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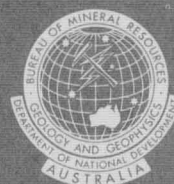
Record No. 1969 / 39

**Micropalaeontology and Palynology  
of Samples from  
B.M.R. Bulloo No. 1 Scout Hole,  
Queensland**

*by*

*G.R.J. Terpstra and D. Burger*

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MICROPALAEONTOLOGY AND PALYNOLOGY OF SAMPLES FROM  
B.M.R. BULLOO No.1 SCOUT HOLE, QUEENSLAND.

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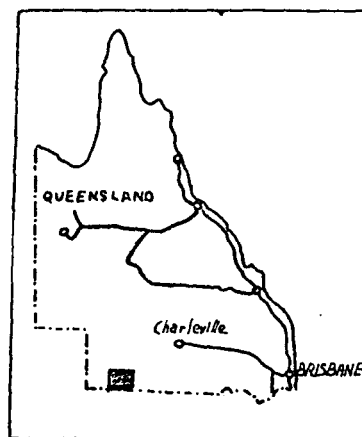
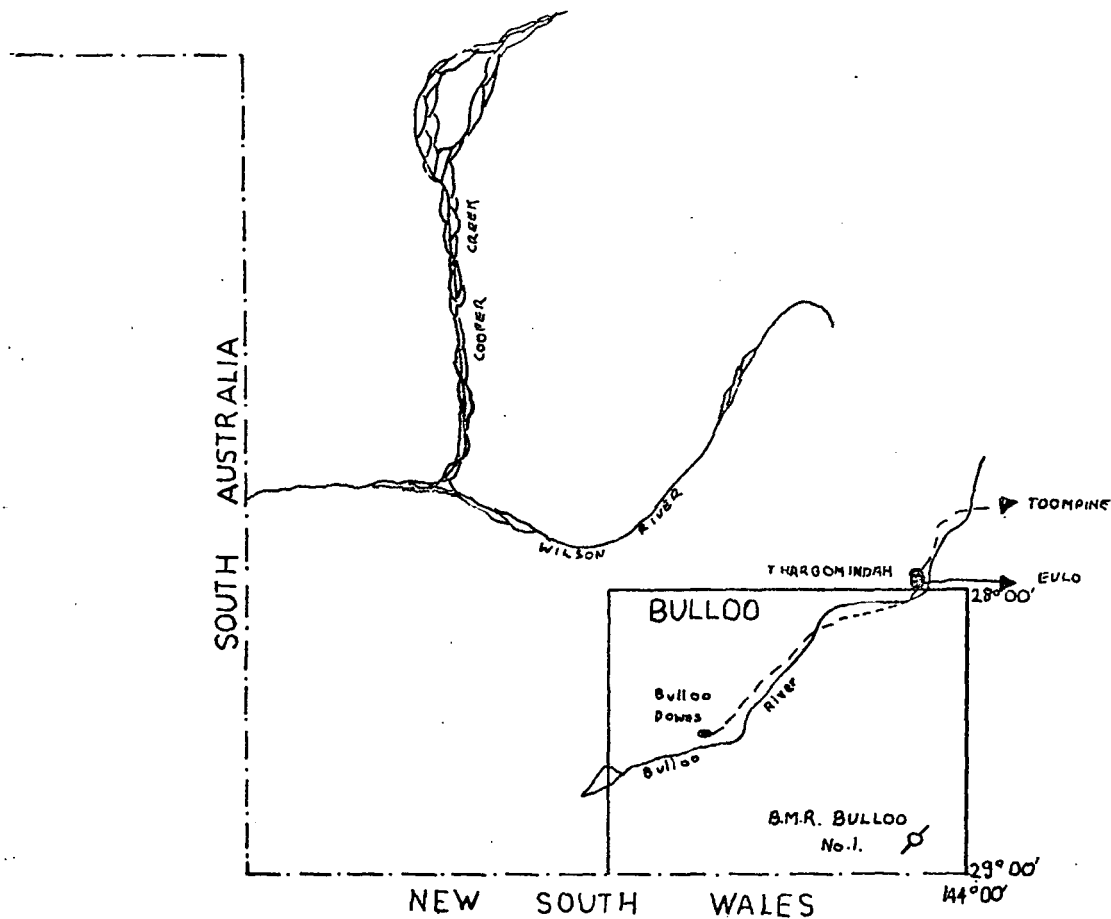
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RECORDS 1969/39

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# LOCALITY MAP

FIG. 1

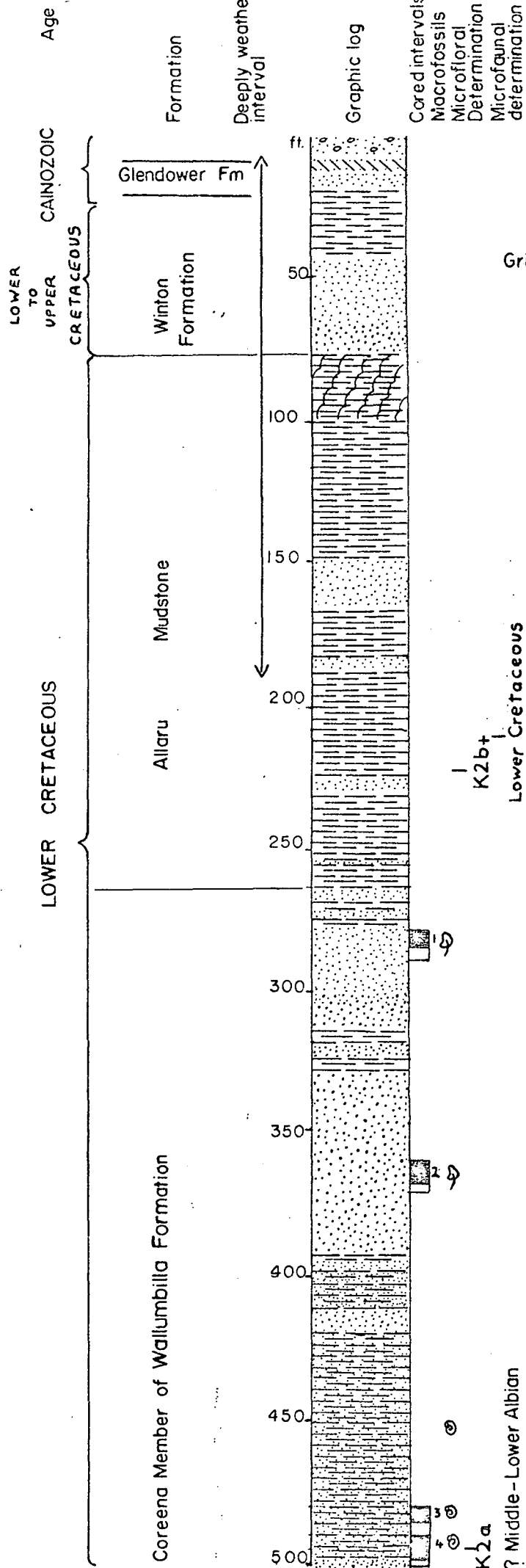


To accompany record 1969/39

H54/A4/2

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FIG. 2.



B.M.R. BULLOO SCOUT NO. 1

Grid reference 164414, Bulloo 1:250,000 Sheet area

- Conglomeratic quartz sandstone
- Fine-grained labile sandstone
- Medium-grained labile sandstone
- Mudstone, siltstone
- Thinly interbedded very fine labile sandstone, siltstone and mudstone
- Silicified quartz sandstone
- Brecciated and silicified sediments
- Plant Fossil
- Shelly Fossil

To accompany record 1969/39

H54/A4/3

NOTE ON THE PALAEOONTOLOGICAL EXAMINATION OF CORE AND  
CUTTING SAMPLES B.M.R. CORE HOLE BULLOO No. 1.

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by

G.R.J. Terpstra

Core and cutting samples have been examined from B.M.R. Core Hole Bulloo No.1. (See Figure 1). Cuttings at 200-210 feet show an indication of brackish water deposition. The top of the marine Lower Cretaceous has been established at 440 feet. (Figure 2).

Results of Examination.

Cutting samples have been examined at ten feet intervals between 0 - 450 feet.

0 - 200 feet:	No microfossils
200 - 210 " :	A few arenaceous foraminifera of Lower Cretaceous age were encountered, indicating probably a brackish-water environment of deposition.
220 - 440 " :	No microfossils
440 - 450 " :	A microfauna was observed, and it is believed that the top of the marine Lower Cretaceous occurs at this level (440 feet) in the bore hole. The microfauna is similar to that described in detail below from cores No. 3 and No.4.

Core samples have been examined from cores 1 - 4.

Core No.1. 280'-284'8":	Shale and silt, no microfossils.
Core No.2. 360'-367'4":	Weathered shale and some lignite, no microfossils.
Core No.3. 480'-485' :	Mainly shale and some quartz sand. Details of the microfauna observed in this core are given below:

Astacolus cf. howchini Ludbrook 1966

Astacolus sp.

Citharina cf. yadinnensis Ludbrook 1966

Gavelinella parvula (Crespin), 1966.

Haplophragmoides chapmani Crespin 1944

Hoeglundina australiensis (Crespin) 1953

Lenticulina cf. gaultina (Berthelin) 1880

Marginulopsis arimensis Ludbrook 1966

Marginulinopsis tilchae Ludbrook 1966  
Textularia wilgunyaensis Crespin 1963  
Valvulineria crespinae Ludbrook 1966  
Gastropoda sp.  
Ostracoda sp.  
Fish tooth  
Megaspores

Core No.4. 489'-497'4" :

Mainly shale and some silt.

The following microfauna occurs:

Dentalina sp.  
Haplophragmoides chapmani Crespin 1944  
Haplophragmoides sp.  
Hoeglundina australiensis (Crespin) 1953  
Lenticulina sp.  
Marginulinopsis tilchae Ludbrook 1966  
Marginulinopsis sp.  
Textularia wilgunyaensis Crespin 1963  
Gastropoda sp.  
Ostracoda sp.  
Megaspores

### Stratigraphy

The information on the stratigraphical ranges of the species examined has been obtained from Bulletin 40 Geol. Survey S.A. (N.H. Ludbrook).

Astacolus cf. howchini Aptian  
Citharina cf. yardinnensis Albion  
Gavelinella parvula Aptian-Lower Albion  
Haplophragmoides chapmani Upper Aptian-Albion  
Hoeglundina australiensis Upper Aptian-Albion  
Marginulinopsis arimensis Upper Aptian-Albion  
Marginulinopsis tilchae Albion  
Textularia wilgunyaensis Aptian-Lower Albion  
Valvulineria crespinae Aptian-Albion

These stratigraphical ranges of species are mainly based on the examination of material from South Australia.

There is no obvious difference between the faunas of Core 3 and Core 4 except for the fact that Core 3 yielded a somewhat richer fauna.

The age of the beds penetrated in cores 3 and 4 appears to be ?Middle-Lower Albian.

#### References

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PALYNOLOGY OF B.M.R. BULLOO No.1.

by

1. Burger

Moderately well preserved spores, pollen grains and microplankton were extracted from a sample (MFP 4845) taken from a depth of 495 feet (Core 4) from B.M.R. Bulloo No.1 Scout Hole. The microfossil assemblage examined was very rich in species and contained the following stratigraphically significant forms:

<u>Spores:</u>	<u>Cicatricosisporites australiensis</u>
	<u>C. hughesi</u>
	<u>C. cf. sternum</u>
	<u>Crybelosporites striatus</u>
	<u>Pilosporites parvispinosus</u>
	<u>Laevigatosporites ovatus</u>
	<u>Trilobosporites trioreticulosus</u>
	<u>Cyclosporites hughesi</u>
	<u>Coptospora paradoxa</u>
	<u>Peromonolites peroreticulatus</u>
	<u>Rouseisporites radiatus</u>
	<u>Clavatipollenites sp.</u>
 <u>Microplankton:</u>	 <u>Odontochitina operculata</u>
	<u>Chlamydephorella nyei</u>
	<u>Hystriosphæridium sp.</u>
	<u>Muderongia tetracantha</u>

This assemblage represents spore unit K 2a, by the co-occurrence of Cicatricosisporites sp., Coptospora paradoxa and Cyclosporites hughesi (Burger 1968b).

Microplankton is scarce (0.0% of the total assemblage), which indicates shallow marine depositional environments. The species identified point to the M. tetracantha/O. operculata Zone, which Evans (1966) reports from the Ranmoor Member, northern Eromanga Basin. The Zone has repeatedly been encountered in association with spore unit K 1d in the eastern Australian region. Recently, Burger (1966a, b) also identified the Zone within the interval of unit K 2a.



The age of the microfossils indicates that the sample may be regarded as the equivalent of the upper part of the Coreena or the lowermost part of the Allaru Mudstone further north.

One sample from cuttings (MFP 4896; depth 220-230 feet) was collected from below the deep-weathering profile, drilled in the 0-200 feet interval. A rich and well preserved microfloral assemblage was extracted from the sample. The following time-significant spores and pollen grains were identified:

Cicatricosisporites australiensis  
C. hughesi  
Crybelosporites striatus  
Coptospora paradoxa  
Microfoveolatosporis canaliculatus  
Trilobosporites trioreticulosus  
T. tribotrys  
Laevigatosporites ovatus  
Tricolpites n. sp. (B.M.R. No.926).  
Tricolpites pannosus  
Tricolpites sp. (B.M.R. No.802)  
Pilososporites notensis  
Leptolepidites major  
Rouseisporites radiatus  
Lycopodiumsporites rosewoodensis  
fragments of Arcellites cf. reticulatus

Also : Nevesisporites vallatus } contaminated by  
Cyclosporites hughesi } redeposition.

Moreover, the following dinoflagellates and acritarchs were found:

Goniaulax edwardsi (fragment)  
Hystrichosphaeridium spp.  
aff. Peltacystia sp.  
Baltisphaeridium sp.  
Microhystridium sp.  
Veryhachium sp.

None of these forms can be regarded to have stratigraphic importance in the upper Lower Cretaceous interval. They occur in about 1% ratio to the total of the assemblage and point to brackish to shallow marine environments of deposition. (Figure 2).

The microflora is characteristic of spore units K 2b+, which form the equivalent of Dettmann & Playford's (1968) higher Coptospora paradoxa Zone. Assemblages of K 2b+ age are characterised by the co-occurrence of C. paradoxa and various species of Tricolpites and have been described from the eastern part of the Basin, as well as from the Surat Basin (Burger 1968a, b). In the Eromanga Basin they are associated with the Allaru Mudstone, Mackunda Formation and Winton Formation.

The presence of the following spore species: Pilosporites notensis, Leptolepidites major, Tricolpites sp. 802, has been established in strata as high as the basal Mackunda Formation (Burger 1968a). From recent spore study of the Winton Formation (unpubl.) could be concluded that neither of these forms, nor Lycopodiumsporites rosewoodensis, may occur as high as the Formation. The interval of the Mackunda Formation has until the present time only been studied cursorily on plant microfossils, so that the full upwards extension of the vertical ranges of these types is insufficiently documented. The presence of L. major, P. notensis, L. rosewoodensis and T. sp. 802 in the microflora of MFP 4896 strongly suggests that the sample is to be correlated with some horizon below the Winton Formation. (Burger 1968a).

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