TIN PROSPECTS IN THE BLUE TIER QUADRANGLE (NO. 33)

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THE BLUE TIER QUADRANGLE - QUADRANGLE NO.33

INTRODUCTION

The area covered by this report exceeds that of the Blue Tier Quadrangle as portions of Quadrangles 32 and 41, which lie to the west and south respectively, have been included. The southern boundary of the area has been fixed as the road between the townships of St. Helens and Lottah. The western boundary is the Gladstone to Bradshaw's Creek (Pioneer) road and the Wyniford River and thence to Lottah. On the north the area has a boundary common with Quadrangle No. 25 whilst the eastern limit is defined by the coast line extending from Eddystone point southward to Skeleton Bay. In actual area the land surface covers some 300 square miles embracing large areas devoted to pastoral pursuits, timber production and mining operations.

Object of the Investigation

This investigation was a continuation of that carried out on the Eddystone Quadrangle where the area was mapped with a view to the selection of areas potentially tin-bearing which would lend themselves to testing by boring. In mapping the area use has been made of mineral and land charts published by the respective departments and the accompanying map is a compilation based on these charts together with data resulting from compass surveys made during the present work.

Previous Literature

In the year 1941, one lease of 21 acres, situated on the Groom River and held in the name of Chapman and Dwyer, was the subject of a report by P.B. Nye, Government Geologist. It was suggested in that report that testing of the area should be undertaken prior to actual mining operations.

With the exception of the lease abovementioned the area under review has not previously been the subject matter for departmental reports.

Previous reports which have some bearing on the area because of their reference to adjoining areas are as follows:-

In 1886 G. Thureau F.G.S. reported on "The Blue Tier Mining District and Its Tin Deposits."

In that report he describes the mines operating in the Blue Tier at the time of his inspection. These mines were situated to the west of the area how under review.

In 1893 A. Montgomery M.A. Geological Surveyor reported on Thureau's Deep Lead.

Montgomery describes the various mines then operating and his map shows the position of Thureau's Deep Lead in the vicinity of George River.

In 1927 A.M. Reid, Director of Mines, reported on the Groom River Alluvial Deposits.

Reid refers to the difficulty in working the area because of the "heavy boulders which form such a large proportion of the wash." The sampling of a number of bores is also described.

In 1927 A.M. Reid, Director of Mines, also reported on the Georges River Tin Mining Company No Liability. At the time of this report there was an estimate of one and a half million cubic yards of material reported as worth 1/3 per cubic yard.

In 1928 Geological Survey Bulletin No. 38, "Blue Tier Tin Field", by A. McIntosh Reid, Director of Mines and Q.J. Henderson, Cadet Geologist was published.

Bulletin 38 is a comprehensive work covering the history and development of the field. The Bulletin describes and classifies the primary ore-deposits and distinguishes between the tin-bearing and other granites of the area.

In the year 1933, P.B. Nye M. Sc., B.M.E., Government Geologist, in his "Geological Notes on the St. Helens District" traces the course of Thureau's Deep Lead. He refers to the fact that the lead was accurately mapped by Montgomery and that very little additional information has been gained since.

In 1943 D.E. Thomas, Government Geologist, described the "Tin Deposits of the Blue Tier District."

Thomas distinguishes between the tin-bearing and other granites. Descriptions of the mines of the field are given and in conclusion it is stated :-

"The Blue Tier Tin field must thus be considered as a field with localised enrichments."

The above reports record the early history of the area and conditions relative to the ore deposits of the district.

Historical

Most of the tin ore from the north east of Tasmania has been won from alluvial deposits occurring along comparatively well defined courses which represent the drainage systems prevailing in Tertiary times. Such systems are represented by the Ringarooma and Mussel Roe Leads representing river valleys of that period. These leads were covered in Mid-Tertiary times by flows of basalt, remnants of which still remain covering the deep lead at Derby. A similar drainage system was developed on the southern boundary of the area and is now represented by Thureau's Deep Lead from which tin ore is being won.

The boring recommended by Twelvetrees in 1901 and carried out in 1902 was intended to establish the course of the Mussel Roe Lead. Further boring in 1916 confirmed the information gained in 1902.

The course of Thureau's Deep Lead was established from shafts and workings then in existence and was later confirmed by an extensive boring campaign carried out by the Siamese Tin Company.

Beyond the limits of these now well defined leads there has been little or no organised prospecting to determine the existence of further leads or areas which may be tin bearing.

The Drainage System

The greater portion of the Blue Tier quadrangle is drained by the Mussel Roe River, Ansons River and the Ramsome and

Groom Rivers, the two latter being tributaries of the Georges River. These streams have their origin in the Blue Tier range in the vicinity of the township of Kunnara (Goulds Country.)

The Mussel Roe River rises in the eastern foothills of the Blue Tier about four miles to the north of the township of Kunnara and flows in a general northerly direction. The upper reaches of the river flow through flat country but from the vicinity of Counsel's sawmill, for a distance of approximately five miles, the river falls rapidly and flows between steep banks. Its fall is then more gentle and river flats have developed on which mining operations for the recovery of tin ore have been carried out. It is from these flats that the Mussel Roe Lead (Twelvetrees 1901) may be regarded as originating, any former southerly extension having been removed by denudation.

On the south the area is bounded by the Georges River and its tributary the Groom River. A further tributary the Ransome River, drains its south-western corner. Both the Groom and Ransome Rivers have their source in the Blue Tier range in the vicinity of the township of Lottah and flow in a general south-easterly direction to the Georges River. There has been no alluvial mining on the Ransome River and it is only on the lower portion of the Groom River near its junction with the Georges River that production of tin ore has occurred. The main production in this area has resulted from operations along the course of the deep lead established by Thureau in 1888 and from a tributary lead from the north at Bills Marsh. The main lead is regarded as extending westward to the lower reaches of the Groom River.

The Ansons River, with its tributaries the Last River and Spurr River and the Great Fraser Rivulet, drains a considerable portion of the Blue Tier quadrangle. Of the branches mentioned, the Last River and the main stream rise from three to five miles east from the source of the Mussel Roe River in the hilly country forming the northern banks of the Georges River. The streams flow in a general northerly direction over comparatively flat and often marshy lands to their point of junction eight to nine miles from their source. There have been no mining operations along their course although streams rising in the same hills, but flowing southward have been the source of moderate production of tin ore. As granite outcrops are fairly frequent in flats, it is to be expected that any deposits present will be shallow ones.

The Spurr River rises close to the source of the Mussel Roe River and flows in a general north-easterly direction to its point of junction with the Ansons River about two miles north from the Ansons River-Last River junction. Several streams join the Spurr River along its western bank from country which is fairly heavily timbered. There have been no mining operations along these streams.

The Great Fraser Rivulet rises in the same hills as the Spurr River but from a point about three miles to the north. It flows in a general north easterly direction, more or less parallel with the Spurr River for a distance of approximately eight miles over which distance it is joined by several tributaries from the west. The Rivulet then flows in a south easterly direction to join the Ansons River about three miles before its entry to Ansons Bay. There was no evidence of mining operations along the Great Fraser Rivulet.

GENERAL GEOLOGY

For the geological features of the areas immediately adjacent to the Blue Tier quadrangle reference may

be made to those reports referred to as Previous Literature.

Except for small areas of Permian strata occurring in the coastal area, the greater part of the quadrangle is occupied by granitic rocks which extend beyond its limits. In part the granite is concealed by deposits of recent alluvial material which occur principally along the valleys of the streams. On the southern boundary of the area Tertiary deposits occur as Thureau's Deep Lead, the upper layers of which are tin bearing, and in the area between the Great Fraser Rivulet and the Ansons River there is an occurrence of alluvial material regarded as being a Tertiary deposit.

A small area of Silurian slates and sandstones conceals the granites in the vicinity of Ansons Bay and overlying portion of the slates there occurs a limited area of Mesozoic dolerite.

The granites vary considerably in texture from a coarse porphyritic granite with felspar phenocrysts ranging to three inches in length to a comparatively fine and even grained granite. Numerous greisen veins occur and aplitic dykes are common.

ECONOMIC GEOLOGY

Occurrence of the Ore -

Tin ore has been the only one of economic importance won from mining operations in the Blue Tier quadrangle. In general, the ore has been won from alluvial deposits of limited extent and shallow depths.

In one instance lode mining has been undertaken from workings situated about half a mile west from the Post Office at Priory, where several shafts and trenches have been sunk on narrow quartz veins. An adit driven from the north east apparently cuts the veins at shallow depth. The veins have a westerly bearing. Tourmaline and iron pyrite are associated with the cassiterite in the veins.

Mining Operations -

At the present time mining operations in the quadrangle are confined to three positions:-

(1) Groves and Richardson. On the Mussel Roe River abour eight miles south from the township of Gladstone, Messrs. M.H. Groves and F.D. Richardson are the holders of a 21 acre lease No. 351P/M situated on a 98 acre holding charted in the name of Geo. Green, but now the property of E. Groves. Mining operations have shown a depth of up to 25 feet of alluvial material overlying a granite bottom. Recovery of tin ore is reported to be one pound of tin oxide per cubic yard. This lease comprises portion only of a fairly extensive flat extending along the course of the river.

Approximately one mile to the north of Groves and Richardson's area, D.R. Mallinson had just ceased operations on an area of 10 acres because of unprofitable returns.

(2) Groves and Richards. On the north bank of the Groom River about 60 chains from its junction with the Georges River, Messrs. L. Groves and E.C. Richards are the holders of a ten acre lease No. 356P/M where alluvial mining is in progress. Operations have revealed depths of five feet of coarse wash under an equal thickness of soils. The grade of the wash is reported as yielding two pounds of tin oxide per cubic yard.

Lease No. 356P/M is situated on the north western corner of abandoned lease No. 326P/M which was later taken up as lease No. 358P/M and since abandoned. It was reported in 1941 to P.B. Nye, Government Geologist, that lease No. 326P/M was bored for and on behalf of Siamese Tin Company and that the boring proved a uniform depth of 16 feet which had an average grade of two pounds of cassiterite per cubic yard.

(3) The Albion Mine. On Clifford Creek, the eastern branch of Albion Creek, and one mile east from Priory Post Office, E.W. Huxley is the holder of a lease of 20 acres, No. 34M/44. This area was bored by the Siamese Tin Company. In 1944, check boring of 12 bores by the Mines Department showed that an average recovery of 24 oz. of cassiterite per cubic yard was possible over an average depth of nine feet. Operations were commenced on the down stream side of the bored area and results to date have been lower than were expected. Better results should be obtained as work proceeds.

Maps -

Only one map Title No. 986/33, Geological Sketch Map of Blue Tier quadrangle, accompanies the report on the Blue Tier quadrangle. This has been compiled from Departmental land and mineral charts with added features resulting from compass surveys during the examination of the area. The map has been prepared at a scale of 1 inch to the mile and geological features added.

Prospects for the Future -

Along the course of the many streams, limited areas of alluvial ground occur. It has been reported that several of these have been tested by boring but there are no records available to indicate the grade of ore proved. This is particularly the case at the head of the Mussel Roe River to the South of Counsels Sawmill. This area is reported as having been bored by Siamese Tin Limited and as having yielded iron ore free from cassiterite as concentrates. Areas along the Groom and Georges River are reported as having been tested and some of these have, in part, been worked but there are no records of production. The three areas at present operating - each very limited in extent - yielded a profitable grade of ore and suggest that most of the flat country along the stream courses warrants testing by boring.

The largest area worthy of testing is more or less centrally situated in the area. It is a comparatively high plain situated between the Great Fraser Rivulet and the Ansons River on which a considerable area of waterworn boulders occur with no rock outcrops. The area is crossed by a road to St. Helens which leaves the Gladstone-Ansons Bay Road about eight miles from Gladstone. The area regarded as being a remnant of the Tertiary alluvial deposits and may be tin bearing. Its limits have not been defined but it extends along the road for at least one and a half mile in width. No estimate has been made of the depth of wash available. It is anticipated that any gutters occurring in this area will trend northerly and any boring under-taken to prove its grade should be closely spaced on lines trending easterly.

CONCLUSIONS AND RECOMMENDATIONS

There is sufficient agreement between the directions of the known leads and the present drainage to suggest that they had a common source situated in the Blue Tier. Portions of the old leads near their source have been lost by denudation and the remaining sections are comparatively well known.

A fairly extensive area of alluvial material occurring between the Great Fraser Rivulet and Ansons River may have resulted from such Tertiary drainage in the direction of the Ansons River and some at least of the flats along the tributaries of the Ansons River may have a like origin.

The area near the Sugar Loaf situated to the north west of Mt. Pearson is rich in quartz fragments resulting from the breaking up of quartz veins which may have been tin bearing. Comparatively flat areas in this vicinity may also be tin bearing.

There is no doubt that the area between the Great Fraser Rivulet and the Ansons River is worthy of testing. It should be borne in mind that ore bearing gutters which may occur in this area will correspond in width with those proved by workings in the Eddystone Quadrangle. Prospecting bores should, therefore be closely spaced to ensure that gutters are not missed. There is no evidence available on which to base assumptions as to depth of wash available. The selected areas are indicated in colour on the map accompanying this report.

H.G.W. Keid, M.Sc.
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Department of Mines,
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9th October, 1946.

GAZETTEER

ANSONS BAY) ANSONS RIVER)	41° 2'	148°17'
BILLS MARSH	41°16'	148° 7'
BRADSHAWS CREEK	41° 4'	147°56'
BLUE TIER	41°12'	147°59'
EDDYSTONE PT.	40°59'	148°21'
GARDENS	41°11'	148°17'
GEORGES RIVER	41°18'	148°17'
GLADSTONE	40°56'	148° 1'
GOULDS COUNTRY	41°15'	148° 3'
GREAT FRASER RIVULET	41° 2'	148° 9'
GROOM RIVER	41°15'	148° 0'
KUNNARA	41°15'	148° 3'
LAST RIVER	41°11'	148°11'
LOTTAH	41°14'	148° 1'
MOULTING BAY	41°18'	148°17'
MUSSEL ROE RIVER	41° 0'	148° 5'
PIONEER	41° 4'	147°56'
PRIORY	41°17'	148°12'
RANSOME RIVER	41°15'	148° 2'
RINGAROOMA RIVER	41°14'	147°45'
SKELETON BAY	41°15'	148°18'
SPURR RIVER	41° 8'	148° 9'
ST. HELENS	41°17'	148°22'
THUREAU'S DEEP LEAD	41°17'	148° 7'
WYNIFORD RIVER	41° 7'	147°58'