

on lines 000 and 100 (e.g. 375010-060, line 000). In the case of anomaly '2' the boundaries are far from simple. Gradient analysis of both raw and filtered data support the implications of the pole reduction and the analytic signal.

The filtering effect of upward continuation is demonstrated in Figure 3. The continuation shown is for 150m, approximately the level of the recent Mines Department survey. At this elevation only the gross western anomaly is significant and all other effects are integrated into a poorly resolved bench anomaly. Results along lines 100 and 200 can be contrasted with airborne line 1441 which wanders between them. All salient features are reproduced and the variability of the main anomaly is stressed. The response is consistent with a multitude of small sources.

The 'impurity' and aliasing of the anomaly forms has generally precluded evaluation of source dips and widths. However, the integrated response of anomaly '2' on line 000, where it is most strongly developed, has been modelled in mild continued form ($h=50m$ -Figure 3) in order to assess overall source character. The continued form of anomaly '2' has been removed as a residual for model reference. At 50 metres, anomaly '1' induces a compound effect on the profile and was included in the models. The dip of the sources could not be resolved but is in excess of 60° . The sources could dip either west or east - the data is inadequate for the determination - but the equivalent bulk susceptibility is about 0.005 cgs. Modelling suggests, for line 000, that the source of anomaly '1' is about 15 to 20 metres wide while that for anomaly '2' is about 45-50 metres wide. Each source (zone) has a depth extent in excess of 65-80 metres.

CONCLUSIONS:

1. The magnetic anomalies observed near 375000mE, 5371000mN on Colebrook Hill (e.g. anomaly '2') are related to a large number of small, relatively shallow sources which may be expected to be discontinuous along strike and in depth extent. Most magnetic bodies - probably pyrrhotite veins or equivalent-reach close to the surface; certainly to depths less than 10 to 20 metres.
2. The patchy concentration of anomaly sources produces localised anomalies which give the illusion of deeper bodies. However, no sources deeper than 60 to 80 metres are implied in any of the observations. No single large deep source is present.
3. The magnetic vein swarms(?) are concentrated in at least two en-echelon groups in the area examined. The greatest concentrations occur at anomaly '1', near line 900 and anomaly '2' near line 000.
4. Any drillhole directed at the heart of anomaly '2' must intersect either of the following zones at least 40-50 metres below the surface.
 - i) line 950:375020-375050
 - ii) line 000:375010-375060