

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED  
WEST COAST DEPARTMENT

**PRELIMINARY REPORT ON**  
**CASTLE CAREY MINERAL BELT**  
**N.E. TASMANIA – SPL 333**

By  
Dr B Scott

April 1959

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AMG REFERENCE POINTS ADDED

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MEMORANDUM TO:=-

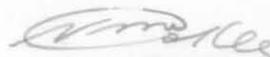
SUPERINTENDENT:

Preliminary Report on the Castle Carey  
Mineral Belt

Herewith Dr. Scott's report on the above zone of mineralisation which is a compilation of all the known information collected mainly from the Department of Mines records.

The zone contains a number of very small mineralised prospects the largest of which would be too small to be of interest to the Company.

It is recommended that the area merits no further investigation at this stage but should an economic tin and, or, tungsten deposit be found in the vicinity a small amount of exploration may be justified.

  
V.M. COTTLE,

CHIEF            GEOLOGIST

ROSEBERY, 4th May, 1959.

Dist: Geol. (2)  
M.D. (1)

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

West Coast Department

Rosebery.

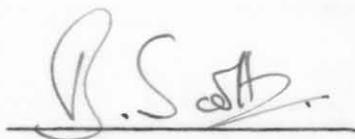
9th October, 1958

Memorandum:

Chief Geologist.

Attached is a preliminary report on the Castle Carey Mineral Belt, N.E. Tasmania, which is within our Special Prospecting Licence 333. The area is one of tin/tungsten mineralisation within granite.

The report, which is a summary of published and unpublished information, begins with a "Summary and Conclusions" section, which is followed by the main body of the report.



Asst. Chief Geologist

BS/BMS  
Encl.

Distribution: Managing Director  
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## PRELIMINARY REPORT ON THE CASTLE CAREY MINERAL BELT

### SUMMARY AND CONCLUSIONS

The mineralisation consists of cassiterite/wolfram in N.N.W. trending fractures which occur within granite. These mineralised fractures readily fall into two main types:

#### A. Quartz/Tourmaline/Cassiterite Veins

These veins are narrow, usually less than 2 feet, but appear to persist over distances of several hundred feet. Production of cassiterite from this type of vein would have been very small and they do not represent a type of ore occurrence of economic importance.

#### B. "Greisen" Veins

These veins are zones of altered granite up to 20 feet wide. The width of these zones appears to vary considerably along the strike of the veins and only in two localities were payable amounts of cassiterite located, at the Rex Hill Tin Mine and the Great Republic Mine (plate A2.) At each locality these values were found in an ore-pipe with a diameter of up to 70 - 80 feet. The greatest recorded depth of 450 feet was of that worked at the Great Republic Mine. Therefore, although these greisen veins are relatively common within this mineral belt, it is estimated that 95% of the cassiterite produced (Table 1) has come from the two oreshoots mentioned above, with the remainder of the altered granite veins usually containing but little or no cassiterite.

It is believed that the only chance for further cassiterite ore would be the discovery of other pipes. However, the occurrence of such ore shoots is notoriously irregular and whilst such discoveries would be suitable for working by a small syndicate of four to six men they would not be suitable for large scale development. On this basis the Castle Carey Mineral Belt is not likely to contain mineralisation of sufficient size or promise to be of interest to us.

PRELIMINARY REPORT ON THE CASTLE CAREY MINERAL BELT

1. LOCATION

The mineral belt commences 4 miles to the north west of the town of Avoca. From this point it continues to the north west for 7 miles towards Ben Lomond. Despite its great length the mineralisation is restricted to a width of only 2000 yards, forming an elongated rectangle of an area of approximately 8 square miles.

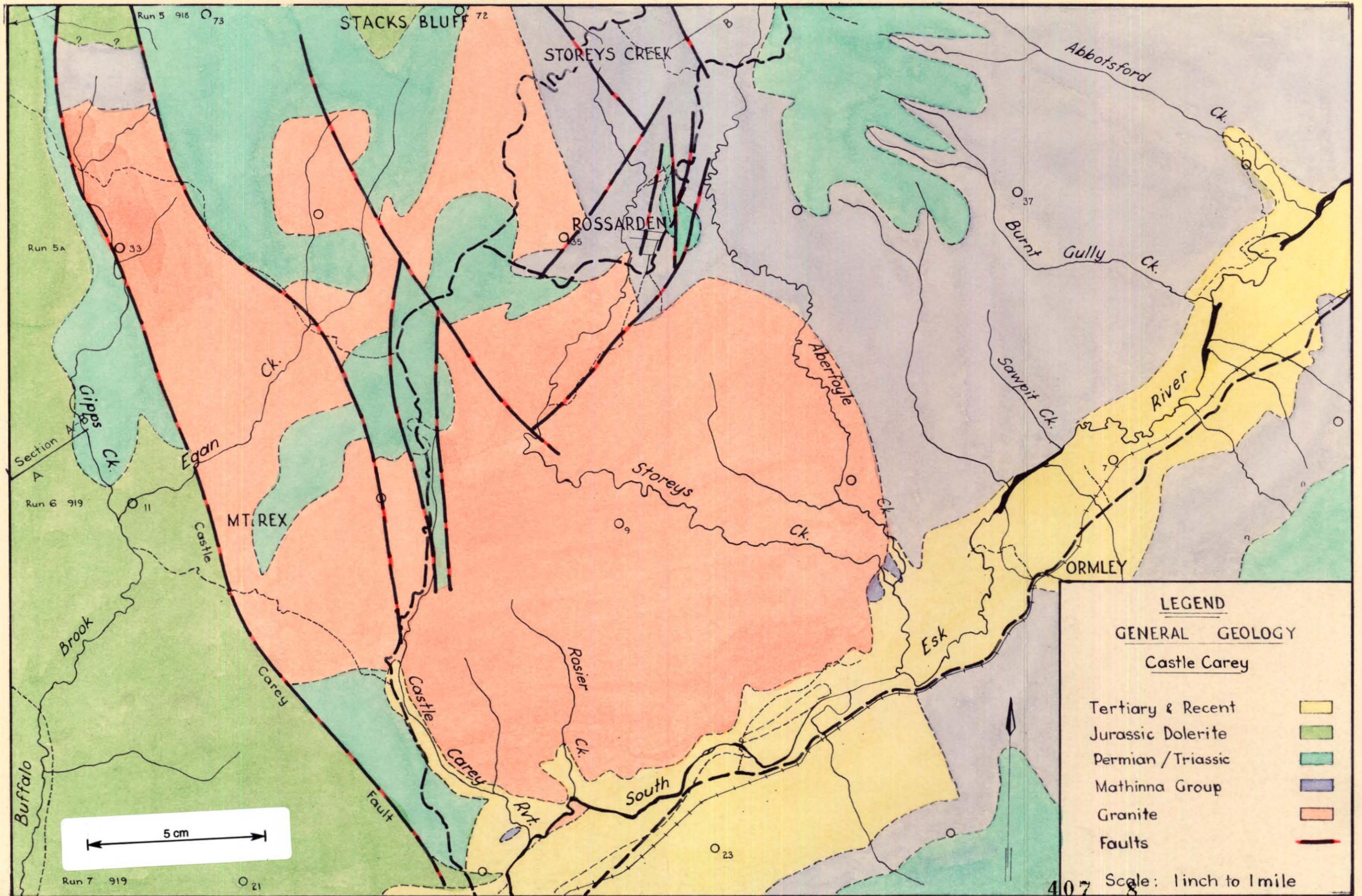
2. ACCESS

The area is reached by following the Storeys Creek road from Avoca and turning off the road at 3 miles from Avoca for the Rex Hill Prospect, and at 8 miles from Avoca for the Great Republic, Ben Lomond and Vickory Prospect.

3. GENERAL GEOLOGY

The general geology of the area is shown on plate A1. The oldest rocks of the area are the folded slates and quartzites of the Mathinna Group (Lower Palaeozoic age). These sediments have been intruded by the Aberfoyle Granite (Devonian) and it is considered that the tin tungsten mineralisation is generally related to this intrusive. The later Permo-Triassic sediments originally covered all of these older rocks and were themselves intruded by the dolerite sills of Jurassic age. These sills are up to several hundred feet in thickness and form striking topographic features, as at Ben Lomond. The Tertiary basalts and sediments near Avoca form the youngest group in the area.

Faulting, trending N.N.W. has played an important part in the distribution of these rocks, as can be seen from the plan on A1. At least two ages of faulting can be distinguished, one in between the intrusion of the granite and the deposition of the Permo-Triassic sediments and one of Tertiary age. It is only the former movement which had any importance as regards mineralisation and faults of the latter age are barren. This is most strikingly shown in the Castle Carey Fault itself which had its last movement in the Tertiary era and although it is the largest fault in the area it does not contain tin/tungsten mineralisation. To the south this fault, and its associated fractures to the east, pass under and are covered by the Tertiary basalt and sediments near Avoca. To the north the fault undoubtedly continues but the granite and associated sediments are covered by the dolerite of Ben Lomond.



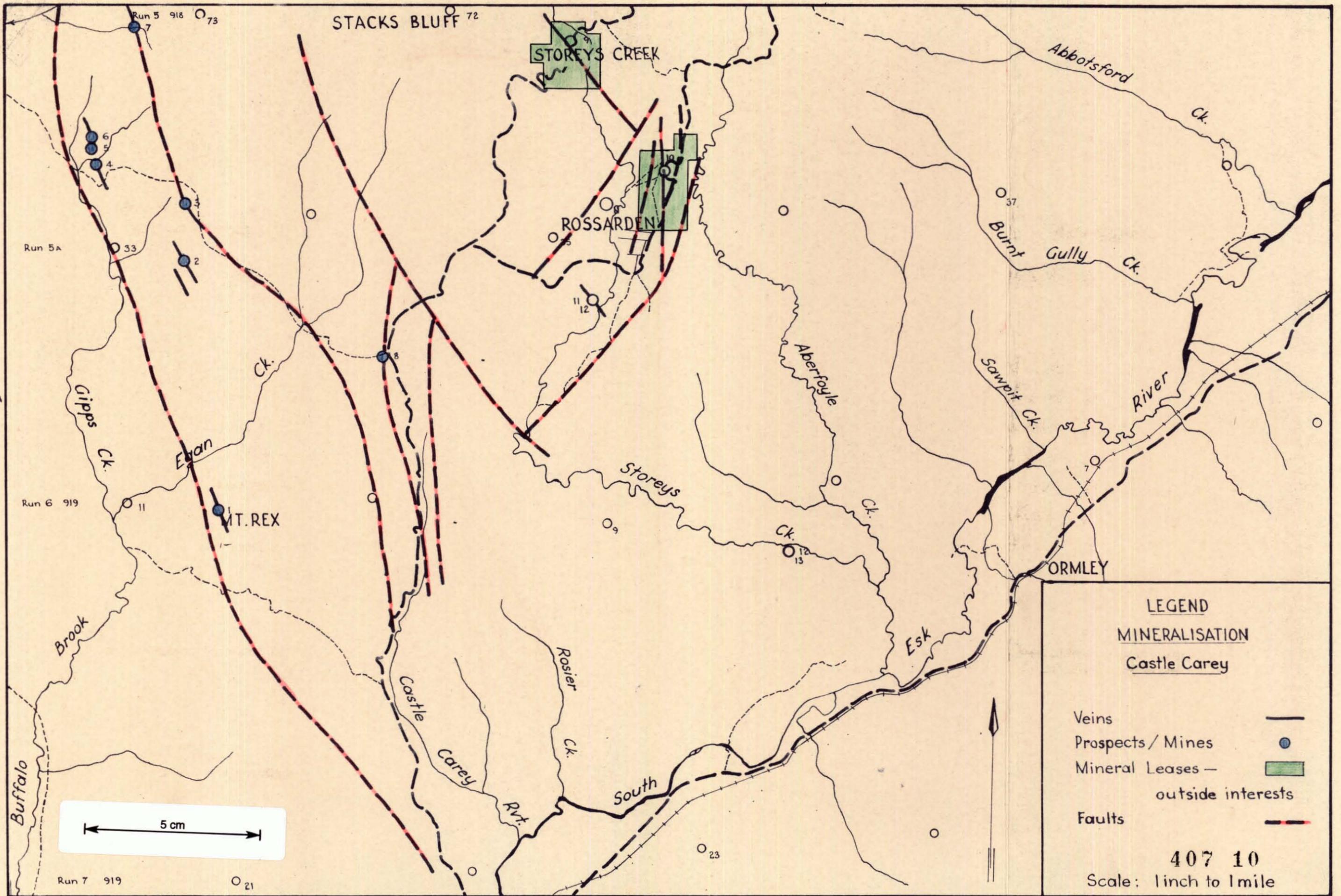
MINERALISATION - CASTLE CAREY MINERAL BELT

LIST OF PROSPECTS/MINES

1. Mt. Rex Tin Mine.
2. Ben Lomond Tin Mine.
3. Great Republic Tin Mine.
4. Gipps Creek Sections.
5. & 6. Long Tunnel Sections.
7. Vickory Prospect.
8. Avoca Silver Prospect.

The numbers correspond to the numbered prospects on plate A2, opposite.

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**LEGEND**

MINERALISATION

Castle Carey

Veins	—
Prospects/Mines	●
Mineral Leases	■
	outside interests
Faults	- - -

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Scale: 1 inch to 1 mile

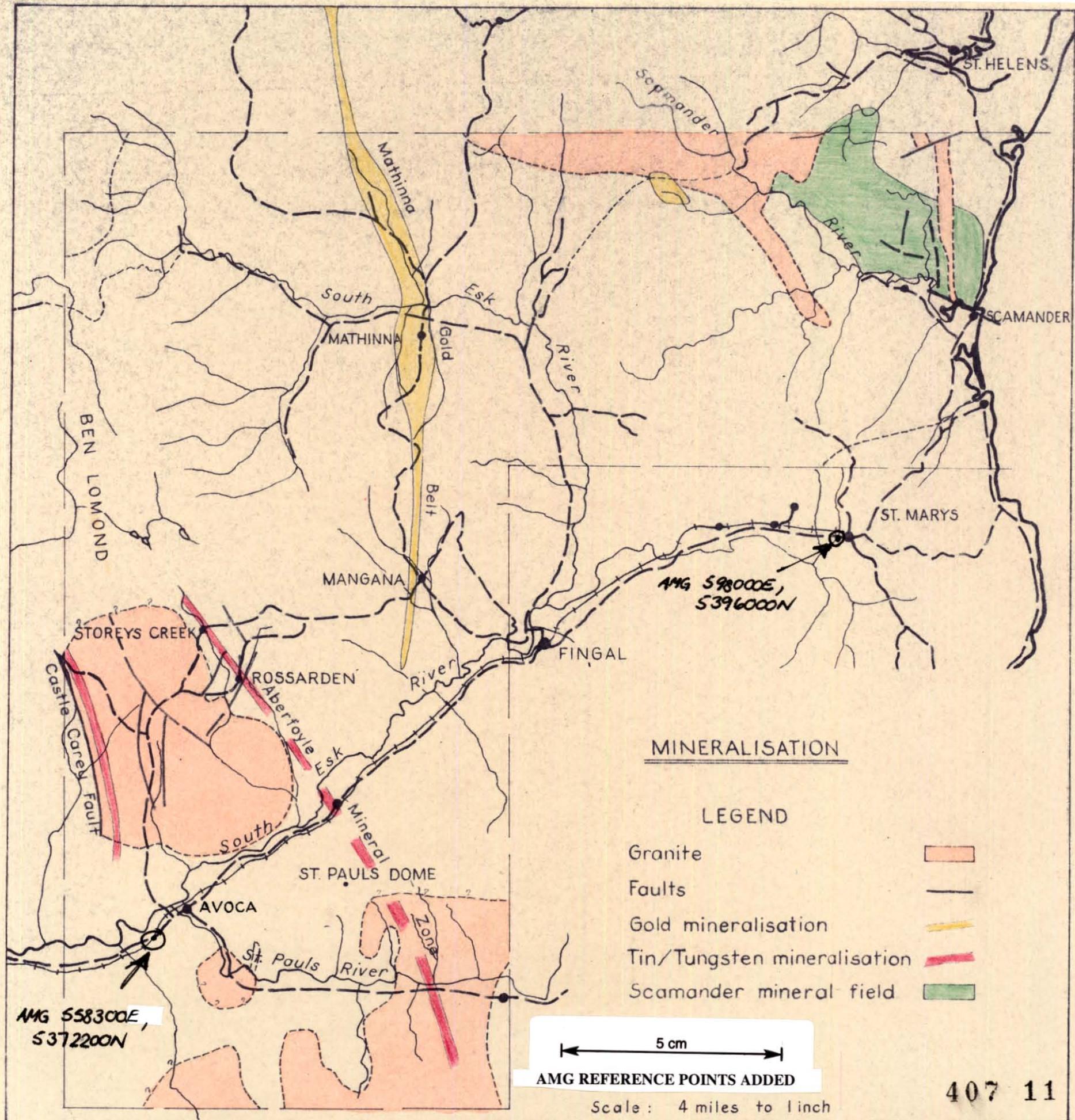


TABLE 1

Cassiterite and Wolfram Production

From all available sources to 1929. Production since that date has been negligible.

Rex Hill Mines

Total production estimated 950 tons of cassiterite concentrate.

Great Republic Mines

Total production estimated 200 tons of cassiterite concentrate.

Ben Lomond Tin Mines

Total production estimated 38 tons of cassiterite concentrate.

Gipps Creek & Long Tunnel Sections

Total production estimated 0.1 ton of cassiterite concentrate.

Total production estimated 29 tons of wolfram concentrate.

Vickory Prospect

Total production estimated 18 tons of cassiterite concentrate. (To 1940)

The average grade of cassiterite concentrate can be taken as 70% cassiterite.

The average grade of wolfram concentrate can be taken as 70% tungstic acid  
(WO<sub>3</sub>)

TOTAL estimated cassiterite production = 1206 tons of concentrate

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TOTAL estimated Wolfram production = 29 tons of concentrate

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It is interesting to note that 95% of the cassiterite production came from the ore shoots of the Great Republic and Rex Hill Mines.

#### 4. MINERALISATION

This section does not include uranium mineralisation which is to be treated separately in a later report.

The mineralisation of this field consists primarily of cassiterite with smaller quantities of wolfram and galena. Other sulphides also occur (pyrite and chalcopyrite) but only in minor amounts.

This mining field first received attention about 1885 and reached its peak of development in the period 1890 - 1910. Since 1913 very little development has been carried out and production has been sporadic and insignificant. The published figures of production are given in Table 1.

A brief description of the more important properties will be given, their positions are marked on plate A2. This will be followed by a general summary of the area.

##### A. Mount Rex Tin Mining Company Limited.

##### a. Properties

In 1891 the Company held one lease (1191 - 87M); over the next decade the adjoining areas were incorporated until in 1901 a total of 17 sections of 640 acres were held.

##### b. Mineralisation

The sections covered a length of the Castle Carey Fault and subsidiary fractures in the granite to the east, most of which trend N.N.W. A subsidiary series of veins trend 260 degrees and they would appear to be tension gashes associated with the main N.N.W. faults. These subsidiary veins have produced little or no tin. The main fault has brought Permo-Triassic sediments against the granite and consequently it is a barren, post-mineralisation fault containing fragmentary country rock, brown oxide iron, and quartz. The mineralisation is restricted to the subsidiary fractures, in the granite only a short distance from the granite/sedimentary contact (approx. 350 yards). Along these fractures the granite has been extensively altered and it is within these altered zones, which are an average width of 20 feet, that the tin and tungsten occurs. The contact ~~lodes~~ of these zones of alteration with the fresh granite is usually sharp, and vertical. In 1891 the traced length of this zone was 150 yards and by 1901 a vertical pipe of above average values in tin was located. This pipe which was 60 - 80 feet in diameter was developed to a depth of 160 feet below surface. In the upper portions

of this pipe quantities of argentiferous galena were found to a depth of 40 feet, a total production of 20 tons is recorded.

To 1901, 1160 tons of tin ore had been produced (an average grade of 5% cassiterite) giving 81 tons of concentrate averaging 68% cassiterite.

B. Ben Lomond Tin Mining Company Limited

a. Properties

In 1891 the Company held 5 sections which were immediately to the south of those held by the Great Republic. These two companies merged by 1901 to form the Ben Lomond and Great Republic Mining Company Limited.

b. Mineralisation

The mineralisation closely resembles that seen at the Rex Hill property with lodes of soft, altered granite which contained disseminated cassiterite. Two shafts were sunk, both to 80 feet, on the most promising of the four lodes which existed on the sections but no pipes of ore were intersected as at the Great Republic or Rex Hill properties.

The Ben Lomond Adit 735 feet in length was driven on one of these sections.

C. Great Republic Mining Company Limited

a. Properties

The properties are 3 miles to the north west of the Rex Hill leases, and in 1891 consisted of 7 sections. By 1901 these sections were merged with those of the adjacent Ben Lomond Tin Mining Company Ltd.

b. Mineralisation

The mineralisation at the Great Republic Mine closely resembles that of the Rex Hill property. The ore came almost exclusively from one lode, trending N.N.W. and dipping 75 degrees west, and within this lode a pipe of above average tin values was located. The pipe was 10 - 15 ft. wide and up to 30 feet long (N.N.W. - S.S.E.) and consisted of altered, soft granite with disseminated cassiterite and veins of fluorspar and quartz with sulphides. By 1901 this pipe had been developed to a depth of 450 feet below the surface, and abandoned.

During the period 1890 - 1893 a total of 1560 tons of ore was produced, averaging 7% tin. (156 tons at 70% tin). It is not clear

whether this ore was handpicked or not, consequently the grade may be deceptively high.

D. Gipps Creek Sections

a. Properties

In 1893 this area was covered by sections 3166 - 87M, 3118 - 87M and 2650 - 87M. They are located on the south-east slopes of Batemans Look-Out and 4 miles to the north-west of the Rex Hill sections. By 1901 these sections, in part, formed the northern area of the Ben Lomond Tungsten Mining Company Limited leases.

b. Mineralisation

The mineralisation consists of a series of altered granite veins with a reported width of up to 4½ feet. The veins contain quartz and tourmaline, with minor cassiterite and wolfram. There appears to have been little or no development on these sections apart from sluicing in the Creek.

E. Long Tunnel Sections

a. Properties

Sections 2338 - 97M, 2309 - 87M and 2650 - 87M placed immediately to the north of the Gipps Creek sections. The area takes its name from the long adit which was driven for 560 feet from the north side of Gipps Creek on section 2338. The adit was driven in a N.N.W. direction, parallel to the general trend of the ore bearing structures. In 1901 these properties formed part of the St. Aubyn Tin Mining Company Limited.

b. Mineralisation

The mineralisation is restricted to a series of small veins, undoubtedly the same series as in the Gipps Creek sections. The veins are up to 2 feet 3 inches wide, production appears to have been negligible.

Approximately 1000 feet of tunnelling and several small shafts were completed on these properties prior to 1893.

F. Vickory Prospect

This prospect has recently been reported upon by G. Hall and V.M. Cottle (January, 1950, Report 21) and the following information has been extracted from this report. The prospect is approximately 6½ miles north west of the Rex Hill prospect.

a. Properties

Leases were originally pegged prior to 1892 and a shaft ( No. 1 shaft) was sunk on an ore occurrence. This shaft was deepened to 40 feet during 1934. During 1949 the property was brought to the notice of the Electrolytic Zinc Company of A/Asia Limited and a preliminary inspection was made on December 8th of that year by G. Hall and V.M. Cottle.

The workings consist of a series of shallow pits and trenches extending over a length of 600 feet, and four shafts (including No. 1 shaft) up to 40 feet in depth.

b. Mineralisation

The ore occurrence is confined to No. 1 shaft and the vein material found on the dump here was quartz and altered granite carrying occasional visible crystals of cassiterite. Large amounts of coarse to medium grained galena, sphalerite, pyrite and arsenopyrite occur in bunches in the vein. The vein is not well defined but can be traced along the strike (N.N.W.) for about 70 feet in the granite, where it passes out into spotted black slates (Mathinna Group). The vein continues for several hundred feet within the slate and consists of quartz with some fine grained felspathic and siliceous material together with brecciated fragments of slate.

Production, all from No. 1 Shaft, is reported to have been 12 tons of tin oxide during the initial sinking of this shaft in the 1890 period. During 1934 a small additional quantity of tin was produced.

G. Avoca Silver Prospect

a. Properties

In 1893 22 sections were held in the headwaters of the Castle Carey and Buffalo Creeks.

b. Mineralisation

The sections cover an area of Permo-Triassic sediments and are centered around a barren N.N.W. trending fault.

In the period 1890 - 1900 there were reports of argentiferous galena in the area but none were substantiated and there is no recorded production.

5. GENERAL SUMMARY ON MINERALISATION

It is apparent that the mineralisation occurs within the granite and it is localised along N.N.W. trending fractures. It is a noticeable feature that the main N.N.W. fracture, the Castle Carey Fault, is barren of economic minerals.

The mineralised fractures readily fall into two main types.

A. Quartz/Tourmaline/Cassiterite Veins

The veins are narrow, usually less than 2 feet, but appear to persist over distances of several hundred feet. Veins of this type occur in the Gipps Creek and Long Tunnel sections. Production of cassiterite from this type of vein would have been very small and they do not represent a type of ore occurrence of economic importance.

With an increase in the felspar content these veins would pass in to pegmatite.

B. "Greisen" Veins

These veins are zones of altered granite up to 20 feet wide, as on the Rex Hill, Great Republic, Ben Lomond Tin and the Vickory sections. Typically, the altered granite consists of a mixture of clay minerals (formed by the decomposition of the original felspar), hydromicas (decomposition of the original biotite and muscovite), unaltered original quartz particles with disseminated cassiterite and veins of fluorspar and quartz with sulphides. The width of these zones appears to vary considerably along the strike of the veins but only in two localities were payable amounts of cassiterite located. These were the ore shoots found at the Rex Hill Tin Mine and the Great Republic Mine. The shoots were in the form of a pipe within the vein itself and was up to 70 - 80 feet in diameter on the former property. The greatest reported depth of 450 feet was of that worked at the Great Republic Mine, apparently with

values continuing under foot. Consequently, although these greisen veins are relatively common within this mineral belt, it is estimated that 95% of the cassiterite produced has come from the two ore shoots mentioned above, with the remainder of the altered granite veins usually containing but little or no cassiterite.

Patches of sulphides, usually argentiferous galena, and sphalerite, commonly occur with the cassiterite (as at the Rex Hill Mine and Vickory Prospect) but in small quantities.

Both of these types of veins are typical of very late stage hydrothermal activity related to the cooling history of the granite and similar occurrences have been extensively studied in the other tin bearing districts of the world, as in Cornwall, England. It is believed that the only chance for ore would be the discovery of other pipes, as found at the Rex Hill and Great Republic Properties. However, the occurrence of such ore shoots is notoriously irregular and whilst such discoveries would be suitable for working by a small syndicate of four to six men they would not be suitable for large scale development.

6. CONCLUSIONS

On the basis of these previous reports it appears that the Castle Carey Mineral Belt is not likely to contain mineralisation of sufficient size or promise to be of interest to us.

BS/BMS

  
Asst. Chief Geologist

September, 1958.

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