

Cleeve Cloud Hillfort and The Ring,
Southam, Gloucestershire: Re-assessment
by Remote Sensing and Geophysical
Survey

Phillip Cox
Mike Milward
Les Comtesse

Gloucestershire Archaeology
2022

Summary

Between 2017 and 2022 Gloucestershire Archaeology undertook geophysical surveys of, Cleeve Hill Camp (SAM 1002312, NGR SO985254) and geophysical surveys and a topographic survey of The Ring (SAM 1004845 NGR S985266), on Cleeve Common, Gloucestershire, under the Ancient Monuments and Archaeological Areas Act 1979 (as amended) section 42 (Licence number: AA071602/5 and AA071602/5) and in collaboration with the Cleeve Common Trust.

This report combines the results of the surveys with analysis of LIDAR imaging of Cleeve Hill camp, and aerial photographs, historic mapping and antiquarian reports of both sites.

Geophysical surveys of Cleeve Hill camp show evidence of extensive settlement within the camp, with both possible roundhouses and pits as well as post-Medieval features; a tree ring and golf course tee platform. Combining LIDAR imagery with historic mapping suggests that at least one-third of the hillfort in its northern part, including the original entrance, was lost to post-Medieval limestone quarrying.

The date and function of The Ring remains enigmatic. The limited evidence of structure within the banks appears to favour a small settlement, but destruction of much of the interior of the larger earthworks in the 19th century to produce a golf green makes interpretation difficult. Further work at this site may be warranted.

Contributors

The geophysical fieldwork was carried out by volunteers from Gloucestershire Archaeology, led by Mike Milward, Les Comtesse and Phillip Cox. Processing of data was undertaken by Les Comtesse and Phillip Cox. The topographic survey of The Ring and the GIS analysis of remote sensing data and geophysical surveys was undertaken by Phillip Cox.

Acknowledgements

The authors are grateful to the Cleeve Common Conservators for their support in undertaking the work and providing access and transport to the sites and to Cotswold Archaeology for undertaking the GPS recording of the hillfort magnetometry grids.

Archive Location

Gloucestershire Archaeology. The report has been filed with the Gloucestershire HER.

Date of Survey

The fieldwork was carried out between February 2018 and March 2022 with interruptions as a result of the COVID-19 pandemic.

Contact details

Phillip Cox, Hon Sec Gloucestershire Archaeology. Tel: 07725695381

Email: mailbox@glosarch.org.uk.

Table of Contents

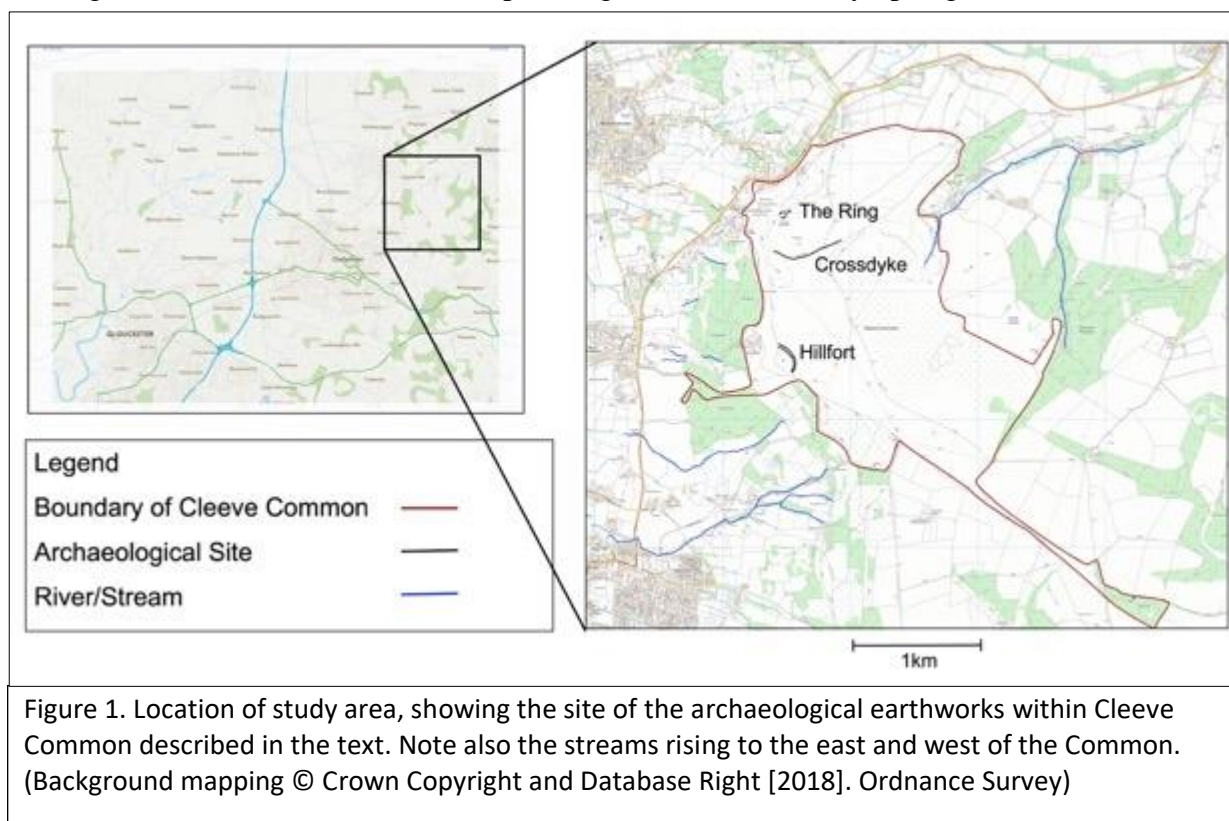
Summary	1
Contributors	1
Acknowledgements	1
Archive Location	1
Date of Survey	1
Contact details.....	1
Cleeve Common.....	4
Location and Geography	4
Cleeve Common in the Iron Age	4
Cleeve Hill camp / Cleeve Cloud Hillfort (NGR: SO 98500 25477; Scheduled Ancient Monument number 1002132)	5
Site Descriptio.....	5
Historical Descriptions of the Hillfort	5
The Ring (NGR: SO 98470 26580; Scheduled Ancient Monument number: 1004845)	7
Site Description.....	7
Historical Descriptions of the Ring.....	8
Aims and Objectives	9
Methods.....	9
Remote Sensing	9
Aerial photography	9
LIDAR	9
Geophysical Surveying	9
Electrical Resistivity Survey	9
Magnetometry Survey.....	10
Topographic Survey of The Ring	10
GIS	10
Results.....	10
Cleeve Cloud Hillfort.....	10
Internal features	10
Analysis <i>Occupation</i>	13
The Ring.....	16
Aerial photographs.....	16
Topographic survey	16
Resistivity survey.....	18
Magnetometry survey	18
Analysis.....	19

Discussion.....	20
Cleeve Cloud Hillfort.....	20
Settlement, Dating and Function.....	20
The Ring and Ringwork - Speculations on Function.....	21
Post-Medieval Damage.....	21
Quarrying of the hillfort.....	21
Appendix - Aerial Photographs	23
References.....	24
Plans.....	27

Cleeve Common

Location and Geography

Cleeve Common is a sloping plateau of more than 400 hectares, north-east of Cheltenham, Gloucestershire, on the western edge of the Cotswold Hills, overlooking the valley of the River Severn from the steep escarpment (Figure 1). The Common is managed by the Cleeve Common Trust through its Board of Conservators; it includes an 18-hole golf course and the Cotswold Way National Footpath runs close to the escarpment edge. Cleeve Hill is formed from Inferior Oolites (Dreghorn 1967, pp104-6), which has been quarried for building materials for two millennia (Gray and Brewer, 1904). As a result, the escarpment has been cut back in places to create a near-vertical cliff face. There is little natural water on the Common, as rainwater permeates the limestone to emerge as springs where clay bands run through the limestone (Aldred, 1991, p.x) (Figure 1b). It is mostly open grassland with



patches of scrubby vegetation and a few small stands of trees. The Common includes the highest point on the Cotswolds at 330m above OD. From the edge of the escarpment the view is westwards across the Severn Valley to the Malvern Hills; south-west to the Severn Estuary and Forest of Dean with the Black Mountains beyond; and north-west to Bredon Hill, the Clent Hills and Shropshire Hills in the distance.

Cleeve Common in the Iron Age

The Iron Age archaeology of Cleeve Common is dominated by two sites: a hillfort at Cleeve Cloud, a hillfort; and The Ring, two smaller enclosures of less certain provenance to the north. Iron Age farming settlements have not been identified on the Common, but in the

Severn Valley below there is extensive evidence of occupation. Excavation in 1904 at King's Beeches, a quarry to the north of the Ring, identified pits containing occupation debris, pottery, animal remains and human teeth and bones (Gray and Brewer, 1904), and similar material had reportedly been recovered from another quarry to the north-west (Saville, 1984). Aerial survey and excavations have shown evidence for extensive Later Iron Age farming in the Carrant Valley, between the Cotswold escarpment and Bredon Hill (Bishop, 2009) and at Gotherington and Bishop's Cleeve (Oswald, 1974; Britnell, 1975; Parry, 1999; Havard, 2017).

Cleeve Hill camp / Cleeve Cloud Hillfort (NGR: SO 98500 25477; Scheduled Ancient

Monument number 1002132)

Site Description

The small hillfort of 1.2ha at Cleeve Cloud, on the edge of the Cotswold escarpment, approximately 300m above OD, faces west, overlooking Cheltenham (Figure 2a,b). The ramparts comprise two banks up to 2.5m high and 9m wide running in a crescent and extending to the escarpment edge at the northern and southern ends. Both banks have an external ditch up to 0.7m deep and a narrow berm separates the inner ditch from the outer bank (Royal Commission on Historical Monuments England, 1976, p.106 - 7) (Figure 3).

The ramparts are cut by a footpath at both ends, creating entrances, but neither of these is likely to be original. Part of the outer rampart has been removed to create a golf green. The



Figure 2. The hillfort at Cleeve Cloud. a) view of ramparts from southwest; b) aerial view from Cleeve Common northwestwards over the hillfort, across the Severn Valley with the Malvern Hills beyond; (Images: a) Author's own; b) Hamish Fenton (with permission)

interior of the hillfort measures approximately 180m north-to-south and 100m east-to-west, sloping downwards some 15m from north-east to south-west and is traversed by footpaths. The land rises some 17m to the east of the hillfort to the top of the ridge.

Historical Descriptions of the Hillfort

The first written reference to the hillfort at Cleeve Cloud is in Rudder's 'A New History of Gloucestershire' (Rudder, 1779, p.369). He describes a '*double entrenchment extending 350 yards along the summit of the rock in the form of a crescent and inaccessible on every side but the front.*' In a subsequent paper by Baker, the hillfort is described as '*almost an acute-*

angled parallelogram, with the two obtuse angles very much rounded off. It is about an hundred and eighty yards from one acute angle to the other, and about an hundred yards from one obtuse angle to the other. It is on the brow of the hill, which is steep enough to be a

sufficient defence to it, and there seems to have been an entrance from the vale' (Baker, 1821). This suggests that at this time the hillfort was intact and the entrances had not been affected by later quarrying. The northern entrance appears still to have been intact in the 1870s, as it is described by Playne (Playne, 1875, p.209) and the accompanying drawing shows a simple entrance a short distance east of the escarpment edge (ibid. Plate II, Fig.11) (Figure 4). Witts described four circular 'buildings', one within the ramparts and the others outside to the north and south, within an enclosing wall. He also reported a hollow-way heading south from the hillfort towards

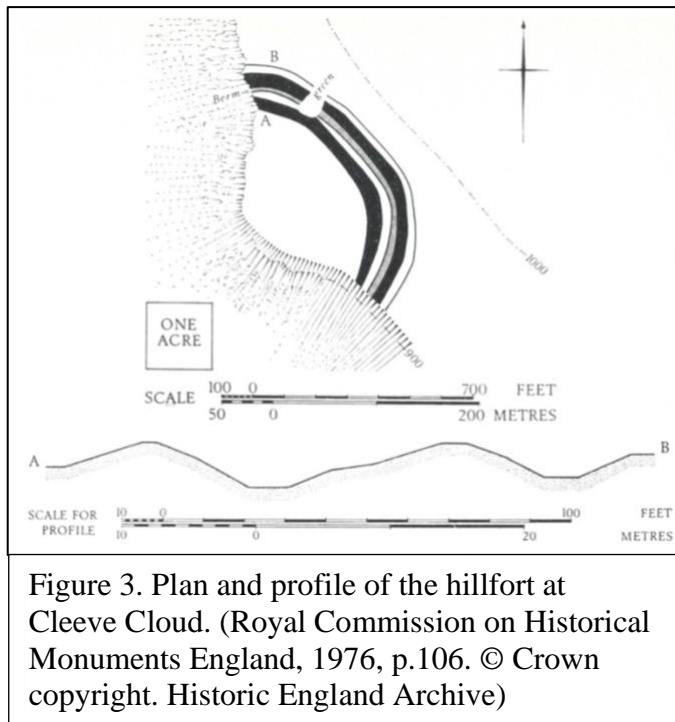


Figure 3. Plan and profile of the hillfort at Cleeve Cloud. (Royal Commission on Historical Monuments England, 1976, p.106. © Crown copyright. Historic England Archive)

Prestbury (Witts, 1879, 1883). These 'buildings' are also described by Burrow, who additionally states that the entrance was still extant (Burrow, 1919). In the survey of monuments in Gloucestershire, which includes a plan of the hillfort, the entrance is no longer present, presumably having been quarried away (Royal Commission on Historical Monuments England, 1976, p.107). The latter notes a rectangular platform against the inner bank adjacent to the northern end, which it suggests is a recent addition, although its nature is not identified. The Cheltenham Golf Club opened in 1891 and an early map shows the 14th green and 15th tee within the hillfort (Figure 5a) (Llewellyn, 2020). Burrow notes that a golf green had been constructed in the ramparts (Burrow, 1919) and a golf course map of 1913 (Figure 5b) shows this to have replaced the earlier green inside the fort.

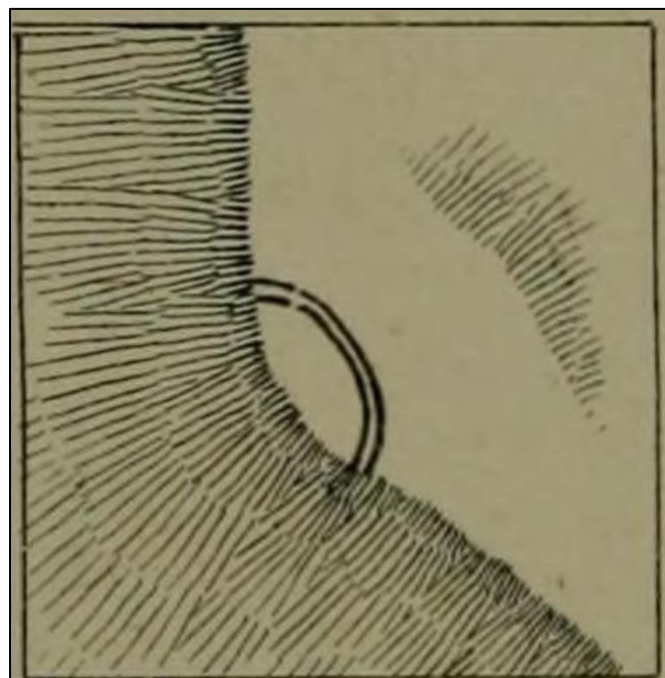


Figure 4. Antiquarian plan of the hillfort at Cleeve Cloud (Playne, 1875)

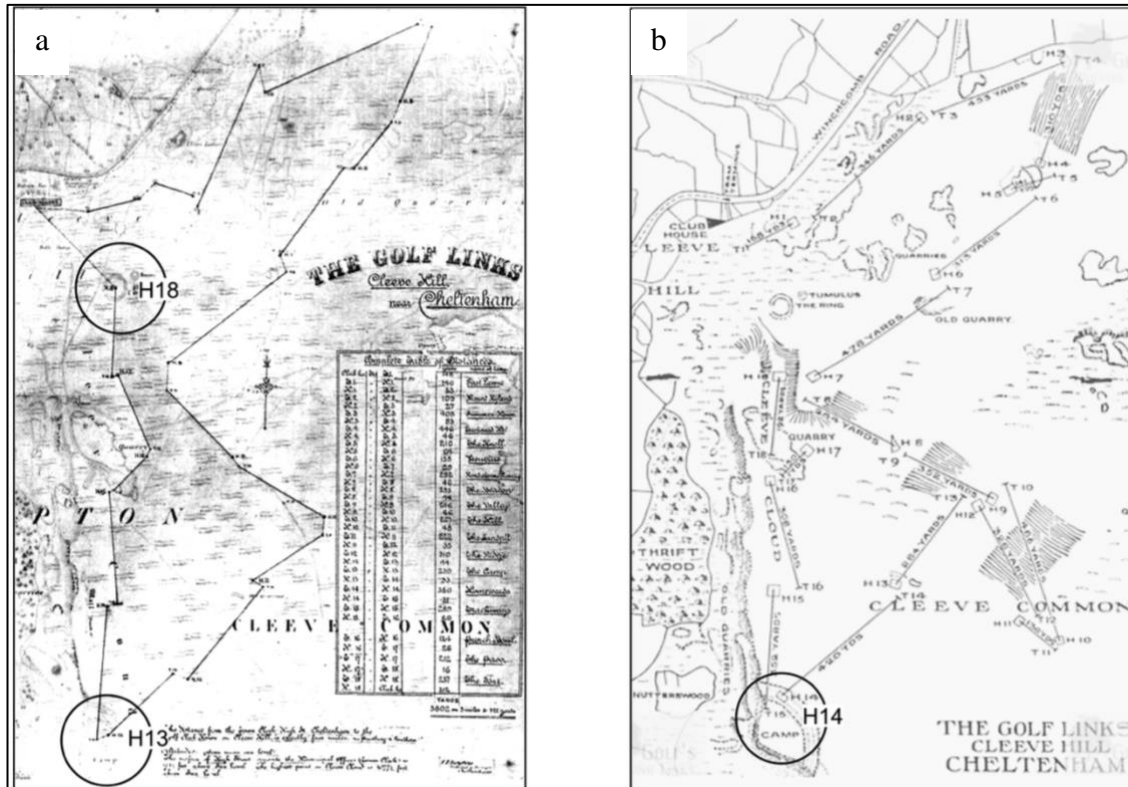


Figure 5. Maps of Cleeve Hill golf course. a) original layout (1891), b) 1913. Images: Golf's missing links (with permission)

Dating of the site is largely based on the typology of the fort. As a small bivallate hillfort it has been dated to the earlier Iron Age. This is augmented by a find of a few sherds of earlier Iron Age pottery, attributed to the hillfort, held in Cheltenham Museum (Saville, 1984), whilst a small rescue excavation on the inner rampart which showed the rampart to be of dry-stone wall construction, in keeping with the early date (Thomas, 2011). The Historic England List entry and RCHME survey indicates that the circular buildings described by Witts are likely to be post-medieval tree-rings (Royal Commission on Historical Monuments England, 1976).

The Ring (NGR: SO 98470 26580; Scheduled Ancient Monument number: 1004845)

Site Description

The monument scheduled as The Ring is a pair of sub-circular earthworks 1.1km to the north of the hillfort on the steep escarpment slope (Figure 1). The larger earthwork is 0.2ha in area, with a shallow ditch in front of a steep bank on the downhill, western, side. This rises to a central platform, bounded, uphill, to the east by a steep bank and a ditch (Figures 6a, b). The smaller earthwork lies 10m north-east of the Ring and is 0.04ha in area. It has a steep bank on the downhill side, a central platform, and a steep bank rising to the natural slope, to the east (not shown). Each earthwork has a single, simple, south-west-facing entrance.

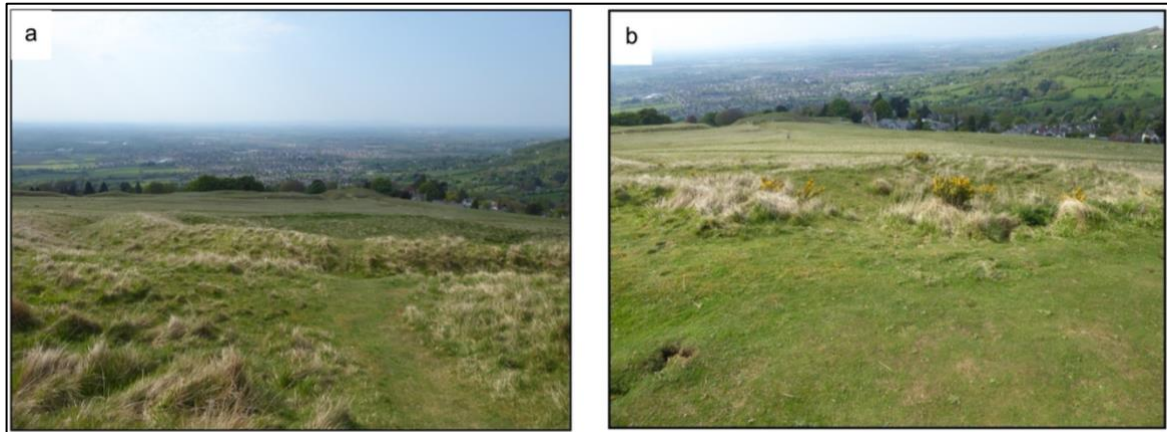


Figure 6. The Ring. a) location map; b) view of the Ring westwards from Cleeve Common towards the Severn valley, showing the bank and ditch. Images: Author's own)

The land rises 40m steeply to the south-east to the hilltop. 500m down the slope, aligned with the entrances of both features, a spring arises from the hillside (Figure 1b).

Historical Descriptions of the Ring

The first report of The Ring describes ‘two small circular earthworks of peculiar form, and it is difficult to say for what purpose they were intended’ (Witts, 1883). Burrow (1919, p.62) describes ‘two circular earthworks, one of which is undoubtedly a tumulus; the other, known as “The Ring” ... may have been a cattle compound’.

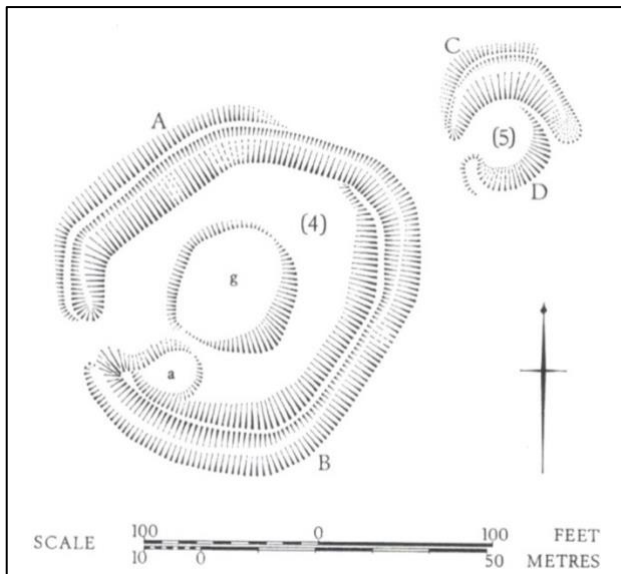


Figure 7. Plan and profile of The Ring and ringwork. (Royal Commission on Historical Monuments England, 1976, p.106-7. © Crown copyright. Historic England Archive)

other debris were found ‘very near this spot’, indicating that it may have been a Celtic (Iron Age) settlement, a view espoused by Saville (1984) and Darvill (2011). Burrow also indicates that The Ring “has been subjected to an act of vandalism” in constructing the golf course (Burrow, 1919). The RCHME survey (Figure 7) describes a possible hut platform inside the south-west facing entrance to the Ring and the central flat area as part of a golf course. An early map of the golf course shows the 18th green within the larger earthwork. A later map, dated 1913, shows that the green had been moved to the top of the slope above (Figure 5a, b) (Llewellyn, 2020). The interior of the smaller ringwork is also ‘a possible hut platform’ (Royal Commission

on Historical Monuments England, 1976). Apart from Burrow’s comment (Burrow, 1919) there is no other written or photographic evidence to suggest it was a barrow. The RCHME notes that that the entrance aligns with that of the Ring (Royal Commission on Historical

Monuments England, 1976). No finds have been recorded from either earthwork and no formal excavation has taken place.

Aims and Objectives

The aims of this project were to use a range of non-invasive techniques to gain new understanding of two scheduled monuments, the Iron Age hillfort at Cleeve Cloud and The Ring.

Methods

The work was performed under the Ancient Monuments and Archaeological Areas Act 1979 (as amended) section 42 (Licence number: AA071602/5 and AA071602/5) and at the invitation of the trustees of Cleeve Common Conservators. The work was carried out by the authors, with assistance from members of Gloucestershire Archaeology between April 2019 and February 2020.

Remote Sensing

Aerial photography

Current and historic vertical aerial photographs of the Cleeve Cloud hillfort and The Ring were overlaid directly on background mapping in the QGIS Geographical Information System package and features identified as upstanding earthworks or soil-marks were recorded as shape files.

LIDAR

1m resolution LIDAR imaging covering Cleeve Cloud (OS grid square SO9825) was obtained from DEFRA and imported into QGIS. This was used to create hillshade, slope and contour models using the relevant tools. The features identified were recorded as shape files, and rasters were used to create 3D models. LIDAR did not cover The Ring.

Geophysical Surveying

Electrical Resistivity Survey

Electrical resistivity survey of both the hillfort and The Ring was undertaken with a TR/CIA twin probe resistance meter (TR systems Ltd., UK) using 1m wide traverses and one reading per metre. The hillfort was surveyed as 16 complete and 15 partial 20mx20m grids. The Ring was surveyed as 15 complete and one partial 20mx20m grids. Resistivity data was analysed using Geoplot3 software (Geoscan Research, Bradford, UK). Graphic plots of the processed data were imported to QGIS and georeferenced using location information recorded with a handheld GPS (Trimble Geo3x running TerraSync software (Trimble, Inc, USA).

Magnetometry Survey

Magnetometry survey of the hillfort was undertaken using a Frobisher DFG-1 Magnetic Gradiometer (RM Frobisher LTD, UK) with a single FGM 650/8 sensor. The survey of The Ring was performed with a Bartington 601, dual sensor fluxgate magnetometer (Bartington Instruments, Witney, UK). For both the traverse interval was 1m with data recorded every 0.25m.

The hillfort was surveyed as 23 complete and 9 partial 20mx20m grids. Location information was recorded with a Trimble R10 survey grade GPS running TerraSync software (Trimble Inc., USA). Data was imported for processing to Snuffler software (<http://www.sussexarch.org.uk/geophys/snuffler.html>).

The Ring was surveyed as 14 complete and one partial 20mx20m grids. Location information was recorded using a handheld Trimble Geo7x GPS running TerraSync software (Trimble, Inc, USA). Data was imported to Geoplot 3 (Geoscan Research, Bradford, UK) for processing. Bitmap shadeplot images of the results were imported to QGIS.

Topographic Survey of The Ring

A topographic survey of the Ring was performed with a survey grade GPS rover unit (Trimble R10 running TerraSync software (Trimble Inc., USA)). The survey points were recorded at 1m intervals, imported as a shapefile to QGIS and a digital terrain model was created.

GIS

Raster images of the processed geophysical surveys and remote sensing were added to background mapping in QGIS. The LIDAR DTM (hillfort) and topographic survey (Ring) rasters were used to create contour maps, hillshades and slope models, whilst features identified in the geophysical surveys and remote sensing were recorded as shapefiles for analysis. To assess the extent and date of quarrying at the hillfort an antiquarian plan of the hillfort (Playne, 1875) was imported, overlaid on the LIDAR DTM hillshade and georeferenced to best-fit the ramparts, with the assumption that the southern end has not been quarried. The LIDAR was also compared with historic OS mapping for 1884, 1902, 1923 and 1973.

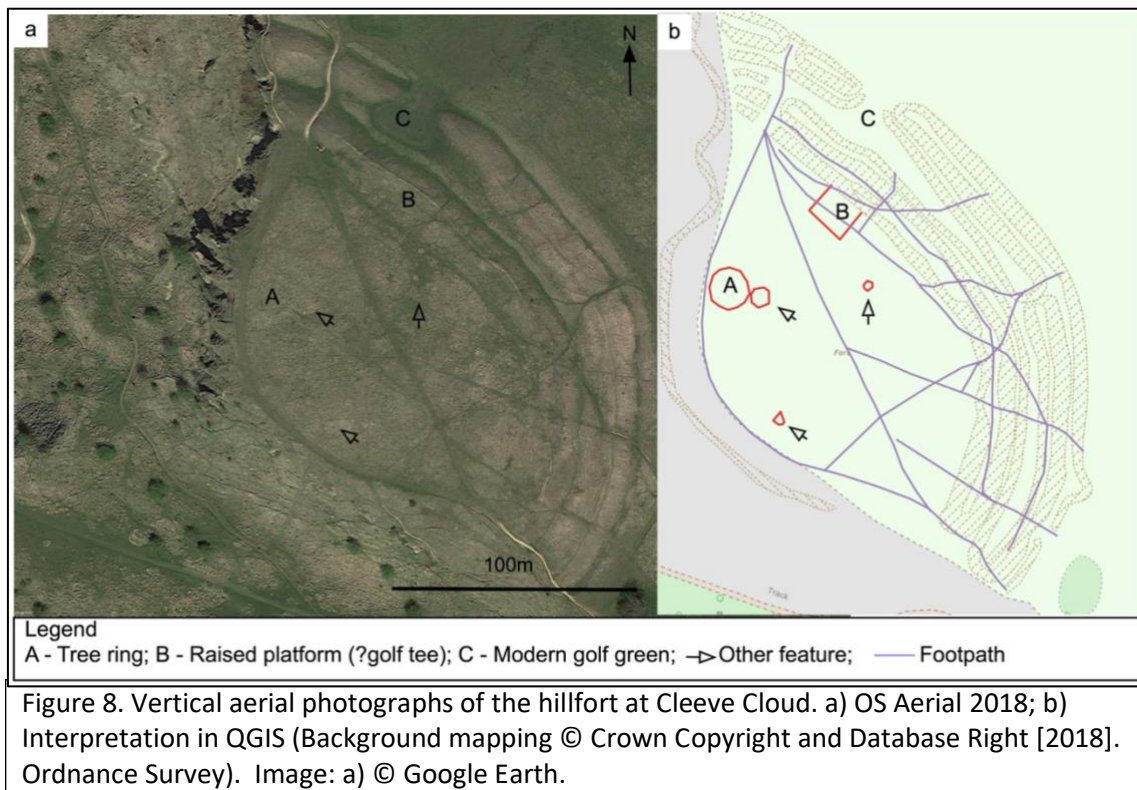
Results

The Hillfort at Cleeve Cloud

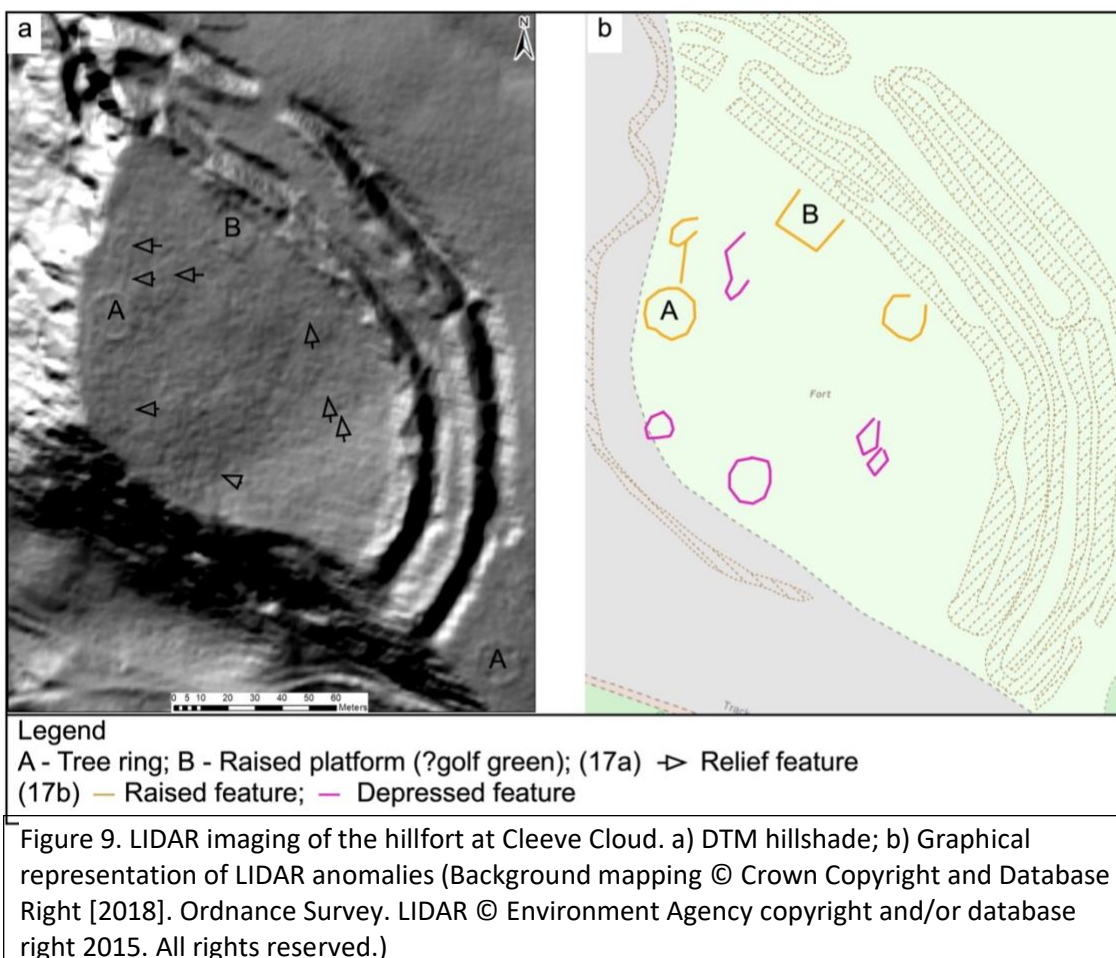
Internal features

Aerial photographs

In addition to the tree-ring, the square platform by the ramparts and footpaths within the interior, aerial images show a possible circular feature adjacent to the tree ring (Figure 8a) and other possible subcircular and rectilinear features either side of the central footpath (Figure 8a, b).



LIDAR



The LIDAR DTM hillshade model also shows the tree-ring and rectilinear platform the bivallate defences and golf green seen in aerial images. Smaller subcircular features are noted within the tree-ring and overlapping its bank to the south-west. Several less distinct circular profiles 14.5-11.3m diameter and possible linear features are also evident (Figure 9a,b).

Resistivity

Resistivity survey demonstrates the tree-ring and, less distinctly, the rectilinear platform as high-resistivity features. Smaller high-resistivity subcircular features are seen within the tree-ring (Figure 10a). The main footpaths are evident as low-resistivity linear features, but in the southern half of the plot, three low-resistivity features do not correspond to paths and may be geological. At least five high-resistivity, partial and complete, sub-circular features, 11.5-

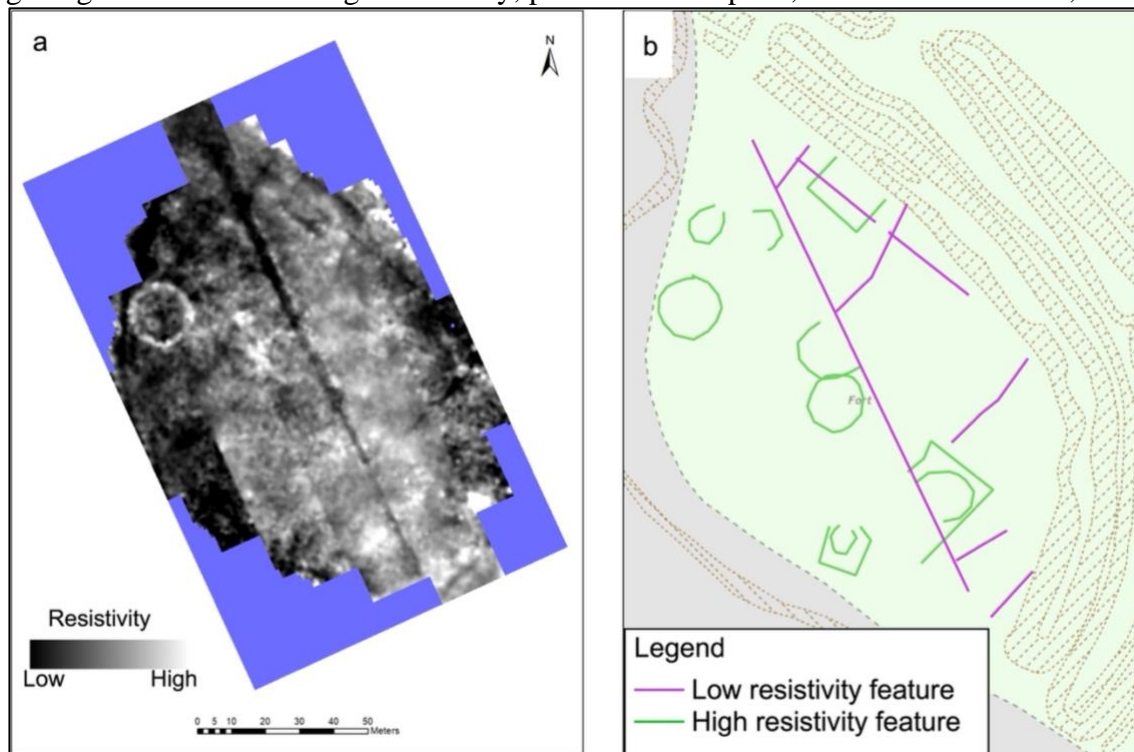
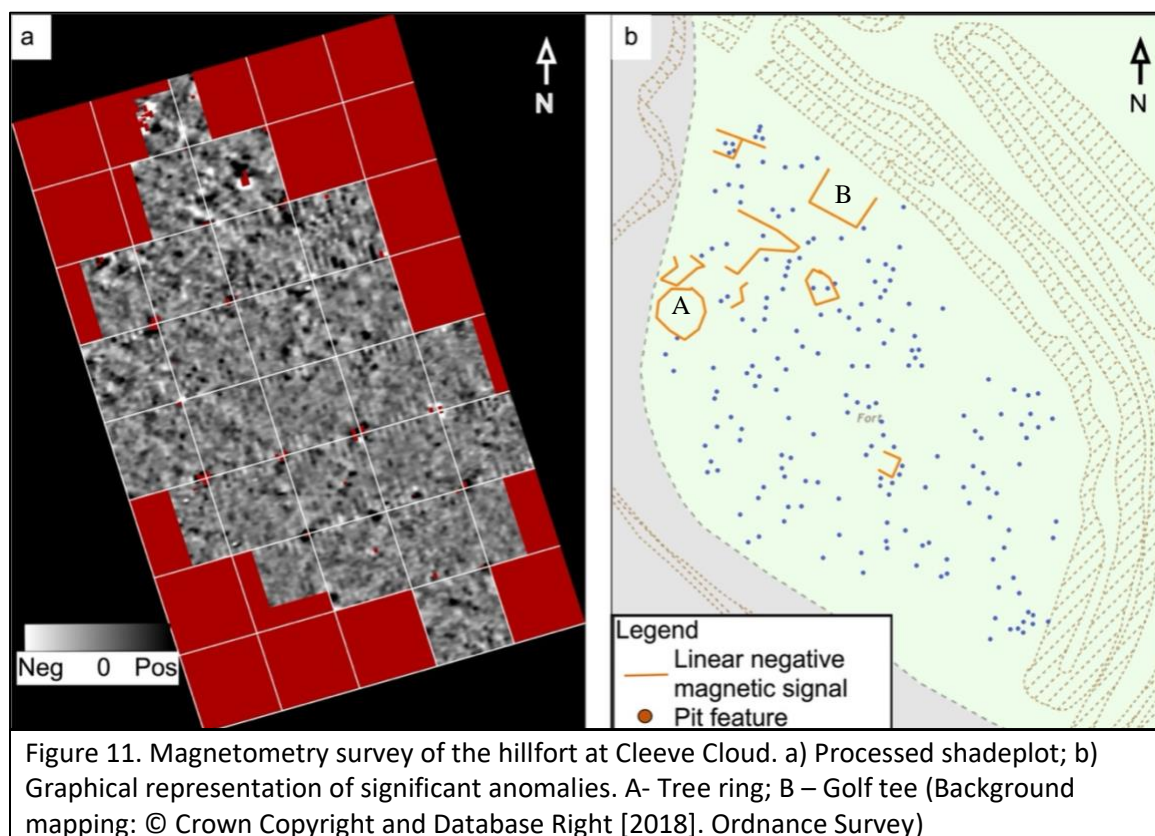


Figure 10. Resistivity survey of the hillfort at Cleeve Cloud. a) Processed shadeplot; b) Graphical representation of significant anomalies. (Background mapping © Crown Copyright and Database Right [2018]. Ordnance Survey).

15.5m in diameter, are identified either side of the central path, with two further high-resistivity rectilinear features, 12.9m x 13.8m, by the southern cliff face, and 29m x 24m, located across the central path, respectively (Figure 10a, b).

Magnetometry

Magnetic gradiometer survey of the interior of the hillfort demonstrated the tree-ring and the rectilinear platform along with several irregular negative linear features of uncertain significance (Figure 11a,b). In addition, many positive pit-like features were present throughout the site. Mostly, these show no clear organisation although a few groups have a roughly rectilinear arrangement.



Analysis

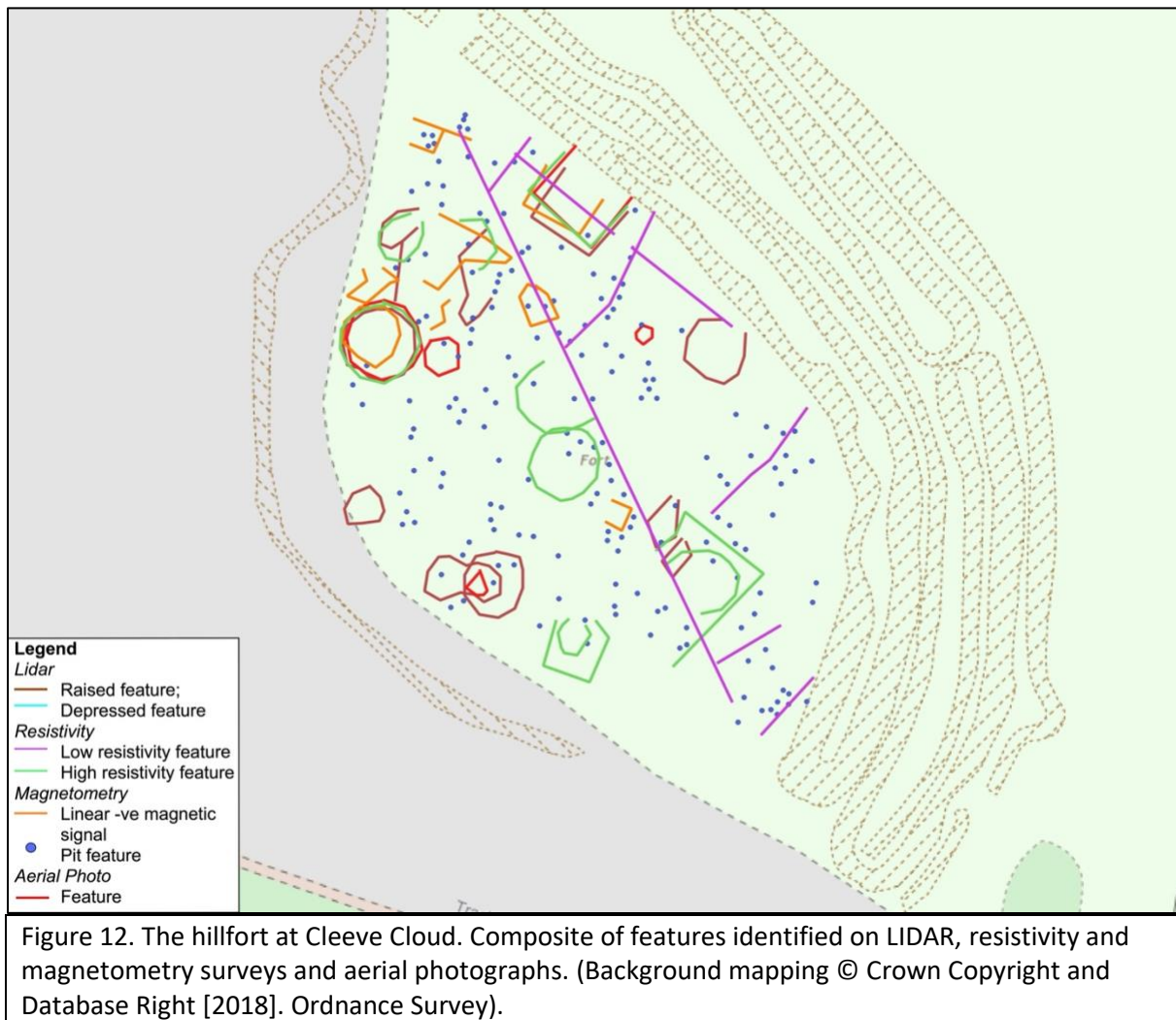
Occupation

The various modalities used in this study show a variety of linear and sub-circular features within the hillfort (Figure 12).

The rectilinear platform abutting the inner bank, towards the northern end of the site, is evident with all techniques and appears to consist of a solid bank around an area of mixed signals. This has been proposed to be modern (Royal Commission on Historical Monuments England, 1976) and it may correspond to the 13th green of the original golf course, called “The Camp” (Figure 5a). Resistivity survey of the bank of the tree-ring, suggests it has a solid core (Figure 10a), consistent with antiquarian descriptions of a stone wall (Witts, 1883; Burrow, 1919). The nature of the small sub-circular features inside the tree-ring (Figures 9a, 10a) is unclear, but they may represent tree-throws. On LIDAR a smaller sub-circular feature, 6m across, appears to overlay, and thus post-date the ring (Figure 10a).

LIDAR and resistivity show other subcircular features, from 11.5-15.5m diameter (Figures 9, 10), which may be hut circles, although they are towards the higher end of the expected diameter for Iron Age roundhouses (Cunliffe, 2004, pp.269-274).

Magnetometry shows a substantial scatter of 1-2m diameter pit-like features, mostly appearing randomly arranged, but with some groups showing a possible rectilinear arrangement. These appear to be too large for a four-post granary structures and are of uncertain significance (Figure 11). Resistivity also shows scattered small low-resistivity

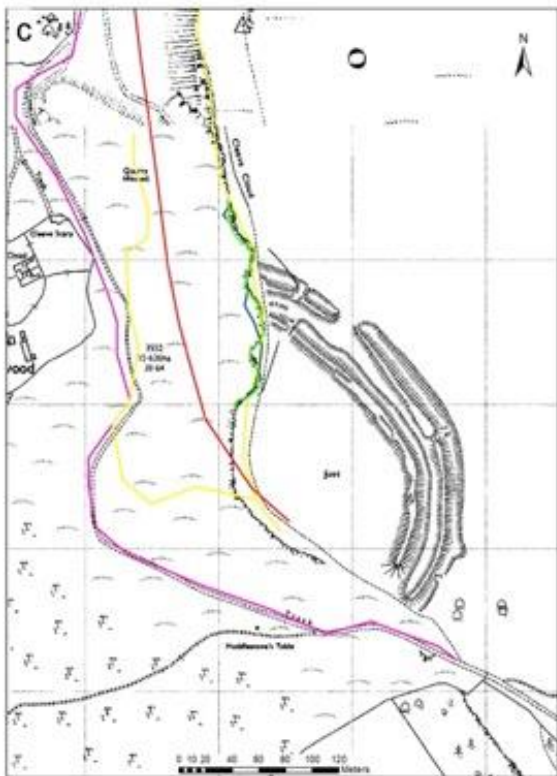
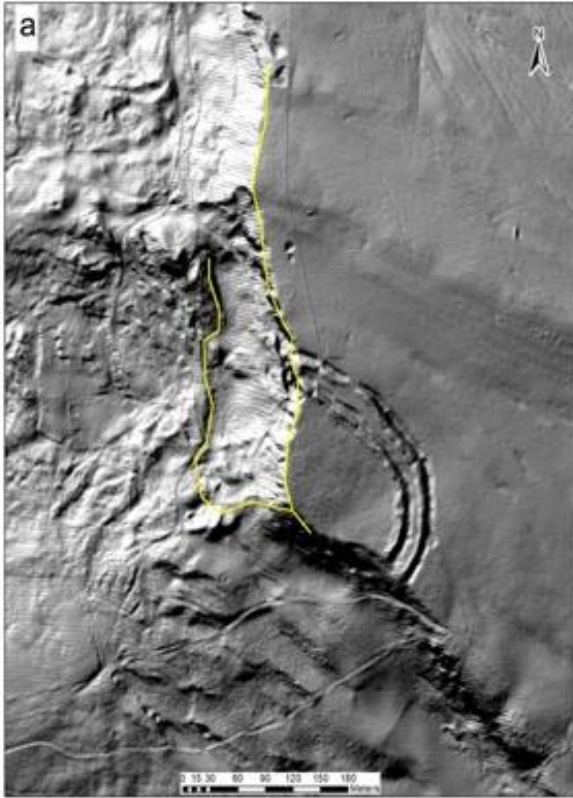


signals, but these show no alignment, generally do not correspond with the ‘pits’ on the magnetometry and may be geological.

Overall, the surveys suggest considerable occupation activity within the hillfort, although the findings from the different modalities generally do not correspond with one another. The true extent of activity can only be determined by excavation.

Quarrying

The earliest scale drawing of the hillfort is in Playne’s *‘On The Ancient Camps of Gloucestershire’* (Playne, 1875, plate II, Fig.11) (Figure 4), which shows a single, simple entrance at its northern end, a short way from the escarpment edge. By the first OS map of



- Legend**
- (a,c) — Extent of quarry 2020 Lidar
 - (b,c) — Escarpment edge, 1875
 - Extent of quarry 1973 OS
 - Escarpment edge 1924 OS
 - Extent of workings 2020 OS
 - (d,e) ▽ Rampart ends

Figure 13. Quarrying of the hillfort at Cleeve Cloud. a) Extent of quarry below hillfort on LIDAR; b) 1875 antiquarian map overlaid on LIDAR; c) extent of quarry and position of escarpment edge in 1875, on LIDAR and from historic maps; d) extensive quarrying of escarpment below northern part of hillfort; e) intact escarpment below southern half of hillfort. Background mapping © Crown Copyright and Database Right [2018]. Ordnance Survey; LIDAR © Environment Agency copyright and/or database right 2015. All rights reserved.). (Images: Author's own)

1884 there is evidence of quarrying and the entrance has been lost. Aldred (2009, 201) states, “In 1911 (Arthur) Yiend was forced to stop the quarrying which was destroying the Iron Age hillfort.” The 1924 map shows further encroachment on the northern end of the hillfort, but the ramparts are still otherwise intact. No further removal by quarrying is apparent thereafter, although the golf green and footpath entrances are evident in the 1973 map (Figure 13c).

The DTM hillshade shows the extent of quarrying beneath the northern half of the hillfort. Overlaying the plan of the intact hillfort on LIDAR and modern mapping (Playne, 1875) and comparison with historic maps demonstrates the loss of its northern end in the late 19th and early 20th century (Figure 13a,c,d), whilst the southern end appears to be relatively intact (Figure 13e).

The Ring

Aerial photographs



Figure 14. The Ring. OS Aerial photograph 2018; 1, large earthwork; 2, small earthwork (Images: © Google Earth).

Aerial photographs of the Ring and Ringwork show no features other than the banks and ditches. The interior of the Ring is a flat platform (Figure 14).

Topographic survey

The model of the larger earthwork from the topographic survey (Figure 15a), shows a surrounding ditch (i), continuous, except at the south-west facing entrance (ii). This is flanked on the downhill (west) side by a low external bank (iii) and steep internal slope (iv) to the central platform (vi).

On the south and east sides, a steep bank (v) rises from inside the ditch, falling away to the entrance and on the north side. The interior comprises: an outer zone, level on the west and north, rising to an upper platform on the eastern side; a central,

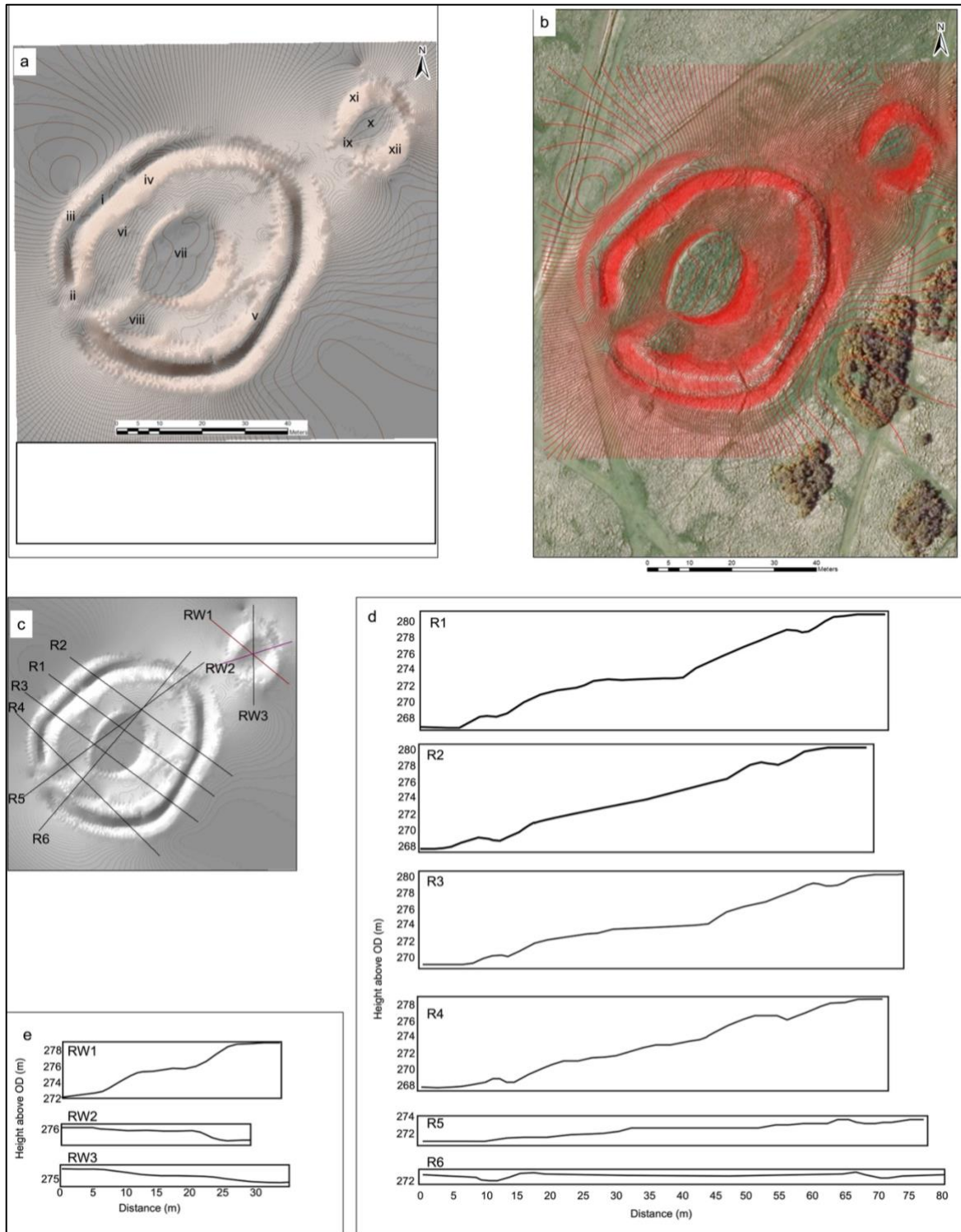


Figure 15. Topographic survey of The Ring earthworks. a) DTM hillshade model overlaid on contours; b) DTM contour model overlaid on aerial photograph (OS 2018); c) DTM hillshade showing position of profiles in d) and e) (Background mapping © Crown Copyright and Database Right [2018]. Ordnance Survey). Images: b) © Google Earth).

level, sub-circular platform (vii) backed by a steep slope to the east and a bank to the east of the entrance rising to a further small platform (viii). The smaller earthwork also has a south-west facing entrance (ix) and comprises an inner platform (x), encircled by a steeply rising bank from the natural slope to the west and north (xi) and a steep drop from the natural slope

on the east and south (xii). No surrounding ditch is evident. The model aligns well with aerial imaging (Figure 15b) but showed a 6m offset from OS mapping (not shown)

Profiles from the topographic model show that both features appear to have been cut into the hillside rather than built upon it (Figure 15d,e).

Resistivity survey

Resistivity of the larger earthwork shows three, roughly concentric, subcircular, high-resistivity rings (Figure 16a, b) corresponding to: the outer edge of the surrounding ditch; the main bank, with a very bright signal to the north-west, which disappears focally to the south-east; and the edge of the central raised platform. The outer high-resistivity rings are separated

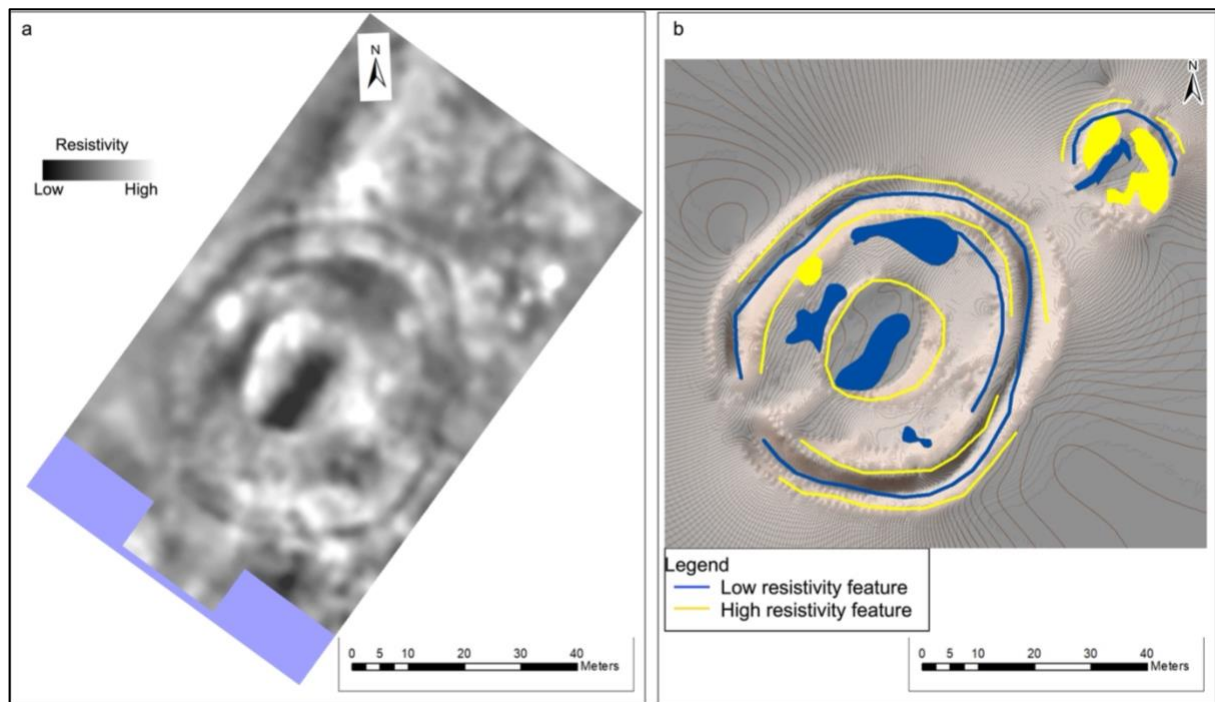


Figure 16. Resistivity survey of The Ring. a) Processed shadeplot; b) identified features on topographic DTM hillshade and contour models.

by one of low resistivity aligning with the ditch. The inner platform has a rectilinear, low-resistivity core whilst other, low-resistivity areas lie between the raised platform and the main bank. The entrance is visible in the south-west of the monument.

The bank of the smaller earthwork is represented by a high resistivity zone, up to 5m wide, on the north-western and northern sides. The south-eastern side shows ill-defined high resistivity extending beyond the outer edge of the feature. A strip of low resistivity runs from the entrance to the centre of the platform.

Magnetometry survey

Magnetometry of the accessible areas of the larger earthwork (Figure 17a) demonstrated partial, sub-circular negative and positive features relating to the ditch, bank and central platform. Within the platform several irregular positive areas, up to 9m long, were present

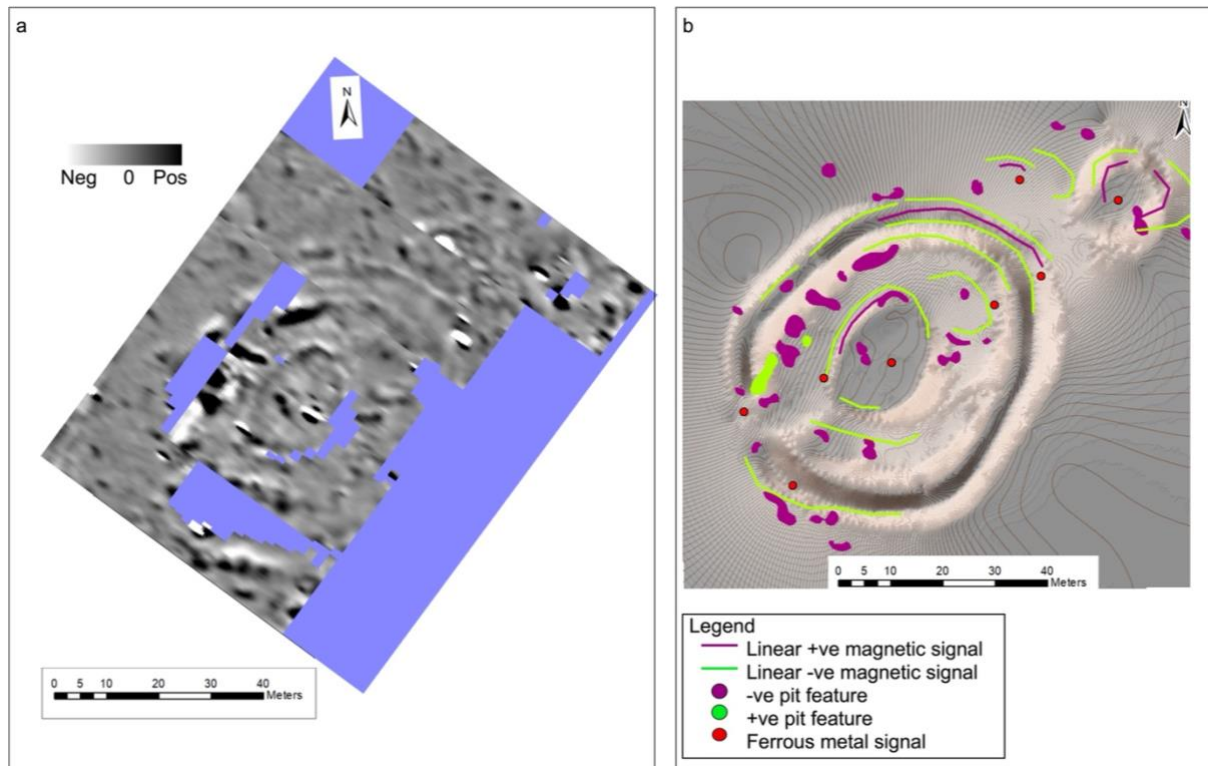


Figure 18. Magnetometry survey of The Ring. a) Processed shadeplot; b) identified features on topographic DTM hillshade and contour models.

abutting the western bank. Other smaller positive areas were seen elsewhere within the platform and outside the western and southern ditch. Two strongly positive areas were noted adjacent to the entrance (Figure 17a,b).

The smaller earthwork was seen as an indistinct negative band, particularly on the uphill side with several positive areas around this bank. Dual, iron-spike signals were scattered across both features.

Analysis

A topographic survey of The Ring demonstrates that the OS mapping of both earthworks is inaccurate, however, the topography is largely consistent with the published drawings (Royal Commission on Historical Monuments England, 1976). Both structures appear to be cut into the hillside rather than sitting above it. Magnetometry and resistivity both show concentric bands encircling the larger earthwork, potentially relating to structural elements. The low-resistivity area at the centre probably relates to the former golf green. The elevated area to the east of the entrance and the sub-circular feature in north-east of the outer platform on magnetometry may represent building platforms. The nature of other features, such as the possible pits seen on magnetometry, is unclear.

Discussion

The Hillfort at Cleeve Cloud

Settlement, Dating and Function

The geophysical surveys suggest that there was considerable settlement within the hillfort at Cleeve Cloud, with features suggestive of roundhouse foundations, and many possible pits, either post holes or for storage, across the site. The extent of potential occupation evidence is not unexpected, as investigations at early hillforts nearby, such as Leckhampton Hill, Shenberrow and Crickley Hill have demonstrated similar levels of occupation (Fell, 1961; Belcher and Burchell, 2008; Dixon, 2020).

The findings in this study support the dating of the hillfort to the Early Iron Age. The original area, at 1.8ha, and bivallate ramparts, simple entrance (Playne, 1875), together with the finding of Early Iron Age pottery (Saville, 1984) and settlement evidence from this study would place the hillfort between 700-400BC.

The function of the hillfort is not clear. Although its prominent position at the top of the steep escarpment, overlooking the Severn Valley, would provide good defence from the west, it is overlooked from the nearby hilltop to the east. It is certainly one of a chain of early hillforts along the Cotswold escarpment, but apart from the evidence of burning at Crickley Hill (Dixon, 1994) and Leckhampton Hill (Champion, 1971), there is no sign of violence at any of the other nearby early hillforts – the ‘massacre’ at Kemerton camp on Bredon Hill dates to the late Iron Age, (Hencken, 1938). Limited excavation of the ramparts of the hillfort at Cleeve Cloud showed no evidence of burning.

Our results show no evidence of an elite residence as was identified at Crickley Hill (Dixon, 2020), and in any case, the general lack of elite goods found at early hillforts would argue against their role as the homes of local leaders (Bowden, 2012).

Further possibilities are that the hillforts along the Cotswold escarpment oversaw trade along the valleys of the Severn and Warwickshire Avon, as has been proposed for the Somerset Avon (Sherratt, 1996), were centres for storage of grain for an extended community (Moore, 2003), or for gathering and trading of livestock (Moore, 2018), or were places where local decisions were made and feasting took place (Bradley, 2019). The presence of possible pits on the magnetometry survey might support a storage function. However, it is not clear to what extent arable farming was important to the early Iron Age economy on the Cotswolds or in the Severn Valley (Brown and Barber, 1985), and it is possible that animal husbandry, particularly sheep, dominated agricultural production on the Cotswolds (Miles *et al.*, 2007).

Without excavation to confirm some of the features identified, it is still not possible to assign a particular function, or functions to this site.

The Ring and Ringwork - Speculations on Function

The function of the earthworks of The Ring is not known. Suggestions include, tumuli (Burrow, 1919), stock enclosures, a religious monument (Yeates, 2008) or an Iron Age settlement (Darvill, 2011). They appear to be unique on the Cotswolds and in the Severn Valley.

On both size and shape grounds, they seem unlikely to have formed an Iron Age burial site. The possibility that these earthworks are Iron Age or later stock enclosures cannot be excluded, although, without the addition of a palisade or other barrier the collected animals could have escaped downhill (Figures 15, 16). The suggestion that it was a religious site (Yeates, 2008) seems purely speculative.

The earthworks resemble some of the small, defended settlements of Cornwall (rounds) and West Wales (raths), which are typically between 0.1-1ha in area, with shallow ditches and simple entrances (Quinnell, 1986). They typically contained one or a small number of houses, were probably home to a single, extended, family and often relate to field systems (Cunliffe, 2004). Damage to the centre of the main Ring in the late 19th century, to form a golf green makes interpretation of the geophysical surveys difficult. However, the presence of the raised area by the entrance and the subcircular anomaly in the outer part of the platform on magnetometry, raises the possibility of building platforms, whilst the large, strongly positive anomalies above the western bank could represent burning, although later disturbance cannot be excluded. Thus, a small settlement seems the most likely interpretation of the site. Where excavation has taken place, such sites appear to date to the late Iron Age, Roman period or beyond (Cripps, 2007), suggesting that The Ring may post-date the hillfort.

Ultimately, whilst the Ring and ringwork are somewhat better characterised as a result of this project, their function remains unresolved.

Post-Medieval Damage

Quarrying of the hillfort

The hillfort at Cleeve Cloud is not alone amongst Cotswold hillforts in having suffered damage from quarrying. The large hillfort at nearby Painswick and the possible fort on Churchdown Hill (Cox, 2022) have both suffered extensive damage, and as at Cleeve Cloud, the Painswick fort is also part of a golf course. Map regression combined with modern LIDAR has demonstrated that at least one-third of the hillfort was removed between the 1870s and 1920s. The area lost included the main, northern entrance, described by Playne (Playne, 1875). The LIDAR image suggests that prior to 1870 there had already been some quarrying, as the horizontal extent of the quarry extends west of the limit of Playne's map. This is not surprising as mediaeval quarries are present in the nearby Postlip Valley. However, any quarried area may have removed the lower slope of the escarpment below the fort.

Conclusion

This aim of this research was to gain a greater understanding of two previously under-investigated Iron Age scheduled monuments, the hillfort at Cleeve Cloud and The Ring, on the Cotswold escarpment through a range of non-invasive methods. The investigations show potentially extensive subsurface archaeology in the interior of the hillfort, whilst GIS using historical mapping has shown that at least one-third of the hillfort was lost to quarrying in the late 19th-early 20th centuries and has confirmed later use by the golf course. The earthworks of The Ring remain enigmatic, although some parallels can be drawn with the small, defended settlement enclosures of western Britain, suggesting a possible origin in the later Iron Age.

Appendix - Aerial Photographs

Cleeve Cloud			The Ring		
Source	Date	Vertical/ oblique Image no.	Source	Date	Vertical/ oblique Image no.
Google Earth Pro	3/2020	Vertical	GE Pro	3/2020	Vertical
	3/2017	Vertical		3/2017	Vertical
	12/2016	Vertical		12/2016	Vertical
	4/2005	Vertical		4/2005	Vertical
	12/1999	Vertical		12/1999	Vertical
	12/1945	Vertical		12/1945	Vertical
OS Aerial	2014	Vertical so9825_12_250_02	OS Aerial	2014	Vertical so9826_12_250_03
	2017	Vertical so9825_rgb_250_03		2017	Vertical so9826_rgb_250_04
	2018	Vertical so9825_rgb_250_04		2018	Vertical so9826_rgb_250_05
RCHME, 1976, plate 40, p.106		Oblique	RCHME, 1976, plate 41, p.106	(Upper)	Oblique
Aldred, 1991, p12		Oblique	RCHME, 1976, plate 41, p.10	(Lower)	Oblique
Darville, 2011, p186		Oblique	Historic England	1958	Oblique haw01_09436_44

References

- A short history of Cleeve Common* (2020) *Cleeve Common Board of Conservators*.
<https://static1.squarespace.com/static/56c466381d07c0cc6a57a634/t/56f26d4037013bdf9ee1caa0/1458728257983/short-history-007z.pdf>
- Aldred, D. H. (1991) *Cleeve Hill: The History of the Common and Its People*. Stroud: A. Sutton.
- Aldred, D. H. (2009) *The History of Bishops Cleeve and Woodmancote*. Stroud: Amberley.
- Baker, T. J. (1821) 'An account of a chain of ancient Fortresses extending through the South-Western part of Gloucestershire.', *Archaeologica*, XIX, pp. 161–175.
- Belcher, M. and Burchell, R. (2008) *A Report for Gloucestershire County Council on a Geophysical Survey carried out at Leckhampton Hillfort, Leckhampton, Gloucestershire*. Site Scan Archaeological.
- Bowden, M. (2012) *The Malvern Hills. An ancient landscape*. on-line. Swindon: English Heritage. Available at: https://archaeologydataservice.ac.uk/archives/view/eh_monographs_2014/contents.cfm?mono=1089043.
- Bradley, R. (2019) *The Prehistory of Britain and Ireland*. 2nd edn. Cambridge, UK: Cambridge University Press.
- Britnell, W. J. (1975) 'An interim report on excavations at Beckford, 1972-4', *Vale of Evesham Historical Society Research Papers*, V, pp. 1–12..
- Brown, A. G. and Barber, K. E. (1985) 'Late Holocene Paleoecology and Sedimentary History of a Small Lowland Catchment in Central England', *Quaternary Research*. 2017/01/20. Cambridge University Press, 24(1), pp. 87–102.
- Burrow, E. J. (1919) *The ancient entrenchments and camps of Gloucestershire*. Cheltenham, London: E. J. Burrow & co., ltd.
- Champion, S. T. (1971) 'Excavations on Leckhampton Hill', *Transactions of the Bristol and Gloucestershire Archaeological Society*, 90, pp. 1–22.
- Cox, P. (2022) 'Churchdown Hill, Churchdown, Gloucestershire – new evidence for presence of an Iron Age Hillfort', *Glevensis*, 54, pp. 14-19.
- Cripps, L. (2007) 'Re-situating the Later Iron Age in Cornwall and Devon: new perspectives from the settlement record.', in Haselgrove, C. and Moore, T. (eds) *The later Iron Age in Britain and beyond*. Oxford: Oxbow Books, pp. 140–155.
- Cunliffe, B. (2004) *Iron Age Communities in Britain: An Account of England, Scotland and Wales from the Seventh Century B.C. Until the Roman Conquest*. 4th edn. London: Routledge.

- Darvill, T. (2011) *Prehistoric Gloucestershire. Forests and vales and high blue hills*. 2nd edn. Stroud: Amberley Publishing.
- Dixon, P. (1994) *Crickley Hill, Vol. 1: The Hillfort Defences*. Nottingham: Crickley Hill Trust and University of Nottingham.
- Dixon, P. (2020) *Crickley Hill: The hillfort settlements*. Cheltenham: Crickley Hill Trust.
- Fell, C. I. (1961) 'Shenberrow Hill Camp, Stanton, Gloucestershire', *Transactions of the Bristol and Gloucestershire Archaeological Society*, 80, pp. 16–41.
- Gray, J. W. and Brewer, G. W. S. (1904) 'Evidences of ancient occupation on Cleeve Hill', *Proceedings of the Cotteswold Naturalists' Field Club*, 15, pp. 49–67.
- Havard, T. (2017) *Cleavelands (Phase 1A and 2A) Bishop's Cleeve Gloucestershire. Post-Excavation Assessment and Updated Project Design Persimmon Severn Valley CA Project : 9193*. Cirencester.
- Hencken, T. C. (1938) 'The excavation of the Iron Age camp on Bredon Hill, Gloucestershire, 1935-37', *Archaeological Journal*, 5, pp. 1–111.
- Llewellyn, J. (2020) *Cotswold Hills Golf Club, Cleeve Hill, Gloucestershire. (1902 - 1970s), Golf's missing links*. <https://www.golfsmissinglinks.co.uk>
- Miles, D. et al. (2007) *Iron Age and roman settlement in the Upper Thames Valley: Excavations at Claydon Pike and other sites within the Cotswold Water Park*. Oxford: Oxford University School of Archaeology.
- Moore, T. (2003) *Iron age societies in the Severn-Cotswolds : Developing narratives of social and landscape change. Vol.1*. Durham: Durham University. Available at: http://etheses.dur.ac.uk/3682/1/3682_1243-vol1.pdf?UkUDh:CyT
- Moore, T. (2018) 'Wealth, status, and occupation groups', *The Oxford Handbook of the European Iron Age*, (February), pp. 1–28.
- Oswald, A. (1974) 'Excavations at Beckford', *Transactions of the Worcestershire Archaeological Society. Series 3*, 3, pp. 7–54.
- Parry, C. (1999) 'Iron-Age, Romano-British and Medieval Occupation at Bishop's Cleeve, Gloucestershire: Excavations at Gilder's Paddock 1989 and 1990-1', *Transactions of the Bristol and Gloucestershire Archaeological Society*, 117, pp. 89–118.
- Playne, F. G. S. (1875) 'On the ancient camps of Gloucestershire', *Proceedings of the Cotteswold Naturalists' Field Club*, 6, 202-246
- Quinnell, H. (1986) 'Cornwall in the Iron Age and Roman period', *Cornish Archaeology*, 25, pp. 111–134.

Royal Commission on Historical Monuments England (1976) *Ancient and historical monuments in the County of Gloucester. Vol.1, Iron Age and Romano-British monuments in the Gloucestershire Cotswolds*. London: H.M.S.O.

Rudder, S. (1779) *A New History of Gloucestershire*. Cirencester: Samuel Rudder.

Saville, A. (1984) 'The Iron Age in Gloucestershire: a review of the evidence', in *Archaeology in Gloucestershire. From the earliest hunters to the industrial age*. Cheltenham: Cheltenham Art gallery and Museums/ Bristol and Gloucestershire Archaeology Society, pp. 140–180.

Sherratt, A. (1996) 'Why Wessex? The Avon route and river transport in later British prehistory', *Oxford Journal of Archaeology*. John Wiley & Sons, Ltd, 15(2), pp. 211–234.

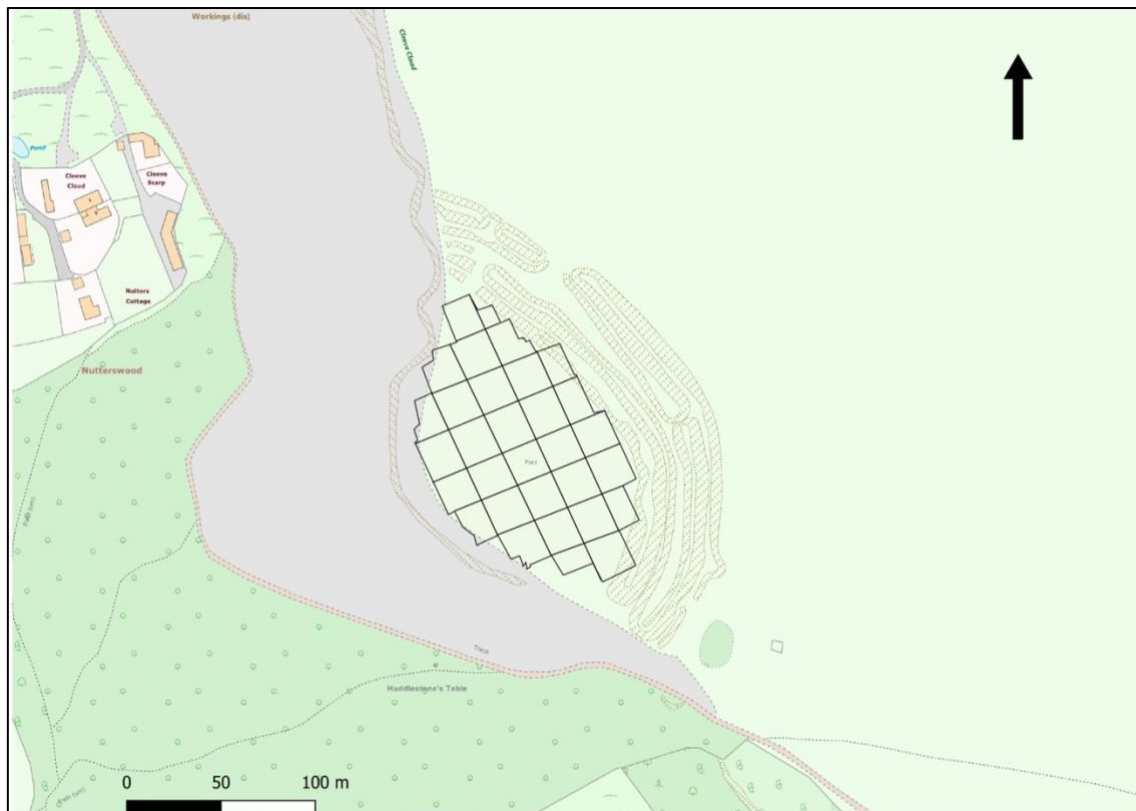
Thomas, N. (2011) *Archaeological Recording at Cleeve Hill camp, Southam, Gloucestershire*. Gloucester: Gloucester County Council.

Witts, G. B. (1879) 'British and Roman antiquities in the neighbourhood of Cheltenham', *Transactions of the Bristol and Gloucestershire Archaeological Society*, 4, pp. 199–213.

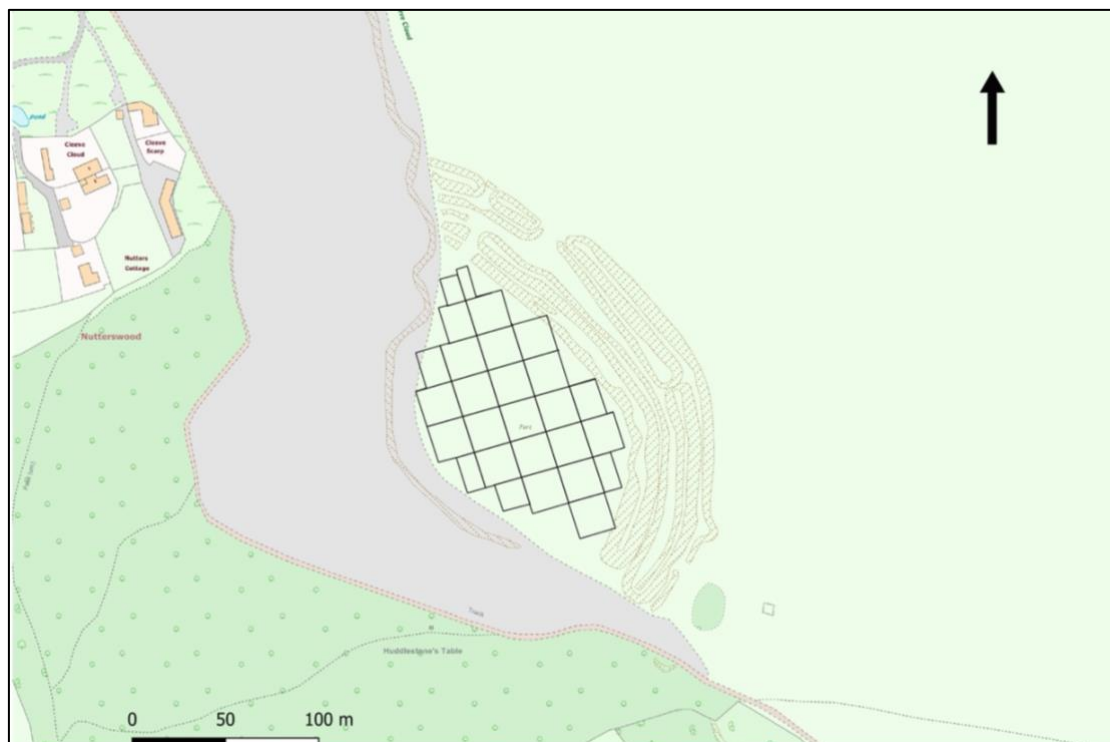
Witts, G. B. (1883) *Archaeological handbook of the County of Gloucestershire*. Cheltenham: G. Norman.

Yeates, S. (2008) *The tribe of witches*. Oxford: Oxbow Books.

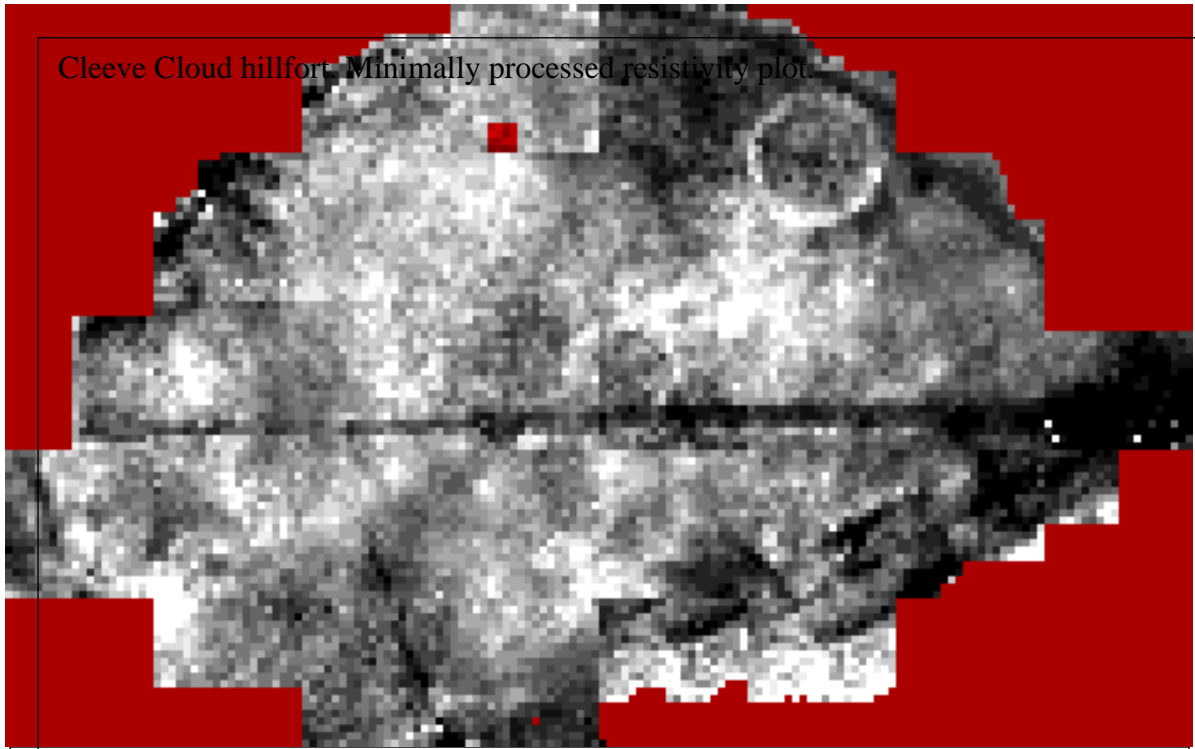
Plans



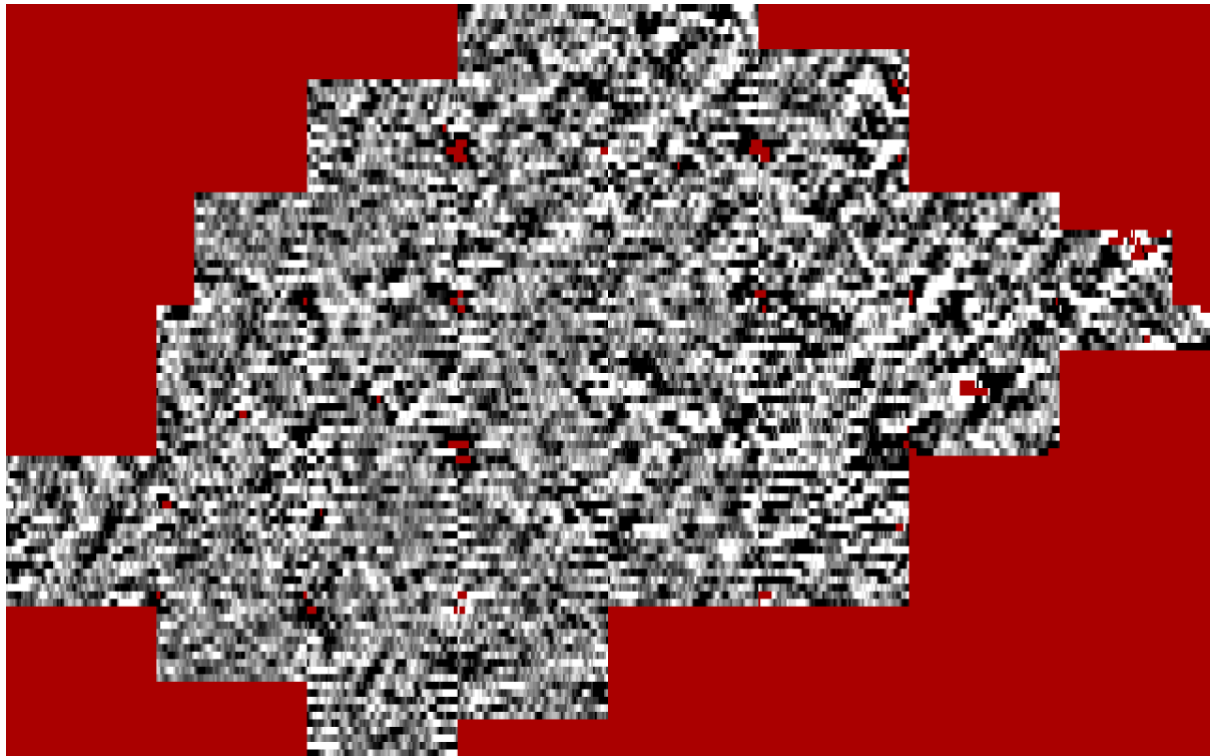
Plan of Grids for Resistivity Survey of Cleeve Cloud Hillfort. Background mapping: © Ordnance Survey (with permission)



Plan of Grids for Magnetometry Survey of Cleeve Cloud Hillfort. Background mapping: © Ordnance Survey (with permission)



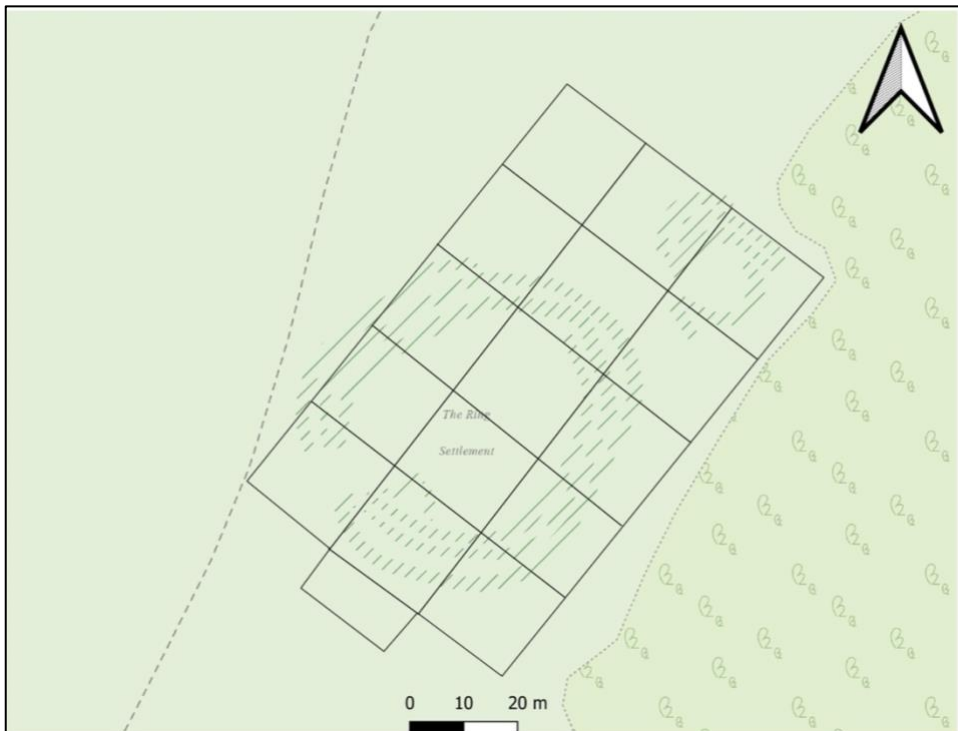
Cleeve Cloud hillfort. Minimally processed resistivity plot.



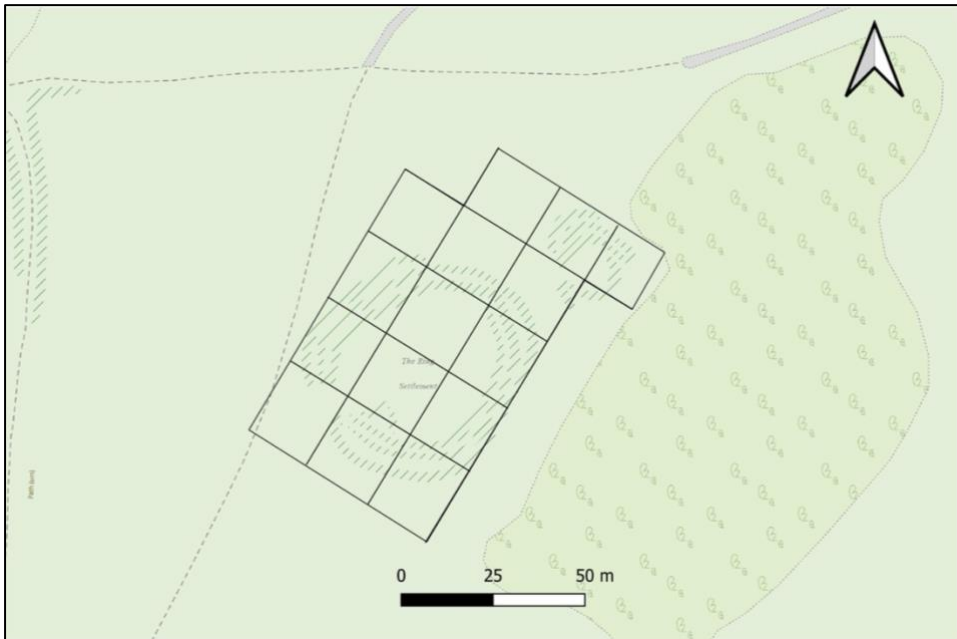
Cleeve Cloud hillfort. Minimally processed magnetometry plot.



The Ring: Topographic survey points.
 Background image: © Google earth



Plan of Grids for Resistivity Survey of The Ring. Background mapping: © Ordnance Survey (with permission)



Plan of Grids for Magnetometer Survey of The Ring. Background mapping: © Ordnance Survey (with permission)



The Ring: Minimally processed resistivity plot.