

Centre for Archaeology Report 70/2002

Castle Hill or Sinodun Hill Camp, Little Wittenham, Oxfordshire

Report on Geophysical Survey, June 2002

Andrew Payne

© English Heritage 2002

ISSN 1473-9224

The Centre for Archaeology Reports Series incorporates the former Ancient Monuments Laboratory Report Series. Copies of Ancient Monuments Laboratory Reports will continue to be available from the Centre for Archaeology (see back of cover for details).

Castle Hill or Sinodun Hill Camp, Little Wittenham, Oxfordshire

Report on Geophysical Survey, June 2002

Andrew Payne

Summary

Magnetometer survey of the interior of the Iron Age hillfort at Castle Hill, carried out as a training exercise in conjunction with The Northmoor Trust, has revealed a considerable amount of new information on the internal character of the site. The most notable result of the survey is the detection of a previously unknown inner ditch circuit encircling the highest ground within the centre of the fort. Plentiful evidence of occupation was also detected in the fort including a series of large rectangular positive anomalies of unusual form and appearance as well as scattered pit-type anomalies. Further linear anomalies around the periphery of the site may represent soil build-up against the internal face of the inner rampart resulting from down-slope soil movement, or evidence of a second hitherto unrecognised enclosure circuit of disjointed form.

Keywords

Geophysics

Author's address

English Heritage, Centre for Archaeology, Fort Cumberland, Fort Cumberland Road, Eastney, Portsmouth,
PO4 9LD

Many CfA reports are interim reports which make available the results of specialist investigations in advance of full publication. They are not subject to external refereeing, and their conclusions may sometimes have to be modified in the light of archaeological information that was not available at the time of the investigation. Readers are therefore advised to consult the author before citing the report in any publication and to consult the final excavation report when available.

Opinions expressed in CfA reports are those of the author and are not necessarily those of English Heritage.

Castle Hill or Sinodun Hill Camp, Little Wittenham, Oxfordshire

Report on Geophysical Survey, June 2002

Introduction

Castle Hill (SAM Oxfordshire 208, NGR SU 569924) is an Iron Age hillfort defended by multiple ramparts and a deep intervening ditch. The internal area of the fort is approximately 4.5 hectares and is largely under grass ley with the exception of the 0.7 hectare “clump” of beech woodland on the flatter summit area of the hill planted in the 1790s. The defences are placed well down the sides of the hill and much of the internal area consists of sloping ground. Ploughing in the past within the hillfort has revealed pieces of pottery from at least the early Iron Age onwards. The hillfort was the focus for a larger region, and around its outer ramparts traces of an early Iron Age settlement have been found. The major valley fort of Dyke Hills (SAM Oxfordshire 17), lies less than a kilometre to the north of Castle Hill on the opposite bank of the Thames.

The land containing the hillfort forms part of the 101 hectare Little Wittenham Nature Reserve owned and managed by the Northmoor Trust. This area, including the adjacent wood-capped Round Hill to the west, is collectively known as the Wittenham Clumps. The twin beech clumps are a prominent local landmark and a much-loved feature of the natural landscape of South Oxfordshire. The publicly accessible reserve is popular with visitors but in spite of this attraction very little is known of the archaeology of the site other than the existence of the impressive earthwork defences of the Iron Age hillfort.

Castle Hill and Round Hill are part of a small isolated range of chalk hills known as the Sinodun Hills. These are an outlying extension of the Cretaceous Lower Chalk separated from the main chalk upland of the Berkshire Downs and the Chiltern Hills to the south and east. The hills are capped in places by deposits of plateau gravel, although the geological mapping does not indicate plateau gravel in the area occupied by Castle Hill (Geological Survey of England and Wales 1948). The soils on the site are described as well drained calcareous silty soils of the Wantage 1 association (Soil Survey of England and Wales 1983).

A fluxgate magnetometer survey of the hillfort interior was carried out in June 2002 by the English Heritage Centre for Archaeology assisted by volunteers and staff of the Northmoor Trust. The aim was to provide an indication of the character and density of former occupation and activity inside the hillfort to inform the presentation of the monument and guide future management decisions where there is a potential impact on buried archaeological deposits such as the planned re-planting of the clump. The geophysical results will also be used to inform the positioning of a series of excavation trenches in the hillfort aimed at determining the degree of preservation of

archaeological deposits. A Scheduled Monument Consent application is currently in preparation for the purpose of undertaking this work.

A second major objective was to use the survey as a means of providing training to the Northmoor Trust staff and volunteers in the practical use of geophysical methods for the mapping and investigation of archaeological sites and landscapes. The training was carried out in a “capacity building” framework to enable the Northmoor Trust to develop and take forward their own programme of geophysical exploration of the landscape setting of Castle Hill in future years through the acquisition of their own survey equipment. This proposed programme of largely volunteer-based survey is intended to form part of the *Wittenham Clumps Heritage Landscape Project*, the archaeological component of which is being developed by Tim Allen of Oxford Archaeology for the Northmoor Trust (Oxford Archaeology 2002). The wider Heritage Landscape Project funded by the Heritage Lottery Fund (HLF) will study the development of human settlement and activity in the Wittenhams landscape and its impact on the environment. The results of this project will form part of a planned interpretation centre to be built in the nearby site of Hill Farm with HLF funding. The proposed archaeological component of the study will focus on cropmark validation through fieldwalking, geophysical survey, augering and targeted excavation and extending the archaeological database for the area beyond what is known from cropmark evidence.

The geophysical survey of the hillfort reported on here forms the initial stage of this planned archaeological programme. According to current proposals this is to be followed by sample excavation of the hillfort interior and earthwork defences and sampling of possible colluvial deposits. The excavations, which are still at the planning stage, will be designed to i) assess the results of the geophysical survey ii) establish the degree of preservation of archaeological deposits across the fort interior and iii) retrieve dating and environmental evidence. In the second year of the project more extensive geophysical survey of settlement foci will be undertaken in the surrounding landscape by the Northmoor Trust.

Methods

A 30m grid was first set out over the site using a Trimble real-time kinematic differential GPS (Global Positioning System) with a roving receiver in stake-out mode. The 30m grid-points and base station position were subsequently corrected to real Ordnance Survey National Grid coordinates using Trimble Geomatics Office software and imported into the 1:2500 OS map-tile in AutoCad14 to produce a precisely geo-referenced survey location plan (Figure 1).

On the 30m grid Geoscan FM36 fluxgate magnetometers were used to collect readings of the vertical magnetic field gradient at 0.25m intervals along 30m traverses spaced 1.0m apart. The data was recorded at the 0.1 nanotesla (nT) instrument sensitivity setting and was periodically downloaded to portable computers in the field for storage and verification. Subsequent data processing involved the reduction of extreme readings by range truncation and the removal of instrument drift effects by baseline equalisation.

During the course of the weeks fieldwork at Castle Hill, two volunteers (Dr Jill Ayers and Dr Bill Housfield) and the director of the Northmoor Trust (Dr S Head) undertook tuition in magnetometer survey on the site. The trainees were responsible for the collection of approximately half the total data-set, the remainder being completed by the English Heritage team. When viewing the resulting data, allowance should be made for the fact that the survey was a training exercise and the volunteer surveyors were all using the instruments for the first time in difficult field conditions without any prior experience of their operation.

Results

The results of the survey are presented in Figures 2-4 and an interpretation is provided in Figure 5. Alphabetical references in the following text correspond to specific anomalies identified on Figure 5.

The magnetic variation across the hillfort is very limited (largely in the range of ± 1 nT) and anomalies are generally only of slight magnitude, many only ranging from 3-5 nT above background readings. Although generally weak the majority of anomalies detected in the hillfort are likely to be of archaeological significance and there is little sign of stronger disturbance from modern activity. Most obvious of the anomalies of likely archaeological origin is a wide positive anomaly - indicative of a substantial ditch - that can be seen curving around and thus enclosing the highest part of the hillfort interior (**A**). The enclosure ditch has been detected on the southern and eastern sides of the wooded clump but its likely continuation to the north and west could not be resolved clearly where the circuit disappears into the area of tree cover. Two very limited areas of magnetometer survey in the wood, where the density of trees was low enough to allow regular instrument traverses, only provide limited evidence for the suggested course of the enclosure ditch in the beech clump (**B** and **C** on Figure 5). Because of the very limited survey coverage in the wooded area this evidence is tentative only. Apart from providing possible evidence of the course of the inner ditch circuit, the survey areas in the wooded clump were not otherwise very informative.

Where the enclosure circuit is visible, the width and shape of the anomaly is very variable. The ditch appears to swell and become more irregular at several points, suggesting re-cutting or quarrying of the original profile (**D**). There are also suggestions of causeways interrupting its course in several places (indicated with question marks on Figure 5) although the weakness of the magnetic response to the ditch makes identification of entrances particularly difficult. The possible entrance on the eastern side of the tree clump is in a similar position to the north-eastern entrance to the main hillfort suggesting some continuity of planning in the layout of the respective entrances.

A further possible ditch signified by a positive linear anomaly (**E**) can be seen extending on a north-easterly alignment from the possible eastern entrance of the inner enclosure. This feature may represent a linear boundary earthwork of *Wessex linear ditch* form and would be consistent with adjacent linear earthworks known at other hillfort sites in Southern England including Uffington Castle, Alfred's Castle in Oxfordshire (Lock *et al* in press, Lock and Gosden 1997, 1999), Danebury, Quarley Hill, Suddern Farm and Ladle Hill in Hampshire (Cunliffe 2000, Piggott 1931). Early small hill-top enclosures often occupy focal points on such linear ditch systems of

Bronze Age date (Bradley *et al* 1994, Cunliffe 1990) and in some cases it has been demonstrated that they were reused in the laying out of hillfort defences (for example at Woolbury and Ladle Hill in Hampshire). A second possibility is that the extension of the inner enclosure represents the bed of a track-way or hollow-way approaching the possible entrance from the north-east and subsequently in-filled by later ploughing.

Within the newly detected inner enclosure and immediately to the south-west of it, a series of large rectangular and more irregular positive magnetic anomalies have been detected (**F**). These are difficult to interpret precisely but are likely to represent former features quarried or cut into the ground and subsequently in-filled with magnetically enriched soil. They may represent occupation sites, or quarry or pit complexes containing deposits of occupation material. Numerous smaller localised positive magnetic anomalies scattered across the hillfort interior (**G**) are most likely to represent a moderate distribution of pits. Their density and pattern is similar to that known at Uffington Castle from previous geophysical survey and excavation (Lock *et al* in press). The anomalies from two possible pits (**H**) near the south-eastern side of the fort are particularly pronounced (12-15 nT) suggesting the incorporation of significant amounts of burnt material in the feature fills.

Within the eastern perimeter of the inner enclosure there are tentative suggestions of two narrow circular ring-gullies that may signify traces of round-house type structures in this area (**I**). However it is possible that these tentative patterns could merely result from instrument noise so this interpretation should be treated with extreme caution.

Around the periphery of the hill-fort interior on the lower slopes of the enclosed area further very weakly defined positive anomalies have been detected (**J**). These may represent evidence of further phases of enclosure of the site, quarries for providing rampart construction material, or they may relate to soil build-up against the inner hillfort rampart resulting from the long term effects of cultivation.

Conclusions

The most significant finding of the magnetometer survey is the major new inner enclosure ditch surrounding the summit area enclosing just over a hectare and set well back into the interior from the main and probably later hillfort defences. There are some internal features that may or may not be contemporary and there are suggestions that the enclosure circuit is broken by at least three possible entrances (there may be more where the circuit is obscured by the trees). Although such a feature is a comparative rarity, there are clear parallels at several other hillforts in Southern England which contain degraded remains of earlier smaller earthwork enclosures. The nearest example is Rams Hill 25 km to the south west on the north Berkshire Downs – an Iron Age hillfort containing an earlier inner enclosure of late Bronze Age date (Bradley and Ellison 1975). Further afield sites in Wessex such as Quarley Hill (Hants), Scratchbury and Yarnbury (both in Wilts) contain degraded earthwork remains of earlier smaller enclosures. Based on such parallels various interpretations of the enclosure at Castle Hill are possible, the most likely being that it represents an earlier late Bronze Age precursor of the main hillfort that was later subsumed by a more massive later hillfort enclosing a substantially enlarged area. Less likely, given

Lock, G and Gosden, C, 1997 The Hillforts of the Ridgeway Project: excavations on White Horse Hill 1995. *South Midlands Archaeology*, **27**, 64-9.

Lock, G and Gosden, C, 1999 Hillforts of the Ridgeway Project: excavations at Alfred's Castle 1998. *South Midlands Archaeology*, **29**, 44-53.

Lock, G, Miles, D, Palmer, S and Gosden, C, in press. Uffington White Horse Hill and its Landscape : investigations at White Horse Hill, Uffington, 1989-95 and Tower Hill, Ashbury, 1993-4, Oxfordshire. Thames Valley Landscapes Monograph. Oxford University Committee for Archaeology.

Oxford Archaeology, 2002 The Wittenham Clumps Heritage Lottery Landscape Change Project. An archaeological proposal for investigation of the surrounding landscape. Unpublished document.

Payne, A, Corney, M and Cunliffe, B, *forthcoming The Wessex Hillforts Project - an extensive survey of hillfort interiors in Central Southern England*. English Heritage publications.

Piggott, S, 1931 Ladle Hill – an unfinished hillfort. *Antiquity*, **5**, 474-485.

Soil Survey of England and Wales, 1983 Soils of England and Wales, Sheet 4 Eastern England. 1:250,000 Soil Map Series.