



U.R. 1960/17

J. DOUGLAS

WESTERN DISTRICT SHALLOW BORES

Three

A Summary of a Microfloral Examination of Western District Shallow Bores

A microscopic ^{Flora} examination of Western District shallow bore holes was undertaken as a supplement to work in progress on the deep bores. (See Mines Department Report 1960/20 "A Microfloral and Microplankton Correlation of Western District Deep Bores at the Stage of Sampling Reached on 24/2/60".

Material from the Dergholm No.1 and Kanawinka No.1 bores was prepared over two years ago (Mines Dept. Unpublished Report 1957/40) but no systematic examination of samples was made.

It is felt that a clearer picture of Mesozoic sedimentation will be obtained by an examination of material from all bores available.

Preparations from the Dergholm area bores were obtained from earth-socket samplings which are more liable to contamination than corings. Some contamination of the Mesozoic section by Tertiary microfloras was observed.

No attempt has been made to compile a complete list of microfloral remains, a summary of pertinent species only being attempted.

An assessment has also been made of the Birregurra bore based on the microfloral work of Dr. I. Cookson.

Dergholm No.1 Bore

Locality: P. Dergholm
Depth: 613 feet. Surface Level - 508'
Bore No.: 1

Nearly all preparations here contain Conifer pollens referable to the family Podocarpaceae, which are extremely numerous in some ^Samples.

However in the 250 ft. region sporomorphs include Neoraistrickia sp, Lycopodium sporites sp, and Cicatricosisporites sp, and it is apparent that the Mesozoic-Tertiary boundary is just above.

Further samplings above the boundary are necessary for confirmatory purposes, but lithological evidence agrees very well with this determination.

This microflora from below 250' resembles that from other Victorian pre-Upper Cretaceous predominantly non marine sediments.

A list of species from the 532 ft. level has been published by Cookson and Dettman 1958, P.120.

It is to be noted that no marine Upper Cretaceous sediments characterized by microplankton are present.

cont.....2/-

A summary of the microfloral content is tabulated below :-

Depth	Depth Difference	Slide Nos.	Microflora	Age.
249-52'	10'	138-9	Podocarpaceae pollens. Triorites sp. Cyathidites sp.	Tertiary.
252-68'	5'	140-1	Many Podocarpaceae pollens.	-do-
268-73'	5'	142-3	Lycopodium austroclavatidites. Neoraistrickia cf. trunkatus. Triorites sp.	P r e
273-8'	17'	116-17	Cicatricosisporites australiensis. Podocarpaceae. L.austroclavatidites. Cyathidites sp. Osmundites comaumensis etc.	D o m i n a n t l y
295-300'	18'	171-3	C.australiensis, Podocarpaceae etc.	N o n
318-23'	109'	112-13	Taeniopteris spatulata O & M., macroscopic remains; Podocarpaceae etc.	M a r i n e
532'		114-24	C.australiensis. Podocarpaceae, and see text.	Pre-Upper Cretaceous

Kanawinka No.1 Bore

Locality: P.Kanawinka
Depth: 331 feet. Surface Level - 435'
Bore No: 1

The sequence of sedimentation here similar to the previous bore. Marine microplankton have been isolated from the Tertiary sequence, the Mesozoic-Tertiary boundary occurring between 221' and 265'.

More precise determination is impossible without further sampling as the 236' - 46' samples were barren.

In the Mesozoic section characteristic Pre-Upper Cretaceous predominantly non marine beds carried multitudinous Conifer pollens. The table below also lists a summary of sporomorphs and Cookson & Dettman 1958, p.120 list species from 329' (In this latter paper her Dergholm No.1 & 2 bores correspond to Mines Department Dergholm No.1 Bore and Kanawinka No.1 respectively).

cont....3/-

A summary of the
Depth

Depth	Depth Difference	Slide Nos.	Microfossils
206-9'		300-1	Barren
214-24'	5'	174	Proteacidites sp. Multicellular algae.
217-21'	-	177-9	Nothofagus sp. Triorites Harrisii, Podocarpaceae Multicellular algae Hystrichosphaera ramosa.
236-46'	15'	175	Barren
265-7'	19'	164-6	Podocarpaceae, Triorites Harrisii, (Trisaccites micropterus).
286-96'	20'	176	Cicatricosisporites australiensis, but generally depauperate.
322-4'	25'	170	Cicatricosisporites australiensis.
329-31'	41'	167-9	Trisaccites micropterus, Podocarpaceae, Cyathidites sp. Lycopodium sporites austrocla- vatidites, Apiculatisporis sp. Cirratriradites spinulosus.
372-8'		302-3	Barren.

Tertiary

non-marine

Birregurra Bore

A geological column showing Mesozoic-Tertiary sedimentation in the Birregurra bore has been drawn, based on data by Drs. A.N. Carter and Isobel Cookson.

It can again be noted that no Upper Cretaceous marine sediments are intersected.

Conclusions

Close correlation between the rich floras of Dergholm 1 at 275' and 330' & Kanawinka ^{ax} seems possible, but no extensive corroborative quantitative and qualitative tests have been made.

Microfloral correlation of these bores in conjunction with deep bore microfossil correlation is an aid in delimiting the areal extent of Mesozoic sediments, particularly the Upper Cretaceous marine beds.

References Published

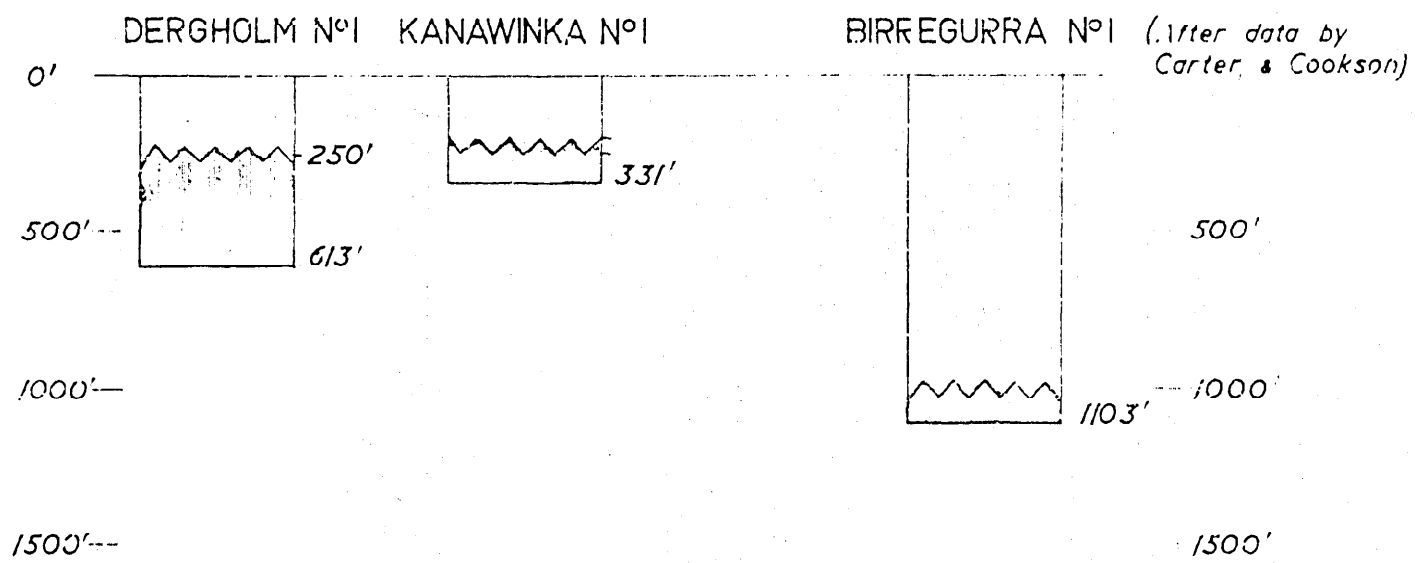
Cookson, Isobel, C., and Dettman, Mary, E. "Some Trilete Spores from Upper Mesozoic Deposits in the Australian Region"
Proc. Roy. Soc. Vic. Vol. 70, Pt. 2. 1958.

In Press

Victorian Mines Department Boring Records 1957
Unpublished Reports Vic. Mines Department Douglas, J.G., Report 1960/20
Kenley, P., Report 1958/47.

Kanawinka No. 1 Bore
 Marine microfossil
 the Mesozoic-Tertiary
 more precise data
 sampling as the 330'
 in the bore
 predominantly non-marine
 The table below
 Dettman 1958 p. 150
 Dergholm No. 1 & 2
 bore and Kanawinka No.

J.R. 1960/17



Tertiary sediments
 Pre-Upper Cretaceous predominantly non-marine sediments.

MICROFLORAL CORRELATION OF WESTERN DISTRICT SHALLOW BORES

SCALE VERT. 500 FEET TO 1 INCH

REVISIONS	Date	Remarks

REFERENCE

Author: J. DOUGLAS
 Department of Geology
 G.P. 22-3-60
 - 2587 / S / 4