

5. REGIONAL GEOLOGY (Figure 1.)

Cambrian rocks represent the oldest sediments within E.L. 49/82 and comprise a complex pile of chert, greywacke and volcanic material about 4000 m thick that are considered to be deposited in and around an actively developing basin, the Fossey Mountain Trough. It is approximately 80 km long, 32 km wide, trends NW-SE and is centred on Sheffield. To the north it is bounded by the Precambrian Forth Block and to the south by the Cradle Mountain Block.

The Cambrian succession comprises initial sedimentation of chert (Barrington Chert) within the axial portion of the trough. Deposition of basic lavas and pyroclastic breccias (Beulah Formation) along its flanks then occurred;. Concomitant with this deposition, uplift along the axis of the trough produced a tectonic ridge, the Barrington Ridge, from which chert shed to contaminate sediments of the Beulah Formation. Thick sequences of greywacke turbidites (Gog Range Greywacke) then deposited during a pause in vulcanism. While the source for this material is considered largely to be the Barrington Ridge, the presence of rounded quartzite and mica schist pebbles suggests a Precambrian source area perhaps located in the areas marginal to the basin.

Acid-intermediate lavas and pyroclastics of the Minnow Keratophyre succeed the Gog Range Greywacke. The boundary between the two formations is transitional and is characterised by interfingering of both sedimentary and volcanic rocks near the boundary. Intrusives form small outcrop areas within the Beulah and Gog Range areas. These rocks are granites and microgranodiorites and are Devonian in age within the former area while a spatial relationship to extrusives of probably co-magmatic affinity and associated alteration indicates a Cambrian age for the hybrid mafic intrusives in the latter area.