

1979/33. Bowen's Landing Historic Site, Risdon: Further geophysical work and appraisal of results.

D.E. Leaman

Abstract

Magnetic and resistivity surveys at Bowen Park located a number of anomalous features. Excavation has revealed that some of the anomalies related to natural variations in soil thickness rather than foundation works. No explanation was found for the magnetic anomalies near the Forge, although half the site was excavated. Magnetic anomalies persist in this area and are confirmed by a metal detector to be from an iron source.

INTRODUCTION

A geophysical survey of parts of Bowen's Landing Historic Site at Risdon [EN265595] located a few distinctive anomalies. In particular there were strong magnetic and resistivity anomalies in the presumed region of the Governors House and lesser magnetic anomalies near the Forge (Leaman, 1978, p.11). Figure 6 in Leaman (1978) is confusing because of a drafting reproduction error which reversed the orientation of the anomalous zone.

Excavation of a large part of the anomalous area at the Forge failed to reveal any iron fragments or magnetic fraction in the soil. A trench across the anomaly at the Governors House showed that the anomalies recorded were due to marked changes in soil thickness and content; the marked increase in magnetic field and decrease in resistivity merely reflecting a sharp increase in soil cover. The trench did not reveal any positive evidence of man-induced soil thickness changes.

The failure to identify any possible anomaly sources at the Forge suggested that some further work might be repaid.

FURTHER WORK NEAR THE FORGE

The excavated (and backfilled) region as well as the surrounding area was re-examined with a magnetometer and a discriminating metal detector. Eight targets were identified by the metal detector of which three had related magnetic anomalies. One, found later to be a survey corner nail, may be used for comparison purposes. No anomalies were found where the soil had been excavated and backfilled although a small swell persists in the magnetic field. It is difficult to describe the present overall magnetic anomaly pattern due to site fencing. The anomalies located are;

- i) 1.1 mN, 0.3 mW of peg 110/28 (400 nT magnetic variation):
corner nail
- ii) 0.9 mN, 0.3 mW of peg 112/28 no magnetic anomaly
- iii) 0.5 mN, 0.9 mE of peg 112/28 no magnetic anomaly
- iv) 0.6 mN, 1.0 mE of peg 112/28 no magnetic anomaly
- v) 1.0 mN, 0.5 mE of peg 114/28 -150 nT, small spot
- vi) 0.1 mS, 0.1 mW of peg 114/28 -100 nT
- vii) 0.3 mS, 1.0 mE of peg 112/28 no magnetic anomaly
- viii) 2.0 mS, 1.2 mE of peg 114/28 no magnetic reading due to
proximity of fence.

Anomalies (v) and (vi) should be excavated. In each case, the anomalous site was found to be very small and the magnetic field was checked at ground level. It is possible that some false readings were

given by the metal detector in its ground cancelling mode, since the soil at the site does contain fragments of strongly magnetic basalt from up-slope. However the lack of such response over disturbed soil and fill suggests that the observations are valid. The combination of the two methods provides a considerable reduction in target ambiguity. The metal detector provides a ready means of areal coverage and responsive zones can be tested magnetically.

This process is more rapid and less demanding on traverse requirements than using a magnetometer alone. The targets may require relocation by detector prior to excavation.

REFERENCE

LEAMAN, D.E. 1978. Bowen's Landing Historic Site, Risdon : Geophysical survey. *Unpubl.Rep.Dep.Mines Tasm.* 1978/38.

[7 August 1979]