



SPORES AND POLLEN GRAINS FROM THE OTWAY GROUP OUTCROP

A total of 115 outcrop samples (P1-P103 incl., P105-P115 incl., Blanket Bay) from the Otway Group was submitted by Frome-Broken Hill Co. Pty. Ltd. for palynological investigation. Of these samples, only 41 were considered to be potentially productive and were accordingly processed for acid resistant microfossils, (Table 1). The highly weathered state of the remaining samples virtually precludes preservation of any originally contained plant microfossils. Although eleven of the samples processed yielded identifiable spores and pollen (Table 2), only two (P35, Blanket Bay) contain sufficiently well preserved and diverse microfloras that can be dated with any degree of precision. Moreover, none of the samples yielded microplankton. Comments on the productive samples are recorded below.

P35 (Beech Forest C Standard Series; 705333)

A diverse assemblage of fairly well preserved spores and pollen was extracted from this sample. Stratigraphically important species include Dictyosporites speciosus Cookson & Dettmann, Pilosporites notensis Cookson & Dettmann, P. parvispinosus Dettmann, and Cicatricosisporites hughesi Dettmann which indicate the presence of the Valanginian-Aptian Speciosus Assemblage of Dettmann (1963). Further, the combined occurrence of P. notensis and P. parvispinosus denotes an Aptian age and suggests an approximate correlation with horizons between 7037 and 7345 feet (c.19-c.21) in Fergusons Hill No. 1 well. However, Crybelosporites striatus (Cookson & Dettmann), which occurs in the Fergusons Hill No. 1 horizons, has not been observed in P35.

P40 (Beech Forest C Standard Series; 690306)

Extremely low concentrations of poorly preserved, compressed spores and pollen grains occur in this sample. Alisporites grandis (Cookson) indicates an Upper Mesozoic age. The one doubtful specimen of Amosopollis cruciformis Cookson & Balme identified is not considered to be sufficient evidence for an Upper Albian or later age.

P49 (Beech Forest C Standard Series; 703264)

This sample contains several species of poorly preserved spores and pollen. Cicatricosisporites australiensis (Cookson) and Cyathidites punctatus Delcourt & Sprumont) confirm a Cretaceous age.

P53 (Beech Forest C Standard Series; 695249)

Fair concentrations of poorly preserved spores and pollen grains were recorded from this deposit. Cicatricosisporites australiensis indicates a Cretaceous age, whilst Crybelosporites striatus with a known range of Aptian-Turonian and Foraminisporis asymmetricus (Cookson & Dettmann) which ranges from Barremian-Cenomanian/Turonian indicate an age somewhere between Aptian and Turonian. The three species occur together in the Speciosus and Paradoxa Assemblages of Dettmann (1963) and basal horizons that contain Assemblage II of Dettmann (1964a). In Fergusons Hill No. 1 well the three species were recorded from between core 9 and core 21 (Dettmann 1964b).

P67 (Beech Forest C Standard Series; 793233)

Low concentrations of spore and pollen fragments were obtained from this sample. The poor preservation of the fragments precludes specific or generic identification.

P68 (Beech Forest C Standard Series; 790237)

The sample yielded high concentrations of carbonaceous matter and several species of poorly preserved plant microfossils. Of the species identified Cicatricosisporites australiensis denotes a Cretaceous age for the sample.

P69 (Beech Forest C Standard Series; 783244)

High concentrations of carbonaceous material including several specimens of poorly preserved spores and pollen grains are contained in the sample. The presence of Leptolepidites verrucatus Couper indicates nothing more precise than a Jurassic or Cretaceous age.

P70 (Beech Forest C Standard Series; 782249)

Very few poorly preserved spores including Cyathidites australis Couper and C. minor Couper occur in the sample. These species are long ranging within the Mesozoic.

P71 (Beech Forest C Standard Series; 781254)

Plant microfossils extracted from the sample include Cyathidites australis and Cicatricosisporites australiensis, the latter of which signifies a Cretaceous age.

P73 (Beech Forest C Standard Series; 784268)

Fragments of plant microfossils were obtained from the sample but none is identifiable at generic or specific level.

Blanket Bay Outcrop (Otway A Standard Series)

A diverse and relatively well preserved microflora was extracted from the sample. The presence of Dictyotosporites speciosus, Crybelosporites striatus, Filosporites notensis and P. parvispinosus indicates that the younger (Aptian) category of the Speciosus Assemblage is represented at this horizon. On this basis together with the presence of Dictyotosporites filiosus Dettmann the sample is considered an approximate correlative of core 40 in Flaxmans No. 1 well and core 18 in Fergusons Hill No. 1 well (see Dettmann, 1964b).

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REFERENCES

- Dettmann, M. E. 1963 Upper Mesozoic microflora from south-eastern Australia.
Proc. Roy. Soc. Vict. 77: 1-148.
- _____ 1964a Palynological report on Mesozoic core samples from the lower horizons intersected in F.B.H. Port Campbell No. 1, No. 2 and No. 3 Wells.
Unpublished report submitted to Frome-Broken Hill Co. Pty. Ltd. 3/3/64.
- _____ 1964b Palynological report on F.B.H. Fergusons Hill No. 1 and F.B.H. Sherbrook No. 1 Wells.
Unpublished report submitted to Frome-Broken Hill Co. Pty. Ltd. 3/6/64.

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Sample	Plant Microfossils Present	Assemblage	Age	Probable equivalents in Fergusons Hill No. 1 Well
P2				
P3				
P8				
P13				
P16				
P18				
P22				
P24				
P25				
P26				
P27				
P30				
P35	x	Speciosus	U Aptian	Core 19-Core 21 Basal Albian
P40	x	Indet.	Upper Mesozoic mid Albian.	
P42				
P47				
P48				
P49	x	Indet.	Cretaceous	
P51				
P53	x	Indet.	Cretaceous	
P58				
P59				
P60				
P61				
P63				
P67	x	Indet.	Indet.	
P68	x	Indet.	Cretaceous	
P69	x	Indet.	Mesozoic	
P70	x	Indet.	Mesozoic	
P71	x	Indet.	Cretaceous	
P73	x	Indet.	Indet.	
P75				
P76				
P81				
P83				
P85				
P86				
F102				
P103				
F115				
Blanket Bay	x	Speciosus	U Aptian - UET6 EM ALBIAN	Core 18 Early - mid Albian

TABLE 1

Sample	Plant Microfossils Present	Assemblage	Age	Probable equivalents in Fergusons Hill No. 1 Well
P2				
P3				
P8				
P13				
P16				
P18				
P22				
P24				
P25				
P26				
P27				
P30				
P35	x	Speciosus	Aptian	Core 19-Core 21
P40	x	Indet.	Upper Mesozoic	
P42				
P47				
P48				
P49	x	Indet.	Cretaceous	
P51				
P53	x	Indet.	Cretaceous	
P58				
P59				
P60				
P61				
P63				
P67	x	Indet.	Indet.	
P68	x	Indet.	Cretaceous	
P69	x	Indet.	Mesozoic	
P70	x	Indet.	Mesozoic	
P71	x	Indet.	Cretaceous	
P73	x	Indet.	Indet.	
P75				
P76				
P81				
P83				
P85				
P86				
P102				
P103				
F115				
Blanket Bay	x	Speciosus	Aptian	Core 18

TABLE 1

	Microspores													Pollen		
	Dictyosporites speciosus	Cicatricosporites australiensis	Aequitriaradites spinulosus	Pilosporites notensis	Rouseisporites reticulatus	Foraminisporis wonthaggiensis	Foraminisporis asymmetricus	Pilosporites parvispinosus	Crybelosporites striatus	Dictyosporites filosus	Cicatricosporites hughesi	Leptolepidites verrucatus	Cyathidites australis and/or C. minor	Cyathidites punctatus	Amopollis cruciformis	Alisporites grandis
P35	x	x	x	x	x	x	x	x			x	x	x	x		x
P40													x		?	x
P49		x										x	x	x		x
P53		x	cf				x		x				x	x		x
P67																
P68		x											x			x
P69												x				cf
P70													x			
P71		x											x			
P73																
Blanket Bay	x	x		x				x	x	x		x	x			x

F asymmet
U C. minor

F asymmet
O filorus

TABLE 2. Distribution of selected spore and pollen species in outcrop samples of the Otway Group.

x - species present; cf - specimens similar to, but not identical with, a particular species; ? - doubtful representatives of a species.