

Bourne Park (Bishopsbourne) Geophysical Survey 2012 Results

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**Lacey M. Wallace, PhD
Paul S. Johnson, PhD
Kristian D. Strutt**

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Frontispiece: View from south of the surveyed field, looking north across the valley to the second survey area.

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Abstract

As the second season of an ongoing research project, approximately 7.5 hectares of Bourne Park, Bishopsbourne (Canterbury, Kent) were surveyed with a Bartington Grad 601-2 fluxgate gradiometer in July and August 2012. The main field was also surveyed topographically with a Leica 1200 series GPS with smartnet. The survey was undertaken with the aim of revealing a greater extent of the features discovered through aerial photographic evidence as well as to extend the geomagnetic survey begun in 2011.

The area included the remaining extent of the eastern half of the field previously surveyed in 2011 up to the field boundaries and the Nailbourne Stream. Large-scale archaeological features and limited geological features were revealed. Walls of possible Roman buildings show with some clarity as negative linear anomalies. Several ditch enclosures were revealed, in addition to probable sunken-featured buildings, a small rectilinear structure, a possible third wing of the structural complex, and part of a large rectilinear enclosure in a separate field to the northeast of the main survey area.

This report duplicates most information provided in the previous report so that it may be read independently.

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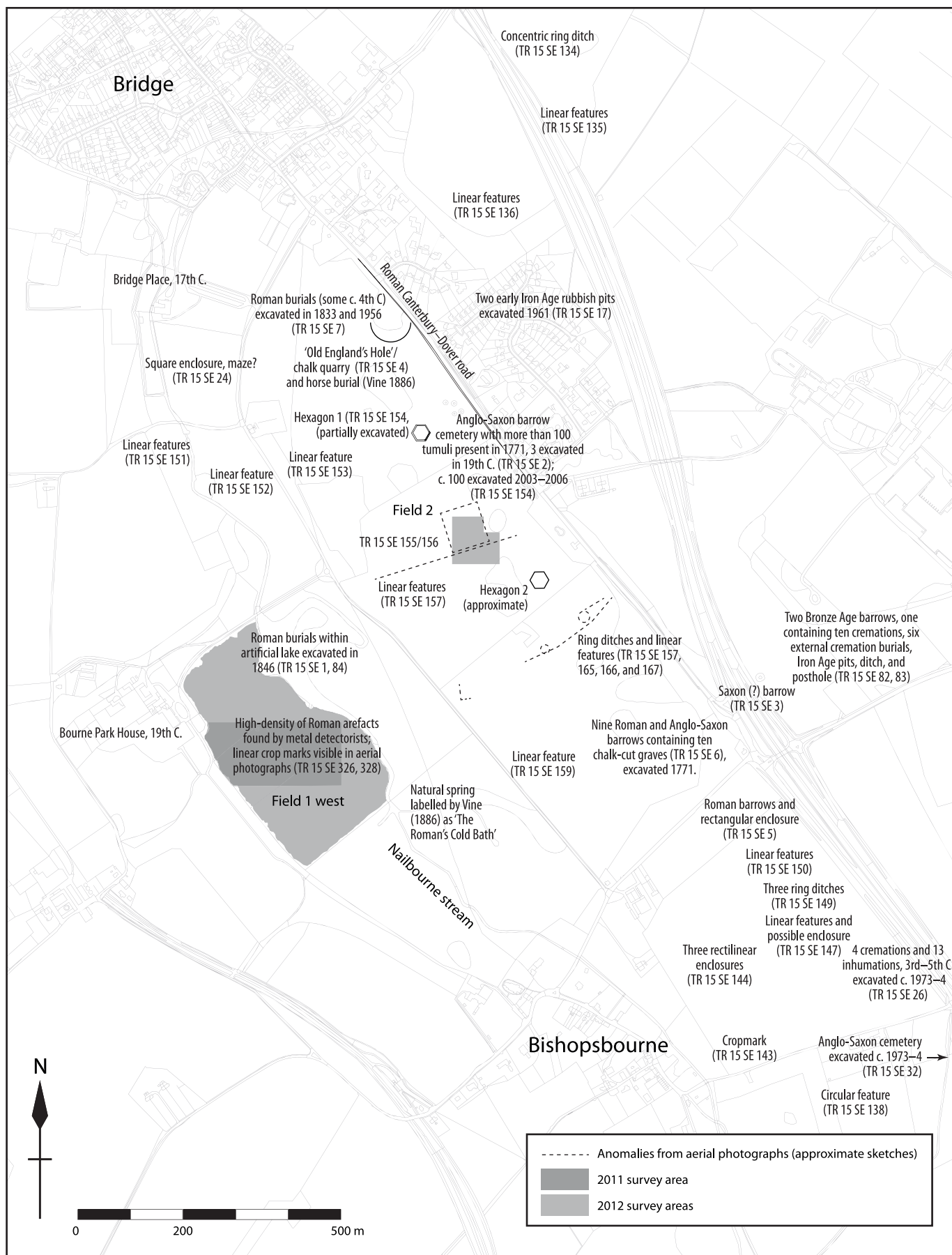


Fig. 1. Ordnance Survey map of the area around Bourne Park showing the area surveyed in 2011 and 2012 and finds/sites of note (NB: not all features recorded by the HER and visible in aerial photographs are shown).

Introduction

Background to this Investigation

Following a successful 2011 season (see Johnson and Wallace 2012), Lacey M. Wallace, Paul S. Johnson, and Kristian D. Strutt arranged with the owner of Bourne Park (Bishopsbourne, Kent), Mrs. Vanessa McDonald, to undertake a geophysical and topographical survey from 22 July to 3 August 2012 with funding provided by the Faculty of Classics, University of Cambridge, The Association for Roman Archaeology, and the Kent Archaeological Society. The focus was on the remainder of the field containing the cricket pitch where cropmarks representing a possible Roman building had been observed by Mr. Chris Blair-Myers in aerial photos (TR 15 SE 326) and the nearby park area where metal detectorists Mr. Bill Gawler and Mr. Terry Sewell had found Roman coins and other finds (TR 15 SE 328–331) between 1986 and 2002. This area is hereafter referred to as 'Field 1 west' (Fig. 1). Following the observation of a rectilinear enclosure (TR 15 SE 155) in aerial photographs from 1976 (CUCAP BXK 78–81) across the valley near to Bridge Hill Road, a further 8 grids were also investigated with magnetometry on the final day of fieldwork (referred to as 'Field 2').

The survey was carried out with equipment provided by the University of Southampton. Three undergraduate students in Classics from the University of Cambridge, Alex Mirošević-Sorgo, Gabriella Jeakins, and Brendan Clifford, carried out the fieldwork with Site Director Dr. Lacey Wallace and site co-directors Dr. Paul Johnson and Mr. Kristian D. Strutt.

Geology and Topography

Bourne Park is an area of open parkland between the villages of Bishopsbourne to the south and Bridge to the north c. 6 kilometres south of Canterbury. The Park lies in a chalk valley, called the Elham Valley, shaped by the Nailbourne Stream, which has its source at Lyminge. The stream flows through Elham after which it is now only seasonal through Barham, Kingston, Bishopsbourne, Bridge, Patribourne, Bekesbourne, Littlebourne (from where the stream is called the 'Little Stour'), Wickhambreaux, Ickham, and West Stourmouth. The Nailbourne, rejuvenated in Bishopsbourne by two springs in the Park (Figs. 2 and 3), runs from the southeast up to the northwest through Bourne Park, east of Field 1 west. An artificial lake fed by the stream was created in the Park in 1846. The valley slopes up away from the stream towards the A2 to the northeast. The Park is bounded by the grounds of Bourne Park House to the west, the drive of Bourne Park House and Bridge Village to the north, by Bridge Hill Road to the east, and the village of Bishopsbourne to the south. The British Geological Survey records the local geology as White Chalk subgroup (British Geological Survey onshore geology 1:625000 scale data, DiGMapGB625).

The cricket pitch is an historic feature in its own right: referred to as 'Bishopsbourne Paddock', it was home to first-class matches of the Bourne Cricket Club, the county team patronised by Sir Horatio Mann in the 18th century, which drew huge crowds and made Bourne Park a significant sporting venue (Ashley-Cooper 1929). Bourne Park was once the grounds of Bourne Park House (English Heritage Building ID: 170984), a Grade I listed building to the west, but the house has been divided from the Park and is under separate ownership. The Park is now a pasture used for sheep grazing and a recreational area for walkers; the cricket pitch is no longer in use.

Aims and Objectives of Geophysical Investigation

The direct objective of these two weeks of survey in 2012 was to investigate the landscape surrounding the Roman structures, to collect data that will make it possible to analyse the relationship between this site and the Roman town at Canterbury and the significance of its proximity to the town as well as the Canterbury-Dover road. By expanding the area we hoped to begin to interpret the landscape context of the known features, the character and function of the buildings. This stretch of the Canterbury–Dover Roman road appears to have been a complex burial landscape from at least the Iron Age through the Anglo-Saxon periods and the siting of a large Roman rural complex here is likely to be related to the burial significance of the area.

Scope of Report

This report presents the results and a basic initial interpretation of the 2011 and 2012 gradiometer and topographical survey. The full integration of antiquarian investigations, aerial photographs, documentary evidence, and other archaeological work in the area (including metal detecting and excavations) will be presented as a report in *Archaeologia Cantiana* in due course.



Fig. 2. View north of one of the springs and the Nailbourne Stream (with Chris Blair-Myers and Angela Brennan).



Fig. 3. View north/northwest towards the spring called 'The Roman's Cold Bath' by Vine in 1886.

Archaeological Background

Several archaeological features, as well as artefacts, have been recorded in the area immediately surrounding the site and information regarding them is held by the Kent Historic Environment Record (HER), the Portable Antiquities Scheme (PAS), and the Museum of Canterbury; the prehistoric, Roman, and Medieval remains are summarised here.

Prehistoric period

Burials and related features: Archaeological work undertaken during the construction of the A2 revealed a Bronze Age barrow surrounded by a ditch, an Iron Age ditch cutting through the barrow, a second barrow containing ten cremation burials, and six cremations outside the boundary ditch approximately one kilometre east of the site, east of the A2 (TR 15 SE 83) (Macpherson-Grant 1980). The 1st-century-BC cremation burial (location undisclosed) in an Iron helmet found near Canterbury may support possible late pre-Roman Iron Age burials.

Earthworks, cropmarks, features: On the eastern/northeastern side of Bridge Hill Road, linear earthworks (TR 15 SE 135 and 136) have been noted north of where two early Iron Age rubbish pits (TR 15 SE 17) were excavated during construction of a housing estate in 1961. A concentric ring ditch (TR 15 SE 134) further north on Patribourne Hill could be prehistoric as well. Within the Park itself, two adjacent ring ditches (TR 15 SE 165 and TR 15 SE 166) thought to be prehistoric have been identified from crop marks in aerial photos taken in 1976 (Cambridge University Collection of Aerial Photography—hereafter CUCAP—BXK 76–77) and other earthworks and linear features (TR 15 SE 151, 152, 153, 157, 158, 159, 161, 167) have been observed within the Park on the eastern/northeastern side of Bourne Park Road. In addition to other sites, Vine (1886:170–173) noted that a depression in the land known as ‘Old England’s Hole’ (now thought to be a chalk quarry) was likely to be the location of an Iron Age oppidum—Vine thought it was that mentioned by Caesar (*Commentaries*, V.21). Vine also noted that a horse burial with evidence of ferrous material was found by local boys within ‘Old England’s Hole’.

Artefacts: On the site, an Iron Age silver coin was found by Mr. B Gawler in the early 1990s (TR 15 SE 331). In Bishopsbourne, three Iron Age copper-alloy coins (MKE57771, MKE57772, and MKE57582) and an Iron Age silver coin (MKE57776) are included in the Oxford University Celtic Coin Index and the PAS records a struck gold quarter stater of the Morini dating to c. 75–60 BC (MKE57442) and an imported Gaulish cast bronze potin dated to c. 100–50 BC (MKE57441) from Bishopsbourne.

Roman period

Burials: Romano-British cremation burials, inhumations, and associated artefacts, including a coin of Carausius (c. AD 286–293), were discovered during Bourne Park owner Matthew Bell’s excavations for the artificial pond northeast of the cricket pitch in 1846 (TR 15 SE 1, 84) (Bell 1848:47–48; Haverfield *et al.* 1932:147). Roman burials, vessels, and weapon fragments were found c. 700 m northeast of the site during alterations to the modern Canterbury-Dover road in c. 1833 and, later, during GPO cable-laying work in 1956 (TR 15 SE 7) (Jenkins 1956:248; Haverfield *et al.* 1932:148; Rolfe 1845:279). Lord A. Conyngham also excavated a tumulus near ‘Old England’s Hole’ containing an inhumation burial and ‘breastplate of silver, pierced as by a spear, a curved sword six inches out of line, two bronze shoulder-pieces, four spear-heads, and a wooden vessel banded with bronze bands’ (Vine 1886:173). Ploughed-out barrows of probable Roman date and an associated rectangular enclosure are located on the western side of the Canterbury-Dover road (TR 15 SE 5) (Jessup 1943:69). Four cremations and 13 inhumations (TR 15 SE 26), dating to c. 3rd–5th centuries, were excavated in 1973–4 at the southeastern edge of the field south of Bourne Park and east of Bishopsbourne village.

Earthworks and cropmarks: The western wing of the buildings within the main enclosure in Field 1 west was first identified by crop marks showing a building, which are visible in a 1990 aerial photograph (Fig. 4) and 2003 Google Earth image (Fig. 5) (TR 15 SE 326) by Chris Blair-Myers. Vine (1886) identified several features visible in the landscape and interpreted them as related to the 54 BC invasion of Julius Caesar, which, although doubtful, indicates that two hexagonal features (one of which is TR15 SE 154 excavated by Paul Wilkinson between 2003 and 2006, see Wilkinson 2008), and rectilinear earthworks were visible in the northeastern area of the park, which Vine believed to be the remains of Caesar’s camp. This enclosure on Vine’s map lies in the same area as other linear features which are now known (TR 15 SE 164) along with a possible trackway (TR 15 SE 156) visible in an aerial photograph from 1956 (CUCAP SU 1) associated with what appears to be the same rectilinear enclosure (TR 15 SE 155, in Field 2, partially surveyed in 2012 and included in this report) visible in aerial photographs from 1976 (CUCAP BXK 78–81). These linear and rectilinear features are located in Field 2, c. 500 metres northeast of the main enclosure in Field 1 west. Another linear earthwork (TR 15 SE 167) visible in 1976 aerial photographs (CUCAP BSK 76–77) c. 900 metres northeast of the site could be a Roman trackway as it is aligned to the Roman road between Canterbury and Dover, which has itself been excavated in one area (TR 15 SE 169) c. 600 metres northeast of the site (Vine 1886:173) and at the Barnham Downs



Fig. 4. 1990 aerial photograph with digitised interpretation of the clearest crop marks, with Ordnance Survey topographic data.

site during the A2 construction in 1971, east of Barnham (MacPherson-Grant 1980:136).

Artefacts: Mr. Bill Gawler and Mr. Terry Sewell collected Roman coins and other finds (TR 15 SE 328) in the area to the east of the Bourne Park cricket pitch where crop marks are visible. Many of these objects are no longer available for study and are not properly catalogued, but 73 are held by the Museum of Canterbury. The PAS records Roman copper-alloy coins in Bridge dating to AD 260–296 (MKE57196), c. AD 300–400 (MKE57357), and c. AD 330–333 (MKE57381).

Medieval period

Burials: An early Medieval/Saxon barrow cemetery (TR 15 SE 2) comprising more than 100 tumuli visible in 1771 was found on Hanging Hill within the Park near to the Roman road; the cemetery was first noted in 1771 and three mounds were excavated in the mid-19th century. Approximately 100 Saxon burials were excavated by Paul Wilkinson between 2003 and 2006 (Wilkinson nd). Another probable Saxon barrow is located on the eastern side of the A2 (TR 15 SE 3) and nine Saxon barrows containing ten chalk-cut graves were excavated in 1771 (TR 15 SE 6) on the western side of the Canterbury-Dover road. Another Anglo-Saxon cemetery excavated c. 1973–4 (TR 15 SE 32) lies to the south, east of Bishopsbourne village.

Artefacts: Mr. B. Gawler found an Anglo-Saxon brooch and buckle, dating to c. AD 410–1065 (TR 15 SE 329) and some Medieval coins (TR 15 SE 330) on the site. Several Medieval artefacts have been recorded by the PAS in the general area: a copper-alloy brooch dated to AD 500–560 (MKE57032) at the eastern side of Bourne Park near Bridge

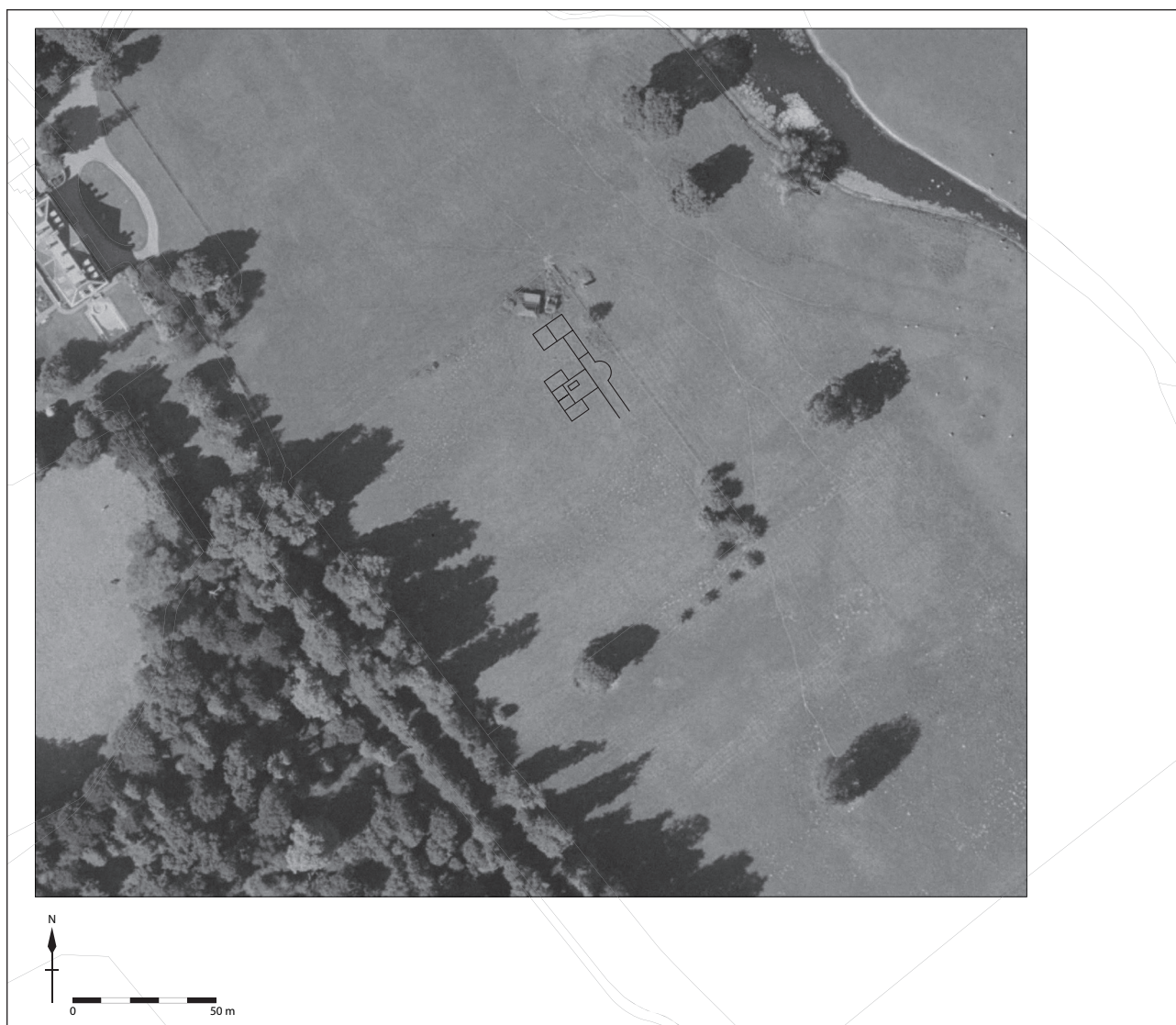


Fig. 5. 2003 Google Earth image with digitised interpretation of the clearest crop marks, with Ordnance Survey topographic data.

Hill Road, a silver coin dated to AD 680–710 (MKE57371), a copper-alloy strap end with a zoomorphic terminal dated to c. AD 775–1100 (MKE57281), a copper-alloy dagger dated to c. AD 800–1000 (MKE57372), two copper-alloy stirrup mounts, one in the form of a human face (MKE56901) and another bearing a lion (MKE56902) dated to c. AD 1000–1100, a copper-alloy pin head (MKE57282) dated to c. AD 450–1066, a cast copper-alloy stirrup dated to c. AD 1300–1400 (MKE57284), a cast copper-alloy buckle dated to c. AD 1300–1400 (MKE57315), a copper-alloy mount dated to c. AD 1300–1400 (MKE57575), a copper-alloy zoomorphic spout from a vessel dated to c. AD 1300–1500 (MKE57574), and silver coins dated to c. AD 1249–1286 (MKE57382), c. AD 1272–1307 (MKE57316), c. AD 1279–1327 (MKE57302), and c. AD 1279–1377 (MKE57306).

Documentary and historical evidence: In the Domesday Book, Bishopsbourne is listed as ‘Burnes’, a manor held directly (in demense) by the Archbishop of Canterbury Christ Church. It had 64 villeins and 53 bordars with 30.5 ploughs as well as a church and two mills. The manor rendered £20 in geld (tax) in 1066 and £30 in 1086. The royal estate at Faversham was of comparable size and Eastry (for which Bishopsbourne was exchanged in 811) was actually smaller in 1086. Only Dartford, Aylesford, and Milton Regis (held directly by William the Conqueror) were significantly larger in 1086. Bishopsbourne was, therefore, one of the most important non-royal rural estates of the early Medieval period in Kent¹. The 13th-century church of St. Mary the Virgin lies c. 500 m southeast of the ‘villa’ buildings and an earlier building (i.e. one standing in 1086) is that mentioned in the Domesday Book. The village has long been dominated by the manor of Bourne Park.

1 Many thanks to Dr. Christopher Loveluck (University of Nottingham) for this information.

According to the historical research presented in "A Guide to the Church of St. Mary the Virgin, Bishopsbourne, Kent: The Cradle of Anglicanism" (St. Mary the Virgin Church Parochial Church Council, 2008),

'The first mention of the village is as Burnan in 708 AD, when Egbert sold the manor to Ealdhur who, in turn, gave it to the Community of Christ. In 811 they in turn exchanged it with Archbishop Wulfred for the manor of Eastry.

The manor of Hautbourne continued with the same family from Domesday until it came into the ownership of the second daughter of William Haut. She married William Culpepper, who exchanged his lands in Bekesbourne for the paramount manor of Bishopsbourne. He then conveyed both manors to Sir Anthony Aucher, of Otterden.² The manor remained with the Auchers and their descendants, the Beckinghams, until it was sold to Matthew Bell in 1844. It was again sold to Sir John Prestige in 1927 and in modern times to Somerset and Lady Juliet de Chair (later Lady Juliet Tadgell).'

This summary is not correct in the later particulars. In 1800 Bourne Park was inhabited by William Harrison and before that by Sir Horace Mann (Hasted 1800). Matthew Bell was the owner in the mid-19th century and Sir John Prestige the owner up in 1962 when he sold the estate to Mr. Richard Neame. Mr. Neame then sold Bourne Park House to Benedictine Monks who used it as a monastery for a few years before selling the property on to a developer, who planned to convert it into flats, but eventually sold it to Mr. Somerset de Chair and Lady Juliet de Chair (now Lady Juliet Tadgell) in the early 1980s. Bourne Park has been in separate ownership from Bourne Park House since Mr. Neame sold the house. The Park was inherited by Mr. Neame's daughter, Mrs. Vanessa McDonald, who is the current owner and uses the land to graze sheep, as her father did³.

There is also a manuscript (the 'Book of Bourne') written by Martin Bell (19th-century owner) held by Robert Prestige, which will be examined for relevant information.

Many questions remain from this brief historical overview and the sources will be investigated in due course. It is intriguing that Bourne Park has, perhaps, been the location of a high-status residence since at least the 11th century.

2 Sir Anthony Aucher (1614–1692) was made first baronet of Bishopsbourne in 1666. The manor house was rebuilt on the same site by the second baronet, Sir Anthony Aucher, in 1701. The current manor then became the seat of the Aucher Baronetcy of Bishopsbourne until the death of the third baronet Sir Hewitt Aucher in 1726.

3 Many thanks to Mrs. Vanessa McDonald for this information.

Survey Methodology

As the nature of the superficial geological background was primarily fluvial/alluvial sedimentary deposition and the expected features were of varied nature (i.e. ditches, stone walls), the decision was taken to employ gradiometer survey for the 2011 evaluation of the site, which proved effective. This method is efficient and suitable for detecting buried remains of a range of materials based on differences in their magnetic characteristics as compared to the geological background of the area (Gaffney *et al.* 1991:6), although the results are severely restricted in areas of modern disturbance and by the presence of ferrous material (Geoscan Research 1996, Scollar *et al.* 1990:362ff).

The area identified for survey was determined by the density of features identified in 2011, and the decision was taken to completely survey the western half of Field 1 with both magnetometry and topographical survey. The location of magnetometry survey in Field 2 was chosen based on the presence of the rectilinear enclosure and trackway in aerial photographs. Because of the presence of metal fencing along the boundary between the parkland and garden of Bourne Park House, it was not possible to survey a 3-metre buffer strip adjacent to this fencing.

The magnetometer survey was undertaken using a Bartington Instruments Grad 601-2 Dual-Sensor Fluxgate Gradiometer (Fig. 7). This equipment allowed the survey to be conducted rapidly as the area was relatively free of obstructions. In accordance with the aims of the project, readings were taken at 0.25-metre intervals along traverses of 0.5-metre spacing. This enabled a high density of data to be collected over the survey area while retaining a rapid coverage of the area overall. The geophysical survey grids of 30 x 30 metres were set out using the Leica 1200-series GPS with SmartNet (Fig. 8) along the same grid and orientation as the 2011 season. In combination with the sample-density of the survey, this alignment provided sufficiently close spacing of readings to recover traces of the expected features.



Fig. 6. View facing east/southeast of gradiometry survey underway.



Fig. 7. View facing west of topographical survey underway.



Fig. 8. Metal fence separating gardens of Bourne Park House from Bourne Park.



Fig. 9. Iron utility covers.

Geophysical Survey Results

The survey covered an area of approximately 6 hectares in Bourne Park, Bishopsbourne, to the east of Bourne Park House and less than 1 ha across Bourne Park Road (see Fig. 1, above). Field 1 is largely flat (see frontispiece) and, for the most part, free from obstructions; Field 2 lies on the valley slope. There were however some limitations to the survey. The area of the survey was bounded to the north, west, and south by a metal fence (Fig. 8), dividing the parkland from the garden of the drive of Bourne Park House, the woodland of the House, and the adjacent field, respectively. This effectively reduced the area available for survey by c. 3 metres along these edges. Electrical and water services produced strong responses from pipes and cables; several iron utility covers (Fig. 9), fenced-off saplings, an old iron roller (Fig. 10), and a heavy steel sheep-pen base also had to be avoided, as did trees and other vegetation (e.g. dense nettles, etc.); the brick foundations of a 19th-century lake-house (Fig. 11) also disrupted the survey; dense flint nodules cast up from recent dredging of the artificial pond also appear to have had a strong effect in the northeastern part of Field 1. Within the area where survey was possible the site exhibited a good response to the gradiometer and, where present, buried features showed clearly against the geological background (Fig. 12).



Fig. 10. Large iron roller.



Fig. 11. Brick foundations of the lake house.



Fig. 12. Processed results of the 2012 gradiometer survey with Ordnance Survey topographical data.

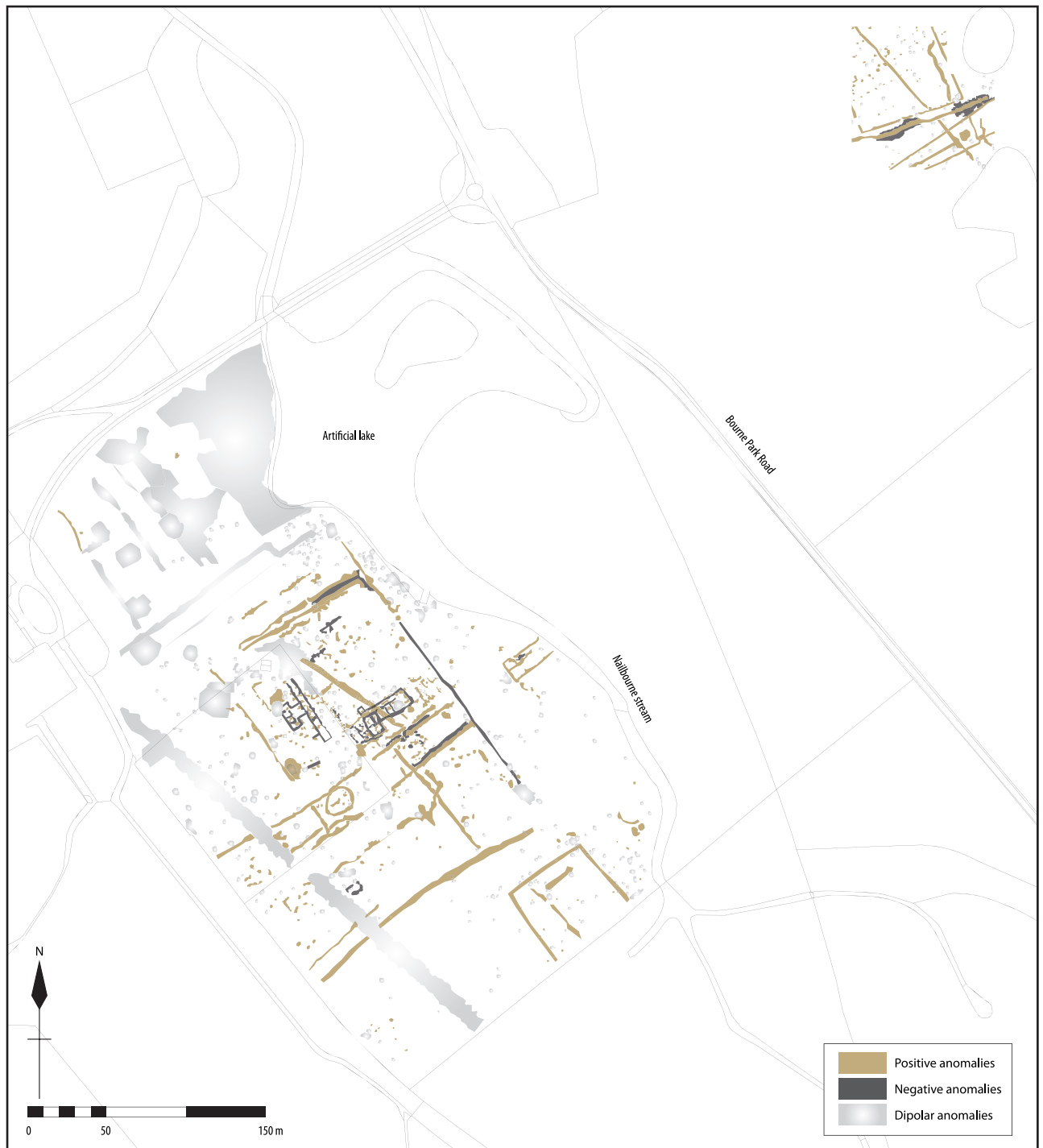


Fig. 13. Digitised anomalies detected in the gradiometer survey and Ordnance Survey topographical data.

Description of anomalies from 2011 (Fig. 14)

The majority of the area surveyed demonstrated small, scattered dipolar responses, likely resulting from the presence of ferrous materials on or near the ground-surface. The large, linear dipolar feature [1], located to the southwest of the area surveyed represents the line of a power-cable for outside lighting. A second large dipolar anomaly [2], adjacent to the edge of the cricket pitch, represents the effect of the large iron-roller which it was impossible to remove from the survey area. The irregular dipolar anomaly [3], located adjacent to the north of the pavilion, probably also results from the presence of ferrous material on the ground-surface.

A series of landscape-features are revealed through the presence of large-scale magnetic responses. The first of these is a low-response, positive anomaly [4], running for approximately 75 metres across the northern, central part of the site. To the east of the survey area, a 110-metre-long negative response [5] defines what appears to be the edge of a river-terrace and delimits the magnetically active area to the southwest from the significantly quieter zone to the northeast. Approximately 35 metres to the northeast of this feature (in the northeast corner of the area surveyed) a pair of positive responses [6] appear to suggest the far edge of the area of alluvial deposition. To the south of the area surveyed, an amorphous positive magnetic anomaly [7] and curvilinear feature [8] appear also to represent geological features.

The largest archaeologically significant features present are linear, positive magnetic responses [9, 9a, and 9b], extending for approximately 140 metres across the southern-central area of the survey. A positive macula [10] lying adjacent to this feature may also be of archaeological significance. The linear anomalies [9a and 9b] are paralleled to the southeast by another linear, positive response [11] running for c. 67 metres. Consistent with the alignment of the previous feature, located approximately 19 metres to the southwest is a rectilinear positive anomaly [12]. This feature encloses a 21-by-16-metre, annular positive anomaly [13]. The final large-scale feature is a 50-metre-long, linear, positive anomaly [14]. This feature runs perpendicular from an apparent intersection with [11] and is likely to continue beyond the southern edge of the area surveyed.

The centre of the area surveyed revealed a complex area of linear negative responses [15] covering an area of approximately 650 square metres, defining what appear to be buried structures beneath the cricket pitch. Within this area, a large dipolar anomaly [16] is interpreted as having archaeological significance on the basis of its relationship to the structures. A second group of negative linear responses [17] suggests that these features extend to the northeast. Negative linear responses [18 and 19] suggest additional structures beyond the edge of the cricket pitch, to the east of the previously discussed features and coincident with the eastern extent of the positive response [4].

Description of anomalies from 2012 (Figs. 15 and 16)

The anomalies from 2011 will not be repeated here. Some new anomalies within the 2011 survey area have, however, become apparent while certain anomalies found in 2011 were found to continue into the 2012 survey area.

In the northern part of Field 1 west there were dense dipolar anomalies. On the surface there was a dense spread of flint nodules [20], although there could be rectilinear features within this area, there was such a large amount of iron both on the surface and buried (e.g. a long fence runner, fig. **) that they are too obscured to interpret. A quiet area separates [20] and [21], which could indicate a possible terrace associated with the building of Bourne Park House and the creation of the landscaping which included the artificial pond c. 1846. Other linear dipolar anomalies [25] and [26] are likewise separated by quiet areas and appear to be aligned both to [21] and to Bourne Park House, further supporting the likelihood that they are remnants of landscaping, such as ha-ha walls. This area appears to be bounded to the south by a perpendicular dipolar anomaly [28]. Within this 'enclosure' ('Enclosure 1') are four sub-rectangular dipolar anomalies [22], [23], [24], and [27]. Parch marks in satellite images from 2003 (Google Earth) show a complex of linear and rectilinear features in this area.

Outside this 'Enclosure 1' to the south/south-east are two dipolar anomalies [29] and [30] seemingly associated with linear feature [28] which possibly represent ornamental buttresses of a brick wall.

Around the 'villa', a ditched enclosure ('Enclosure 2') has now been identified by two (?) parallel positive linear anomalies [33] (probable ditches) on the northern side, a single positive linear [34] (probable ditch) on the western side, and two (?) parallel positive linear anomalies [9] (probable ditches) on the southern side (one of which continues beyond 'Enclosure 1'. The negative linear anomaly on the eastern side [5] (boundary wall?) has been found to continue to the southeast and terminates at a large dipolar anomaly [5a]. East of the enclosure, positive linear anomalies [6] were found to continue and in form resemble a structure, which is parallel to boundary wall [5]. Positive linear anomalies [14], [12], and [7] create a separate enclosure ('Enclosure 3') (or two enclosures separated by [7]?) with positive linear anomaly [35]. Another enclosure ('Enclosure 4') is formed by [35], [11], [14], and [5]. The fifth enclosure ('Enclosure 5') is formed by positive rectilinear anomaly [36] and contains a possible structure or smaller enclosure [37] represented by positive linear anomalies and two dipolar anomalies at two of the inside corners. Northeast of the fourth enclosure is a faint semi-annular positive anomaly [38].



Fig. 14. Processed results of the 2011 gradiometer survey with Ordnance Survey topographical data.

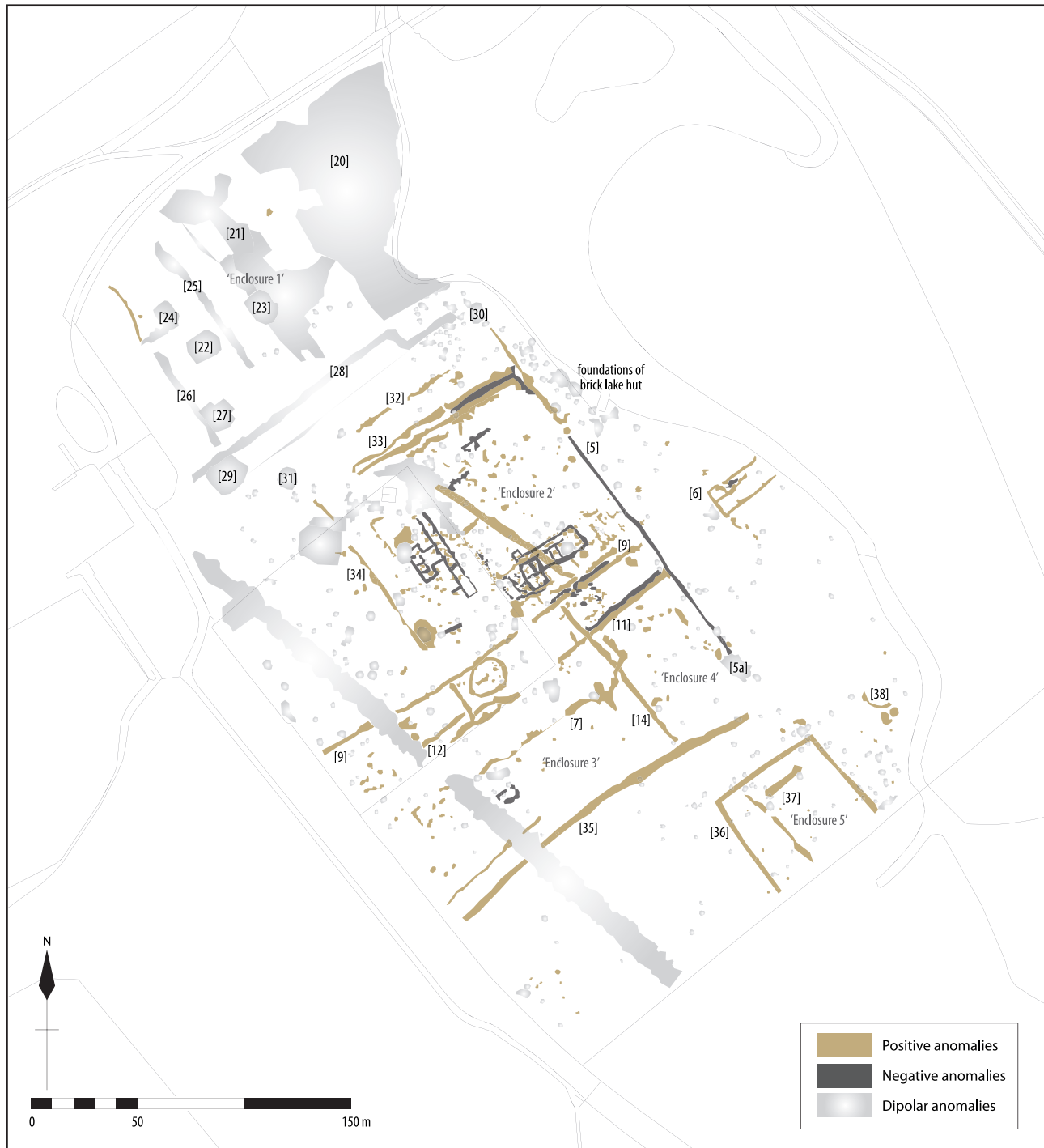


Fig. 15. Digitised anomalies detected in the gradiometer survey of Field 1 west and Ordnance Survey topographical data.

In Field 2, eight grids were surveyed with magnetometry to investigate the rectilinear enclosure and 'trackway' visible in aerial photographs. This area is on the steeply-sloping side of the valley. Three sides of an enclosure are represented by positive linear anomalies [39], within which are a scattering of small positive and dipolar anomalies as well as a wide positive linear anomaly [43] parallel to the eastern side of the enclosure. Positive linear anomaly [41] runs parallel to and south of [39]. Positive linear anomaly [40], aligned approximately to the enclosure [39] to its north, could represent the corner of an earlier phase of the enclosure. Perpendicular positive linear anomalies [42] and [44] appear to cut through this complex; they are, however, the only features aligned to the Roman road, c. 100 m to the northeast.

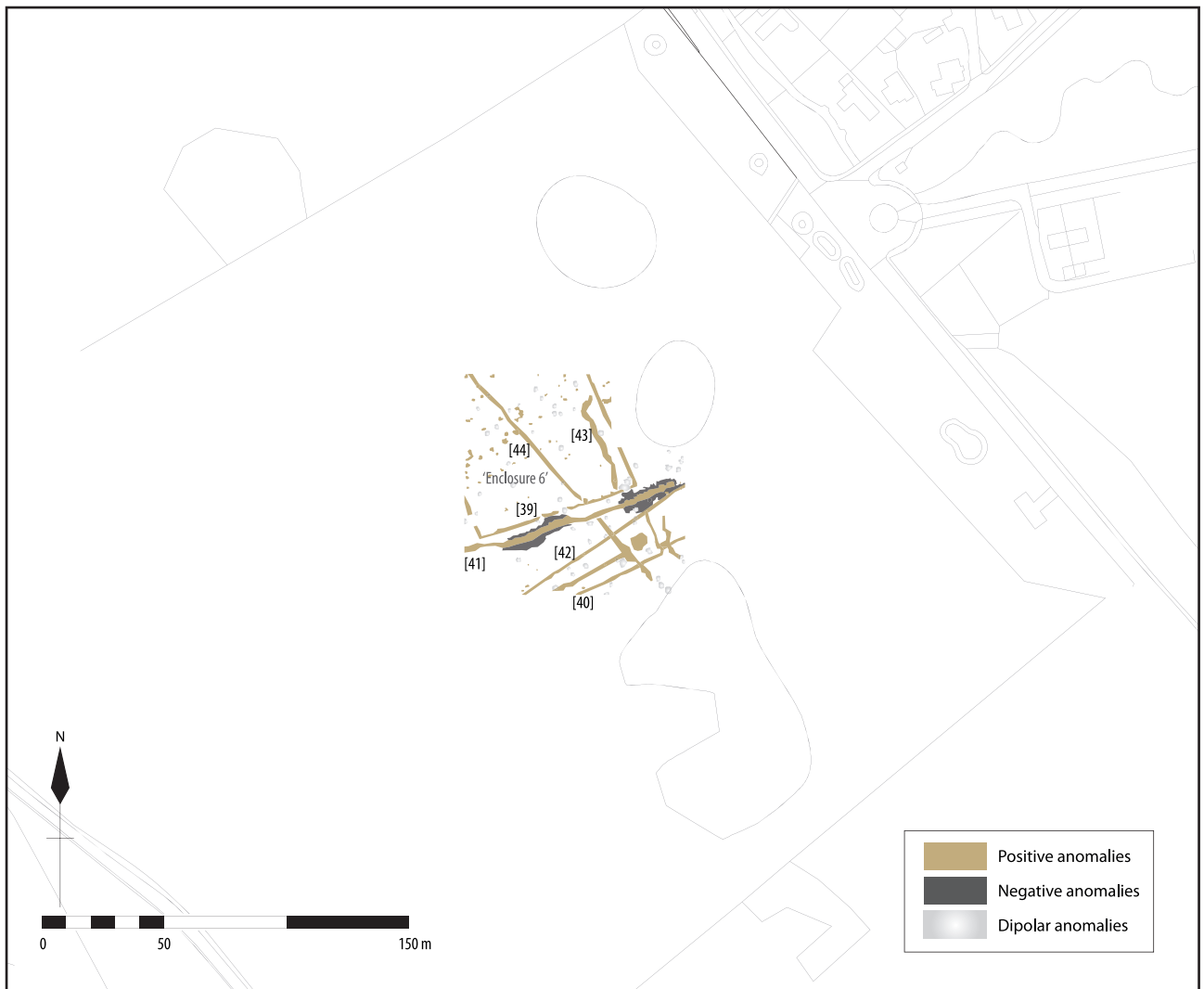


Fig. 16. Digitised anomalies detected in the gradiometer survey of Field 2 and Ordnance Survey topographical data.

Initial interpretations

The sides of Enclosure 1 are formed by the drive of Bourne Park House, the artificial lake, and a possible brick wall represented by [28]. Within this enclosure are remains of walls and structures probably associated with 19th-century ornamental landscaping. Enclosure 2 is formed by ditches (or double ditches) on three sides and a possible stone wall on the fourth eastern side. Within this enclosure lie two wings of a building complex (the western wing covers an area measuring c. 52 m. NW–SE and 19.5 m. SW–NE; the southern wing covers an area measuring c. 33.5 m. SW–NE and 21.5 m. NW–SE), probably Roman, and a possible third wing on the northern side which is unclear in the magnetometry results. The size of the villa is comparable to West Park Roman Villa in Rockbourne, Hampshire (RCHM 1983). The dipolar anomalies associated with the wings could represent hypocausts or furnaces. Sub-rectangular positive anomalies within this enclosure could represent large pits, or, perhaps more likely, Anglo-Saxon sunken-feature buildings. Ring-ditch [13] appears to respect the continuations of the boundaries of Enclosure 1, and may possibly, therefore, be later: perhaps a ditch surrounding an Anglo-Saxon burial. Enclosure 3 could be divided by a ditch down its centre, and may contain a structure (unnumbered positive anomaly), but it is too obscured by the strength of the dipolar anomaly [1]. Enclosure 4 contains several large sub-rectangular positive anomalies, which could, again, represent Anglo-Saxon sunken-feature buildings. Enclosure 5 is separate from the other attached enclosures and appears to contain a structure within it. Enclosures 1–5 all lie approximately parallel to the Roman road. Enclosure 6, however, lies at an angle to the road (as well as the possible trackway to its south), although it is much closer to it. Such a difference in alignment could indicate the enclosure is from a different period. The enclosure seems to have two phases, having been shortened or moved northward in a second phase, perhaps related to the construction of the trackway perpendicular to the Roman road, which may be the approach road to the villa. Enclosure 6 Phase 1, may, therefore, pre-date Enclosure 2 and Enclosure 6 Phase 2 may be of the same or later date.

Plans for future work

It is necessary to expand the survey in Field 2 to make more robust interpretations of Enclosure 6 and the associated trackway. By extending magnetometry survey across Field 1 east and Field 2, the relationship between the enclosures can be determined. We can now see that there are features in aerial photographs not visible in the magnetometry, and it is therefore desirable to undertake resistivity survey (planned for March 2013) and GPR over, at least, Enclosure 2. The known aerial photographs must be digitised and incorporated into the interpretations. The topographic survey must be extended up to the Roman road from Field 1 west to create a contour map and analyse the relationship between magnetic anomalies and the landscape. Ideally, the magnetic and topographic survey would be extended across the whole of Bourne Park.

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