9 FRASER RIVER BORING, NORTH EASTERN TASMANIA

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ABSTRACT

Following the completion of geophysical traverses by the Bureau of Mineral Resources, boring was commenced in the most southerly part of the area traversed. This boring proved the existence of a buried river channel but only trace amounts of tin were associated with the sediments in the old stream course.

The area drilled was the broad undulating valley between the Fraser and Anson Rivers in NE Tasmania. An old disused road from Gladstone to St Helens runs through the area and meets the present Gladstone to Ansons Bay road approximately five miles to the north. Alternative access is now possible via the Forestry road from Pioneer to Goshen.

Seismic and gravity traverses were run by the Bureau of Mineral Resources (Sedmik, 1963). Four E-W traverses were completed by seismic and gravity methods. The northernmost traverses show what appears to be a broad shallow valley whereas the southernmost traverse shows a narrower valley. The geophysical methods cannot differentiate between weathered granite and sediment and give only the hard bedrock profile. This bedrock profile does not necessarily correspond with the old surface profile as weathering in the granite varies considerably in depth. The boring on line Z shows that the old river channel is 1000 feet west of the position shown on the geophysical traverses, this error being due to the depth (approximately 60 feet) of decomposed granite present on the hard granite bedrock.

At the completion of the boring a magnetometer traverse was run over the drill line. This was done because, during drilling operations, a considerable amount of ilmenite was found to be present in the old channel. This magnetometer survey defined the old river channel within fairly narrow limits.

Bedrock in the area is Devonian granite; overlying this in places is a varying thickness of Tertiary to Pleistocene sediments. Thin basalt flows occur within the Tertiary sequence. In bore holes Nos. 1 to 13 there is a layer of clay and clayey gravel generally 20 to 30 feet thick overlying weathered granite, and in hole No. 1 which was continued to hard bedrock this weathered granite was found to be 60 feet thick. As the old river channel is approached the clay layer is replaced by a thickening layer of clayey gravel as seen in holes Nos. 14 to 17. Bores Nos. 18 and 22 are within the deepest part of the old channel and bores Nos. 19, 20 and 21 on the western flank of the channel. In bore No. 22 sand, clay and gravel were found to a depth of 99 feet where the boring bottomed on an altered basic dyke. A similar section was found in bore No. 18 excepting that boulders of lamprophyric basic dyke rock were found at 72-73½ feet and the drill bottomed on medium hard granite at 94 feet.

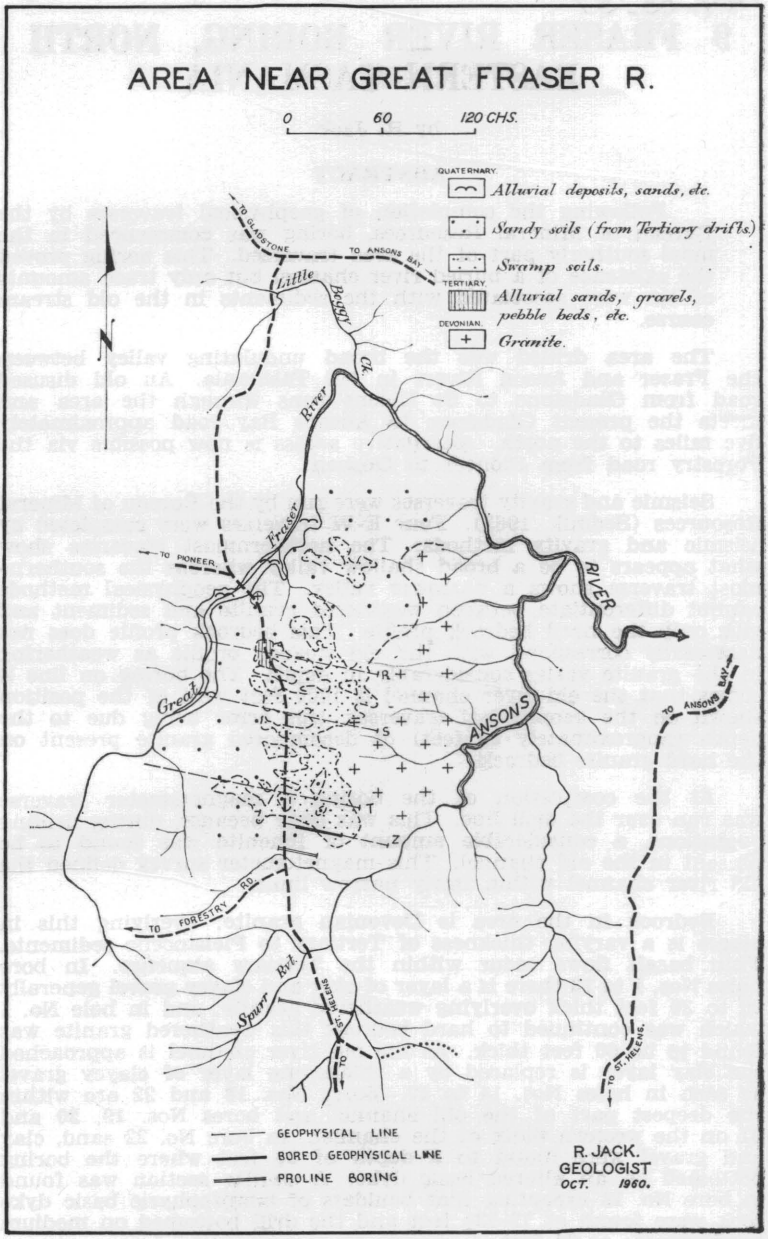

FIGURE 11.

5 cm

Basalt occurs in bores Nos. 19, 20 and 21 and a maximum thickness of 12 feet occurs in bore No. 21. Judging by the freshness of the rock and the fact that no sedimentary material was recovered in this section during the drilling, it is thought that the basalt occurs as a thin flow rather than as a bed of basalt boulders.

Heavy minerals found in the bore holes were ilmenite, pyrite, magnetite, topaz, spinel and cassiterite. The trace of tin in the heavy mineral concentrate was confirmed by chemical analysis. Pyrite occurred in the deeper bores together with large amounts of ilmenite. In bore No. 22 ilmenite occurs from 45 to 95 feet in a concentration of approximately 30 lb per cubic yard from 50 to 95 feet. In bore No. 18 ilmenite occurs between 30 and 45 feet in a concentration of approximately 20 lb per cubic yard. No significant amounts of ilmenite were recorded from any of the other bore holes but all contained some ilmenite. The source of the ilmenite is most likely basic dykes occurring higher up in the stream course, this material then being partly concentrated by stream action before being deposited.

Two drill lines were attempted using a Proline drill mounted on a Willys truck. The first line was 1300 feet south of line Z and the second 1½ miles south of line Z. On both lines drilling was slow and difficult owing to hard cemented gravel just below the surface. Under this hard band were interbedded sandy clay and gravelly clay but very little recovery was achieved here as the amount of water in the holes was sufficient to wash the sample off the drill flight and back into the hole. The drilling was abandoned without any conclusions on the heavy mineral concentrations of the old river course south of line Z.

The presence of a suspected infilled river channel was confirmed by the drilling on line Z. Tin is not present in commercial quantities in the old river channel where it was intersected by drilling. Ilmenite is plentiful in the old river gravel and if this should warrant further investigation at any time, then magnetometer traverses should be run before any further drilling is commenced.

REFERENCE

SEDMIK, E. C. E., 1963.—Great Fraser River, Great Mussel Roe River, and St Helens geophysical surveys, Gladstone tin district, Tasmania. *Rec. Bur. Miner. Resour. Aust.*, 1963/81 (*Unpublished*).