

Ancient Monuments Laboratory
Report 57/92

NUNEHAM COURTENAY, OXON
REPORT ON GEOPHYSICAL SURVEY
APRIL 1992

Mark Cole

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Summary

Geophysical survey was undertaken at Nuneham Courtenay in response to a request from the Oxford Archaeological Unit. Its aim was to define the extent of a Roman industrial site discovered during the laying of a water main. The survey successfully mapped the site, locating a number of kilns and other features.

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Report on geophysical survey, 1992

Introduction

This survey was commissioned by the Oxford Archaeological Unit as a result of the discovery of Roman pottery during the laying of a new water main by the Thames Water Authority. The quantity of pottery and wasters recovered suggested a substantial industrial site, although no actual kilns were found.

A limited magnetometer survey had previously been carried out by Alister Bartlett (Bartlett, 1991) within the pipeline corridor. This suggested that the site as whole would react well to magnetometer survey. The intention of the present survey was to locate any kilns as well as any associated archaeological remains.

The underlying geology is Cornbrash.

Method

The survey was carried out during two separate visits to the site. An initial magnetometry survey covered both sides of the pipeline corridor in an attempt both to delimit the site and to locate any kilns present. Acting on the results of this initial survey an area was then selected for resistivity survey on a second visit. The positions of certain magnetic anomalies were also relocated and augered in order to investigate them further.

Magnetometer survey:

A survey grid of 30m squares was established on both sides of the pipeline corridor within the present field boundaries (see location plan). Each of these squares was then surveyed using a Geoscan FM36 fluxgate gradiometer. Measurements were taken at 0.25m intervals along N-S traverses 1m apart within each 30m square. The resulting data is illustrated using both grey-tone and graphical trace plots.

A magnetic susceptibility (MS) survey was also carried out, using a Bartington MS2 meter and field probe. Readings were taken at 30m intervals along each of the N-S grid lines. The data thus produced is represented in this report as a greyscale (see figure 1) each reading taken to represent the 30m square surrounding it.

Resistivity survey:

The resistivity survey was carried out over a limited area (grid squares 5-6,9-10) in an attempt to gain a greater insight into the nature of the site. A Geoscan RM15 meter was used, with the Twin Electrode configuration, a mobile probe spacing of 0.5m and a

reading interval of 1m. The resulting data has been illustrated using a grey-tone plot.

Results.

Magnetometer Survey.

As expected, the area proved well suited to this technique.

A linear pattern of rectangular enclosures is shown very clearly, with an adjacent road or trackway along its western edge. That the site includes industrial activity is confirmed by the presence of a number of very strong anomalies indicative of kilns (marked in red on the interpretive plan enclosed). Other archaeologically significant anomalies associated with the enclosures are likely to be pits containing industrial or domestic waste.

A number of ring ditches have been detected in the NE corner of the survey area. Of these, two can be seen clearly whilst a third is indistinct. These appear to underlie the ditch system although this cannot be confirmed on geophysical evidence alone.

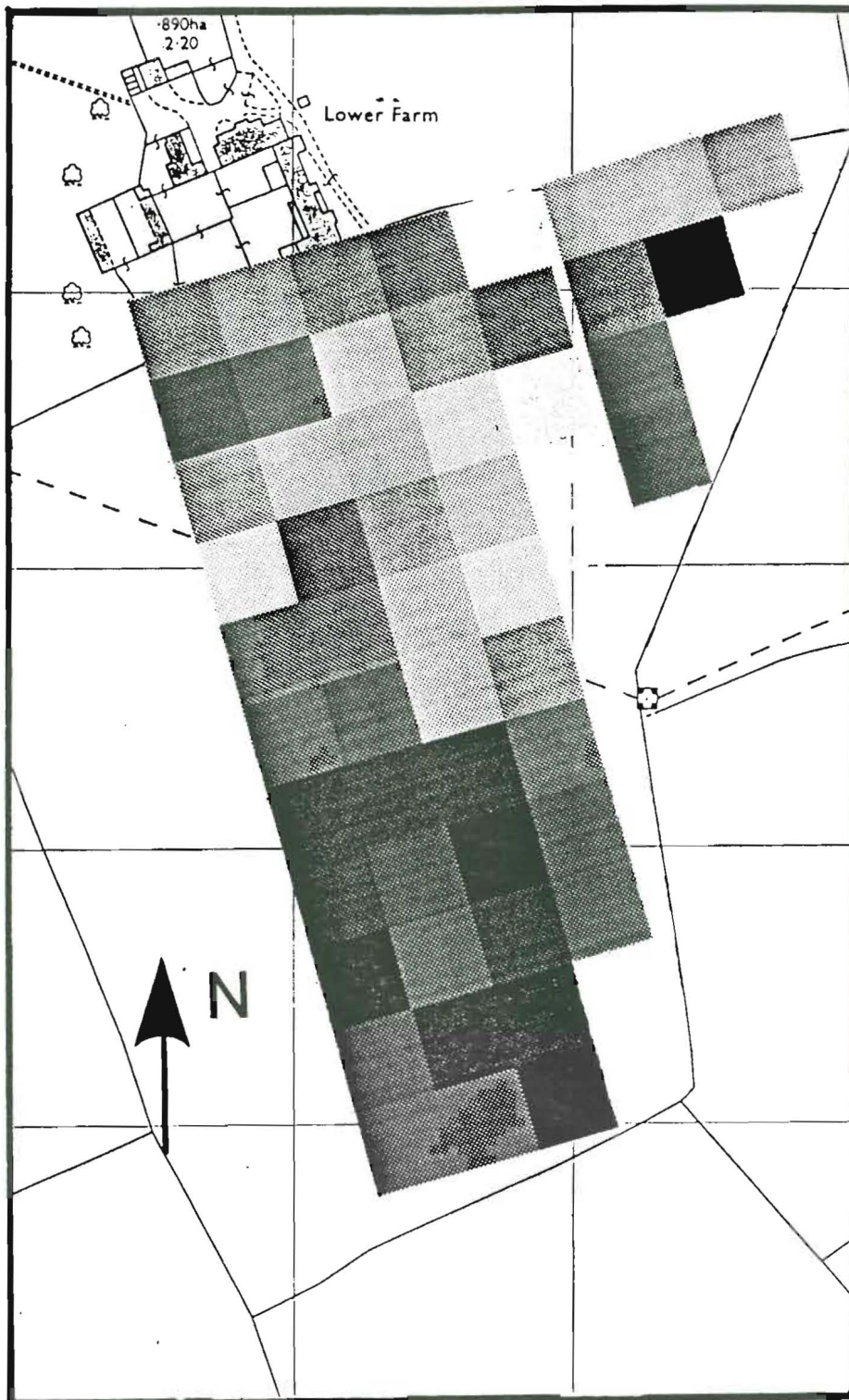
Also very evident on the plots, as well as on the ground itself, is the ridge and furrow system. The magnetic response to this has been accentuated by the enhancement of the soil derived from the underlying industrial activity. The magnetically enhanced soil is concentrated in the surviving ridges and has led to these being defined by strong positive magnetic anomalies (represented as white on the plots), separated by weaker anomalies over shallower soil (black: furrows). The differential depth of burial of the ditch system beneath the ridge and furrow is also indicated by the light and dark banding of the ditch anomalies, especially those running N-S. Different orientations of ridge and furrow separated by headlands are also apparent.

In the NW of the survey area, and coincident with the truncation of ridge and furrow, is a large area of generalised magnetic disturbance within which it is difficult to discern any distinct pattern (within grid squares 1-10). The possibility that this area might contain former settlement perhaps medieval farm buildings, suggested that resistivity survey here might be productive.

Resistivity survey.

Strong correlation with the magnetometer survey is evident, particularly the change in topography from ridge and furrow (a distinct area of high resistivity readings) to supposed building platform (lower readings). Some linear patterning is apparent but unfortunately - once again - no structure is visible. Two linear anomalies appear in both types of survey.

Figure 1. Magnetic susceptibility survey.



$160 \times 10^{-5} \text{ SI}$

Volume susceptibility

20