

1949/8
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Micropalaeontological examination of
limestone samples from the north-west
basin, W.A.

by

I. Crespin

MICROPALAEONTOLOGICAL EXAMINATION OF LIMESTONE
SAMPLES FROM THE NORTH WEST BASIN, WESTERN AUSTRALIA.

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This small collection of limestones from Cape Range, Rough Range and Learmonth Aerodrome, Northwestern Australia is characteristic of the Tertiary deposits of the North West Basin. The majority of the limestones belong to "f" stage (Middle Miocene) of the Netherlands East Indies "letter" classification but the shelly limestone from Rough Range, in the absence of zonal Miocene foraminifera is regarded at present as Lower Pliocene. The lithological and palaeontological features of these limestones has recently been discussed by me in a paper entitled "Indo Pacific Influence in Australian Tertiary Foraminiferal Assemblages" in the Transactions of the Royal Society of South Australia, 72, (1), p.133, 1948.

Detailed Description of Samples

1. Top 25 feet of 750 feet elev. trig. stn. due west of Learmonth Aerodrome.

Cream coloured foraminiferal limestone.

Fossil content.

Algae:

Lithothamnium ramosissimum
Halimeda sp.

Foraminifera:

Lepidocyclina sp. (rare).
Austrotrillina howchini
Marginaopora vertebralis
Sorites sp.
Amphistegina sp.
Planorbulina mediterannensis
Miliolidae

Ostracoda:

Indeterminate.

This assemblage of micro-fossils is typically "f" stage and is referred to the horizon "f₂-f₃". Lepidocyclina is very rare but Marginaopora is moderately common, the diameter of one test being 15 mm. Austrotrillina howchini is characteristic of the assemblage.

2. Top 15 feet of massive pink limestone capping central part of Cape Range.

Pink Lepidocyclina limestone.

Fossil content.

Foraminifera:

Lepidocyclina ferrerai
Lepidocyclina angulosa
Lepidocyclina (Trybliolepidina) sp.
Lepidocyclina sp. (form B.).
Cyclolypnea cf. indopacificus
Gypsina howchini
Amphistegina sp.
Operculina sp.
Miliolidae

This limestone contains numerous Lepidocyclinae but the tests are fragmentary and specific determination is difficult. The assemblage is typically "f" stage and probably represents the upper part of "f₂".

3. Strata 15 feet to 40 feet below Rough Range elev. trig. station. 384 feet.

(a) Yellowish, shelly limestone.

Fossil content.

Algae:

Halimeda sp.

Foraminifera:

Marginopora vertebralis

Valvulina cf. fusca.

Valvulina cf. dauidiana.

Discorbis cycloclypeus

cf. Borealis

Bryozoa:

Indeterminate.

Mollusca:

Indeterminate.

In the absence of Miocene zonal foraminifera this assemblage is tentatively referred to the Lower Pliocene. Rocks containing a similar assemblage are found at Yardie Creek, W. of Cape Range and around Minilya Station.

(b) Cream limestone.

Fossil content.

Algae:

Lithothamnium ramosissimum

Halimeda sp.

Foraminifera:

Marginopora vertebralis

Sorites cf. marginalis

Austrotrillina howchini

cf. Austrotrillina

Floresculinella bontangensis

Milliolidae

(c) Cream limestone.

Fossil content.

Foraminifera:

Marginopora vertebralis

Sorites marginalis

Floresculinella bontangensis

Small forms such as Dentalina,

Bolivina and rotalines

Samples (b) and (c) are both "f" stage rocks and at present are referred to the "f₂-f₃" zone. It is probable that sample (c) is a facies change of (b) in which the sediments were deposited in slightly deeper water and in a more open sea. Rocks containing similar assemblages occur at Trealla Hills, Cape Range and in the Cape Cuvier Coastal Section.

The exact sequence of the Tertiary rocks in certain areas in the North West Basin has not yet been proved. From available information, the downward sequence suggested from the present collection is:

Lower Pliocene - Sample 3a

Middle Miocene - Sample 1 and 3b.c (f₂-f₃)
(f stage) Sample 2. (f₂).

The palaeontological evidence is not strong enough to state definitely that the time break suggested above between Samples 3a and Samples 3b and c is present, but the section should be critically examined in the field for evidence of such a break.

I. Crespin

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CANBERRA. A.C.T.

(I. Crespin)
Commonwealth Palaeontologist.