(ii) The second type of basement usually appears as an envelope of diffraction curves. It is normally not faulted, but may be flat or form pronounced hills or ridges. It can generally be ascribed to a thick volcanic layer or to successive extrusion levels as indicated by magnetics. It forms the basement in the oceanic parts of the sections, where it is referred to as layer 2 of the crust. In some places the basement-boundary reflector shifts vertically in the sequence, and it cannot be regarded as a continuous horizon throughout the area.

3. Sedimentary cover

The sedimentary cover, which is mainly of Mesozoic to Tertiary age, is best-developed along a linear depocentre trend in the offshore area south of Australia. The thickness reaches a maximum below the slope and proximal continental rise (Encl. 13-15) and thins in both north and south directions against shallower basement.

In the areas of shallow continental basement the sediments are faulted with the basement to form tilt blocks, generally landward-dipping. On the continental slope where the sedimentary section is thin (e.g. Perth, E. Tasmania, Albany) the sediments have slumped extensively.

The areas of thick sediments below the plateaux, slope and rise have suffered systematic slope failure, manifested by mega-slumps, synsedimentary faults and related thrust faults. As more than one period of movement is recognisable the resultant structural picture is rather complicated. In its simplest form, however, a belt characterised by synsedimentary rotational faults may be seen below the continental slope around almost the whole of the Great Australian Bight (it is absent from the Perth, Naturaliste Plateau and east Tasmanian areas) (Encl. 7-9). Typically the faults are steep in the shallow parts of the sections and it is suspected that they flatten-out with depth, although this has not been directly observed.

Many of the faults are hard to distinguish from step faults as the sediments dip antithetically landwards in both cases, but in several areas growth is indicated by thicker sediments and anticlinal features in the downthrown block. Near the base of the slope and below the proximal part of the continental rise a band of low angle thrust-faults (toe thrusts) is present. The thrusts themselves are not readily distinguishable but can be recognised from the irregularity of the basement topography and from various landward-dipping interfaces (e.g. N 403-1 sp 1000, Encl. 17). They are regarded as being fairly constant features along the southern Australian margin.

In summary, passing from the shelf to the deep sea, the following structural zones are commonly recognised: