

Prior to lower Cretaceous time the Tasman geosyncline area became stable and was peneplained. In lower Cretaceous time, a new sedimentary trough began to develop and received sediments through the Tertiary. This trough trended east-west and extended from the Otway Basin in the west at least as far east at the continental slope of the Gippsland Basin. Deposited in this trough in early Cretaceous time were more than 20,000 feet of greywackes and sub-greywackes interbedded with shale and occasional thin beds of coal. This section is referred to as the Strezlecki Group in the Gippsland Basin and is correlative with the Otway Group of the Otway Basin.

Near the end of lower Cretaceous time the Strezlecki Group was sharply folded. Dipmeter data in a few of the onshore wells indicate 30° dip to be common and where seismic data is obtained the beds also appear to be steeply dipping. The area then stabilized, and following peneplanation of the Strezlecki Group, general subsidence allowed almost uninterrupted deposition of the upper Cretaceous to Pliocene sequence. The lower sediments of this sequence consist of a thick (500 + feet) section of alternating sandstones, coals and shales which make up the Latrobe Deltaic Complex, which ranges in age from upper Cretaceous to uppermost Eocene. Clastic sediments in this group probably were sourced from the Paleozoics present on the surface to the north. It is postulated that the delta complex was deposited in a north-south trending trough with initial subsidence occurring in the eastern portion of the Gippsland Basin. As deposition continued, the depositional axis gradually migrated to the west. Within the delta complex local structural growth accompanied by erosion and/or non-deposition causes local angularity of beds.

Following deposition of the Latrobe Delta Complex the rate of basin subsidence increased and marine conditions persisted over most of the basin into Pliocene time.

During Pliocene the sea withdrew to approximately its present position. Onshore upper Pliocene to recent sands and gravels are locally developed. Also during this period the Balook and Narracan surface structures are postulated to have developed. However, little is known about the stratigraphic relations around these structures and it is possible that structural growth may have been initiated as early as Eocene time.

Regional Structure - Regionally the Gippsland Basin geological development has been controlled in the south by a major down-to-the-north E-W trending fault system, which was active between lower Cretaceous and upper Eocene time, (Plate XI). To the north the present basin is bounded by a combination of faulting and folding.

The local structural movement that occurred during the Latrobe Delta development, from upper Cretaceous to uppermost Eocene, was characterised by normal faulting accompanied by some domal uplift (Plate X). The dominant trend of this faulting was NW-SE, and the magnitude of throw decreased significantly toward the top of the delta.

At the close of the Eocene, a widespread trend of structural movement developed and in places persisted well into Miocene time. This trend was practically orthogonal to the older NW-SE trend. It is best represented by the ENE-WSW structural uplift of the Dolphin-Barracouta trend and the E-W uplift of the Kingfish-Bream trend. (Plates VIII and IX). Generally, the younger the movement the more E-W has been its trend. Also the younger structural movements are not accompanied by the same extent of normal faulting as were the upper Cretaceous and Eocene movements.

A most important feature which should be recognised when considering the structures on top of the Latrobe deltaic complex (Plate IX) is the topographic nature of the horizon. It is the combination of structural uplift and topographic relief that give rise to the closure on most of the features.