



Geological Survey of Victoria.

THE FAUNA IN FERGUSONS HILL No.1 WELL  
AND COMMENTS ON  
THE UPPER CRETACEOUS SEDIMENTS OF THE PARISH  
OF LATROBE.

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AND COMMENTS ON THE UPPER CRETACEOUS SEDIMENTS OF  
THE PARISH OF LATROBE.

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, 6 side wall core from the interval 1831 feet to 2430 feet were examined.

200 - 1554 feet.

Very few foraminifera were isolated. The species present are all common species in the Paleocene faunas of the Wangerrip Group of both the coastal section and the Latrobe No. 1. drilled section. No foraminifera diagnostic of particular horizons were isolated.

1554 - 2048 feet.

Core 1 (1554 to 1574 feet) contained a sparse fauna of Ammobaculites goodlandensis, Haplophragmoides sp.A and H. sp.B. Such a fauna is typical of the top of the Upper Cretaceous foraminiferal sequence in the Port Campbell area (see Taylor, 1964).

Core 3 (2020 to 2031 feet) contained a richer arenaceous fauna including the above species as well as Ammobaculites cf. fragmentaria, A. subcretacea, Bathysiphon sp., Haplophragmoides sp. C. and Reophax ? sp. Such a fauna is typical of the Paaratte Formation as well as the upper portion of the Belfast Mudstone where the foraminiferal fauna is apparently affected by restricted water circulation. This fauna is within Taylor's (loc.cit.) Zonule A.

Side wall core at 2032 feet is of particular interest as it contains a fauna similar to the above, but includes a relatively large Textularia which has affinities to both T. semicomplanata and T. trilobita (a new species by Taylor, 1964). The disappearance of T. trilobita and the appearance of T. semicomplanata is one of the features that marks the boundary between Zonule B and Zonule A. However it has been noticed that there is a transitional form at the base of Zonule A. Taylor regarded this transitional form as a morphotype of T. semicomplanata

although it's initial chambers are similar to T. trilobita. As the transitional form is present at 2032 feet, this horizon can be correlated with the basal horizon of the upper part of the Belfast Mudstone in the Port Campbell area. Such correlations are as follows:- Port Campbell No. 1. from 5230 to 5350 feet; Port Campbell No. 2. fro. 6800 to 7000 feet; Flaxmans No. 1. from 6200 to 6300 feet.

No older Cretaceous faunas (i.e. Zonule B faunas) were found in the section as the Waarre Formation was entered at 2048 feet.

Therefore the equivalent of the Paaratte Formation and upper part of the Belfast Mudstone is present in correlating this section with the Port Campbell No. 2. section. The lower part of the Belfast Mudstone is missing, which is not unusual when it is realized that this lower portion is present only in Port Campbell No. 1. and No. 2. and Flaxmans.

Three wells, Mines Department's Latrobe No. 1, P-B.H, Sherbrook No. 1. and Fergusons Hill No. 1, have been drilled in the Parish of Latrobe which is on the western flank of the Otway Ranges. All three wells have encountered Upper Cretaceous sediment after passing through the fossiliferous Paleocene sediment of the Wangerrip Group. The Latrobe No. 1. penetrated the top of the Upper Cretaceous in an unsampled interval between 1535 and 1627 feet. The first Upper Cretaceous fauna was recorded from a core between 1627 and 1631 feet whilst a similar fauna was recorded in a core from 1735 to 1739 feet. A core at 1809 to 1814 feet is believed to represent the Waarre Formation. The Cretaceous foraminifera in the Latrobe Well are all arenaceous species and are typical of the Paaratte Formation in Port Campbell No. 2. No comment can be made on the Cretaceous section in Sherbrook No. 1. as only one foraminifera was found.

The Upper Cretaceous sequence in Fergusons Hill No. 1. is of the order of 500 feet thick, whilst that in Latrobe No. 1. is

less than 280 feet thick. From the foraminifera present is it assumed that Upper Cretaceous sedimentation commenced in Fergusons Hill before it did in Latrobe No. 1. This is not surprising considering the close proximity of the Latrobe Well to the Wangerrip Group - Otway Group contact at Point Margaret, which is  $2\frac{3}{4}$  miles to the east. Taylor (loc.cit.) has already shown that the Upper Cretaceous sediments are progressively onlapping the Otway Group. This proximity to the margin also accounts for the condensed sequence in Fergusons Hill. The same sequence in Port Campbell No. 2. occupies 1700 feet.

All the bore material from the Parish of Latrobe suggests that the Upper Cretaceous sediments <sup>were</sup> deposited in a marginal marine environment. None of the sediment were deposited in environments similar to those of the Belfast Mudstone. Taylor (loc. cit.) states that the marine Cretaceous depositional trend was from the south east through Port Campbell. Obviously the Parish of Latrobe wells are outside this trend and are on the eastern margin of the Upper Cretaceous depositional embayment.

The Tertiary biostratigraphy of the Parish of Latrobe is at present being studied in detail.

D.J. TAYLOR,  
2.3.1964.

Reference:-

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