

to early Permian time by the Hunter-Bowen Orogeny. The Otway Basin was probably initiated in Jurassic or Lower Cretaceous time, although it is probable that Triassic deposition occurred. Clastic sediments derived from the old Paleozoic landmass are believed to have been deposited in a west to east trending trough which extended from offshore South Australia south of Cape Jaffa to western Victoria near Casterton. These sediments are thought to have consisted predominantly of coarse sandstones, interbedded with siltstone and carbonaceous shale. During Lower Cretaceous time these clastics were uplifted and truncated.

The Lower Cretaceous Otway Group unconformably overlies thick clastic Lower Cretaceous or older sediments. The Otway Group consists of non-marine greywackes, mudstones and coal deposited in a northwest-southeast trending trough which was parallel to the present coast of Victoria and South Australia from Gippsland to Cape Jaffa. These clastics were probably derived from the uplifted Mesozoic and Paleozoic highlands then present to the north and south of the depositional trough. The Otway Group is generally unconformably overlain by paralic clastics of the Sherbrook Group of Upper Cretaceous age. The Upper Cretaceous basin was probably open to the Southern Ocean and becomes more open marine in a southerly direction.

At the close of Upper Cretaceous time the pre-Tertiary rocks were subjected to uplift and erosion and a widespread regional unconformity developed in the Otway Basin.

During Paleocene time gentle subsidence took place in the Otway Basin and about 4000 feet of clastic sediments were deposited in an environment ranging from paralic to neritic. This clastic sedimentation continued on into Upper Eocene time, although there was structural uplift and erosion during the Middle Eocene.

In Oligocene and Miocene time marls and limestones were deposited in the Otway Basin by a transgressive sea. These marine conditions persisted on into late Miocene time when the marine transgression reached its fullest extent. During middle Pliocene time the Otway Basin was subjected to uplift, probably accompanied by some gentle folding and faulting. Volcanism was widespread in this period in Tasmania and west-central Victoria. In late Pliocene and Pleistocene time the sea in general retreated to its present level.

(3) Stratigraphy: (Figure 2)

Stratigraphic Table

Stratigraphic section penetrated by Prawn A-1  
Water depth 354' water

Depths are relative to R.T. (subtract 89 feet for M.S.L.)

<u>Age and Formation</u>	<u>Depth</u>	<u>Thickness</u>	<u>Lithology</u>
<u>Miocene-Oligocene:</u>			
Gellibrand Marl	108m 354'-2410'	2056'	Marl interbedded with limestone; calcareous sandstones and siltstones.
<u>Oligocene:</u>			
Clifton limestone	735m 752m 2410-2467'	57'	Skeletal limestone; slightly sandy.
<u>Upper Eocene:</u>			
Narrawaturk Marl	922m 2467-3024'	557'	Marl interbedded with limestone.

\*Note: Samples recovered below 1030'