

Section 1 — Economic and General Geology

TRA. 11-12

CRISP AND GUNN'S BRICK QUARRY, WEST HOBART

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GENERAL

The above firm has produced clay bricks for over half a century from shales and sandstones at its quarries on the lower slopes of Knocklofty at West Hobart.

A request was recently made for geological advice to determine the quantity of brick material available for future use on the Company's property.

GEOLOGY

The rocks in the area comprise the Knocklofty Group of sandstones and shales of Triassic age.

The beds dip at an angle of 13° to the south-west and have a strike of 130° .

Two shale seams are present and these are separated by 40 feet of siliceous sandstone. The upper shale member has a thickness of 60 feet, in which are included two hard sandstone bands two feet and three feet thick respectively. The lower shale is 23 feet thick, of which only 10 feet is at present quarried. A recent drill hole sunk from the lower quarry floor, near the face, disclosed a further 13 feet of shale.

These shale beds are again underlain and succeeded by thick beds of siliceous sandstone.

In the south-east part of the property the sandstones and shales are intruded by a narrow dyke of Jurassic dolerite. This is exposed along a northerly strike for about 200 feet over a width of 10 feet and is disposed almost vertically. Faulting along the intrusion has displaced the sandstones and shales in the vicinity and produced a downthrow of 30-40 feet on the south-east side of the dyke.

THE BRICK MATERIAL

The shales comprise three general types of which purple-red argillaceous members predominate in thickness. This is followed by thinner bands of khaki coloured clay shales. The third member comprises a minor band of light grey, sandy shale, containing fine mica.

For brick making, the general practice by the Company has been to mix these shales with the overlying sandstones in the proportion of two parts shale to one part sandstone.

QUARRYING

The shale beds have been extracted by means of dip quarries in two separate faces, with the more extensive workings on the thicker upper shale seam.

The maximum height of the face in the upper quarry is now 138 feet and the height averages 125 feet, which makes this quarry unsafe for working in numerous places.

The height of the quarry on the lower seam has reached a maximum of 50 feet, of which approximately 29 feet is overburden of unusable sandstone. To extract the full thickness of this seam the quarry floor would have to be lowered to give a vertical face height of 64 feet.

RESERVES

With an overburden of waste sandstone of approximately 50 feet in thickness, coupled with high haulage and drainage costs from the quarry the economic and safe workings of the upper shale seam is nearing an end and reserves are virtually depleted.

Actual reserves of brick making material for future use on this property must be obtained from the lower seam. It appears possible that this seam could be worked across an area, of width averaging 172 feet, from the lower quarry face to within 45 feet of the upper seam face, and over a length of 700 feet.

Taking 34 feet as the thickness of usable material (23 feet shale plus 11 feet sandstone) and allowing 25% for wastage and unforeseen contingencies, it is calculated that the quantity of brick material available in the lower seam would amount to 220,000 tons.

On the same basis the quantity of shale available amounts to 150,000 tons.

If the top 29 feet of sandstone is to be discarded, the overburden figure would represent 243,000 tons.

Considering the full 40 feet thickness of overlying sandstone as overburden, the total quantity of this material amounts to 345,000 tons.