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PALYNOLOGICAL DETERMINATIONS FOR  
MACKEREL-4 WELL, GIPPSLAND BASIN

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PALYNOLOGICAL DETERMINATIONS FOR  
MACKEREL-4 WELL, GIPPSLAND BASIN

by

L. E. Stover

SUMMARY

Sample	Depth	Zone	Age
SWC 15	7740'✓	<i>P. tuberculatus</i>	Oligocene
SWC 14	7752'	indeterminate	(barren)
SWC 13	7755'	indeterminate	(no diagnostic species)
SWC 12	7758'	<i>P. tuberculatus</i>	Oligocene
SWC 11	7765'	indeterminate	(barren)
SWC 10	7890'	indeterminate	(practically barren)
SWC 9	7901'	indeterminate	(barren)
SWC 7	7930'	indeterminate	(barren)
SWC 6	8065'✓	<i>L. balmei</i>	Late Paleocene
SWC 5	8144'✓	<i>L. balmei</i>	Late Paleocene
SWC 4	8247'	indeterminate	(practically barren)
SWC 1	8350'✓	<i>L. balmei</i>	Late Paleocene
SWC 3	8365'✓	<i>L. balmei</i>	Middle to Late Paleocene
SWC 2	8530'	<i>L. balmei</i>	Middle to Late Paleocene

✓ - denotes microplankton as well as spore-pollen are identified from the sample.

DISCUSSION

Sidewall cores from 7740 and 7758 feet are assigned to the *Proteacidites tuberculatus* zone because of the occurrence of *Cyathacidites annulatus* in both samples. The residue from the sample at 7740 feet contains a fairly diverse microplankton association which is dominated by specimens of the *Achomosphaera/Spiniferites* complex. Specimens of *Tectatodinium imperfectum* are frequent whereas those of other species are sparse to rare. Spore-pollen from the *P. tuberculatus* zone are not well preserved and only a relatively meagre assemblage lacking Proteaceous forms was recovered.

Sidewall cores from 7765 to 7930 feet were either barren or lack diagnostic indigenous palynomorphs. Samples from 7901 and 7930 feet contained fairly common northern hemisphere Middle to Late Paleocene spore-pollen derived from a drilling mud additive.

Excellent *Lygistepollenites balmei* assemblages were recovered from 8065, 8365, and 8530 feet and good assemblages were obtained from 8144 and 8350 feet.

Because of the paucity of specimens from the sidewall core at 8247 feet, no interpretation is possible for this sample. Except for the latter sample, microplankton occur throughout the *L. balmei* zone in Mackerel-4. These are abundant at 8530 feet (65 to 70 percent) and rare in overlying samples (1 to 2 percent).

Probable reworked Cretaceous spore-pollen were identified at 8065 feet (*Lycopodiumsporites eminulus*) and at 8144 feet (*Krauselisporites* sp.). Spore-pollen occurrences are plotted on sheets 1, 2 and 3 and microplankton occurrences are shown on sheet 4.





SAMPLE TYPE *	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
DEPTHS	7740'	7752'	7755'	7758'	7765'	7890'	7901'	7915'	7930'	8065'	8144'	8247'	8350'	8365'	8530'				
PALYNOMORPHS																			
<i>H. rigaudae</i>	/																		
<i>Achomosphaera</i> spp.	/																		
<i>N. balcombiana</i>	/																		
<i>Dinosphere</i> c	/																		
<i>B. nanum</i> (type 2)	/																		
<i>T. imperfectum</i>	/																		
<i>S. cingulata</i>	/																		
<i>B. nanum</i> (type 1)	/																		
<i>C. epacrum</i>	?																		
<i>S. reticulifera</i>	?																		
<i>E. ornata</i>	?																		
<i>Leptodinium</i> spp.	/			/															
<i>P. fibrosum</i>	/			/															
<i>S. ramosa</i>	/			/						/			/						
<i>O. centrocarpum</i>	/			/									/	?	/				
<i>Dinosphere</i> b	/			/															
<i>Dinosphere</i> c	/			/															
<i>O. brevum</i>	/			/															
<i>Cardosphaeridium</i> sp.	/			/						?									
<i>D. medcaffi</i>	/			/									/	/	/				
<i>W. homomorpha</i>	/			/						/			/	/	/				
<i>Palaeocystodinium</i> sp.	/			/						/			/	/	/				
<i>A. retiintertextum</i>	/			/						/			/	/	/				
<i>D. dilwynensis</i>	/			/						/			/	/	/				
<i>Spinidinium</i> sp.	/			/						/			/	/	/				
<i>Oligosphaeridium</i> sp.	/			/						/			/	/	/				
<i>E. crassitabulata</i>	/			/						/			/	/	/				
<i>D. bakerii</i>	/			/						/			/	/	/				
<i>D. pellucida</i>	/			/						/			/	/	/				

\*C=core; S=sidewall core; T=cuttings.

BASIN Gippsland DATE June 1973

WELL NAME Mackerel-4 ELEVATION KB-32 feet

AGE	PALYNOLOGIC ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg	Alternate Depth	Rtg	2 way time	Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time
OLIGO-MIOC.	<u>T. bellus</u>										
	<u>P. tuberculatus</u>	7740	1				7758	1			
EOCENE	<u>U. N. asperus</u>										
	<u>L. N. asperus</u>										
	<u>P. asperopolus</u>										
	<u>U. M. diversus</u>										
	<u>L. M. diversus</u>										
PALEO-GENE	<u>L. balmei</u>	8065	0				8530	0			
	<u>T. longus</u>										
LATE CRETACEOUS	<u>T. lilliei</u>										
	<u>N. senectus</u>										
	<u>C. trip./T.pach.</u>										
	<u>C. distocarin.</u>										
	<u>T. pannosus</u>										
	<u>C. paradoxa</u>										
EARLY CRETACEOUS	<u>C. striatus</u>										
	<u>U. C. hughesii</u>										
	<u>L. C. hughesii</u>										
	<u>C. stylosus</u>										
Pre-Cretaceous											

COMMENTS: SWC's from 7765 to 7930 feet barren or nearly so. Microplankton present in samples from 8065 to 8530 feet and especially abundant at 8530 feet.

- RATINGS: 0; SWC or CORE, EXCELLENT CONFIDENCE, assemblage with zone species of spores, pollen and microplankton.  
 1; SWC or CORE, GOOD CONFIDENCE, assemblage with zone species of spores and pollen or microplankton.  
 2; SWC or CORE, POOR CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.  
 3; CUTTINGS, FAIR CONFIDENCE, assemblage with zone species of either spores and pollen or microplankton, or both.  
 4; CUTTINGS, NO CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.

NOTE: If a sample cannot be assigned to one particular zone, then no entry should be made. Also, if an entry is given a 3 or 4 confidence rating, an alternate depth with a better confidence rating should be entered, if possible.

DATE RECORDED BY: L. E. Stover. DATE June 1973

DATA REVISED BY: \_\_\_\_\_ DATE \_\_\_\_\_