

ABSTRACT

The Otway basin extends from the Mornington-King Island basement ridge westward for at least 300 miles. Its average width is about 80 miles and the south half of the basin lies offshore.

An airborne magnetic survey of the offshore was made in 1961, followed in 1963 by 743 miles of marine seismic lines, mostly in South Australia. This was later found to be inadequate in extent, so in early 1965 an additional survey totalling 1,874 miles was completed.

In considering the sequence of geological events in the development of the basin, it becomes apparent that there was a hiatus of great importance between Mesozoic and Tertiary, and that the basin of Tertiary deposition was of quite different framework from that of the Mesozoic.

The Mesozoic was deposited in an elongated graben-like basin, apparently along a common line of tectonic breakdown with the Gippsland basin. The floor of the basin was irregular, with at least three ridges remaining as islands through the lower part of the Mesozoic.

In the interval between Mesozoic and Tertiary, regional uplift and base-levelling erosion occurred, the debris from which was transported far to the south. Apart from the epeirogenic movement, localized uplifts were in progress, as noted from northward displacement of east and west extremities of the south flank. The steep margin between continent and ocean basin is believed to have developed near the end of this period.

The Tertiary basin was initiated by gentle, regional subsidence, the sediments spreading over the now-stabilised framework of the Mesozoic basin. The independence, tectonically, of the Tertiary basin from that of the Mesozoic is demonstrated by difference in distribution and by pronounced angular unconformity. In the offshore area the Tertiary dips southward, whereas the Mesozoic dips northward.