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# 1979/24. A diamond drill hole at Margate.

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*Abstract*

A fully cored bore on the northern edge of Margate [EN2124627] proved 172 m of Woody Island Siltstone (Quamby Mudstone) overlying 134 m of baked pebbly tillite. The tillite rests on a minimum of 25 m of Jurassic dolerite. The hole terminated at a depth of 331.4 m. From the extent of the metamorphism it would appear that the dolerite is in the form of a fairly steeply inclined sheet.

## INTRODUCTION

Mapping of the northern edge of the Kingborough Quadrangle showed the presence of a previously unsuspected, small, fault-bounded area of Woody Island Siltstone on the northern edge of Margate. Strata this low in the Permian succession are not known to occur elsewhere in the northern part of the Kingborough Quadrangle. The presence of this small area of Woody Island Siltstone offered the opportunity of investigating this lower part of the Permian succession otherwise totally inaccessible except by drilling from stratigraphically higher levels to greater depths.

The bore was sited to begin at the junction of the Bundella Mudstone and the Woody Island Siltstone. The purpose of the bore was to explore the lithology and thickness of the Woody Island Siltstone and then to probe the nature of any underlying beds. In the absence of a major dolerite body there was also a possibility of continuing to basement.

The bore penetrated 172 m of Woody Island Siltstone and then passed through 134 m of baked pebbly tillite before entering Jurassic dolerite at a depth of 306 m. The dolerite was penetrated to a depth of 25 m and was fine-grained or chilled towards the margins but rapidly developed irregular coarse-grained patches. The extent of the metamorphism of the overlying sedimentary rocks suggests a major body with a fairly steep inclination. The slope of the dolerite contact ($45^{o}$) tends to confirm this.

The presence of a thick dolerite body precluded any further drilling in order to find basement.

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*GEOLOGICAL LOG OF MARGATE NO. 1 DIAMOND DRILL HOLE*

| Depth (m) | Description | Formation |
|---|---|---|
| | Bore began at or just slightly below base of Bundella Mudstone. | |
| 0.00 - 109.00 | Pale-grey weathering siltstone with uniform lithology. Darker grey below weathered zone. Some speckled patches. Sediments disturbed in a few places (bioturbate). Small spangles of pyrite along joints. A few thin calcite veins. Lamination in a few spots. | WOODY ISLAND SILTSTONE |
| 109.00 - 172.00 | Pale-grey siltstone, as above, but baked. Progressively baked downwards. Pebble at 128 m. Rocks darkening downwards and then lightening. Progressive spotting of core below 172 m. | |
| 172.00 - 210.00 | Tillite, with small pebbles from approx. 175 m - pebbles numerous. Vertical veins of white minerals, 6 mm thick, some effervesce with acid some appear not to. | BASAL TILLITE |
| 210.00 - 230.00 | Baked tillite with pebbles, pebbles haloed. Heavily veined. | |
| 230.00 - 234.00 | Tillite with heavy anastomising calcite veins. Haloed pebbles, baked hard tillite. | |
| 234.00 - 306.17 | Spotted pebbly tillite, calcite veins, haloed pebbles. Baked, hard, brittle. | |
| | Dolerite/baked tillite contact at 306.17 m. Contact inclined at 45°. | DOLERITE |
| 306.17 - 331.40 | Fine-grained dolerite - coarsening and patchy downwards. | |
| | Hole terminated at 331.40 m. | |