

WELL, 1602 FEET - 5925 FEET

Nineteen samples of sidewall cores obtained from Purrumbete No.1 well in the Otway Basin were submitted for palynological analyses by Shell Development (Australia) Pty. Ltd. The samples were taken from between 1602 feet and 5925 feet, and all are from the Otway Group which was encountered beneath Tertiary sediments at 1560 feet. The well was completed within the Otway Group at 6005 feet.

The samples examined include siltstones, sandstones, and shales and all were cleaned as thoroughly as possible before palynological processing by the method outlined by Dettmann (1968a). Plant material was extracted from all samples and includes spores, pollen, and occasional chlorophycean elements together with wood and cuticle; microplankton were not observed in any of the residues. In general, the residues obtained from siltstone and shale samples contain richer and more diverse microfloras than those obtained from the sandstones.

Preservation quality of the individual plant microfossils ranges from good to fair in the uppermost horizons (1602 - 2600 feet) and from fair to poor throughout the remainder of the section (see Table 1).

Specific analyses of the microfloras indicates that the Otway Group sediments penetrated in Purrumbete No.1 well range in age from Neocomian-Aptian to Middle-Upper Albian. This age determination is based upon the presence of basal horizons of the Coutospora paradoxa Zone at 1602 feet, the Crybelosporites striatus Subzone between 2100 feet and 3300 feet, and the Cyclosporites hughesi Subzone which was identified between 4220 feet and 5925 feet and probably extends up to 3510 feet.

The microfloral assemblages obtained from the samples are documented below with reference to their qualitative and quantitative content; the quantitative estimates are expressed in the following terms:-  
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.

MICROFLORAL ASSEMBLAGES AND AGE DETERMINATIONS

A. 1602 feet

A reasonably well preserved assemblage of abundant spores and pollen grains was extracted from the sample. Species identified include:

Spores:	<u>Arcellites reticulatus</u> (Cookson & Dettmann)	R
	<u>Aequitriradites scirulosus</u> (Cookson & Dettmann)	R
	<u>Baculatisporites comamensis</u> (Cookson)	C
	<u>Ceratosporites equalis</u> Cookson & Dettmann	R
	<u>Cicatricosisporites australiensis</u> (Cookson)	C
	<u>C. hugnesi</u> Dettmann	R
	<u>Cingutrilletes clavus</u> (Balme)	R
	<u>Coptospora paradoxa</u> (Cookson & Dettmann)	C
	<u>C. striata</u> Dettmann	R
	<u>C. sp.A</u> Dettmann	R
	<u>Cyathiidites australis</u> Couper	C
	<u>C. minor</u> Couper	Ab
	<u>C. punctatus</u> (Delcourt & Sprumont)	R
	<u>Crybelosporites striatus</u> (Cookson & Dettmann)	R
	<u>Dictyosporites speciosus</u> Cookson & Dettmann	R
	<u>Foraminisporis asymmetricus</u> (Cookson & Dettmann)	R
	<u>F. wenthastriensis</u> (Cookson & Dettmann)	R
	<u>Laevigatosporites ovatus</u> Wilson & Webster	R
	<u>Leptolepidites verrucatus</u> Couper	R
	<u>Lycododiusporites austroclavatis</u> (Cookson)	C
	<u>L. eminulus</u> Dettmann	R
	<u>L. nodosus</u> Dettmann	R
	<u>Matonisporites cooksoni</u> Dettmann	R
	<u>Rouseisporites reticulatus</u> Pocock	R
	<u>Stereisporites antiquasporites</u> (Wilson & Webster)	C
	<u>Trilobosporites unireticulosus</u> Cookson & Dettmann	R
Pollen:	<u>Araucariacites australis</u> Cookson	R
	<u>Alistorites arandis</u> (Cookson)	C
	<u>A. similis</u> (Balme)	R
	<u>Classopollis</u> cf. <u>classoides</u> Pflug	R

<u>Microcachryidites antarcticus</u> Cookson	Ab
<u>Podocarpidites</u> cf. <u>elliotticus</u> Cookson	C
<u>Podosporites microsaccatus</u> (Couper)	R

The presence of Coptospora paradoxa and Dictyotosporites speciosus indicates that the sample was taken from a basal horizon of the Middle - Upper Albian Coptospora paradoxa Zone. Thus, the sediment is considered to be equivalent to horizons at 3334 feet in Garvoc No.1 well.

B. 2100 feet - 3300 feet

2100 feet

A sparse assemblage of fairly preserved spores and pollen grains occur in the sample. Species identified include:

- Spores: Baculatisporites comaumensis (Cookson)  
Ceratosporites equalis Cookson & Dettmann  
Cyathidites australis Couper  
C. minor Couper  
Dictyotosporites speciosus Cookson & Dettmann  
Foraminisporis asymmetricus (Cookson & Dettmann)  
Gleicheniidites cf. circinidites (Cookson)
- Pollen: Alisporites grandis (Cookson)  
A. similis (Balme)  
Cycadopites nitidus (Balme)  
Microcachryidites antarcticus Cookson  
Podocarpidites cf. ellipticus Cookson
- Remanié: Lundoladispora sp. - Triassic

2300 feet

The following types of extremely rare spores and pollen grains were recovered from the sediment:

- Spores: Baculatisporites comaumensis (Cookson)
- Pollen: Araucariacites australis Cookson  
Cycadopites nitidus (Balme)  
Classopollis cf. classoides Pflug  
Microcachryidites antarcticus Cookson  
Podocarpidites cf. ellipticus Cookson

2600 feet

The sample provided a rich and diverse assemblage of well preserved spores and pollen grains together with minor amounts of wood and cuticular fragments. The following species were identified:

Spores:	<u>Aequitriradites spinulosus</u> (Cookson & Dettmann)	R
	<u>Baculatisporites comamensis</u> (Cookson)	C
	<u>Cicatricosisporites australiensis</u> (Cookson)	C
	<u>Crybelosporites striatus</u> (Cookson & Dettmann)	R
	<u>Crybelosporites</u> sp.	R
	<u>Cyathidites australis</u> Couper	Ab
	<u>C. minor</u> Couper	Ab
	<u>C. punctatus</u> (Dalcourt & Sprumont)	C
	<u>Dictyotosporites speciosus</u> Cookson & Dettmann	R
	<u>D. filiosus</u> Dettmann	R
	<u>Foraminisporis asymmetricus</u> (Cookson & Dettmann)	C
	<u>F. dailyi</u> (Cookson & Dettmann)	R
	<u>F. vonthamensis</u> (Cookson & Dettmann)	R
	<u>Klukisporites scaberis</u> (Cookson & Dettmann)	R
	<u>Laevigatosporites ovatus</u> Wilson & Webster	R
	<u>Leptolepidites verrucatus</u> Couper	R
	<u>Lycopodiumsporites austroclavatidites</u> (Cookson)	R
	<u>L. eminulus</u> Dettmann	R
	<u>L. facetus</u> Dettmann	R
	<u>L. nodosus</u> Dettmann	R
	<u>Neoraistrickia truncata</u> (Cookson)	R
	<u>Pilososporites parvispinosus</u> Dettmann	R
	<u>Rouseisporites reticulatus</u> Pocock	R
	<u>Reticulatisporites nudens</u> Balme	R
	<u>Stereosporites antiquasporites</u> (Wilson & Webster)	C
	<u>Trilites</u> cf. <u>tuberculiformis</u> Cookson	R
Pollen:	<u>Araucariacites australis</u> Cookson	C
	<u>Alisporites grandis</u> (Cookson)	Ab
	<u>A. similis</u> (Balme)	R
	<u>Microcachryidites antarcticus</u> Cookson	Ab
	<u>Podosporites microsaccatus</u> (Couper)	R
	<u>Podocarpidites</u> cf. <u>elliotticus</u> Cookson	Ab

2300 feet

Fairly preserved spores and pollen are of rare occurrence in the residue which also contains minor quantities of wood and cuticular material. Spore-pollen species identified include:

Spores:	<u>Baculatisporites comamensis</u> (Cookson)
	<u>Cicatricosisporites australiensis</u> (Cookson)
	<u>Crybelosporites striatus</u> (Cookson & Dettmann)
	<u>Cyathidites australis</u> Couper
	<u>Dictyotosporites speciosus</u> Cookson & Dettmann
	<u>Neoraistrickia truncata</u> (Cookson)
	<u>Rouseisporites reticulatus</u> Pocock
	<u>Stereosporites antiquasporites</u> (Wilson & Webster)
Pollen:	<u>Alisporites grandis</u> (Cookson)
	<u>Araucariacites australis</u> Cookson
	<u>Classopollis</u> cf. <u>classoides</u> Pflug
	<u>Microcachryidites antarcticus</u> Cookson

2908 feet

The small residue extracted from the sample contains occasional specimens of the following spore-pollen species:

- Spores: Baculatisporites comamensis (Cookson)  
Aequitriradites spinulosus (Cookson & Dettmann)  
Cicatricosisporites australiensis (Cookson)  
Cyathidites minor Couper  
Dictyosporites speciosus Cookson & Dettmann  
Foraminisporis wonthassiensis (Cookson & Dettmann)  
Klukisporites scaberis (Cookson & Dettmann)
- Pollen: Araucariacites australis Cookson  
Alisporites grandis (Cookson)  
Classopollis cf. classoides Pflug  
Podocarpidites cf. ellipticus Cookson

2995 feet

The sample yielded a small residue composed chiefly of wood fragments.

3300 feet

Reasonably well preserved spores and pollen grains are of common occurrence and are referable to the following species:

- Spores: Aequitriradites spinulosus (Cookson & Dettmann) R  
Baculatisporites comamensis (Cookson) C  
Cicatricosisporites australiensis (Cookson) C  
Crybelosporites striatus (Cookson & Dettmann) R  
Cyathidites australis Couper Ab  
C. minor Couper Ab  
C. punctatus (Delcourt & Sprumont) R  
Dictyosporites speciosus Cookson & Dettmann R  
Foraminisporis asymmetricus (Cookson & Dettmann) R  
F. wonthassiensis (Cookson & Dettmann) R  
F. dailyi (Cookson & Dettmann) R  
Ischyosporites punctatus Cookson & Dettmann R  
Klukisporites scaberis (Cookson & Dettmann) R  
Leptolepidites verrucatus Couper R  
L. major Couper R  
Lycopodiumsporites austroclavatidites (Cookson) C  
L. nodosus Dettmann R  
L. reticulumsporites (Rouse) R  
Pilososporites notensis Cookson & Dettmann R  
Rouseisporites reticulatus Pocock R
- Pollen: Araucariacites australis Cookson R  
Alisporites grandis (Cookson) C  
Classopollis cf. classoides Pflug R

<u>Microcachryidites antarcticus</u> Cookson	Ab
<u>Podocaroidites</u> cf. <u>ellipticus</u> Cookson	Ab

Sediments between 2100 feet and 3300 feet in Purrumbete No.1 well yielded microfloras in which Dictyotosporites speciosus and Crybelosporites striatus are components. Accordingly, they are referred to the Lower Albian Crybelosporites striatus Subzone of the Dictyotosporites speciosus Zone. The C. striatus Subzone was not recognized in Woolsthorpe No.1 or Garvoc No.1 wells (Dettmann 1968a,b).

C. 3510 feet - 5925 feet

3510 feet

Fair to poorly preserved spores and pollen grains occur commonly in the residue and include the following species:

Spores:	<u>Baculatisporites comaunensis</u> (Cookson)	Ab
	<u>Ceratosporites equalis</u> Cookson & Dettmann	R
	<u>Cicatricosisporites hughesi</u> Dettmann	R
	<u>C. australiensis</u> (Cookson)	C
	<u>Cyathidites australis</u> Couper	C
	<u>C. minor</u> Couper	C
	<u>Dictyotosporites speciosus</u> Cookson & Dettmann	R
	<u>Foraminisporis asymmetricus</u> (Cookson & Dettmann)	R
	<u>F. dailyi</u> (Cookson & Dettmann)	R
	<u>F. vonthargiensis</u> (Cookson & Dettmann)	R
	<u>Klukisporites scaberis</u> (Cookson & Dettmann)	R
	<u>Lyconidiumsporites austroclavatidites</u> (Cookson)	C
	<u>L. reticulansporites</u> (Rouse)	R
	<u>Pilosisorites notensis</u> Cookson & Dettmann	R
	<u>Rouseisorites reticulatus</u> Pocock	R
	<u>Stereisorites antiquasporites</u> (Wilson & Webster)	C
Pollen:	<u>Araucariacites australis</u> Cookson	C
	<u>Classocollis</u> cf. <u>classoides</u> Pflug	R
	<u>Microcachryidites antarcticus</u> Cookson	Ab
	<u>Podocaroidites</u> cf. <u>ellipticus</u> Cookson	C
	<u>Tsugaepollenites dampieri</u> (Balme)	R
Remanié:	<u>Lundoladispore</u> sp. - Triassic	

3710 feet

The fairly preserved microfloral assemblage extracted from the sample includes common spores and pollen grains referable to the following species:

Spores:	<u>Baculatisporites comaumensis</u> (Cookson)	C
	<u>Cicatricosisporites australiensis</u> (Cookson)	C
	<u>Cyathidites asper</u> (Bolkhovitina)	R
	<u>C. australis</u> Couper	Ab
	<u>C. minor</u> Couper	Ab
	<u>Foraminisporis asymmetricus</u> (Cookson & Dettmann)	R
	<u>F. dailyi</u> (Cookson & Dettmann)	R
	<u>Klukisporites scaberis</u> (Cookson & Dettmann)	R
	<u>Lycopodiumsporites austroclavatidites</u> (Cookson)	C
	<u>Matonisporites cooksoni</u> Dettmann	R
	<u>Neoraistrickia truncata</u> (Cookson)	R
	<u>Stereisporites antiquasporites</u> (Wilson & Webster)	Ab
Pollen:	<u>Araucariacites australis</u> Cookson	R
	<u>Alisporites grandis</u> (Cookson)	R
	<u>A. similis</u> (Balme)	R
	<u>Classopollis</u> cf. <u>classoides</u> Pflug	R
	<u>Cycadopites nitidus</u> (Balme)	R
	<u>Microcachryidites antarcticus</u> Cookson	Ab
	<u>Podosporites microsaccatus</u> (Couper)	R
	<u>Podocarpidites</u> cf. <u>ellipticus</u> Cookson	C

3830 feet

Fair to poorly preserved spores and pollen grains are of common occurrence in the residue and include the following species:

Spores:	<u>Baculatisporites comaumensis</u> (Cookson)	C
	<u>Cicatricosisporites australiensis</u> (Cookson)	R
	<u>Contignisporites</u> sp.	R
	<u>Cyathidites australis</u> Couper	C
	<u>C. minor</u> Couper	Ab
	<u>Dictyotosporites speciosus</u> Cookson & Dettmann	R
	<u>Foraminisporis asymmetricus</u> (Cookson & Dettmann)	R
	<u>Gleicheniidites</u> cf. <u>circinidites</u> (Cookson)	R
	<u>Ischyosporites punctatus</u> Cookson & Dettmann	R
	<u>Leptoleniidites verrucatus</u> Couper	R
	<u>Lycopodiumsporites austroclavatidites</u> (Cookson)	C
	<u>L. nodosus</u> Dettmann	R
	<u>Neoraistrickia truncata</u> (Cookson)	R
	<u>Rouseisporites reticulatus</u> Pocock	R
	<u>Stereisporites antiquasporites</u> (Wilson & Webster)	C
Pollen:	<u>Alisporites grandis</u> (Cookson)	C
	<u>Araucariacites australis</u> Cookson	C
	<u>Classopollis</u> cf. <u>classoides</u> Pflug	R
	<u>Microcachryidites antarcticus</u> Cookson	Ab
	<u>Podocarpidites</u> cf. <u>ellipticus</u> Cookson	Ab
	<u>Tsugaepollenites campieri</u> (Balme)	R

4008 feet

A small residue containing rarely occurring spores and pollen

together with wood and cuticular material was extracted from the sample.

The following species were identified:

- Spores: Baculatisporites comauensis (Cookson)  
Ceratospirites equalis Cookson & Dettmann  
Cicatricosisporites australiensis (Cookson)  
C. ludbrookii Dettmann  
Cyathidites australis Couper  
C. minor Couper  
Dictyotosporites speciosus Cookson & Dettmann  
Foraminisporis dailyi (Cookson & Dettmann)  
F. wonthaggiensis (Cookson & Dettmann)  
Foveosporites canalis Balme  
Ischyosporites punctatus Cookson & Dettmann  
Klukisporites scaberis (Cookson & Dettmann)  
Lycopodiumsporites austroclavatidites (Cookson)  
L. circolumenus Cookson & Dettmann
- Pollen: Araucariacites australis Cookson  
Classobollis cf. classoides Pflug  
Cycadopites nitidus (Balme)  
Microcachryidites antarcticus Cookson  
Podocarpidites cf. ellipticus Cookson

4220 feet

Abundant spores and pollen grains obtained from the sample form the following diverse assemblage. In addition occasional specimens referred to Schizosporis reticulatus of possible aquatic (chlorophycean) origin were recovered.

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| Spores: <u>Aequitriradites verrucosus</u> (Cookson & Dettmann) | R  |
| <u>Baculatisporites comauensis</u> (Cookson)                   | C  |
| <u>Cicatricosisporites australiensis</u> (Cookson)             | C  |
| <u>Ceratospirites equalis</u> Cookson & Dettmann               | C  |
| <u>Cyclosporites hughesi</u> (Cookson & Dettmann)              | R  |
| <u>Cyathidites australis</u> Couper                            | Ab |
| <u>C. minor</u> Couper   | Ab |
| <u>Dictyotosporites speciosus</u> Cookson & Dettmann           | R  |
| <u>D. filiosus</u> Dettmann                                    | R  |
| <u>Dictyophyllidites crenatus</u> Dettmann                     | R  |
| <u>Foraminisporis asymmetricus</u> (Cookson & Dettmann)        | R  |
| <u>F. dailyi</u> (Cookson & Dettmann)                          | C  |
| <u>F. wonthaggiensis</u> (Cookson & Dettmann)                  | R  |
| <u>Januasporites spinulosus</u> Dettmann                       | R  |
| <u>Klukisporites scaberis</u> (Cookson & Dettmann)             | R  |
| <u>Leptolexidites verrucatus</u> Couper                        | R  |
| <u>L. major</u> Couper   | R  |



	<u>Lycopodiumsporites austroclavatioides</u> (Cookson)	C
	<u>L. circolumen</u> Cookson & Dettmann	R
	<u>L. eminulus</u> Dettmann	C
	<u>L. facetus</u> Dettmann	R
	<u>L. nodosus</u> Dettmann	C
	<u>Lycopodiacidites asperatus</u> Dettmann	R
	<u>Kuyliisporites lunaris</u> Cookson & Dettmann	R
	<u>Matonisporites cooksoni</u> Dettmann	R
	<u>Neoraistrickia truncata</u> (Cookson)	R
	<u>Pilosissporites notensis</u> Cookson & Dettmann	R
	<u>Reticulatisporites eudens</u> Balme	R
	<u>Stereisporites antiquasporites</u> (Wilson & Webster)	R
Pollen:	<u>Alisporites granis</u> (Cookson)	C
	<u>Araucariacites australis</u> Cookson	C
	<u>Classonollis</u> cf. <u>classoides</u> Pflug	C
	<u>Microcachryidites antarcticus</u> Cookson	Ab
	<u>Podocarpidites</u> cf. <u>ellipticus</u> Cookson	Ab
Uncertae	<u>Schizosporis spraggi</u> Cookson & Dettmann	R
Sedis:	<u>S. reticulatus</u> Cookson & Dettmann	R

4490 feet

Spores and pollen grains are of common occurrence in the residue which also contains wood and cuticle fragments. The following types were observed:

Spores:	<u>Baculatisporites comaumensis</u> (Cookson)	C
	<u>Ceratosporites equalis</u> Cookson & Dettmann	C
	<u>Cicatricosisporites australiensis</u> (Cookson)	R
	<u>C. ludbrookii</u> Dettmann	R
	<u>Cooksonites variabilis</u> Pocock	R
	<u>Cyathidites australis</u> Couper	Ab
	<u>C. minor</u> Couper	Ab
	<u>Dictyophyllidites crenatus</u> Dettmann	C
	<u>Dictyotosporites complex</u> Cookson & Dettmann	R
	<u>D. speciosus</u> Cookson & Dettmann	R
	<u>Foraminisporis dailvi</u> (Cookson & Dettmann)	R
	<u>F. wonthaggiensis</u> (Cookson & Dettmann)	R
	<u>Klukisporites scaberis</u> (Cookson & Dettmann)	R
	<u>Leptolepidites verrucatus</u> Couper	R
	<u>Lycopodiumsporites austroclavatioides</u> (Cookson)	C
	<u>L. eminulus</u> Dettmann	R
	<u>L. facetus</u> Dettmann	R
	<u>L. nodosus</u> Dettmann	R
	<u>Neoraistrickia truncata</u> (Cookson)	R
	<u>Pilosissporites notensis</u> Cookson & Dettmann	R
	<u>Rouseisporites reticulatus</u> Pocock	R
Pollen:	<u>Alisporites granis</u> (Cookson)	C
	<u>Microcachryidites antarcticus</u> Cookson	Ab
	<u>Podocarpidites</u> cf. <u>ellipticus</u> Cookson	C
	<u>Podosporites microsaccatus</u> (Couper)	R

4722 feet

Spores and pollen grains are of rare occurrence in the sample.

Occasional specimens of the following species were observed:

- Spores: Aequitriradites spinulosus (Cookson & Dettmann)  
Baculatisporites comaumensis (Cookson)  
Ceratosporites equalis Cookson & Dettmann  
Cyathidites australis Couper  
Dictyotosporites speciosus Cookson & Dettmann  
Leptolepidites verrucatus Couper  
Lycopodiumsporites austroclavatioides (Cookson)  
L. circolumenus Cookson & Dettmann  
Stereisporites antiquasporites (Wilson & Webster)
- Pollen: Alisporites grandis (Cookson)  
Classopollis cf. classoides Pflug  
Microcachryidites antarcticus Cookson  
Podocarpidites cf. ellipticus Cookson

5070 feet

A small residue containing the following species of spores and pollen grains was obtained from the sample:

- Spores: Baculatisporites comaumensis (Cookson) C  
Ceratosporites equalis Cookson & Dettmann R  
Cicatricosisporites australiensis (Cookson) R  
Cyclosporites nughesi (Cookson & Dettmann) R  
Cyathidites australis Couper Ab  
C. minor Couper Ab  
Dictyophyllidites crenatus Dettmann R  
Dictyotosporites speciosus Cookson & Dettmann R  
Klukisporites scaberis (Cookson & Dettmann) C  
Leptolepidites verrucatus Couper R  
Lycopodiumsporites minutus Dettmann R  
L. nodosus Dettmann R  
Neoraistrickia truncata (Cookson) R  
Pilosisorites notensis Cookson & Dettmann R  
Rouseisorites reticulatus Pocock R  
Stereisporites antiquasporites (Wilson & Webster) R
- Pollen: Classopollis cf. classoides Pflug C  
Microcachryidites antarcticus Cookson C  
Podocarpidites cf. ellipticus Cookson C

5300 feet

Plant microfossils extracted from the sample include common spores and pollen grains together with wood and cuticular fragments. The following species were observed:

Spores:	<u>Baculatisporites comaumensis</u> (Cookson)	C
	<u>Cicatricosisporites australiensis</u> (Cookson)	C
	<u>Cyclosporites hughesi</u> (Cookson & Dettmann)	R
	<u>Cyathidites australis</u> Couper	Ab
	<u>C. minor</u> Couper	Ab
	<u>Dictyophyllidites crenatus</u> Dettmann	R
	<u>Dictyotosporites speciosus</u> Cookson & Dettmann	C
	<u>Foraminisporis dailvi</u> (Cookson & Dettmann)	R
	<u>F. wonthagensis</u> (Cookson & Dettmann)!	R
	<u>Gleicheniidites circinidites</u> (Cookson)	R
	<u>Klukisporites scaberis</u> (Cookson & Dettmann)	C
	<u>Leptolepidites verrucatus</u> Couper	C
	<u>Lycopodiumsporites austroclavatiidites</u> (Cookson)	C
	<u>L. eminulus</u> Dettmann	R
	<u>L. facetus</u> Dettmann	R
	<u>L. nodosus</u> Dettmann	R
	<u>Neoraistrickia truncata</u> (Cookson)	R
	<u>Stereisporites antiquasporites</u> (Wilson & Webster)	C
Pollen:	<u>Alisporites grandis</u> (Cookson)	C
	<u>Araucariacites australis</u> Cookson	C
	<u>Classopollis</u> cf. <u>classoides</u> Pflug	C
	<u>Microcaccarvidites antarcticus</u> Cookson	Ab
	<u>Podocarpidites</u> cf. <u>ellipticus</u> Cookson	C

5695 feet

Spores and pollen grains are of common occurrence in the sample and are referable to the following species:

Spores:	<u>Baculatisporites comaumensis</u> (Cookson)	C
	<u>Aequitriradites spinulosus</u> (Cookson & Dettmann)	R
	<u>A. verrucosus</u> (Cookson & Dettmann)	R
	<u>Cicatricosisporites australiensis</u> (Cookson)	C
	<u>Couperisporites tabulatus</u> Dettmann	R
	<u>Cooksonites variabilis</u> Pocock!	R
	<u>Cyclosporites hughesi</u> (Cookson & Dettmann)	R
	<u>Cyathidites australis</u> Couper	Ab
	<u>C. minor</u> Couper	Ab
	<u>Ceratospores equalis</u> Cookson & Dettmann	R
	<u>Dictyophyllidites crenatus</u> Dettmann	C
	<u>Foraminisporis wonthagensis</u> (Cookson & Dettmann)!	R
	<u>Klukisporites scaberis</u> (Cookson & Dettmann)	R
	<u>Lycopodiumsporites austroclavatiidites</u> (Cookson)	C
	<u>Pilosisorites notensis</u> Cookson & Dettmann	R
	<u>Rouseisporites reticulatus</u> Pocock!	R
Pollen:	<u>Araucariacites australis</u> Cookson	C
	<u>Alisporites grandis</u> (Cookson)	C
	<u>Cycadovites nitidus</u> (Balme)	R
	<u>Microcaccarvidites antarcticus</u> Cookson	Ab
	<u>Podocarpidites</u> cf. <u>ellipticus</u> Cookson	C

5925 feet

A small residue in which spores and pollen are of infrequent occurrence was extracted from the sample. Species identified include;

Spores:	<u>Aequitriradites verrucosus</u> (Cookson & Dettmann)	R
	<u>A. spinulosus</u> (Cookson & Dettmann)	C
	<u>Baculatisporites comaumensis</u> (Cookson)	C
	<u>Cicatricosisporites australiensis</u> (Cookson)	C
	<u>Ceratospirites equalis</u> Cookson & Dettmann	R
	<u>Cyathidites australis</u> Couper	Ab
	<u>C. minor</u> Couper	Ab
	<u>Dictyotosporites speciosus</u> Cookson & Dettmann	R
	<u>Foraminisporis dailyi</u> (Cookson & Dettmann)	R
	<u>F. wonthaggiensis</u> (Cookson & Dettmann)	R
	<u>Dictyonhyllidites crenatus</u> Dettmann	C
	<u>Leptolepidites verrucatus</u> Couper	R
	<u>Lycopodiumsporites eminulus</u> Dettmann	R
	<u>Pilososporites notensis</u> Cookson & Dettmann	R
Pollen:	<u>Alisporites grandis</u> (Cookson)	R
	<u>Araucariacites australis</u> Cookson	R
	<u>Microcachryidites antarcticus</u> Cookson	Ab
	<u>Podocarpidites</u> cf. <u>ellipticus</u> Cookson	C
Incertae Sedis:	<u>Schizosporis spriggi</u> Cookson & Dettmann	R

Sediments between 4220 feet and 5925 feet contain diagnostic elements of the Neocomian-Aptian Cyclosporites hughesi Subzone of the Dictyotosporites speciosus Zone. This subzone may also include sediments as high as 3510 feet although Cyclosporites hughesi was not identified in the microfloras. The G. hughesi Subzone has been recognized in Woolsthorpe No.1 well between 4500 feet and 6230 feet (Dettmann 1968a, and subsequent recovery of C. hughesi from sample at 4300 feet) and in Garvoc No.1 well between 3549 feet and 4964 feet (Dettmann 1968b).

CONCLUSIONS

Microfloras obtained from the Otway Group in Purrumbete No.1 well are referable to the Middle-Upper Albian Coutospora paradoxa Zone ( 1602 feet), the Lower Albian Crybelosporites striatus Subzone ( 2100 - 3300 feet), and to the Neocomian -Aptian Cyclosporites hughesi Subzone ( ?3510 -4008 feet, and 4220 - 5925 feet). The assemblages are composed almost exclusively,

of land derived types, although possible aquatic derivatives were identified at 4220 feet. Recycled specimens of probable Triassic age are of rare occurrence in samples from 2100 feet and 3510 feet.

REFERENCES

- Dettmann, M.E. 1968a. Palynological report on Interstate Woolsthorpe No.1 well, 4300 feet - 6330 feet. Unpubl. report submitted to Shell Development (Australia) Pty. Ltd., 9/9/68.
- Dettmann, M.E. 1968b. Palynological report on Interstate/Shell Garvoc No.1 well, 3076 feet - 4964 feet. Unpubl. report submitted to Shell Development (Australia) Pty. Ltd. 4/10/68.
- Dettmann, M.E. and Playford, G. 1968. Palynology of the Australian Cretaceous - a review. A.N.U. Press, Canberra (in press).

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## EXPLANATION OF TABLE 1

Preservation and zonal attribution of plant microfossil assemblages in Interstate/Shell Purumbete No.1 well, 1602 feet - 5925 feet.

### Abbreviations:

Yield expresses frequency of spores and pollen in the palynological residues as follows:-

Ab = abundant

C = common

Sp = sparse

B = barren

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

LBr = light brown

DBr = dark brown

Br = brown

Bl = black

good = well preserved

fair = fairly preserved

poor = poorly preserved

Spore-pollen zones are those defined by Dettmann and Playford (1963).

TABLE 1

Depth (feet)	Yield	Spore-Pollen		Wood		Cuticle		Spore - Pollen Zone
		Col.	Pres.	Col.	Pres.	Col.	Pres.	
1602	C	DY-LBr	good-fair	Br-Bl	fair	-	-	Coptospora paradoxa Zone
2100	SP	LBr	fair	"	fair-poor	LBr	fair-poor	
2300	"	"	-	"	"	"	"	Cyclasporites striatus Subzone
2600	Ab	DY-LBr	good-fair	"	"	Y-LBr	"	
2800	SP	LBr	fair-poor	"	"	LBr	"	
2908	"	Br	"	"	"	"	"	Cyclasporites hughesi Subzone
2995	B	-	-	"	"	-	-	
3300	Ab	DY-Br	fair	"	"	DY-Br	fair-poor	
3510	C	"	fair-poor	"	"	"	"	Dictyosporites speciosus Zone
3710	"	"	"	"	"	"	"	
3830	"	"	"	"	"	"	"	
4008	SP	"	"	"	"	"	"	
4220	Ab	"	"	"	"	"	"	
4490	C	"	"	"	"	"	"	
4722	SP	"	"	"	"	"	"	
5070	"	"	"	"	"	"	"	
5300	C	Br	"	"	"	Br	"	
5695	"	"	"	"	"	"	"	
5925	SP	"	"	"	"	"	"	