

8.2 The Bridgewater Nose

This anticline in beds of the Durroon Megasequence was formed by drape over abutting synthetically and antithetically dipping blocks. The anticline plunges basinwards to the west. It measures 20 km x 5 km (Encl 4).

The crest of the structure is highly faulted, and may represent downfaulted keystone segments. Correlations within the crestal area are often difficult, though Line 90-190 indicates that segments of the structure may show simple anticlinal attitudes.

The western end of the plunging anticline may, in fact, dip in the opposite direction: that is, to the east. The problem arises from the difficulty of making the same correlations across the crest of the structure on "Event Within Durroon Megasequence" on adjacent dip lines. A seismic line down the plunge of the structure, with parallel lines on the flanks, may resolve the nature of this complex anticline.

Traps would, of necessity, be structural-stratigraphic. The nonmarine part of the Durroon Megasequence may be in a fluvial-estuarine depositional environment in these areas and sands may show a limited lateral distribution.

8.3 The Derwent Nose

Rollover structures are formed during the momentary interval when the hanging wall of a fault separates from the footwall, thereby inducing the overlying beds to collapse under gravity onto the fault face.

The Derwent Nose is a post-depositional rollover structure that developed along a series of en echelon faults caused by the onset of spreading in the Tasman Sea. These faults are overprinted on the major NW-SE normal listric fault that demarcated the southern margin of the Boobyalla Sub-Basin.

These extensional faults caused slivers of the updip tilted margin of the Anderson block to subside into the Boobyalla Sub-Basin. The subsiding slivers get larger towards the southeast, finally taking 3 km of the culmination of the Anderson tilted block into the deeper Boobyalla Sub-Basin (Encl 4). When small slivers subsided, the overlying beds collapsed onto the fault face, causing rollover. Where substantial portions of the Anderson block slipped into the Boobyalla Sub-Basin, the increased width of overlying sediments collapsed into more complex and highly faulted structures.

The Derwent Nose changes from a simple rollover, therefore, to a complex zone of faulted blocks, in a southeast direction. It is curvilinear in plan; parallels at least three en echelon faults, causing the crest of the structure to shift abruptly between faults; and plunges to the northwest. The structure always forms on the downside of the faults, and downside beds dip into the fault face.

The structure is 15 km long and 1 km wide. Since only the youngest beds of the Durroon Megasequence are rolled-over, the facies of these sediments cannot be extrapolated from Durroon-1, where only Turonian and Cenomanian(?) sediments were encountered. The presence of reservoir beds within the rollover must be inferred. Mature Durroon Mudstones within the Boobyalla Sub-Basin would act as source rocks.