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COMMONWEALTH OF AUSTRALIA.



DEPARTMENT OF NATIONAL DEVELOPMENT.
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RECORDS 1959/2

PRELIMINARY REPORT ON THE BRICK SHALE DEPOSIT
AT QUEANBEYAN

by

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INTRODUCTION

A sample of shale belonging to a bed which outcrops on either side of the Tharwa road had previously been shown by a Sydney company to make satisfactory bricks. Recently a sample, taken from the same bed in a cutting on the Tharwa road itself within the municipal boundary of Queanbeyan, and burnt in the Canberra brick works, was found to be suitable for the manufacture of bricks. Further investigations were carried out during November 1958, and an area 8800 feet by 1600 feet was geologically surveyed by plane table.

This brick shale deposit was traced 2800 feet to the north-west and 1500 feet to the south-east of the Tharwa road cutting; the average width of the deposit is 350 feet. Other shales which may be suitable for brick making, but which differ lithologically from the sampled shales were mapped and reserves estimated.

GEOLOGY

Stratigraphy:

Muriarra Formation: The brick shale deposits form part of the Muriarra Formation, mapped by Phillips (1955). The Muriarra Formation was described by Phillips as "an alternating sequence of phyllites and sandstones". However, with the available outcrop evidence, the brick shale deposit of this area seems relatively uniform and free from sandy material.

The shale extends for a distance of 1500 feet to the south-east of the Tharwa road, where it disappears under scree slopes of Mt. Jerrabomberra. The strike, 30° to 40° west of north, is constant over this area and the dip appears vertical. About 300 to 400 yards farther to the south-east the shale is indurated and probably unsuitable for brick-making. To the north-west of the road the shale extends for a distance of 2800 feet, where it pinches out in a deep gully to the south of Gilmore road (refer to "Map of the Municipality of Queanbeyan"). Outcrops are rare over the last 1100 feet in this area.

The predominantly sandy sediments outcrop in definite zones to the east and west of the brick shales, and show marked facies change along the strike. An example of this is exposed to the west of Willow Creek, in a creek flowing along the general strike direction.

Two distinct types of sandstones were noticed - (a) a hard, indurated quartzite, forming low ridges and (b) a soft, very fine grained argillaceous sandstone, buff to yellow and only seen in creek bed exposures.

The blocky, silty shales crop out chiefly to the south-east of the Tharwa road, and along the Tharwa road. Lithologically, they differ from the brick shales, for they are more massively bedded, have a coarser texture and change in a north-west direction, with the sand content varying in grain size and amount into predominantly sandstone.

Although no fossils have been found within the Muriarra Formation, it is considered that they may be correlated with the lower Middle to lower Upper Ordovician Pittman Formation of the Canberra region.

The Acton Shales: These outcrop in two belts to the east and west of the Muriarra formation. They are quite different from the brick shales, for they are blue grey, hard, silicified and have developed a slaty cleavage. They also exhibit small tight folds and faults and in part are cut by numerous small quartz veins. They form the major outcrop in the northern part of the region, along the Gilmore road. They are well exposed in a railway cutting when they dip at a high angle to the east.

In general, these Acton Shales can be regarded with little interest as a possible brick material.

Fossils have been found in various localities within the area and they are of Upper Ordovician (Eastonian) age.

Structure:

The structure of the region is complex. However, as the Muriarra Formation occupies a central belt, surrounded by the younger Acton Shales to the east, west and north, it is probable that the Muriarra Formation is the core of a tightly folded anticline.

MATERIAL AVAILABLE FOR THE MANUFACTURE OF BRICKS

The following estimates take into account only the shale that can be quarried without having to pump water out of the excavation, i.e. the quarries will be self-draining. The depth of weathered shale suitable for brick-making is not known, but it is probable that if drainage problems were ignored, larger quantities would be available.

(a) Brick Shale Reserves:

(i) Probable Shale reserve -

Area	: 129,000 sq. yards.
Average thickness	: 3.8 yards (approximately)
Volume	: 488,000 cu. yards.

(ii) Possible shale reserve - (Note: This reserve was introduced to cover area of limited rock outcrop).

Area	: 28,100 sq. yards.
Average thickness	: 3.3 yards (10 feet)
Volume	: 93,000 cu. yards.

(b) Blocky Silty Shale Reserve - (Note: As yet these shales have not been tested.,)

Area	: 71,200 sq. yards.
Average thickness	: 3.3 yards (10 feet).
Volume	: 237,000 cu. yards.

LOCATION OF THE BRICK SHALE WITH REFERENCE TO THE
MUNICIPALITY OF QUEANBEYAN.

(Reference 1 - "Map of the Municipality of Queanbeyan").

The extent of the shale is shown on an enlarged portion of Sheet 1 of the "Map of the Municipality of Queanbeyan, scale 8 ch. = 1 inch". The scale of the enlargement is approximately 200 feet = 1 inch. The shale deposit lies entirely within the Municipal boundaries of Queanbeyan. Of all the roads and streets shown on the Municipal plan within the area of the shale deposit, the only one that exists is the Tharwa road which approximately bisects the deposit, and the Gilmore road to the north, where the shale pinches out. A rough track exists, connecting Tharwa road to Gilmore road and this presumably is Crest road.

The whole of the deposit lies within what is known as the Halloran Estate. The northern limits of the estate run along Munro road, thence up Lorne road to the railway line. The business of the estates is conducted by a registered company, "Canberra Freeholds", and blocks of land have been sold to persons living in many parts of the world.

Grazing rights, taken out by a person named Dunn are held over the area south of the Tharwa road. This area is fenced.

