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OIL and GAS DIVISION

Page 1 of 6

A PALYNOLOGICAL ANALYSIS OF ALBATROSS-1, GIPPSLAND BASIN

by

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INTRODUCTION

2/6

Fifteen cutting samples were collected from the Victorian Mines Department's core store and processed for palynology. Recovery was fair to poor and almost half of the samples did not yield diagnostic floras.

Zones and lithological/facies subdivisions of the Latrobe and Strzelecki groups are summarised below. All samples are summarised in Table 1 and each recurrence of the individual species is tabulated in the distribution charts.

SUMMARY

<u>Unit/Facies</u>	<u>Zone</u>	<u>Depth (Feet)</u>
Latrobe Group	Lower <u>N. asperus</u>	2330'-?2520'
-----UNCONFORMITY-----		
Strzelecki Group	<u>C. striatus</u>	3100'-3680'
	<u>F. asymmetricus</u>	3780'-4070'
		T.D. 4118'

GEOLOGICAL COMMENTS

1. Samples above 2330' were barren of diagnostic fossils and only the sample from 2330' to 2340' contained a well-enough developed floral assemblage to allow a confident Middle Eocene age determination. The extension of this Lower N. asperus zone through 120' of barren samples to the sample at 2510'-2520' is on very tenuous evidence. Since these are cuttings, the rare occurrence of A. arcuatum, the marker species, at 2510' could be due to contamination from above rather than an "in-place" fossil.
2. The rare fossils from sample 2620'-2630', if in place, show that the sediments at this depth are still Tertiary, and not Lower Cretaceous, as occurs lower.
3. A major unconformity occurs somewhere between 2630' and 3100' and separates the Eocene from Lower Cretaceous sediments.

DISCUSSION OF ZONES

3/6

Presence and distribution of individual species is tabulated on the distribution sheet. The basis for zonation is discussed below.

Foraminisporites asymmetricus zone : 3780'-4070'

Although the nominate species was not found, the rest of the flora compared favourably with that recorded by Burger, 1973 from this zone and with the equivalent flora listed by Dettmann, 1963 and Dettmann and Playford, 1969. Species considered indicative of this zone or higher, are Pilosporites notensis, Contignisporites cooksonii, Dictyotosporites speciosus and Cyclosporites hughesi. At the same time, the lack of Crybelosporites striatus and/or Aequitriradites hispidus is regarded as evidence that these sediments do not belong to the higher C. striatus zone.

Crybelosporites striatus zone : 3100'-3670'

The addition of specimens of Crybelosporites striatus to the assemblage described above marks the C. striatus zone of the Lower Cretaceous.

Lower Nothofagidites asperus zone : 2330'-2520?'

Most of the samples in the section from 2310' (the highest sample) to 2630' contained at least a few specimens of Tertiary to Upper Cretaceous species, although only one assemblage, from 2330'-2340', was well enough developed to allow a confident age date to be made. That flora includes several specimens of Spinizonocolpites prominatus (signifying no higher than Lower N. asperus zone) and Areosphaeridium arcuatum, which restricts the sample to N. asperus or younger. The rare occurrence of A. arcuatum in the sample from 2520' would also be an indication of N. asperus zone if this fossil is in place, however, as noted above, since we are working with cutting samples, the fossil may be contamination from above.

REFERENCES

BURGER, D., 1973, Spore zonation and history of the Neocomian. Geol. Soc. Aust., Special Pub. No. 4, pp. 87-118.

DETTMANN, M.E., 1963, Upper Mesozoic microfloras from south-eastern Australia. Proc. R. Soc. Vict., 77, pp. 1-148.

_____ and PLAYFORD, G., 1969, Palynology of the Australian Cretaceous. Essays in Honour of Dorothy Hill, pp. 174-210. A.N.U. Press, Canberra.

Table 1: SUMMARY OF PALEONOLOGICAL ANALYSIS, ALBATROSS-1, GIPPSLAND BASIN

SAMPLE	DEPTH (m)	DEPTH (ft.)	ZONE	AGE	CONFIDENCE RATING	YIELD	DIVERSITY	COMMENTS
Ctngs	704-07	2310-20	Indeterminate	-	-	Very Low	Very Poor	
Core 1	707-09	2320-27	Indeterminate	-	-	Barren	Barren	
Ctngs	710-13	2330-40	Lower <u>N. asperus</u>	Middle Eocene	3	Fair	Moderate	
"	719-22	2360-70	Indeterminate	-	-	Barren	Barren	
"	725-28	2380-90	Indeterminate	-	-	Barren	Barren	Coal
"	728-31	2390-2400	Indeterminate	-	-	Barren	Barren	Coal
"	738-41	2420-30	Indeterminate	-	-	Almost Barren	Almost Barren	
"	741-44	2430-40	Indeterminate	-	-	Almost Barren	Almost Barren	
"	753-56	2470-80	Indeterminate	-	-	Almost Barren	Almost Barren	
"	765-68	2510-20	Lower <u>N. asperus?</u>	Middle? Eocene	4	Low	Poor	Rare <u>A. arcuatum</u>
"	799-802	2620-30	Indeterminate	-	-	Almost Barren	Almost Barren	
"	945-48	3100-10	<u>C. striatus</u>	Early Cretaceous	3	Fair	Moderate	
"	1119-22	3670-80	<u>C. striatus</u>	Early Cretaceous	3	Fair	Moderate	
"	1152-55	3780-3800	<u>F. asymmetricus</u>	Early Cretaceous	3	Fair	Moderate	
"	1237-40	4060-70	<u>F. asymmetricus</u>	Early Cretaceous	3	Fair	Moderate	

4/6

PALYNOLOGY DATA SHEET

5/6

B A S I N: GIPPSLAND

ELEVATION: KB: 32 feet GL: 142 feet

WELL NAME: ALBATROSS-1

TOTAL DEPTH: 4118 feet

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>										
	<i>P. tuberculatus</i>										
PALEOGENE	Upper <i>N. asperus</i>										
	Mid <i>N. asperus</i>										
	Lower <i>N. asperus</i>	2330'	3				2520'	4	2340'	3	
	<i>P. asperopolus</i>										
	Upper <i>M. diversus</i>										
	Mid <i>M. diversus</i>										
	Lower <i>M. diversus</i>										
	Upper <i>L. balmei</i>										
	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>											
<i>A. distocarinatus</i>											
EARLY CRET.	<i>C. paradoxus</i>										
	<i>C. striatus</i>	3100'	3				3680'	3			
	<i>F. asymmetricus</i>	3780'	3				4070'	3			
	<i>F. wonthaggiensis</i>										
	<i>C. australiensis</i>										
PRE-CRETACEOUS											

COMMENTS: Stratigraphy from cuttings. All depths in feet

- 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: SEPTEMBER 14, 1979

DATA REVISED BY: _____

DATE: _____

6/6

Well Name ALBATROSS-1 Basin GIPPSLAND Sheet No. 1 of 1

SAMPLE TYPE *	DEPTHS														
	T	C	T	T	T	T	T	T	T	T	T	T	T	T	
	2310-20	2320-27	2330-40	2360-70	2380-90	2390-400	2420-30	2430-40	2470-80	2510-20	2620-30	3100-10	3670-80	3780-800	4060-70
PALYNOMORPHS															
<i>Noth. brachyspinulosus</i>															
<i>Noth. falcatus</i>															
<i>Impagidinium</i> sp.															
<i>Oper. centrocarpum</i>															
<i>Cupan. orthoteichus</i>															
<i>H. harrisii</i>															
<i>Hel. astrus</i>															
<i>L. florinii</i>															
<i>Malv. subtilis</i>															
<i>Prot. adenantoides</i>															
<i>Prot. annularis</i>															
<i>Prot. crassus</i>															
<i>Prot. lapis</i>															
<i>Prot. pseudomoides</i>															
<i>Prot. tenuixinus</i>															
<i>Spin. prominatus</i>															
<i>Trilorites psilatus</i>										cf					
<i>Verrucos. cristatus</i>															
<i>Verrucos kopukuensis</i>															
<i>Areosph. arcuatum</i>															
<i>H'kolpoma rigaudae</i>															
<i>Hystr. tubiferum</i>															
<i>Pyxid. vietus</i>															
<i>Tricolp. leuros</i>															
<i>Hystrichospaeropsis</i> sp.															
<i>Spin. ramosus</i>															
<i>Protoel. simplex</i>															
<i>Noth. flemingii</i>															
<i>Prot. rugulatus</i>										cf					
<i>Ling. machaerophorum</i>															
<i>Class. classoides</i>															
<i>Lepto. verrucatus</i>															
<i>Dictyo. speciosus</i>															
<i>Cicaticosi. australiensis</i>															
<i>Lycopodium. eminulus</i>															
<i>Dictyo complex</i>															
<i>Microcach. antarcticus</i>															
<i>Podocarp. ellipticus</i>															
<i>Neoraist. truncatus</i>															
<i>Cerato. equalis</i>															
<i>Baculati. comaumensis</i>															
<i>Cyath. australis</i>															
<i>Pilo. notensis</i>															
<i>Crybel. striatus</i>															
<i>Januas. spinulosus</i>															
<i>Cicaticosi. ludbrookii</i>															
<i>Lycopodium. nodosus</i>															
<i>Contigni. cooksonii</i>															
<i>Cyclo. hughesi</i>															
<i>Kluki. scaberis</i>															
<i>Lycopodium. austroclavatioides</i>															
<i>Kraus. linearis</i>															
<i>Pilo. grandis.</i>															

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