

Possible Facies Change Between Otway and Upper Mesozoic:

An important though radical thought concerning the marine Upper Mesozoic is that it may represent a lateral facies of the Otway rather than overlying it stratigraphically. The suggestion for this comes mainly from the Mt. Salt well (total depth 10,044 ft.) that drilled 6,893 feet of section classified palaeontologically as marine Upper Cretaceous without reaching the base of it. A seismic refraction line near the well determined basement (velocity 18,000 ft./sec.) to be at 15,500 feet. This would leave less than 5,456 feet for the Otway which normally is about 10,000 feet thick. (The Geltwood Beach well had 1,760 feet of Upper Mesozoic and 8,628 plus feet of Otway). (Fig. 18).

The cross section (Fig. 15) following the seismic refraction line (shown on map Top Basement Fig 10) from Penola to Mt. Salt illustrates the basement refractor and the possible facies change between Otway and marine Upper Mesozoic. The presence of the intermediate refractor of 14,000 ft./sec. suggests a general separation within the overall Mesozoic, marking the zone of inherent change to marine facies. In this connection, it is observed that arenaceous foraminifera were found in this upper zone in Penola No. 1 from 2,586 to 3,195 feet.

It is obvious from the cross section that the Upper Mesozoic must extend with appreciable thickness into the offshore area. However, it cannot be recognized on the seismic profiles.

Further evidence of a break within the overall Mesozoic is found in the westernmost part of the mapped basin, where there is a refraction line (shown on map Top Basement Fig. 10) showing 18,000 ft./sec. basement and also a 14,000 ft./sec. refractor. The 14,000 ft./sec. zone appears to tie in with the discordant top of a wedge of distinctive reflections tentatively referred to as Jurassic (which see). The section above the refractor may be correlatable with that shown on the Mt. Salt-Penola cross section.