FORAMINIFERAL BIOSTRATIGRAPHY AND ENVIRONMENTAL ANALYSIS IN SUNFISH-1

by David Taylor

24-7-74.

?MID MIOCENE PROXIMAL CANYON FACIES - 4900' - 2900'.

Of the eleven side wall cores examined only four contained biostratigraphically diagnostic fauna and even these were heavily affected by diagenesis making specific designation difficult. No foraminifera were found in side wall cores at 2900', 3270', 4100' and 4500'. Residues of side wall cores at and above 4900' were composed dominantly of angular fine to coarse quartz of obviously terrestrial origin, especially as coal fragments were present at 3700' and black slate fragments (?Lower Palaeozoic) at 4100'. No biostratigraphic or environmental comment can be made for this aranaceous interval from 4900' upwards, save that it may have been the proximal end of a mid Miocene submarine canyon which are distally calcareous in Gippsland. Barracoota-1 contains terrestrial detritus in the mid Miocene which is believed to represent a proximal canyon facies. Samples below 4900' (e.g. 5200') are definitely early Miocene.

OLIGOCENE TO EARLY MIOCENE - 5517' - 5200'

The side wall core at 5517' possibly contains an early Oligocene Zone J fauna but the diagenetic obliteration of surface texture make the recognition of *Globigerina angioporoides* tenuous. There is a distinctive late Oligocene Zone I-1 fauna at 5510' but identification relies on shape as surface texture is either obliterated or encrusted. Only a thick walled, sparsely perforate benthonic fauna was recovered in the heavily recrystallized micrite at 5500', which may imply that the more delicate planktonic foraminifera were removed during diagenesis. Side wall cores at both 5400' and 5200' contained early Miocene Zone H-1 faunas.

It is difficult to appraise environmentally the Oligocene-early Miocene interval as certain species may have been destroyed. The dominance of planktonics and the benthonic fauna at 5500' could indicate a position on a continental slope anywhere from the shelf/slope break to the base of the slope. Size and shape sorting at the early Miocene indicates high energy shelf edge or down slope currents which are less evident in the Oligocene.

One must emphasise the confusion caused by diagenesis in the Sunfish-1 section and the need for detailed study, especially in the light of its effects on sonic velocity as has been recently demonstrated by Packham & Lingen (1973, Initial Rep. Deep Sea Drilling Project, Vol. XXI, 495-521)

BASIN GIPPSLAND BY David Taylor

WELL NAME SUNFISH-1 DATE 10-7-74 ELEV. _____

Foram Zonules

		Highest Data	Quality	2 Way Time	Lowest Data	Quality	2 Way Time
MIOCENE	A						
	Alternate						
	B						
	Alternate						
	C						
	Alternate						
	D_1						
	Alternate						
	D_2						
	Alternate						
	E						
	Alternate						
	F						
	Alternate						
	G						
	Alternate						
	H_1	5200	1		5400	0	
	Alternate						
	H_2						
	Alternate						
OLIGOCENE	I_1	5510	0		5510	0	
	Alternate						
	I_2						
	Alternate						
	J_1	5517*	2		5517*	2	
	Alternate						
	J_2						
	Alternate						
EOC.	K						
	Alternate						
	Pre K						

No Fauna found in S.W.C.s 2900, 3270, 4100 & 4500.

Non diagnostic faunas present in S.W.C.s at 3700, 4900 & 5500.

*All specimens show signs of diagenesis which is extreme at 5517 making zonal designation difficult.

COMMENTS:

Note: If highest or lowest data is a 3 or 4, then an alternate 0, 1, 2 highest or lowest data will be filled in if control is available.

If a sample cannot be interpreted to be one zonule, as apart from the other, no entry should be made.

0 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).

Date Revised _____