

Zone 50 North-west of Melba Flats; an area of poor outcrop and at present the source of the magnetic anomalies has been tentatively interpreted as basalt or gabbro. This Zone has a dissimilar response to the ultrabasics at Serpentine Hill and Razorback, and although the area has been held by numerous exploration groups the source has not been tested.

It is interesting to note that there are a number of isolated magnetic anomalies, including Zones 11, 12, 15, 17, 18, 19 and 21, around the edge of the Siluro-Devonian basin south-west of Queenstown, which have not been adequately explained. One or two of these should definitely be investigated on the ground. These results should be compared to those from Zone 25, the Queenstown Lynchford anomaly, as both responses are located on the margins of the Macquarie Graben.

ARTHUR LINEAMENT

The geology of the Arthur Lineament has been described by Williams & Turner (1974) and Williams (1979), as a sequence of metamorphic rocks 8 to 15 kilometres in width, extending from near Wynyard on the north coast, to the south-west. It consists mainly of pelitic schists and amphibolites which reach metamorphic grades of middle greenschist facies. The Arthur Lineament parallels the north-east fold trend of the Rocky Cape Region and is considered to be the result of shearing and associated metamorphism caused by the eastward movement of the western orthoquartzite-mudstone units during the Penguin Orogeny.

The magnetic data over the Arthur Lineament (Figure 5), demonstrates a series of characteristic magnetic linears, striking 30 degrees east of north, which are assumed to be due to amphibolites in the formation. Over the magnetite mineralisation at Savage River the amplitude of the magnetic response is greatly increased and this anomaly can be traced 9 kilometres to the north. The boundary of the Arthur Lineament, as defined from the magnetic data, varies slightly from the boundary mapped geologically, (Plate 2). The magnetic boundary shows the Arthur Lineament to pinch into a sequence 1 kilometre wide at Savage River. East of Savage River the rock types change from magnetic to non-magnetic. The large amplitude magnetic anomalies can be traced from Savage River, through Long Plains to the Rocky River Prospect.

The author's preliminary interpretation defines a synclinal structure, of relatively symmetrical linears either side of an axis through the centre of the zone. The symmetry may be associated with an old folded system. There are a number of magnetic features which can be recognised in the synclinal model, eg. estimates of the dip indicate that the magnetic sources have a near vertical inclination. A zone of major tectonic activity is located 2 kilometres south of the Savage River mine which is in the keel of the syncline. The tectonic activity has uplifted the keel of the syncline almost to the surface and it was sheared by