

the Mt. Read Volcanics is clearly defined as a magnetic gradient with the response increasing rapidly to the west (Figure 3). South of Mt. Romulus is an area of magnetic activity which is probably associated with tertiary basalt. There is a small area of the High Tor Granite intruding into the Tyennan Nucleus with no evidence of a magnetic aureole surrounding the plutonic intrusion, (Plates 3 & 5).

The second area of the Tyennan Nucleus covered by aeromagnetics is south east of Queenstown. Over this section there appear to be two rock types; a non-magnetic unit similar to the area east of Rosebery, and a slightly magnetic unit possibly associated with garnet bearing rocks (Corbett and Brown 1975). In this area the western contact with the younger Ordovician and Devonian rock cannot be traced by magnetic methods. It is possible to identify a number of north-west striking faults parallel to the Adamsfield Gravity Lineament, (Plates 5 & 7).

The south east of the survey area is the most magnetic of the three areas covered and the anomalies are probably due to amphibolites. The western contact with the Ordovician (June Group) and the Devonian (Eldon Group) can be traced magnetically.

The sources of the two largest magnetic anomalies, which have a similar response, (Anomaly 10, Corbett et al (1982)) have been identified as garnet schist, amphibolite and eclogite.

The author is unaware of any exploration group which has investigated the Tyennan Nucleus for minerals, nor is there any open file data available over this area.

SILURO-DEVONIAN SEDIMENTS

The two main regions of Siluro-Devonian Sediments in the south of the survey area (Figure 2), are a zone east of the Mt. Read Volcanics, identified as the Spencer River Trough (new name), and a larger area west of the Mt. Read Volcanics known as the Macquarie Graben (Figures 2 & 3).

The Spencer River Trough is a non-magnetic synclinal formation or sedimentary trough between the Tyennan Nucleus to the east and the southern extent of the Mt. Read Volcanics to the west, (Plates 5 & 7). This syncline or trough, is composed of the Lower Devonian Eldon Group overlying the Ordovician June Group which includes the Owen Conglomerate. As mentioned previously, the contacts with the amphibolite phases of the Tyennan Nucleus can be defined as a magnetic boundary. Where the Spencer River Trough abuts the Mt. Read Volcanics there is a distinct magnetic gradient (Figure 3). It is not possible to accurately define the basement rock type underlying this formation however it is definitely not Mt. Read Volcanics. One possibility is that the basement is a non-magnetic phase of the Tyennan Nucleus, similar to the zone east of Rosebery.