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PRELIMINARY REPORT
ON THE
INTERPRETATION OF THE AIRBORNE
GEOPHYSICAL RESULTS

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GEOPHYSICS

Rehm. Rep on the Interpretation of the
Airborne Geophysical Results

L.E.G. 8/10/58

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MICROFILMED

8th October, 1958.

To: Mr. G.P. Hudspeth.

Preliminary Report on the Interpretation of the
Airborne Geophysical Results

1. Introduction

During the period 15th September to 3rd October, H.S. Hancock of Adastra Hunting Geophysics Pty. Ltd. in conjunction with the L.E.E. geological staff made an interpretation of the "Canso" geophysical results of the Gordon area.

The interpretation demonstrated the discriminating nature of the magnetic and electromagnetic methods in that in many instances the anomalies could be immediately related with the known geology, as at the serpentinite of the Spero and Modder River areas. To assist in this interpretation, the magnetic results of the Queenstown-South Darwin area were also examined. The results of the work can be broadly divided into two:

2. Definition of anomalies worth further ground investigation.
3. Definition of anomalies not worthy of further investigation but which assist in the structural interpretation of the region.

The conclusion reached by H.S. Hancock is that the electromagnetic method did not penetrate the Tertiary sediments and that all electromagnetic anomalies over these sediments must be disregarded if effects from the basement are being sought. In contrast the results of the magnetic technique have proved extremely useful over these sediments.

2. Anomalies worth Further Investigation

The position of 20 anomalies which, on geological and geophysical grounds, are worth further investigation is shown on plate P25. These anomalies are placed in priority groups I and II, as under. A third and final group is also given.

<u>Priority Group I</u>	<u>Priority Group II</u>	<u>Priority Group III</u>
1 E/m & magnetic	14 E/m & magnetic 6 magnetic	12 E/m & magnetic

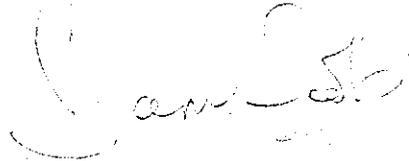
Within Group II, a further priority list has been prepared on three considerations:

- a. Geology;
- b. Airborne geophysical results;
- c. Access and supply - general relation to the whole programme.

3. Anomalies Related to Structure

The geophysical results, particularly the magnetic, proved to be of considerable use in the structural interpretation of the area, confirming previously known structures and emphasising others. Its best application has been in the tracing of faults beneath the Tertiary cover between Birch Inlet and Moore's Valley. In this way the Lyell Shear and two east-west cross-cutting faults have been traced in Moore's Valley, also the granite on the southern edge of the Valley has been traced under the recent sedimentary cover. A north-west trending fault has been established to the west of the Lyell Shear here and it has been traced westwards to the point where a known fault disappears under the cover in the Spero River zone. Similarly a complex north-south fault zone has been traced through Birch Inlet southwards to meet this north-west fault in the Wanderer River zone.

4. Each anomaly is at present being investigated in the office in preparation for the field season. The work consists of a classification (type, magnitude, size and so on), a detailed photo-interpretation study and correlation with known field geology and the lay out of a preliminary field investigation.



Geologist-in-Charge.

c.c. E.A. Henderson