

A detailed examination has been made on all cores, and rotary cuttings in the interval 200 feet to 4000 feet, from Frome-Broken Hill's Sherbrook No. 1. Well. In addition, 7 side wall cores from the interval 1950 feet to 3750 feet were examined. The surface casing was run to 605 feet, thus sealing off the highly fossiliferous marls and silts which extend from the surface to 540 feet, so that rotary cutting contamination is at a minimum.

200-10 feet.

The good planktonic foraminiferal fauna, including Globigerina oipercoensis and G. Woodi indicates that this interval represents the base of the Longfordian.

210-250 feet.

These light grey-brown sandy marls contain a sparse fauna which includes Globigerina ampliapertura euapertura, G. Parva and Globorotalia opima opima. Dr. Wade (in Glaessner, 1959, p. 62) states that the latter species is restricted to the upper part of the Janjukian, Faunal Unit 5 of Carter's (1959) scheme.

250-350 feet.

The medium to dark grey marly clay is abundantly fossiliferous. This interval is marked by the first appearance of Globigerina ampliapertura ampliapertura, G. linaperta, "Guembelina rugosa", Bolivina anastomosa and B. pontis. Such a fauna is pre-Faunal Unit 5 and post Faunal Unit 2. Current research by the author indicates that the above listed species have their highest, stratigraphic appearance in Faunal Unit 4, although G. linaperta is represented by a morphotype which is more radially elongate than the morphotype illustrated by Carter (loc. cit.) from lower in the sequence. Below 300 feet, the earlier form of G. linaperta is present, which suggests that Faunal Unit 3 is also present within this interval, but a boundary cannot be designated in this section.

Thus the interval 250-350 feet represents the transition Upper Eocene to Oligocene.

350-530 feet.

Lithologically this interval is the same as the preceding one. It is differentiated by the first appearance of Globigerapsis index and G. tropicalis. The former species is characteristic of Carter's Faunal Units 1 and 2.

530-4000 feet.

Below 530 feet fauna is extremely rare, and definite intervals cannot be designated on palaeontological grounds, so the few samples containing foraminifera will be discussed individually.

Cores 1 and 2 (565-605 feet) contained Globigerapsis index which suggests an Upper Eocene age.

1290-1300 feet contained "Globigerina triloculinoidea" and a form related to Astrononion centroplax.

1580-1590 feet contained Hanzawala mariae.

1778-1785 feet contained Ceratobulimina westraliensis.

Side wall core at 2100 feet contained Anomalinoidea sp. of lower Tertiary affinities and "Globigerina triloculinoidea". The species from 1290 to 2100 feet are typical species of the Victorian Palaeocene, however they are not diagnostic species.

3100-3110 feet contained Haplophragmoides sp.A of the Victorian Upper Cretaceous sequence.

Apart from occasional contamination, no Foraminifera were found below 3110 feet. A sample from core 20 (4865-67 feet) contained white, discoidal calcitic bodies of several millimetres in diameter, which were sometimes grouped in clusters with a resemblance to Foraminifera. Thin sections and acid dissections revealed no internal structures, so that these bodies are not considered to be Foraminifera.

Comments on the Stratigraphy.

? to 210 feet - represents the equivalent of the Glenample Clay of the Pebble Point to Peterborough coastal section (refer Baker, 1953).

210-250 feet - represents both lithologically and palaeontologically the Clifton Formation of the coastal section.

250-530 feet - is lithologically similar to the Browns Creek Clays of Carter (1958). However, biostratigraphically this interval contains Carter's Faunal Units 1-4, whilst Carter (loc. cit.) assigns Faunal Units 1 and 2 to the Browns Creek Clays and Faunal Unit 3 to the Calder River Limestone and the Lower Glen Aire Clays. These formations occur in the Aire District, where two small Tertiary marine embayments are surrounded on three sides by the Mesozoic sediments of the Otway Group. Sediment, equivalent to the Browns Creek Clay is not present in the Pebble Point to Peterborough Coast section, as has been shown by recent drilling at Princetown, but is present in drilled sections further to the west.

It is noted, that in this section the faunal sequence is uninterrupted between the Browns Creek Clays equivalent and the Clifton Formation.

Little Stratigraphic comment can be made below 530 feet, except that the Tertiary marine sediments are present sporadically down to 2100 feet. The sample at 2100 feet is tentatively regarded as Paleocene. Therefore the sediment between 530 feet down to at least 2100 feet is within the Wangerrip Group.

In the author's opinion there is no sediment present which is typical of the Belfast Mudstone. Upper Cretaceous sediment is probably present; the lack of fauna being due to environmental conditions. These statements will be better explained in the report of Ferguson's No. 1.

#### REFERENCES.

- Baker, G., 1953. The relationship of the Cyclammina bearing sediments to the older Tertiary deposits south-east of Princetown, Victoria. Proc. Roy. Soc. Vict., 60 (n.s) p. 17-43.

Carter, A.N., 1958. Tertiary Foraminifera from the Aire District, Victoria.

Geol.Surv.Vict., Bull, 55.

Glaessner, M.G., 1959. Tertiary stratigraphic correlation in the Indo-Pacific region and Australia.

J. Geol.Soc. India, 1, p. 53-67.

*David Taylor.*

D.J. TAYLOR,  
Geologist,  
10.1.1964.