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1. INTRODUCTION.

During the period of 15th. September, 1958 to 3rd. October, 1958, discussions were held in Queenstown, Tasmania, between Dr. B. Scott, Geologist-in-Charge, and M. Audley-Charles, Geologist, of L.E.E. and the writer, on the aeromagnetic and airborne electromagnetic survey, flown and reduced by A.H.G.L., covering an area of South West Tasmania.

This report is essentially the outcome of those discussions.

It is hoped that it is appreciated that, in coping with such a volume of data a certain amount of compromise is unavoidable in order to attain within a reasonable period of time an initial broad evaluation of the results. Therefore, it is undoubtedly true that further investigation of the results, especially more detailed scrutiny e.g. in the form of transparent overlays of magnetic and E.M. contours on individual photos, would prove profitable; interpretation should be regarded as a continuing process.

11. DISCUSSION OF RESULTS.

A. General Comments.

(i) Airborne Magnetometer Surveying is now a well established method in mineral exploration, whereas the airborne electro-magnetic survey technique is still relatively new. It is recognised that aeromagnetic contours often reflect geological structure as well as pinpointing the more highly magnetic ores and rock types. Ample evidence is available in these results to demonstrate this and is discussed in detail below.

(ii) Regarding electro-magnetic surveying it is widely acknowledged that whilst such a method is capable of locating conductors, the geophysical picture can be complicated by drainage patterns and other near surface unwanted conductors.

In addition, with respect to the Ronka P.S.C. Airborne E.M. system in particular, which was employed on this survey, the physical quantity measured viz. phase shift, is essentially a measure of the quadrature component of the secondary magnetic field produced by a ground conductor. The magnitude of the quadrature response rises to a maximum and then decreases as the value of a parameter of the conductive body continually increases. This parameter is a function of the frequency employed and conductivity and size of the conductive body e.g. in the case of a thin conductive sheet the parameter is:-