

During Paleocene through to Upper Eocene time, gentle subsidence took place in the Otway Basin and up to 4000 feet of clastic sediments were deposited in an environment that ranges from paralic to neritic. These clastics were sourced from the north, and they thicken to the centre of the basin then thin southernwards in clinofold slopes onto Upper Cretaceous beds. There is seismic evidence of complex Paleocene faulting from south of Warrnambool to the Geltwood Beach Hinge Line, while the eastern half of the basin is undisturbed. Faulting during Eocene time is recognized only in the Gambier Sunklands, and by Oligocene and Lower Miocene time major faulting has stopped.

This is evidence to augment the theory that rifting and slumping persisted between Antarctica and Southern Australia till the end of Eocene, and from Oligocene to recent the continents have been drifting apart with no effect to the structural geology of the continental margins.

In Upper Eocene through Lower Pliocene times, marls and limestones were deposited by a transgressive sea. Marine conditions persisted into late Miocene time when transgression reached its fullest extent. During Pliocene time the Otway Basin was subjected to epeirogenic uplift which was probably accompanied by some gentle folding and faulting. Vulcanism was widespread during this time in Tasmania and west-central Victoria. In late Pliocene and Pleistocene time the sea assumed its present position.

#### D. HISTORY OF EXPLORATION:

The search for petroleum has been underway in the Otway Basin for many years and although no commercial occurrences of hydrocarbons have been found to date, several wells have recorded shows of gas and oil. Frome-Broken Hill Port Campbell-1 recorded an initial gas flow of 4.2 MMCF per day with some condensate from the Waarre Formation. Rapidly declining pressure, however, proved the interval to be non-commercial in this well. An offset, Port Campbell No.4 produced small quantities of oil emulsion with gas cut salt water.

The second stage of exploration in the Otway Basin commenced with a programme by Shell Development (Australia) Pty. Ltd. when three offshore wells were drilled during 1967. Their first test, Pecten-1, flowed gas at the rate of 145 Mcf per day plus salt water from a 42 foot interval of the Waarre Formation, and the well was subsequently abandoned. The two other Shell tests, Nerita-1 and Voluta-1 were abandoned without shows.

Esso's offshore drilling programme began in September 1967 and continued to June 1968 resulting in four abandoned tests - Crayfish-1, Prawn-1, Nautilus-1 and Argonaut-1. Subsequently, two additional tests were drilled in July and August 1969 - Clam-1 and Mussel-1, but no indications of hydrocarbon were encountered.

Interstate drilled three dry holes onshore in the latter part of 1968 - Woolsthorpe-1, Garvoc-1 and Purumbute-1.