TR16_108_109

19. Gravity profile, Tertiary deposits, Dunalley

D.E. Leaman

The structural form and thickness of the Tertiary sediments at Dunalley have not previously been examined by geophysical techniques or by drilling. The deposit forms a narrow belt in the canal area and laps on to dolerite on either side.

A gravity survey seemed most appropriate for a preliminary study since it readily reveals the form of the deposit and provides an estimate of thickness. The interpretation presented in this report could be confirmed by seismic refraction methods although there would be difficulties in examining the canal region.

GRAVITY SURVEY

The gravity traverse was restricted to the shore of Norfolk Bay and the survey has not been connected to State survey datum since this would not provile any new or usable information due to the limited and isolated nature of the survey.

A series of observations was taken along the shore of Norfolk Bay with the strand line used as a reference level. The survey extends from dolerite outcrops on the Carlton side of Dunalley to the region immediately south of the canal. Difficulties of access prevented further observations.

The meter used was Worden No. 273 with a scale constant 0.1008 mgal/division. No terrain corrections have been undertaken beyond a radius of 400 m.

INTERPRETATION

The Bouguer anomaly profile is presented in Figure 32. A density of 2.67 g/cm^3 was used for the reduction. A density of 2.00 g/cm^3 has been assumed for the Tertiary clays and 2.90 g/cm^3 for the dolerite.

An interpretation is also presented in the figure and the observed and calculated profiles are compared. Two discrepancies are noted, one near the east end of the spread and the other near the centre of the profile, both of which are relatively minor and simply reflect irregularities in the clay/dolerite interface.

The profile and associated interpretation suggest a maximum thickness of Tertiary sediments of about 120 m. It is not possible to state whether the material is deposited in a narrow fault-trough or in a pre-existing valley.

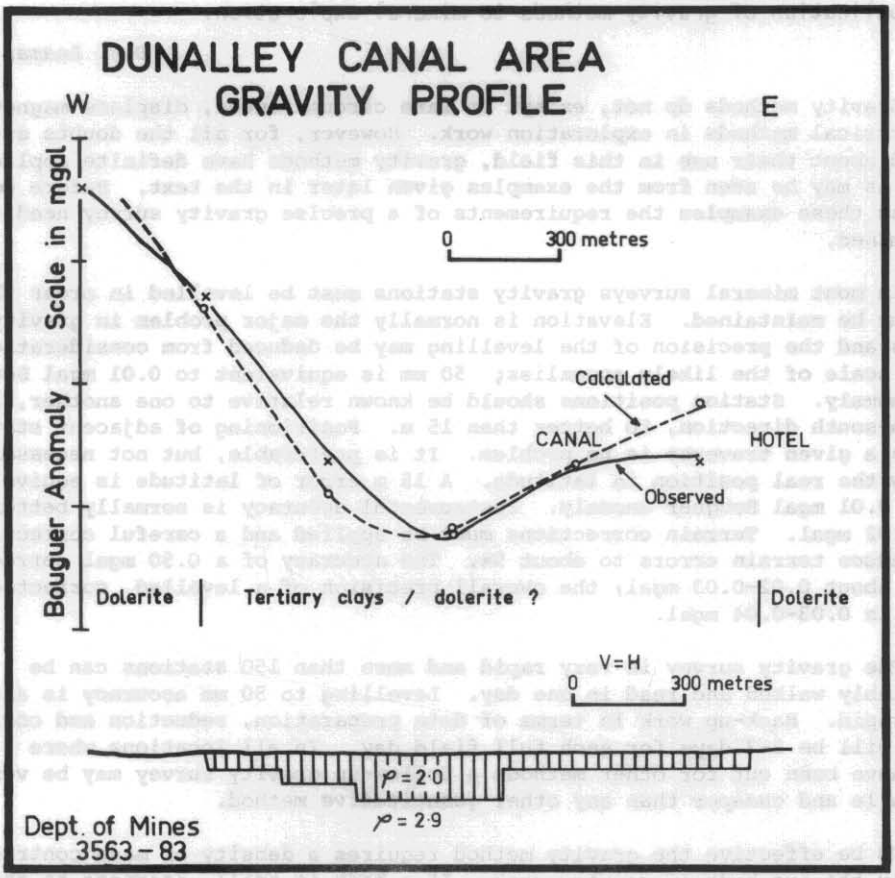

Figure 32.

5 cm