

REPORT ON THE TERTIARY FORAMINIFERA FROM GOLDEN BEACH

NO.1A WELL, GIPPSLAND BASIN, VICTORIA.

by Alan R. Lloyd, Sydney, August 1968.

Introduction

The results of the micropalaeontological examination of samples of cuttings from the Tertiary marine section of Golden Beach No.1A well, Gippsland Basin, Victoria, are set out on the accompanying faunal distribution chart. A total of 22 samples were selected at 50 to 100 feet intervals. Reference should be made to the report on Darriman No.1 Well for the list of publications and the introductory comments on overseas correlations and local subdivisions.

Stratigraphy

- (a) ?Upper Pliocene - Upper Miocene. Surface to ?560 feet.

There were no returns over most of this interval, the first sample being taken at 550 feet. The fauna from 550 feet is very poor but contains Parrellina imperatrix; this species could have come from higher in the section, but reflects the presence of possible upper Pliocene in the well. Apart from this there are no controls on which to base an age and those given are quite tentative.

- (b) Aquitanian. ?560 feet to 1560 feet.

The entire limestone and shale section from 560 feet to 1560 feet is placed in the Aquitanian. There are no fossil controls towards the top of the limestone and the top of the Aquitanian is placed tentatively at the top of the limestone. The highest positive Aquitanian species is Lepidocyclina howchini which has its highest occurrence at 1050 feet; Operculina victoriensis and Amphistegina lessoni which occur respectively at 950 feet and 1000 feet appear to be restricted to the Aquitanian. L. howchini does not extend above the mid-Aquitanian on evidence of its association with the highest occurrence of Globigerina cipercoensis in other wells. The planktonic species Globorotalia opima continuosa, G. opima opima and G. testarugosa which have their highest occurrences respectively at 1550 feet, 1750 feet and 1850 feet mark the early Aquitanian. The shale sequence between 1750 feet and 2060 feet was previously placed in the Eocene. The species identified as Globigerina linaperta is considered to be Globoquadrina larmeui which ranges from the early to middle Aquitanian. The other Eocene species recorded were not observed in the samples examined. If the Eocene species were identified correctly it is considered that they would be the product of reworking because of the presence of lower Aquitanian index species restricted to the shale section. Sediments representing the Burdigalian, middle Miocene and possibly part of the upper Miocene are not represented.

The faunas are well developed and reflect deeper water shelf deposits during the early Aquitanian and shoal deposits during the middle to late Aquitanian.

REPORT ON THE TERTIARY FORAMINIFERA FROM COLQUHOUN NO.4
BORE, GIPPSLAND BASIN, VICTORIA.

by Alan R. Lloyd, Sydney, August 1968.

Introduction

The results of the micropalaeontological examination of samples from Colquhoun No.4 bore, Gippsland Basin, Victoria, are set out on the accompanying faunal distribution chart. A total of 24 samples were processed and examined. The bore was continuously cored and contamination through caving was eliminated although mud cake on some cores could have been a source of contamination. Detailed lithological descriptions were not available and the column shown was made up from the samples examined. Reference should be made to the report on Darriman No.1 well for the list of publications and the introductory comments on overseas correlations and local subdivisions.

Stratigraphy

- (a) ?Upper Pliocene. Surface to ?130 feet.

The fauna in the single sample examined from this interval is quite well developed, but lacks any index species on which to base an age and the interval is placed only tentatively in the upper Pliocene. Massilina lapidigera appears to be restricted to this upper unit and affords some control. The fauna is typical of a shallow water shelf deposit.

- (b) ?Upper Miocene to Middle Pliocene. ?130 feet to ?250 feet.

The two samples examined from this interval contain faunas similar to those above and below and lack any index species for accurate age determination. The interval is placed tentatively somewhere within the upper Miocene to middle Pliocene, the limits being based on lithological grounds and evidence from the nearby Lakes Entrance Oil Shaft.

- (c) Aquitanian. ?250 feet to 1423.5 feet +

The upper limit of the Aquitanian cannot be fixed positively through lack of fossil control and is therefore placed only tentatively at 250 feet on lithological grounds. Globoquadrina larmeui does not range above the mid-Aquitanian and it has its highest occurrence at 622 feet which allows room for further Aquitanian sediments above. Globorotalia opima opima, G. testarugosa and Globigerina euapertura which have short ranges restricted to the early Aquitanian, were found between 1169 feet and 1371 feet. The Aquitanian faunas reflect deeper open shelf conditions of sedimentation.

REPORT ON THE TERTIARY FORAMINIFERA FROM DARRIMAN NO.1

WELL, GIPPSLAND BASIN, VICTORIA.

by Alan R. Lloyd, Sydney, August 1968.

Introduction

The accompanying faunal distribution chart sets out the results of the micropalaeontological examination carried out on samples from Darriman No.1 Well, Gippsland Basin, Victoria. The samples included picked slides from cuttings down to 440 feet, core 1 (430 - 440 feet), core 2 (630 - 650 feet) and core 8 (1494 - 1500 feet) held at the Victorian Department of Mines, Melbourne and the complete preparation and examination of cores 3 to 7 between 630 feet and 1300 feet; samples of cores 3 to 7 were supplied by the Victorian Department of Mines.

The section has not been divided into Formations as is generally done in the Gippsland Basin and the local stages and their correlation with the European Stages as used by Carter and Taylor are not followed. The planktonic foraminiferal sequences set up by Bolli (1957, 1966a, b), Blow (1959), Blow and Banner (1962) and Banner and Blow (1967) are applied directly and the correlations with the European Stages established by Blow and Banner (op. cit.) and Banner and Blow (op. cit.) are adhered to. The planktonic foraminiferal sequence established by Jenkins (1960) in the Lakes Entrance Oil Shaft is used as the local reference section although there are some disagreements with some of Jenkins' identifications and overseas correlations. Using Jenkins' evidence the section in the oil shaft is divided as follows:-

Aquitanian (1200 feet to 440 feet) and upper Miocene to middle Pliocene (440 - 212 feet), the two being separated by a disconformity.

There is no fossil evidence whatsoever on which to base an Oligocene age for any marine Tertiary rocks in the Gippsland Basin are the rocks previously placed in the Oligocene and included in the basal Aquitanian following the work of Blow and Banner (1962). The upper part of the underlying non-marine Latrobe Valley Coal Measures is considered to be most likely Oligocene in age.

Stratigraphy

(a) ?Upper Pliocene. Surf to 160 feet.

Only one sample was examined from this interval. The fauna was poor and did not include any diagnostic species on which to base a firm age. The section is placed tentatively in the upper Pliocene by virtue of its relationship with the underlying sediments. Parrellina imperatrix (Elphidium imperatrix of previous reports) appears to be restricted to this upper unit; lower occurrences are considered to be contaminants. The fauna reflects very shallow near shore conditions.

(b) ?Upper Miocene - Middle Pliocene. 160 feet to ?280 feet.

Again there are no diagnostic species present in the fauna on which to base a firm age, but using evidence from Lakes Entrance Oil Shaft and Barracouta A-1 the section is placed tentatively somewhere within the upper Miocene to middle Pliocene. The fauna is poor and reflects a shallow water shelf environment.

(c) Aquitanian. ?280 feet to 1690 feet.

The top of the Aquitanian is placed tentatively at 280 feet on lithological grounds. Positive Aquitanian occurs below 630 feet with the highest occurrence of Lepidocyclina howchini and Globigerina ciproensis at 630 - 650 feet; neither of these species occurs above the mid-Aquitanian. This allows room for further Aquitanian above 630 feet. Sediments representing the Burdigalian, middle Miocene and possibly part of the upper Miocene are not represented.

The faunas within the Aquitanian are fairly well developed although the planktonic element is comparatively poor; they reflect shallow water shoal and shelf deposition in an area with only limited access to the open ocean.

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GRADING OF SAMPLES EXAMINED

Colquhoun No.1. ?all cores
Colquhoun No.4. all cores
Woodside Lakes Entrance No.1 Cuttings to 1210 feet
Cores 1247 feet to 1366 feet.
Merriman No.1. Sidewall cores 648 feet, 687 feet;
rest cuttings.
Darriman No.1. Cuttings to 390 feet
Cores 630 feet to 1500 feet.
Woodside South No.1. Cores 610-630 feet, 1237-1277 feet,
1687-1713 feet, 1946-2006 feet;
rest cuttings.
Woodside No.1. Cores 1467, 1645, 1695-1705, 1905, 2568-
2577 feet;
rest cuttings.
Woodside No.2. Cores 2330 feet, 2500-2510 feet;
rest cuttings.

Cuttings only from Seaspray No.1, Golden Beach 1A,
Dutson Downs No.1, Golden Beach West No.1,
Garr's Creek, North Seaspray Nos. 1 and 2,
Lake Reeve No.1.

LIST OF PLANKTONIC FORAMINIFERAL GENERA.

Globorotalia

Globigerina

Hastigerina

Globoquadrina

Globigerinoides

Orbulina

Biorbulina