



PE990152

PLANT REMAINS - PRETTY HILL NO. 1 BORE

A thin (four inches) band of coalfield plant material was included in Core No. 7 Pretty Hill No. 1 bore, 2928-2940 feet. Among stem and leaf remains recognisable were Conifer leaves of Araucarian type, (cf. Pagiophyllum sp.) and fragments of Angiosperm leaves. Cuticular tissues have been isolated from both types, and identification is proceeding. Angiosperm leaves have previously been identified from the Mesozoic Merino Group sediments of southwest Victoria from Killara Eluff (Medwell, 1954) but the stratigraphic position and geological age of this outcrop has not been evaluated since recent additional data on Western Victorian Mesozoic sediments have been available. Angiosperm leaves, however, have also been found in the Yangery No. 1 bore at 4320-4330 feet (Douglas, 1963) and are regarded as Lower Cretaceous in age. These Yangery 4320-4330 feet and Pretty Hill 2928-2940 feet beds may directly correlate, but on the basis of microfloral comparisons (Douglas, J. G., Unpublished Report 1962/72) it would seem that the Pretty Hill bed is higher up in the non-marine Mesozoic sequence than the Yangery bed.

It is difficult to assess the value for correlation of macroscopic plant remains found in bore core as portion only of a larger flora is available. For example, liverwort (Hepatic) thallus impressions found in the Yangery bed under discussion (4320-4330 feet), Belfast No. 4 bore at 5353 feet and Wangoom No. 6 bore at 3314 feet indicate that these beds may correlate, but may also represent only fortuitous coring of a form prevalent throughout much of the non-marine sequence.

5th December, 1962

J. Douglas - Geologist

References:

- |                   |                  |   |
|-------------------|------------------|---|
| Douglas, J. G.    | 1962             | Pretty Hill No. 1 Bore - Preliminary Examination for acid insoluble microfossils. <u>Vic. Mines Dept. Unpub. Rept. 1962/72.</u> |
| _____             | 1963<br>In press | A Mesozoic dicotyledonous leaf from the Yangery No. 1 bore, Koroit, Vic. <u>Min. Geol. Jour. 6, 5.</u>                          |
| Medwell, Lorna M. | 1954             | Fossil Plants from Killara near Casterton, Victoria. <u>Proc. Roy. Soc. Vict. 66, 17-23.</u>                                    |

COMMENTS ON FAUNA IN PRETTY HILL NO. 1 WELL

A detailed examination has been made of cores and cuttings below 1000 feet in Frome-Broken Hill's Pretty Hill No. 1 well.

1000 to 1160 feet: The cuttings at the base of the marl (1160 feet approx.) contain a fauna indicative of the Longfordian Stage. The diagnostic Foraminifera include (Globoquadrina dehiscens, Globigerinoides triloba, Elphidium crespinae, Eponides repandus, Stematorbina concentrica).

1160 to 1220 feet: The pinky rubbly limestone contains bryozoa, mollusca and Foraminifera. Identification of the Foraminifera was difficult because of encrusting by calcium carbonate. The fauna is similar to that above 1160 feet, although planktonic forms are rarer and most specimens are larger in size. There is no evidence to suggest that this interval represents a stage older than basal Longfordian (Upper Oligocene).

1220 to 1800 feet: This interval comprises sands, siltstones and some dolomitic siltstones. Foraminifera are rare and are mainly arenaceous forms including Cyclammina spp. However, Core No. 1 (sample 1286 - 1288 ft.) contains several specimens of Globigerina linacerta which is restricted to the first three faunal units outlined by Carter (1958). This sample is probably upper Eocene in age.

1800 to 2150 feet: This interval comprises siltstones, silty sandstones and the sands near the base are iron stained. Core 2 (1816 - 1836 feet) contains mollusca, corals and Foraminifera. The only molluscan species identifiable was the pelecypod Nuculana paucigradata Singleton. This species is typical of the Pebble Point and Bahgallah Formations (Singleton 1943 and Kenley 1951). The Foraminifera are also typical of the Pebble Point Formation and the faunas from the King's Park Bore, Perth, Western Australia, as described by Parr (1939). The Foraminifera include Globorotalia chapmani, Globigerina orbiformis, Alabama westraliensis, Discorbis assulatus, Lenticulina (Robulus) warmani. Such a fauna (both molluscan and foraminiferal) is now believed to be typical of the Palaeocene. Fossils were not found in the iron stained sands at the base of this interval.

2150 to 2600 feet: This interval comprises clean sands with carbonaceous siltstones near the base. Core No. 4 (2382 to 2403 feet) contained a sparse arenaceous foraminiferal fauna which includes species of Haplophragmoides which occur in the Cretaceous sediments of the Port Campbell wells.

2600 to 2850 feet: This interval comprises dark grey glauconitic siltstones with some pyrite and quartz. Foraminifera are sparsely distributed (even in Core 6) and arenaceous forms predominate although there are a few Lenticulina spp. The fauna also includes ammonite fragments, a belemnite fragment, fragments of Inoceramus sp. and fish remains. The foraminiferal fauna is Ammobaculites cf. fragmentaria, A. goodlandensis Bathysiphon sp., Dorothea filiformis, Haplophragmoides sp. A, H.sp.B, H.sp.C, Lenticulina (Marginulinopsis) curvisecta, Lenticulina (Robulus) navarroensis extruatus, Reophax sp., and Textularia anceps. All of these species occur in the upper

part of the Cretaceous sequence in the Port Campbell wells (Taylor, 1962). Characteristic species of the lower part of the Port Campbell Cretaceous sequence were not found in Pretty Hill. The predominantly arenaceous fauna and the abundance of glauconite suggests anaerobic conditions.

2850 to 2922 feet: The cuttings in this interval contain limonitic pellets. No fauna was found.

2922 to            feet: Regarded as Otway Group equivalent. No fauna found apart from obvious contamination from higher in the well.

17.10.62

D. J. Taylor - Geologist

References

- |                  |      |  |
|------------------|------|--|
| Carter, A. N.    | 1958 | Tertiary Foraminifera from the Aire District, Victoria.<br><u>Geol. Surv. Vict. Bull. 55</u>   |
| Kenley, P. R.    | 1951 | Marine Eocene Sediments near Casterton, Victoria,<br><u>Aust. J. Sci., 14 (3), 91-92.</u>  |
| Parr, W. J.      | 1938 | Upper Eocene Foraminifera from deep borings, Perth, Western Australia.<br><u>J. Roy. Soc. West. Aust., 24, 69-101.</u>                 |
| Singleton, F. A. | 1943 | An Eocene Molluscan Fauna from Victoria.<br><u>Proc. Roy. Soc. Vict., 55, 267-278.</u>   |
| Taylor, D.J.     | 1962 | Foraminifera and the Stratigraphy of the Western Victorian Cretaceous Sediments.<br><u>M.Sc. Thesis Uni. of Adelaide (Unpublished)</u> |