

G/12 No 44

FIELD INVESTIGATION
DETRITAL HEAVY MINERALS
FURNEUX GROUP
of
ISLANDS
Tasmania

Detrital Heavy Minerals Furneaux Group, Tasmania
F.L. 2/68 T. 12/68

D.W. Waters
by
26-9-69

69-575

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Lodged by Mr Forster 28/10/67 7, 12, 15

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AUSTRALIA SQUARE, SYDNEY 2000, AUSTRALIA

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The Secretary,
Scamander Mining N.L.,
81 Cameron Street,
Launceston, 7250.

FIELD INVESTIGATION - DETRITAL HEAVY
MINERALS IN FURNEAUX GROUP OF ISLANDS,
TASMANIA. From a Field Investigation
and a limited review of the Literature

SUMMARY AND CONCLUSIONS

There are no obvious commercial rutile, zircon and ilmenite beach placers sampled in the Furneaux group. Two areas on the east coast of Flinders Island may be prospective but these were not sampled. A program is outlined for the exploration of fossil beach placers.

Field investigations and a literature search of fluvial placers indicates that seismic surveys and a topographic analysis may establish new leads. Of the known deposits, none on Flinders Island appears to warrant further investigation whilst on Cape Barren Island, both Rook and Modder River areas should be tested further.

INTRODUCTION

D. W. Wales & Co. Pty. Ltd. has been retained by Scamander Mining N.L. to evaluate detrital heavy mineral prospects on Flinders and other nearby islands. The evaluation consisted of a field interpretation of beaches and Tertiary placer deposits on Flinders and Cape Barren islands. The field work was done from September 17th - 23rd, in company with the Managing Director of Sub-oceanics N.L., Mr. M. C. Forster. Most of this period was spent in looking at beaches, although a few hours was taken up in looking at abandoned open-cut mines.



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The heavy mineral fraction and composition of each of five samples was determined by Warman's Equipment Ltd. of 18 Dickson Avenue, Artarmon, N.S.W.

There are two distinctly different types of placer in the Furneaux Group of islands and the report is subdivided accordingly into beach placers and fluvial placers.

BEACH PLACERS

To traverse and thoroughly sample all the beaches in the Furneaux Group islands would take several weeks by boat. The weather in this part of Australia is often unpredictable, and characterized by strongwinds and rough seas. Whilst most of the beaches on Flinders Island can be visited by the use of a 4-wheel drive vehicle, an on-the-ground inspection of other islands' beaches can only be achieved by boat or helicopter. Accordingly, all but the south-eastern and northeastern beaches of Flinders Island were seen on the ground. The northeastern beach was not seen at all and the southeastern beach which was seen from the air, appeared to have some colour, possibly due to heavy mineral accumulation. The areas inspected and sampled are shown on the accompanying map.

The results of heavy mineral percentage and composition for the various samples submitted will not be known until October 10th. In the meantime, it can be reported that none of the beaches seen appeared to contain abundant dark heavy minerals. It is unlikely that there are big beach concentrations of zircon alone (leading to colourless heavy placers) owing to the composition of the granites and metasediments on and around Flinders Island. A dark beach heavy mineral sand sampled at Preservation Island is of far too limited an extent to be commercial. It is a

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reasonably safe conclusion that the only two possibly large, exposed deposits not sampled or washed, only one of which was seen from the air, may occur at the northeastern and southeastern ends of the Flinders island. Arrangements have been made to have these areas sampled, samples to be assayed in Sydney.

We turn now to the possibility of fossil beaches containing heavy mineral concentrates. A fossil beach has been mapped in the Gippsland area seven feet above high water mark. It is not known whether this former sea level resulted from eustasy, tectonism, or a combination of both. There is some evidence from other parts of the eastern seaboard to indicate that eustasy played the major role in the +7 to +10 transgression and if this thesis is correct, a seven feet beach may be present in Tasmania and its islands. However, the most likely areas for such beach development in the Furneaux group are covered by large dunes, frequently well-entrenched. From the country surveyed during the field trip, it is clear that dunes have concealed all evidence of former beaches and that accordingly, the fossil beach thesis could only be checked by the drill. It is stressed that the mineral composition of fossil beaches is not necessarily similar to that of adjacent present-day beaches.

FLUVIAL PLACERS

Approximately 100 tons of metallic tin has been won from the Furneaux Group, most of it from Cape Barrren Island and the remainder from Flinders Island. The main workings are shown on the accompanying map. The Officers Creek workings were inspected in some detail but none of the other workings were examined. There appears to be adequate documentation and data on most of the fluvial placers to permit a general assessment of each one.

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Reading through the literature kindly supplied by Mr. Forster (Utah, Turner & MacMahon reports) I conclude that the fluvial placer deposits on Flinders Island are probably of fairly limited extent and generally low-grade. It is of course dangerous to generalize in this fashion but the preponderance of evidence points to the partial destruction of at least the Tanners Bay, Officers and Pats Creek fields (Utah Construction) through exhumation by present-day streams, and these constitute the biggest known deposits on the island. However, geophysics may be successful in delineating further leads which could then be tested for tin by scout drilling.

The position is far more positive on Cape Barren Island where two strong leads are suggested. One, Rooks River has been fairly accurately defined but not tested, by drilling. The other, the Modder River lead, has had some drilling done on it (1935) but presumably most of the drill data was lost. Mention is made of a 12lb/cu.yd intersection in one hole, and this should certainly be followed up. //?

The Rooks River lead should be tested to granite basement at the same time. Here however, the cost of removing overburden from the area blocked out in the Utah report would be from two to three million dollars (leaving a batter at the coast to prevent sea-flooding) and therefore tin values in the gutter of the lead would have to be exceptionally high to carry this expenditure, especially as the average grade of the overburden is less than 1/10 of a lb/cu.yd.

SUGGESTED PROGRAM FOR FUTURE WORKBEACH SANDS

1. Topographic contours from photogrammetry should be drawn for Flinders and Cape Barren islands to an elevation corresponding to highest alluvial cover; contour spacing to be 20'.

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2. Areas with large lateral dune cover should be scout drilled using a track-mounted power augur and sampling at 5' intervals. Lines should be roughly at right angles to dunes and depth of hole calculated, from topographic control, to penetrate all section to 5' below sea-level. Hole spacing should be about 100' and line spacing from one to two miles. The grid should be flexible to allow for chasing up any individual heavy mineral seams with sufficient control to get a rough indication of the seam size.
3. 5' samples should be washed and visually assessed for heavy mineral in the field. Those of obvious interest should be sent to Sydney for separation, with grain count for each line.

Costs This type of drilling, under the field conditions prevailing in the Furneaux islands would cost between \$1.50 and \$2.00 per foot, all up, exclusive of assay charges. A minimum expenditure of from \$20,000.00 to \$30,000.00 is envisaged.

FLUVIAL DEPOSITS

There is no evidence in the available literature of any attempt at correlating Tertiary placers with present drainage. This can be done by plotting all placers on a contoured topographic sheet. Whilst there may be no obvious relationship, it is possible that some important parameter may emerge from such an exercise. Again, it is apparent that geophysical mapping of the granite surface beneath Tertiary cover has never been tried in the Furneaux islands.

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Thus, as with beach placers, exploration of fluvial placers should start with a map showing topography contoured at 20' intervals. Any obvious relationship between present topography and known ancient leads should be projected into new areas and followed up with seismic. Leads discovered using this technique, should then be drilled, using a grid to suit the particular circumstances.

Darren W. Wales.

DARREN W. WALES,
Consulting Geologist.

Map Enclosed.

1. Flinders Island.

