

(7) Contribution to Geological Concepts

Aroo-1 confirmed the existence of more than three and a half thousand feet of Eastern View Coal Measures in this part of the Bass Basin. It also drilled an unexpected sequence of volcanics and minor interbedded sediments at least 1785 feet thick. Log character and sidewall core samples indicate that the volcanics are a series of more than twelve successive basalt flows separated from each other by upper weathered (kaolinized) zones or by thin interbedded sediments or both. The volcanics are Paleocene or older. Attempts to date them more accurately by palynology and Potassium-Argon geochronology were unsuccessful (see Appendix 1).

The well encountered hydrocarbon indications in M. diversus to N. asperus zone correlates of the Cormorant-1 gas and condensate bearing strata and in strata of the lower L. balmei (Paleocene zone). However, only 500 to 800 feet of M. diversus (lower Eocene) zone strata were penetrated in Aroo-1, compared with several thousand feet elsewhere in the Basin. The apparently reduced thickness of the M. diversus zone may be due either to intermittent or reduced rate of deposition of these strata or to erosion. The latter being indicated by a weak seismically defined unconformity at about 8300 feet (K.B.) which may correspond with a possible break interpreted on the logs between 8300 and 8600 feet (K.B.). It is also likely that part of the M. diversus zone strata has been eliminated by movement on a small east dipping normal fault which is recognised on HB73A Line 143 as passing through the Aroo-1 well. Additional evidence of the presence of a fault in the well comes from the dipmeter interpretation which shows easterly dip below 8750 feet in contrast to the regional dip at this level as deduced from seismic data which is clearly to the west. The east dip is believed to be due to drag folding. In the well the fault zone is probably between 8750 and 9100 feet, the drag folding first encountered in the well being on the upper (downthrown) side. A marked shale density change at about 8765 feet may indicate the approximate position of the fault, though it possibly lies even deeper.

The microfloras found in Aroo-1 were poorly preserved, especially in the lower part of the well where there is severe carbonization due to post depositional effects. Marine dinoflagellate cysts throughout the Eastern View Coal Measure section reflect intermittent marine phases into what is dominantly a non-marine succession.