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MINERALISATION IN THE CARBINE
GROUP PRECAMBRIAN

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IN THE
CARBINE GROUP, PRECAMBRIAN

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Mineralisation in the Carbine
Group Precambrian.

L.E.E. 2/7/58.

S.W. REGIONAL

MICROFILMED

To: Mr. G.F. Hudspeth.

2nd July, 8.

Mineralisation in the Carbine Group, Precambrian

The emphasis of the lithological control of mineralisation on the West Coast, and related districts, of Tasmania has always been its obvious association with the sediments of the Dundas Group (i.e. the sulphide deposits at Rosebery and Queenstown). However, mineralisation in other stratigraphical groups must not be overlooked, particularly as it is apparent that in the Arthur concession the Dundas Group may be completely absent, with its place being taken by sediments of the Carbine Group.

A comparison of these is given below:

	<u>Age</u>	<u>Rock Types</u>
DUNDAS GROUP	Upper Cambrian	Slates, siltstones, conglomerates, tuffs, greywackes.
	Middle	
CARBINE GROUP	Lower Cambrian	Slates, siltstones, conglomerates, dolomite.
	Upper Precambrian	

Sediments of the two Groups resemble each other and this resemblance is sufficiently marked for past workers to have named areas of Carbine as belonging to the Dundas (as in the Arthur concession at Adamsfield and New River Lagoon, at Dundas, Renison Bell(?), Stanley River, Balfour and Mount Bischoff). On this basis, it is undoubtedly true that as detailed geological mapping covers the State the area of

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sediments at present known as Dundas will diminish, with the stratigraphy of these areas identified with the Carbine Group.

In order to obtain an evaluation of the Arthur concession, a survey has been made of known mineralisation in the Carbine Group in Tasmania, as in the attached sheets.

Certain aspects of these occurrences can be summarised as follows:

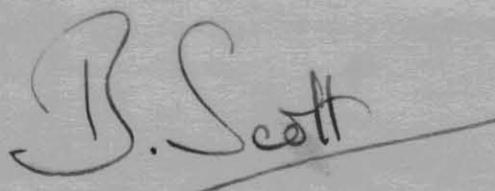
1. The Carbine Group form a lithological unit which is amenable to replacement by sulphides and oxides. This is particularly reflected in the persistent association of the ore minerals with the dolomite/slate horizons of this Group.
2. The associated tin deposits have been among the richest and most consistent producers of this metal in the Commonwealth (i.e. Mount Bischoff and Renison Bell).
3. The associated sulphide deposits can be broadly divided into two groups:
 - (a) The deposits associated with a Dundas/Carbine sequence, as at Renison Bell and Dundas;
 - (b) The deposits associated with a Carbine/strong shear combination, as at the Mount Balfour Mining Field in N.W. Tasmania.

The possibility of finding a large tin/tungsten deposit in the Arthur concession is exceedingly remote. However, there is the occurrence of the Strong Picton Fault, which can be traced for 80 miles, with the folded dolomites and black/purple slates of the Carbine Group, the latter covering an area of approximately 350 square miles. In particular near

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Adamsfield the dolomite is up to 4000 feet thick.

Consequently, on this regional basis, there is good reason to continue the exploration of the Arthur area despite the apparent absence of the Dundas Group.

A handwritten signature in cursive script that reads "B. Scott". The signature is written in dark ink and is positioned above a horizontal line that extends to the right.

Geologist-in-Charge.

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I. Prospects within the present concessions.

1. Humboldt Mine, 8 miles east of Adamsfield.

Originally a gold reward lease (1891), later the Great Western Railway took possession (prior to 1909) and carried out development work (trenching, adit and shaft). A galena and a copper pyrites lode is reported, also a gossan outcrop. Gangue is quartz, iron carbonate and barytes. Also some sphalerite reported.

The mineralisation is in "chocolate coloured silicified slate", and "reddish and purplish slates with bands of quartzite" (Twelvetrees, 1909).

2. Birthday Bay Copper Prospect.

This occurrence is approximately six miles north of Point Hibbs.

An old report (Waller 1902) and recent field mapping show that the copper mineralisation (chalcopyrite with minor covellite) occurs in dolomite and black slate, which has been correlated with the Carbine Group.

II. Prospects outside the present concession.

1. Dundas Area

Elliston (1954) demonstrated that Carbine sediments exist in the Dundas area, with the following suggested succession:

TOP

Higgins Slate & Quartzite

Platt Dolomite

Maestries Dolomitic Conglomerate

BOTTOM

The Comet Mine and Higgins Prospect are in the Higgins Slate and Quartzite. According to Fimucane (1947), the mine produced 60 to 70,000 tons of lead ore at an average grade of 12% lead, in addition the gossan outcrop was mined as a flux and amounted to 90,000 tons containing 5% lead. The entire Carbine succession is mineralised with pyrite and galena in small veinlets and crystals, but Elliston (1954) emphasises the fact that none of the sulphide occurrences was large.

2. Renison Bell

Elliston (1954) states that Renison Bell mine is in the Carbine Group. Fisher (Geology of Australian Ore Deposits, 1953) indicates that it is in the Dundas Group. The host rocks consist of "folded shales and sandstones" and if in the Carbine Group it would appear to be the Higgins Slate and Quartzite.

Mineralisation consists of fine grained cassiterite disseminated through massive sulphides (chiefly pyrrhotite) or through bodies of quartz and sulphides. The grade of ore ranges from 0.7% to 1.0% tin.

3. Mount Bischoff

Carey and Knight (1953) consider the host rock to be Carbine Group. The mineralisation consists of cassiterite with pyrrhotite, pyrite and marcasite. Minor quantities of lead, zinc, copper and antimony also occur.

Total production has amounted to 56,000 tons of tin metal from about 5½ million tons of ore treated.

4. Mount Balfour Mining Field, N.W. Tasmania

The mineralisation consists of copper, with some lead and zinc to the west of Balfour. The copper mineralisation (chalcopyrite,

pyrite) is related to the Balfour Break, a strong NW-SE shear which has been traced for approximately $3\frac{1}{2}$ miles (Ward, 1911). The sulphide occurrences have not been tested to any great depth, as far as I am aware to only 150 feet below ground level.

The host sediments were called the Bischoff Series of undecided age by Ward in 1911. Spry (1957) relates these sediments to the Precambrian era and from his and Ward's descriptions it is apparent that they can be correlated with the Carbine Group.

5. King Island Scheelite Mine

The King Island Scheelite deposit is a large pyrometamorphic orebody that has developed by the selective replacement of limestone beds (Knight and Nye, 1953).

The contact metamorphosed sediments of the mine are intruded by granite, these sediments are named the Grassy Group and have been correlated by Carey (1953, p.1220) with the Carbine Group. The sediments were originally dolomite and dolomitic shales.

The mineralisation consists of scheelite with minor sulphide. An average grade and tonnage given in 1942 was 2 million tons of open cut ore averaging $0.65\% \text{WO}_3$.

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