UR 1957/200-205

TIN DEPOSITS OF THE SOUTH WEST

The South West tin deposits are all associated with granite intrusions or their proximity. Tin, molybdenite and wolfram have been carried in quartz veins, mica-greisen and quartz mica greisen veins in the granites themselves, in quartz schists argillites, mica-graphite schist and quartzitic sandstones.

There are three places in the South West where tin has been mined and is still mined, except Ray River. These are the following:-

1. Cox Bight Tin Field
2. Moth Creek Tin Field
3. Ray River Tin Field

Besides, tin has been found in small quantities at Wilson Bight, New Harbour area, and over the flats and terraces from Cox Bight through Moth Creek up to Bathurst Harbour and in the vicinity of the North Western part of Hannant Inlet.

The commercial tin deposits are in the diluvials and alluvials. There has not been found as yet, one quartz or quartz mica greisen vein, carrying tin in commercial quantities in any of the known tin fields in the south west.

The writer, during recent years has examined the above tin fields and he generally concurs with the reports on the above tin fields of P.B. Nye and McIntosh Reid. To give a better picture and clearer understanding of the main tin fields, the author has produced maps and a report on each of the three tin fields.

COX BIGHT TIN FIELD

1. Introduction
2. Situation and access
3. Topography
4. Stratigraphy
5. Deposits (littoral, plateau and veins)
6. Summary

INTRODUCTION

Lark Macquarie of Hobart first discovered in the early nineties the tin ore at Cox Bight, near the neck of Pt. Eric. Next came Robert Glover and W.H. Foley from Port Davey carrying out extensive prospecting operations. Reward sections on western side were granted to these in September, 1892, and were transferred to Glover and Foley Pty. in 1893. After them, one Meldon was working till Mr. J.J. Gaffney and the Cox Bight Tin Mine N.L. started to work in 1913.

The Cox Bight Tin Mines N.L. of 520 acres have been operating on the eastern side of Cox Bight and over the three terrace sections on the Western Bay and over two sections of the flats bordering the lagoons. The work was stopped owing to trouble with the neighbouring lease holders.

There were Messrs. Weber, Courlay and Hawson, who took tin leases of the lagoons and the surrounding flats on the western side of the bay. Messrs. Pender and

Atkins held western hill sections and some on Bourke's Creek. F. Pender applied for section west of Black Pt. Range and north - and for the adjoining section. Mr. J.J. Gaffney took a lease west of the latter. Besides, there were such lease holders as the Kent Tin Prospecting Association of 370 acres on the West bay, over and around the lagoons applied for in the names of Messrs. Weber, Gourlay and Hawson. This Company partly prospected the south western parts of the bay and found tin to exist in the Lagoon area (Mr. Gaffney's 16' x 17' holes with ¼ to 2½ ozs. tin per dish).

Nothing worthy of record took place until 1926 when M.R. Freney on behalf of Adelaide Co. visited the tin field and pegged a large area. No development and major prospecting has been made by the above.

Cox Bight Tin Field has been described already by three Government Geologists, namely by W.H. Twelvetrees - Report on Cox Bight Tin Field - Launceston, 5th December, 1906; P.B. Nye - Report on Geological Survey of Port Davey District, - 28th March, 1928; and by A. McIntosh Reid - Report on Cox Bight Tin Field - 22nd May, 1928.

McIntosh Reid gave detailed information re shafts and bore holes (see attached map) performed by Eng. Church in 1913 for a Melbourne Company and Eng. Roberg during 1927.

Since 1926 there has been occasional only tin miners working for a short time at Cox Bight. Lately, since 1956, W.G. Archer is mining tin with varying success.

SITUATION AND ACCESS

Cox Bight tin field lies along the mid-southern coast of Tasmania and is approximately four miles in length and approximately three-quarters to one mile in width. There is a geographical division of the tin field into an eastern and western area. The Cox Bight tin field is connected with the Melaleuca Inlet by a track, over a button grass plain, eight miles long, and on its eastern side at Boat Harbour it is accessible for small fishing boats, during calm weather only. Both beaches, the eastern one and the western one, are suitable for the landing of small aircraft. During the dry season, Cox Bight could be successfully connected with Melaleuca Inlet by a caterpillar type of vehicle (bren gun carrier).

TOPOGRAPHY

The Cox Bight tin field stretches over an old littoral and a low plateau (fluvio glacial cone) on the eastern side of Pt. Eric. The littoral is bounded on the sea-side by high sand dunes and on the other sides by steeply sloping hills and mountains of granite, quartzite and quartz-schists. One of the prominent peaks is Folley's Pimple rising 1175 ft. above sea level. The background forms the Bathurst Range. From the east, the prolongation of Ray Range up to Black Bluff and from the west the New Harbour Range borders the tin field, giving an appearance of an arena of an amphitheatre. Except the gullies, the country is devoid of trees and presents a barren appearance.

STRATIGRAPHY

This area is chiefly built of quartz schists, quartzites and different kind of schists of pre-Cambrian age and granites of probable Devonian age. All these formations

are penetrated by quartz veins and veinlets, many of them were mineralised. The other formations are the Pleistocene gravels and boulders of the eastern Cox Bight plateau and the plains between the granites and the New Harbour Range. These gravels and boulders generally form plateaux or terraces very often up to 30 ft. in thickness.

MINERAL DEPOSITS

The Cox Bight main mineral is cassiterite, deposited in diluvials and alluvials in commercial qualities and quantities, mainly on both sides of the granites i.e. on the south western and south eastern side (see map). It is reported also, that small amounts of cassiterite have been found in several places in quartz veins but when mined, after several feet down, the tin disappeared and pyrites usually took the place of the tin.

There are two types of tin deposits; the littoral - plain one, and the plateau - terrace one. The south western tin deposits are mainly littoral - plain ones and the south eastern - are littoral ones along the sea shore ten chains wide and fifty in length. The plateau - terrace deposits, the north eastern are nearly 100 chains in length stretch along Cox Creek SW - NE run. There is also poorer grade tin ore along the Pender's Creek middle run. According to W.H. Twelvetrees report, 5th December, 1906, some 200 tons of tin concentrates of 70 - 75% grade, have been removed from 1891 till 1906.

Besides cassiterite, molybdenite and wolfram have been found in small quartz veins in the granite and quartz schists but of no commercial value. (Meldon Creek, Knight Creek and Pender Creek areas).

A lot of successful exploitation has been done on "plateau" deposits, along the Knight, Meldon, Dutchman and Goring Creeks. It is assumed, that natural conditions for deposition and concentration of tin in the littoral beds are favourable. In 1913, an attempt was made by Church to explore the littoral beds by sinking shafts and drilling of holes to the bed rock with fair results (see map and McIntosh Reid report). Although a great amount of work of a confirmatory and exploratory character have been performed by prospectors and companies like the Tin Operations Ltd. of Melbourne by their engineer, Roburg (see map) but still no effective work has been carried out since Church's time.

The littorals and plains as well as the plateau of the eastern part of Cox Bight have been prospected by many shafts. After careful study of the P.B. Nye and McIntosh Reid reports and of my own observations and surveys done in the country, a map of the Cox Bight tin field has been produced showing approximate extent of tin areas and different shafts and bore holes (made by Church and Rolburg).

SUMMARY

Taking into consideration my own observations and study of Cox Bight as well, as the study of P.B. Nye's report and McIntosh Reid's report it is obvious that the plateau and terraces area, although valuable in parts, as a whole is poor and not worthy of the attention of a Company.

It seems, therefore, that the littoral diluvials and alluvials of some 200 acres are the only assets of potential value, but these again have been only partly explored. The depth of tin ore varies from 20 - 40 ft. and

the tin ore is usually contained in the lower boulder wash, where the boulders are not larger than 12 inches.

Although the wash is firmly cemented it disintegrates easily under the nozzle or pick. It is very unlikely that the Weber Lagoon will contain tin ore of commercial value. For dredging operations, the critical value should be placed approximately 1 lb. per cubic yard. There should be good values of tin along lower runs of Knight, Meldon and Dutchman Creeks on the South Western side and along littoral runs of Goring, Ball and Cox-Freney Creeks on the South eastern side of Cox Bight.

The disadvantages are:- the isolation of the area, the high cost of transport and by the same, higher cost of production and the severe climatic conditions during winter.

It is possible, that as a result of future exploration, the Western and Eastern deep diluvial and alluvial deposits may together prove of sufficient importance to warrant the necessary outlay for the provision of a small dredging and concentration plant.

MOTH CREEK TIN FIELD

The Moth Creek tin field was discovered by B. Adams and A. Evendon in the years 1934-35. In 1935 a Company was floated under the name "New Harbour Tin Company". After two years, Mr. Brock took over the above Company's leases, but a few months later surrendered them. In 1938, Hollingsworth again took the leases, bought new machinery and worked for nearly two years. During 1941, Hollingsworth handed over the leases to C.D. King and R. Young.

The alluvial and diluvial tin deposits extend mostly on the left side of the Moth Creek (see map) over a distance of approximately 1½ miles south of Melaleuca Lagoon and the river, of an average width ½ a mile close to the above Lagoon and river and a ¼ of a mile width at the southern end.

At present, the major part of the above tin field belongs to four lease holders, namely, R. Young (80 acres) C.G. and W.S. King (80 acres and 40 acres) and to D. Dicker (40 acres).

The tin is here associated with fine monazite. I found tin, monazite and copper pyrites together in an old shaft close to King's present workings. Another out-crop of tin and monazite I found in a quartz veinlet in a sluice box cutting, close to the King's old tractor shed. As there is nowhere found at present any quartz vein carrying appreciable amounts of tin and as the cassiterite crystals are angular and subangular, it is suggested that the tin in quartz veins had only a very limited vertical zone and the ore is close to its origin.

Most of the tin has been worked and is still worked from shallow ground, although some deeper ground has been also mined, and, in the very near future should be again mined, as it contains good amounts of tin ore (2-3 ozs. per dish). The major part of shallow ground on the 80 acres C.G. King lease has been already worked out. According to the official Mines Department statistics from 1934-35 till 1956 a total of 58 tons of metallic tin has been produced equal to £822.390.

5.

It is anticipated that the Moth Creek tin field commercial grade area (see map) should contain at least 60 tons of metallic tin and in particular at its deeper grounds. During the time from 1934/5 till 1956 an average of 3 men have been employed although as many as 19 in 1936 have been employed. It is assumed that the commercial grade tin area has an average of 1-3 ozs. of tin per dish.

D. King used a small bulldozer for his tin exploitation over shallow ground with up to 4 ft. overburden. To exploit the deeper ground a gravel pump is necessary as a lot of deeper ground is below sea level.

Water for tin sluicing can be collected during the wet season locally (from May till November) or pumped through pipes from Moth Creek or Melaleuca River at any season.

Apart from tin, pyrites, sphalerite and antimony are found in quartz veins and veinlets exposed by recent D. King workings. Pyrites is found over a distance of nearly a mile in veins and veinlets. From the above, it is obvious that the bedrock of the Moth Creek tin area is partly mineralised and further investigations with diamond drilling may give some encouraging results, as the deeper rocks may prove to be a favourable host rock for Zn and Sb deposition. Moth Creek tin field can be reached by fishing boats and other small craft up to 8 ft. draft at any season during the year.

RAY RIVER TIN FIELD

Ray River tin field lies between the south eastern flanks of Bathurst Range, and the Western flanks of the South Ray Range on the divide between Moulter Cove - Ray River Valley and Cox Bight. It is confined to the left tributaries of the upper Ray River. The upper Ray River valley with a north-south trend is formed of narrow flats and terraces leaving a length of 2½ miles up to the gorge and a width of half a mile only.

This tin field was discovered by J. Lowe in 1926. There were several prospectors working and removing the tin till 1936 when F. Edwardson removed the last 7 bags of tin. Since then, there have been no more mining activities. This tin field was first described by the then Government Geologist P.B. Nye in his report, Geological Survey of Port Davey District, dated 28th March, 1928.

Tin has been found in all the left Ray River tributaries between Navaho and Raphael Creeks (see map). It is to be noted that coarse pieces of cassiterite greyish in colour different from the black ore of Cox Bight have been picked up on the surface along the southern bank of Rule Creek. From the old workings and the present investigations of this tin field, it can be suggested that some 15 - 20 tons of tin ore have been already mined from 1926 till 1936.

The Ray River tin deposits are very patchy with a heavy 9 - 20 ft. overburden of boulders making mining operations difficult and costly. Examining a number of quartz veins the writer found some of them mineralised (Cu and Py), but none carried tin. Here again the tin mineralisation horizon in the quartz veins was of a limited vertical extension only. The ore has been shed from quartz veins in the quartzite argillite formation which already had been denuded by erosion leaving the ore close to the spot of its origin (pieces angular and subangular).

6.

As the Ray River tin field is of a small extent only, irregular (patchy) with a heavy overburden and a difficult access (6 miles from Moulter Cove) so it has no commercial value. It is rather doubtful that tin will be ever found further north, below the Gorge.

M.Z. Stefanski

(M.Z. Stefanski)
GEOLOGIST

Mines Department,
HOBART.
10th October, 1957