FORAMINIFERAL SEQUENCE
and CORRELATION of
SPEKE # 1,
GIPPSLAND BASIN.

for: AUSTRALIAN AQUITAINE PETROLEUM PTY. LTD.

September 12, 1984.

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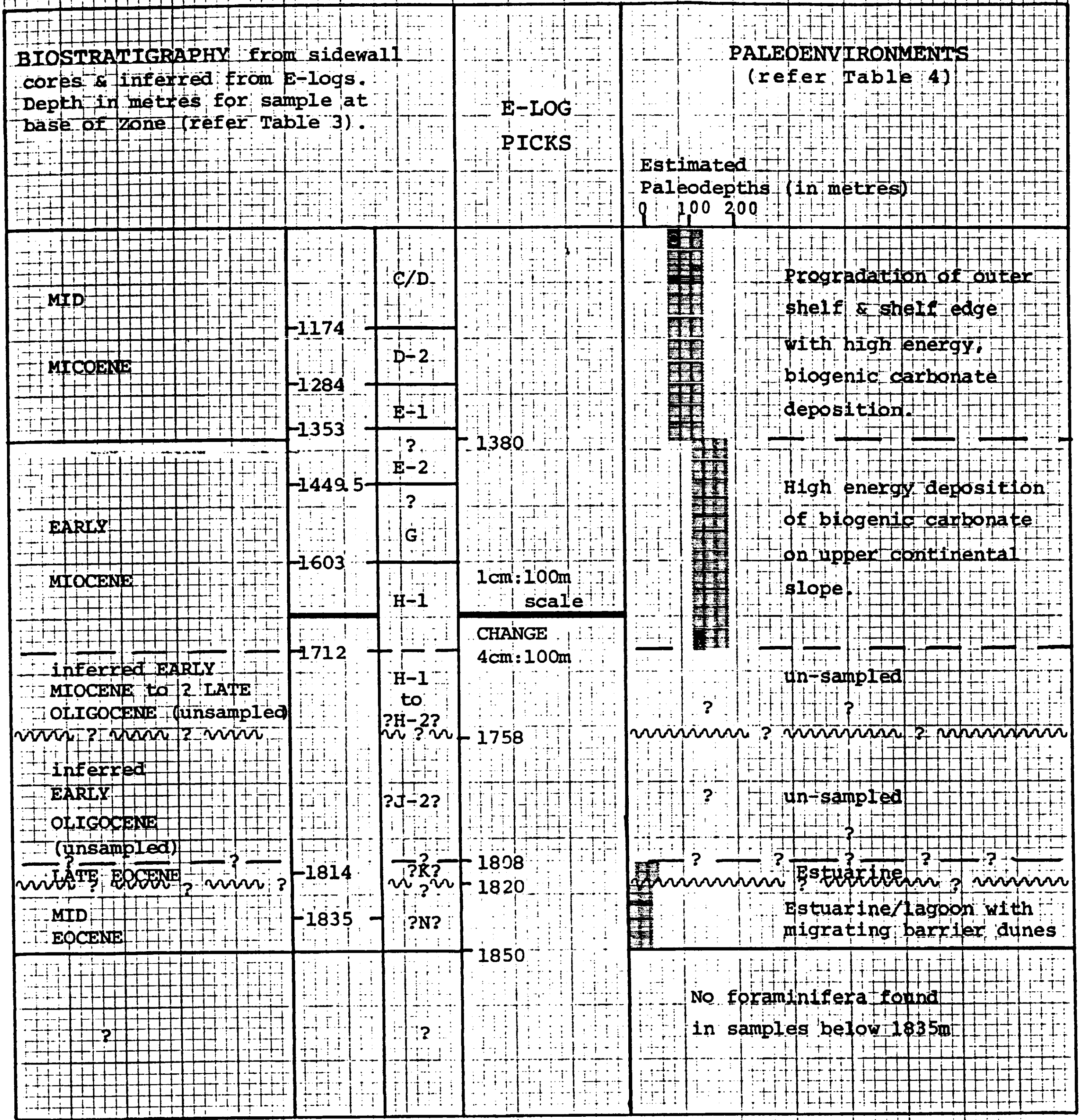

BIOSTRATIGRAPHY from sidewall cores & inferred from E-logs. Depth in metres for sample at base of zone (refer Table 3).			E-LOG PICKS	PALEOENVIRONMENTS (refer Table 4) Estimated Paleodepths (in metres) 0 100 200
MID MIOCENE		C/D		Progradation of outer shelf & shelf edge with high energy, biogenic carbonate deposition.
	1174	D-2		
	1284	E-1		
	1353			
EARLY MIOCENE		? E-2	1380	High energy deposition of biogenic carbonate on upper continental slope.
	1449.5	? G		
	1603	H-1	1cm:100m scale CHANGE 4cm:100m	
	1712			
inferred EARLY MIOCENE to ? LATE OLIGOCENE (unsampled)		H-1 to ?H-2?		un-sampled ? ?
∿∿ ? ∿∿ ? ∿∿		∿ ? ∿	1758	∿∿ ? ∿∿ ? ∿∿
inferred EARLY OLIGOCENE (unsampled)		?J-2?		? un-sampled ?
? ?		?	1808	? ? ? ? ?
LATE EOCENE	1814	?K?		Estuarine
∿ ? ∿ ? ∿ ?		∿ ? ∿	1820	∿ ? ∿ ? ∿
MID EOCENE	1835	?N?		Estuarine/lagoon with migrating barrier dunes
			1850	
?		?		No foraminifera found in samples below 1835m

N.B. change of vertical scale at 1700m.

∿ ? ∿ possible hiatus (inferred)

TABLE 1: INTERPRETED FORAMINIFERAL SEQUENCE in SPEKE # 1.

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INTRODUCTION

Twenty eight sidewall cores were examined from SPEKE # 1 between 2304 and 1051 metres.

No foraminifera were found in the basal four samples at 2304, 1946, 1907.5 and 1848.5 metres, although Helene Martin recovered dinoflagellates from four of these samples, thus indicating a marine influence.

Two sidewall cores were submitted, both with a *labelled depth* of 1825 metres. However, each represented a distinctly different facies; one beign an estuarine glauconitic mudstone with Mid Eocene foraminifera, whilst the other, barren of foraminifera, was probably dune sand.

Unfortunately, there was a gap in sidewall core sampling over the interval between 1814 and 1712 metres. Within this interval, there obviously occurred the rapid transition from Eocene estuarine deposition to the deep oceanic sediments of the Oligocene and the related *Cobia Event*. The composition of this unsampled interval is deduced from E-log interpretation (refer Table 1) and correlations with sequences in adjacent wells (refer Table 2).

The following tables are embodied in this report:-

TABLE 1:	*INTERPRETED FORAMINIFERAL SEQUENCE in SPEKE # 1* - page 1 of this report.
TABLE 2:	*INFERRED CORRELATION of SPEKE # 1 with ADJACENT WELLS for MID EOCENE to EARLY MIOCENE* - based on Planktonic Foraminiferal Biostratigraphy (Letter Zones) and Rock Stratigraphy - refer this text and Table 1, with data on adjacent wells in Taylor & Martin, 1983 and Taylor, 1983. - page 4 of this report.
TABLE 3:	*PLANTKONIC FORAMINIFERAL DISTRIBUTION - SPEKE # 1* - back of this report.
TABLE 4:	*BENTHONIC FORAMINIFERAL DISTRIBUTION and SEDIMENT GRAIN ANALYSIS - SPEKE # 1* - back of this report.
TABLE 5:	*MICROPALEONTOLOGICAL DATA SHEET* with confidence ratings for biostratigraphic picks - back of this report.

BIOSTRATIGRAPHY, PALEOENVIRONMENT and LITHO-UNIT CORRELATIONS.

EOCENE - 2304 to 1907 metres: Despite reports of dinoflagellates, no foraminifera were found at 2304, 1946 and 1907.5 metres, despite the presence of dinoflagellates in these samples (see Palynology Report). This suggests very transient marine influence.

MID EOCENE - ? ZONE N - 1848.5 to 1825 metres ≡ *GURNARD FORMATION* (E-log interval 1850 to 1820m).

Samples at 1835 and 1825 metres (mudstone SWC # 29/Run 2) contained poorly biostratigraphically diagnostic, planktonic assemblages, probably representing Zone N at the top of the Mid Eocene; possibly straddling the Mid/Late Eocene boundary. It is noted that these samples revealed a ?Middle *N. asperus* microfloral assemblage and was thus designated, following convention, as ?Late Eocene in the accompanying palynological report. However, the dating of Middle *N. asperus* Zone is a contentious one, yet to be resolved.

The benthonic assemblages in these two samples were also of low specific diversity, with assemblages characteristic of estuarine environments during a marine transgressive phase. The transient nature of the transgression is clearly illustrated by the distinctly differing lithologies of the two sidewall cores with the identical depth labels of 1825m. The mudstone of SWC 29/Run 2 is of estuarine, marginal marine origin, being a glauconitic *Greensand* with foraminiferal and dinoflagellate assemblages (see above and Palynology Report), whilst the quartz sands and limonitic clay of SWC 50/Run 22 is indicative of dune sands and barren of foraminifera, dinoflagellates or other marine indicators; such as glauconite. These two sidewall cores were a minute part of a spatially and temporally migrating barrier dune, estuarine/lagoonal system, analagous to the present day regime of the Gippsland shoreline (refer Taylor, 1983). This unit can be correlated with the GURNARD FORMATION on faunal and lithological grounds; particularly the presence of non calcareous *Greensands* (refer Table 2 this report and Taylor, l.c.).

LATE EOCENE - ? ZONE K - 1814 metres ≡ COLQUHOUN FORMATION (E-log interval 1820 to 1808m).

The single sample (at 1814m) has a poor planktonic fauna assignable to Zone K at the very top of the Late Eocene. The benthonic fauna is very similar to that of the Mid Eocene unit directly below, thus suggesting the repetition of paleoenvironmental conditions after a hiatus of 2 to 3 million years between the two units.

Most of the glauconite in this Late Eocene unit is oxidized, having the

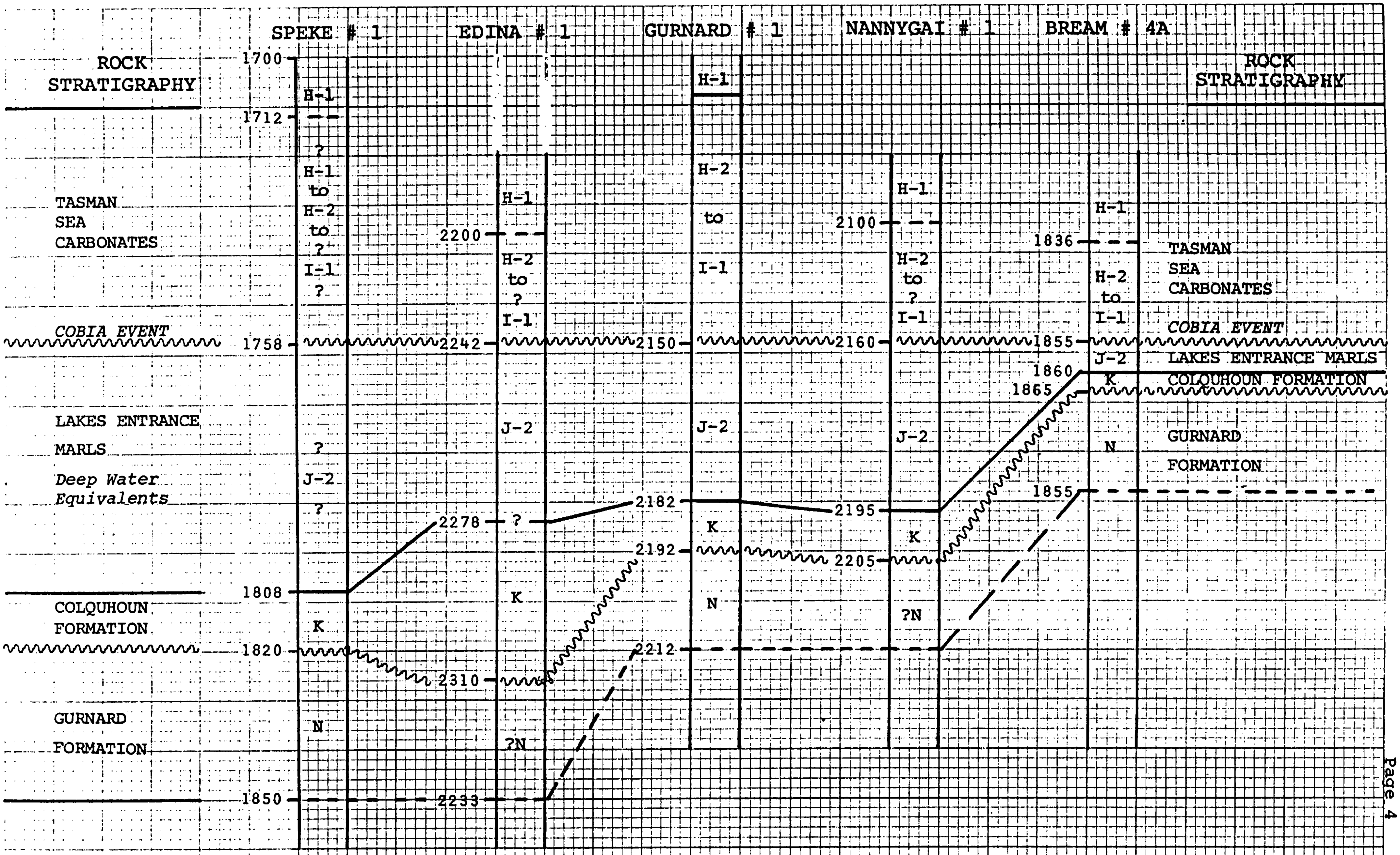

TABLE 2: INFERRED CORRELATION of SPEKE # 1 with ADJACENT WELLS for MID EOCENE to EARLY MIOCENE - based on Plankotnic Foraminiferal Biostratigraphy (Letter Zones) and Rock Stratigraphy - refer this text and Table 1, with data on adjacent wells in Taylor & Martin, 1983 and Taylor, 1983.

David Taylor, September 12th, 1984.

appearance of *Brownsand,* rather than that of the *Greensand* of the unit below. Also the Late Eocene sediment is weakly calcareous. Therefore, this Late Eocene unit is equated with the *COLQUHOUN FORMATION* (refer Table 2 this report and Taylor, 1983).

UNSAMPLED INTERVAL between 1814 and 1712 metres: The identities of units within this sequence have been deduced from E-log characters (Table 1 this report) and a knowledge of the sequences in previously drilled wells, adjacent to SPEKE # 1 (refer Table 2 this report).
These units are, in all probability:-

LOWER OLIGOCENE - ZONE J-2 ≡ LAKES ENTRANCE MARLS (E-Log interval 1808 to 1758m).

Probably a unit of calcareous shales, deposited in rapidly increasing depth, truncated by the mid to late Oligocene Hiatus of the *COBIA EVENT* at 1758m. Table 2 shows that this unit was thicker in SPEKE than in other wells. This may be a reflection of variation in depositional rates relative to the shoreline. For instance, the *COLQUHOUN FORMATION* may have persisted longer in EDINA and in fact, may have been deposited in part during J-2 times; this infers that EDINA was closer to availability of terrigenous detritus than SPEKE.

LATE OLIGOCENE to EARLY MIOCENE - ZONES I-1, H-2 and H-1 (E-log interval 1728 to 1712m).

No doubt the interval contained the oceanic *TASMAN SEA CARBONATES;* a conclusion supported by the correlation Table 2 and remarks below regarding the EARLY to MID MIOCENE sequence.

EARLY to MID MIOCENE - ZONES H-1 to D-2 to ? ZONE C.

There appears to have been uninterrupted sedimentation from the Early to Mid Miocene, although assemblages representing every Zone could not be identified due to extreme carbonate diagenesis at some levels; for example, Zone F could not be designated. Richly biogenic carbonate deposition was on the upper continental slope during the Early Miocene, with faunal evidence suggesting progradation of the shelf edge in the Mid Miocene (note E-log change at 1380m). This pattern of shelf progradation was apparent also in the adjacent wells, with sedimentation on the Oligo/Miocene boundary commencing in fairly deep water and rapidly shallowing during the Early Miocene. Thus the unsampled Oligo/Miocene, between 1758 and 1712m in SPEKE # 1 may have been of deeper water origin than that evident at and above 1712m.

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TAYLOR, David, 1983 - Time-Facies Relationships of Eocene Marginal-Marine Sediments - Gippsland Basin. for Australian Aquitaine Petroleum Pty. Ltd. November 29, 1983.

PLANKTONIC FORAMINIFERAL BIOSTRATIGRAPHY

SIDEWALL CORES Depth in metres *2 samples labelled with same depth	G'ina angiporoides minima	G'alia nana	G'ina & G'alia spp indet (<.2mm	G'alia turgida	G'ina angiporoides (S.S.)	G'quad dehiscens (S.L.)	G'oides parawoodi	G'ina woodi connecta	G'ina woodi woodi	G'ina bulloides	Cat. dissimilis	G'alia siakensis/mayeri	G'alia continuosa	G'alia zealandica incognita	G'quad dehiscens (S.S.)	G'ina ciperoensis	G'alia zealandica (S.S.)	G'quad advena	G'oides subquadratus	G'oides trilobus	G'alia bella	G'alia miozea miozea	G'alia praescitula	Praeorb. glomerosa	G'oides bisphericus	G'alia peripheronda	Orb. suturalis	G'quad altispira	Orb. universa	ZONE	Sample Depth at Base	AGE
1051.0			D						x			°								°									x	C/D		MID MIOCENE
1125.0									°	°		°																°	°			
1174.0			D									°																	°		1174	
1284.5			D						x			°								°					°	°			x	D-2	1284	
1353.0									°				°									°	°		°		°	°		E-1	1353	
1380.0			D						°	°																				?		?
1399.0			D						x	x												°										
1427.0			D						°											°		°		°	°					E-2		EARLY MIOCENE (see text re unsampled Oligocene)
1449.5									°	x		°								°		°	°	°	°	°					1449.5	
1480.0	indet																													?		
1536.0	indet																															
1603.0								x	x	x		x	x				x	°		°	°	°	°							G	1603	
1615.0			D					x	x	x	x	°	°				°	°												H-1		
1625.0							°	x	x	x	°	x	x		°		x		°													
1650.0							°	x	x	x	°				x		°															
1675.0							x	x	x	x	x	x	x			°	°	°														
1678.0						°	°	x	x	x		x	x	°	x	°																
1700.0							°	x	x	x	°	°	°																			
1705.5							°	x	x	x		°	°	°																		
1712.0						x	°	°	x	x	x																				1712	
1814.0			D	°	x																									K?	1814	LATE EOCENE
*1825.0	x	x	D	°																										?N?		MID EOCENE
*1825.0	N.F.F.																															
1835.0	°	°	D																												1835	
1848.5	N.F.F.																													?		?
1907.5	N.F.F.																															
1946.0	N.F.F.																															
2304.0	N.F.F.																															

KEY:

° = <20 specimens
x = >20 specimens
D = Dominant >60% spedimens
∿∿?∿∿ = possible hiatus
indet = indeterminate taxa due to diagenesis
N.F.F.= no foraminifera found

TABLE 3: PLANKTONIC FORAMINIFERAL DISTRIBUTION - SPEKE # 1

David Taylor, September 6, 1984.

SIDEWALL CORES Depth in metres *2 samples labelled with same depth	SELECTED BENTHONIC FORAMINIFERA																																															BIOGENIC COMPONENTS								RESIDUE LITHOLOGY							AGE and E-LOG DEPTHS
																																																									MINOR COMPONENTS						MAJOR COMPONENTS	
	Vulvulina granulosa	*Gaudryina convexa*	*Lagena striata*	*Bulimina truncanella*	*Cassidulina subglobosa*	*Cibicides brevoralis*	*C. vortex*	*C. thiara*	*C. molestus & opacus*	*C. mediocris*	*Discorbinella berthelotti*	*Anomalina procolligera*	*A. bitrinoda*	*Osangularia bengalensis*	*Gyroidinoides spp.*	NODOSARIDS	*Vaginulinopsis gippslandica*	*Pseudoclavulina rudis*	*"Cyclammina" incisa*	*Ordorsalis tenera*	*O. umbonifer*	*Siphouvigerina proboscidae*	*Bolivina reticulata*	*Fissurina spp*	*Melonis affinis*	*M. simplex*	*Sphaeroidina bulloides*	*Vulvulina sp. ?*	*Discammina compressa*	*Textularia ? conica*	*Bathysiphon spp.*	*Euuvigerina picki*	*Globobulima pacifica*	*Stillostomella awamoana*	*S. antillea*	*Nonionella magnalingua*	*Cibicides temporatus*	*Siphonina australis*	*Euuvigerina miozea*	*Discorbinella complanata*	*Cibicides lobatulus*	*Siphogenerina raphanus*	*Chilostomella ovata*	*Elphidium advenum*	*Cassidulina leavigata*	*Cibicides subhaidingeri*	*Euuvigerina bassensis*	FORAM COUNT	% PLANKTONICS	fish fragments	echinoid spines (worn)	bryozoal fragment (worn)	ostracods	molluscan fragments	sponge spicules	mica	carbonaceous material	pyrite	limonitic clay	m-c subrd-ang qtz	glauconite	.-.= f qtz.sandy siltst;clayst Ψ = recrystall. biomicrite φ = biomicrite ∇-Δ- frosted & fractured qtz calcareous & limonitic clay sdst. ΘΘ = pellet glauconite ∇~Δ~ frosted & fractured qtz clay sdst.	
1051.0→									x										x							o																			o	o	o	?	?				r					A				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
1125.0→							o		o						o									o	o	o																					?	?						A			A				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	MID
1174.0→	INDET																																																?	?						r			C				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	MIOCENE
1284.5→										x	o				x	x												o			o		o	o								x					o	o	?	?			A	r					C				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
1353.0→							o		o												o									o																						?	?			D						C				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	1380
1380.0→									x							o				o											o															x			?	?		r	A						A		r		ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
1399.0→							o		x		o					o					o	x					o																					x	o		?	?			A	r					A				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
1427.0→							o		x																																							o				?	?			A						A				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
1449.5→							o		o		o					o										o							o									o					?	?		r	A	r					A				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
1480.0→					o		o																																											?	?			D						A				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	EARLY
1536.0→					o										o	o																																			?	?			D										ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
1603.0→					o				x						x				o					o		x																							?	?		C	A	r					C				ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	MIOCENE
1615.0→					o			o	x							x						x																					o	o						500	90		C							C			r	ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	(see text
1625.0→									x						o	x					o						x	o			o	o						o	o	o								1000	90		C											φφφφφφφφφφφφφφφφφ	re un-
1650.0→									x						x	x				x	x						x								o														500	90		C										C	ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	sampled
1675.0→							o		x	x					x	x					x						o						o	o	o	o	x											2000	80		C		r	C							C	φφφφφφφφφφφφφφφφφ	Oligocene)
1678.0→		o							x	x					o	x		o							o	o	x	x	o	o	o	o	o																	2000	80		C		r					C				ΘΘ φφφφφφφφφφφφφφ	
1700.0→									x	x	o					x				o	x				o	x	o	o																							500	60		C	C										ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
1705.5→					x				o	x	o	o	o		o	x				o	o	x	x	o																											1000	60		C	C						C			C	ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
1712.0→		o						x	x	x	o	x	o	o	o	x	o	o	o	o																															500	40		D	D										ΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨΨ	
							?									?									?								?									?									?							?			?			?		?		? ? ?	1758 & 1808
1814.0→					x	?	?	?	?																																								?	50	r	C					A		A	D			ΘΘ ∇~Δ~∇~Δ~∇~Δ~∇~	LATE EOCENE
													?														?														?														?					?						?			?	1820 ?
*1825.0→	o	o	o	o	o	o	x	o																																									500	50		C							A	A			ΘΘΘΘΘΘΘ -.-.-.-.-	MID
*1825.0→	N.F.F.																																																-	-									r	A			Δ-∇-Δ-∇-Δ-∇-Δ-∇-Δ	EOCENE
1835.0→	o	o	o	o	o	o																																											100	40	r	r					A		A	A			ΘΘΘΘΘΘΘΘΘΘΘΘ -.-.	
1848.5→	N.F.F.																																																-	-							A		A	A	A		∇-Δ-∇-Δ-∇-Δ-∇-Δ-∇	1850
1907.5→	N.F.F.																																																-	-							A		D				Δ-∇-Δ-∇-Δ-∇-Δ-∇-Δ	
1946.0→	N.F.F.																																																-	-							A			r			∇-Δ-∇-Δ-∇-Δ-∇-Δ-∇	? ? ?
2304.0→	N.F.F.																																																-	-							A	r	r				.-.-.-.-.-.-.-.-.	

<u>KEY:</u>

o = <20 specimens
x = >20 specimens
D = Dominant >60% specimens
N.F.F. = No foraminifera found
INDET = indeterminate taxa due to diagenesis
∿∿?∿∿ = possible hiatus

D = Dominant 5-10% grains
A = Abundant 1-5% grains
C = Common >20 grains
r = rare <20 grains

TABLE 4: BENTHONIC FORAMINIFERAL DISTRIBUTION and SEDIMENT GRAIN ANALYSIS - SPEKE # 1.

David Taylor, September 10, 1984.

TABLE 5

MICROPALEONTOLOGICAL DATA SHEET

BASIN: GIPPSLAND ELEVATION: KB: 22.0m GL: -55.0m

WELL NAME: SPEKE # 1 TOTAL DEPTH: 2770m

AGE		FORAM. ZONULES	HIGHEST DATA					LOWEST DATA				
			Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time	Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time
PLEIS-TOCENE		A_1										
		A_2										
PLIO-CENE		A_3										
		A_4										
MIOCENE	LATE	B_1										
		B_2										
		C	1051	2								
	MIDDLE	D_1						1174	2			
		D_2	1284.5	1				1284.5	1			
		E_1	1353	1				1353	1			
	EARLY	E_2	1427	1				1449.5	0			
		F										
		G	1603	0				1603	0			
		H_1	1615	1				1712	1			
OLIGOCENE	LATE	H_2	*(i)					*(i)				
		I_1	*(i)					*(i)				
		I_2										
	EARLY	J_1										
		J_2	*(ii)					*(ii)				
EOC-ENE		K	1815	2				1815	2			
		Pre-K ¶	1825					1835	2			

COMMENTS: Based on sidewall cores, depth in metres.

*Interval between 1712 and 1815m unsampled; deduced units = (i) between 1758 and 1712m; (ii) between 1808 and 1758m.

¶ Mid Eocene assemblage probably representing Zone N.

CONFIDENCE RATING:

O:	SWC or Core	- Complete assemblage (very high confidence).
1:	SWC or Core	- Almost complete assemblage (high confidence).
2:	SWC or Core	- Close to zonule change but able to interpret (low confidence).
3:	Cuttings	- Complete assemblage (low confidence).
4:	Cuttings	- Incomplete assemblage, next to uninterpretable or SWC with depth suspicion (very low confidence).

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: David Taylor. DATE: September 12, 1984.

DATA REVISED BY: DATE:

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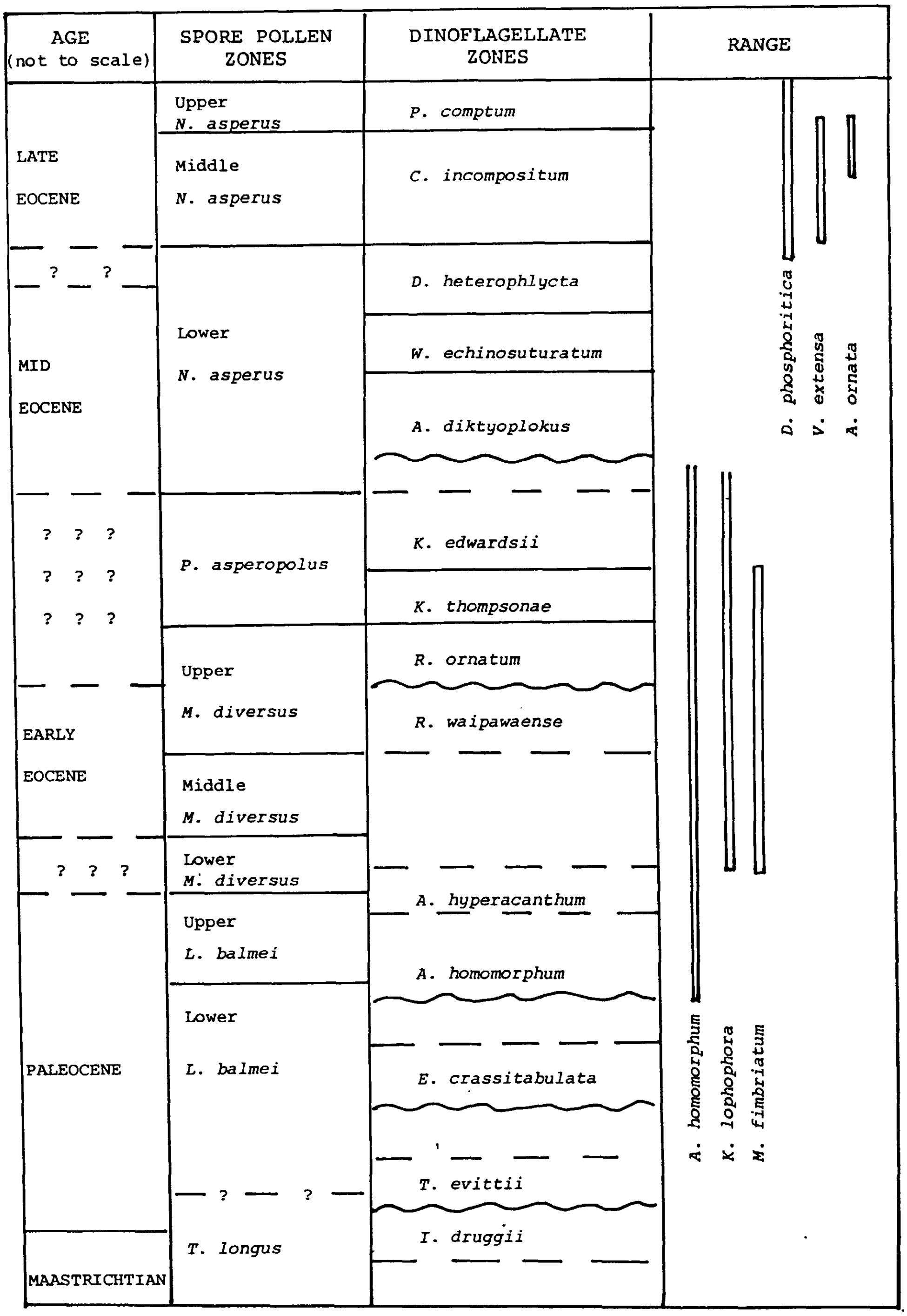

FIGURE 2: DINOFLAGELLATE RANGE CHART. Ranges from Stover, Helby & Partridge, 1979.

AUSTRALIAN AQUITAINE PETROLEUM SPEKE # 1.

Helene A Martin, September 1984.

SIDEWALL CORES Depth in metres	SPORES	Baculatisporites disconformis 3	Ceratosporites equalis 1	Crassoretitriletes sp.	Cyathea paleospora 2	Cyathidites australis 1	C. minor 1	Gleicheniidites circinidites 1	Ischyosporites gremius 3	Laevigatosporites ovatus 1	Latrobosporites amplus 3	Lycopodiumsporites sp.	Neoraistrickia sp.	Rugulatisporites mallatus 3	R. trophus 3	Stereisporites antiquasporites 1	Todisporites sp.	Verrucosisporites cristatus 3	V. kopukuensis 3	GYMNOSPERM POLLEN	Alisporites sp.	Araucariacites australis 1	Dacrycarpites australiensis 5	Lygistepollenites balmei 3	L. ellipticus 3	L. florinii 3	Microcachryidites antarcticus 1	Phyllocladidites mawsonii 3	P. reticulosaccatus 3	P. verrucosus 3	Podocarpidites spp.	Podosporites microsaccatus 1
1814.0						+	+	+	+			+										+				+	+				+	
*1825.0A							+	+				+									+											
*1825.0B																																
1835.0							+		+							+						+						+			+	
1848.5					+	+	+														+	+				+						
1865.0		BARREN																														
1907.5					+										+		+	+								+		+			+	
1946.0		+																														
1994.5								+							cf			cf	+				+					+				
2070.0																																
2204.0						+		+				+																				
2304.0				+	+	+		+																	R	+		+				
2325.0						+		+					+								+			+	+						+	
2351.9						+		+																+				+	+			
2361.0						+		+		+				+										+	+			+				
2370.0																								+								
2390.6								+								+												+			+	+
2441.5						+						+												+	+		+	+				
2526.0							+	+						+										+	+		+	+			+	
2552.9						+																		+	+			+			+	
2575.5			+			+	+					+												+				+			+	
2599.0						+	+					+												+	+			+			+	+
2648.5						+	+																	+	+			+			+	
2671.5						+																						+		+	+	
2688.0						+		+			+																	+			+	
2698.1						+		+													+			+							+	
2709.0																								+			+	+			+	
2717.0			+			+		+				+												+				+			+	
2750.5																										+					+	

SIDEWALL CORES Depth in metres	ANGIOSPERM POLLEN	Australopollis obscurus 3	Dilwynites granulatus 3	Gambierina rudata 3	Haloragacidites harrisii 3	Ilexpollenites anguloclavatus 3	Malvacipollis diversus	Myrtaceidites eucalyptoides 2	M. parvus 2	Nothofagidites asperus 3	N. brachyspinulosus 3	N. emarcidus 3	N. endurus 3	N. falcatus 3	N. flemingii 3	N. vansteenisii 3	Periporopollenites polyoratus 3	Proteacidites adenanthoides	P. angulatus 3	P. annularis 3	P. asperopolus 3	P. ivanhoensis 2	P. pachypolus 3	P. recavus 3	Proteacidites spp.	Santalumidites cainozoicus 3	Sapotaceoidaepollenites rotundus 3	Simplicepollis meridianus 3	Spinizonocolpites prominatus 3	Tricolpites confessus 3	T. gillii 3	Tricolporites adelaidensis 4	Unidentified tricolpate/tricolporates
1814.0					+					+		+		+		+						+											+
*1825.0A					+						+				+																		
*1825.0B							+	+															+				+						
1835.0					+							+			+										+								
1848.5					+			+				+				+									+								
1865.0																																	
1907.5					+	+	+		+			+			+	+		+		+		+		+	+	+		+				+	+
1946.0					+											+																	
1994.5					+						cf	+			+	+					cf	+			+								+
2070.0		R			+																												
2204.0																																	
2304.0		R			+		+																						+				
2325.0																									+								
2351.9			+												+										+								
2361.0																									+								
2370.0																									+								
2390.6					+						+		+		+							+			+								
2441.5																									+								
2526.0				+	+												+								+								+
2552.9																	+								+								+
2575.5				+									+												+								
2599.0				+																					+								+
2648.5		+																	+						+								+
2671.5						+													+						+					cf			+
2688.0				+									+												+						+		+
2698.1													+				+		+						+						+		+
2709.0																																	
2717.0																	+		+						+								+
2750.5																																	

SIDEWALL CORES Depth in metres	DINOFLAGELLATES	Alisocysta ornata 7	Apectodinium homomorphum 6	Batiacasphaera sp.	Cleistosphaeridium sp.	Deflandrea phosphoritica 6	Impagidinium sp.	Kenleyia lophophora 6	Muratodinium fimbriatum 6	Operculodinium centrocarpum 6	Operculodinium sp.	Spiniferites ramosus 6	Spiniferites sp.	Tectatodinium sp.	Vozzhennikovia extensa 6	Unidentified dinoflagellates	Spore pollen concentration	Spore pollen preservation	Abundance of plant tissue	Dinoflagellate concentration	Dinoflagellate preservation	SPORE POLLEN ZONE	DINOFLAGELLATE ZONE
1814.0												+		cf		4	+	+	+	+	+	? Middle *N. asperus*	?
*1825.0A		cf				+					cf	cf				5	z	+	z	♦	+		–
*1825.0B																	z	+	z				
1835.0							+				cf	+		cf		5	+	z	z	♦	z		?
1848.5				+							+				+	2	+	+	+	+	+	Middle *N.asperus*	*C. incompositum*
1865.0																						BARREN	
1907.5										+						2	o	+	♦	z	+	? Lower *N. asperus*	?
1946.0																	z	z	z				–
1994.5																	+	z	♦				?
2070.0					+												z	+		z	+	INDETERMINATE	–
2204.0																	z	z				*M.diversus*	?
2304.0			+					+	+				+				o	z	o	♦	z	*P.asperopolus*	–
2325.0																	+	+	+			*L. balmei*	
2351.9					+												z	z	♦	z	z		
2361.0																	+	z	♦				
2370.0																	z	z					
2390.6																	+	+	+				
2441.5																	o	+	♦				
2526.0																	o	+	+				
2552.9																	o	+	♦				
2575.5																	o	+	♦				
2599.0																	o	+	♦				
2648.5																	+	+	♦				
2671.5																	+	+	♦			? *T. longus*	
2688.0																	o	z	♦			*T. longus*	
2698.1																	+	+	+				
2709.0																	z	+					
2717.0																	+	+	+				
2750.5																	z	+					

*1825.0A - clay
*1825.0B - sand & silt

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1. Dettmann, 1963
2. Martin, 1973
3. Stover & Partridge, 1973
4. Stover & Partridge, 1982
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KEY to SYMBOLS:

♦ : Good, above average
o : average
+ : poor, below average
z : exceedingly poor, trace occurrence
cf : similar to, but with some doubt identification because of poor preservation
R : reworked

TABLE 1: SPORES, POLLEN and DINOFLAGELLATES IDENTIFIED in AUSTRALIAN AQUITAINE PETROLEUM SPEKE No. 1.

Helene A Martin, September 1984.

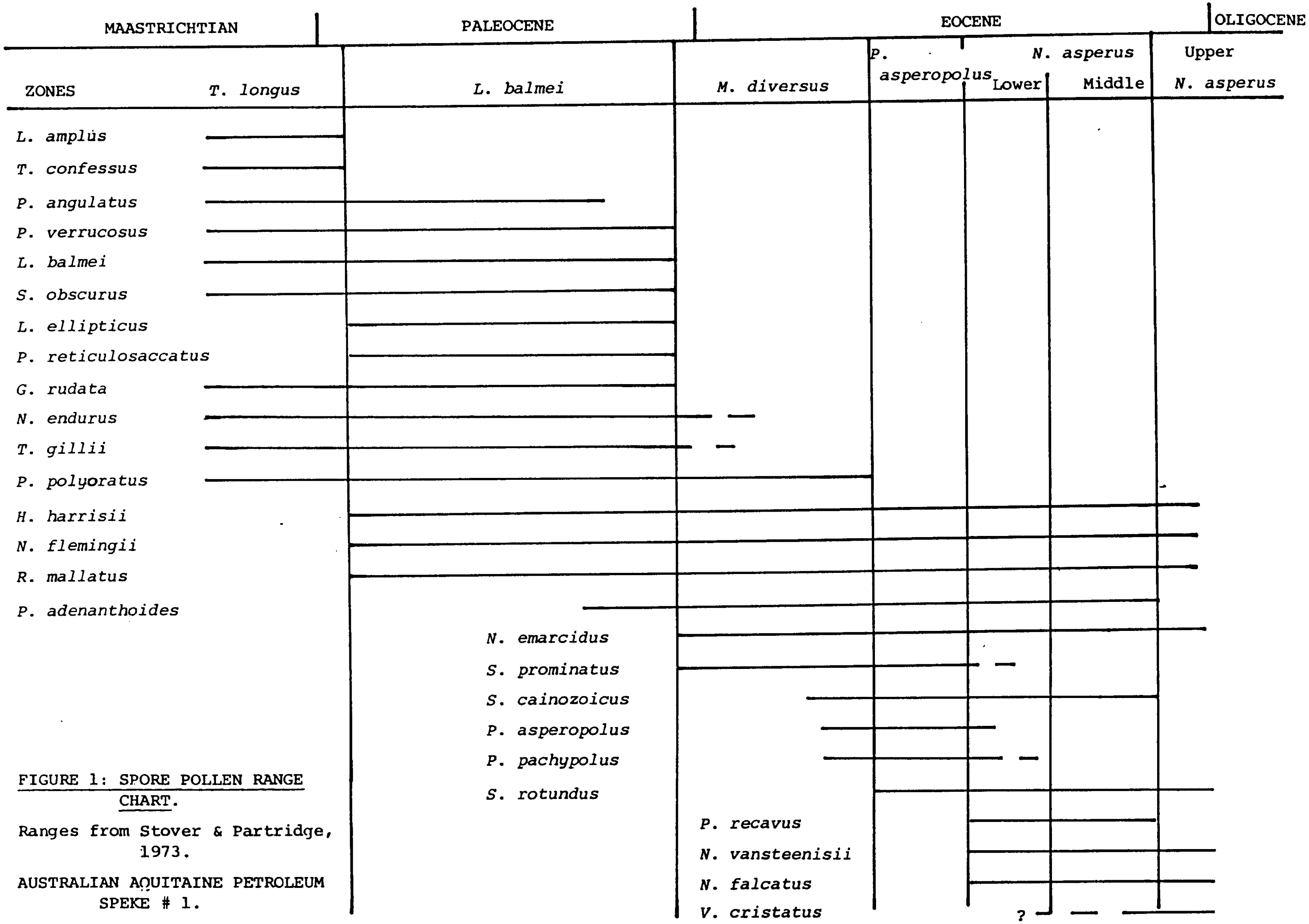

FIGURE 1: SPORE POLLEN RANGE CHART.

Ranges from Stover & Partridge, 1973.

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Helene A Martin, September 1984.