

will similarly be an unprospective complexity of sedimentary, metamorphic and igneous rocks in the Bass Basin.

#### Mesozoic Rocks

Mesozoic rocks are present in the surface in both Victoria and Tasmania. They have been penetrated or encountered in many wells in the Otway Basin and Gippsland Basin. In onshore Gippsland more than 8600 feet of the Jurassic and Lower Cretaceous Otway Group have been drilled. This group consists of non-marine felspathic sandstone, chloritic greywacke, siltstone, mudstone and carbonaceous shale, with fossil plants and thin black coal seams. In the Otway Basin the Cretaceous and Jurassic rocks have a maximum composite thickness of 15,000 feet. They consist of several marine and non-marine formations comprised of siltstones, sandstone and greywacke with lesser amounts of conglomerate, mudstone and coal. Plant fragments, spores and foraminifera are present. In the Bass Basin there are no Mesozoic sediments known at present.

Some thin non-marine Triassic rocks are present in west-central Victoria. In Tasmania the only known Mesozoic sedimentary rocks are of Triassic age. They consist of 1500 to 2000 feet of lacustrine and fluviatile protoquartzites, lithic arenites, lutytes, minor fine grained conglomerates and coal beds (Hale, Spry and Banks, 1962).

The volcanic association occurring at the base of Esso Bass-2 (from 5511 to 5910 feet) is possibly of Mesozoic age. It may be correlative with the widespread Jurassic dolerite of Tasmania.

#### Tertiary Rocks

##### Paleocene-Eocene

The Basal Tertiary section in the Bass Basin encountered by drilling is a thick deltaic complex. This unit is the principal reservoir objective in the basin.

The distribution of this sequence in the basin is largely controlled by the flanking down to basin fault systems, with the bulk of the sediment confined to central downdropped portions of the basin. The sequence may overlap the Mornington-King Island basement ridge to the northwest and be in part continuous with the Easternview Coal Measures.

This deltaic complex is made up of interbedded sandstone, siltstone, shale and coal, all of dominantly continental origin. Sparse microplankton were noted in cores from the Esso Bass-1 well, suggesting the paralic and/or marine conditions prevailed in the central part of the basin during the deposition of this interval. This sequence lies unconformably on economic basement and is transitional into the overlying marine Eocene sequence.

##### Upper Eocene

The Upper Eocene siltstones and mudstones overlie the deltaic complex over most of the Bass Basin. The contact between the two sequences is transitional. The fauna and lithology of this interval indicate that it is of restricted marine origin and is correlative with the Demon's Bluff Formation of the Anglesea area, Victoria.

##### Oligocene

The Oligocene series in the Bass Basin ranges in thickness to 2000<sup>±</sup> feet in the axial part of the basin. The interval is distributed throughout the basin proper and overlaps the basin margin in the northwest over the Mornington-King Island high, and possibly to the east over the basement ridge which extends from Wilson's Promontory to northeastern Tasmania.