

PALYNOLOGICAL REPORT ON SIDEWALL CORES FROM BETWEEN
6650 FEET AND 7524 FEET IN ESSO GIPPSLAND
SHELF NO.4 WELL

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Palynological evidence obtained from sidewall cores in Esso Gippsland Shelf No.4 well indicates that sediments between 6650 feet and 7524 feet are Lower Tertiary (Paleocene) in age with a possible extension into the Upper Cretaceous (Senonian or later). A Paleocene age has already been suggested for core 12 (7239-51 feet) in this well (Dettmann 1966). The sidewall cores examined in the present study yielded low concentrations of plant microfossils that exhibit fair to good preservation. Species identified in each of the samples are tabulated in Table 1 and a discussion of their stratigraphical significance is presented below.

Microfloral Assemblages and Correlations

The sample from 7524 feet yielded poor concentrations of spores and pollen grains. The only stratigraphically significant species observed include Tricolpites gillii Cookson and Phyllocladidites mawsonii Cookson both of which are known from uppermost Cretaceous (Senonian and later) and Lower Tertiary deposits.

Samples higher in the sequence (between 7214 and 7358 feet) yielded more diverse microfloras in which microplankton are rare components. Microplankton species identified include Cyclonephelium retiintextum Cookson which is known from Upper Cretaceous and Middle Paleocene strata (Cookson 1965, Cookson and Eisenack 1965). The spore and pollen species Triorites edwardsii Cookson & Pike and Dacrydiumites balmei Cookson were also observed, their combined occurrence suggesting conformity of the microflora with Harris's (1965) Triorites edwardsii

Assemblage. As discussed previously (Dettmann 1965), this assemblage is no younger than Middle Paleocene and may extend into the Upper Cretaceous. The sample from 7006 feet yielded a meagre microflora, which, in containing Dacrydiomites ellipticus Harris, conforms with the T. edwardsii Assemblage. The presence of the T. edwardsii Assemblage in horizons between 7006 feet and 7358 feet in Gippsland Shelf No.4 well indicates their correlation with beds between 8336 feet and 9514 feet in Gippsland Shelf No.3 well and at 8695 feet in Gippsland Shelf No.1 well.

The uppermost sample examined from 6650 feet contains Triorites edwardsii and Tricolpites gillii together with the microplankton Baltisphaeridium taylorii Cookson & Eisenack and Cordosphaeridium bipolare Cookson & Eisenack. A similar microfloral assemblage was obtained from Gippsland Shelf No.3 well between 7836 feet and 7843 feet (Dettmann 1965). The microfloras obtained from these horizons have been shown to be Middle to Upper Paleocene in age and a comparable age is suggested for the horizon at 6650 feet in Gippsland Shelf No.4 well.

References

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- Dettmann, M.E. 1966. Palynological report on core 12, Esso Gippsland Shelf No.4 well. Unpublished report submitted to Esso Exploration Australia, Inc., 21/2/66.
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6650'						Spores	
7006'	7214'	7358'	7524'				
+ - + - +	+ - + - +	+ - + - +	+ - + - +	+	Cyathidites australis and/or C. minor Cyathidites splendens Cleicheniidites cercinidites Laevigosporites ovatus Trilites tuberculiformis		
+	+	+	+	+	Microcachyridites antarcticus Podocarpidites ellipticus Dacrydiurnites balmei Dacrydiurnites ellipticus Dacrydiurnites florinii Phyllocladidites mawsonii Triorites edwardsii Triorites harrisii Tricolpites gillii Nothofagidites emarcida Nothofagidites cf. brachyspinulosa Proteacidites subscabratus Proteacidites reticuloscabratus Proteacidites adenanthoides Proteacidites similis Stephanopollenites obscurus Polyporina fragilis Tricolporites prolata		Pollen
+	+	+	+	+	Cyclonephelium retiintextum Baltisphaeridium taylorii Cordosphaeridium bipolare		
+	+	+	+	+			
+	+	+	+	+			
+	+	+	+	+			
+	+	+	+	+		Micro-plankton	

Table 1. Distribution of selected spores, pollen, and micro-plankton in samples from between 6650 feet and 7524 feet in Esso Gippsland Shelf No.4 well.

+ - species present