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Interim report on a geophysical survey at Hurley Hall, Hurley, Warwickshire

by
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Summary

This interim report presents the results of a resistivity survey at Hurley Hall, Hurley, Warwickshire (SP 252 960) undertaken at the instruction of the owner Mr P. Horton during February 2000. The purpose of the survey was to investigate possible garden features identified from an aerial photograph in a field immediately to the south of the property that slopes gently down towards the house. The survey found evidence to suggest that part of the area was once a formal garden with a driveway entering the grounds in the southeast corner of the field at the top of the hill. It seems probable that an ancillary building here, represented by a series of foundations adjacent to the driveway, was a gatehouse, although a secondary function as a summerhouse cannot be entirely ruled out.

1 Introduction

A geophysical survey was undertaken at Hurley Hall, Hurley, Warwickshire (SP 252 960) at the instruction of the owner Mr. P. Horton during February 2000 (Figure 1). The purpose of the survey was to investigate possible garden features in a field adjoining the property. The present building is an early Georgian-style house dating from c.1727, which has been the subject of a restoration project over a number of years. The house is set within a moat that is probably medieval in date. An aerial photograph in the possession of the owners, probably dating from the early 1970s, depicted crop marks in an adjoining field to the south of the house that may represent the remains of a formal garden. The purpose of the geophysical survey was to assess the possible survival of any buried remains of the formal garden and to establish their relationship with a putative pathway represented by a pronounced linear depression across the field in question. In addition, the footprint of a small building uncovered by the owner at the top end of the field was also investigated. The survey was conducted in two parts.

1. An east to west transect was taken across the field orientated from a base line situated approximately 1m to the south of from a modern fence dividing the house and present garden from the remainder of the field. This was positioned to transect the putative garden features indicated by the aerial photograph.

2. A second area in the vicinity of the uncovered building remains at the top of the field was sampled by two grid squares, so positioned as to investigate around the building foundations and to attempt to define the continuation of two linear features located in the first transect.

2 Method

It was decided that resistivity survey would be the most appropriate technique of geophysical survey in order to test the survival of the putative garden features identified from the aerial photograph. Resistivity is the measurement of the conduction or resistance of the ground to an electrical current. Electrical conductors, such as water, have a low resistance, while most rocks and stones act as insulators, and therefore have a high resistance. Current is passed between a pair of probes. The materials around them either conduct or inhibit the passage of the current and the result is recorded. Measuring the resistance around a single pair of probes is affected by local variations in contact and soil conditions. To overcome this two sets of probes are used. This eliminates local background problems that might mask the archaeology, but sometimes results in the detection of geological features. Such features usually give readings that are of insignificant variability compared to archaeological features and thus become part of the background reading. Since resistivity surveying is reliant upon the passage of an electrical current through the water content of the soil, results are affected by climatic conditions. Excessive water can saturate bricks, for example, allowing the current to pass through with a lowered resistance. Conversely, vegetation can, through transpiration, create drier areas that show as a raised resistance. As far as possible, these factors are taken into account when interpreting the data. It is also important to bear in mind that it is not possible to detect the depth below the surface of any feature surveyed by this form of geophysics alone.

The survey was based on 20m x 20m grids with readings taken at 1m intervals, giving a total of 400 readings per 20m grid. Each grid was marked out into squares using ropes. A reading was taken at the centre of each grid square. In general the weather on days the survey was in process was fine and dry. Conditions for the survey were consistent throughout.

3 Representation of the data

The survey data was processed through a Geoplot 2.0 program. The processed data was then displayed and printed out as either a shade plot, a pattern plot, a dot-density plot or a trace plot. A shade plot with the maximum range gave the clearest representation for this survey. Shade plots offer a maximum of 17 levels of grey scale. Each reading is allocated to a single square within the data sheet so that the graphical representation of the site is the result of a comparison between the squares. Neither pattern plots, dot-density plots, nor trace plots gave good definition.

Figures 2a and 2b depict shade plots of the processed resistivity data. White areas denote low resistance anomalies and black ones, high resistance anomalies. To improve clarity the data set was clipped to +1 to -1 standard deviation. The north arrow on the print out is an indication of the general orientation of the data and does not coincide exactly with magnetic north.

4 Results

A diagrammatic interpretation of the results can be seen in Figure 3. Two fine white lines that dissect the survey area from the southwest to the northeast are probably land drains. The drains appear to have disturbed some of the putative garden features and must therefore post-date them. Unfortunately, the wet area between the two land drains was of uniformly low resistance which processing was unable to improve. The best evidence of probable garden remains is located to the west of the land drains. These appear to be circular in shape. However, since the image is constructed entirely of squares, diamond or triangular shapes could also produce a similar result depending on their position relative to the survey grid. While it has not been possible to identify a clear layout such as a parterre, it would appear that the distribution is regular in shape. An early-18th century garden was commonly based on a formal geometric arrangement, and these garden remains fit such a style. Interpretation of a similar garden feature to the east of the land drains is less secure as there is only one isolated feature disturbed by the land drain.

The low resistance area running from the house to the building remains at the top of the field corresponds to a linear depression across the field that may be a former path. It is not a roadway because that would have been constructed of solid material such as stone and gravel and could be expected to give a higher resistance than the surrounding soil. A substantial driveway might have incorporated a ditch for drainage and this would show as a low resistance area. However, the alignment does not coincide with the line of a putative driveway discussed below. Alternatively, and perhaps most probably, this feature may be a path produced by regular passage across the field from the house to the building in the southeast corner of the field. The addition of organic material, either deliberately to maintain a garden path, or as a result of animal excreta would increase the organic content of the soil and thus increase water retention. If this were the case it would appear that the path is later than the formal garden features discussed above.

The strong north-south aligned linear feature of high resistance to the east of the pathway coincides with a raised bank. The high resistance readings suggest a driveway, possibly constructed of stone or gravel. The alignment of the driveway suggests that the 18th-century entrance to Hurley Hall may have been from the top of the hill, via a former roadway now relegated to a public right of way. Such an entrance would have provided the best possible view of the house and would also have shown off the formal planting. If this interpretation of the geophysical data is accepted then the most likely function for the building at the top of the field is a gatehouse. This may account for the fact that the apparent opening of the building appears to face the least picturesque view available and opens into the prevailing wind. This would seem to make it unlikely to be a pavilion-style open structure, although it would not rule out a summerhouse with doors.

5 Conclusions and recommendations

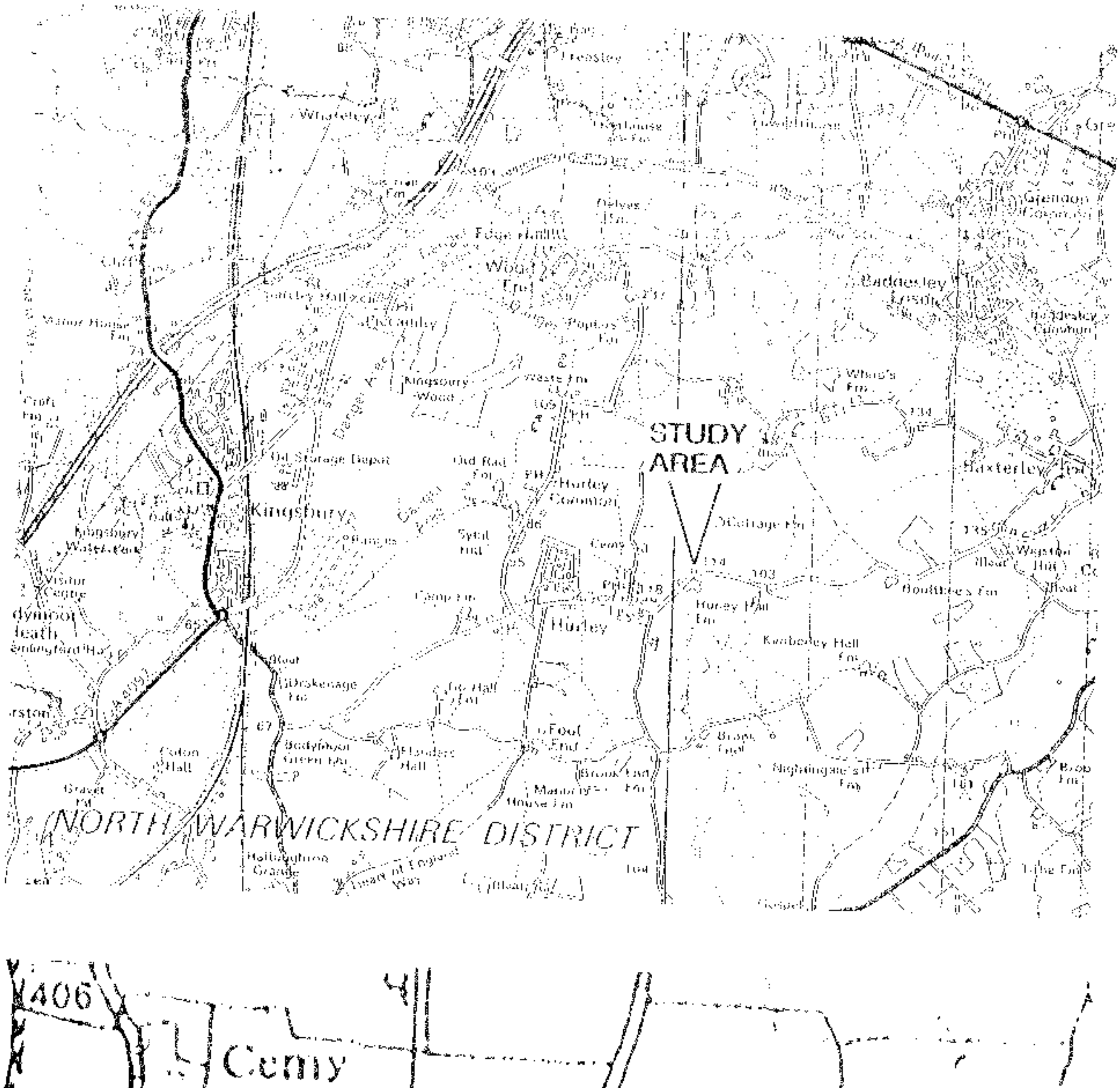
At present it would appear that the area investigated was laid out as a formal garden in front of the house in the 18th century. A driveway, entering the grounds past a gatehouse located at the top of the hill, probably swept around the area of formal planting up to the wrought iron gates leading over the moat to the front door of Hurley Hall. The limited area covered by this initial

geophysical survey has not been able to map the extent of any surviving archaeological features associated with the formal garden layout. In particular, the survival of garden features in the landscaped area between the survey grid and the house is unclear. Hurley Hall suffered a fall in status during the 19th century when it was downgraded into a farmhouse. It would seem logical that the formal garden would have fallen into disuse at the same time.

This interim report presents the results of the geophysical survey alone. The conclusions reached must therefore be regarded as tentative. The application of other methods of enquiry, such as more detailed documentary research, and, ultimately excavation, may refine the overall picture. A second fuller report to incorporate the results of the documentary and aerial photographic research will follow, based upon a project to be carried out by a student of the Ma in Practical Archaeology at the University of Birmingham. In advance of excavation consideration may also be given to the production of a detailed topographic survey. This may further define the extent of the earthworks visible within the field, some of which did not show up as geophysical anomalies.

6 Acknowledgements

Thanks are due to Mr and Mrs P. Horton, the owners of Hurley Hall, for commissioning this survey, and their assistance throughout the project is gratefully acknowledged. The assistance of Melissa Conway, Richard Cherrington and Richard Flear is also gratefully acknowledged, for conducting the geophysical survey as a part of their practical training in the Ma course in Practical Archaeology. Sylvia Fisher supervised the geophysical survey and wrote this report, Stephen Litherland edited the report and managed the overall project.



STUDY AREA
Kingsbury
Hurley
Hurley Common
Baddesley Ensor
Baxterley
Kingsbury Wood
NORTH WARWICKSHIRE DISTRICT
A406
Cemy
Hurley Hall
Moat
SURVEY AREA
East House
382

Figure 1

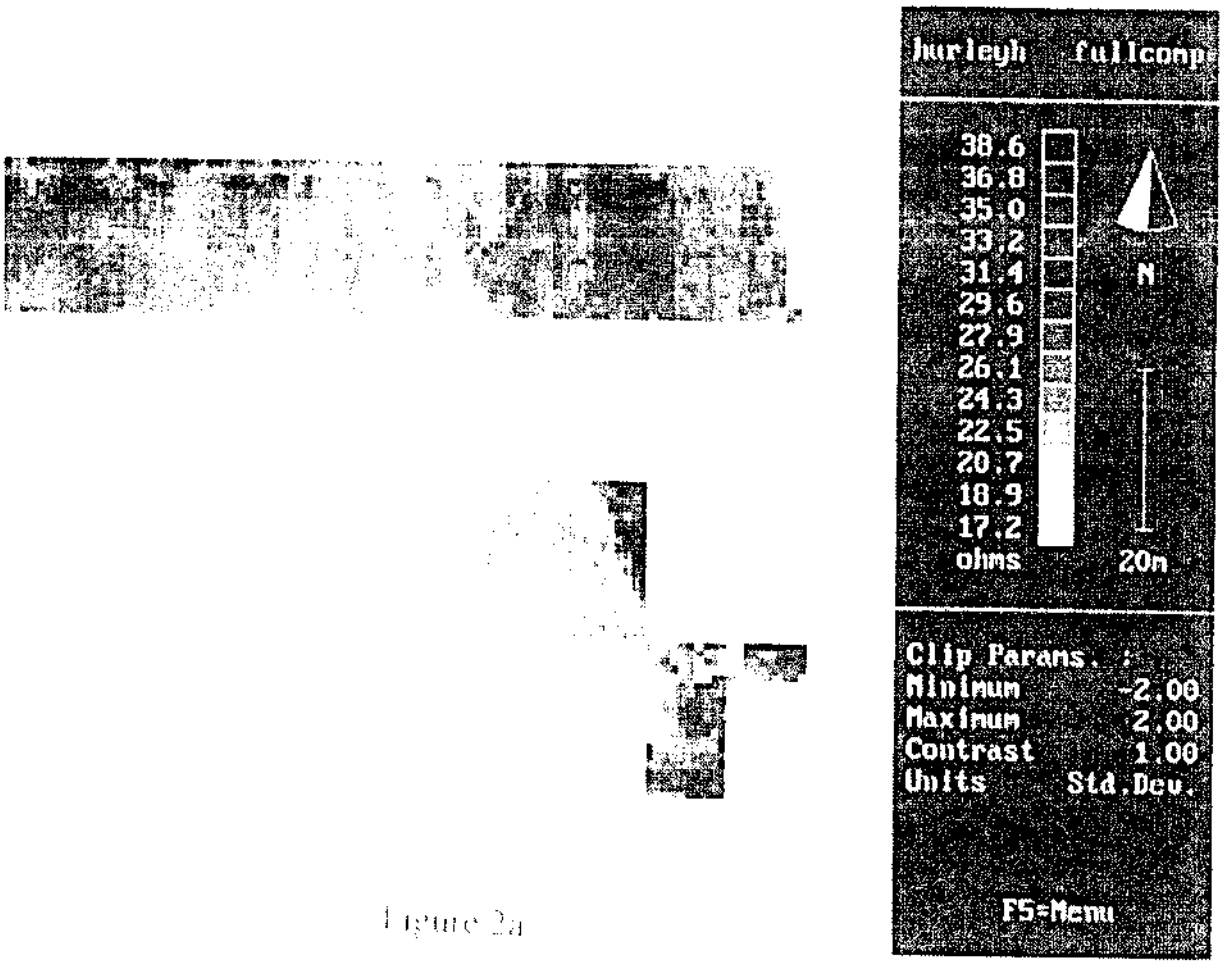


Figure 2a

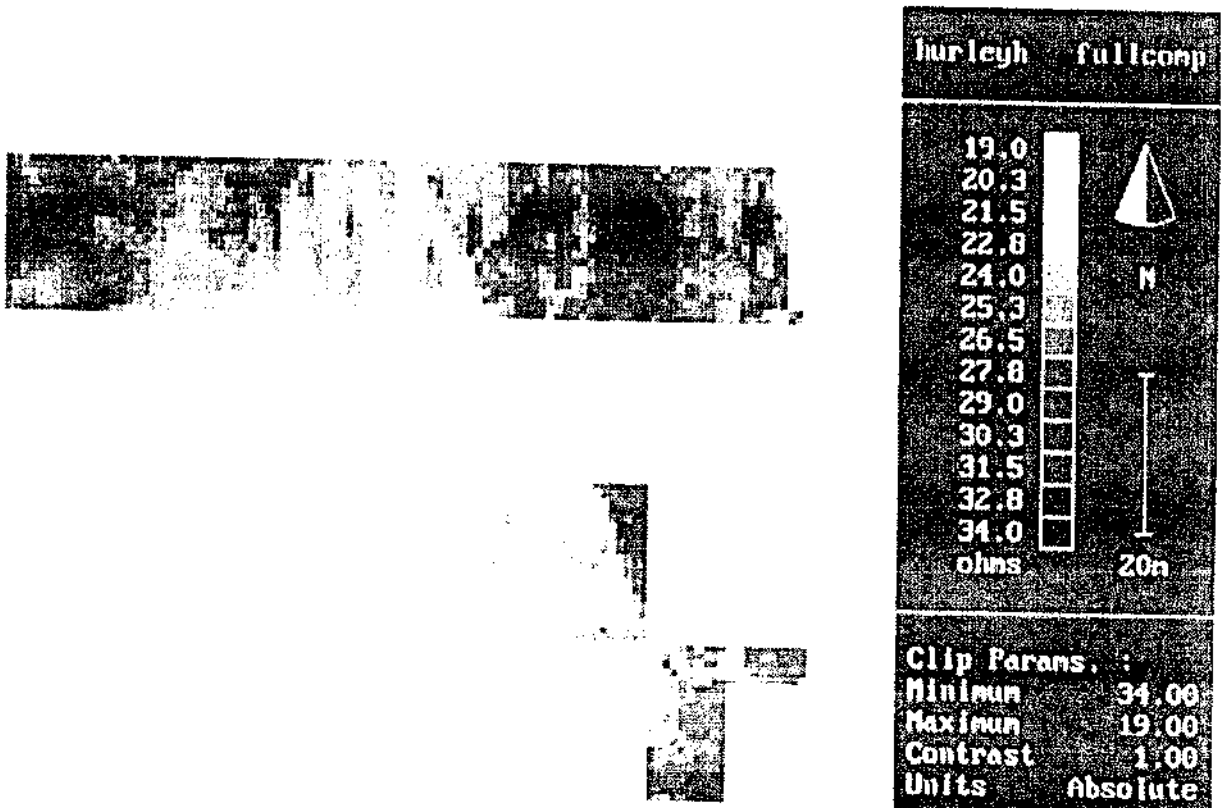
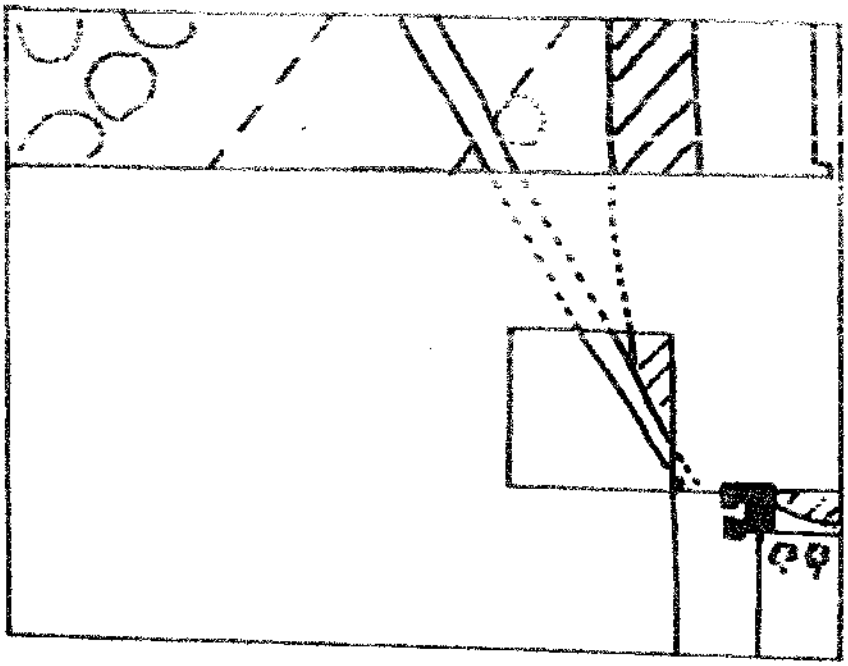


Figure 2b



	Archaeological Features (probable garden remains)
	Line of land drainage
	Projected line of continuation of feature
	Low resistance feature
	Archaeological feature (probable roadway)
	Building and trench
	Unsurveyed area (trees)

Figure 3