driving)
  (2) fairly certain that all payable ore left by the New Golden Gate Co. was extracted save pillars.
  (3) close inspection of mine plans shows a large block of untested ground to the SW. of the slide between the 304m and 426m. levels.
  (4) little driving has been carried out on the East Reef north of the main shaft & refers to drill intercepts at 365m - 487m. levels in the North Gate workings (Tas. Consol.).

- Hughes (1947) proposed site for one drill hole to explore for northern extension of formation cut in the South Gate at a depth 121-152m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

A FULL DESCRIPTION OF WORKINGS IS ATTACHED SEPARATELY & DESCRIBED IN TEXT.

REFERENCES : Finucane 1935, Hughes 1947, Twelvetrees

From Finucane 1935:

Mining operations have extended to a depth of 580m. with levels at the following depths below the main shaft collar: 19m = old adit level), 35m, 53m, 71m, 96m, 121m, thence 30m intervals down to 578m. (except 518m); and a winze from 578m to 580m.

The Principal Reefs are: Upper West Reef; Central Reef; Loanes Reef; The Main Reef; The East Reef; Lower West Reef.

The workings were essentially inaccessible in 1935.

(1) THE UPPER WEST REEF:

from surface to 53m. level; max. dilution 53m. on adit level where 0.15-0.9m. wide. Crushings from adit level gave small parcels ore (to 300t) ranging 6g/t - 200g/t Au. At the 53m. level it was 1.2m. of solid quartz with gold but diminished rapidly over 9m. Quartz veining west of the main slide at 96m. and 152m. levels possibly represent this reef.

(2) THE CENTRAL REEF:

at the adit level - an irregular mass of quartz over a width of ~3m. with a main branch 0.9m. wide; at the 53m. level, 2 main branches have joined and below this level it is considered that the Central Reef channel joined the main channel formed by the junction of the Loanes & Main Reefs.

(3) LOANES AND MAIN REEFS:

These being the most important reefs worked to the 274m. and 243m. levels respectively.

Loanes Reef did not outcrop, was cut in adit level where it was 0m. wide - and on this a winze returned a few tons of 1.4oz/t Au. after the New Golden Gate Coy. formed, a main shaft sinking began in 1887. At 30m. in this shaft a new parallel reef (Main Reef) was located.

Above the 35m. level, both reefs contained only short shoots of payable ore (and similarly at the 53m. level).

At the 71m. level: Loanes Reef was 2.7m. wide carried 2oz/t Au. and Main Reef also increased in width. General attitude was 000°/80°E, north of the shaft, but S. of the shaft the veins merge.

Above the 71m. level Loanes Reef was stoped along 30-51m. and Main Reef 30-60m. with an average width 1.8-2.4m.

On the 96m. level: Loanes Reef stoped over 79m. with a width to 6.7m. and Main Reef stoped along 70m. for widths of 5.4m. and where they intersected gave a payable body 13.7m. long x 10.6m. wide.

From the 96-243m. levels: Loanes reef ranged from 36-67m in length (av. 45m); at the 274m. level, Loanes Reef was 24m. long but dwindled to a "track" below this. Main Reef was stoped over 30m. at the 121m. level; 45m on the 182m. level; 9-21m. on the 182m-243m. levels and below the 243m. levels the Main Reef petered out.

(5) The Lower West Reef: At the 396m Level: this was 67m. West of the East Reef. and was driven on for 79m. north towards the old consolidated boundary. where the reef track was 2.1m. wide containing small barren veinlets of quartz. Some winzes down to 426 level but no production (?)

At the 426m. Level: the reef thought to be 2 branches ~ 9.1m. apart, driven on for 192m. Was 3.6m - 4.5m. wide and over 30m section it varied 1.2 - 3.6m. in width and carried 12 - 36 g/t Au. This shoot extended vertically for 27m. and stoped along 76m length. The reef continued as occasional bunches and was 1.8m. wide where it met the "Slide" - small veins passed through the "Slide". The northerly section of drive on this level has quartz 1.5 - 3.6m. thick running 7.6 - 21 g/t Au. and was stoped above to 15m. before it diminished. The second branch of the reef at this level showed bands of quartz 0.3 - 1.8m. thick.

At the 457m. Level: driven on for 137m the gold content varied and much was low grade. Stoping over 24m. for heights to 18m. on reef 6m. wide carrying 5.3 g/t Au. Later workings by Golden Gate Consolidated sunk to a 469m. level and obtained some 4.5 - 30 g/t Au. rock.

At the 487m. Level: Driven on for 44m. on 3 - 3.6m. wide reef which was low grade and contained 1.5m. of lode slate. Some values of 7.6 g/t from end of drive.

At the 548m. Level: driven over 116m, the gold content erratic but contained 36 m. section of 39 g/t Au, but the rest was "poor" - averaging 8.4 g/t Au. Below this a winze sunk 24m. showed 3m. reef with 4.5 g/t Au.

(6) Other Reefs: mainly in workings S. & SW of Shaft.

New West Make Reef: at 304m. Level a S.W. side of "main slide" to the 182m. level; was high grade; was 30m. long at 274m. level, and 90 m. long at 213m. level.

Zig Zag Reef: at 152m. level: a SW trending vein running off the "main slide" Open over 21m; is 5.2m. wide and graded 1.2 oz/t Au.; This was stoped up 36.5m. At South end the vein ran zigzag course through slides and driven over 60m. found to be discontinuous, but several zones were stoped over distances of ~ 5m. & vertically for 30m.

Reef at 96m Level: intersected by a drive at the main Slide possibly the ? Zigzag Reef.

The Zig Zag reef was also developed at 182m, 213m, & 243m Levels.

Rich intersection ore shoot: was worked down to 243m. (pitches SE) The Southerly extension of the reef channels deviates into the "main slide" (330°/70°SW) which is a fault zone to 1·2m wide, is clay rich. Similar parallel fault zones occur which appear to control quartz vein mineralization.
Average values from Loaves and Main Reefs (extracted) = 27·5g/t Au.

Work subsequent to 1912: dominantly, extracting blocks of ore left, but some drives and stopes were extended which shows that the original mine did not fully delineate the payable ground. eg. 71m. level, NE branch of Loaves Reef driven an extra 12m. (width 1·2m); No2. level north drive extended 25m; No 4 level Loaves Reef extended 36m. and also note No.7. level (182m). the north drive on the Main Reef was extended 50m. from main crosscut on 0·9m. quartz which although showed some gold, was not payable.

(4) The East Reef:

This was discovered on the 274m. level in 1896, and has been developed from 243m → 579m. levels. Attitude of 000°/vertical, and lies 15m. west of Loaves Reef at the 274m. level. The reef dips 65° (E) between 335m - 487m levels, otherwise is essentially vertical. Has been stoped 243 - 274m. over 39 - 70m. lengths to a width of 1·2 - 3·9m. At the 365m. level; reef was driven 143m, was initially 3·6m. wide but was very poor (over 76m), but over last 57m. reef was 3·6m. wide and graded 26 g/t Au. - was stoped up to 335m. level over 60m.
At the southern end a shoot runs with the "Main Slide" (trends NW) and 60m. of driving on this revealed broken and irregular veins of quartz similar to that seen in the displaced reef. (Pre-existing fault control.) South drive on reef continued a further 82m. and after passing through the "slide" values diminished to 13g/t Au.
Note that at this level a crosscut from north of "slide" revealed 3m. of quartz reef formation containing bands of quartz 0·15-0·3m. in thickness, 57m. E. of the reef.

At the 396m. level: reef is 1·2m. wide (to 1·8m) over 30m. has values 4·5 - 13·7g/t Au. Driven on for 164m.
At the 426m. level: driven on for 152m. To to 7·9m. wide but poor values 0 - 45 g/t. with the bulk of the driving on 1·5 - 4·5g/t Au. Stone. (presumably left).
At the 487m. level: Driven 85m. on 1·8m. wide reef carrying 9 g/t Au to "poor" grade (ie. variable), but a 4·5m. winze at north end returned 43t quartz for 10 g/t. Au. from a 1·2m. wide reef. Values rather erratic.
At the 548m. level: reef was driven on for 120m., but it died out to south, the bulk of which ran 1·5 - 3·g/t Au and was generally poor. Some patches of 15g/t were recorded over widths of 1·5 - 4·5m.

but results appear unsuccessful.
New driving along the Zig Zag reef at 182m. Level by Golden Gate Consol. discovered an E-W striking reef which was driven on for 30m., it being 0.6m. wide running 10z/t Au. This could not be traced below.

Note: This mine contained the richest ore shoots in the Martinna field. eg.
- High values of 80oz/t Au. came from sulphides at the 487m. Level.
- where Loanes and Main Reefs intersected 71m - 243m levels.
- a rich shoot occurs on the East Reef at the 365m. level near the intersection with the "main slide" as were a number of other main rich shoots.

477270

LITERATURE SEARCH

PROSPECT : NEW GOLDEN GATE TAILINGS DUMPS NUMBER :

LOCALITY : MATHINNA MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

On the basis of a boring programme conducted by the Mines Dept. The following reserves were calculated :

- 440,538 tonnes of tailings contain a total of 22,550 oz. gold at an average grade of 1.6g/t to an average depth of 3.35m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Hughes 1948

477271

LITERATURE SEARCH

PROSPECT : NORTH ELDORADO NUMBER :

LOCALITY : MATHINNA (1km. south) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Three shafts, some surface stopes and trenches and an adit.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz fissure reefs.

STRUCTURE : Vein attitudes are 280°/80°S.
Bedding has had some influence on reef occurrence.
Payable reefs cross foliation.

SUMMARY : 1) Shaft to 33.5m. sunk on a vein to 0.45m. wide & driven to 98m.

2). Another shaft located 40m. to west is 6m deep, and a line of surface workings extends for 30m.

3). An adit (7m) was driven to intersect reef above, but failed although several zones of quartzite impregnated with quartz veinlets and other small (0.3m) veins some of which are associated with anticlinal structures. A small amount of driving and sinking done but this found no auriferous material. Montgomery reported some quartz from the workings to return "poor" values.

4). A 37m. deep shaft in the N.E. portion of the section which had an apparent objective to crosscut and test the supposedly faulted portion of the New Golden Gate Reef south of the "Slide". No records of this work. [Note: from elsewhere it seems the "slide" did not actually structurally displace the reefs.]

5) Montgomery described a rich shoot in Adit as occurring close to a fault or quartzitic bed as a possible example of enrichment.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Fitzgerald 1935.

LITERATURE SEARCH

477272

PROSPECT : THE OLD BOY'S (BROCK BROTHERS) NUMBER :

LOCALITY : MATHINNA MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Active 1923 – 1931.

PAST PRODUCTION : Total recorded 58.5oz Au. GRADE :

Three crushings reported : 33.6g/t from 20t surface workings
: 6.1g/t from 100t
: 4.6g/t from 110t } from development down to 114m. level.

RESERVES : Most gold production abbarently came from surface workings.

STYLE OF MINERALIZATION : quartz reef.

STRUCTURE : Reef Strikes 030°/NW dip.

SUMMARY : Originally a shaft was sunk on a 0.2m. wide auriferous quartz vein to a depth of 114m.. Typically the reef was worked along ~36m. on narrow quartz veins (0.05m – 0.3m.) wide which carried a little gold. Many were barren. Typical values were max. 0.45m. width of 4.6g/t gold; or 0.1m. width of 23g/t Au with occasional small high grade veins to 20g/t Au;.
Auriferous quartz veins did not persist in length and a typical shoot was 24m. long over widths of 0.1 – 1.2m., in a quartz vein that persisted 150m. in total strike length. Vein at deepest level carried only "a little" gold.

- Note: A large quartz vein outcrops to the west of the main shaft was worked by the old Black Boy Co. prior to 1892. A shaft sunk to 36.5m and two veins which were intersected were driven on for 33m, over which distance the reef varied in width 0 – 3.6m. Grades reported as 6.1g/t to 15.3g/t. Au. On the whole this reef was found to be unpayable and is barren along the greater part of its length.
- Dawn of Hope workings: Twelvetrees described a 6m. shaft located 122m. N. of the old Boy's workings. Limited amount of driving (10m) gave 10.5oz Au from 22t.

PREVIOUS COMPANY REPORTS :

- Most reefs in this area are persistant to ~92m. and are intermittently gold bearing.

CURRENT MINING TITLE :

RECOMMENDATIONS : [Nye (1927) proposed drilling to depths of 76m. below workings - never done.]
[Reid (1929) considered some stratigraphic control in mineralization & also that main reef above to be more promising at 92m. level than surface

REFERENCES : Finucane 1935, Nye 1927, Reid 1929, Twelvetrees 1914.

477273

LITERATURE SEARCH

PROSPECT : PRIDE OF HILLS REEFS NUMBER :

LOCALITY : MATHINNA MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : Early workings produced 80-90t. GRADE : ~ 1.5g/t quartz of which 15t averaged 1.5g/t gold.

RESERVES :

STYLE OF MINERALIZATION : quartz vein. with associated gold, pyrite, arsenopyrite, galena.

STRUCTURE : Vein attitude 348°/ steep N.W. dip.
Country rock : quartzites predominate over slates.

SUMMARY : Main lode is a quartz vein 0.15m - 0.9m wide (av. 0.3m) which has been traced over 335m. Early workings included a shaft to 21m. on a quartz vein to 0.3m wide, and an adit (100m. lower down hill) being 15m. in length on the vein av. 0.5m wide. Quartz is white and vitreous with only a little arsenopyrite and pyrite.
Twelvetrees sampled a new shaft being sunk at N. end of the reef (0.2m. wide) to be 2.8 g/t Au & 0.3 g/t Ag over 0.15m. He noted that small gold bearing quartz veins followed joints in the quartzite.

- A 0.45m. wide quartzose formation situated 180m. south of the adit is thought to represent an extension of the main reef, but although containing py, cob, ga crushed samples did not reveal gold in the pan.
- A parallel reef located 60m. E. of the shaft has been traced over 76m but no further details given.
- Although the reef has been traced over a considerable distance, values are low.
- Commended that presence of galena in the Mathinna field generally regarded as a favourable sign.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935, Twelvetrees.

LITERATURE SEARCH

477274

PROSPECT : SCOTT and PICKETT

NUMBER :

LOCALITY : MATHINNA, (32km SSW)

MAP SHEET :

COMMODITIES : Au

MINING HISTORY : Mining ceased 1908

PAST PRODUCTION : Total production reported 53 oz Au from 159t.

GRADE : 0.33 oz/t. au. produced.

RESERVES :

STYLE OF MINERALIZATION : fissure quartz reef.

STRUCTURE : In northern adit quartz vein attitude : 027°/80° nw
Rock foliation : 055°/SE dip.

SUMMARY :- In Northern Adit: driven 30m. on a grey seam containing occassional small vein of quartz typically 0.1m. wide over 6m. lengths hence narrowly to 0.02m.

- In southern Adit: Open stopes indicate a shoot ~ 9m. long and 15m. high to have been removed on veins 0.2 - 0.7m. wide The adit is 33.5m in length and is typically a greyy track with narrow generally unpayable quartz irregularly developed.

- A Shaft to 189m and a crosscut to test reef a depth. Driving includes a total of 57.5m. On a 1.2m. reef channel with a 0.1m. vein of quartz the remainder being scattered quartz, grey and slate. Widest quartz development is 0.35m. over 6m. length. Overall reef is irregular & narrow. (another short section which was stoped was of 9m. length of 0.9m. width).

- Overall the ore shoot mated was 9m. in length, 34m. vertically and of width of quartz vein 0.25 - 0.9m.

- A reef called OBRIENS REEF located 180m. to SW. is 0.5m. wide but non-auriferous its attitude is 105°/dip S.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935, Twelvetrees 1907

477275

LITERATURE SEARCH

PROSPECT : SOUTH GOLDEN GATE NUMBER :

LOCALITY : MATHINNA MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : A shaft to a depth of 122m. located 382m. S.E. of the New Golden Gate Shafts.

Work was suspended prior to 1906.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz reef

STRUCTURE :

SUMMARY : - At the 60m level: an eastern crosscut to 53m. showed a 1.8m. reef formation driven on for 10m. but was not mineralized. considered to be the Snake reef as at surface.

- At the 122m. level (corresponding to the 97m. level of the New Golden Gate Mine) crosscuts were extended 126m. west and 150m. east and an 18m. wide extension of the ? Snake reef, and at 25m further east, a 22.8m wide formation was cut. However no driving was carried out, presumably because these formations were found to be barren.

Note: Hughes (1947) considered that the 122m. level, east crosscut stopped just short of the "main slide". He considered that major formations cut on this level could represent extensions of Loaues Reef & should be tested by drilling. He proposed one drill hole to determine if reefs occur on SW side of "main slide" and if formations cut above improve in depth.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935, Hughes 1947. (Twelvetrees 1906)

477276

LITERATURE SEARCH

PROSPECT : STAR OF MATHINNA MINE NUMBER :

LOCALITY : MATHINNA MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : abandoned 1906. GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Main shaft collared 240m. N. of the Gate extended workings; with another smaller shaft 20m to South.

Main Shaft :- 47.8m. deep and at 15m and 18m. two gold bearing leaders were passed through.

- at 45.7m a crosscut was driven for a total of 19m. this encountered a 0.3m. wide quartz vein (150°/E dip) which consisted of solid quartz on clayey walls. it was followed for 6.4m. but was non-auriferous.
An other 0.6m. wide quartz vein was similarly non mineralized.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935 (quoting Montgomery).

LITERATURE SEARCH

477277

PROSPECT : SUNBEAM WORKINGS. NUMBER :

LOCALITY : MATHINNA (260m. NE of Tower Hill Shaft) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : very little information available, worked with little success closed 1897

PAST PRODUCTION : in 1908 40z Au from 12t quartz taken by prospectors from old workings GRADE :

RESERVES :

STYLE OF MINERALIZATION : fissure quartz veins

STRUCTURE : Main reef attitude 290°/75°S (adjacent reefs have similar attitudes)

SUMMARY : - 20m. NW. of an old adit a prospecting shaft was sunk on a vein and 40m. further to the NW another prospecting shaft was sunk on a reef formation 1.2m. wide consisting of several 0.05m. wide quartz veins in small fissures in the slates.

- The main reef occurs 80m. NW. of the main shaft and has been trenched over a length of 67m. but is only 0.15m. wide.

A small line of alluvial workings extend NE from stoped area.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935.

LITERATURE SEARCH

477278

PROSPECT : TASMANIAN CONSOLIDATED OR NORTH GOLDEN GATE MINE

NUMBER :

LOCALITY : MATHINNA. (80m. N. of New Golden Gate Shaft & 8.5m. vertically below.)

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : A shaft sunk to a total depth of 487m. Mine closed 1908, now inaccessible. The shaft by the North Golden Gate Co. commenced prior to 1890, and a succession of owners until the last being the Tasmanian Consolidated 1908. In 1914 the Moses party that worked the New Golden Gate at that time, took over.

PAST PRODUCTION :

GRADE : average recovered grade is 0.45 oz/t ≈ 14 g/t. Au

Total recovered 10,997 oz Au from 23988 t. quartz (some of this gold being recovered from tailings)

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : The reefs entered the property at the 426 level from the New Golden Gate Mine.

Montgomery describes mine to 45m, 119m. levels.

Twelvetrees describes 164m, 274m, 304m, 335m, 365m, 396m, 426m. levels.

The 457m. and 487m. levels described from Mines Plans & Mines Secretary Report.

The above summarized by Finucane 1935 and briefly sketched on attached sheet over.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935.

45m. level: driving for 6m. on "Loanco" reef extension, being 0.6m. broken slate and quartz – no gold. Attitude 340°. 20 m. west of this reef a 1m wide reef showed traces of gold.

119m level: probable extensions of the Central and West Reefs as quartz veins and puggy lode material seen. Also 2 smaller reefs of stringers of quartz in well defined ?shear zones. A 19m. winze contained irregular veins and patches of payable gold.

164m. level: The extension of the west reef considered here to be 1m. wide, being irregular lenses of quartz, also the reef of the 119m level were encountered to 0.75m wide and a zone of 4.8m. width of irregular lode formation & q.v. also found

277m level: Crosscut encountered (to west) – 2.4m zone with 0.12m quartz veins & 0.15 - 0.36m quartz on walls (dips E) – thence 9m. of crosscut to 6m. wide reef formation composed of crumpled and twisted quartz (selectively developed) and further reef formation 2.2m wide including only 0.1m. wide q.v. Driving & stoping on the formation gave narrow widths of gold bearing rock.

304m. level: workings disclosed a number of narrow q.v. (to 0.2m) and two lode formations up to 1.4m. wide. Only occasional gold seen.

335m. level: 25m. driving on a 0.2m. wide q.v. & intersected a 0.9m. wide formation containing gold which was followed for 38m but the track here contains only a little mineralized quartz.

365m. level: An irregular formation 0.4m. wide, with q.v. on walls & mixed slate and quartz. Quartz is said to run to 15g/t. This driven on for 78m. & stoped to 6m. above a 24m. long section. A rise showed payable rock up to 7.6m. but this varied in width 0.75 – 1.5m. and above was broken & valueless. This was considered to be the West Reef of the New Golden Gate but was noted 30m. nearer the surface here. Other minor q.v. to 0.15m. found to be payable in reef formations to 0.75m. wide on this level.

396m. level: intersected the West Reef - an irregular quartzose formation 6m wide driven 4m. south (4m. wide unpayable horse) and 73m. north: over 18m. reef was 1.8m. wide & good grade and continued with pinching 0.9 – 2.2 m. wide with the gold content similarly variable. 70m. were stoped up to the level above.

426m. level: West Reef: 3.6m. wide quartz of 15g/t driven on 118m. Crosscutting revealed the East Reef which was driven 27m. & sunk 7.6 m. and from a 30m. deep winze the reef was seen to be 3.4m. wide Still of mixed quartz and slate, returning 20g/t Au but this zone rapidly became poor and only persisted (at lower grade) for 7.6m. Part of H.W. quartz vein carried 24.5 g/t Au.

West Reef: was stoped over 68m up to level above.
Later work (Golden Gate Consol.) located ?East Reef in a prospecting crosscut and the 1 m. wide formation driven on 9.7m. with gold 1.6g/t to 6.2g/t recorded.

457m. Level: West reef driven on for 80m. with Stoping over 42m. to height of 18m. Grade was lower than levels above. Reef is 1.8m. wide.

487m. Level: West reef driven on for 54m. - minor widging & raising - no payable ore & no Stoping.

Note: some drilling was carried out 365m & 487m. levels - but no records - said to have intersected the East Reef.

LITERATURE SEARCH

477281

PROSPECT : TELEGRAPH MINE NUMBER :

LOCALITY : MATHINNA (near S. boundary of Section 957-G) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - an old shaft sunk on rubbly quartz vein 0.3 - 0.45m. wide. trends N.W.

- Also an adit extended 49m. through barren country except for minor veins and branches of quartz - did not reach the projected position of the reef seen at the surface. (estimated that an additional 82m. required).

- In the northern part of the section some old trenches exposed a 1.5 m. wide rubbly quartz formation in an apparent attempt to locate the southern extension of the horseshoe reef.

- NO values given.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935

477282

LITERATURE SEARCH

PROSPECT : Tower Hill MINE NUMBER :

LOCALITY : ~ 6.4 km South of MATHINNA. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : as below.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : A bed of quartzite 18-30m. in width is impregnated with numerous quartz veinlets. which may vary from 1cm to 0.3m. in width; the larger veins generally strike across bedding, but smaller ones have random orient

STRUCTURE : Bedding 330°/ steep E.

SUMMARY :

- The Tower Hill G.M.Co. tested individual veins in 2 shafts to 16m. Veins being 0.05 - 0.3m. wide.
- Tower Hill Consolidated (1923) sunk a main shaft to 33m. and a level was partially developed at 30m. No results given
- Harts Mine (1929) conducted a considerable amount of surface trenching to bulk test the quartzites, although "good average" results were obtained, these were not borne out by later sampling.
- Berwick Morling & Co. (1930) took 65 surface samples which returned mostly a trace of gold, but a few samples ranged 1.5g/t - 15.3g/t Au. The distribution or bias of this sampling is not known
- Nye (1930) examined and sampled quartzites (only). to see if they were auriferous and nine representative samples all returned nil Au, Ag then showing only quartz veinlets to be mineralized. Nye hinted that bulking may be possible in areas of dense veining.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : The described quartz vein "stockwork" or network should be located and bulk sampled., Careful note of vein density being made. look for other possible structurally favourable zones which could contribute to tonnage.

REFERENCES : Finucane 1935.

477283

LITERATURE SEARCH

PROSPECT : THE TWILIGHT MINE

NUMBER :

LOCALITY : MATHINNA (5.2 km S).

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Worked by the company which worked the Sunbeam Mine. Had a 10 Stamp battery and large tailings dump nearby. Mine let on tribute 1896 when a few small parcels of quartz were extracted. Closed 1897.

PAST PRODUCTION : no records.

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : A reef 025°/80°W has been traced on the surface for 180m, with three shallow shafts and trenches on outcrop.

The main shaft was sunk to 60m. (down 12m. west of outcrop).

Quartz does not appear to have been continuous over the whole length of the reef channel and seems to have occurred in the form of short lenses.

The maximum width from surface stopes is 0.6m. but is seen to narrow to 0.02–0.15m in trenches to the north.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935.

477284

LITERATURE SEARCH

PROSPECT : VICTORIAN GOLDEN GATE MINE NUMBER :

LOCALITY : MATHINNA (just W. of Eldorado workings). MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : — GRADE : —

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Lenticular formation attitude of 114°/63°SW } in bedding of 333°/55°E
quartz vein attitude 334°/63°W.

SUMMARY : - An adit was driven to 73.5m. which intersected (68.2m) a quartz reef being a lenticular formation 1.2m wide tapering to a few cm. over about 9m. length, and dies out altogether over 20m. Stoped vertically for 9m.

- A bed of quartzites impregnated with quartz veinlets also found, and further a 0.15m - 0.9m. wide reef followed for 21m.

- nearby surface workings on a 1.5m. wide quartzose formation, which trends 060°, cannot be correlated with formations found underground.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935

477285

LITERATURE SEARCH

PROSPECT : VOLUNTEER CONSOLIDATED. NUMBER :

LOCALITY : MATHINNA (main shaft 200m. N. of old Boys Shaft) MAP SHEET :

COMMODITIES :

MINING HISTORY : originally known as White Boy; later as Old Boys which ceased operations in 1895. In 1901 acquired by East Volunteer Coy. & in 1903 restructured to Volunteer Consolidated. Operations ended towards end of 1905.

PAST PRODUCTION : GRADE : produced 0.7 oz/t.
period 1895-1905: 1262.5oz Au produced from 1788 t quartz.

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Originally sunk on two reefs mined in shallow shafts to 27m. with values of 10z/t; these being the No 2, No 3 reefs which trend N or NNW. Levels at 478m, 60m, 91m.

SUMMARY :

- At the 60m. level: No 2 Reef channel 0.2-1.8m. wide consisting of small veins and bunches of quartz in broken slate. - driven for 42m, and No 3. reef channel driven on for total of 42m. (two reefs are 10m. apart). Reef channel 0.2m. wide with only occassional small qtz. veins except western 16m. which was a fairly large quartz body and was stoped almost to surface. Other small veins (including the NO 1 reef - a branch of NO2) are short narrow & irregular this level

- At the 91m. level: The NO 1. reef intersected being 0.9m. wide & gold bearing but irregular values. The No 3. reef explored at this level showed a maximum of 0.45m. width quartz of 0.64 oz/t Au with abundant arsenopyrite and galena. It was followed along ~24m.

The EAST VOLUNTEER CONSOLIDATED: shaft was extended to 137m. and crosscutting revealed 4 reefs in 94m., of these the largest was 1.2m wide, driven on for 73m, but payable only 9m; other smaller veins were typically stoped for a maximum distance of 16m to heights of 16m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935.

LITERATURE SEARCH

477286

PROSPECT : VOLUNTEER MINE NUMBER :

LOCALITY : MATHINNA (1.6km NE) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Started 1901 by Volunteer Co. & Closed 1905

PAST PRODUCTION : published 2282 oz Au from 7711t GRADE : said to average ~9g/t.
(average price /oz = £3.56)

RESERVES :

STYLE OF MINERALIZATION : Quartz reef formation.

STRUCTURE : A 0.6m. wide reef formation trends N.E. and dips 70° NW. at surface

SUMMARY : Workings consisted of an old main shaft, three small prospecting shafts, and a number of surface stopes.

The shaft was 33.5m. deep with a 3m. wide reef at the 30m. level. A new shaft and crosscut at the 60m. level - where reef was driven on for 32.6m. Below the 30m. level a winze sunk 9m. on a 0.9m. quartz vein. At the 76m. level reef was 1.2-1.5m. wide. At the 100m. level reef driven on 54.8m. over widths to 0.9m. At the 121m. level a drive was extended 13.7m along the reef channel but very little quartz was encountered. (Shaft reached 127m).

- Workings were closed due to poor battery returns. The best ore was obtained from above the 30m. level below which the reef diminished in size and value.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935

477287

LITERATURE SEARCH

PROSPECT : YELLOW BOY REEF. NUMBER :

LOCALITY : MATHINNA (240 m. NE old Boys Shafts) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : prior to 1892 - old stopes and trenching.
from 1901 - (1904) Volunteer group of coys. continued.

PAST PRODUCTION : GRADE :

Incomplete returns indicate minimum of 750z Au. from 210t quartz.

RESERVES :

STYLE OF MINERALIZATION : fissure quartz reef.

STRUCTURE : Reef strikes 070°/80°S., the payable reef cross country foliation.

SUMMARY : - A line of surface workings extends along a distance of 120m. where reef formation varied in width 0.45-1.2m. Where seen this formation consisted of a number of small stringers and veins of quartz 0.1m. wide extending over widths of 0.6-1.2m. overall.

- In 1903. a shaft to 35m. was located 30m. S. of old stopes; these workings cut three lodes of which two were payable & the other irregular. (no grades given)

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Fitzgerald 1935

477288

LITERATURE SEARCH

PROSPECT : SECTION 135 P-G. NUMBER :

LOCALITY : MATHINNA VICINITY (located 0.4km SE. Tower Hill mine). MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Geology is similar to the Tower Hill mine: a bed of quartzites, Strikely 330°, is impregnated with quartz veins but not as numerous as at Tower Hill.

Trenching has exposed a "reef formation" in the quartzites, being zones with abundant quartz veins. 2.4m & 4.2m. wide respectively and 60m. apart.

Nearby a 0.3m. wide quartz vein (attitude 290°/85°S) has been sunk on and said to contain a few g/t Au in places. Another vein of attitude (000°/75°E) also found in the slates and quartzites.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935

477289

LITERATURE SEARCH

PROSPECT : SECTION 359-6. NUMBER :

LOCALITY : MATHINNA (24 km. Southeast) MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Small fissure reef.

STRUCTURE :

SUMMARY : - An adit was driven 41m; in which a rather flat formation consisting of broken slate containing quartz veins of width 0.02-0.15m width has an attitude of 325°/40°NE.

- Drives extended for a total of ~19m. and 80ms Sinking carried out.
- NO information on gold values given, & no stoping carried out.
- County black shales have an attitude of 325°/40°NE.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Fitzgerald 1935.

477290

LITERATURE SEARCH

PROSPECT : Section 451-6. NUMBER :

LOCALITY : MATHINNA. MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz vonned quartzite horizon

STRUCTURE : Attitude of reef 000°/dip E.

SUMMARY : A reef was located in surface trenches.
Two shafts, 2.4m. apart, were sunk to 24m & 15m.
One shaft cut 0.2m. wide reef at 18m. depth. (was auriferous)
In second shaft this formation was 2.4m. wide of hard vuggy mottled quartz from which samples ran 7.6 g/t Au. in the footwall. (ave total of 0.6m ?)

- Surface trenches extend 20m. N. & 90m S. of the shafts; from which some quartz is seen in the dumps where a great deal of blunish quartzite also occurs. (this is often laced with small veinlets of quartz) - Suggesting that the "formation" is comprised of a bed of quartzite veined with quartz and impregnated with pyrite.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935.

477291

LITERATURE SEARCH

PROSPECT : SECTION 10988 m : NUMBER :

LOCALITY : MATHINNA . (located MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : County cleavage 330°/83°SW. no attitudes reefs given.

SUMMARY : Two Shafts including the Golden Spur :

1). to 60m. - included some minor driving. A 0·12m. diameter drill hole apparently sunk below this encountered some gold formation

2) Golden Spur Sunk on Moores Reef to 32m. From this and other workings an easterly dipping reef was said to be ~ 0·6m wide and ... "was payable".

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : [Finucane considered work justified because very little exploratory Crosscutting was done N. of the Tas. Consolidated & North Golden Gate, apart from that extending W. from the Gate Extended Shaft.]

REFERENCES : Finucane 1935

LITERATURE SEARCH

477292

PROSPECT : Section 1734-G. NUMBER :

LOCALITY : Mathinna (on tableland above Eldorado mine ~2.4km S. of Mathinna) MAP SHEET :

COMMODITIES :

MINING HISTORY : Last held by the Mathinna G.M. Co. which suspended work in 1926.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz reef

STRUCTURE : Two quartz reefs 220m. apart strike 318°/70°SW & 015°/75°E. respectively. Country slates and quartzites 295°/72°N.

SUMMARY :

Northerly reef: Shaft to 11m. on 0.3m. wide reef. This is seen to narrow to 0.15m and on occasion to follow joint planes in country rock for short distances.
An adit (to 69m) has been driven to intersect the lode 30m. below outcrop - this shows minor quartz veining at 33m; an irregular quartzose formation 1.2m. wide at 57m; and a small vein to 0.15m. wide at end of adit, this possibly being the vein seen in the shaft. A short drive (3.6m) at this point showed some quartzite containing veins of quartz.

Southerly Reef: Shaft to 15m. and at 4.3m. depth a reef 0.45-0.6m. wide found in slates and quartzites.

- No stoping has occurred and no information on the gold content of the reef is available.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Finucane 1935.

THE UPPER SCAMANDER DISTRICT

14.1 INTRODUCTION

A series of small discontinuous, cross cutting hydrothermal quartz veins of variable mineralogy occur in Mathinna Group sediments and granitoid rocks in the Scamander - St Helen's dsitrict. These veins appear to exhibit a marked regional zonation with Sn-W; Cu and Ag-Pb-Zn deposits located from west to east across the area. A small cluster of Au-Ag veins that occur in the western extremity of the area are probably unrelated to this pattern of mineralisation The nature of the Au-Ag mineralisation has not been the subject of any extensive work.

14.2 DISTRICT GEOLOGY

14.2.1 Mathinna Group

The oldest rocks exposed are lower Devonian arenaceous Mathinna Group sediments which locally comprise a turbidite sandstone-siltstone sequence with minor interbedded shales. The major components are layers of essentially unmetamorphosed sandstone and coarse grained siltstone, generally less than 1 metre in thickness, that are commonly graded with fine siltstone or mudstone tops and with impure quartz sandstone being the most common rock type.

The Mathinna Group was folded during the upper-middle Devonian Tabberabberan orogeny into a series of major folds with an amplitude of about 4 km with a style of steep axial surfaces, long relatively planar limbs and sharp closure which is typical of folding from most areas of NE Tasmania. The regional folds have been modified by later folding associated with the intrusion of the granitic rocks of the St Helen Pluton.

The degree of cleavage development is extremely variable, being indistinct in the massive sandstones and contact metamorphic zones, but where it is well developed it is vertical or steeply dipping and appears to fan out about the axial surfaces of folds. Bedding is normally the most prominent planar feature of these rocks.

A series of extensive NW trending faults of fault zones that extend for up to 3 km in length occur just north of the Scamander River in the Orieco area. It seems that these faults lie subparallel the mean regional trend of the axial surfaces of folds.

14.2.2 Intrusive Rocks

The Mathinna Group is intruded by a suite of granitoid rocks of upper Devonian age which represent the southernmost extension of the Blue Tier Batholith. In the Scamander district these rocks have been divided into several separate plutons as described below; the descriptions being taken from Groves (1972)

14.2.2.1 St Helens Pluton

"The main mass consists of biotite-hornblende graodiorite and adamellite, and biotite granodiorite and adamellite, with smaller masses of hornblende-diorite, monzonite and syenite. The granodiorites and adamellites are dark grey rocks consisting of anhedral undulose quartz, zoned subhedral andesine, biotite, and subordinate hornblende, all commonly poikilitically enclosed in microcline which forms large optically continuous crystals in places. A cataclastic foliation occurs in places.

A long, narrow vertical dyke extends southwards along Scamander Tier from near Medeas Cove. It is concordant to the pre-intrusion structures of the Mathinna Beds, and intrudes about 600 m to the west of one of the regional anticlines.

The dyke is complex but consists largely of grandiorite porphyry and porphyritic granodiorite, with irregular lenses of porphyritic biotite adamellite and hornlende diorite. It is cut by dykes of quartz-feldspar porphyry, aplite and quartz-dolerite. The major rock type is granodiorite porphyry with phenocrysts of subhedral to euhedral zoned andesine, anhedral quartz and biotite, generally 5 mm in diameter, in a groundmass of quartz, plagioclase, biotite and hornblende , forming clots up to 5 mm in diameter, that are poikilitically enclosed in altered microcline."

Several Ag-Pb-Zn sulphide rich quartz veins occur within the dyke at the Scamander, Beulah and Scamander Bell prospects, however there seems to be some doubt on the validity of the mineralisation being related to a zonal distribution about the Mt Pearson pluton.

"The dyke was probably forcibly intruded with vertical displacement of country rock, as it has dyke-wall irregularities that do not match by lateral restoration, and a blunt southern termination. Some laterial pushing is indicated by local overturning of the strata along the eastern contact."

14.2.2.2 Mt Pearson Pluton

"The large mass of coarse-grained biotite granite/adamellite to the west of the St Helens Pluton forms the southwestern part of the Mt Pearson pluton. The main mass consists of deeply weathered, pale grey rocks composed of unfoliated coarse-grained aggregates of microcline microperthite, anhedral quartz, subhedral and poorly zoned oligoclase-acid andesine, biotite and rare muscovite. In places these rocks are porphyritic with phenocrysts of ortho las microperthite that poikilitically enclose biotite and plagioclase.

Fringing the southern contact of the Mt Pearson pluton is a 1 km wide zone of biotite-musdovite microgranites and granites which appear to intrude the normal granite/adamellite of the pluton. These granites are generally pale pink, fine to medium-grained rocks composed of granular intergrowths of quartz, K-feldspar showing patchy microcline twinning, and acid oligoclase with scattered chloritized biotite and rare muscovite and tourmaline. The relatively flat-roofed isolated patches of these rocks beneath Mathinna Beds in Constable Creek, and the isolated roof of Mathinna Beds above the granite north of the Baden Powell prospect, suggest that these granites may be essentially flat-lying, and shelve beneath the Mathinna Beds to the east and south."

It is this rock type that the (?)zoned mineralisation is thought to be associacted with.

"In contrast to the St Helens Pluton the pre-intrusion structures in the country rock show no marginal distortion related to discordant granite contacts. Fold traces and bedding traces are truncated abruptly, thus ruling out the possibility of forcible intrusion."

14.2.2.3 Poimena Pluton

"The porphyritic biotite granite/adamellite mass ..... is the southernmost extension of the extensive Poimena Pluton. The granite/adamellite is a blue-grey rock comprising large phenocrysts of orthoclase microperthite in a fine to medium-grained groundmass of quartz, oligoclase-acid andesine, K-feldspar, biotite and minor muscovite. In places the phenocrysts form a flow foliation subparallel to a weak compositional banding.

A cluster of small, discontinuous bodies of metamorphosed country rock cap the higher ridges just inside the granite contact in the vicinity of Beahrs and Ryans Creeks. The country rocks are extensively metasomatised (generally feldspathised) and there are indications of assimilation by the granite. These features, which are not generally evident on near-vertical side contacts, together with the elevation of the blocks, suggest thatthey represent remnants of the roof of the granite which shelves downwards with a moderate dip to the south, as first suggested by Twelvetrees (1900). It is evident that there is no marginal distortion of pre-intrusion structures by the porphyritic biotite granite/adamellite.

Part of the eastern contact of the mass is composed of biotite granodiorite which extends as a thin band north from the Trafalgar mine. This granodiorite is similar in

composition and texture to the marginal phase of predominantly biotite-hornblende granodiorites which are in contact with rocks of the Poimena Pluton about 1 km west of the mapped area. It is a medium to coarse-grained, pale grey rock comprising abundant anhedral undulose quartz and subhedral zoned crystals of andesine that are poikilitically enclosed in microcline microperthite. Small clots of biotite, commonly altered to chlorite, are scattered throughout the rock and contain abundant inclusions of magnetite, zircon and apatite. The occurrence of bent cleavage surfaces in andesine, kink bands and bent cleavage in biotite, and undulose quartz indicate that the granodiorite has been deformed. The granodiorite is the host rock to gold-silver mineralisation at the Trafalgar and Double Event mines."

14.2.2.4 Late Stage Plutonic Phases

"Quartz Dolerite Dykes

Several long, narrow basic dilational dykes intrude the Mathinna Beds along Scamander Tier, at the Great Pyramid mine, and at Dianas Basin, where a dyke also intrudes the biotite-hornblende granodiorite. The dykes are generally later quartz dolerites. They are fine to medium-grained, dark-grey to black rocks, with an intergranular, to sub-ophitic texture, and are composed of about equal proportions of clinopyroxene and plagioclase, with their alteration products. Sulphides are abundant (up to 15%), commonly pyrite with minor chalcopyrite; other minerals present include quartz, magnetite, biotite, apatite and sphene. The pyroxene is altered to fibrous amphibole and chlorite, and the plagioclase is commonly albite associated with tremolite, epidote and calcite, indicating alteration of an original basic plagioclase. It is not apparent with which granitic type they are particularly associated, but it is clear from other exposures in eastern Tasmania that similar rocks are representative of the ultimate stages of granite emplacement."

14.2.3 "Contact Metamorphic Aureoles

Contact metamorphic aureoles of the granitic rocks have restricted widths ranging from 500 m - 2 km. Demonstrable contact metamorphic rocks occur at greater lateral distances from the micro-granites fringing the Mt Pearosn Pluton, and indicate that this contact may be essentially gently sloping to the south and east. The contract zone of the granodiorite porphyry dyke extending down Scamander Tier is limited to a few metres thickness.

No detailed petrographic work has been carried out on the contact aureole, but a hornfels close to the contact is typically a fine-grained dark grey recrystallised rock, passing into a spotted hornfels away from the contact. The hornfels consists of varying proportions of even-grained intergrowths of quartz, sodic plagioclase, microcline, biotite, muscovite, chlorite and rarely cordierite. The spots are generally of indeterminate composition or of fine sericite but probably represent the incipient growth of cordierite or andalusite."

14.3 SCAMANDER MINERALISATION
(After Groves 1972)

14.3.1 As recognised by Twelvetress (1911) and subsequent authors, the mineral occurrences of the Scamander district show a marked mineralogical zonation.

The deposits may be divided into five main groups: (a) woframite-molybdenite deposits, (b) cassiterite deposits, (c) chalcopyrite-arsenopyrite-pyrite deposits, (d) galena (Ag-bearing) - sphalerite-arsenopyrite-pyrite deposits, and (e) gold-silver-arsenopyrite deposits.

These groups are briefly discussed here in order to place the gold mineralisation into a regional prospective.

14.3.1.1 Wolframite-Mdybdenite Deposits

"The wolframite-molybedenite deposits occur in or adjacent to the constant metamorphic aureole of the marginal belt of biotite-muscovite granites and microgranites of the Mt Pearson Pluton. They commonly occur as thin, non-persistent quartz-wolframite veins with variable amounts of molybdenite, cassiterite, bismuthinite, pyrite, chalcopyrite and arsenopyrite. The veins are generally perpendicular to the regional fold axes of the Mathinna Beds, and appear to fill tension fractures in these rocks."

"The spatial associationof the wolfram (molybdenum plus minor tin) deposits to the biotite (muscovite) granites, and the similarity of these granites to those of other tin and wolfram-bearing areas (Klominsky and Groves, 1970), suggest a genetic association".

14.3.1.2 Cassiterite Deposits

"The cassiterite lode deposits of the Great Pyramid-Pinnacles area lie to the south-east of the wolframite deposits described above. The Loila Tier tin prospect occurs just within the contact metamorphic aureole of the granite to the north-east of the wolframite deposits. The cassiterite occurs in thin seams, with or without quartz and sulphides, in probable tension fractures at a high angle to bedding in the host sandstone or quartzite horizons.:

This Sn mineralisation is probably also related to the biotite (-muscovite) granite.

14.3.1.3 Copper Deposits

"A series of discontinuous gossan cappings occur on the ridges to the east and south of the wolfram and tin zones of mineralisation. The most extensive line of gossans occurs over a NW-trending fault zone up to 3 km long, which includes the Orieco mine. Gossan cappings also occur over subparallel, weakly mineralised fault zones to the north-east and south-west of the Orieco fault zone. The structure within these fault-banded blocks is complex, and poor exposure makes interpretation almost impossible.

The Gossan cappings consist of irregular blocks of quartzite cemented by iron oxides, iron-stained kaolin, ferruginous chert and rare embolite. They have generally been explored by trenches and small shafts in places, which reveal a strongly leached and oxidised zone with barren quartz veins. The deeper workings at the Orieco mine, and to a lesser extent Dunns adit, have intersected small zones of supergene enrichment of copper around, and slightly above, the level of the present water table. It seems likely that similar restricted zones of supergene enrichment will occur beneath gossans elsewhere in this area.

The oxidised and supergene zones at the Orieco mine have been intensively examined as it is important to determine the type and distribution of minerals which may exist beneath the other gossan cappings in the area. A detailed discussion of the oxidation and supergene enrichment at the Orieco Mine has been given by Ford et al (1970)."

It would appear that the depth of the surface oxidized zone is about 60 m and below this, in the zone of supergene enrichment which is probably quite small, is the only zone with any potential for copper mineralisation of any economic significance.

The depth of this oxidation zone is noted as being approximately the same as that proposed by various authors (discussed elsewhere) for a zone of secondary gold enrichment for other parts of NE Tasmania.

"Small, but significant, amounts of tin have also been recorded from the goassans of the North Orieco and Ringarooma Bay prospects. It appears likely that the tin and copper mineralisation are genetically related. The copper deposits of the Orieco fault zone also show a zonal trend with Pb-Zn mineralisation occurring at the eastern extremity."

14.3.1.4 Silver-Lead-Zinc Deposits

14.3.1.4 Silver-Lead-Zinc Deposits

"The silver-lead-zinc deposits form the easternmost zone of the Scamander district. The deposits occur largely in quartz veins in fracture zones in granodiorite porphyry, and to a lesser extent in the sedimentary host rocks. The deposits are typified by the occurrence of silver chloride (cerargyrite) and native silver in the oxidised zone."

"The relationship of the Ag-Pb-Zn deposits of the easternmost zone to the granitic rocks is problematical. Their spatial position relative to the wolfram, tin and copper mineralisation is consistent with the nortmal zonal pattern, and is suggestive of a common origin. However, with the exception of the Yarmouth prospect, the mineralisation occurs within the dyke of granodiorite porphyry and associated rocks extending down the Coastal Range."

"The relative ages of the biotite (muscovite) granites of the Mt Pearson Pluton and the granodiorite porphyry of the St Helens Pluton are obviously important in solving this problem, but they are not in contact."

14.3.1.5 Gold-Silver Deposits

"A number of small gold-silver prospects which produced only small amounts of gold occur near Hogans road along the headwaters of Beahr's and Brilliant Creeks. They have received little attention, the only reports on these prospects are by Twelvetrees (1900) and Henderson (1935, 1939)."

The mineralisation generally consists of narrow, discontinuous quartz veins which showed some very high grade (to 5.5 oz/t gold) in the generally shallow workings (maximum recorded depth being 4.0m). Minor sulphides in the form of pyrite, arsenopyrite, galena, sphalerite and covellite or chalcopyrite are present.

Limited zones of silicification and vein stockwork development in the sediments and disseminated sulphide mineralisation in the intrusives have also been described, these various

forms being taken as a reflection of the proximity of the mineralisation to the intrusive source rocks.

"The deposits occur either within a marginal belt of biotite granodiorite on the eastern edge of a porphyritic biotite granite/adamellite mass (Trafalgar, Double Event), or in the roof zone of the gently S-dipping southern margin of this granite mass (Brilliant, Golden Ridge, Queen of the Earth). The deposits typically contain both gold and silver in varyin amounts, and Twelvetrees (1900) suggested that these elements were present as electrum. High silver values are common in several other gold propsects in eastern Tasmania."

"The gold-silver deposits in the western part of the area occur within biotite granodiorite and in the Mathinna Beds along the southern margin of the Piomena Pluton. The occurrence of the gold-silver mineralisation within the granodiorite, the associated alteration of the granodiorite, and the common association of gold mineralisation with granodiorites elsewere all support an association of mineralisation with the granodiorite. The porphyritic biotite granites/adamellites of the Poimena Pluton are demonstrably younger and dilate the granodiorites of the Pyengana Pluton in the Pyengana area. It is possible that the biotite granodiorite at the Trafalgar prospect represents a fragmented part of the eastern margin of the Pyengana Pluton, which represented the source of the gold-silver mineralisation."

14.3.2 Structural Control of the Mineralisation

The mineralised veins that fill fractures in the Mathinna Group have no definite preferred orientation but range widely between 020° and 100°. These fractures are broadly perpendicular to bedding and it is probable that they represent tensional fractures (or incipient tensional fractures) related to the regional folding. These fractures have been re-opened during the period of granitic intrusion to allow the passage of the mineralising fluids.

14.3.3 Alteration

Groves (1972) indicated the presence of beds of massive quartzite, several metres in thickness, which occur particularly in areas of mineralisation and were thought to represent silicified sandstones this alteration probably being related to mineralisation.

14.3.4 Zoning of Mineral Occurrences

Groves (1972) examined in some detail the concept of an apparent mineralogical zoning sequence from west to east in this area. Such a zonation is similar to sequence found elsewhere and is thought to result from changing physical (viz decreasing temperature and pressure) and chemical conditions as the mineralised fluids migrated from their source.

If the concept is valid, the mineralogical charges shown by the Scamander-St Helens occurrences indicate that the source of mineralisation was probably the marginal phase of the Mt Pearson Pluton (west of the wolfram zone). The roof of this intrusion probably extends at shallow depths towards the east below the zone of mineralisation.

Mineralogical and geochemical trace element studes show no indication that the zoned mineralisation was related to more than one source, although these studies do indicate some departures from trends shown by other hydrothermal deposits in Tasmania.

The origin of the Ag-Pb-Zn deposits is problematical, although the balance of evidence suggests that they represent an outer mineralisation related to the W-Sn-Cu mineralisation phase rather than a separate phase related to the granodioritic dyke in which they occur.

14.4 PREVIOUS INVESTIGATIONS

No record of previous investigations of the gold potential of the area by exploration companies has been found.

14.5 CONCLUSIONS AND RECOMMENDATIONS

Of the gold occurrences known from the Upper Scamander area, those described by Twelvetrees (1899) from the Brilliant and Golden Ridge workings would appear to be worthy of further consideration. Here, zones of silicification in quartzites occur in close proximity to the intrusive contact which may lie as shallow as 80m, below the surface. Auriferous quartz veining occurs in the area and it could be a zone of bulk potential if the quartz vein stockwork is sufficiently well developed below the old workings.

Field reconnaissance to investigate the extent of intensive quartz vein development and silicification and to bulk rock chip sample these zones should be carried out.

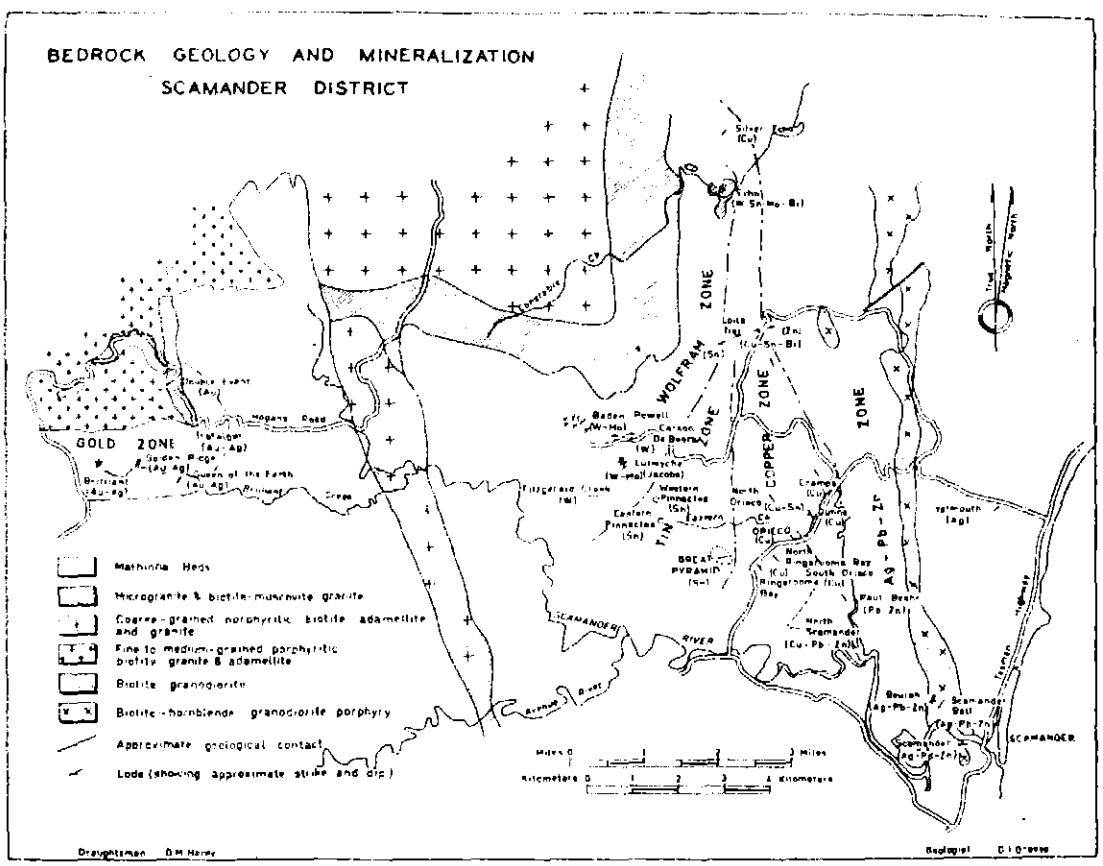


Figure 4.1 *Bedrock geology and mineralisation, Scamander district, zonal arrangement of mineral occurrences.*

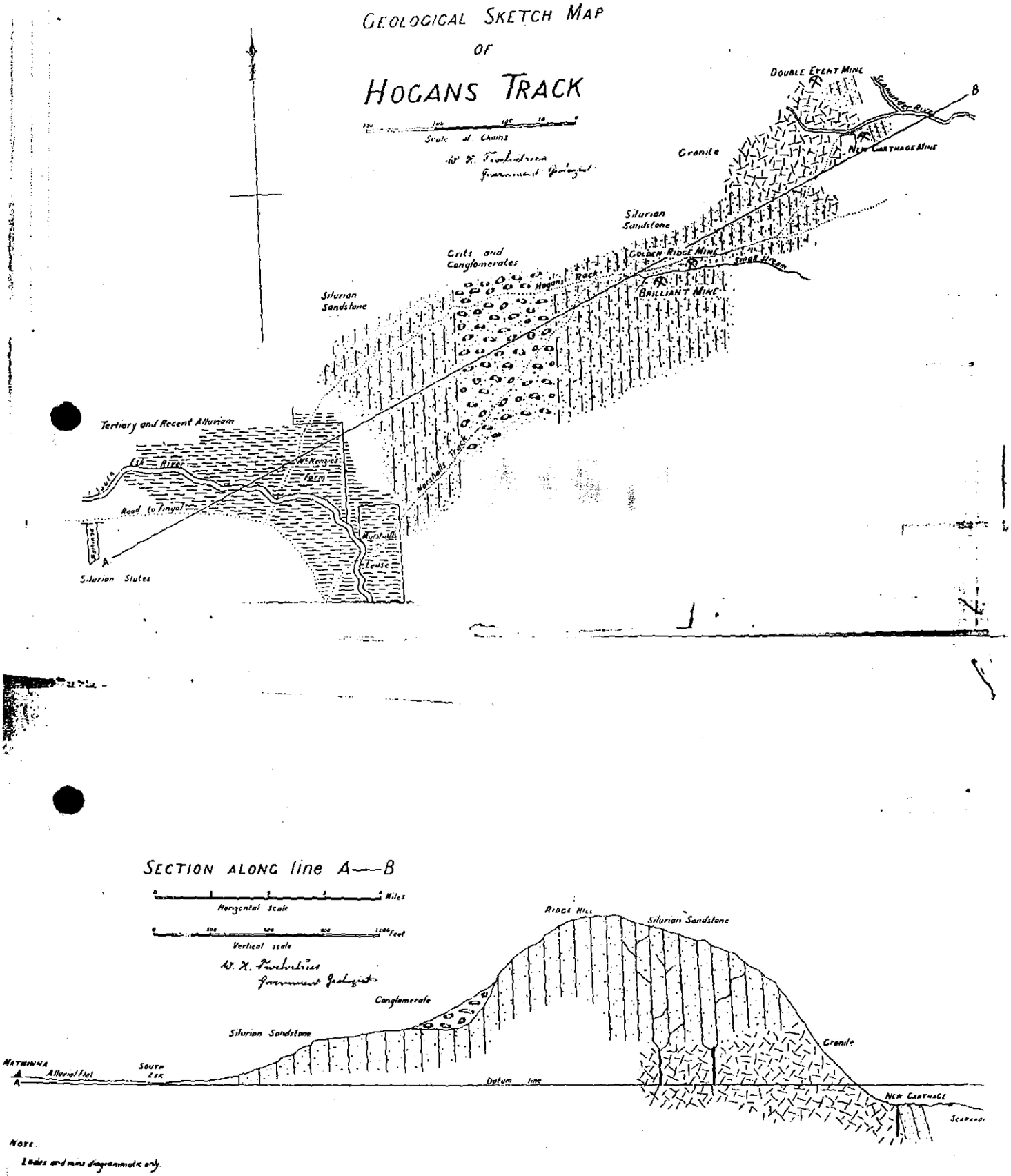

GEOLOGICAL SKETCH MAP
OF
HOGANS TRACK
Scale of Chains
W. H. Twelvetrees
Government Geologist
DOUBLE EVENT MINE
Scamander River
B
Granite
NEW CARTHAGE MINE
Silurian Sandstone
Grits and Conglomerates
GOLDEN RIDGE MINE
Small Stream
Hogans Track
BRILLIANT MINE
Silurian Sandstone
Tertiary and Recent Alluvium
Mt. Horgans Farm
Road to Tinyal
Marshalls Track
Marshalls
Tenure
Silurian Slates
A
SECTION ALONG line A—B
Miles
Horizontal scale
Vertical scale
W. H. Twelvetrees
Government Geologist
RIDGE HILL
Silurian Sandstone
Conglomerate
Silurian Sandstone
Granite
MATHINNA
Alluvial flat
SOUTH
ESK
Datum line
NEW CARTHAGE
Scamander
NOTE
Scales and mines diagrammatic only.

Figure 14.2 [illegible]

	Recorded production Au (oz)	Tonnes ore	av. grade (g/t) Au.	max. str length (m)	max. depth worked	av. width(m)
rilliant	-	-	-	-	12	1.5
ouble Event	-	-	-	-	21	1.0
olden Ridge	2	2	1oz/t	-	7	0.2
ueen of the Earth	99	196	22.4	120	15	1.5
camander Silver	-	-	-	-	40	-
rafalgar (New Carthage)	184	46	4oz/t	30	-	0.3
TOTAL	285.0					

SUMMARY OF DETAILS OF WORKINGS FROM SCAMANDER DISTRICT

TABLE 14.1

UPPER SCAMANDER DISTRICT

DATA SHEETS INDIVIDUAL OCCURRENCES

477309

LITERATURE SEARCH

PROSPECT : BRILLIANT PROSPECT NUMBER :

LOCALITY : SCAMANDER DISTRICT MAP SHEET :

COMMODITIES : Au, Ag.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : Impersistent quartz veins of extremely variable widths occur in massive sandstones and quartzites of the Mathinna Beds.

STRUCTURE : Bedding attitude is N – NNE / vertical, with quartz veins subparallel to this along bedding planes and subparallel joints.

SUMMARY :

Reported assays are variable with maximum of 69 g/t Au., and sulphides appear to be of very low amounts.

Of the individual reefs known :

Marshalls (or White's) Reef: a band of quartzite 1.5m. wide carrying quartz veins with values ranging 2oz/t to 0.75 oz/t Au in a shaft sunk to 12m. Attitude strikes 012° as a zone of silicification of short horizontal extent.

Brilliant Lode: a quartzite 137m. wide, strikes 022°, carries 2-3 quartz veins to 0.6m. wide. Was sunk on to 9m but found to be of limited extent.

Jacks Lode: altered quartzite 0.15m. wide with 0.05m. quartz vein.

There are other small veins and systems, some of which are horizontal, are referred to. These are considered derived from underlying granite, but their form is unknown as they approach the intrusives, which is possibly at depths of > 80m

- Twelvetrees reported values of 10 g/t Au; 12.5 g/t Ag from bottom of Shaft.
- Note: Relative to the Mathinna area: here there are zones of silicification which possibly reflect proximity to source; and also there is a similar pattern of structural control.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : As a number of small quartz veins/leb are referred to in areas of general silicification, concept of possible bulking should be investigated

REFERENCES : Groves 1972; Twelvetrees 1899.

477310

LITERATURE SEARCH

PROSPECT : Double Event Prospect NUMBER :

LOCALITY : Scamander District. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : abandoned 1899
workings consisted of 2 shafts to 21m. depth.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Shafts sunk on two parallel quartz veins, striking 067°. of a maximum width 1m. which occur in biotite granodiorite.

Assays up to 5.50z/t Au reported, however Twelvetrees reported grades of 5-6g/t Au.

Twelvetrees also reported this prospect carries more quartz than the other prospects in the area.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Groves 1972; Twelvetrees 1899.

477311

LITERATURE SEARCH

PROSPECT : Golden Ridge NUMBER :

LOCALITY : Seamander District MAP SHEET :

COMMODITIES : Au, Ag.

MINING HISTORY : Operations closed 1897.
Shaft sunk to 15m.

PAST PRODUCTION : GRADE :

2 tons returned 32 g/t Au.
and Bullion from 2t also returned 34 g/t (combined Au + Ag).

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Quartz veining in sediments in close proximity to intrusive rocks.

SUMMARY :

- Host rocks are massive sandstones/quartzites similar to those at the Brilliant Prospect, with quartz veining along joints and bedding surfaces as impersistant veins of variable width. Bedding is subhorizontal and veins carry some arsenopyrite, pyrite and covellite but the proportion of sulphide is relatively small. Systematic sampling by Henderson (1939) indicated generally only traces of Au/Ag with maximum values of 15.1 g/t & 5.4 g/t combined over 3m. lengths.
- No quartz seen in workings below 7m.; and maximum vein width ~ 0.2m.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Groves 1972; Henderson 1939; Twelvetrees 1899.

477312

LITERATURE SEARCH

PROSPECT : Queen of the Earth Prospect NUMBER :

LOCALITY : Skamander District MAP SHEET :

COMMODITIES : Au.

MINING HISTORY :

workings consist of an adit and 2 shafts.

PAST PRODUCTION : (1961 returned 3.42kg Au.) GRADE : average 22.4 g/t Au.

RESERVES :

STYLE OF MINERALIZATION : Fissure quartz reefs.

STRUCTURE : Bedding in massive sandstones and quartzites with spotted hornfelsic textures (contact metamorphic), attitude is NNE/steep NW, main reef attitude is 035°/50°SE.

SUMMARY :

- Two fissure quartz reefs carry dense grey honeycombed quartz from 0.3 - 1.5m. wide with accompanying pyrite, high arsenopyrite, and minor galena, sphalerite. Grades of up to 34 g/t Au.

- Twelvetrees refers to a mineralized silicified zone of quartzite about the reef - overall & width ~ 3.6m.

Re surface extent of the workings is ~ 120m. and having been worked down to 15m. depth.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Groves 1972 ; Twelvetrees 1900.

477313

LITERATURE SEARCH

PROSPECT : SEAMANDER SILVER LODES NUMBER :

LOCALITY : SEAMANDER DISTRICT MAP SHEET :

COMMODITIES : Ag / Au.

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : Twelvetrees (1911) records a minor association of Au with the silver bearing arsenopyrite - pyrite - quartz veins, with minor associated Pb, Zn, in intrusive and Mathinna Bed rocks of the area. The intrusive is a porphyritic granodiorite.

- eg. Seamander River Silver Mine: Zone silicified and quartz veined margin of intrusive, reported assays ranging from 20 oz/t Ag and 12.8 g/t Au, to 198 oz/t Ag and 13.7 g/t Au. Also traces gold in arsenopyritic quartz. Rose workings extend to about 40m. depth.

- Beulah Silver Mine: reference is made to presence of gold in very high grade silver - arsenopyrite quartz veinlets in granite in zone of surface ?enrichment.

- Yarmouth Aly Mine: a quartz lode in Mathinna quartzites carries arsenopyrite (galena, chalcopyrite) and assays to 21 g/t Au, 40 oz/t Ag and other samples show a trace of gold. This vein has some similarity to asp - gold - quartz vein type found at Mathinna.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Twelvetrees 1911.

477314

LITERATURE SEARCH

PROSPECT : TRAFALGAR (NEW CARTHAGE) PROSPECT. NUMBER :

LOCALITY : SCAMANDER DISTRICT. MAP SHEET :

COMMODITIES : Au, Ag.

MINING HISTORY :

Workings consist of an 18m. deep shaft, several prospecting shafts & surface workings.

PAST PRODUCTION : 46 t. averaging 4oz/t Au and 4oz/t Ag. (184oz Au). GRADE :

RESERVES :

STYLE OF MINERALIZATION : Most workings are adjacent to granodiorite - Mathinna Beds contact. Quartz veins with associated arsenopyrite, galena and chalcopyrite.

STRUCTURE : a 070° trending, south dipping quartz rich zone in granodiorite reaches a maximum thickness of 0.3m.

SUMMARY :

The mineralized zone driven on for 30m. but found to be of considerable width variation.

Groves (1972) identified two styles of mineralization:

(i) quartz veins with abundant arsenopyrite

(ii) disseminated sulphide mineralization (asp; cp; py; ga) in altered granodiorite in which feldspars have been replaced by quartz and sericite & biotite by chlorite.

Au is associated with arsenopyrite on fractures in quartz.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Groves 1972. Twelvetrees 1899

15. MISCELLANEOUS AREAS

15.1 FURNEAUX ISLANDS

Blake (1947) reported traces of quartz vein gold mineralisation in association with minor arsenopyrite, pyrite and chalcopyrite. The veins occur in Mathinna Group quartzites and are generally small and irregular in their development. A unique instance of quartz vein mineralisation associated with the margins of a dolerite dyke intruding biotite granite is also recorded. Small quantities of alluvial gold are associated with the area.

15.2 THE GLEN (DEN) GOLD FIELD (Plan 3)

A small amount of alluvial gold has been recovered from the old field, the exact location of which appears to remain in some doubt, as described on the data sheet.

15.3 NORTH BANGOR AREA (Plan 3)

Small auriferous quartz stringers have been prospected in slate country rocks.

15.4 LILYDALE AREA (Plan 3)

Prospecting has been carried out on a number of small quartz veins which, although initially reported as being rich in gold, are not mineralised. Blocks of quartz in Permian conglomerates are also reported to carry some gold not thought to be locally derived.

Near Underwood, narrow unmineralised pyritic quartz veins are reported to occur in a diabase.

15.5 MYRTLEBANK AREA (Plan 4)

Several small prospects reported poorly mineralised arsenopyrite-pyrite quartz veining which was seen to be associated in one place with some altered sandstones where tourmaline and pyrite developed near to granite porphyry dykes in the Mathinna Group of this area.

At the Whiting prospect, thought to be located in St. Patricks River area south of Myrtlebank, irregular quartz veining mineralised with pyrite, arsenopyrite and silver, is associated with a 4.6m wide granite porphyry dyke.

15.6 BLESSINGTON AREA

Poorly developed and erratic narrow quartz veining at the Golden Hill Mine was reported to carry minor As, Ag, Au mineralisation. The site of these workings has not been located.

15.7 CAMDEN PLAINS (Plan 4)

Alluvial gold has been reported by Twelvetrees (1909) from the gravels which overlie granite in this area. No references to grades or distribution of the reported gold has been found.

15.8 THE LITTLE DEN GOLD FIELD

Although outside the main area of interest in NE Tasmania, it is recorded here for completeness. Several reports of small amounts of alluvial gold are recorded from the Lake River Area SW of Launceston. Narrow, poorly mineralised quartz veining does occur in a Cambrian sedimentary sequenc near to the outcrop of Devonian gabbroic porphyries. The occurrence is not of further interest.

15.9 SUMMARY OF MISCELLANEOUS AREAS

Not unnaturally in an area such as NE Tasmania that has been well prospected, there are numerous references to small scattered gold workings which are not well documented.

Of the areas mentioned, the only significant point which may be mentioned is the apparent proximity (at depth) of a possibly weakly mineralised intrusive centre below the Myrtlebank area as evidenced by the presence of the granite porphyry dykes. This is perhaps not surprising as the area lies only 8 km SSE of the Lisle Basin where the top of a weakly mineralised granite intrusion has been exposed.

The area of the Camden Plains could have size potential if alluvial gold grades were sufficient however the indications for this are poor.

MISCELLANEOUS AREA

DATA SHEETS INDIVIDUAL OCCURRENCES

477319

LITERATURE SEARCH

PROSPECT : FLINDERS ISLAND

NUMBER :

LOCALITY :

MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

① Alluvial gold: - Small quantities of alluvial gold are reported to be associated with alluvial tin in the DOVER RIVER alluvium; and in the upper portions of the REDDINS CREEK drainage.

② Reef gold: - traces of gold mineralization are reported from narrow, short quartz veins; associated with minor pyrite, arsenopyrite & chalcopyrite; in quartzitic sediments (generally) presumable correlatives of the Mattinna Group.

Rose areas are: - Browns Reef, Long Point.
* - Silver Hill Lode
- Badger Corner Area.
- Lowery Reef, Cape Barren Island.

* this occurrence displays a 0.75m. wide quartz vein on the contact between a biotite granite and an intrusive dolerite dyke. An appears to be an unique occurrence in NE. Tasmania.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Blake, F; 1947 "The Furneaux Group of Islands" TDM Unpub. Report

477320

LITERATURE SEARCH

PROSPECT : The GLEN GOLDFIELD (DEN). NUMBER :

LOCALITY : ~ 9.6km. NNE of Mt Direction. MAP SHEET :

COMMODITIES :

MINING HISTORY : There is some doubt as to the original location of the field. Active ~1867.

PAST PRODUCTION : No production recorded, but considered likely to be of limited amount. GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

- Thureau (1882) recorded the presence of gold bearing wash averaging 1·8m - 6m in depth which extended for 1·6km along Fourteen Mile Creek. (This was probably a section of Dean Creek).
- Twelvetrees (1902) described the old Den workings as a flat of 4-5 acres in extent" at the S. end of a Spur of the Den Range, 0·8km N. of The Glen.
- The gold was coarse and occasionally with quartz adhering. Low grade, small, auriferous reefs of quartz were uncovered in the vicinity and these presumably contributed the gold.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Marshall 1969 ; Twelvetrees 1902 ; Thureau, 1882.

477321

LITERATURE SEARCH

PROSPECT : NORTH BANGOR AREA. NUMBER :

LOCALITY : ? 1½ miles NW of Bangor Slate Quarry. MAP SHEET :

COMMODITIES : Au, Ag

MINING HISTORY : alluvial workings in the area. Au adit and surface workings on small quartz veins.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : narrow irregular quartz veins in slates.

STRUCTURE :

SUMMARY : Indurated, quartz veined slates.

(1) McKenna's Tunnel : 0.25 - 1.2m wide quartz veins with minor graphite and pyrite carry 2g/t Au & 8.6g/t Ag, (with minor chalcopyrite) over about 9m. strike length in a broken slate.

(2) Freemans Tunnel: (west of above) - similar material exposed and assays 3.2g/t Au, 6.8g/t Ag from small veins and stringers.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Marslall 1969; Nye 1924; Twelvetrees, 1918.

477322

LITERATURE SEARCH

PROSPECT : NORTH LILYDALE AREA. NUMBER :

LOCALITY : (not located). MAP SHEET :

COMMODITIES :

MINING HISTORY : Several Shafts / trenches & Shallow workings.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE : Veins strike NW-SE.

SUMMARY :

- Nye (1927) Summarizes prospecting work carried out over numerous quartz veins in the area. Veins are poorly exposed; of general width ~ 0.3m; and generally shown to be barren. Some reported assays however showed 4oz/t, but these have not been duplicated. Veins appear to strike NW-SE, parallel to bedding in the slates & sandstones.
- There has been some suggestion of a relationship to a basic dyke.
- A reported block of quartz in Permian beds assayed 4oz/t, but this is considered to be of glacial origin. (Kelp & Boultbee's Prospect).
- The entire extent of the zone is ~ 2km.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1924.

477323

LITERATURE SEARCH

PROSPECT : LILYDALE AREA.

NUMBER :

LOCALITY : Beak's Creek

MAP SHEET :

COMMODITIES :

MINING HISTORY : 30m Shaft.

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : pebbly mudstones of Permian age mistakenly taken for alluvial "wash" - no gold values reported however.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1924

LITERATURE SEARCH

477324

PROSPECT : UNDERWOOD AREA

NUMBER :

LOCALITY : (not located)

MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Small excavations.

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : gold reported to occur in narrow pyritic quartz veins in diabase.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye 1924.

LITERATURE SEARCH

477325

PROSPECT : MYRTLEBANK AREA.

NUMBER :

LOCALITY : Not located

MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION :

GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY :

① JUST IN TIME PROSPECT:

gold bearing sandstones and interbedded slates (c.f. Bessells Reward, Golconda), and also auriferous quartz veins on joints in otherwise barren but pyritic sandstone.

Nearby some quartz veining occurs in association with pyritic, tourmalinized (+ gilbertite not ever the fact that is!), manganese stained sandstones; where (granitic) porphyritic dykes are exposed. Low gold values are supposedly associated with arsenopyrite in the veining.

② FARKINER PROSPECT.

A 0.15 - 0.45 m. wide body of bluish quartz is irregularly developed in slates, sandstone, & quartzite.

③ EASTBURN & BARWICK PROSPECT:

Prospects of gold and tin were reported from iron & manganese stained outcrops of quartzite & clayey slates. Minute quartz veining also occurs. But (you guessed it) subsequent assaying by the intrepid Mines Department stuffed it up - no gold, no tin.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Reid, 1926; Blake, 1934.

477326

LITERATURE SEARCH

PROSPECT : GOLDEN HILL MINE NUMBER :

LOCALITY : Burns Creek, Blessington. MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : Mine was being prospected and developed in 1929. Workings consisted of a shaft 29m deep, from a 150m. long adit, with a maximum of 30m. driving done down to the 12m level.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : A quartz vein varied in width from 0.08m – 0.30m, showing a trace of Ag & up to 9.6% As. located in the adit.

The richest vein (0.15 – 0.3 m wide) assayed 10.2g/t Au, and 3g/t Ag maximum. Values appear to be erratic & the vein poorly developed.

[not located].

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Longman. 1966

LITERATURE SEARCH

477327

PROSPECT : WHITING PROSPECT. NUMBER :

LOCALITY : ST. PATRICKS RIVER AREA. MAP SHEET :

COMMODITIES : (South of Mt. Hobart) (not located)

MINING HISTORY : a number of trenches, Open cuts, & adits.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : quartz vein with associated pyrite, arsenopyrite, chalcopyrite & silver developed in a granitic dyke.

STRUCTURE :

SUMMARY : A 4.6m. wide granitic porphyry dyke, with associated irregular bodies of pyritic and arsenopyritic quartz bodies to 1.2m. wide developed

It is reported that one instance of a quartz-muscovite brecciated body containing 300 oz/t silver, but bulk sampling showed poor & irregular results.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Reid 1926

477328

LITERATURE SEARCH

PROSPECT : CAMDEN PLAIN NUMBER :

LOCALITY : ~ 5km. NE of Mt. Barrow. MAP SHEET :

COMMODITIES :

MINING HISTORY :

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION : The alluvial gold presumably shed from near the granite/sediment contact zone.

STRUCTURE :

SUMMARY : Twelvetrees (1909) makes reference to the area being long known as gold bearing with 3m. of auriferous "wash" on a granitic bottom.

No other reference to this occurrence found.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Twelvetrees, 1909.

477329

LITERATURE SEARCH

PROSPECT : THE LITTLE DEN GOLD PROSPECT. NUMBER :

LOCALITY : Lake River, MAP SHEET :

COMMODITIES : Au.

MINING HISTORY : "discovered" 1932; although probably known for up to 50 years previously.

PAST PRODUCTION : GRADE :

RESERVES :

STYLE OF MINERALIZATION :

STRUCTURE :

SUMMARY : - irregular, shallow alluvial gold considered to be of local derivation has been prospected in the past.

- The underlying rocks are Cambrian slates and a (basic) gabbroic porphyry of Devonian age.

- Narrow quartz veins in the sedimentary sequence have been prospected in shallow surface workings. Although some anomalies reported, gold assays generally are reported to return a reasonably zero. (one instance of 1.5g/t).

- Vicinity is of limited extent, alluvials are of limited extend. Not of interest.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS :

REFERENCES : Nye & Blake 1933, Scott, 1932, Scott 1933, Scott 1935, Threade 19?

CYGNET DISTRICT

A brief summary of the geology and gold occurrences of the Cygnet District have been included in the report for the sake of completeness as it is the only other reported gold occurrence in eastern Tasmania, except for the Beaconsfield district which has been omitted from this study.

16.1 SUMMARY OF GEOLOGY

The Permian, Lower Parmeener Super Group sediments which comprise an approximate thickness of 1200 m of basal tillite and well bedded (siliceous) mudstones, siltstones and (feldspathic) sandstone are intruded by Jurassic dolerite and Cretaceous (110m.y.) syenite.

The strucutres present include an extensively faulted dome, undulating sheets and dykes of dolerite, and an asymmetrical laccolith and dyke swarm of alkaline rocks. The alkaline intrusives were probably emplaced along the same system as the dolerites, and regional geophysical surveys appear to preclude the presence of an alkalic stock at shallow depths below the area.

The alkalic rocks are represented by two suites of undersaturated shoshonitic rocks, ranging from syenite porphyry to trachyte, syenite pegmatite and garnet orthoclasite. Contact metamorphic effects are minimal, which reflects the small size of the intrusive bodies and the relatively "dry" nature of the system. Restricted pyritic zones developed near the contacts appear to be the only alteration associated in the sediments. A narrow zone of "hybrid intrusive" containing secondary magnetite, albite, pyrite and minor quartz, has developed along the lower dolerite contact. The top of the syenitic sill is not seen.

Mineralisation associated with the alkalic rocks has been recorded from three areas where weakly developed gold mineralisation occurs in quartz veins associated with the contact pyritic zones in both sediments and the syenite. The mineralisation appears to be restricted and erratic in nature and although values to 153 g/t have been reported, the shallow nature of the workings may suggest

some supergene enrichment. Minor arsenopyrite, chalcopyrite and galena have also been reported. Total gold production is estimated to be 85 kg (3000 oz) from the area, largely from shallow alluvial workings at Lymington.

16.2 GOLD OCCURRENCES

16.2.1 Poverty Point to Lymington: - alluvial gold is reported from streams draining western flanks of the district thought to be derived from contact zones of alkalic intrusives. The lymington flats were considered to offer the best alluvial prospects.
One bedrock shaft was sunk near Kings Hill Road but no payable rock was found.

16.2.2 St. Mary Mines: - pyrite developed in Permian tillite. Alkalic dykes and ferruginous quartz veins, to one metre thick, carried erratic gold values up to 153 g/t.

16.2.3 Livingstone Mine: - an 18m shaft was sunk on quartz reefs developed in syenite porphyry near contact with mudstones. Minor arsenopyrite, pyrite, chalcopyrite, galena was associated.

The Permian sequence in the vicinity of the intrusive rocks is pratically non-calcareous and as such there is only a very small possibility of it forming a host to replacement type gold mineralisation.

16.3 PREVIOUS INVESTIGATIONS

16.3.1 Picheney Australia, 1971 (M.R. 71-775; 71-835)
Picheney conducted a regional survey in the area which was primarily aimed at exploration for uranium and any associated Mo, Cu mineralization which may be related to the alkali igneous rock suite. Geological mapping, geochemistry and radiometrics were used to conduct this work.

No significant anomalies were detected and further work was not recommended. No work aimed at gold was carried out.

16.3.2 Loisa Mining Corporation (1977) [M.R. 77-1243]
Reference has been seen to this drilling report but it could not be located. The results are unknown.

16.4 CONCLUSIONS AND RECOMMENDATIONS

This represents a very low priority target area, however continuing monitoring of the results obtained by the present holders of the mineral titles (Amoco) may provide cause for re-evaluation at a later stage. No work at the present time is justified.

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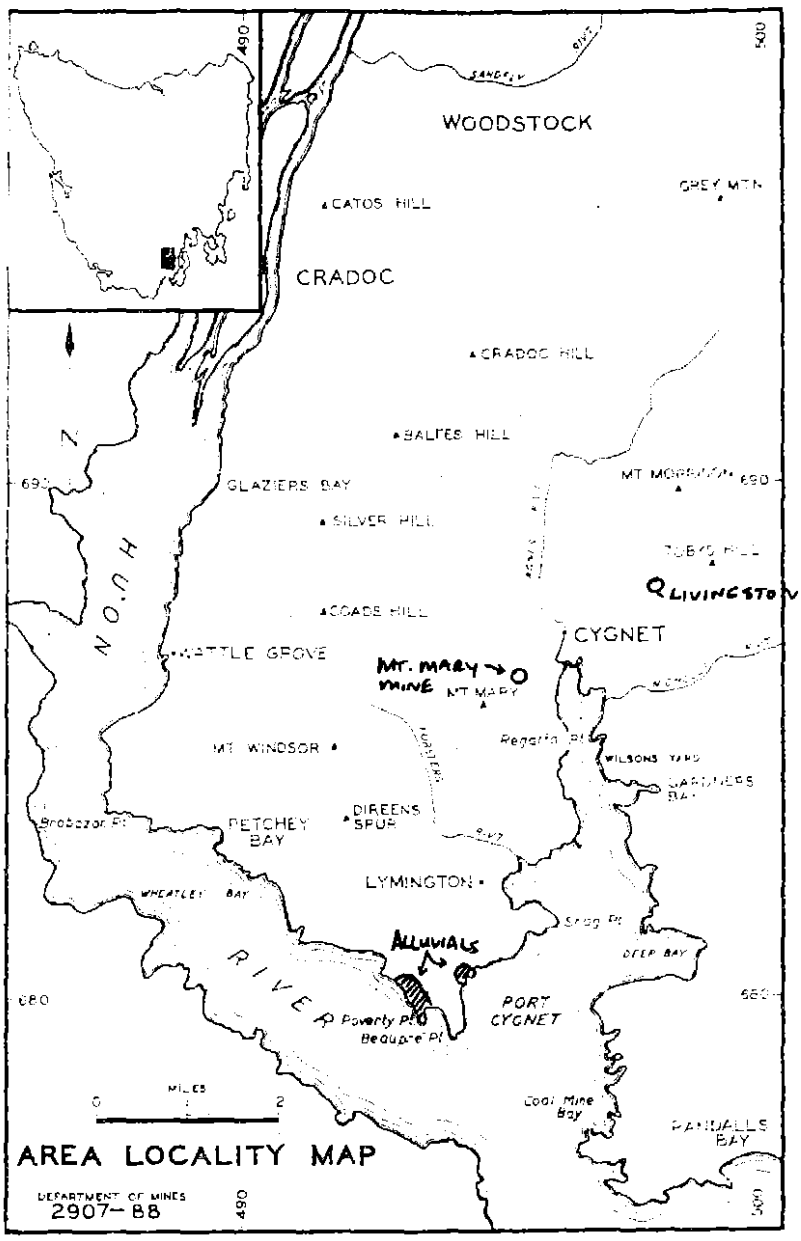

Fig 16.1 Cygnet area locality map.

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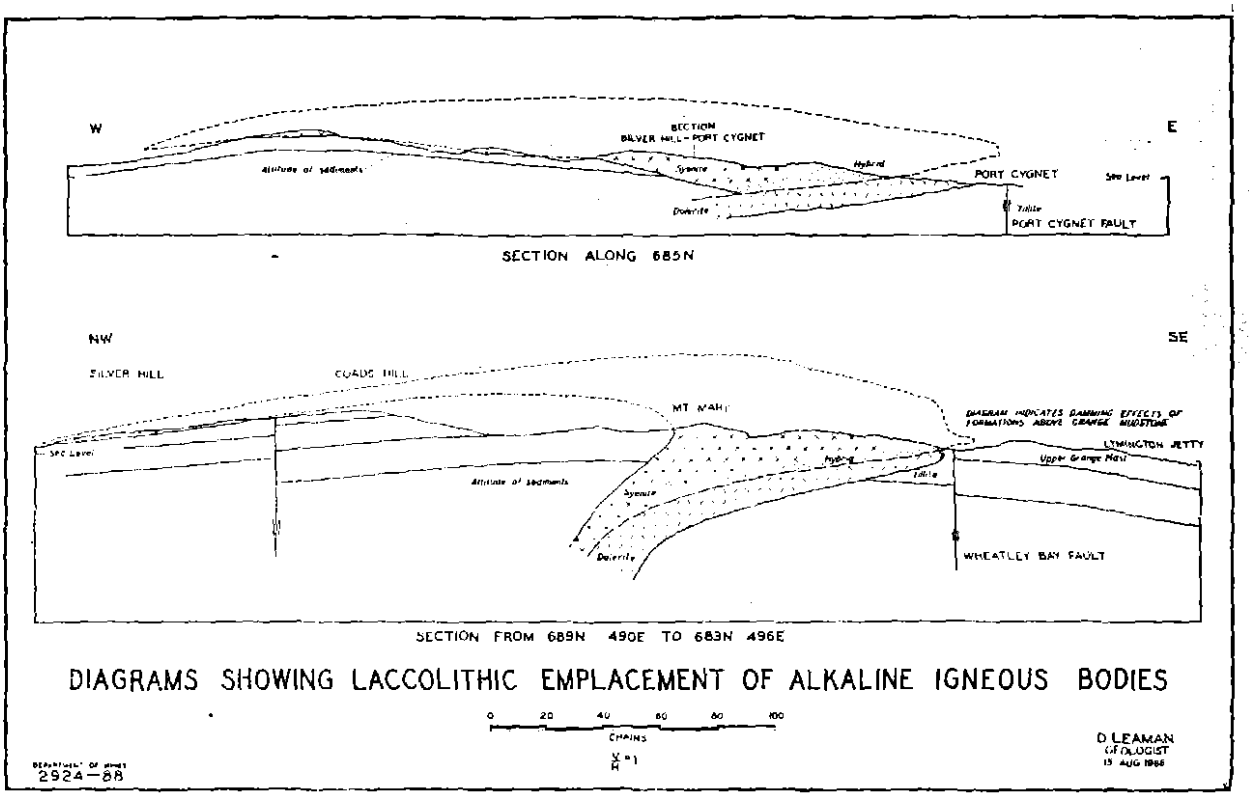

Fig 16.2. Showing Form of Alkalic Intrusive Body - Cygnet Area.

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LITERATURE SEARCH

PROSPECT : CYGNET.

NUMBER :

LOCALITY : 35 km. SW Hobart.

MAP SHEET : Kingsborough. 5.98. 1:50,000.

COMMODITIES : Au.

MINING HISTORY : - Alluvial working on the Lymington Flats round to Petcleg Bay.
- Several shafts on Mt. Mary.
- Livingstone Mine, Toby's Hill } reefs at or near Syenite contacts.

PAST PRODUCTION :

GRADE :

est. 3000 oz. mainly alluvial.

RESERVES :

STYLE OF MINERALIZATION : - Gold on contact of Syenite in sediments, & in quartz veins in Syenite (Livingstone).
- minor galena, chalcopyrite reportedly associated.

STRUCTURE :

SUMMARY : Permian Sediments, including basal tillites & Conglomerates, are intruded by small Cretaceous syenitic bodies of sill-like nature, and variable porphyritic Syenites and trachytes as younger dykes. over a wide area centred on Cygnet, Oyster Cove and Woodbridge.

- This is a relatively "dry" system, although pyrite is relatively common in the intrusives and in contact sediments, but there is only minor hydrothermal alteration. Presence of gold may indicate favourable potential at deeper levels in the complex.

PREVIOUS COMPANY REPORTS :

CURRENT MINING TITLE :

RECOMMENDATIONS : - Distribution of Syenite might indicate high in Igneous sequence; but if Leaman model is correct there is only limited potential.
- Monitor results of Amoco's work.

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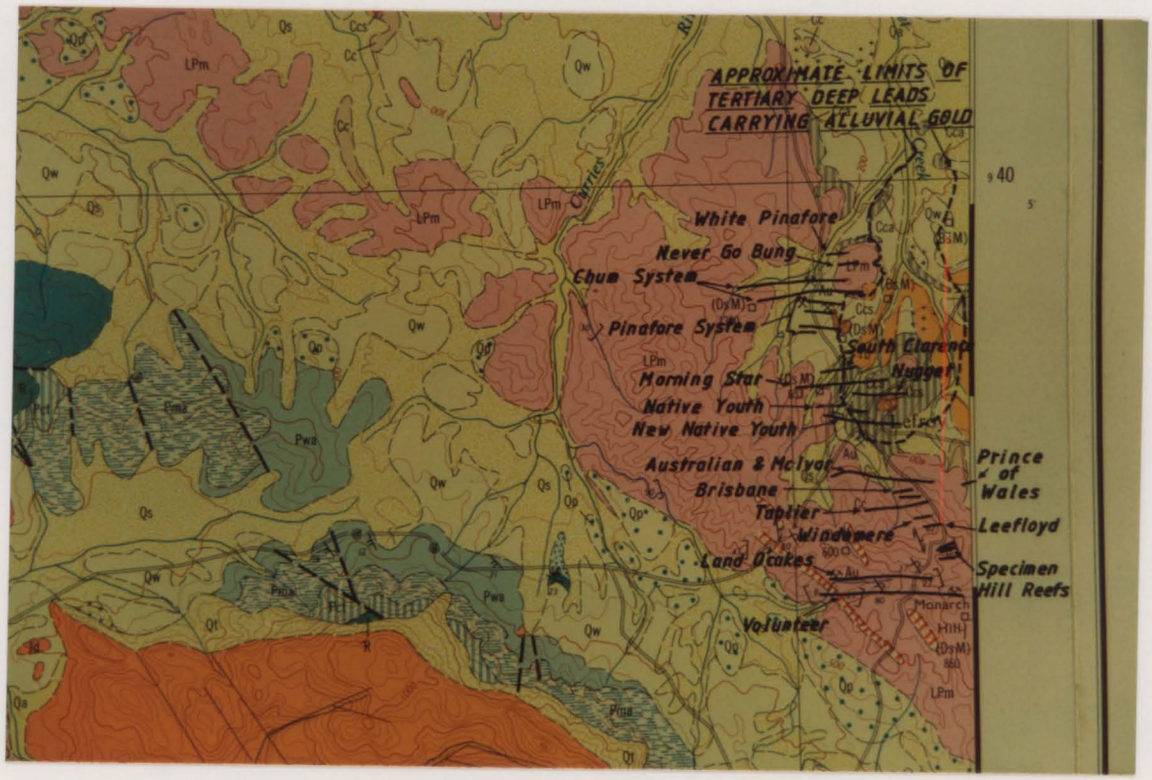
PLAN 2



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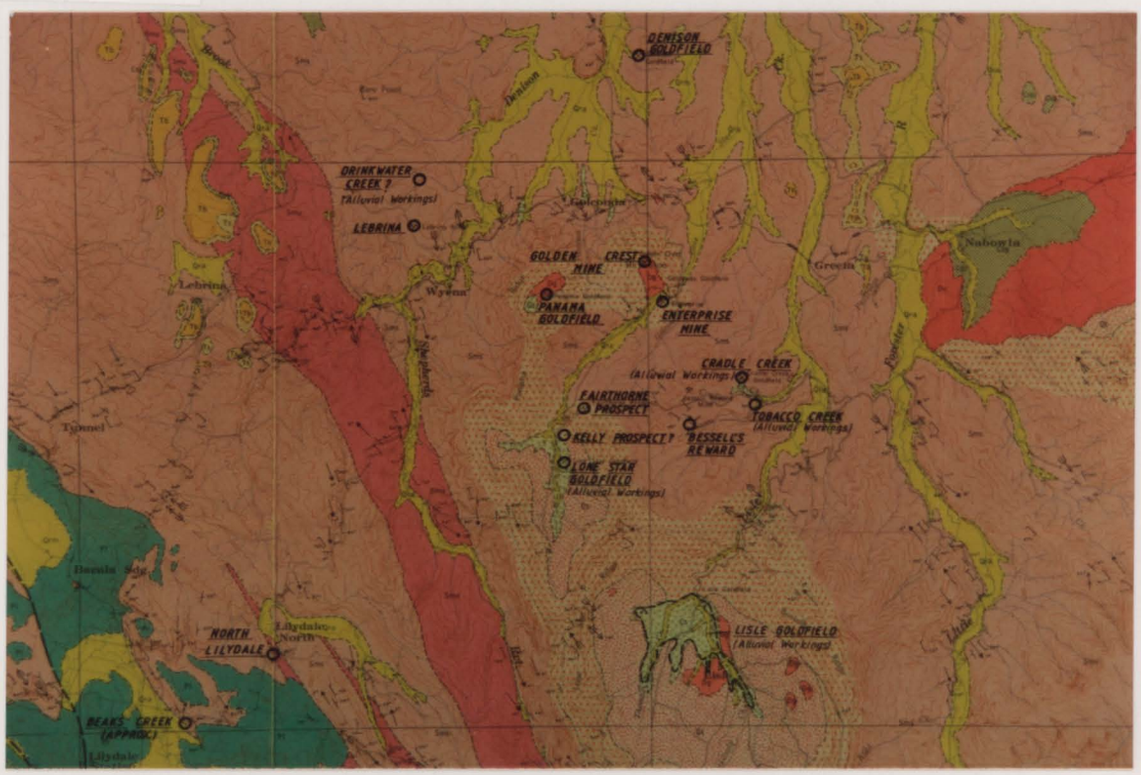

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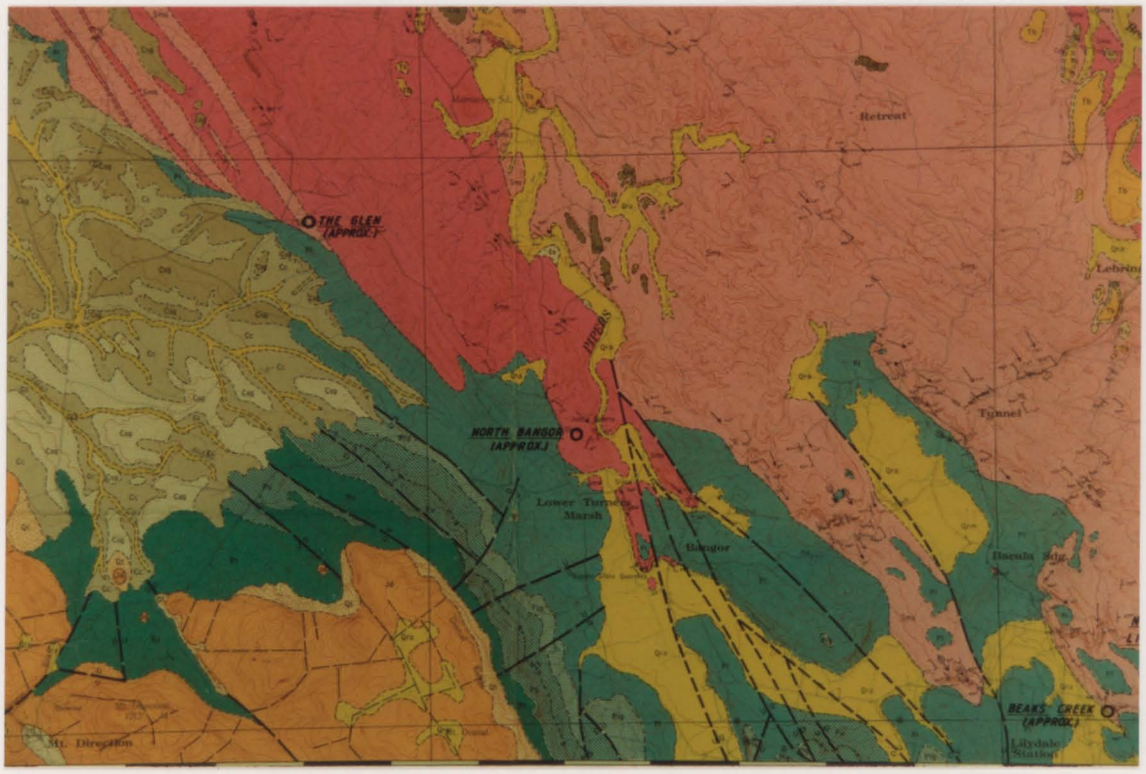

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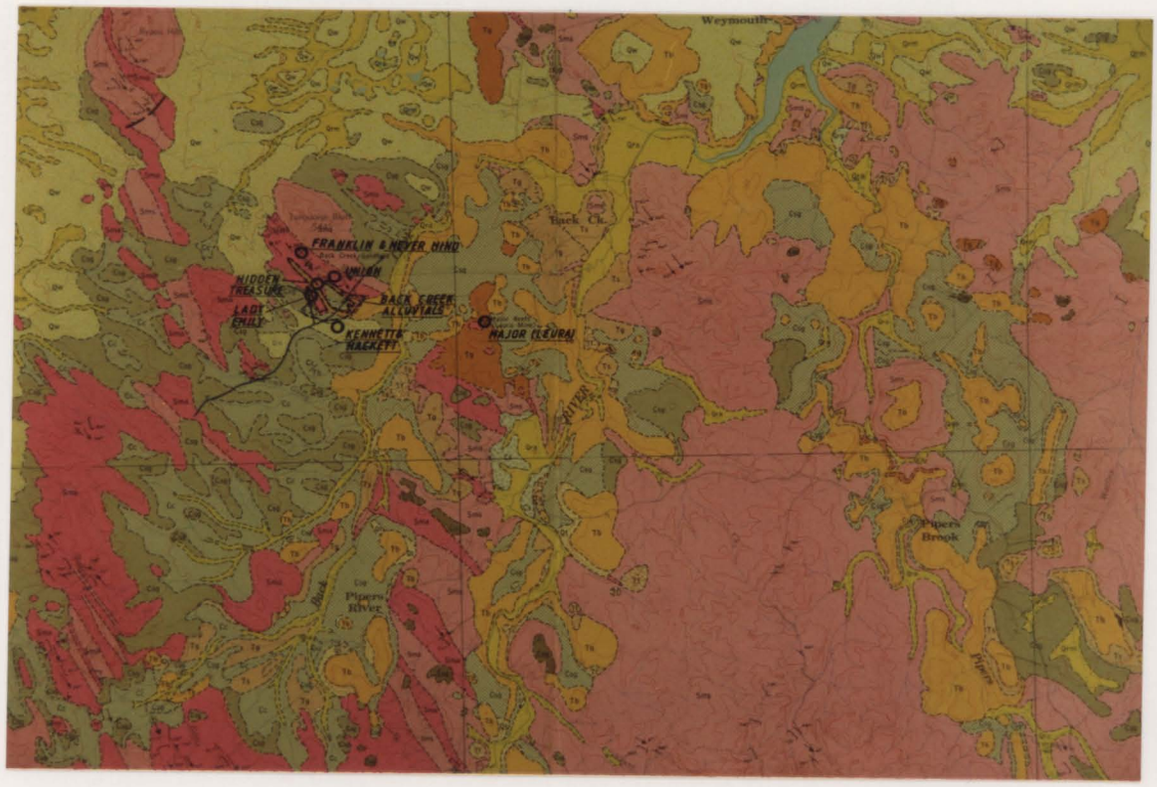

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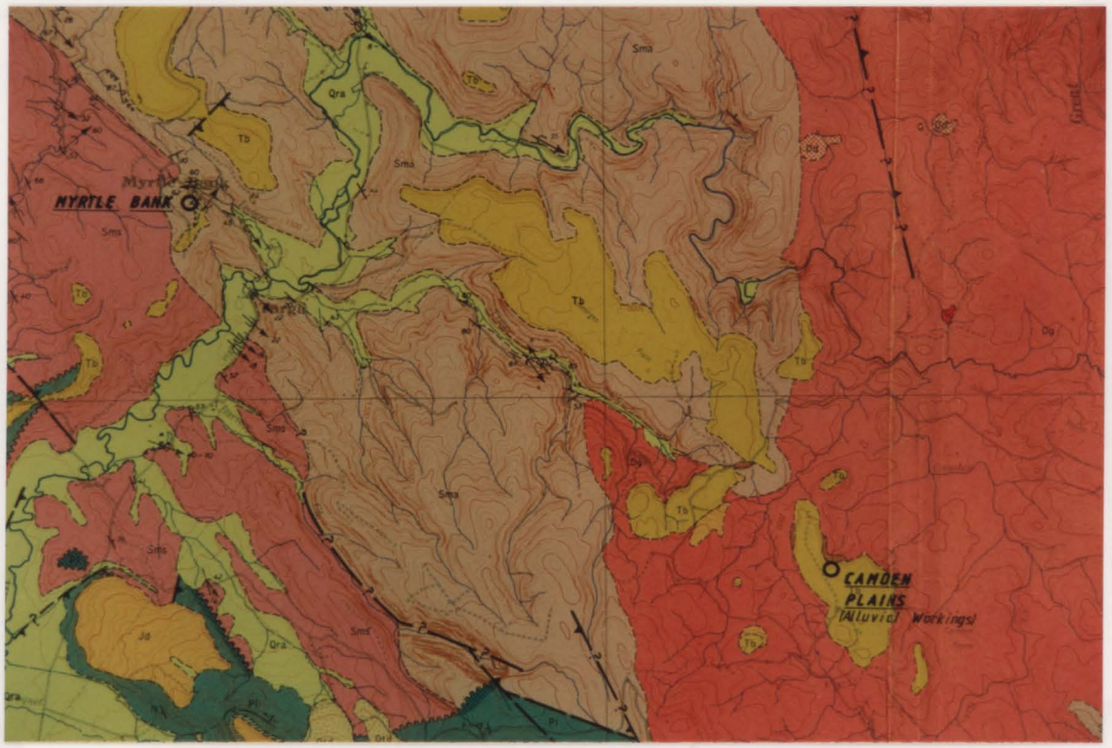

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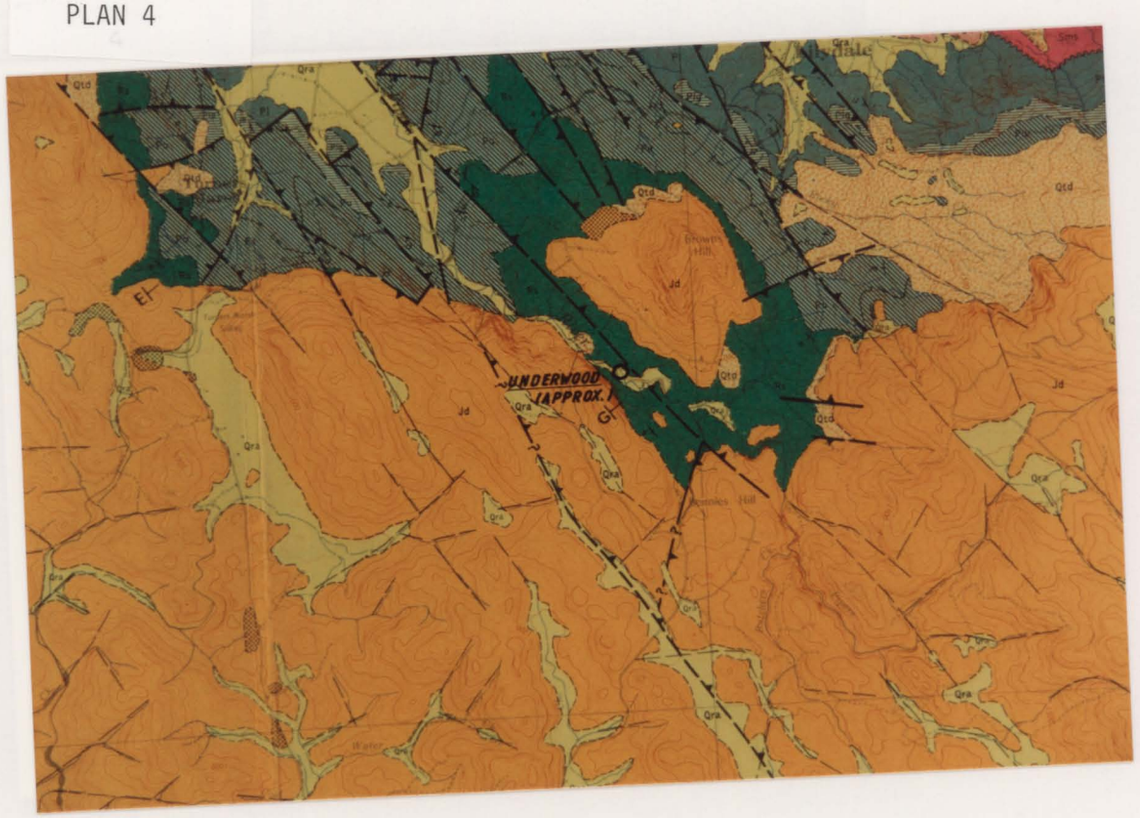
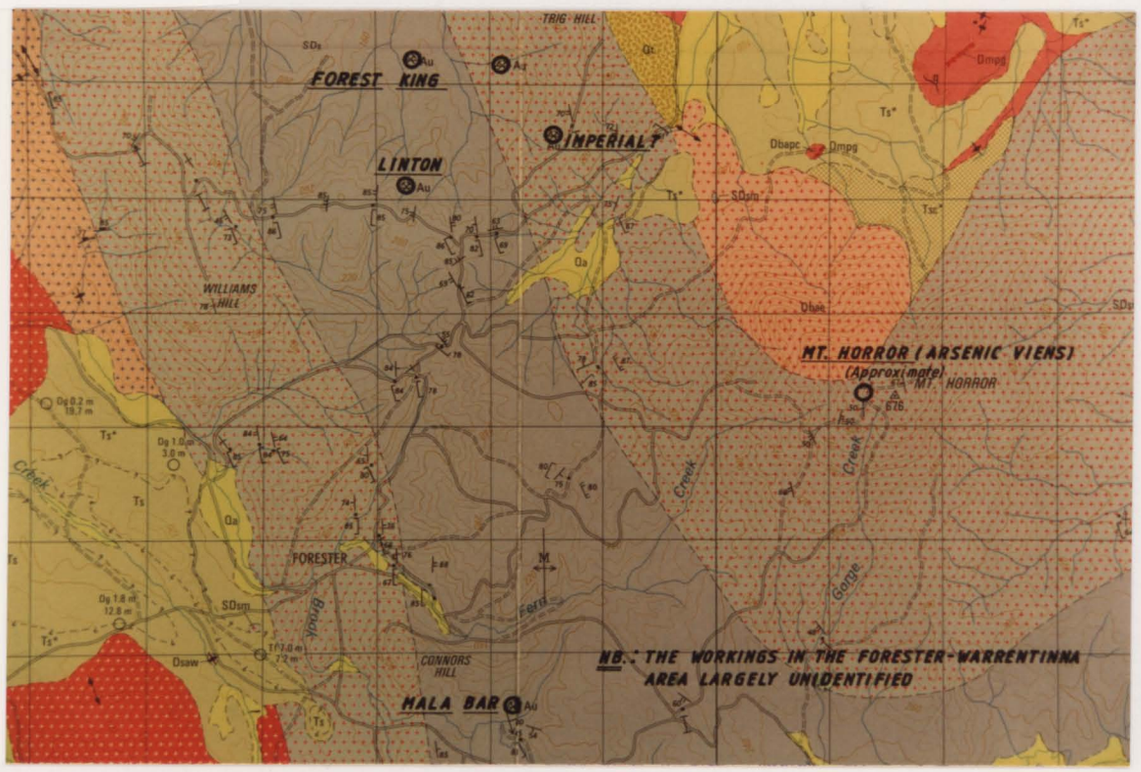


PLAN 5

PLAN 6



477354

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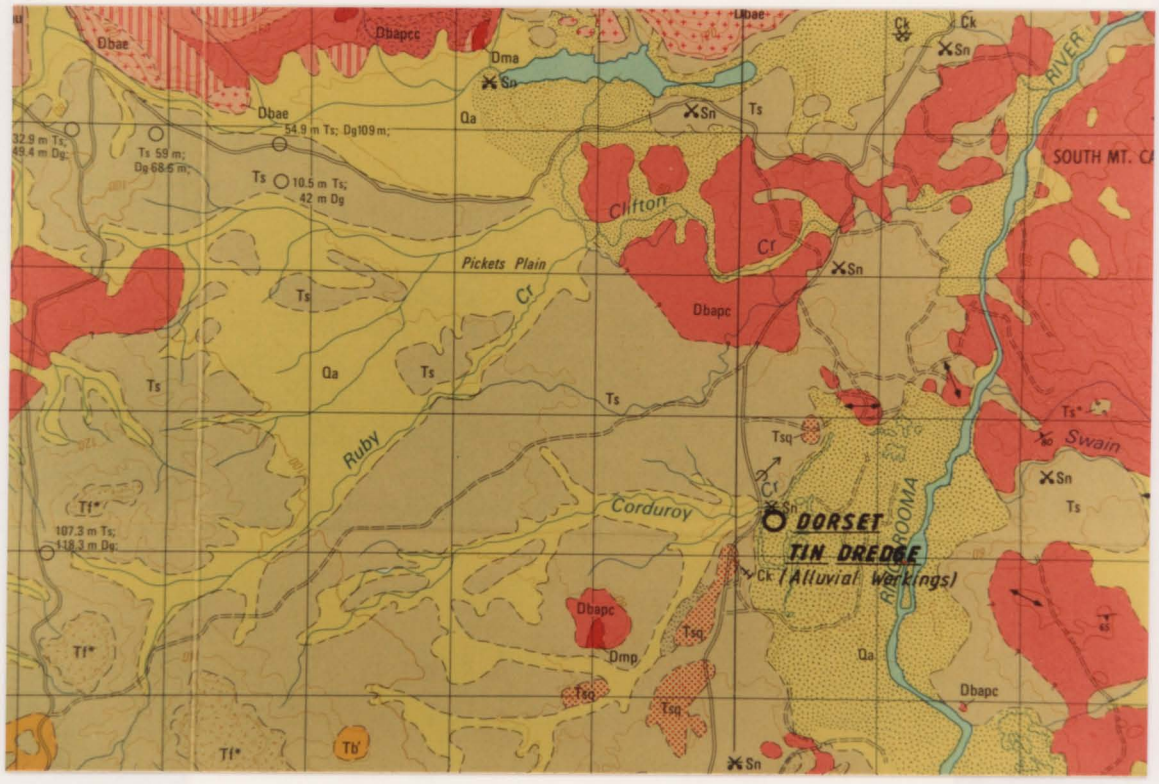

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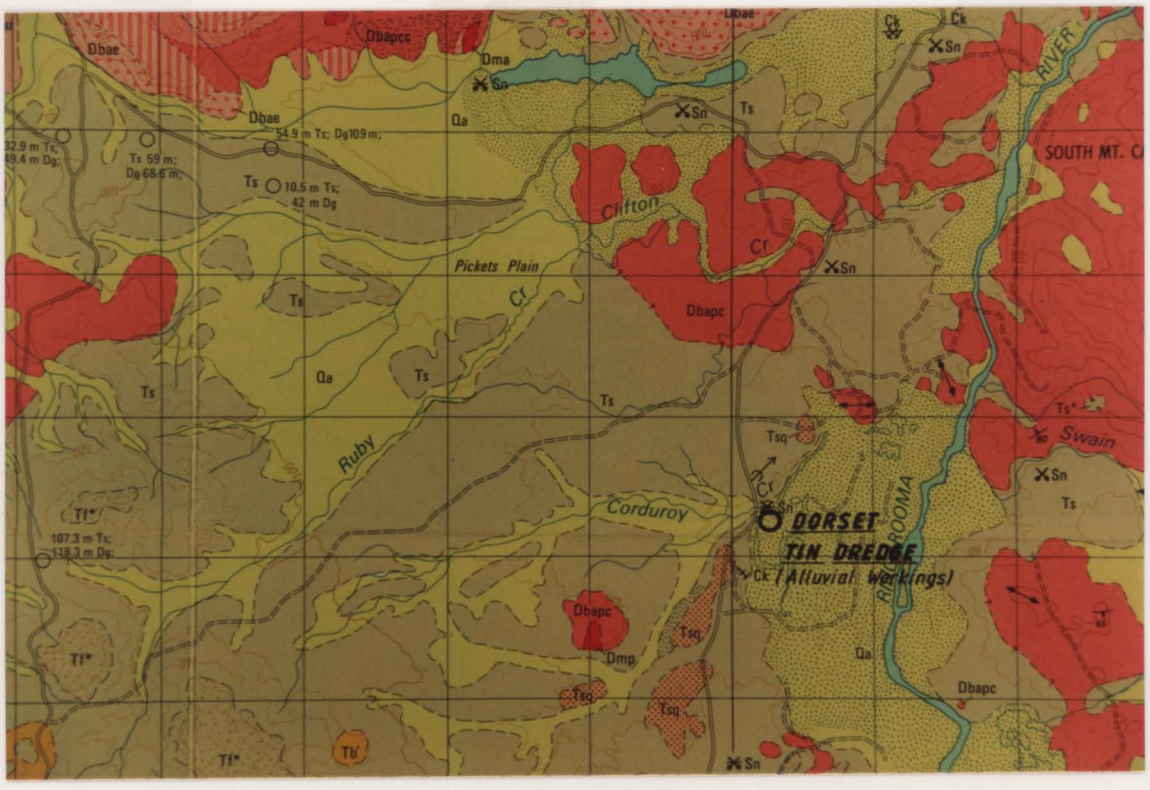

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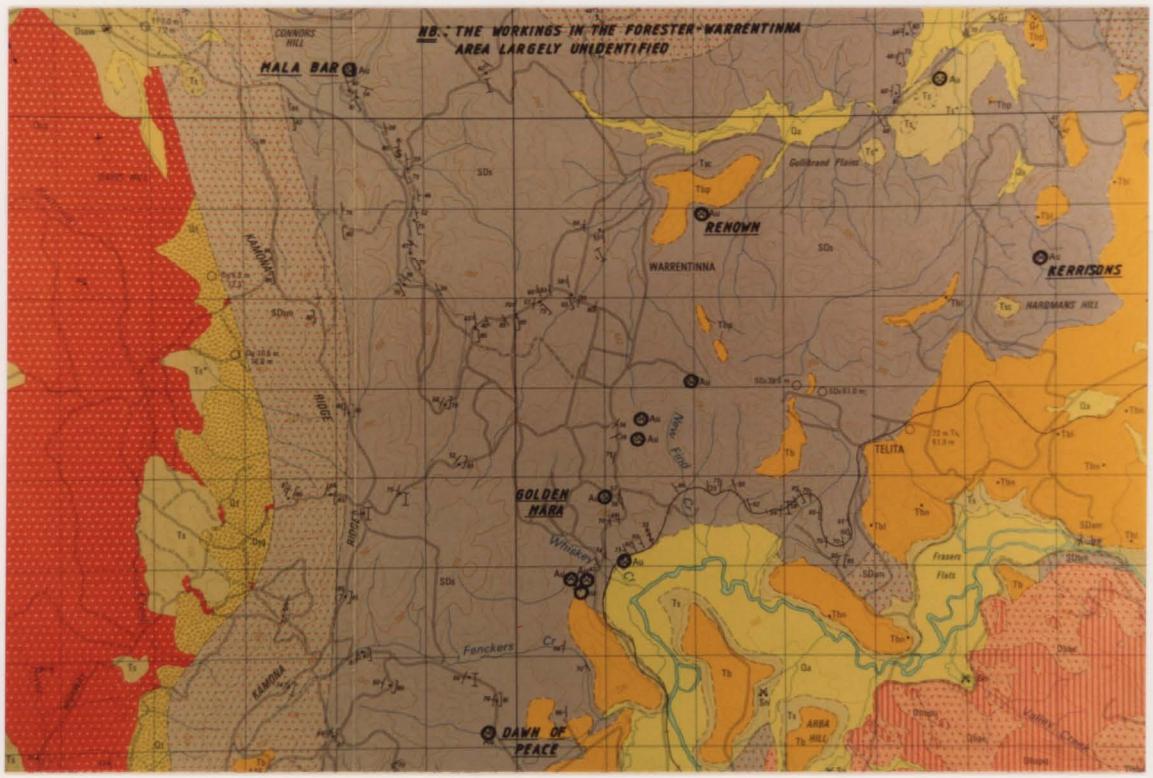
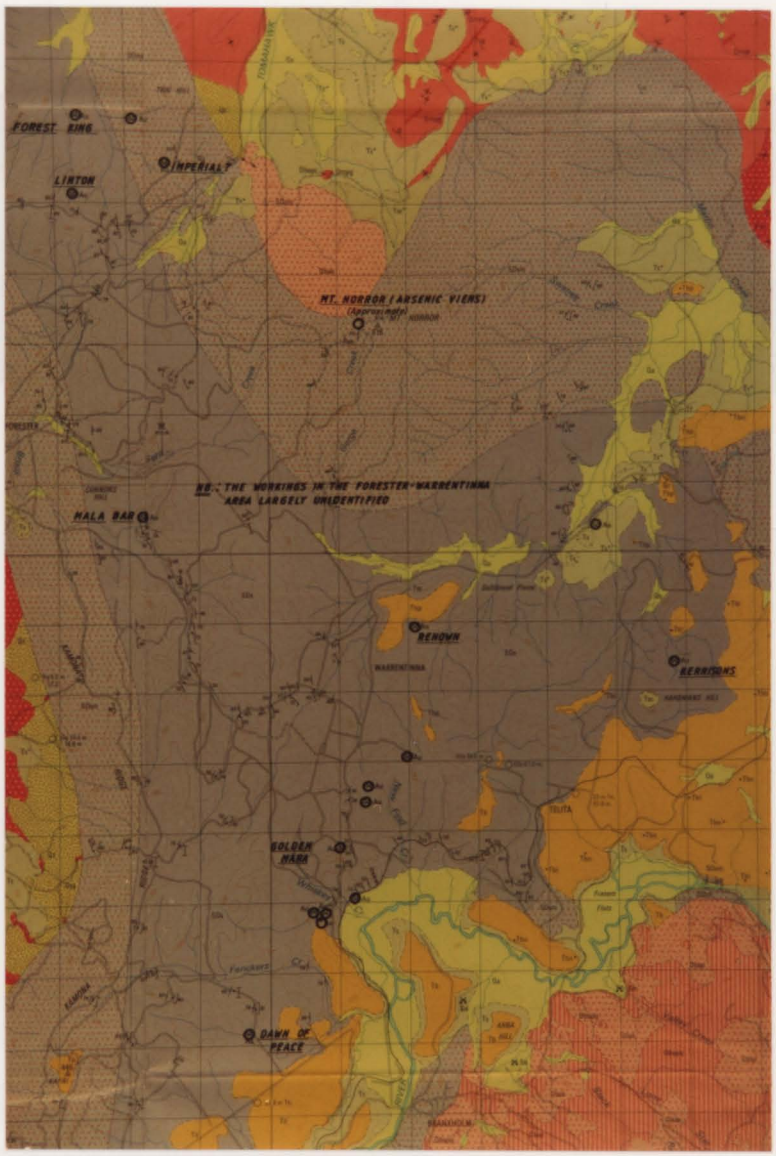
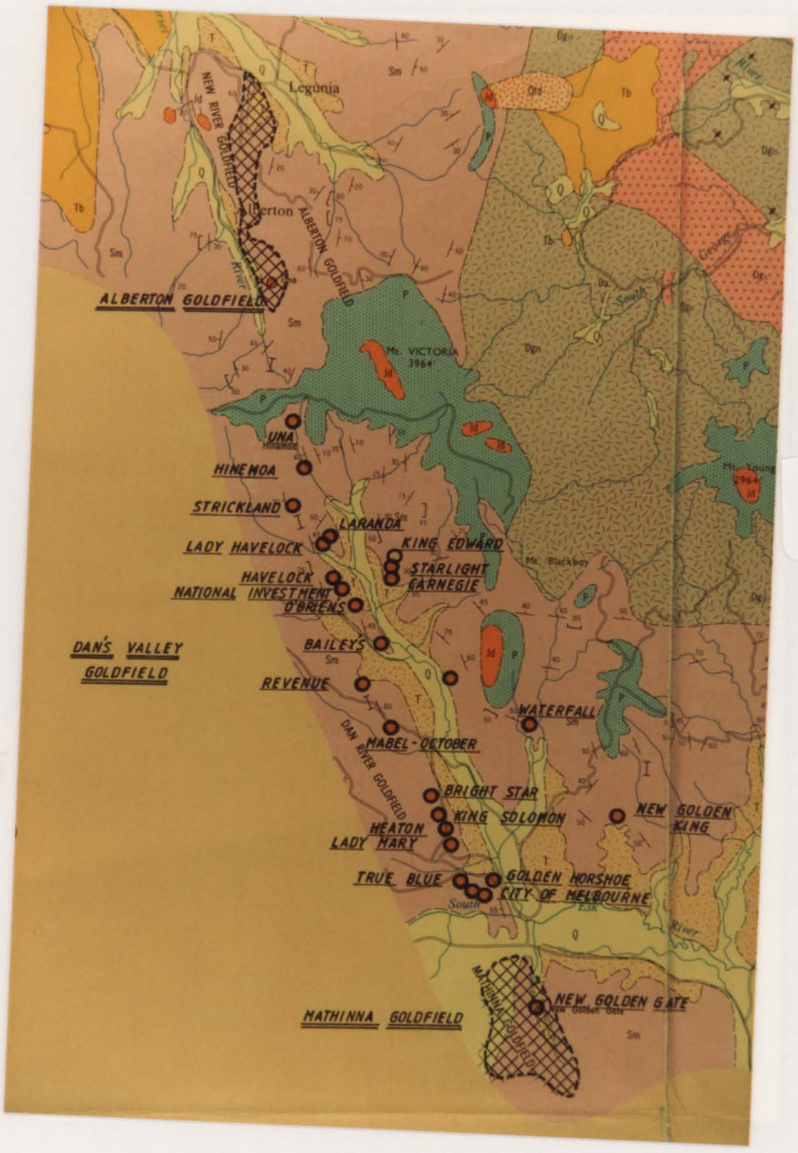


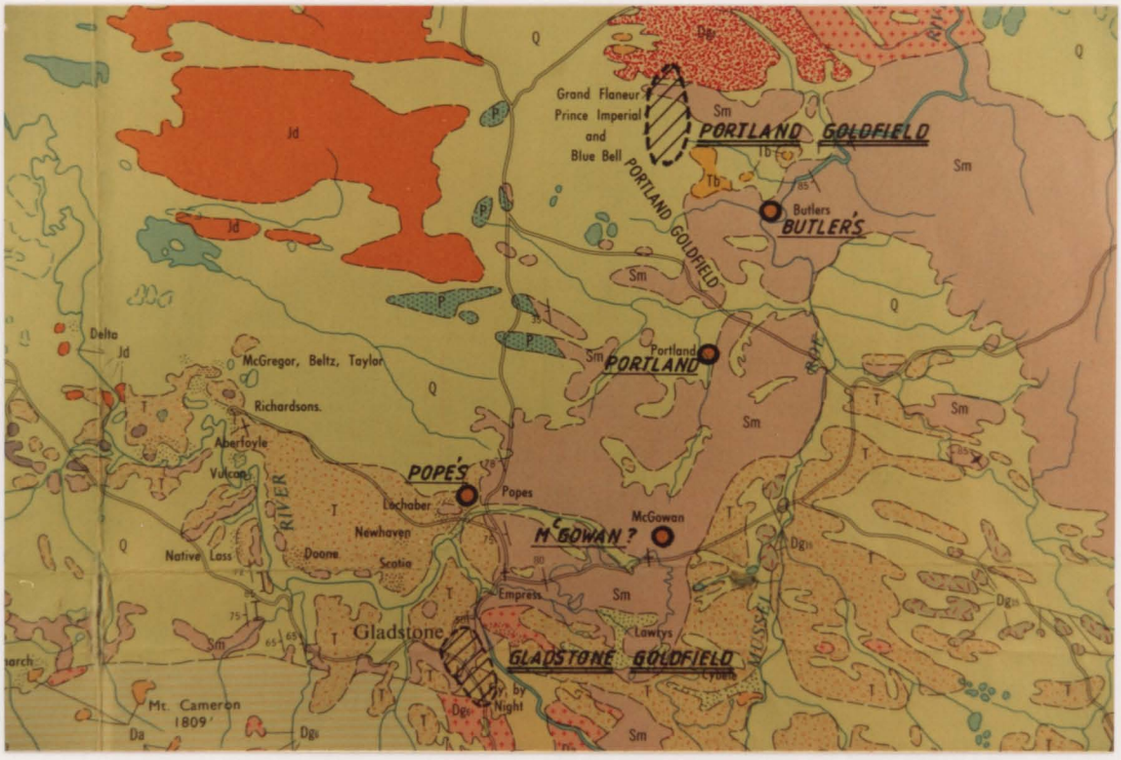
PLAN 6



PLAN 6

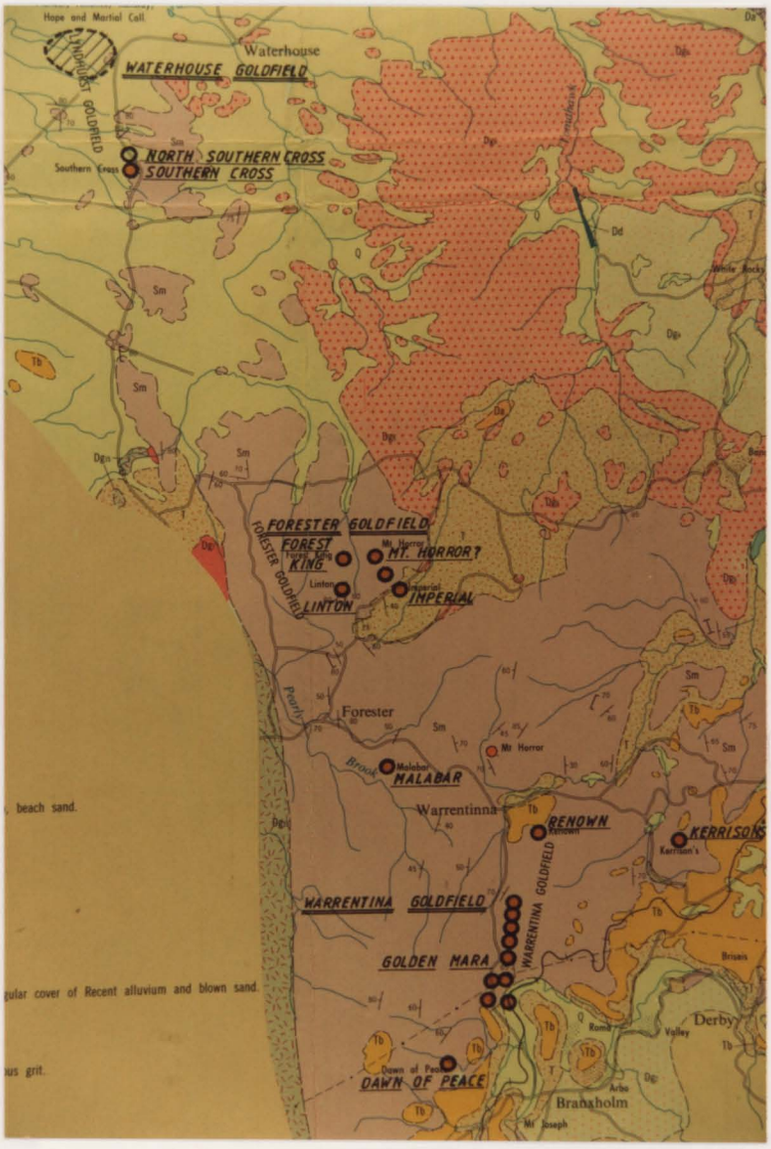


PLAN 7



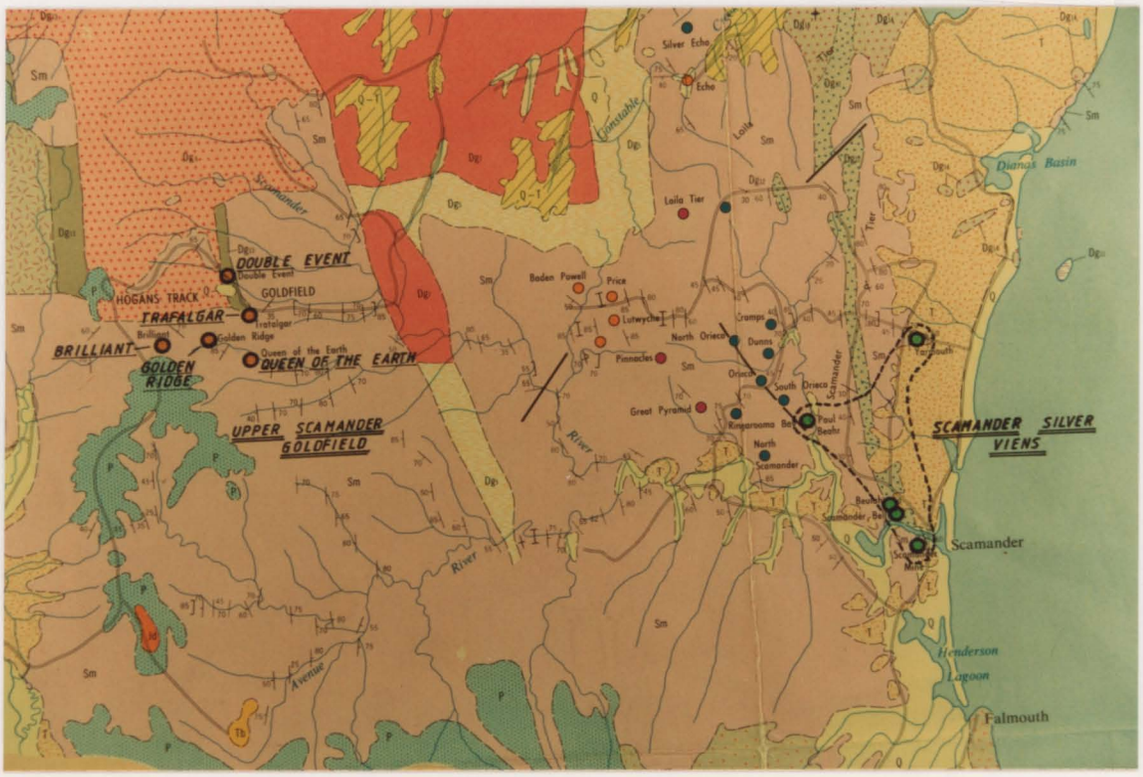
PLAN 7

477357



PLAN 7

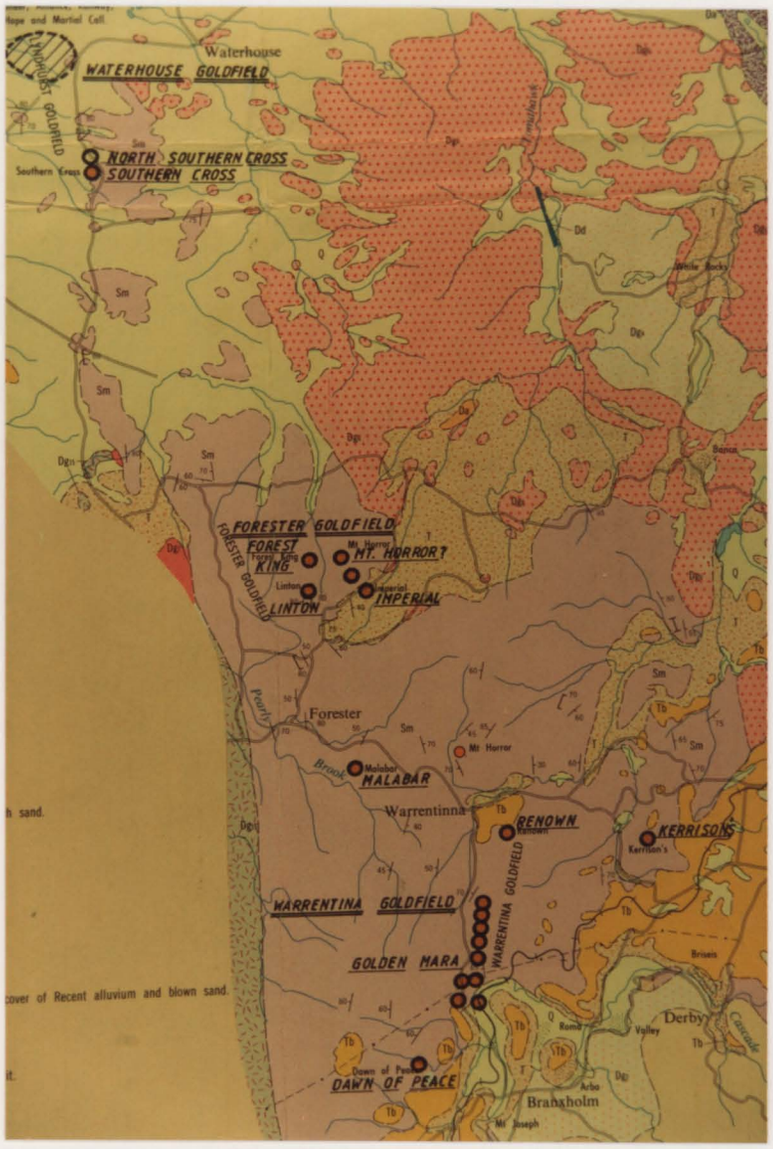
PLAN 7



477358

PLAN 8

PLAN 7



477360

PLAN 8

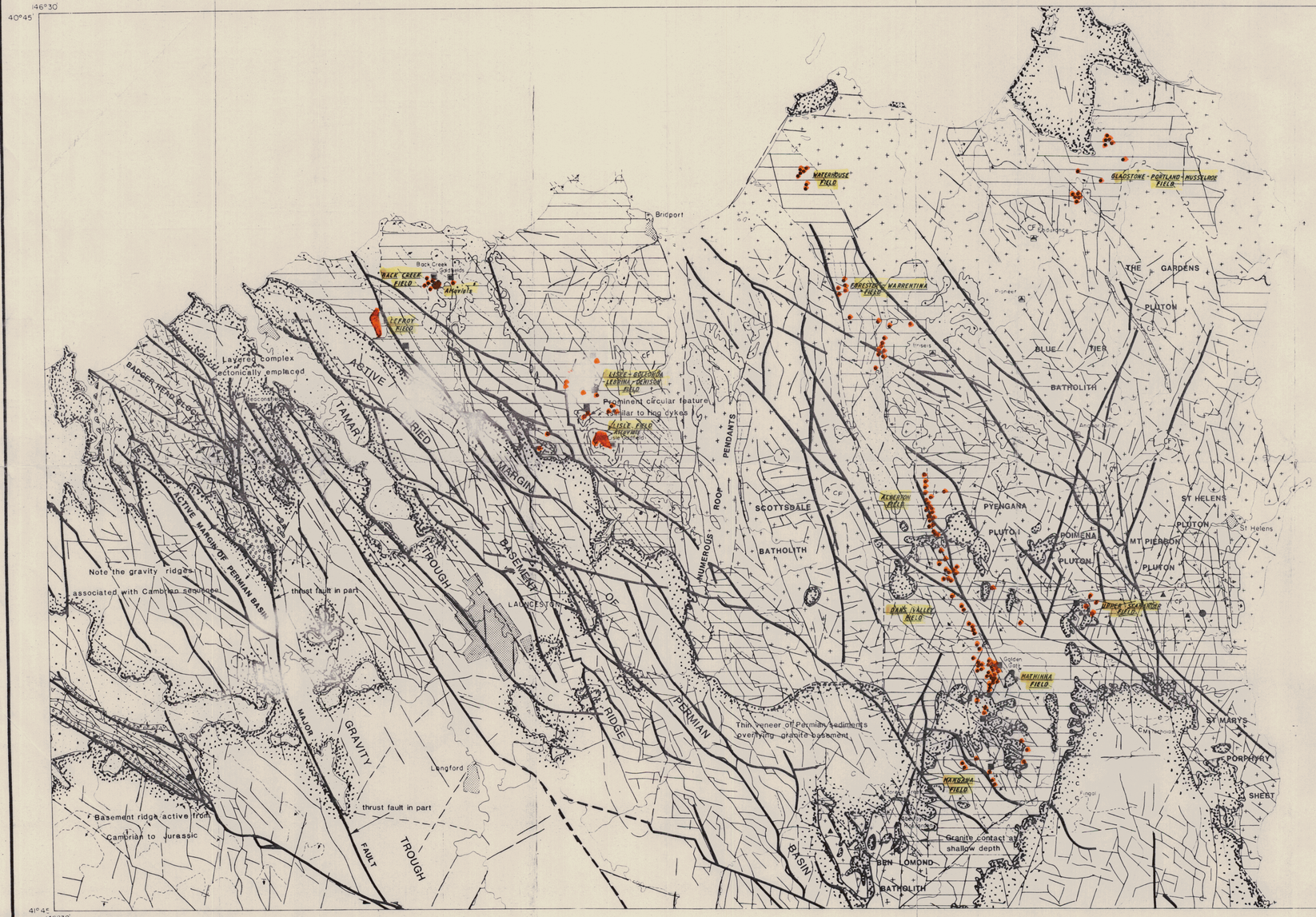
DISTRIBUTION OF GOLD OCCURRENCES IN N.E. TASMANIA

INTEGRATED LANDSAT STUDY

TASMANIA

Scale 1 250 000

5 0 5 10 15 20 25 30 35 40 45 50 km



GEOLOGY MAP

Thrust fault (barbs towards overriding block or allochthon)

Major fault lineament of regional significance

Major lineament

Fracture pattern - subordinate fault (of local significance)

Lineament/fault coincident with regional gravity data

Lineament/fault coincident with regional aeromagnetic data

Geological boundary - position inferred

Geological boundary - position approximate

Major river or creek

TERTIARY

TRIASSIC PERMO-CARBONIFEROUS

UPPER DEVONIAN

LOWER CARBONIFEROUS

LOWER DEVONIAN TO CAMBRIAN (?)

LOWER DEVONIAN TO ORDOVICIAN

CAMBRIAN

PRECAMBRIAN

Basalt lava flows, pyroclastic rocks

Parmeneer Super Group: fluvio-lacustrine sequences of sandstone, siltstone and mudstone; coal measures in middle and upper sections, pebbly sandstone and tillite towards base of sequence

MAJOR UNCONFORMITY

Granitic rocks: adamellite, granodiorite, granite and porphyry

Mathinna Beds: Micaceous greywacke, sandstone, and siltstone (turbidite sequence), overlying slate, phyllite and subordinate feldspathic siltstone (older argillaceous sequence)

Limestone, siltstone (Gordon Limestone) and sandstone - shale sequence; conglomerate and sandstone (Owen Conglomerate, Reeds Conglomerate) Volcaniclastic rocks

Greywacke turbidite sequence; acid to basic - intermediate volcanic and associated rocks (V)

Ultrabasic rocks: serpentinite, peridotite and associated rocks; coarse grained basic rocks

Undifferentiated metamorphosed sequences (quartzite, amphibolite, garnet bearing rocks and comparatively un-metamorphosed sequences (mudstone - sandstone - greywacke of turbidite association: minor conglomerate)

NOTE: Jurassic dolerite has been removed

MINERAL OCCURRENCES

- Alluvial deposits
- Coal
- Os Iridosmine Osmiridium
- Copper
- Lead-Zinc
- Gold
- Tin, tungsten
- Chromite
- Cro Crocoite
- Ba Barite
- Fe Iron
- Nickel
- As Asbestos
- Oil shale

Strike and dip (adapted from published 1:250,000 scale geological maps)

Geological boundary, position concealed and deduced

Overturned bedding

Dome structure

Basin structure

Foliation of metamorphic rocks

Bedding

Overturned anticline

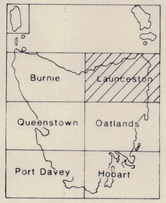
Overturned syncline

Antiform

Synform

H Hot spring

SHEET INDEX DIAGRAM

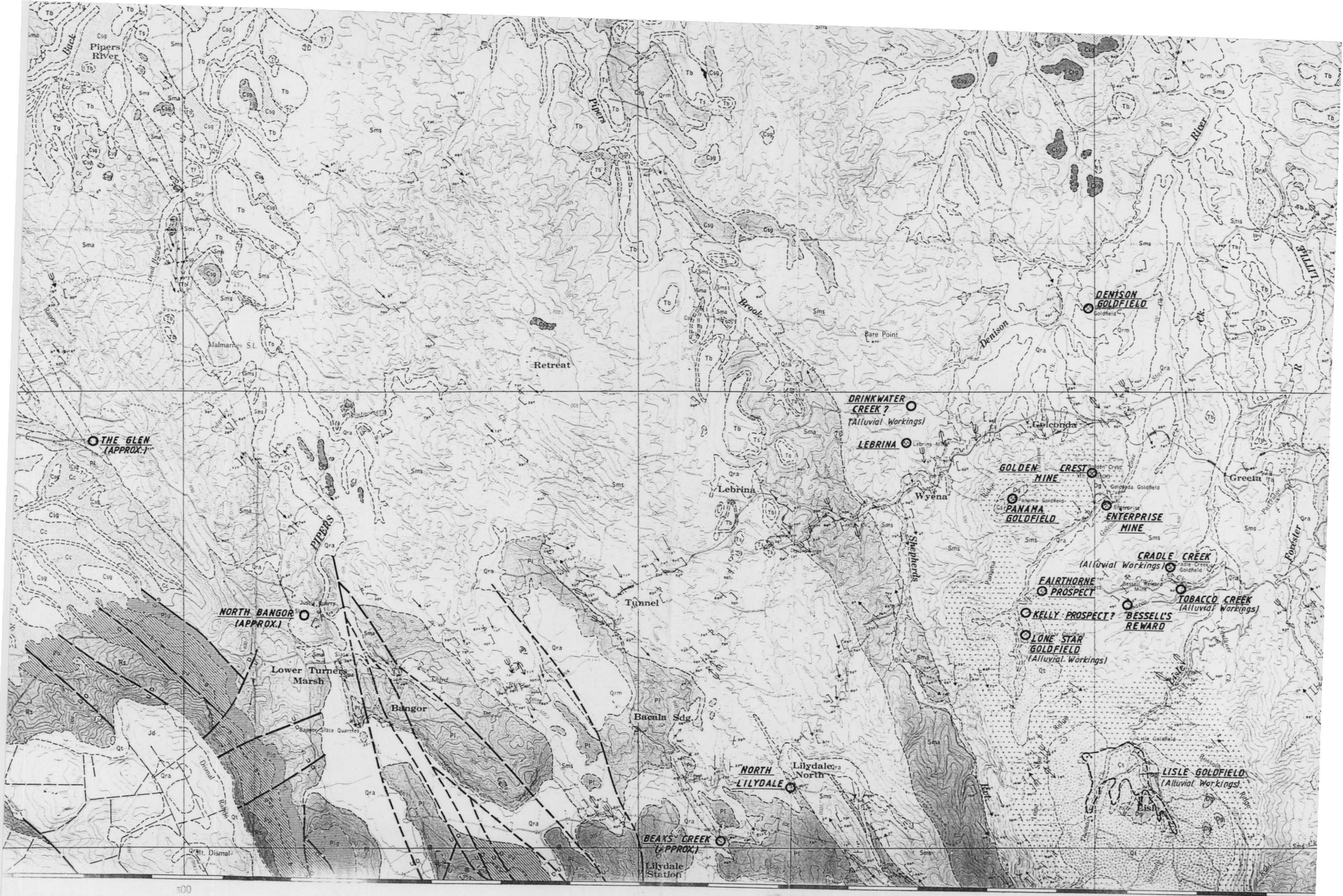


477361

Hunting Geology and Geophysics (Australia) Pty. Limited

Hunting

PLAN 1



90-3140.

477362

Mcomie (1981) Plan 3

LD OCCURRENCES

eins & Alluvials - Lefroy Goldfields

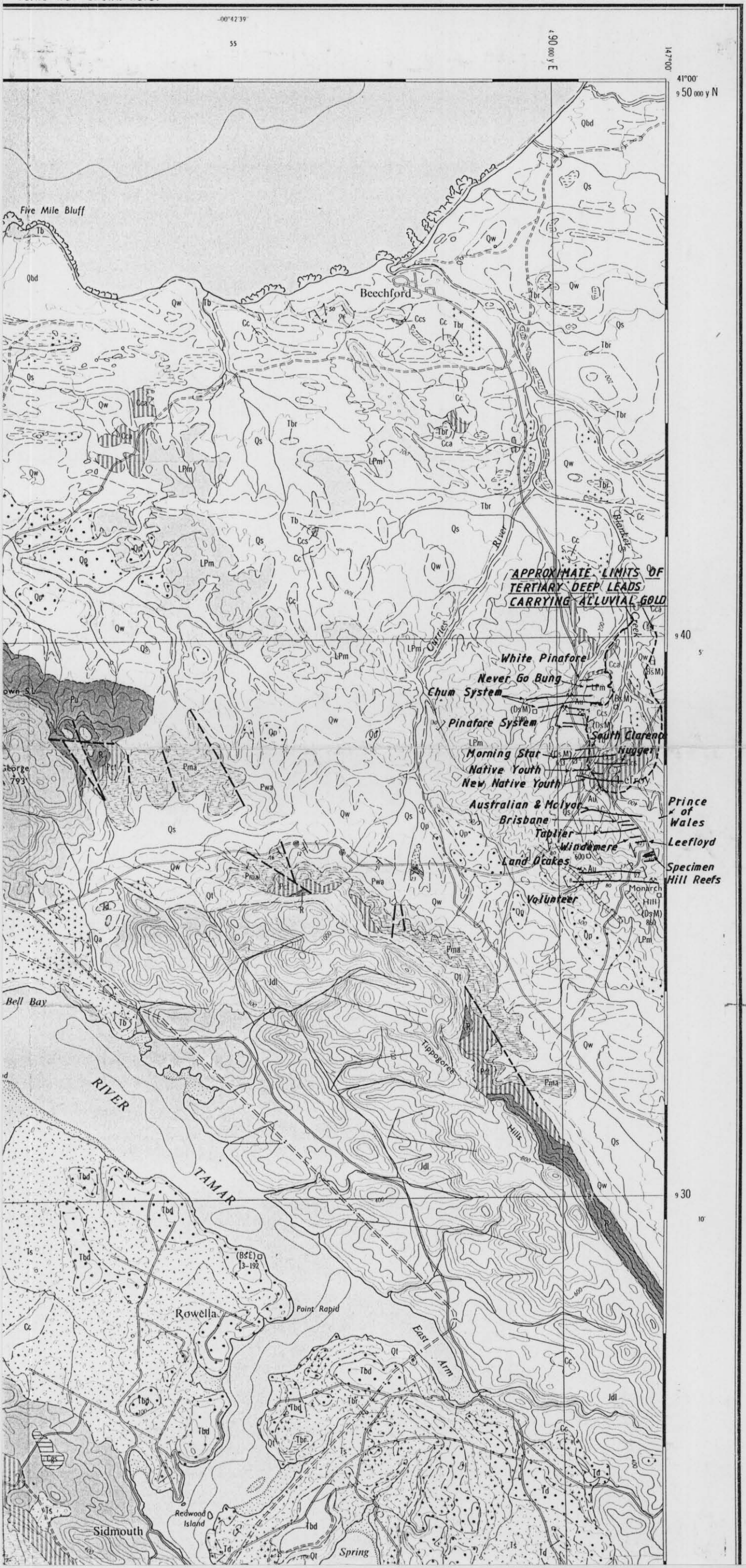
r veins not shown here.

GEOLOGICAL ATLAS 1 MILE SERIES
8215N I IV ZONE 7 SHEET N° 30

Mcarie (1988) Plan 2

477363

90-3140.



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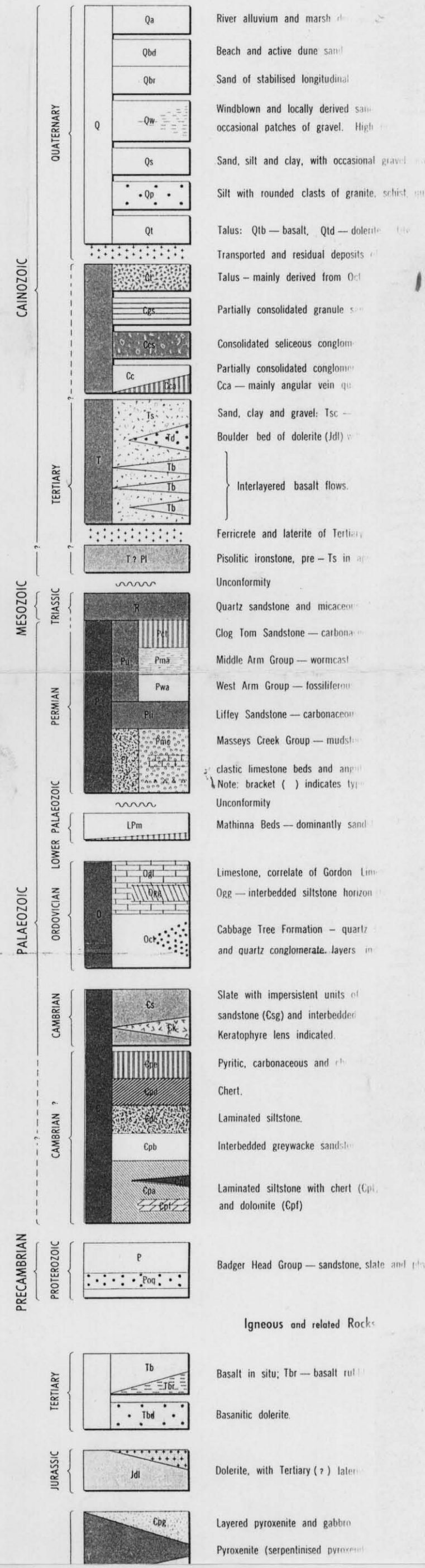
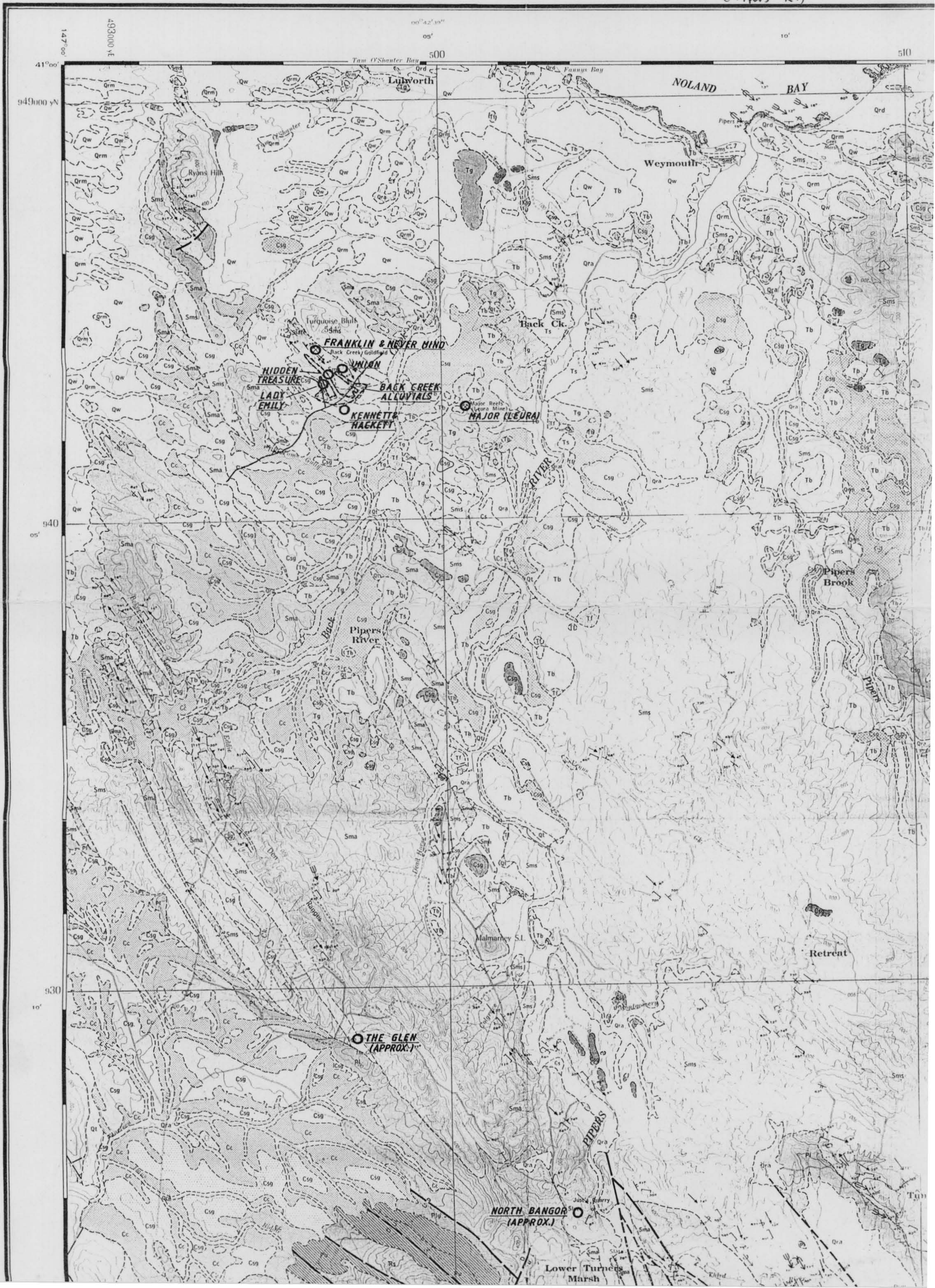


90-3140.

477364

Mc Onie (1983) plan 3 (Pipers R.)

FIRST EDITION 1965 1 : 63360


147°00'
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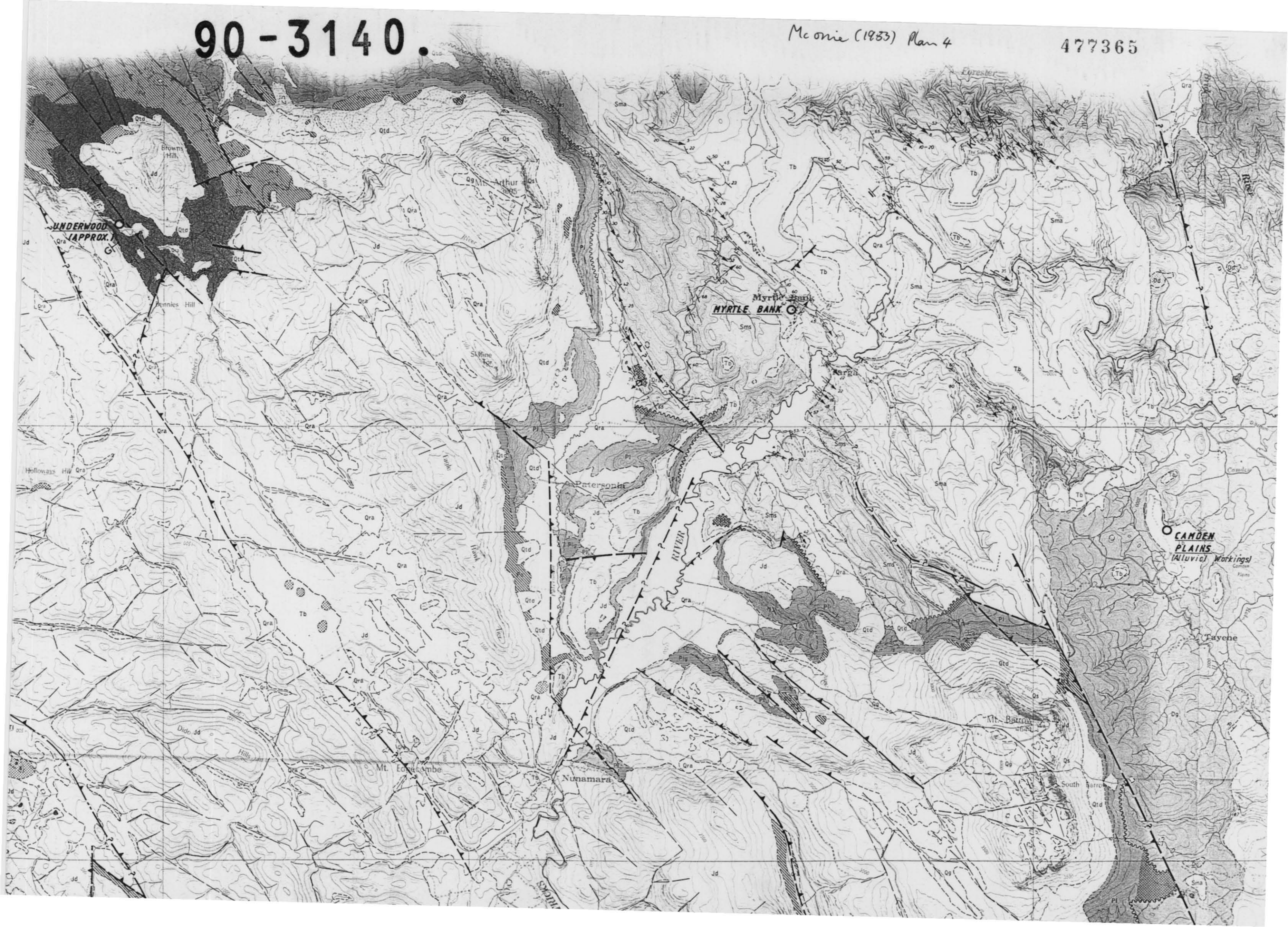
10'
500
510
41°00'
949000 yN
940
05'
930
10'
Tam O'Shanter Bay
Fannys Bay
NOLAND BAY
Lulworth
Weymouth
Pipers Head
Ryans Hill
Turquoise Bluff
544
Slate
FRANKLIN & NEVER MIND
Back Creek Goldfield
UNION
HIDDEN TREASURE
BACK CREEK ALLUVIALS
LADY EMILY
KENNETT & HACKETT
Major Reefs (Leura Mine)
MAJOR (LEURA)
Back Ck.
RIVER
Back
Pipers River
Pipers Brook
Pipers
Eddie
Den Ranges
Devil Horse
Malmarney S.L.
Retreat
THE GLEN (APPROX.)
The Glen
PIPERS
NORTH BANGOR (APPROX.)
Just's Quarry
Lower Turners Marsh

90-3140.

Mc onie (1983) Plan 4

477365



Croppies Point
Croppies Bay
South Croppies Point
ONE TREE HILL
HARDWICKES HILL
Little Waterhouse Lake
Waterhouse
TOBACCO HILL
Sanderson Rocks
Lake Cr
Big Waterhouse Lake
Hopetoun Road
Blackmans Lagoon
BLACKMANS LOOKOUT
Beach
Drains
Ainslie
Bar Lona
WATERHOUSE
Stony Chimney Cr
MARTIAL CALL
PIONEER
ALLIANCE
RAILWAY
HOPE
Lyndhurst
Barooga
NORTH SOUTHERN CROSS
SOUTHERN CROSS
Marengo
Deepwater Cr
Deepwater
Toddys Plain
Koreen
Great Forester River
BULGER HILL
Oxberry Plains
Sheepwash Creek
Dbapc
Qpu
Qha
Qhb
Jdl
Qpcm
Dmg
Dma
Dmc
Tss
Ts
SDs
SDsm
Qpo
Qpt
Dsg
Tba
Dmpg
Qpu 0 Dbapc2 38
Qhb 0 Qpu 23 32
Qpu 0 Ts 13 Dsg 36 62
Qpu 0 Ts 17 Dsg 24 52
Qpu 0 Ts 14 Dsg 95 98
Qpu 0 Ts 5 Dsg 60 71
Qpu 0 SDs 3 48
Qpu0 SDs 7 61
35'
s50000mE
40'

UNIVERSAL GRID REFERENCE

	TO GIVE A STANDARD REFERENCE ON THIS SHEET TO NEAREST 1,000 METRES
	SAMPLE POINT: ▲ MT CAMERON
1. Read letters identifying 100,000 metre square in which point lies:	EQ
2. Locate first VERTICAL grid line to LEFT of point and read LARGE figure labelling the line in either the top or bottom margin:	79

Mconie (1980) Plan 5

HORIZONTAL DATUM: Australian Geodetic Datum 1966.
GRID: Black numbered lines are 10 000 metre intervals of the Australian Map Grid, Zone 55.
NOMENCLATURE: Topographic names on this sheet have

Meonie (1983) Plan 6

Mc omie (1983) plan 7

477368 90-3140.

90-3140. Mconie (1983) Plan 6

RINGAROOMA

GEOLOGICAL SURVEY OF TASMANIA DEPARTMENT OF MINES — HOBART

477369

40' s60 45'

NB.: THE WORKINGS IN THE FORESTER-WARRENTINNA AREA LARGELY UNIDENTIFIED

90-3140. 477370 Plans

McOnie (1983) plan 7

90-3140.

477371

RINGAROOMA
Talawa
Legunia
Alberton
ALBERTON GOLDFIELD
NEW RIVER GOLDFIELD
Dorset
River
Surprise
Mammoth
Lone Star
Star of Peace
North George River
Goulds Country
GEORGE River
Pyengana
Goshen
Thureau's Lead
Albion
Priory
Mt. Pearson 1223'
RIVER
Argonaut
ST. HELENS
Mt. VICTORIA 3964'
Mt. Loung 2964
Mt. Blackboy
South George River
UNA
Hinemoa
HINEMOA
STRICKLAND
LARANDA
KING EDWARD
LADY HAVELOCK
STARLIGHT
CARNEGIE
HAVELOCK
NATIONAL INVESTMENT
O'BRIENS
BAILEYS
REVENUE
DAN'S VALLEY GOLDFIELD
WATERFALL
MABEL-OCTOBER
DAN RIVER GOLDFIELD
BRIGHT STAR
KING SOLOMON
NEW GOLDEN KING
HEATON
LADY MARY
TRUE BLUE
GOLDEN HORSHOE
CITY OF MELBOURNE
South Esk River
MATHINNA GOLDFIELD
NEW GOLDEN GATE
New Golden Gate
DOUBLE EVENT
Double Event
HOGANS TRACK
GOLDFIELD
TRAFALGAR
Trafalgar
Brilliant
Golden Ridge
BRILLIANT
GOLDEN RIDGE
Queen of the Earth
QUEEN OF THE EARTH
UPPER SCAMANDER GOLDFIELD
Silver Echo
Creek
Echo
Loila
Loila Tier
Lionstable
Scamander
Tier
Dianas
Baden Powell
Price
Lutwyche
Cramps
North Orieco
Dunns
Pinnacles
Orieco
South Orieco
Great Pyramid
Ringarooma Bay
Paul Beahr
North Scamander
Tarraleah
Scamander Bell
Scamander Mine
Scamander
Henderson Lagoon
Falmouth
Avenue
SCAMANDER VIENS
Veins
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Dgiv
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Helens Pluton)
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yry hornblende monzonite (St. Helens Pluton)
, Garden Pluton)

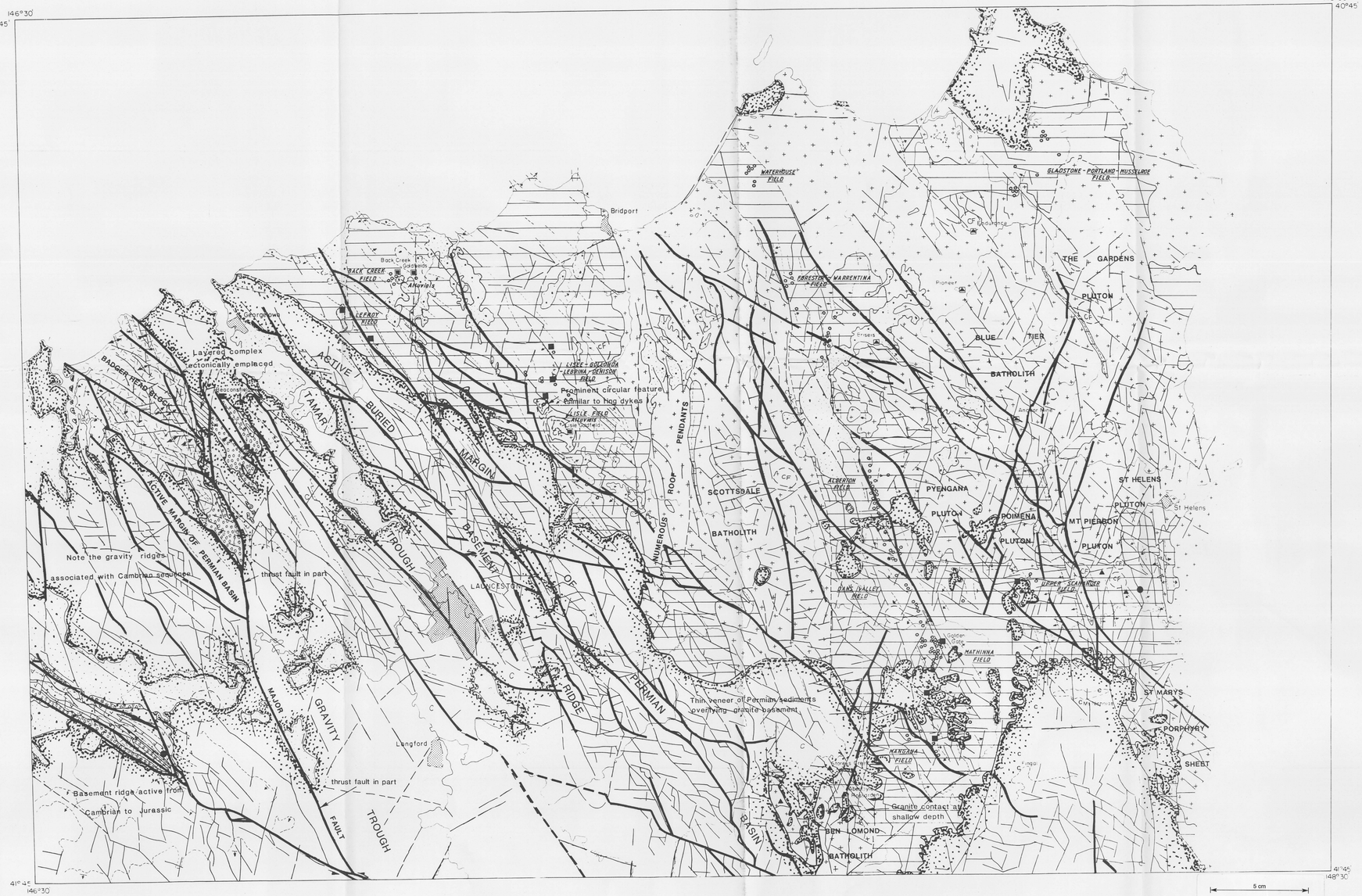
DISTRIBUTION OF GOLD OCCURRENCES IN N.E. TASMANIA

INTEGRATED LANDSAT STUDY

TASMANIA

Scale 1:250,000

5 0 5 10 15 20 25 30 35 40 45 50 km



GEOLOGY MAP

- Thrust fault (barbs towards overriding block or allochthon)
- Major fault lineament of regional significance
- Major lineament
- Fracture pattern - subordinate fault (of local significance)
- Lineament/fault coincident with regional gravity data
- Lineament/fault coincident with regional aeromagnetic data
- Geological boundary - position inferred
- Geological boundary - position approximate
- Major river or creek

TERTIARY
- Basalt lava flows , pyroclastic rocks

TRIASSIC-PERMO-CARBONIFEROUS
- Parmeneer Super Group : fluvio-lacustrine sequences of sandstone , siltstone and mudstone , coal measures in middle and upper sections, pebbly sandstone and tillite towards base of sequence

MAJOR UNCONFORMITY

UPPER DEVONIAN-LOWER CARBONIFEROUS
- Granitic rocks: adamellite,granodiorite ,granite and porphyry

LOWER DEVONIAN - TO CAMBRIAN (?)
- Mathinna Beds : Micaceous greywacke,sandstone , and siltstone (turbidite sequence), overlying slate , phyllite and subordinate feldspathic siltstone (older argillaceous sequence)

LOWER DEVONIAN TO ORDOVICIAN
- Limestone,siltstone (Gordon Limestone) and sandstone – shale sequence ; conglomerate and sandstone (Owen Conglomerate , Reeds Conglomerate Volcaniclastic rocks

CAMBRIAN
- Greywacke turbidite sequence , acid to basic intermediate volcanic and associated rocks
- Ultrabasic rocks : serpentinite , peridotite and associated rocks ;coarse grained basic rocks

PRECAMBRIAN
- Undifferentiated metamorphosed sequences (quartzite , amphibolite, garnet bearing rocks and comparatively un-metamorphosed sequences (mudstone - sandstone - greywacke of turbidite association : minor conglomerate)

MINERAL OCCURRENCES
- Alluvial deposits
- Coal
- Osmiridium
- Copper
- Lead Zinc
- Gold
- Tin tungsten
- Chromite
- Crocoite
- Barite
- Iron
- Nickel
- Asbestos
- Oil shale

NOTE Jurassic dolerite has been removed

- Strike and dip (adapted from published 1:250,000 geological maps)
- Geological boundary,position concealed and deduced
- Overturned bedding
- Dome structure
- Basin structure
- Foliation of metamorphic rocks
- Bedding
- Overturned anticline
- Overturned syncline
- Antiform
- Synform
- Hot spring

SHEET INDEX DIAGRAM

Hunting Geology and Geophysics (Australia) Pty. Limited

Hunting

PLAN 1

90_3140

A Review of the Gold Potential of North Eastern Tasmania
Goldfields Exploration Pty. Ltd
McGhie, A.

BEACONSFIELD

GEOLOGICAL SURVEY OF TASMANIA
DEPARTMENT OF MINES – HOBART

FIRST EDITION 1970

LOCATION OF GOLD OCCURRENCES

General Distribution of Major Veins & Alluvials – Lefroy Goldfields

Note : The Plan in Broadhurst, 1935 delineates many of the smaller veins not shown here.

GEOLOGICAL ATLAS 1 MILE SERIES
8215N I IV ZONE 7 SHEET N° 30

Geological boundary — observed.
Geological boundary — position approximate.
Geological boundary — infered.
Fault — exposed.
Fault — position approximate.
Fault — infered and concealed.
Strike and dip of beds, overturned.
Strike and dip of beds, — facing unknown.
Strike and dip of slaty and / or sandstone cleavage, vertical.
Trend and plunge of bedding x slaty cleavage lineation.
Trend and plunge of hinge line of minor fold related to slaty cleavage.
Strike and dip of strain — slip cleavage.
Trend and plunge of hinge line of minor fold related to strain — slip cleavage.
Strike and dip of layering in mafic complex.
Trace of infered major anticline.
Trace of infered major syncline.
Air photo linear.
Marine fossil locality.
Plant fossil locality.
Mineral prospect or mine : Au gold, Ni nickel, Cr chromite, Fe iron, Is industrial sand, Ls limestone, Py pyrite, Cu copper, Asb asbestos.
Drill (D) or bore (B) hole with depth indicated.
(s) indicates more than one hole with deepest indicated.
(W) Water (M) Minerals. (E) Engineering.
Dry Oil.

APPROXIMATE LIMITS OF TERTIARY DEEP LEADS CARRYING ALLUVIAL GOLD

PRINTED BY MERCURY-WALCH PTY LTD
HOBART, TASMANIA

CONTROL — 2nd and 3rd order Triangulation based on Lochmaben Astronomical Station. Lat. 41° 38' 23.389" S Long. 147° 17' 49.725" E
DETAIL — Aerial Photography.
PROJECTION — Transverse Mercator
LEVEL DATUM — Mean Sea Level. Hobart.
NOMENCLATURE — Approved by the Nomenclature Board of Tasmania.
GRID CONVERGENCE — Based on Longitude 418° 00' E.
CO – ORDINATES — Origin is 400,000 yards West and 1,800,000 yards South of the True Origin of Zone 7.

To obtain true bearing use correction shown in brown in margin of map.

Road
Vehicular Track
Foot or Pack Track
Railway
Power Transmission Line
Swamp or Marsh
Trigonometric Station
Waterhole
Lighthouse

INDEX TO ADJOINING SHEETS

		NOLAND BAY
DEVONPORT	BEACONSFIELD	PIPERS RIVER
SHEFFIELD	FRANKFORD	LAUNCESTON

Magnetic Variation from True North for centre of this sheet, approximately 12° 35' Annual change + 03' E (approx)

SCALE 1 MILE TO 1 INCH

MILES 1 0 1 2 3 4 5 6 MILES
YARDS 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 YARDS
KILOMETRES 0 1 2 3 4 5 6 7 8 9 KILOMETRES

RESPONSIBILITY DIAGRAM

P.J.L.
R.D.G.

Geology by R.D. Gee B.Sc. (Hons.) Ph.D P.J Legge B.Sc. (Hons)
Base map redrawn from 40 chain to 1 inch sheets produced by Lands and Surveys Department Hobart.
Geological map production by Drawing Office, Department of Mines Hobart
Cartography by D.M Hardy
E. Williams B.Sc. Ph.D F.G.S Supervising Geologist in charge of Regional Mapping
I.B. Jennings B.Sc. (Hons.) Chief Geologist.
Compiled under the direction of J.G. Symons B.E. Director of Mines
Issued under the authority of the Honourable Leonard H. Bessell. Minister for Mines.
Published 1971

REFERENCE

CAINOZOIC — QUATERNARY

Qa — River alluvium and marsh deposits.
Qbd — Beach and active dune sand.
Qbr — Sand of stabilised longitudinal beach ridges.
Qw — Windblown and locally derived sand, including old dunes and occasional patches of gravel. High proportion of coarse sand indicated.
Qs — Sand, silt and clay, with occasional gravel probably derived from Tertiary deposits.
Qf — Silt with rounded clasts of granite, schist, quartzite, conglomerate, derived from Permian strata.
Qt — Talus: Qtb — basalt. Qtd — dolerite. Qtg — gravel. Transported and residual deposits of ferricrete.
Talus – mainly derived from Oct.

CAINOZOIC — TERTIARY

Partially consolidated granule sand.
Consolidated seliceous conglomerate.
Partially consolidated conglomerate, mainly of rounded vein quartz and quartzite. Ccs — mainly angular vein quartz.
Sand, clay and gravel: Tsc — carbonaceous silt. Tsg — dominantly rounded gravel.
Boulder bed of dolerite (Jdl) with sand – clay matrix.
Interlayered basalt flows.
Ferricrete and laterite of Tertiary (+) age.

MESOZOIC — TRIASSIC

Pisolitic ironstone, pre – Ts in age.
Unconformity
Quartz sandstone and micaceous shale.

MESOZOIC — PERMIAN

Clog Tom Sandstone — carbonaceous sandstone and shale.
Middle Arm Group — wormcast siltstone and sandstone; conglomerate bed indicated.
West Arm Group — fossiliferous sandstone, siltstone and limestone.
Liffey Sandstone — carbonaceous sandstone and shale.
Masseys Creek Group — mudstone, pebbly siltstone and sandstone:
clastic limestone beds and angular boulder bed (tillite ?) indicated
Note: bracket ( ) indicates type locality
Unconformity

PALAEOZOIC — LOWER PALAEOZOIC — ORDOVICIAN

Mathinna Beds — dominantly sandstone, with slate layer striped.
Limestone, correlate of Gordon Limestone,
Ogg — interbedded siltstone horizon (Grubb Beds).
Cabbage Tree Formation — quartz sandstone with chert and quartz conglomerate layers indicated.

CAMBRIAN

Slate with impersistent units of greywacke sandstone (Csg) and interbedded slate and chert (Csc) Keratophyre lens indicated. — Beaconsfield Area

CAMBRIAN ?

Pyritic, carbonaceous and cherty slate and siltstone.
Chert.
Laminated siltstone.
Interbedded greywacke sandstone and siltstone.
Laminated siltstone with chert (Cpt) and dolomite (Cpf) — Port Sorell Area

PRECAMBRIAN — PROTEROZOIC

Badger Head Group — sandstone, slate and phyllite; orthoquartzitic layer indicated.

Igneous and related Rocks

TERTIARY

Basalt in situ; Tbr — basalt rubble probably indicating Tb underneath.
Basanitic dolerite.

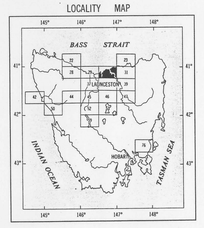
JURASSIC

Jdl — Dolerite, with Tertiary (↑) laterite surface indicated

CAMBRIAN

Layered pyroxenite and gabbro.
Pyroxenite (serpentinised pyroxenite)
Included septum of metamorphic rocks.
Hornfels, with andalusite adjacent to Cpy.
Albite — epidote — chlorite — amphibole — Keratophyre.
Altered dolerite and micro – dolerite dyke.

LOCALITY MAP



312

PLAN 2

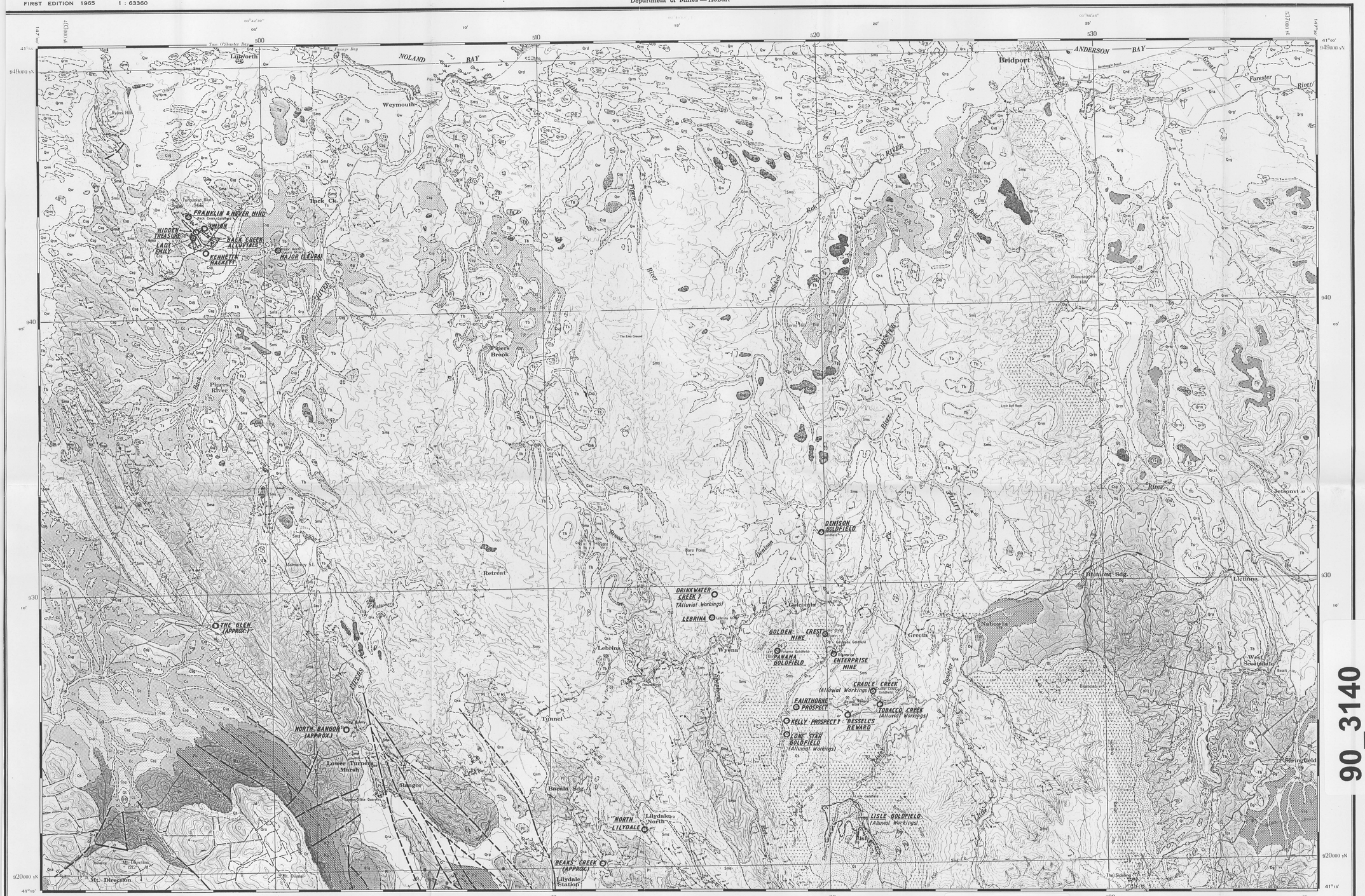
PIPERS RIVER

Geological Survey of Tasmania
Department of Mines — Hobart

LOCATION OF GOLD OCCURRENCES

FIRST EDITION 1965 1 : 63360

GEOLOGICAL ATLAS 1 MILE SERIES
8315N 1 & IV ZONE 7 SHEET NO. 31



REFERENCE

Cainozoic — QUATERNARY

- Qrm — Marsh and swamp deposits
- Qra — Alluvial deposits, including younger gravels
- Qrd — Dune sand
- Qw — Windblown and locally derived sand
- Qt — Dolerite talus
- Qt — Basalt talus
- Qt — Mathinna Beds talus
- Qrg — Older gravels, Qrg′ = 25′ erosional terrace
- Cc — Silt and clay with occasional pebbles
- Cg — Angular gravel, mainly vein quartz
- Cog — Rounded and angular gravel, mainly vein quartz
- Cg — Rounded gravel, mainly vein quartz
- Cs — Quartz granule sand with pebbles
- Cog — Medium grained sand
- Cog — Ferruginous, pisolitic gravel with ironstone blocks Csg′ = ironstone horizon
- Cs — Sandstone and conglomerate

Cainozoic — TERTIARY

- Tf — Siliceous conglomerate
- Tg — Angular gravel, mainly vein quartz
- To — Rounded and angular gravel, mainly vein quartz
- Tg — Rounded gravel, mainly vein quartz
- Ts — Ferruginous zone; Sandstone and conglomerate; Dolerite boulder and cobble horizon

Unconformity

Mesozoic — TRIASSIC

- Rs — Sandstone
  - Upper with pebbly horizons a and b

Palaeozoic — PERMIAN

- Plg — *Liffey Group*
- Pl — Lower, including conglomerate and pebbly mudstone and sandstone

Unconformity

Palaeozoic — SILURO-DEVONIAN — MATHINNA BEDS

- Sms — Contact metamorphosed *Predominantly* siltstone and sandstone
- Sma — Predominantly slate and phyllite

Igneous Rocks

- Tb — TERTIARY Basalt; Sub basalt tuff
- Jd — JURASSIC Dolerite
- Dg — DEVONIAN Granodiorite (Dg′ = finer grained and more leucocratic phases)

- Geological boundary — position approximate
- Geological boundary — inferred
- Strike and dip of beds — right way up
- Strike and dip of overturned beds
- Strike and dip of beds — facing unknown
- Vertical bedding
- Major anticline, inferred
- Major syncline, inferred
- Plunge of F_1, minor anticline
- Plunge of F_1, minor syncline
- Plunge of F_1, folds
- Plunge of F_2 minor antiform
- Plunge of F_2 minor synform
- Fault, position approximate (down thrown side indicated)
- Fault, concealed
- Strike and dip of slaty cleavage (S_1)
- Strike and dip of strain slip cleavage (S_2)
- Plunge of Lineation L_1, bedding/cleavage (S_1) intersection
- Plunge of Lineation L_2, S_1/S_2 intersection
- Plunge of slickensides
- Direction of movement of sediment bearing currents
- Trend of sediment bearing currents
- Macrofossil locality
- Plant fossil locality
- Mine or prospect
- Alluvial Workings
- Minor mineral occurrence
- Lineament, photo interpreted

90_3140

A Review of the Gold Potential of North Eastern Tasmania
Gadsdens Exploration Pty Ltd
McCrea, A.

TCR 90-3140

CONTROL: 2nd and 3rd Order Triangulation based on Lochnabes Astronomical Station Lat. 41° 18′ 22.333″ S. Long. 147° 17′ 19.725″ E.

DETAIL: Aerial Photography 1956

PROJECTION: Transverse Mercator

LEVEL DATUM: Mean Sea Level Hobart

NOMENCLATURE: Approved by the Nomenclature Board of Tasmania

GRID CONVERGENCE: Based on Longitude 146° 00′ E. To obtain True Bearing use correction as shown in brown in margin of map.

Trig: Stations (2nd and 3rd Order; 4th Order)
State Permanent Mark
House
Windpump Water Tower
Mine Lighthouse Waterhole
Electric Transmission Line
Roads
Vehicular Track
Foot or Pack Track
Gate Cattle-grid Bridge
Railway
Swamp or Marsh
Quarry
Gravel Pit
Cliff
Contours
Depression Contours

INDEX TO ADJOINING SHEETS

	NOLAND BAY	BOOBYALLA
BEACONSFIELD	PIPERS RIVER	RINGAROOMA
FRANKFORD	LAUNCESTON	ALBERTON

SCALE 1 MILE TO 1 INCH

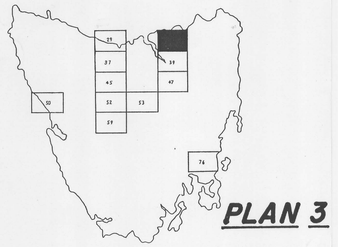
CHAINS 80 40 0 1 2 3 4 5 MILES
METRES 1000 0 1 2 3 4 5 6 7 8 KILOMETRES

CONTOUR INTERVAL 25 FEET

Magnetic variation from True North for the centre of this sheet is approximately 12°0′ E.
(ANNUAL CHANGE 0° 6′ E)

Geology by **B. Marshall**, B.Sc., A.R.C.S., F.G.S.
C. M. Barton B.Sc., Ph.D., F.G.S.
D. J. Jennings, B.Sc.
I.H. Nazvi, B.Sc.

Base map adapted from 40 chain to 1 inch sheets produced by the Lands and Surveys Department, Hobart.
Geological Map production by Drawing Office, Department of Mines, Hobart.
E. Williams, B.Sc., Ph.D., F.G.S., Senior Geologist in charge of Regional Mapping.
T. D. Hughes, B.Sc., Chief Geologist.
Compiled under the direction of J. G. Symons, B.E. Director of Mines.
Issued under the authority of the Honourable Eric E. Reece, Minister for Mines.
Published 1965.



PLAN 3

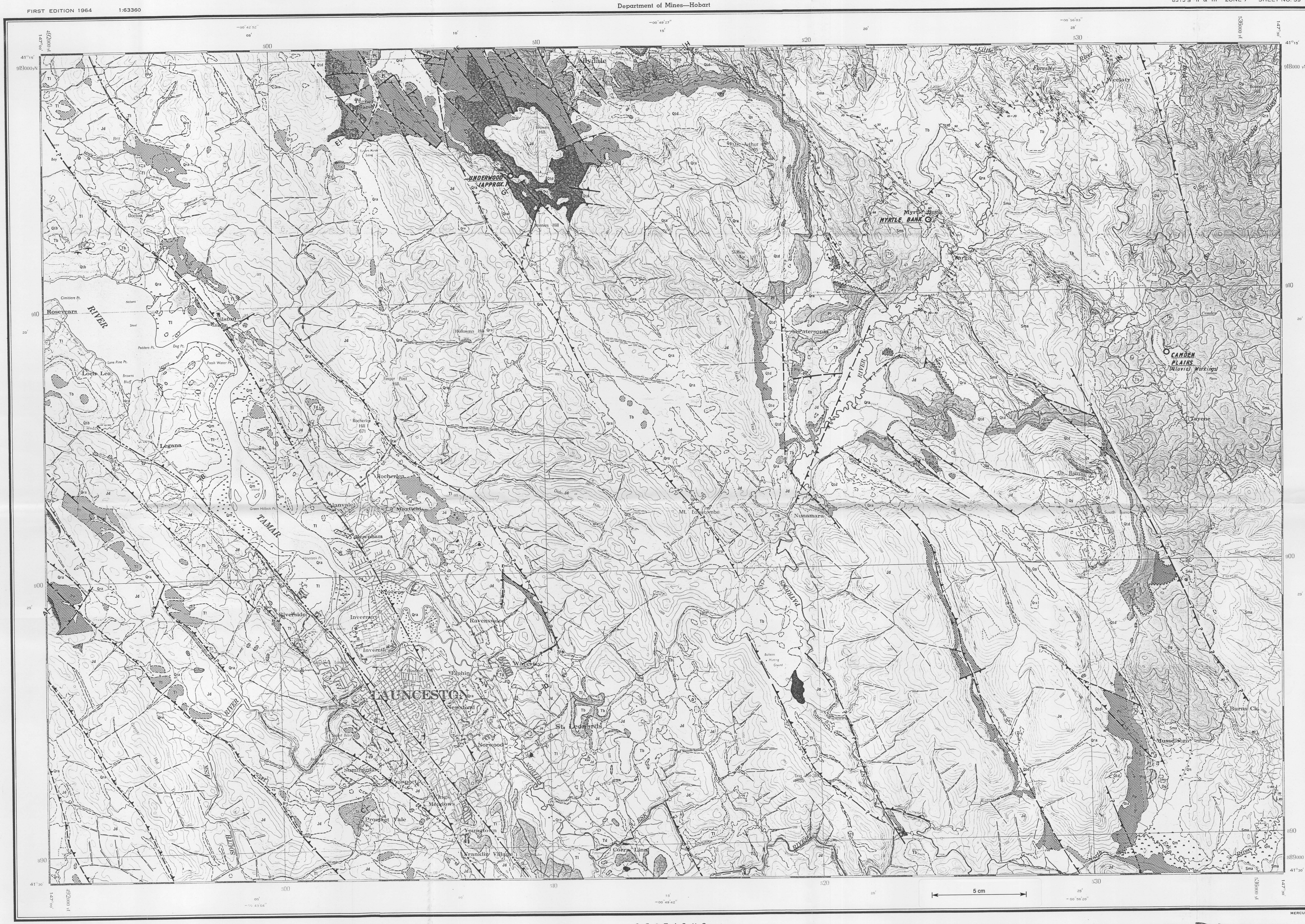
LAUNCESTON

Geological Survey of Tasmania
Department of Mines—Hobart

LOCATION OF GOLD OCCURRENCES

FIRST EDITION 1964 1:63360

GEOLOGICAL ATLAS 1 MILE SERIES
8315 S II & III ZONE 7 SHEET NO. 39



REFERENCE

Period	Symbol	Description
Cainozoic — Quaternary	Qra	Alluvium — Clay, Sand & Gravel
	Qtd	Dolerite talus
	Qtb	Basalt talus
	Qs	Dolerite scree
	Qg	Glacial deposits
	Qm	Swamp and marsh deposits
Cainozoic — Tertiary	Tl	Ferruginous zone; Clay, sandstone and lignite; Quartzite gravels
	Td	Dolerite gravels
Mesozoic — Triassic		Sandstone
Palaeozoic — Permian	Pu	Upper with conglomeratic sandstone horizons a, b, and c
	Plg	Liffey Group
	Pl	Lower with limestone (l), conglomerate (d) and conglomeratic basal beds
		Unassigned
Palaeozoic — Silurian	Sma	Frequent sandstone horizons with breccia layer (Mathinna Beds)
	Sms	Dominant mudstone and slate (Mathinna Beds)

Igneous Rocks

Symbol	Age	Rock
Tb	Laterite TERTIARY	Basalt
Jd	Laterite JURASSIC	Dolerite
Dg	DEVONIAN	Granodiorite
Dd	DEVONIAN	Diorite
Dp	DEVONIAN	Granite porphyry

- Geological boundary — position approximate
- Geological boundary — inferred
- Unconformity
- Strike and dip of beds
- Strike and dip of overturned beds
- Apparent dip of cleavage on bedding plane
- Normal fault, position approximate (teeth on downthrown side)
- Normal fault, concealed
- Normal fault, inferred
- Normal fault, inferred concealed
- Pre/post Tertiary fault
- Plunge of minor anticline
- Plunge of minor syncline
- Lineament, photo interpreted
- Glacial striae
- Direction of movement of sediment bearing currents
- Prospect, little or no production
- Landslips

TCR 90-3140

Geology by **M. J. Longman** B.Sc. Geologist
W. L. Matthews B.Sc. Geologist
S. M. Rowe B.Sc. Geologist
Base map adapted from 40 chains to 1 inch sheets produced by the Lands and Surveys Department, Hobart
Geological Map production by Drawing Office, Department of Mines, Hobart.
E. Williams B.Sc. Ph.D., F.G.S.
Senior Geologist in charge of Regional Mapping.
T. D. Hughes B.Sc., Chief Geologist.
Compiled under the direction of
J. G. Symons B.E.
Director of Mines.
Issued under the authority of the Honourable Eric E. Reece, Minister for Mines.
Published 1964.

MERCURY

SECTIONS

CONTROL: 2nd and 3rd Order Triangulation based on Lochmaben Astronomical Station Lat. 41 38' 23.389" S Long. 147 17' 49.725" E.
DETAIL: Aerial Photography 1956
PROJECTION: Transverse Mercator
LEVEL DATUM: Mean Sea Level Hobart
NOMENCLATURE: Approved by the Nomenclature Board of Tasmannia
GRID CONVERGENCE: Based on Longitude 146 00' E. To obtain True Bearing use correction as shown in brown in margin of map.

Trig: Stations 2nd and 3rd Order; 4th Order
State Permanent Mark
House
Windpump Waterhole
Mine Lighthouse
Electric Transmission Line

INDEX TO ADJOINING SHEETS

BEACONSFIELD	PIPERS RIVER	RINGAROOMA
FRANKFORD	LAUNCESTON	ALBERTON
QUAMBY	LONGFORD	BEN LOMOND

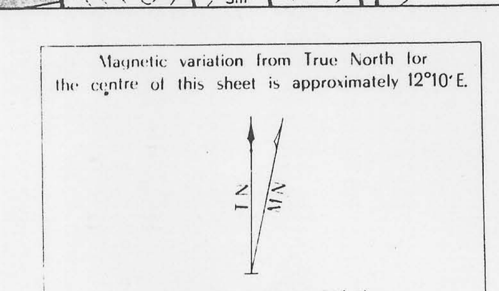
SCALE 1 MILE TO 1 INCH

CHAINS 80 40 0 1 2 3 4 5 MILES
METRES 1000 0 1 2 3 4 5 6 7 8 KILOMETRES

CONTOUR INTERVAL 25 FEET

Crown Copyright Reserved

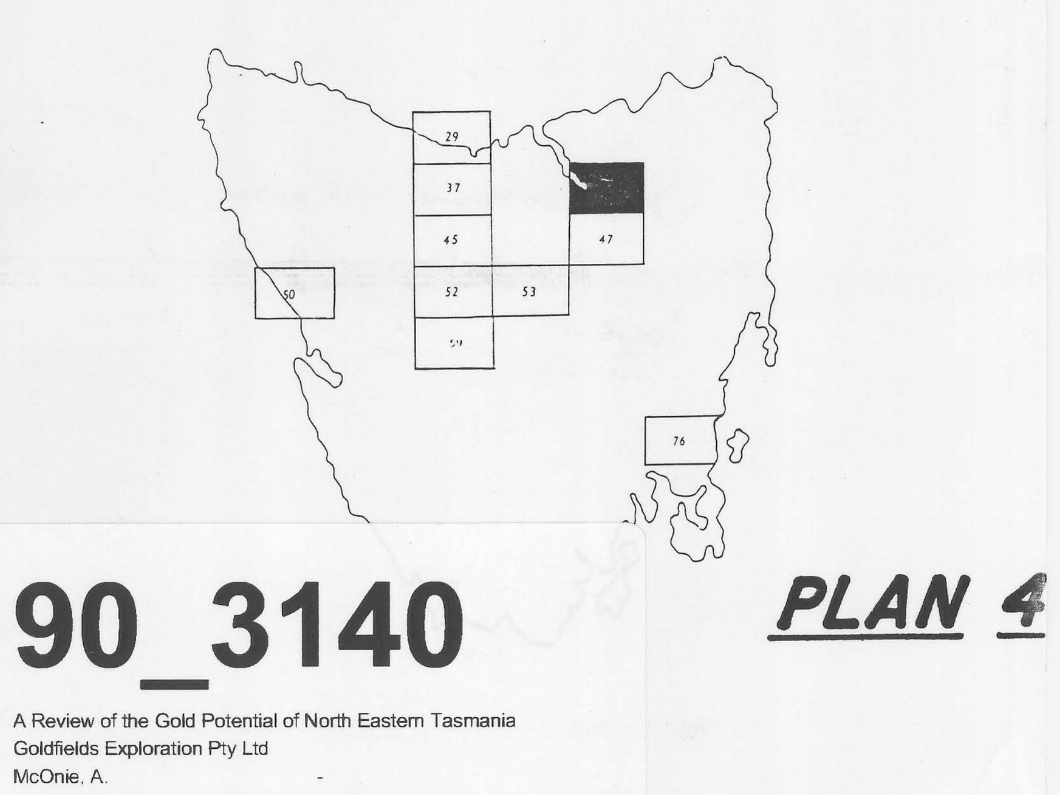
Magnetic variation from True North for the centre of this sheet is approximately 12°10' E.



(ANNUAL CHANGE 06' E)

Swamp or Marsh
Quarry
Gravel Pit
Cliff
Contours
Depression Contours

Roads
Vehicular Track
Foot or Pack Track
Gate Cattle-grid Bridge
Railway



90_3140

A Review of the Gold Potential of North Eastern Tasmania
Goldfields Exploration Pty Ltd
McOnie, A.

PLAN 4

FIRST EDITION 1978

BOOBYALLA

GEOLOGICAL SURVEY OF TASMANIA – DEPARTMENT OF MINES – HOBART

LOCATION OF GOLD OCCURRENCES

GEOLOGICAL ATLAS 1:50 000 SERIES SHEET 8416 S.

REFERENCE

CAINOZOIC	QUATERNARY	HOLOCENE	Alluvium, swamp and marsh deposits.
			Younger aeolian dune sand with some dune crests indicated, beach sand and gravel.
			Dolerite talus.
		PLEISTOCENE	Older aeolian sand with dune crests indicated where present on Qpa and Qpu.
			Clay, sand, minor peat and gravel, sometimes containing marine shells and transported fragments. An occurrence of non-marine marl indicated (Qpcm at EG 855778).
	TERTIARY		Erosional surface.
			Sand, gravel and clay (Ts); ferruginous fine sand dominant (vertical line overprint TsP) – probably overlies basalt; basalt (Tb). Lag and outcrop of silicified quartz sandstone and conglomerate indicated (diagonal line overprint Tss). Late Tertiary marine limestone occurrence shown (Tsl at EG 829978). Dispired overprint indicates man disturbed.
			Low angle unconformity.
MESOZOIC ?	TRIASSIC		Fresh–water cross–bedded quartz sandstone (Upper Parmeener Super–Group).
	PERMIAN		Sparsely fossiliferous marine sandstone and siltstone with dropstones (Lower glacio–marine sequence). Undifferentiated Permian rocks at EG 530820 indicated (Pu).
PALAEOZOIC	DEVONIAN–SILURIAN–ORDOVICIAN (?)		Angular unconformity.
			Quartzwacke turbidite sequence (SDa). Contact metamorphic psammite, spotted pelite and minor schist (SDms).

IGNEOUS ROCKS

TERTIARY	Alkali basalt (Tba), tholeiite (Tbt), olivine nephelinite (Tbn).
CRETACEOUS	Appinite (Ca) with andesitic lava flow (Cal) and Lamprophyre dykes (Cal) indicated.
JURASSIC	Dolerite.

MINOR GRANITE INTRUSIONS

Quartz–feldspar porphyry (Dmp), aplite (Dma), quartz–muscovite rocks (Dmq), fine–grained granite/ adamellite (Dmg), coarse–grained granite (Dmd), garnetiferous quartz–feldspar porphyry with minor medium–grained dolerite of unknown age (Dmg), quartz–orthoclase– tourmaline pegmatite (Dmc).

MAJOR GRANITE INTRUSIONS

SCOTTSDALE BATHOLITH

Biotite–hornblende granodiorite.

BLUE TIER BATHOLITH

Porphyritic, fine – to coarse – grained garnet – bearing biotite – muscovite granite / adamellite (Dbg).

Dominantly fine – to medium – grained granite/adamellite (Dbeu); equigranular, dominantly medium – grained, biotite – variable muscovite granite/adamellite (Dbem); porphyritic fine – to medium grained biotite–muscovite (Dbeg, Dbegf) and biotite – minor muscovite (Dbeg2 Dbeg2f) granite/adamellite (1) with phenocrysts of feldspar and rounded quartz (Dbeg, Dbeg1) (11) with phenocrysts of feldspar (Dbegf), sparse phenocrysts (Dbegsf1)

Porphyritic, coarse–grained biotite and biotite – minor muscovite granite/adamellite (Dbep), coarsely porphyritic to equigranular (Dbepp).

Biotite – hornblende granodiorite (Dbg–near EG600735), biotite granodiorite (Dbb). Areas of float and small outcrops of granodiorite and hornblend Mathinna Beds indicated by decoration on Dbb, Dbg.

DEVONIAN–CARBONIFEROUS

MATHINNA BEDS — TASMANIDES SUPER–GROUP

Geological boundary – position approximate.

Geological boundary – inferred.

Fault – inferred.

Strike and dip of beds; right way up, overturned, facing unknown.

Vertical bedding; facing known, facing unknown.

Strike and dip of early cleavage, Vertical.

Strike and dip of late crenulation cleavage, Vertical.

Direction and plunge of minor synclinal fold hinge – line with direction and dip of axial surface.

Strike and dip of foliation due to mineral alignment in igneous rocks, vertical foliation, horizontal foliation.

Strike of apparent lineation in outcrop surface of igneous rocks

Strike and dip of joint, vertical joint.

Field station for adjacent readings on map.

Bore hole with depth of rock – type encountered and final depth.

Palaeocurrent directions.

Alluvial workings.

Abandoned alluvial workings.

Road

Vehicular track

Trigonometric station

UNIVERSAL GRID REFERENCE

GRID ZONE DESIGNATION 55G

100,000 METRE SQUARE IDENTIFICATION: EG

IGNORE the SMALLER figures of any grid number : these are for finding the full co–ordinates. Use ONLY the LARGER figures of the grid number. Example : 50/035

TO GIVE A STANDARD REFERENCE ON THIS SHEET TO NEAREST 1,000 METRES

SAMPLE POINT: ⚠ MT CAMERON

1. Read letters identifying 100,000 metre squares in which point lies: EG
2. Locate first VERTICAL grid line to LEFT of point and read LARGE figure labelling the line or either the top or bottom margin: 79
3. Estimate tenths from grid line to point
4. Locate first HORIZONTAL grid line BELOW point and read LARGE figure labelling the line in either the left or right margin: 62
5. Estimate tenths from grid line to point

SAMPLE REFERENCE: EG791625

If reporting beyond 10" in any direction prefix grid zone designation, ex: 55G/EG791625

HORIZONTAL DATUM: Australian Geodetic Datum 1966.
GRID: Black numbered lines are 10 000 metre intervals of the Australian Map Grid, Zone 55.
NOMENCLATURE: Topographic names on this sheet have been approved by the Nomenclature Board of Tasmania.
PROJECTION: Transverse Mercator Projection.
VERTICAL DATUM: Australian Height Datum.
MAGNETIC VARIATION: For the centre of this sheet approximately 13°30'E. Annual change +2'.

5 cm

KILOMETRES 1 0 1 2 3 4 5 6 7 KILOMETRES

MILES 1 0 1 2 3 MILES

SCALE 1:50 000

CONTOUR INTERVAL 20 METRES

RESPONSIBILITY DIAGRAM

Geology by P. W. Baillie, B.Sc.; N. J. Turner, B.Sc. (Hons); E. F. Cox, B.Sc. (Hons); with acknowledgements to D. J. Jennings, B.Sc. (Hons) and F. L. Sutherland M.Sc.
Base map redrawn from Cape Portland 1 : 100 000 map, produced by Lands Department, Hobart.
Geological map production by Regional Mapping Section of the Cartographic Drawing Office, Department of Mines, Hobart.
Cartography by C. Meech, H. Mackinnon.
E. Williams, B.Sc. (Hons), Ph.D., F.G.S., Supervising Geologist in charge of Regional Mapping.
I. B. Jennings, B.Sc. (Hons), Chief Geologist.
Compiled under the direction of J. G. Symons, B.E., Director of Mines.
Issued under the authority of the Minister for Resources and Energy.
Published 1979

90_3140

A Review of the Gold Potential of North Eastern Tasmania
Goldfields Exploration Pty Ltd
McOrie, A.

LOCATION MAP

ADJOINING SHEETS

		BANKS STRAIT
NOLAND BAY	BOOBYALLA	EDDYSTONE
PIPERS RIVER	RINGAROOMA	BLUE TIER

BOOBYALLA
SHEET 8416S (24)

PLAN 5

1207

SHEET 32 FIRST EDITION 1977

RINGAROOMA

GEOLOGICAL SURVEY OF TASMANIA DEPARTMENT OF MINES — HOBART

LOCATION OF GOLD OCCURRENCES

GEOLOGICAL ATLAS 1:50,000 SERIES 8415 N

REFERENCE

CAINOZOIC

QUATERNARY (Q)

- Qa — River alluvium, swamp and marsh deposits; river terrace deposits (Qar).
- Qw — Windblown sand.
- Qt — Talus.
- Qm — Marine terrace: sand with shells, clay, organic material.

Erosional surface.

TERTIARY (T)

- Tb — Basalt (Tb).
- Ts — Gravel sand, clay and mud (Ts); carbonaceous and micaceous clay with fossil tree fragments (Tsf).
- Ta — Agglomerate and tuff (Ta).
- Tf — Ferricrete (Tf).
- Tsq — Grey-billy and silcrete (Tsq).

(Ferricrete, silcrete and gravel lags indicated by symbol with asterisk (*)).

- Tsc — Conglomerate with clasts of Mathinna Beds (Tsc).

PALAEOZOIC MESOZOIC

Low angle unconformity.

PERMO – TRIASSIC: Conglomerate and sandstone. } PARMEENER SUPER – GROUP

Unconformity.

DEVONIAN – SILURIAN – ORDOVICIAN(?) — MATHINNA BEDS

- SDs — Quartzwacke turbidite sequence (SDs).
- SDsm — Contact metamorphic psammite, spotted pelite and minor schist (SDsm).

Black stippled overprint indicates man disturbed.

IGNEOUS ROCKS

(Very coarse grain > 30 mm; coarse grain 5 - 30 mm; medium grain 1 - 5 mm; fine grain < 1 mm).

TERTIARY

- Tb — Basalt, alkali basalt (Tba); olivine nephelinite (Tbn); limburgite (Tbl); hawaiite (Tbh); basinite (Tbb); nodular basalt (Tbx); Quaternary basalt – derived lag deposits (Tb').
- Tbp — Porphyritic (pyroxene – rosettes) basalt.

LATE DEVONIAN(?) – CRETACEOUS(?)

- DCdl — Dolerite dykes (DCdl).

MINOR GRANITIC INTRUSIONS

UPPER DEVONIAN – LOWER CARBONIFEROUS

- Quartz-feldspar porphyry (Dmp); aplite (Dma); fine-grained granite/adamellite, equigranular (Dmge), porphyritic (Dmgp); garnetiferous quartz-feldspar porphyry (Dmpg); quartz-orthoclase pegmatite (Dmc).

MAJOR GRANITIC INTRUSIONS

SCOTTSDALE BATHOLITH

UPPER DEVONIAN – LOWER CARBONIFEROUS

- Dsau — Biotite adamellite (Dsau).
- Dsac — Coarse-grained, pink, biotite adamellite (Dsac).
- Dsam — Medium-grained, pink, biotite adamellite (Dsam).
- Dsah — Coarse-grained, pink, hornblende-biotite adamellite (Dsah).
- Dsaw — Medium - to coarse - grained, sparsely porphyritic, white biotite adamellite (Dsaw).
- Dsg — Biotite-hornblende granodiorite (Dsg).

BLUE TIER BATHOLITH

UPPER DEVONIAN – LOWER CARBONIFEROUS

- Dbae — Equigranular, fine - to coarse - grained, biotite- muscovite granite/adamellite (Dbae).
- Dbap — Porphyritic, fine- to medium - grained, biotite-muscovite granite/adamellite (Dbap);
- Dbapq — (i) with phenocrysts of feldspar and rounded quartz (Dbapq);
- Dbapf, Dbapp — (ii) with phenocrysts of feldspar (Dbapf) – locally coarse-grained porphyritic (Dbapp).
- Dbapc — Porphyritic, coarse-grained biotite and biotite-minor muscovite granite/ adamellite (Dbapc); coarse - to very coarse - grained variety (Dbapcc); variety with > 2% muscovite (Dbapcm).
- Dbg — Biotite-hornblende granodiorite (Dbg).

Areas with poor outcrop indicated by the addition of 'o' to the symbol (eg. Dbapco).

- Geological boundary – observed, dip shown by tick where measured.
- Geological boundary – transitional.
- Geological boundary – position approximate.
- Geological boundary – inferred.
- Strike and Dip of beds – right way up. Facing known from sedimentary features.
- Strike and dip of overturned beds. Facing known from sedimentary features.
- Strike and dip of beds–facing unknown.
- Vertical bedding.
- Horizontal bedding.
- Strike and dip of sandstone cleavage and slaty cleavage; crenulation cleavage.
- Trace of axial surface of major anticline hinge.
- Direction and plunge of minor fold hinge with direction and dip of axial surface.
- Direction and plunge of minor early fold hinge with direction and dip of axial surface.
- Z M S — Fold vergence dextral, none, sinistral viewing down plunge.
- Trend of apparent mineral lineation in horizontal surface in igneous rocks.
- Strike and dip of foliation due to mineral alignment in igneous rocks.
- Vertical foliation.
- Horizontal foliation.
- Igneous compositional layering.
- Strike and dip of joint.
- Vertical joint.
- Strike and dip of dyke: } quartz (q), aplite (Dma), quartz-feldspar porphyry (Dmp), fine-grained granite/adamellite (Dmg).
- Vertical dyke:
- Strike and dip of vein:
- Vertical vein:
- Dyke dip indeterminate:
- Field station for adjacent readings on map.
- 200 m Dg 210 m — Borehole with depth of rock type encountered and final depth.
- Palaeocurrent directions.
- Mine. } Kaolin (Ck), Gold (Au), Gravel (Gr), Tin (Sn).
- Abandoned mine.
- Quarry prospect.
- Abandoned quarry.
- Alluvial workings.
- Abandoned alluvial workings.

- Road.
- Vehicular track.
- Railway.
- Trigonometric station.

TCR 90-3140

90_3140

A Review of the Gold Potential of North Eastern Tasmania
Goldfields Exploration Pty Ltd
McOnie, A.

UNIVERSAL GRID REFERENCE

GRID ZONE DESIGNATION 55G	TO GIVE A STANDARD REFERENCE ON THIS SHEET TO NEAREST 1,000 METRES	
100,000 METRE SQUARE IDENTIFICATION: EQ	SAMPLE POINT: 497 △ MT. STRONACH	
	1. Read letters identifying 100,000 metre square in which point lies:	EQ
	2. Locate first VERTICAL grid line to LEFT of point and read LARGE figure labelling the line in either the top or bottom margin:	47
	3. Estimate tenths from grid line to point:	3
	4. Locate first HORIZONTAL grid line BELOW point and read LARGE figure labelling the line in either the left or right margin:	41
	5. Estimate tenths from grid line to point:	6
IGNORE the SMALLER figures of any grid number; these are for finding the full co-ordinates. Use ONLY the LARGER figure of the grid number; Example: $_5 50_{000}$	SAMPLE REFERENCE	EQ473416
	If reporting beyond 18° in any direction prefix grid zone designation, as: 55GEQ473416	

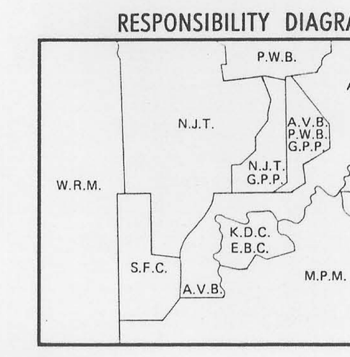
HORIZONTAL DATUM: Australian Geodetic Datum 1966.
GRID: Black numbered lines are 10 000 metre intervals of the Australian Map Grid, Zone 55.
NOMENCLATURE: Topographic names on this sheet have been approved by the Nomenclature Board of Tasmania.
PROJECTION: Transverse Mercator Projection.
VERTICAL DATUM: Australian Height Datum.
MAGNETIC VARIATION: For the centre of this sheet approximately 13°30'E. Annual change +3'E.

5 cm

SCALE 1:50 000

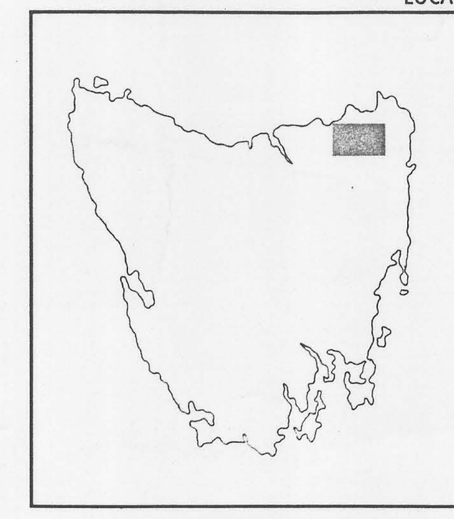
CONTOUR INTERVAL 20 METRES

RESPONSIBILITY DIAGRAM



Geology by A. V. Brown, B.Sc. (Hons); M. P. McClenaghan, B.Sc. (Hons), Ph.D.; W. R. Moore, B.A., M.Sc.; N. J. Turner, B.Sc. (Hons); J. McClenaghan, B.Sc. (Hons), Ph.D.; P. R. Williams, B.Sc. (Hons); P. W. Baillie, B.Sc.; K. D. Corbett, B.Sc. (Hons), Ph.D.; E. B. Corbett, B.Sc. (Hons); S. F. Cox, B.Sc. (Hons); D. I. Groves, B.Sc. (Hons), Ph.D.; G. P. Pike, B.Sc. (Hons).
Base map enlarged and redrawn from Ringarooma 1:63 360 map, produced by Lands Department, Hobart.
Geological map production by Drawing Office, Department of Mines, Hobart.
Cartography by H. Mackinnon.
E. Williams, B.Sc. (Hons), Ph.D., F.G.S., Supervising Geologist in charge of Regional Mapping.
I. B. Jennings, B.Sc. (Hons), Chief Geologist.
Compiled under the direction of J. G. Symons, B.E., Director of Mines.
Issued under the authority of The Honourable G. D. Chisholm, Minister for Resources and Energy.
Published 1977.

LOCATION MAP



ADJOINING SHEETS

NOLAND BAY	BOOBYALLA	EDDYSTONE
PIPERS RIVER	RINGAROOMA	BLUE TIER
LAUNCESTON	ALBERTON	ST. HELENS

RINGAROOMA
SHEET N°32

PLAN 6

GEOLOGY
BLUE TIER BATHOLITH

DEPARTMENT OF MINES TASMANIA

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SCALE 1" = 2 Miles

2 0 2 4 6 8 Miles

0 2 4 6 8 10 12 14 16 18 20 Kilometres

SHOWING
LOCATION OF GOLD OCCURRENCES

PLAN 7

Cartography by H. Mackinnon, D.M. Hardy

90_3140

A Review of the Gold Potential of North Eastern Tasmania
Goldfields Exploration Pty Ltd
McOnie, A.

TCR 90-3140

REFERENCE

QUATERNARY
- Q — Undifferentiated blown sand, alluvium,swamp, beach sand.
- Qtb — Basalt talus.
- Qtd — Dolerite talus.

QUATERNARY — TERTIARY
- Q–T — Undifferentiated Tertiary sediments with irregular cover of Recent alluvium and blown sand.

TERTIARY
- T — Undifferentiated sand, gravel, clay, ferruginous grit.
- Tb — Basalt

CRETACEOUS
- C — Appinite.

JURASSIC
- Jd — Dolerite

TRIASSIC
- R — Sandstone minor shale.

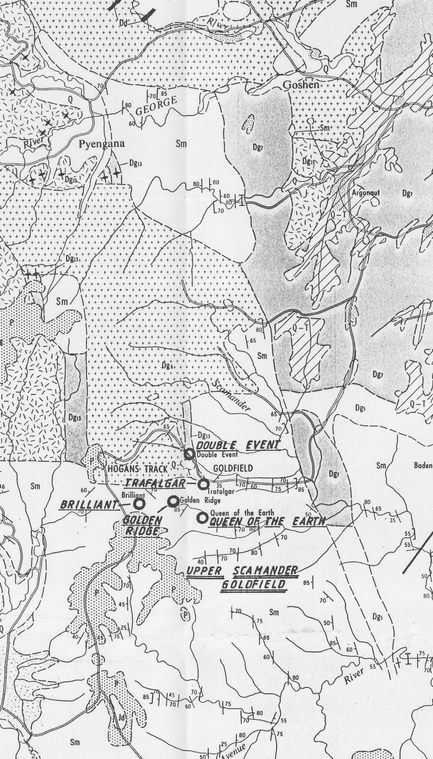
PERMIAN
- P — Conglomerate, sandstone, shale, limestone

UPPER DEVONIAN
- Dd — Quartz – dolerite.
- Da — Acid granite rocks. Microgranite, aplite quartz–feldspar porphyry.
- Dg1 — Medium grained biotite granite biotite muscovite granite, greisenised granite and greisen veins. (Lottah Sheets, Mt Paris Mass, Mt William Mass, Mt Cameron Sheets)
- Dg2 — Biotite muscovite granite porphyry (part of Mt Paris Mass, Lottah Sheets)
- Dg3 — Medium to coarse grained biotite granite / adamellite, minor porphyritic biotite granite / adamellite (part of Mt Cameron)
- Dg4 — Medium grained biotite muscovite granite, medium grained biotite adamellite, aplite quartz porphyry and microgranite (Little Mt Horror Sheet)
- Dg5 — Medium grained biotite muscovite granite, biotite muscovite microgranite, minor greisen veins (eastern margin of Mt Pierson Pluton)
- Dgp — Porphyritic biotite granite / adamellite with fine to medium grained groundmass (Poimena Pluton, Missel Roe Pluton)
- Dgr — Coarse grained biotite granite / adamellite, coarse grained porphyritic biotite granite (Mt Pierson Pluton , Ansons Bay Pluton)
- Dgr — Coarse grained (porphyritic) biotite muscovite granite / adamellite (Rushy Lagoon Pluton)
- Dgt — Garnet – bearing medium to coarse grained porphyritic biotite granite / adamellite and granite porphyry (Boobyalla Pluton)
- Dgf — Foliated fine to medium grained biotite muscovite granite / adamellite (Sheoak Hill Pluton)
- Dgs — Medium grained biotite granite / adamellite with muscovite granite dykes (eastern edge of St Helens Pluton)
- Dgp — Granodiorite porphyry and porphyritic biotite hornblende granodiorite (Scamander Tier Dyke of St Helens Pluton)
- Dgs — Biotite granodiorite porphyritic biotite granodiorite (eastern edge of St Helens Pluton, small bodies throughout the Batholith.)
- Dgv — Biotite hornblende adamellite, biotite hornblende granodiorite, biotite granodiorite granodiorite porphyry hornblende monzonite (St. Helens Pluton)
- Dgh — Biotite hornblende granodiorite, hornblende biotite granodiorite, hornblende diorite (Pyengana Pluton, Garden Pluton)
- Dgu — Biotite hornblende adamellite, biotite hornblende granodiorite (Piccaninny Creek Pluton)
- Dgu — Biotite hypersthene adamellite porphyry (St. Marys Sheet)

SILURO — DEVONIAN
- Sm — Mathinna Beds

- Approximate geological boundary
- Fault — position approximate
- Bedding (dip & strike)
- Bedding(vertical)
- Cleavage (dip & strike)
- Cleavage (vertical)
- Foliation (dip & strike)
- Foliation (vertical)
- Tin lode
- Wolfram — molybdenum lode
- Copper lode
- Ag – Pb – Zn lode
- Gold and Au – Ag lode
- Several gold lodes – accurate position uncertain
- Numerous gold lodes – frequently too high to plot individually.
- Alluvial tin workings.

RESPONSIBILITY DIAGRAM



LOCATION OF GOLD OCCURRENCES
ALBERTON - DAN'S VALLEY - MATHINNA GOLDFIELDS

FORESTER

TASMANIA 1:100 000
TOPOGRAPHIC SURVEY

REFER TO THIS MAP AS: SHEET 8415 EDITION 2 1979

ALBERTON GOLDFIELD
Alluvial Flats?
New River Mine & Adjacent Workings (vicinity)
A1, Central Ringarooma's & Pennefathers
Malunnah & Almora
Crown Prince
Endeavour & Victoria United
Ringarooma G.M. Coy.
Mercury
Point & Reform
Long Struggle, Caxton, Ragged Youth
Mt. Victoria
West Dorset
Mammoth
Bright Star
Esk
MCauls
South Star
Everetts
Farrells
DAN'S VALLEY GOLDFIELD
Strickland
Hinemoa
Lady Havelock
Laranda
Havelock
National Investment
Obriens
King Edward
Starlight
Carnegie
Waterfall (vicinity)
Baileys
Revenue
Hebe
October
MATHINNA GOLDFIELD
Bright Star
King Solomon
Heaton
Lady Mary
Golden Horshoe
True Blue
City of Melbourne
New Golden King (vicinity)
Volunteer
Yellow Boys
Enterprise
Golden Star
Star of Mathinna
Gate Extended
East Golden Gate
Gate Ladder
Caledonian
New Golden Gate
North Enterprise
Miners Dream
South Miners Dream
Gladstone
Volunteer Sons
Old Boys
Chester & Murray
St. Patrick Shaft
City of Hobart
Golden Hinges
Victorian Golden Gate
Pride of Hills
Eldorado
Horshoe
Scott & Picket
Telegraph
City P.A.
Jubilee
Mountaineer
Commercial
K.A.WHITE
Twilight
Sunbeam
Tower Hill
Hit or Miss
West Miami
Miami
Golden Gully
Bucklands
Cardinal
Fingal Boy
Great Fingal
Daylight
Golden Entrance
Mangana
MANGANA GOLDFIELD (Note: Not all workings located)
Tullochgorum
BEN LOMOND NATIONAL PARK

SCALE 1:100 000

Kilometres 2 1 0 2 4 6 8 10 12 Kilometres

5 cm

a TASMAP publication

PRODUCED by the Survey Branch, Lands Department, Hobart, 1975.
NOMENCLATURE: Topographic names on this map have been approved by the Nomenclature Board of Tasmania.
MAP ACCURACY: the average accuracy of this map is ±25 metres in the horizontal position of well defined detail and ±5 metres in elevation.
MAP RELIABILITY: Topographic information shown on this map is correct to 1975.
ROAD CLASSIFICATION: Roads are classified according to their intended function as part of the national road system.
The representation of a road or track on this map is no evidence of the existence of a right of way.

BLACK NUMBERED GRID LINES ARE 1000 METRE INTERVALS OF THE AUSTRALIAN MAP GRID, ZONE 55
GRID VALUES ARE SHOWN IN FULL ONLY AT THE SOUTH WEST CORNER OF THE MAP
HORIZONTAL DATUM: AUSTRALIAN GEODETIC DATUM 1966
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM
TRANSVERSE MERCATOR PROJECTION
CONTOUR INTERVAL 20 METRES
ELEVATIONS IN METRES
Issued by authority of the Minister for Lands and Works, Tasmania.

GRID REFERENCE

TO GIVE A UNIQUE REFERENCE ON THIS SHEET TO NEAREST 100 METRES

IGNORE the SMALLER figures of any grid number; these are for finding the full co-ordinates. Use ONLY the LARGER figures of the grid number, e.g. 542000

SAMPLE POINT: 971 △ SNOW HILL

1. Quote this 1:100 000 map sheet: 8414
2. Locate first VERTICAL grid line to LEFT of point and read LARGE figures labelling the line either in the top or bottom margin, or on the line itself: 69
3. Estimate tenths from grid line to point: 2
4. Locate first HORIZONTAL grid line BELOW point and read LARGE figures labelling the line in either the left or right margin, or on the line itself: 59
5. Estimate tenths from grid line to point: 0

SAMPLE REFERENCE: 8414-692590

Built-up area; National route marker
Principal road and highway; Cutting
Secondary road; Embankment
Minor road; Road bridge
Vehicular track
Road distance in kilometres
Railway, multiple track; Station; Railway bridge
Railway, single track; Railway tunnel
Light railway or tramway
Power transmission line
Fence; Levee or bank
Mine; Windmill; Yard; Quarry
Building/s; Church; Ruin; Drive-in theatre
Trig station; Bench mark; Spot elevation
Cliff; Contour with value; Depression contour
Forest, dense
Forest, medium
Pine plantation
Orchard
Windbreak
Lake, perennial; Stream, perennial
Lake, intermittent; Stream, intermittent
Lake, mainly dry; Stream, mainly dry
Swamp, perennial; intermittent
Land subject to inundation
Bore or well; Spring; Tank or small dam
Breakwater; Pier; Wharf
Wreck, exposed; Lighthouse
Rock, bare or awash; Foreshore flat; Sand
Reef; Rock ledge

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GRID CONVERGENCE 0.5°
GRID/MAGNETIC ANGLE 14.0°
GN TN MN

TRUE NORTH, GRID NORTH AND MAGNETIC NORTH ARE SHOWN DIAGRAMMATICALLY FOR THE CENTRE OF THE MAP. MAGNETIC NORTH IS CORRECT FOR 1975 AND MOVES EASTERLY BY 0.1° IN ABOUT TWO YEARS.

S/1837/75

INDEX TO ADJOINING MAPS

ST. PATRICKS 8315	FORESTER 8415	GEORGES BAY 8515
SOUTH ESK 8314	ST. PAULS 8414	BREAK O'DAY 8514
LAKE SORELL 8313	LITTLE SWANPORT 8413	FREYCINET 8513

ST. PAULS
SHEET 8414
TASMANIA
EDITION 1

MERCURY - WALCH

TCR 90-3140

PLAN 8