

TR8.45-47

## 5. INVESTIGATIONS FOR ROAD METAL

### (a) BASALT AT KINGSTON

by L. Matthews.

At the request of the owner, Mr. W. K. Firth, an examination of this property for road metal was made on 12th February, 1963.

The area examined is about  $\frac{1}{2}$  mile NW of Kingston township on the northern bank of a small creek which runs into Browns River. The creek in the area in question runs approximately west to east.

Permian mudstone belonging to the Ferntree Group is overlain by Tertiary basalt and a small quarry has been developed in the basalt which is generally weathered and crumbles easily. Even the unweathered material breaks easily and if really solid material is encountered, it would probably shatter on blasting because of the well developed jointing and flow structures.

The pre-basalt land surface was irregular, as the area where the quarry is being developed has mudstone just to the east, at a level of about 20-25 feet above the level of the quarry floor. This mudstone is in turn overlain by basalt. Mudstone outcrops in the creek to the west of the quarry.

A face of about 35 feet could be made in the present site but extensions to the east will eventually be limited by mudstone. The quarry could, however, be developed in a northerly direction. Some material can be obtained from the basalt overlying the higher outcropping mudstone and it is possible that basalt extends to lower levels further to the east as no mudstone was seen on the side of the hill here, although it could be covered by basalt scree.

It is not expected that large quantities of material can be obtained from this area because of the unevenness of the pre-basalt surface, but it is probable that the site could be worked on a small scale.

**(b) QUARRY SITE, LENA VALLEY**

by R. Jack.

An examination was made of the area adjacent to and south of the present quarry site to determine if suitable geological conditions exist to resite the quarry workings away from the built up area and to give better working conditions.

Dolerite occurs outcropping over most of the area and where bedrock could not be seen trenches were cut by bulldozer to expose the underlying rock. Examination of these trenches shows that dolerite was encountered in all but one trench which is in Triassic sandstone and mudstone, and from the sandy nature of the soil developed on this type of rock the zone of sedimentary rocks can be traced NW until it passes out of the area just north of where the power line crosses the boundary.

The exact boundary between the dolerite and the sediments is difficult to establish as dolerite scree from this higher ground obscures the actual contact. As no trenches have been dug across this contact it is not possible to tell if the contact is an intrusive or faulted one. Depending on the nature of this contact, there are many possible interpretations of the geology of the area, three of which are discussed below.

1. The sandstone block is the result of faulting of the sediment into the dolerite sill. The faults may be nearly vertical and if this is the case here, then only a limited amount of sediment is present and the reserves of dolerite are adequate for future quarrying.

2. The block of sediment has been detached from the once overlying Triassic strata and now forms a raft of sediment within the dolerite sill. If this is what has happened, then the extent of the sediment under the dolerite is unknown and it may be much more extensive than is shown by surface outcrop.

3. The dolerite is a faulted sill. This would have little effect on quarrying operations unless quarrying was later carried on to the SW. Then the dip of the sediment would determine the amount of dolerite available in this area.

It must be emphasized that these are only three possible interpretations and the actual relationship may be one of these or a combination of them, it being impossible to tell from the present exposures.

To prove the extent of the dolerite in the area east of the semi-permanent water hole, it would be necessary to put in a drill hole to the depth of the lowest proposed quarry floor. One hole would probably be sufficient if no sediment is encountered.

Similarly it is considered that two more drill holes would be necessary in the SW of the area if it is intended to quarry in this area.

**(c) QUARRY SITE, BRIDGEWATER**

by R. Jack

The proposed quarry site is on a portion of the Parkhoime Property approximately one mile north of Bridgewater and 13 miles by road from Hobart. The area investigated was that portion of the land under option bounded by the Jordan River and con-

taining 111 acres. A tape and compass survey was run to give rough contours of the area and allow an estimation of the tonnage of basalt available. An arbitrary level of 200 feet was assumed for the highest point of the fence line forming the eastern boundary of the area under option.

The only rock seen over the area is basalt, and in all places where outcrop can be seen good columnar jointing is developed in the rock. The columns vary in width from 6 to 12 inches with slightly larger columns in the SW corner up to 18 inches wide. These columns vary in dip indicating that the area was covered by a succession of flows each gradually filling up the hollows in the valley. No scoriaceous material is developed between flows.

In the southernmost part of the area there is a thin cover of alluvium but this does not extend far beyond the present river course and is not expected to interfere with quarrying. The tonnage of basalt available in this area is approximately 15,000,000 tons, assuming the whole of the area bounded by the river is worked to a depth of 10 feet above the level of the river in the NE corner. The level was chosen to avoid flooding but it is possible that the quarry could be worked to a greater depth in the south and SE of the area. The estimated tonnage does not include any of the basalt available from the area between the river and the highway.