

MINERAL DEPOSITS OF FLINDERS AND CAPE BARREN ISLANDS.

Since the latter part of last century it has been known that mineral deposits occur in the Furneaux group of islands, for in the year 1896 tin ore was discovered in the Pats River district of Flinders Island. Mining operations have since been carried out spasmodically on that and other islands of the group. As only incomplete records of the earlier production have been kept, it is not possible to estimate the value of the ore produced.

Mining operations have at present practically ceased for the continued dry weather has resulted in the exhaustion of all water supplies. Facilities which once existed for storage of water when mining operations were more vigorous have fallen into disrepair and recently mining has been only a wet weather industry.

LOCATION AND ACCESS.

Flinders and Cape Barren Islands are the two largest islands of the Furneaux group of islands. Together they cover an area of 623,000 acres of which Flinders Island represents 513,000 and Cape Barren Island 110,000 acres. They are situated immediately to the north of the north eastern point of the mainland of Tasmania and together extend for 50 miles in a general northerly direction. The greatest width in an easterly direction is 26 miles over the width of Cape Barren Island but a width of 22 miles is attained in the central portion of Flinders Island.

Access to the island for trading purposes is gained by irregular shipping services in which the Auxiliary Ketches Loatta and Shearwater are engaged. Weather permitting, the Loatta maintains a weekly service between Launceston and Whitemark and a similar service is maintained by the Shearwater between Hobart and Whitemark.

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Either vessel may at times be diverted to Cape Barren Island or to Lady Barron on the Southern end of Flinders Island. Fast passenger and mail service is provided between Launceston and Whitemark by Australian National Airways twice weekly, the flying days being Mondays and Fridays. The same Airways provide occasional freight planes as necessity arises.

GEOLOGICAL MAP

In the year 1935 a comprehensive examination was made of the Furneaux Group of Islands by Mr. Blake then Field Geologist of the Mines Department. A Geological Map of the Islands was then prepared and that map has been used as the basis of the present investigation.

Some minor errors in mapping were observed but in general the mapping was of a high degree of accuracy.

As an investigation into the Limestone resources of the Islands is at present being undertaken by Mr. Everard, Geologist of this Department, and as it is felt that further minor errors in mapping will be observed by him it is not the present intention to amend the Geological map. At the completion of the Limestone investigation it will be advisable to revise the Geological map to include the known corrections.

TOPOGRAPHY

FLINDERS ISLAND.

Strzelecki, the highest mountain on Flinders Island, rises to a height of 2,550 feet above sea level. Nearby, in the south western part of the island are Mts. Belstead and Loretto Hill. In the central part of the island Mts. Leventhorpe and Counsel rise to heights of 1600 and 1226 feet respectively and are the highest points of the Darling Range. In the north Mt. Kilicrankie, Mt. Tanner, Mt. Boyes and Mt. Blyth rise to heights

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approximating 1000 feet. These mountains are the focal of areas of comparatively high relief rising more or less abruptly from extensive areas of flat country which cover the greater part of the island, are often waterlogged, and on which numerous lagoons occur. In general the flats are slightly undulating lands generally only a few feet above sea level but at times reaching altitudes approaching 100 feet.

CAPE BARREN ISLAND.

The topography of Cape Barren Island is one of much higher relief than that of Flinders Island for here the flat country is less extensive and the mountainous areas occupy the greater portion of the island. Mt. Munro, the highest peak, rises to a height of 2348 feet with numerous peaks approximating 1000 feet in height.

WATER SUPPLIES FOR MINING.

The topography of the islands does not lend itself to storage of large quantities of water. The largest of the islands, Flinders Island, is characterised by comparatively narrow and high granitic ranges of hills flanked by extensive areas of flat country which are generally waterlogged and on which numerous lagoons occur. The percentage run off from the high ground is particularly high with the result that except for periods of actual rainfall and immediately thereafter most of the mountain streams cease running or at best yield only small quantities of water.

The position on Cape Barren Island is very little, if any, better than on Flinders Island.

The average yearly rainfall, of approximately 29 inches, for the group of islands is fairly evenly distributed, the lowest recorded monthly average

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	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec.	Total
Wingaroo	182	177	229	263	282	312	311	308	250	266	210	214	3004
Lughrata	176	175	244	256	255	321	303	283	246	251	208	197	2915
Thule	188	180	268	276	274	366	317	286	270	261	205	220	3111
Whitemark	157	167	233	253	243	324	301	283	252	242	200	193	2848
Hermitage	167	174	230	254	261	300	266	270	242	241	198	205	2808
Cape Barren	153	137	212	244	252	348	298	281	252	265	171	210	2823

ECONOMIC GEOLOGY.

The only mineral of economic importance which has been produced in commercial quantities from the Furneaux group of islands is Tin ore (cassiterite). Other economic minerals which occur in the islands are Gold, Silver and Graphite and Ilmenite, but these have not so far been produced commercially.

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The early records of production are not available. It is known that tin was discovered in 1896 but the earliest recorded production was in 1911 when two tons of ore realised £267. The source of this ore is not known, for production was then recorded only as from the Straits Islands. Since 1911 the records of production are more complete but the records cover only Flinders and Cape Barren islands without mentioning the individual producers.

The total production from all sources in the islands is 103.984 tons of metallic tin valued at £20,689 sterling, of which amount 77.939 tons metallic valued at £14,219 sterling were produced between 1911 and 1935. Since 1935 Cape Barren Island has produced 19.826 tons metallic valued at £4,836 sterling and Flinders Island has produced 6.219 tons metallic valued at £1,634 sterling.

The following table shows the production of tin from the islands during the period 1911-1949 and emphasises the greater production from Cape Barren Island:

TIN PRODUCTION - STRAITS ISLANDS ex. KING ISLAND

		1911 - 1949. STRAITS ISLANDS					
		Year	Tons Met.	£stg.	Year	Tons Met.	£stg.
Metallic Tin	1-40	1911	2,000	267	1923	2,080	418
	1-50	1912	2,150	314	1924	3,250	770
	4-02	1913	5,750	763	1925	0,740	201
	0-87	1914	1,240	125	1926	0,150	44
	3-45	1915	4,934	555	1927	0,340	97
	5-07	1916	7,250	891	1928	0,720	162
	4-34	1917	6,200	1006	1929	0,200	42
	2-20	1918	3,150	682	1930	N11	N11
		1919	7,875	2242	1931	N11	N11
		1920	1,190	284	1932	1,510	224

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1921	Nil	Nil	1933	4.130	896
1922	Nil	Nil	1934	8.950	2056
			1935	14.160	3180
Total 77.939 tons met. £14,219 stg.					
CAPE BARREN ISLAND			FLINDERS ISLAND		
Year	Tons Met.	£stg.	Year	Tons Met.	£stg.
1936	7.660	1562	1936	Nil	Nil
1937	2.892	839	1937	0.227	46
1938	1.573	311	1938	0.824	261
1939	1.746	403	1939	2.153	490
1940	1.590	402	1940	0.913	236
1941	1.650	432	1941	1.100	288
1942	0.720	188	1942	0.240	62
1943	0.206	54	1943	0.503	130
1944	0.564	169	1944	0.030	9
1945	0.364	109	1945	0.067	20
1946	0.428	144	1946	Nil	Nil
1947	0.165	72	1947	Nil	Nil
1948	0.268	151	1948	Nil	Nil
1949	Nil	Nil	1949	0.162	92
Total	19.826	£4836	Total	6.219	£1634

Figures for 1949 incomplete.

TOTALS:

Cape Barren Island	19.826 tons Met.	Valued at £4,836 stg.
Flinders	6.219 " " "	£1,634 "
1936-49 Straits Is.	26.045 " " "	£6,470 stg.
1911-35	77.939 " " "	£14,219 "
	103.984 " " "	£20,689 stg.

Note: King Island excluded from these returns.

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THE MINING TENEMENTS AND MINE WORKINGS.

The following mining tenements are at present registered with the Mines Department:-

FLINDERS ISLAND

27M/44	Lease of 5 acres in the name of	S.M. Mansell.
55M/46	Lease Appn. 5 acres in the name of	T.E.W. Mansell.
29M/49	" " 20 " " " " "	R.T. Aitken.
6W/49	Appn. for Water Right 3 Sluiceways	R.T. Aitken.

CAPE BARREN ISLAND.

11398/M	Lease of 10 acres in the name of	M.C.W. Sainty.
13M/44	" " 5 " " " " "	T.J. Barrett.
73M/46	Lease Appn. of 5 acres in the name of	T.J. Barrett.
13M/48	" " " 60 " " " " "	A.R. Mills.
36M/48	" " " 5 " " " " "	M.C.W. Sainty.

MRWR 360 in the name of R.W.D. Maynard.

MRWR 375 " " " " G.G. Fisher and D. Maynard.

Lease No. 27M/44 in the name of S.M. Mansell:

Lease No. 27M/44 is situated on the eastern fall of the Darling Range about two miles NNW from Mt. Leventhorpe. An un-named creek flows diagonally through the lease.

Lease Application No. 55M/46 adjoins 27M/44 on its southern side.

Some work has been done on 27M/44 but operations ceased when it was found that a hard bar of granite crossed the valley and prevented the bottom being exposed by ordinary sluicing methods. A tail race has been cut through the granite bar for a distance of two chains to facilitate the disposal of tailings. This tail race is, however, not deep enough for the purpose and efficient treatment will necessitate the use of an hydraulic elevator. A shaft was sunk in the creek bed to a depth of 12 feet without revealing the bottom and good prospects were reported. Prospects taken

from wash exposed in the creek during this examination were of fair grade and were such as to justify further prospecting.

Both 27M/44 and 55M/46 are situated near the head of the creek. North from the lease a fairly extensive flat extends for upwards of two miles. It is bounded on either side by Granitic hills from the slopes of which tin has been reported. Prospects taken from the surface at several points on this flat showed some tin oxide and were such as to suggest that at depth better results may be obtained. The ground is fairly swampy and the only method of prospecting it would be by boring. Shafts sunk on the comparatively high ground near the lease had reached the water table within six feet and progress was stopped.

A good dam site exists in the creek to the south of the leases and a dam of small capacity has been erected. The capacity of the dam could be considerably increased at reasonable cost. A water race has been constructed to divert flood waters when the dam is bye-washing. Even with the dry weather which was being experienced at the time of this inspection the creek was yielding about 2 sluiceheads.

PATS RIVER TIN FIELD.

29M/49 Lease Application of 20 acres in the name of R. T. Aitken:

This lease is situated on the headwaters of North Pats River and is the only tenement on Flinders Island where mining operations are in progress. The workings on this lease constitute the most eastern extremity of the workings of the Pats River Tin Field which extends downstream from this lease for upwards of two miles. It was in the vicinity of Pats River where the first discovery of tin was made on Flinders Island. The present workings have exposed wash

to a depth of approximately ten feet resting on a hard granite bottom. Prospects taken during mining operations showed high grade ore, in places approximating 20 lb. per cubic yard. Experience has shown that the veins of tin are narrow and that pot holes have often developed in the bottom and it is in them that the exceptionally high grade ore accumulates. Prospects of up to 5 lb. per cubic yard were obtained in ground a couple of chains ahead of the existing face and deeper ground, unbottomed, was proved to the North West of the present workings.

Abandoned leases adjoining this application on its West boundary were formerly held by T.S. Heath whose operations extended for at least 10 chains along the creek bed. In these workings a hard granite bottom has been revealed and their extent suggests that operations generally must have been profitable.

The storage dams erected by Heath are now in a state of disrepair and present operations are dependent on water taken by water race direct from Officers Creek. During the dry weather sufficient water could be stored in the race for about 20 minutes operations during each hour. With 70 points of rainfall operations were maintained continuously for three days without storage. With renewal of the dam it is estimated that during the wetter months operations could be maintained for one shift per day.

Downstream from these workings the old Pats River tin field workings extend almost continuously for approximately two miles. There is no work being done here. The workings show depths of wash in the existing face of up to 14 feet and in at least one place a hydraulic elevator has been operated. The hole in which the elevator worked is reported as being 16 feet in

depth. The total depth of wash is, therefore, greater than is suggested by the working faces. The wash, as revealed, shows bands of high grade material and is difficult to treat owing to its compact and cemented nature.

Water for treatment of the wash in the downstream workings was originally brought by water race from Gorge creek, a distance of approximately six miles.

About three-quarters of a mile east from Application No. 29M/49 in a branch of North Pats River A.G. Reynolds formerly held lease No. 11253/M.

On this lease low grade wash of a depth of from four to five feet has been exposed for a distance of approximately ten chains. The bottom here is a decomposed granite into which the tail race has cut to a depth of about four feet.

It is doubtful whether at any time there has been sufficient water available on the Pats River field to allow continuous mining operations. With suitable storage dams one shift per day could be maintained over the greater part of the year, but where additional water is required to operate a hydraulic elevator it is doubtful whether one shift could be maintained.

TANNERS BAY TINFIELD

Tanners Bay Tin field is situated on the West of and close by the main Whitemark-Palana road on a small creek flowing generally southwards to empty into Tanners Bay on the North West of Flinders Island. There are no leases in force at present but previously several leases were held and fairly extensive mine workings were developed.

The workings extend from a point within two chains of the Cape Franklin Road in a general North Westerly direction along the creek for a distance of

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approximately 40 chains. The more important workings are on the northern end where several channels over a total width of about 8 chains and a length of almost 20 chains have been worked. The working faces vary in depth to 15 feet. The higher layers of wash are low grade but near the bottom prospects of 2 ounces to the dish are common.

Water was taken from Kilicrankie creek and another un-named creek by water race to the workings and, as the country is practically flat, very little head pressure was available.

The method of treatment appears to have been ground sluicing. At the time of this inspection the creek had practically stopped running.

REDDINS CREEK TIN FIELD.

On the southern end of Flinders Island about six miles South West from the township of Lady Barron Reddins Creek enters Franklin Inlet. On the head waters of Reddins Creek some mining operations have been carried out on a small area of low grade alluvial wash. The material is a hard cemented wash, with numerous large boulders in the lower sections, resting on a hard granite bottom. Prospects taken at Reddins Creek were comparatively low grade in tin but were remarkable for the occurrence of a few colours of gold in some of them.

As elsewhere in Flinders Island the water supply is in-adequate for continuous working.

OTHER MINERALS

GOLD AND SILVER.

Gold and Silver have been reported from several points on Flinders Island.

At Silver Hill a quartz reef of approximately 3 feet in width occurs on the hanging wall side of a narrow basic

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dyke which strikes in a South Westerly direction.

A sample representative of 32 inches of the reef returned Gold - nil, Silver 1 oz. 1 dwt. 4 grs, Arsenic 2.5%, Copper - Trace.

REDDINS CREEK

Gold has been reported in Association with tin ore at Reddins Creek and a few colors of gold were seen when prospecting for tin. It is not of commercial value.

CAPE BARREN ISLAND.

Although records of tin production show that Cape Barren Island has been the main source of tin ore in the Furneaux Group, they also suggest that since 1947 very little work has been done on the various mining leases in force there; for since that year only a little more than half a ton of tin ore has been produced and for the present year the official records show that no tin has been won.

The mining tenements in force on Cape Barren Island cover an aggregate of 80 acres, most of which are situated in the Rooks River Tinfield, the remainder being in the Modder River Tinfield.

ROOKS RIVER TIN FIELD.

The Rooks River Tinfield originated with the discovery of tin there in the year 1882 when limited operations were carried out by J. Summers and E.T.Miles. There are no records of early production. In 1926, except for a 5 acre lease held by A. Archer, practically the whole of the potential tin bearing ground, approximately 590 acres, was held under extended prospecting licences in the names of J.H. Watson, M.W. Barrett and Herbert A. Waddle.

In 1934 lease No. 11938/M of ten acres was issued to

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G.G. Fisher who transferred it to M.C.W. Sainty in 1944, who still retains it.

In 1937 Consolidated Lease No. 11963/M of 60 acres was issued in the name of Annie Maria Perry and, after transfer to C.R. Didier in 1945, became void in 1947. A fresh application for the lease 13M/48 was made in 1948 by A.R. Mills. This application is still in force.

A further lease application No. 36M/48 for 5 acres by M.C.W. Sainty was lodged in 1948.

Lease No. 11398/M - M.C.W. Sainty - 10 acres.

This lease is situated close to the foreshore at the mouth of Rooks River. A pipe column and the necessary equipment for mining has been installed and renewal of operations appears to be dependent on rainfall to provide an adequate water supply.

Prospectors taken from the lower layers of wash were of medium grade with lower grade material in the upper layers. Some high grade concentrates were seen in the tail race.

The ground ranges in depth to about 15 feet and is composed of fairly compact well cemented wash resting on a soft Granite Bottom.

Lease Application No. 13M/48 - A.R. Mills - 60 acres.

This lease application covers the central portion of the Rooks River Tinfield and is the area in which the principal mining operations of the field have been carried out.

The lease is situated approximately 30 chains from the foreshore at its nearest point and about 60 chains from the mouth of the Rooks River. An eastern branch of Rooks River flows through the lease but the main stream

lies just to the west of it.

Mining operations have revealed depths of sands and gravels of upwards of 30 feet and in places even greater depth have been reported. The workings here are the most extensive of any workings in the group of islands. Three separate open cuts closely adjoining each other have been opened and in all would cover a width of perhaps 10 chains. From interviews in the field it was gathered that the occurrence of the tin ore was most irregular with areas of extremely high grade ore occurring close to more or less barren areas. It was reported also that the area had been tested by boring. It is to be regretted that such records are not available to the Department for future operations must depend on estimates of ore reserves made after testing by boring.

As in other parts of the group of islands the water supply is the governing factor in mining and it is unfortunate that during the drier months of the year the quantity of water available for mining is inadequate.

Lease Application No. 36M/48 - 5 acres - M.C.W. Sainty.

This application is situated close to the foreshore and about half a mile west from the Rocks River. Mining operations have not yet begun on this lease. It is anticipated that depths of ground will range to about 15 feet but there is no indication as to grade of ore.

Two operators were working small areas under Miners Right.

Mr. Maynard was operating on the beach in the vicinity of old lease No. 11192/M and was treating some high grade ore left from previous workings or left after wave action had caused the collapse and removal of

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the low cliffs forming the foreshore. The wash was collected and carried to a short Sluice box for treatment and it was claimed that with continuous work a bag of tin per week could be won.

Mr. Fisher was preparing to work on a Miners Right claim he holds within the area of the 60 acre lease. At the time of this visit the storage dam was under repair and mining for the time had ceased.

THE MODDER RIVER TIN FIELD.

The Modder River flows in a general south-westerly direction into Thunder & Lightning Bay in the South-western corner of Cape Barren Island. The tinfield is situated on the headwaters of the river about four miles distant from its mouth.

Lease No. 13M/44 - 5 acres - T.J. Barrett.

This lease covers the area of the old mine workings.

The mine workings are not extensive and consist of four open cuts, the largest of which measures approximately 120 x 75 feet. The greatest depth revealed was 15 feet. Prospects showed a heavy concentration of tin oxide in a fairly coarse band of wash about 1 foot thick situated within a foot of the bottom of the workings. For the remainder of the face the grade of wash is low.

Lease No. 73M/46 - of 5 acres - T.J. Barrett.

T.J. Barrett has an application for a lease of 5 acres situated on the Southern slopes of Mt. Munro. There was no work being done on this area.

OTHER TIN FIELDS ON CAPE BARREN ISLAND.

BATTERY BAY TINFIELD.

Some mining has been carried out on the Battery Bay Tinfield. At the mouth of Ruby Creek at and below high tide mark a small open cut has been made in cemented wash varying up to 10 feet in depth. The wash varies from fine

sandy material at the top to coarse wash immediately above the soft Granite bottom. Prospects washed from the lower layers of wash ranged up to one pound per cubic yard but the upper layers showed no tin.

Without sufficient water to operate a hydraulic elevator it would be difficult to work this area for disposal of the tailings would be hampered by the tidal waters. Upstream in Ruby Creek there are at least two fairly extensive flats which may be tin bearing although prospects taken from the creek bed at points where concentration was expected to take place showed no tin.

While examining Ruby Creek the opportunity was taken to also test the head waters of the Lee Rivulet. Several prospects were taken but all were devoid of tin ore.

KENT BAY AREA.

An un-named creek flowing easterly into the western corner of Kent Bay was examined throughout its full length. Prospects tried in this creek were all negative.

In Rice River on the northern side of Kent Bay there are fairly extensive flats extending along the river for at least two miles. There has been no prospecting done on the flats but prospects taken at the mouth of the River were negative. To prospect the flat a bore plant would be essential.

OTHER MINERALS.

Graphite has been reported from Dover Point on the Northern side of the island. Two shafts have been sunk and estimating the depths from the size of the spoil heaps they were carried to depths of 50 feet and more than 100 feet respectively. It would, therefore,

appear that the prospects at the time of operations were encouraging.

There was no Graphite showing on the spoil heap which was composed of Quartzites and in part Graphitic slates.

On the beach about 1 chain distant from the shafts a narrow vein of weathered Graphite was seen. It was not more than 4 inches wide and could not be traced for more than a few feet in length.

There may be other similar veins on the beach but tidal waters and sand prevents their outcrop.

MOLYBDENUM

To the South West of the Rooks River Tin leases and fairly high on the hillside a short adit approach has been made to test what was regarded as a Tin lode. The work has revealed a narrow pegmatitic vein in fine grained granite. In the pegmatite vein a little Molybdenum and tin was seen. Neither mineral occurs in anything like commercial quantity and results were not sufficiently encouraging to warrant the start of the adit. This exposure can only be of interest in confirming the occurrence of the minerals at that point.

CONCLUSIONS.

It has been established that Tin ore occurs at many points on both Flinders Island and Cape Barren Island and there is little doubt that in some of these occurrences the ore is present in commercial quantities.

Some boring has been done by private enterprise to test some of the deposits but the information obtained is not available. Further boring is necessary to test the holdings before commercial operations are commenced.

In some instances there is insufficient water

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available for economic treatment of the wash and where the water available may be sufficient it could only be so after large capacity dams had been built for water conservation. There is little doubt that production has risen and fallen directly with the rainfall.

Sgd. H.G.W. Keid. M.Sc.
CHIEF GEOLOGIST.

HOBART.

26th October, 1949.