

posed of Lower Paleozoic sediments and intrusives with granites particularly common in the northeast. The undifferentiated Paleozoics are shown on the Tectonic Map of Australia of 1960 as "quartzite, phyllite, dolomite, conglomerate, schist, rare gneiss. Metamorphism to sillimanite grade. Moderate to strong folding. Basic intrusions." The terrane of undifferentiates is split by an arcuate band of Lower Devonian to Cambrian geosynclinal deposits with "moderate to strong folding. Greywacke, volcanic and pyroclastic rocks in Cambrian; sandstone, shale, limestone, and conglomerate in Ordovician, Silurian and Devonian. Ultrabasic and acid intrusions." This simple regional framework is distorted by a northwesterly trending salient from the inner Permian-Jurassic core which encounters the northern coast at Port Dalrymple. Certainly, the regional geology shows that the entire shield is basement as far as hydrocarbon exploration is concerned except for the possibility that some of the Permian section may be free of intrusives and metamorphism. The other potential on land would involve apparently thin and very localized Tertiary cover which is particularly present in the Port Dalrymple salient and within the western limb of the arcuate geosynclinal band of Lower Paleozoics.

Structure during the Tertiary is pertinent to this discussion. Tectonism during this period resulted in horst and graben structures across most of the Island. These structures, which trend approximately N/S, may persist onto the continental shelf and slope.

Petroleum prospects are possible in Ordovician to Tertiary rocks but the widespread occurrence of Jurassic dolerite intrusions diminishes the prospects in Pre-Tertiary rocks.

VI PREVIOUS GEOPHYSICAL SURVEYS

There has been no previous geophysical activity in the offshore portion of EL. 17/65.

VII RESULTS

The results are presented on observed Total Magnetic Intensity Maps compiled by Aero Service Limited and the Magnetic Basement Maps prepared by G.A.P.L. Both are submitted with this report on single sheets at scale of 1 : 250,000.