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D. BROWN'S MICA PROSPECT— GLADSTONE

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INTRODUCTION AND SITUATION

Following a request to the Mines Department for monetary assistance, an examination was made of Brown's prospect, which is situated about half a mile south-east of Gladstone in north-eastern Tasmania. It is connected to Herrick, the nearest railhead, by 14 miles of good gravel road.

HISTORY

The mica prospect area embraces the old "Fly by Night" tin leases which have been intermittently worked since the early days of the Gladstone tin-field. During these operations a considerable amount of the surface has been stripped off exposing deeply weathered and altered granite rocks.

Montgomery ⁽¹⁾ in 1891 and Twelvetrees ⁽²⁾ in 1916 briefly reported on this area. A later detailed report is by Nye ⁽³⁾ 1927 to which little can be added as no new work has been done here for many years.

GENERAL GEOLOGY

Brown's prospect is in soft decomposed altered granitic material best described as greisenised granite. This granite is of Devonian age, and is intrusive into the older Mathinna beds of Silurian age. The Mathinna slates outcrop on low hills to the north-east of the prospect. Nye ⁽³⁾ 1927 gives a detailed description of the greisenised granite and the quartz, greisen and mica veins that occur irregularly through it.

THE MICA PROSPECT

The muscovite mica occurs as fine clear flakes throughout the greisenised granite and makes up some 20% to 25% of the rock, it also occurs in the greisen and as veins, though this material is generally coarser than that which it is intended to recover.

Much of the area has had the top few feet already sluiced away and this has exposed the micaceous material so that it would be relatively easy to work this area for mica. In places the sluicing has exposed up to 18 feet of micaceous material, but the average depth of the exposed material is about 14 feet. Beneath this there is probably another 20 feet of material which may be only slightly less weathered than that already exposed.

The mica content of the weathered rock is expected to be between 15% and 20% and an accurate estimate will be obtained when sampling results are known. The buyers have indicated that they are prepared to accept mica below —25 mesh, and tests should be carried out to see if the —25 mesh material is pure enough. If not, the finer part below —50 mesh may be purer and an acceptable product.

The exposed area where Brown proposes working is approximately 400 feet by 300 feet and should average at least 14 feet depth of soft easily worked material. This area would have a reserve of 10,000 tons of mica if 10% of the total rock mined is acceptable mica. As well as this exposed area there is a much greater area of 10 chains by 15 chains, mainly soil covered, but showing the same greisenised material where the surface has been sluiced away. This greater area would contain approximately 50,000 tons of mica if the grade and depth of the material are the same as in the well exposed portions.

CONCLUSIONS

The prospect has a large potential tonnage of readily available mica, and if this mica of suitable purity can be produced at an economic price a long life is assured for the mine.

In regard to the request for monetary assistance it is felt that at this stage any aid given should be technical assistance to find the best means of obtaining a suitable product. Monetary assistance should only be considered after an assured market is found for the mica, and if it is found that the industry cannot be financed by private means.

REFERENCES.

- (¹) MONTGOMERY, A., 1891.—Report on the General Geological Structure and Tin Bearing Gravels of the Gladstone District. *Sec. Mines Report (Tas.)* for 1891-1892.
- (²) TWELVETREES, W. H., 1916.—The Gladstone Mineral District. *Tas. Geol. Sur. Bull.* No. 25.
- (³) NYE, P. B., 1927.—Fly by Night Mine, Gladstone. *Tas. Dept. Mines, Type-written Report* (unpublished) dated 17.2.27.