

REPORT ON THE INVESTIGATION OF THE UNDERGROUND
WATER RESOURCES OF THE GEEVESTON AREA.

1. INTRODUCTION.

A geological survey was made of the Kermandie River drainage system with the object of determining if any large supply of underground water was available in that area.

The investigation was made on the application of Mr. John Avery, of the Tasmanian Paper Pty. Ltd., which Company was desirous of obtaining such a supply.

No previous geological work has been done in the area owing to absence of minerals of economic importance, and therefore no previous literature can be cited.

11. SITUATION AND ACCESS.

Geeveston is situate 38 miles South of Hobart.

Access is gained by means of main motor road Hobart to Dover and also by means of Huon River at the deep water port of Port Huon on the main road 3 miles north-east of Geeveston.

111. "PHYSIOGRAPHY"

1. TOPOGRAPHY.

The topography of the area is in most parts of very high relief, while in others it is of comparatively low relief.

Its geological relationship is quite evident, as the most elevated parts are composed of diabase, while the low lying parts are composed mainly of softer sedimentary rocks.

The country in the vicinity of the Geeveston township is of low relief the mean height above sea level being about 200 feet.

This is practically surrounded by rugged hills and mountain ranges which may be roughly divided into three main groups.

(a). The main range is a crescent shape and rises to a height of 2,200 feet at Taylor's Ridge. It occupies the whole of the western portion of the area and forms the divide between the Arve and Kermandie Rivers.

(b). The range which rises to 1,300 feet at Dudy's Hill, north of Geeveston and extends north-west to Scott's Divide forming the divide between Scott River and Castle Forbes Rivulet.

(c). The low coastal range of hills which extends south from Hospital Bay rises to a maximum height of 1,500 feet at Tonka Deboo, and then falls away towards Dover.

2. DRAINAGE SYSTEM.

The Kermandie River which courses in a general north-easterly direction forms the main drainage channel. Scott River is the chief tributary and drains the north eastern portion of the area, and is in turn fed by two lesser tributaries namely, Crookes Rivulet and Halloran Creek.

The south eastern portion is drained by Riley Creek, another affluent to the main stream (Kermandie River.)

Small areas of comparatively flat and level country occur in some parts of the area, these are quite characteristic of the river system and occur at the heads of the streams.

IV. GEOLOGY.

1. SUMMARY.

The accompanying Geological Sketch Map indicates the various geological formations which outcrop in the area and the boundaries of same.

The oldest rocks occurring in the district are the mud-stones and impure sandstones of the Permo-Carboniferous system.

Succeeding the Permo-Carboniferous, rocks of the Triassic system occur.

Diabase of Mesozoic age intrudes the above.

In places remnants of partly consolidated sands and clays of Tertiary age occur in the valleys.

Alluvium is forming along the streams at some places during the present time.

2. SEDIMENTARY ROCKS.

(a) PERMO-CARBONIFEROUS SYSTEM.

The rocks of this system outcrop at the following places.

(1). East of Scott River. A long narrow tract occurs between two diabase sills and has a general trend north and south. The main types are fine grained white mudstones which merge into argillaceous or impure sandstones. The total thickness exposed is from 200 to 300 feet.

The strata, at outcrop, are very broken and no dips could be ascertained in this part of the area.

(2). West of Scott River and extending south easterly to Waterloo similar strata occupy a much larger area. This tract is narrow at the northern end and widens to the south-east. Many dips were taken and these indicated a general dip to the south-west at a fairly low angle with slight variations which are purely local.

The thickness in this part of the area is approximately 500 ft.

(3). In the north-west of the area similar strata also occur over a fairly large area.

Owing to the broken nature of the country few dips were taken and these indicated a dip to the south at a high angle.

(4). Fossils, chiefly impressions of Fenestella were obtained from several places in district.

(b) TRIASSIC SYSTEM.

The rocks of this system occupy a very small area in the south eastern portion of the district.

The main types are arenaceous or siliceous, medium grained, white to grey sandstones, which are horizontally bedded and are of no great thickness, about 200 feet at the most.

This outcrop represents the most northern extension from Dover of the Triassic strata as mapped in the Catamaran Coal Field.

(Tas. Geo. Sur. Min. Res. No. 7).

(c). TERTIARY SYSTEM.

Strata belonging to this system occur at two places in the area and are of no great extent.

These deposits consist of loosely compacted sands and clay, which disintegrate very easily with the result that small remnants only remain.

(d). RECENT DEPOSITS.

Alluvium is being formed in places along the courses of the present streams, these deposits are generally not of sufficiently great thickness or extent to be mapped and have no direct bearing on the subject under discussion.

3. METAMORPHIC ROCKS.

The metamorphism of the sedimentary rocks is due to the intrusion of Mesozoic diabase, the effect produced is of no great extent and is readily recognised.

Indurated mudstones on the back road south of Geeveston and also on the Castle Forbes Bay back road afford evidence of such alteration.

4. IGNEOUS ROCKS.

Diabase of Mesozoic age consisting essentially of plagioclase felspar and augite, occupies at least 75% of the surface.

The size of the component crystals varies according to the conditions of crystallization.

The texture of the diabase varies considerably from a very fine grained, homogeneous type to a medium grained type in which component crystals could be recognised.

The diabase is typical in every respect of that found elsewhere in Tasmania.

From evidence gained in the field the diabase is intrusive and assumes several forms of intrusion within the area. Diabase and its forms of intrusion will be dealt with in much more detail under the heading of Structural Geology.

5. STRUCTURAL GEOLOGY.

The district consists essentially of sedimentary strata of the Permo-Carboniferous and Triassic systems, which have been intruded, on a large scale, by Mesozoic diabase.

These are covered in places by small deposits of sediments varying in age from Tertiary to Recent.

The Triassic strata are apparently conformable with the Permo-Carboniferous but in reality there is a disconformity between the two series.

The main body of diabase (forming Peppermint Hill, Taylor's Ridge, Kermantie Divide and Tonka Deboo, is transgressive and gives rise to sills extending north along Scott River and also capping Dudy's Hill and its extension to the north-west.

Two small areas of transgressive diabase occur in Permo-Carboniferous strata to the west of the area.

The sedimentary strata in the eastern portion of the district are either lying horizontally or dipping at a low angle 6 to 10 degrees to the south-west.

To the west of the district the strata assume a general dip to the south at a comparatively high angle.

These general dips and strikes vary only slightly in direction or amount away from the diabase, but in close proximity to the diabase, they show a much greater variation.

That much displacement has taken place is clearly evident.

As no evidence of faulting is found the displacement is assumed to be associated with the intrusions of the diabase.

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