

PALYNOLOGICAL ANALYSIS OF THREADFIN-1,

GIPPSLAND BASIN

by

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INTRODUCTION

Twenty-four sidewall cores from Threadfin-1 were examined for palynomorphs. In general, the fossil recovery was poor and the diversity of the assemblages was low. Almost half of the samples were barren of organic remains.

Zones and environment/lithological subdivision for the basal part of the Lakes Entrance Formation and Latrobe Group is summarized below. All samples examined are listed in Table-1, while individual fossil occurrence is given on the accompanying distribution charts.

SUMMARY

<u>UNIT/FACES</u>	<u>ZONE</u>	<u>DEPTH</u>
LAKES ENTRANCE FORMATION Marine Marl	<u>P. tuberculatus</u>	2385-2395m
LATROBE GROUP		
"Shore-face Sand Facies"	Indeterminate	2395-2325m
"Deltaic facies"	Upper <u>L. balmei</u>	2530-2731m
		T.D. 2735m —

GEOLOGICAL COMMENTS

1. All samples that were processed from the massive sand section, between 2395m and 2525m were barren of any recognizable fossils. The lithology, as shown by the sidewall cores, is a coarse white sand with practically no organic material. Similar barren sand intervals occur at the top of the Latrobe Group in the exploration wells in the Mackerel Field (Partridge 1972a, b, Stover 1973) and in Kingfish-6 (Partridge 1975). The detailed studies of the geology of the Mackerel and Kingfish Fields by the production geology section suggests that these sands are most likely latest Paleocene or earliest Eocene (Lower M. diversus Zone) in age. A similar age is suggested for the barren interval in Threadfin-1. A barren interval is also found at the top of Latrobe in the adjacent Opah-1, but in this case the lithology is a glauconitic sandstone considered to represent the Gurnard Formation of Middle to Late Eocene age. Additional evidence for this age placement in Opah-1 is found in the identification of P. asperpolus Zone fossils in the underlying sediments, between the barren zone and the first occurrence of L. balmei.

T A B L E 7

SUMMARY OF PALEONOLOGICAL ANALYSIS, THREADFIN-1, GIPPSLAND BASIN

SAMPLE	DEPTH (m)	DEPTH (ft)	ZONE	AGE	CONFIDENCE RATING	YIELD	DIVERSITY	COMMENTS
SWC 31	2385	7825	<u>P. tuberculatus</u>	Oligo-Miocene	2	Very Low	Very Poor	Single <u>P. simplex</u> in kerogen slides.
SWC 29	2389	7838	<u>P. tuberculatus</u>	Oligo-Miocene	0	Fair	Poor	<u>C. annulatus</u> and Post-Eocene dinoflagellates.
SWC 28	2391	7844.5	<u>P. tuberculatus</u>	Oligo-Miocene	0	Good	Moderate	
SWC 27	2393	7851	<u>P. tuberculatus</u>	Oligo-Miocene	0	Low	Poor	
SWC 26	2395	7857.5	Indeterminate	-	-	-	-	Barren
SWC 25	2397	7864	Indeterminate	-	-	-	-	Barren
SWC 24	2398	7867.5	Indeterminate	-	-	-	-	Barren
SWC 23	2399	7871	Indeterminate	-	-	-	-	Barren
SWC 22	2401	7877	Indeterminate	-	-	-	-	Barren
SWC 21	2403	7884	Indeterminate	-	-	-	-	Barren
SWC 20	2405	7890.5	Indeterminate	-	-	-	-	Barren
SWC 19	2407	7897	Indeterminate	-	-	-	-	Barren
SWC 18	2411.5	7912	Indeterminate	-	-	-	-	Barren
SWC 17	2425	7956	Indeterminate	-	-	-	-	Barren
SWC 11	2530	8300.5	Upper <u>L. balmei</u>	Paleocene	1	Low	Poor	
SWC 10	2555	8382.5	Indeterminate	-	-	-	-	Barren
SWC 9	2572	8338	Upper <u>L. balmei</u>	Paleocene	1	Fair	Poor	
SWC 8	2600	8530	Upper <u>L. balmei</u>	Paleocene	1	Fair	Poor	
SWC 7	2616	8582.6	Upper <u>L. balmei</u>	Paleocene	1	Low	Poor	
SWC 6	2628	8622	Upper? <u>L. balmei</u>	Paleocene	2	Low	Poor	
SWC 5	2653	8704	Upper? <u>L. balmei</u>	Paleocene	2	Low	Poor	
SWC 3	2707	8881	Upper? <u>L. balmei</u>	Paleocene	2	Low	Poor	
SWC 2	2723	8934	Upper? <u>L. balmei</u>	Paleocene	2	Low	Poor	
SWC 1	2731	8960	Upper? <u>L. balmei</u>	Paleocene	2	Low	Poor	

PALYNOLOGY DATA SHEET

BASIN: GIPPSLAND

ELEVATION: KB: 25m GL: 74m

WELL NAME: THREADFIN-1

TOTAL DEPTH: 2735m

AGE	PALYNOLOGICAL ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time	Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time
NEOGENE	<i>T. pleistocenicus</i>										
	<i>M. lipsis</i>										
	<i>C. bifurcatus</i>										
	<i>T. bellus</i>										
PALEOGENE	<i>P. tuberculatus</i>	2385	2	2389	0		2393	0			
	Upper <i>N. asperus</i>										
	Mid <i>N. asperus</i>										
	Lower <i>N. asperus</i>										
	<i>P. asperopolus</i>										
	Upper <i>M. diversus</i>										
	Mid <i>M. diversus</i>										
	Lower <i>M. diversus</i>										
	Upper <i>L. balmei</i>	2530	1				2731	2	2628	1	
	Lower <i>L. balmei</i>										
	LATE CRETACEOUS	<i>T. longus</i>									
<i>T. lilliei</i>											
<i>N. senectus</i>											
U. <i>T. pachyexinus</i>											
L. <i>T. pachyexinus</i>											
<i>C. triplex</i>											
EARLY CRET.	<i>A. distocarinatus</i>										
	<i>C. paradoxus</i>										
	<i>C. striatus</i>										
	<i>F. asymmetricus</i>										
	<i>F. wonthaggiensis</i>										
	<i>C. australiensis</i>										
	PRE-CRETACEOUS										

COMMENTS: Sand Section between 2395m and 2425m is barren of fossils.

- CONFIDENCE RATING:
- 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 an entry is given a 3 or 4 confidence rating, an alternative depth with a better confidence rating should be entered, if possible. If a sample cannot be assigned to one particular zone, then no entry should be made, unless a range of zones is given where the highest possible limit will appear in one zone and the lowest possible limit in another.

DATA RECORDED BY: H.E. STACY DATE: JUNE 7, 1979

DATA REVISED BY: _____ DATE: _____

SAMPLE TYPE *	DEPTH																								
	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S									
	2385	2399	2391	2393	2395	2397	2398	2399	2401	2403	2405	2407	2411.5	2425	2530	2555	2572	2600	2616	2628	2653	2707	2725	2731	
PALYNOMORPHS																									
<i>A. qualumis</i>																									
<i>A. acutullus</i>																									
<i>A. luteoides</i>																									
<i>A. oculatus</i>																									
<i>A. sectus</i>																									
<i>A. triplaxis</i>																									
<i>A. obscurus</i>																									
<i>B. disconformis</i>																									
<i>B. arcuatus</i>																									
<i>B. elongatus</i>																									
<i>B. mutabilis</i>																									
<i>B. otwayensis</i>																									
<i>B. elegansiformis</i>																									
<i>B. trigonalis</i>																									
<i>B. verrucosus</i>																									
<i>B. bombaxoides</i>																									
<i>B. emaciatus</i>																									
<i>C. bullatus</i>																									
<i>C. heskermensis</i>																									
<i>C. horridus</i>																									
<i>C. meleosus</i>																									
<i>C. apiculatus</i>																									
<i>C. leptos</i>																									
<i>C. striatus</i>																									
<i>C. vanraadshoovenii</i>																									
<i>C. orthoteichus/major</i>																									
<i>C. annulatus</i>																									
<i>C. gigantis</i>																									
<i>C. splendens</i>																									
<i>D. australiensis</i>																									
<i>D. granulatus</i>																									
<i>D. tuberculatus</i>																									
<i>D. delicatus</i>																									
<i>D. semilunatus</i>																									
<i>E. notensis</i>																									
<i>E. crassixintus</i>																									
<i>F. balteus</i>																									
<i>F. crater</i>																									
<i>F. lucinosus</i>																									
<i>F. palaequetrus</i>																									
<i>G. edwardsii</i>																									
<i>G. rufoa</i>																									
<i>G. divaricatus</i>																									
<i>G. gestus</i>																									
<i>G. catathus</i>																									
<i>G. cranwellae</i>																									
<i>G. wahooensis</i>																									
<i>G. bassensis</i>																									
<i>G. nebulosus</i>																									
<i>H. harrisii</i>																									
<i>H. astus</i>																									
<i>H. alioctii</i>																									
<i>I. anguloclavatus</i>																									
<i>I. antipodus</i>																									
<i>I. notabilis</i>																									
<i>I. gremius</i>																									
<i>I. irregularis</i>																									
<i>J. peiratus</i>																									
<i>K. waterbolkii</i>																									
<i>L. amplus</i>																									
<i>L. crassus</i>																									
<i>L. ohaiensis</i>																									
<i>L. bainii</i>																									
<i>L. lanceolatus</i>																									
<i>L. balmeri</i>																									
<i>L. florinii</i>																									
<i>M. diversus</i>																									
<i>M. duratus</i>																									
<i>M. grandis</i>																									
<i>M. perimagnus</i>																									

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

SAMPLE TYPE *	S		S		S		S		S		S		S		S		S		S		S		S		S		S		S		S		S	
	S		S		S		S		S		S		S		S		S		S		S		S		S		S		S		S		S	
DEPTHS	2385	2389	2391	2393	2395	2397	2398	2399	2401	2403	2405	2407	2411.5	2425	2530	2555	2572	2600	2616	2628	2653	2707	2723	2731										
PALYNOMORPHS																																		
<i>M. subtilis</i>																																		
<i>M. ornamentalis</i>																																		
<i>M. hypolaenoides</i>			/																															
<i>M. homeopunctatus</i>																																		
<i>M. parvus/mesonesus</i>																																		
<i>M. tenuis</i>																																		
<i>M. verrucosus</i>																																		
<i>M. australis</i>																																		
<i>N. asperus</i>																																		
<i>N. asperoides</i>																																		
<i>N. brachyspinulosus</i>		/	/	/																														
<i>N. diminutus</i>																																		
<i>N. enarcidus/heterus</i>																																		
<i>N. endurus</i>																																		
<i>N. falcatus</i>		/	/	/																														
<i>N. flemingii</i>															/		/	/	/	/														
<i>N. goniatus</i>																																		
<i>N. senectus</i>																																		
<i>N. vansteenisii</i>																																		
<i>O. sentosa</i>																																		
<i>P. ochesis</i>																																		
<i>P. catastus</i>																																		
<i>P. demarcatus</i>																																		
<i>P. magnus</i>																																		
<i>P. polyoratus</i>														/		/																		
<i>P. vesicus</i>																																		
<i>P. densus</i>																																		
<i>P. velosus</i>																																		
<i>P. morganii/subatus</i>																																		
<i>P. mawsonii</i>														/		/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
<i>P. reticuloacutus</i>																																		
<i>P. verrucosus</i>																																		
<i>P. crescentis</i>																																		
<i>P. esobalteus</i>																																		
<i>P. langstonii</i>																																		
<i>P. reticulatus</i>																																		
<i>P. simplex</i>																																		
<i>P. varius</i>																																		
<i>P. acknanthoides (Prot.)</i>														/		/		/																
<i>P. alveolatus</i>																																		
<i>P. amolosexinus</i>																																		
<i>P. angulatus</i>																																		
<i>P. annularis</i>																																		
<i>P. asperopolus</i>																																		
<i>P. biornatus</i>																																		
<i>P. clarus</i>																																		
<i>P. cleinei</i>																																		
<i>P. confragosus</i>																																		
<i>P. crassis</i>																																		
<i>P. delicatus</i>																																		
<i>P. formosus</i>																																		
<i>P. grandis</i>																																		
<i>P. grevillaensis</i>																																		
<i>P. incurvatus</i>																																		
<i>P. intricatus</i>																																		
<i>P. kopiensis</i>																																		
<i>P. lapis</i>																																		
<i>P. latrobensis</i>																																		
<i>P. leightoni</i>																																		
<i>P. obesolabrus</i>																																		
<i>P. obscurus</i>																																		
<i>P. ornatus</i>																																		
<i>P. otwayensis</i>																																		
<i>P. pachypolus</i>																																		
<i>P. palisadus</i>																																		
<i>P. parvus</i>																																		
<i>P. plennielus</i>																																		
<i>P. proclivus</i>																																		
<i>P. pseudomoides</i>																																		
<i>P. recessus</i>																																		

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

SAMPLE TYPE *	DEPTHS																								
	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S									
PALYNOFORMS	2385	2389	2391	2393	2395	2397	2398	2399	2401	2403	2405	2407	2411.5	2425	2530	2555	2572	2600	2616	2628	2653	2707	2723	2731	
<i>P. rectomarginis</i>																									
<i>P. reflexus</i>																									
<i>P. reticulatus</i>																									
<i>P. reticuloconcavus</i>																									
<i>P. reticulosabratatus</i>																									
<i>P. rugulatus</i>																									
<i>P. scitus</i>																									
<i>P. stipplatus</i>																									
<i>P. tenuixinus</i>																									
<i>P. truncatus</i>																									
<i>P. tuberculatus</i>																									
<i>P. tuberculiformis</i>																									
<i>P. tuberculotumulatus</i>																									
<i>P. xestiformis (Prot.)</i>																									
<i>Q. brosius</i>																									
<i>R. boxatus</i>																									
<i>R. stellatus</i>																									
<i>R. mallatus</i>																									
<i>R. trophus</i>																									
<i>S. cainozoicus</i>																									
<i>S. rotundus</i>																									
<i>S. digitoides</i>																									
<i>S. marlinensis</i>																									
<i>S. rarus</i>																									
<i>S. meridianus</i>																									
<i>S. prominatus</i>																									
<i>S. uvatus</i>																									
<i>S. punctatus</i>																									
<i>S. regium</i>																									
<i>T. multistrius (CP4)</i>																									
<i>T. textus</i>																									
<i>T. verrucosus</i>																									
<i>T. securus</i>																									
<i>T. confossus (C3)</i>																									
<i>T. gillii</i>																									
<i>T. incisus</i>																									
<i>T. longus</i>																									
<i>T. phillipsii</i>																									
<i>T. renmarkensis</i>																									
<i>T. sabulosus</i>																									
<i>T. simatus</i>																									
<i>T. thomasii</i>																									
<i>T. waiparaensis</i>																									
<i>T. adalaidensis (CP3)</i>																									
<i>T. angurium</i>																									
<i>T. delicatus</i>																									
<i>T. geraniodes</i>																									
<i>T. leuros</i>																									
<i>T. lilliei</i>																									
<i>T. marginatus</i>																									
<i>T. moultonii</i>																									
<i>T. paenestriatus</i>																									
<i>T. retequetrus</i>																									
<i>T. scabratus</i>																									
<i>T. sphaerica</i>																									
<i>T. magnificus (P3)</i>																									
<i>T. spinosus</i>																									
<i>T. ambiguus</i>																									
<i>T. chnosus</i>																									
<i>T. helosus</i>																									
<i>T. scabratus</i>																									
<i>T. sectilis</i>																									
<i>V. attinatus</i>																									
<i>V. cristatus</i>																									
<i>V. kopukuensis</i>																									

*C=core, S=sidewall core, T=cuttings.

SAMPLE TYPE *	DEPTHS																								
	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S							
PALYNOMORPHS	2385	2389	2391	2393	2395	2397	2398	2399	2401	2403	2405	2407	2411.5	2425	2530	2555	2572	2600	2616	2628	2653	2707	2723	2731	
<i>Protoellipsoidinium simplex</i>	/																								
<i>Cleistosphaeridium sp.</i>																							/		
<i>H'kolpoma rigaudae</i>		/	/	/																					
<i>Impagidium sp.</i>		/	/	/																					
<i>Nemat. balcombiana</i>		/	/	/																					
<i>Operc. centrocarpum</i>		/	/	/																					
<i>Spin. ramosus</i>		/	/	/																					
<i>Tectat. scabroellipticus</i>		/	/	/																					
<i>Dinosph. mamitatus</i>		/	/	/																					
<i>Polysph. pseudocolligerium</i>		/	/	/																					
<i>Achom. alvicornu</i>			/	/																					
<i>Deflandria sp.</i>				/																			/		
<i>Paral. indentata</i>															/										
<i>Ging. cf. palacocenicum</i>																/									
<i>Apect. homomorpha (s.sp)</i>																	/								
<i>Systematophora sp.</i>																		/							
<i>Lejunia sp.</i>																			/						
<i>Corrud. corrugatum</i>																				/					
<i>Alisocysta circuntabulata</i>																					/				
<i>Schem. speciosus</i>																						/			
<i>Defl. delineata</i>																							/		
<i>Adnat. reticulense</i>																							/		
<i>Isabel. druggii</i>																							/		
<i>Spinidinium sp.</i>																							/		
<i>Apect. hyperacantha</i>																							/		
<i>Defl. pentaradata</i>																							/		

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