

this Senonian time marker.

6) Pretty Hills Unconformity -

has been tied to Esso Crayfish A-1 at -5147 feet. The reflection is a marked angular unconformity that at Crayfish is the top of a thick sandstone overlain by typical Otway Group tight sandstones, siltstones and mudstones.

Structure maps have been made on all these horizons and an isopach has been drawn between Base of Tertiary and Senonian Marker in South Australia. The mapping base is the digitally processed data, static corrected. This has necessitated the subtraction of 20 to 30 milliseconds from old analog sections due to phase shift and amplifier delay.

D) REPRESENTATIVE BASIN CROSS SECTIONS

Four sections that demonstrate Otway Basin sedimentation and prospects have been constructed. These are based on seismic data and well control, and the section locations are shown on Figure 1. The significant comments on each are as follows:

1) Section A-A' - Plate 2 - Crayfish Area

This section crosses Esso Crayfish A-1 abandonment and is representative of lithologies in an area between Cape Jaffa and an Upper Cretaceous and Tertiary hinge line that strikes east-west through Geltwood Beach-1. Fault, anticlinal or erosional highs on the Pretty Hills unconformity should be good to excellent prospects because of the ideal trap to seal relationship between Pretty Hills and sandstones and Otway tight sandstones, siltstones and mudstones.

2) Section B-B' - Plate 3 - Gambier Sub-Basin

This section is tied by projection to Alliance Lake Bonney-1, and is representative of a heavily faulted Upper Cretaceous Sub-Basin that extends approximately from Geltwood Beach-1 to Shell Voluta A-1. Some of this type of fault has been recognized on-shore, but it is only with digital processing in the recent survey that the faults have become obvious in the offshore Gambier Sub-Basin. They are partly rotated normal faults with fault dips shallowing at depth but not obviously turning into a glide plane. The movement and displacement has been intermittent, but probably initiated before Senonian Marker time with maximum displacement during Paleocene-Eocene and minor movement since Oligocene-Miocene time.

The fault movement which occurred during the Upper Cretaceous was probably not sufficient to upset sedimentation patterns. Upper Cretaceous sedimentation is hypothesized on the section to be a regressive sand facies with shales rising vertically basinward above the Senonian Marker.

The Base of Tertiary is a very gentle unconformity. Paleocene and Eocene clastics are deposited in a regressive prograding sequence such that individual rock units thin to the south by way of clinoform slopes. This is demonstrated by the Knight Group seismic marker. The transgressive facies of the Gambier marls and shales completes the section.

A potential Esso drilling prospect, Argonaut A-1, is shown on the upthrown side of a 1000 foot fault where interbedded sands and shales of the Paraate may provide reservoir and seal against the fault.

3) Section C-C' - Plate 4 - Central Otway Basin

This section crosses the central portion of the Otway Basin, and is controlled by two completed wells, Frome Broken Hill Flaxmans-1 and Shell Pecten 1-A plus the currently drilling Esso Nautilus A-1.