DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

REPT.BK.NO. 85/44

AGE OF PALYNOFLORAS FROM THE ALGEBUCKINA SANDSTONE FROM AFMECO CUR5 ABMINGA WELL, WESTERN EROMANGA BASIN

GEOLOGICAL SURVEY

by

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BIOSTRATIGRAPHY

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DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

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AGE OF PALYNOFLORAS FROM THE ALGEBUCKINA SANDSTONE FROM AFMECO CUR 5 ABMINGA WELL, WESTERN EROMANGA BASIN

ABSTRACT

Palynomorph assemblages recovered from the Algebuckina Sandstone in AFMECO CUR 5 ABMINGA Well are generally very sparse and poorly preserved. One sample was sufficient to provide a palynostratigraphic determination and is assigned to the *Contignisporites cooksoniae* Zone of the Middle/Late Jurassic age.

SAMPLE DATA

Request submitted: Regional Geology

Location: ABMINGA 1:250 000 sheet

Borehole: AFMECO CUR 5 ABMINGA

Coordinates: Lat. 26°37'40"S, Long. 134°07'00"E

Samples: core

S 5335	135.8 m
S 5336	159.6 m
S 5337	177.0 m
S 5338	192.6 m
S 5339	207.9 m
S 5340	230.1 m
S 5341	244.1 m
S 5342	257.5 m

Stratigraphic unit: Algebuckina Sandstone

RESULTS

Generally, palynomorph recovery was very poor with only a meagre assemblage from 135.8 m (the top of the sandstone) and a fair assemblage from 257.5 m (the bottom of the sandstone) worth examining (Appendix 1). Preservation of palynomorphs is very poor, except in the sample from 257.5 m where preservation was

variable, ranging from good to very poor. The other samples contained rare pollen (in particular, coniferous taxa) and spores (largely *Cyathidites* spp.) but none are diagnostic of spore/pollen zonation or age.

The assemblage in sample S 5342 is dominated by spores of *Cyathidites minor* (26%), *Retitriletes austroclavatidites* (10%), *Gleicheniidites circinidites* (9%), *Dictyophyllidites harrisii* (7%) and approximately 2-4% of *Baculatisporites comaumensis*, *Cyathidites australis*, *Neoraistrickia truncatus* and *Retitriletes rosewoodensis* (Appendix 1). Common pollen include the coniferous taxa *Podocarpidites ellipticus* (9%), *Alisporites grandis* (7%) and *Alisporites similis* (6%). Although no count was made of the palynomorphs in sample S 5335 several common species include *Araucariacites australia* and *Cyathidites minor*.

A spore/pollen zonation could only be determined for sample S 5342; the other samples contained undiagnostic species. The assemblage in sample S 5342 is assigned to the *Contignisporites cooksoniae* Oppel-zone of Filatoff (1975; Figure 1). This conclusion is based on the presence of *Contignisporites cooksoniae* in the absence of species diagnostic of younger spore/pollen zones including *Microcachryidites antarcticus* Cookson 1947, *Murospora florida* (Balme) Pocock 1961, *Retitriletes watherooensis* Backhouse 1978 and *Cicatricosisporites australiensis* (Cookson) Potonie 1956. An older zonation is not indicated because *Contignisporites cooksoniae* occurs in association with the preceding zonal species *Klukisporites scaberis* (Filatoff, 1975).

The presence of other key species in the assemblage support the above assignment to the *Contignisporites cooksoniae* Zone: *Converrucosisporites variverrucatus* (in sample S 5335), *Dictyotosporites complex*, *Camarozonosporites clivosus*, *Lycopodiumsporites circolumenus*, *Lycopodiacidites asperatus*, *Neoraistrickia densata*, *Obtusisporites yarragadensis* and *Staplinisporites perforatus*. The relatively high frequency of *Retitriletes austroclavatidites* is also characteristic of the zone (Filatoff, 1975). The *Dictyotosporites complex* present is the Jurassic form (Filatoff, 1975) with the very fine reticulate sculpture. It is probable, however, that only the upper part of the zone occurs as borne out by the presence of

Converrucosisporites variverrucatus, *Lycopodiacidites asperatus* and *Neoraistrickia densata* which make their first appearance higher in the zone (Filatoff, 1975).

Price *et al.* (1985) regard the first appearance of and the early distribution of *Contignisporites cooksoniae* as unreliable and thus abandoned its use as a zonal species. The assemblage from sample S 5342 falls within their new interval zone PJ4.2 (Fig. 1).

The above zonal designations would place the sample from 275.5 m (S 5342) in the latest Middle Jurassic or earliest Early Jurassic (Callovian/Oxfordian). The zonal affinities and ages of the assemblages from the other samples is unknown.

ACKNOWLEDGEMENTS

J.M. Lindsay read the first draft and A.J. Williams and J. Filatoff provided advice on the palynostratigraphic interpretations.

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Biostratigraphy

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Price, P.L., Filatoff, J., Williams, A.J., Pickering, S.A. and Wood, G.R., 1985. Late Palaeozoic and Mesozoic palynostratigraphical units. C.S.R., Oil and Gas Division, Report No. 274/25 (unpublished).

APPENDIX 1 LIST OF PALYNOMORPHS

Percentage frequencies of commonly occurring taxa are given for the sample from 257.5 m

	SAMPLE DEPTH (METRES)	
	135.8	257.5
Alisporites grandis (Cookson) Dettmann 1963	X	7
Alisporites lowoodensis de Jersey 1963	X	
Alisporites similis (Balme) Dettmann 1963	X	6
Anapiculatisporites dawsonensis Reiser & Williams 1969		1
Antulsporites saevus (Balme) Archangelsky & Gamerro 1966		X
Araucariacites australis Cookson 1947	X	1
Baculatisporites comaumensis (Cookson) Potonie 1956		2
Biretisporites spectabilis Dettmann 1963	X	X
Callialasporites dampieri (Balme) Sukh Dev 1961		1
Callialasporites segmentatus (Balme) Srivastava 1963	X	
Camarozonosporites clivosus (Williams & McKellar) McKellar 1974		X
Camarozonosporites ramosus (de Jersey) McKellar 1974		X
Cibotiumsporites jurienensis (Balme) Filatoff 1975		X
Classopolis chateaunovi Reyre 1953		X
Classopolis simplex (Danze-Corsin & Laveine) Reiser & Williams 1969		X
Contignisporites cooksoniae (Balme) Dettmann 1963	X	X
Converrucosisporites variverrucatus (Couper) Norris 1969	X	
Cyathidites australis Couper 1953	X	3
Cyathidites minor Couper 1953	X	26
Cycadopites nitidus (Balme) de Jersey 1964		X
Dictyophyllidites harrisii Couper 1958		7
Dictyotosporites complex Cookson & Dettmann 1958		X
Foveosporites canalis Balme 1957		X
Gleicheniidites circinidites (Cookson) Dettmann 1963	X	9
Gleicheniidites senonicus Ross emend. Skarby 1964		X
Ischyosporites crateris Balme 1957		X
Klukisporites scaberis (Cookson & Dettmann) Dettmann 1963		X
Laevigatosporites cf. *belfordii* Burger 1976	X	
Leptolepidites major Couper 1958		X
Leptolepidites verrucatus Couper 1953		X
Lycopodiacidites asperatus Dettmann 1963	X	X

Lycopodiumsporites circolumenus Cookson & Dettmann 1958		X
Neoraistrickia cf. *densata* Filatoff 1975		X
Neoraistrickia truncatus (Cookson) Potonie 1956		X
Obtusisporites canadensis Pocock 1970		X
Obtusisporites yarragadensis Filatoff 1975		X
Osmundacidites wellmanii Couper 1953	X	X
Podocarpidites ellipticus Cookson 1947	X	9
Polycingulatisporites striatus Filatoff 1975		X
Retitriletes austroclavatidites (Cookson) Doring, Krutzsch, Mai and Schultz 1963	X	10
Retitriletes (al. *Lycopodiumsporites) eminulus* (Dettmann 1963)		X
Retitriletes nodosus (Dettmann) Srivastava 1977		X
Retitriletes rosewoodensis (de Jersey) McKellar 1974	X	3
Retitriletes semimuris (Danze-Corsin & Laveine) McKellar 1974		X
Rogalskaisporites canaliculus Filatoff 1975		X
Rogalskaisporites cicatricosus (Rogalska) Danze-Corsin & Laveine 1963		1
Staplinisporites caminus (Balme) Pocock 1962		X
Staplinisporites mathurii (Srivastava) Filatoff 1975		X
Staplinisporites perforatus (Dettmann) Filatoff 1975		X
Stereisporites antiquasporites (Wilson & Webster) Dettmann 1963		1
Trisaccites microsaccatus (Couper) Couper 1960	X	X

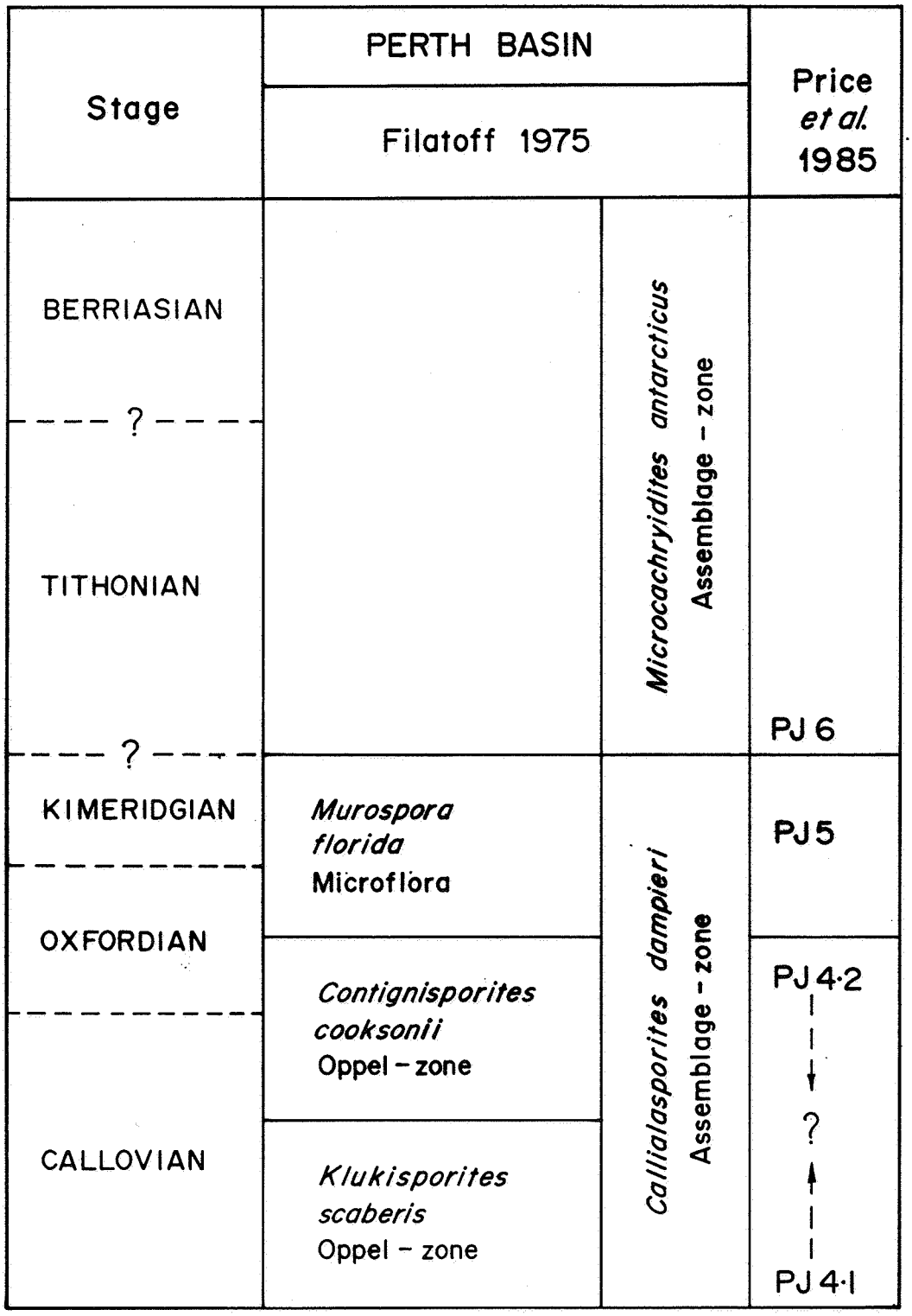

FIG. 1

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA	COMPILED N. Alley	C.D.O. 5·9·85 DATE
WESTERN EROMANGA BASIN AFMECO CUR 5 ABMINGA WELL PALYNOLOGY OF MIDDLE / LATE JURASSIC SPORE POLLEN ZONAL SYSTEMS	DRAWN E. Calabio	SCALE
	DATE July, 85	PLAN NUMBER S18290
	CHECKED	

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