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PALYNOLOGY OF CORES 17 AND 18 FROM
VICTORIAN DEPARTMENT OF MINES CODRINGTON-1
BORE, OTWAY BASIN - VICTORIA

BY

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PALYNOLOGY OF CORES 17 AND 18 FROM V.D.M. CODRINGTON -1 BORE,
OTWAY BASIN, VICTORIA

1 INTRODUCTION

Samples of cores 17 and 18 from V.D.M. Codrington -1 bore in the Otway Basin, Victoria were submitted for palynological examination by Shell Development (Australia) Pty. Ltd. The sample of core 17 is from 3785 feet and is thought to be from the Waarre Formation; core 18 from 3938 feet is believed to be from within the Otway Group (refer letter EAP. MA. 31.62; 25th July, 1969).

2 SUMMARY

The two samples were prepared by the method outlined by Dettmann (1963a) and the resultant residues were analysed both for the preservation quality (see Table 1) and the specific content of the contained microfloras. The upper sample from 3785 feet yielded reasonably well preserved and abundant plant material including spores, pollen grains, and fragments of wood and cuticle. In contrast, the lower sample (3938 feet) provided sparse plant material amongst which fairly well preserved spores and pollen grains occur rarely,

The palynological evidence documented subsequently indicates that the sediment from 3785 feet is referable to the Tricolpites pannosus Zone of Upper Albian - ?Cenomanian age (Dettmann and Playford 1969); the deposit at 3938 feet is of ^{Lower} Cretaceous age but insufficient representation of diagnostic species precludes more precise age determination to be made.

3 MICROFLORAL CONTENT OF SAMPLES

3785 feet (core 17)

The sample provided abundant plant material including reasonably well preserved spores and pollen together with wood and cuticular fragments. The spore-pollen flora identified in the residue is documented below in terms of its qualitative and quantitative content. The quantitative estimates are denoted as follows: Ab (abundant) - numerical representation of a particular species totals at least 5% of total microflora; C (common) - numerical representation of a species forms 1-5% of total microflora; and R (rare) - numerical representation of a species is less than 1% of total microflora.

Spores:	<u>Aequitriradites spinulosus</u> (Cookson & Dettmann)	R
	<u>A. verrucosus</u> (Cookson & Dettmann)	R
	<u>Baculatisporites comaumensis</u> (Cookson)	Ab
	<u>Cicatricosisporites australiensis</u> (Cookson)	C
	<u>C. cuneiformis</u> Pocock	R
	<u>Cingulitretes clavus</u> (Balme)	R
	<u>Ceratospirites equalis</u> Cookson & Dettmann	R
	<u>Coptospora paradoxa</u> (Cookson & Dettmann)	R
	<u>Crybelosporites striatus</u> (Cookson & Dettmann)	Ab
	<u>Cyathidites australis</u> Couper	Ab
	<u>C. minor</u> Couper	R
	<u>Foraminisporis asymmetricus</u> (Cookson & Dettmann)	R
	<u>F. wonthaggiensis</u> (Cookson & Dettmann)	R
	<u>Gleicheniidites circinidites</u> (Cookson)	R
	<u>Kuylisporites</u> sp.	R
	<u>Kraeuselisporites majus</u> (Cookson & Dettmann)	R
	<u>K. jubatus</u> Dettmann & Playford	Ab
	<u>Lycopodiumsporites austroclavaticites</u> (Cookson)	R
	<u>L. circolumen</u> Cookson & Dettmann	R
	<u>L. eminulus</u> Dettmann	R
	<u>Rouseisporites reticulatus</u> Pocock	C
	<u>Stereisporites antiquissimus</u> (Wilson & Webster)	Ab
Pollen:	<u>Alisporites grandis</u> (Cookson)	Ab
	<u>A. similis</u> (Balme)	Ab
	<u>Aracariacites australis</u> Cookson	C
	<u>Classopollis</u> cf. <u>classoides</u> Pflug	Ab
	<u>Cycadonites nitidus</u> (Balme)	Ab
	<u>Microcachryidites antarcticus</u> Cookson	C
	<u>Podosporites microsaccatus</u> (Couper)	Ab
	<u>Podocarpidites</u> cf. <u>ellipticus</u> Cookson	C
	<u>Tricolpites pannosus</u> Dettmann & Playford	R
Remanié:	<u>Cyclosporites hughesi</u> (Cookson & Dettmann) - Neocomian - Aptian	R
Why?	<u>Dictyotosporites speciosus</u> Cookson & Dettmann - Neocomian-L. Albian	R
	<u>Nuskoisporites</u> sp. - Permian	R

5938 feet (core 18)

A small residue in which spores and pollen grains occur rarely was extracted from the sample. Isolated examples of the following species were identified:

- Spores: Baculatisporites comaumensis (Cookson)
Cicatricosisporites australiensis (Cookson)
Cyathidites minor Couper
Rouseisporites reticulatus Pocock
- Pollen: Classopollis sp.

4 AGE OF SAMPLES

The sample from 3785 feet contains Tricolpites pannosus together with Coptospora paradoxa, Foraminisporis asymmetricus, and Kraeuselisporites subaenus and is thus referable to the Tricolpites pannosus Zone of Upper Albian - ? Cenomanian.

age (Dettmann and Playford 1969). There is no evidence that any of these forms have been reworked, and significantly species diagnostic of the succeeding Appendicisporites distocarinatus Zone are lacking. Reworked Lower Cretaceous (Neocomian - Lower Albian) types do occur rarely in the residue and are represented by Cyclosporites hughesi and Dictyosporites speciosus. Occasional examples of the Permian Nuskoisporites were also recognized.

The sample from 3938 feet provided insufficient microfloral evidence for precise age determination. The occurrence of Cicatricosisporites australiensis and Rouscisporites reticulatus suggests that the sediment is no older than the Neocomian.

5 CONCLUSIONS

The horizon at 3785 feet in Codrington -1 bore is within the Tricolpites pannosus Zone and is a correlative of strata occurring at 2928-40 feet in Pretty Hill No.1 well and at 3311-21 feet in Eumeralla No.1 well (Dettmann 1969b); it is younger than horizons between 602 feet and 1497 feet 6 ins in Brankholme -1 bore (Dettmann 1969c). The deposit at 3938 feet in Codrington -1 cannot be dated more accurately than Lower Cretaceous on available palynological evidence.

6 REFERENCES

- Dettmann, M.E. 1969a. Palynological report on B.O.C. Dampier -1 well, 9527 - 13,575 feet. Unpubl. report submitted to Shell Development (Australia) Pty. Ltd. 11/7/69.
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- Dettmann, M.E. and Playford, G. 1969. Palynology of the Australian Cretaceous - a review; in Stratigraphy and Palaeontology, Essays in Honour of Dorothy Hill (K.S.W. Campbell Ed.); Chapter 9, 174-210. Aust. Nat. Univ. Press, Canberra.

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EXPLANATION OF TABLE 1

Preservation of plant microfossils and zonal attribution of sediments examined in V.D.M. Codrington -1 bore, Otway Basin, Victoria.

Abbreviations:

Yield expresses the frequency of spores, and pollen present in the residues as follows:

Ab = abundant

Sp = sparse

Colour and preservation. Spores, pollen, wood, and cuticle present in the residues are denoted by their colour (col.) and quality of preservation (pres.) thus:-

DY = dark yellow

Br = brown

Bl = black

good = well preserved

fair = fairly preserved

Spore-pollen zone recognized is defined by Dettmann and Playford (1969).

TABLE 1

Depth	Yield	Spore-Pollen		Wood		Cuticle		Spore-Pollen Zone
		Col.	Pres.	Col.	Pres.	Col.	Pres.	
E.17, 3785'	Ab	DY-Br	good-fair	Br-Bl	fair	DY-Br	fair	<i>Tricolpites pannosus</i>
E.18, 3938'	Sp	"	"	"	"	—	—	Indet.