ISAP NEWS

The newsletter of the International Society for Archaeological Prospection

Issue 50
May 2017

Magnetometer survey in Romania

Flint Farm revisited

Inspring Scottish school children

GPR survey in a kitchen garden

Alan Biggins

Welcome to the 50th issue of ISAP News. That's right, the 50th issue! And thanks to everybody who has found the time to put something together for the newsletter, not just this time but also on the previous 49 occasions - we're sure you'll agree that it's always nice to see what other people are up to. (Cue not-very-subtle plug for copy for the next issue...)

Read on for details of four very different projects - respectively involving small children, a somewhat precarious (to judge from the photograph) location, a fruit garden and a ferrous spike. But, unfortunately, we start with some sad news and a short obituary for Alan Biggins, who died recently.

To return to the not-very-subtle plug... 700ish words and a couple of images would be great!

Hannah Brown & Paul Johnson

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The Cover Photograph shows survey underway over the Loch nan Deala Crannog, Islay, Scotland. More details on pages 4 - 6. (Photo: Sarah Lambert-Gates)

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Alan Biggins

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The archaeological prospection community in Britain has lost an important member. Alan Biggins, who died on February 9 2017 aged 66, made significant contributions to Roman archaeology in northern Britain, undertaking large-scale geophysical surveys at Roman forts and their environs mainly along Hadrian's Wall. This work, carried out through his company, TimeScape Archaeological Surveys, founded in 1998, was the principal outcome of a cooperation with Dr David Taylor who acted as a consultant. Combining magnetic and electrical resistance survey with earthwork recording and analysis of the aerial photographic record, he explored some twenty Roman sites along the Wall and beyond, concentrating at many of them on the civilian settlement outside the fort. The surveys' distinctive features, notably at Birdoswald, Castlesteads and Maryport, were their size (reaching 72.5 ha at Maryport, a port town to the west of the Wall) and the high quality of both the data and interpretation. The combined results have clearly pointed to a situation that contrasts strikingly with the regular and formal layout of Roman military structures: the civilian settlements (*vici*) were not planned to a template, rather they grew organically according to needs and circumstances; indeed at Maryport the settlement grew to a level resembling a medieval-style township. Placing the results as a whole within a landscape setting, much rich detail was forthcoming on the field systems and the recognition of agricultural activity as well as settlement that predated the arrival of the Romans.

Alan came late to the field of archaeological prospection having previously worked in pharmacology with the Medical Research Council. But having made that transition he remained committed to his new profession, completing his PhD thesis (at Newcastle University) on the forts and extramural settlements of the Hadrianic Frontier in 2011. A taste of his work with David Taylor can be conveniently gleaned from an overview in *Current Archaeology* 206 (2006).

ISAP News continues overleaf...

Islay Heritage: The Islay Schools Project

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Islay Heritage (www.islayheritage.org) is a community-based charity (charity no. SC046938), launched in August 2016 with the aim of furthering knowledge about Islay's past and promoting public understanding and engagement. Since the launch, Islay Heritage has set up a number of excavations, undertaken geophysical, topographical and landscape surveys, and is progressing with plans to implement heritage-based signage, encouraging tourists and locals of the island to explore its rich heritage. The earliest archaeology discovered on Islay dates to 12,500 years ago, late-glacial deposits and artefacts having been discovered at Rubha Port an t-Seilich (Mithen *et al*. 2015). The island is full of remarkable archaeology from the Mesolithic, Neolithic, Bronze and Iron Ages, through to the Medieval period and, more recently, deserted townships of the 19th Century. In March 2017 a team from the University of Reading spent a week on the Island to introduce and teach Islay's and Jura's primary school pupils about basic archaeological recording and surveying.

Each primary school adopted a local monument near to their school site, with children from Jura joining in with their neighbouring school on Islay at Kiells. We spent one day with each group, numbering between 15 and 25 children. For the main part of each day children undertook a geophysical survey (earth resistance at 0.5m x 0.5m resolution), a topographic survey with a GNSS, conducted archaeological drawing and recording, took archaeological photos, and had a go at filming or presenting in a documentary about the archaeological survey techniques, as very eloquently described by budding presenter Eva here:

https://www.facebook.com/islayheritage/videos/1148166395310017/

Towards the end of the day the children went back to their classrooms to view the data and become archaeological illustrators by drawing site reconstructions and, drawing on the geophysical results, visually expressing their experience and perception of the site.

Islay School Sites

The figure below shows the location of the four sites surveyed over the week (**Fig. 1**). The monuments were selected to be accessible and local to each school, whilst being finite and compact so they could be surveyed in a single day. The monuments ranged from Medieval and Post-Medieval chapel sites, to a Bronze Age cairn and a

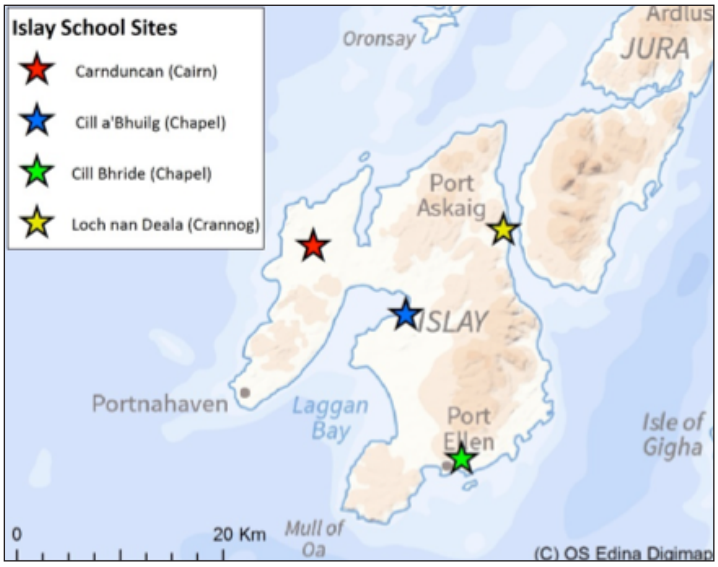

Figure 1 *Location of the Islay School Sites*

(now dry) crannog. This article focusses on the day spent surveying just one of the sites, the Loch nan Deala crannog to the North-East of the island.

Case Study: Loch nan Deala Crannog

The crannog is situated on the south-western edge of the mostly-drained Loch nan Deala, near Port Askaig on the north-east of the island. From the current ground surface, it is barely recognisable within the long grass, and few people are aware of its existence. The crannog was thought to have a rubble stone causeway 22m long and 2m wide that connected it to the old shoreline. On the northern part of the crannog are thought to be the remains of two connected stone buildings forming an L-shape. There is a small stone building in the south-east part of the crannog, and possible remains of an outer wall on its southern edge. The RCAHMS (1984: p157) entry suggests a date of the late medieval period, however water-logged wood in what was thought to be the causeway was radiocarbon-dated to around 5000 BCE (Holley 2000: p203).

The students were split into teams, each taking on a different activity for an hour, supervised by an Islay Heritage specialist, before swapping over with another team. The morning was spent doing a range of activities, such as photography, recording and drawing to scale the archaeological remains, producing a topographic survey and a twin-probe earth resistance survey of the monument (**Fig. 2**). The students were encouraged to think about the landscape and imagine how the crannog would have looked, surrounded by the loch.

In the afternoon, the data collected was downloaded and

Figure 2 (above) *A packed day on site included GIS analysis and mapping of the site (top-left), photo recording and planning (top-right), GNSS Survey (bottom-left) and geophysical survey and processing (bottom-left).*

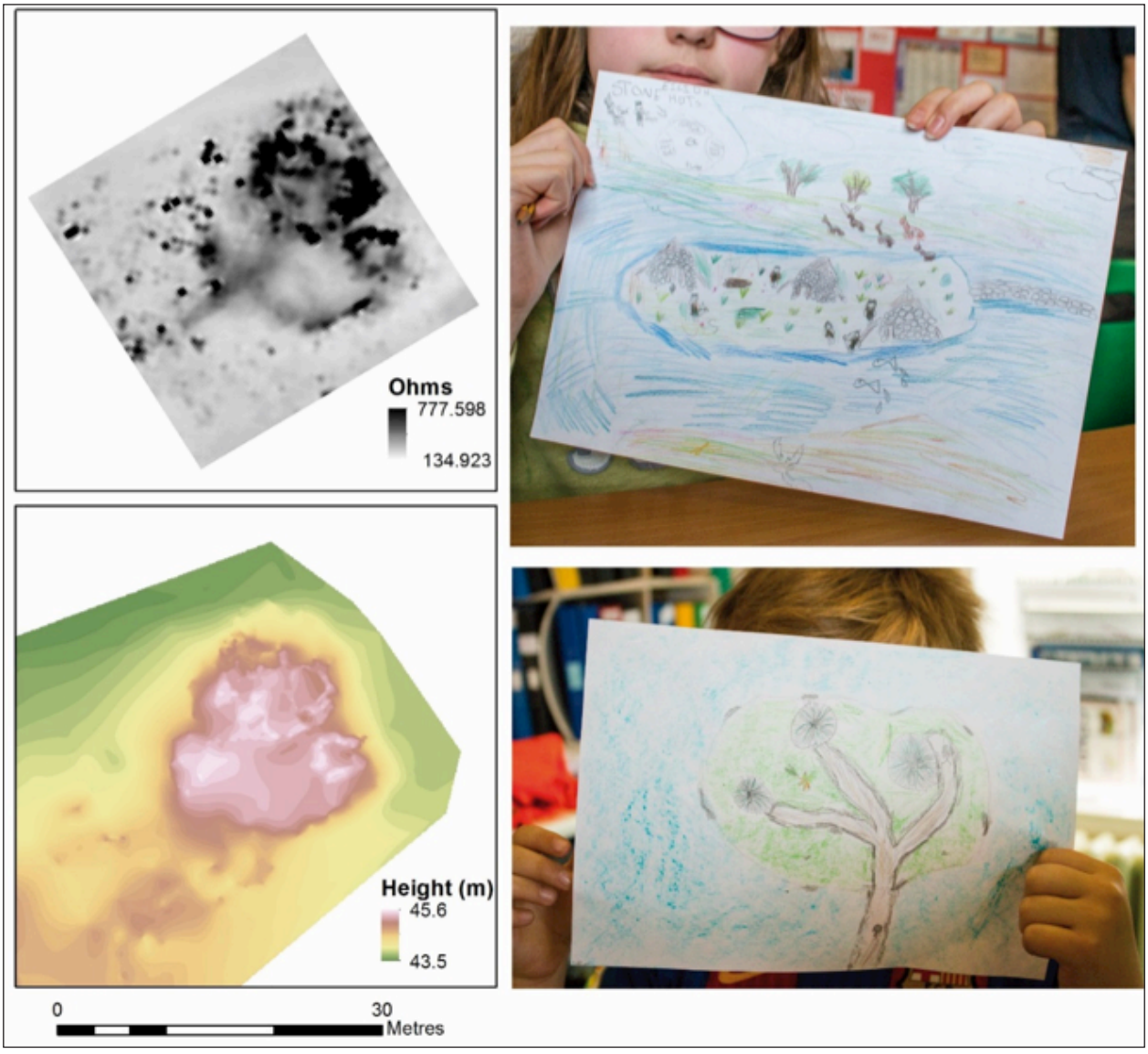

Figure 3 (below) *The earth resistance survey (left-top) and the topographic survey (left-below) of the site at Loch nan Deala, Nr. Port Askaig, Islay. Reconstruction images (right) courtesy of students from Keills Primary School, Islay.*

processed, and the results available for the students to see the results of their hard work for themselves. Back in the classroom they were asked to produce a reconstruction drawing of the site (**Fig. 3, overleaf**). This allowed them to be creative, and see how the data collected could inform their interpretation of the site.

The results from the geophysical data collected by the pupils were able to define the edges of the raised area of the crannog well (**Fig 4**, **A**). The walls and rubble relating to the buildings were similarly clear as high resistance anomalies and indicated at least three different buildings (**Fig 4**, **B** & **C**). The existence of the causeway was also verified, connecting the crannog to the former shoreline (**Fig 4**, **D**). Furthermore, the geophysical data may tentatively indicate more than one phase of activity within the crannog, as the causeway appears to branch out at a right angle to the south-east, which may indicate an extension and separate phase of activity of the crannog (**Fig 4**, **E**).

The school pupils really enjoyed getting out and being taught STEM subjects through practical hands-on experience. Further information on the ongoing Islay Schools Project or on Islay Heritage itself can be found at the Islay Heritage website, on Facebook or on Twitter, where there are continuous updates to the ongoing work.

Website www.islayheritage.org

Facebook https://www.facebook.com/search/top/?q=islay%20heritage

Twitter @islayheritage

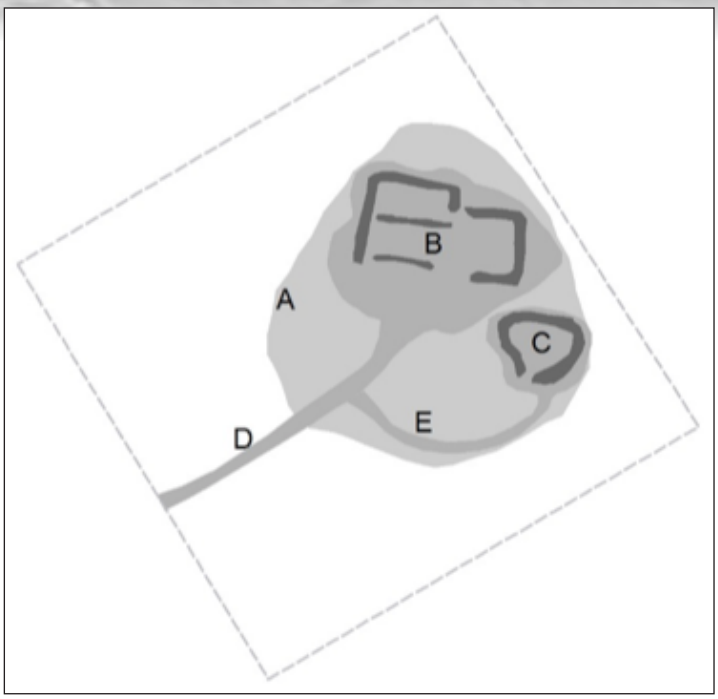

Figure 4 (above) *Simplified interpretation drawing of the geophysical results at the crannog.*
Figure 5 (below) *The team from University of Reading working for Islay Heritage on the Schools Project*

References

Holley, M. 2000. The Artificial Islets/Crannogs of the Central Inner Hebrides. BAR British Series 303.

Mithen, S., Wicks, K., Pirie, A., Riede, F., Lane, C., Banerjea, R., Cullen, V., Gittins, M. & Pankhurst, N. 2015. A Late Glacial archaeological site in the far north-west of Europe at Rubha Port an t-Seilich, Isle of Islay, West of Scotland: Ahrensburgian-style artefacts, absolute dating and geoarchaeology. Journal of Quaternary Science.

RCAHMS. 1984. The Royal Commission on the Ancient and Historical Monuments of Scotland. Argyll: an inventory of the monuments volume 5: Islay, Jura, Colonsay and Oronsay. Edinburgh.

Geophysics in Romania: the city of Orgame/Argamum

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Between 29th of August and 8th of September 2016 the Ludwig-Maximilians University of Munich under the direction of Prof. Dr. Bernd Päffgen conducted archaeological prospection in the ancient city of Orgame/ Argamum. The geophysical prospecting was directed by Marion Scheiblecker with help in the field from Daniel Anton and Michaela Schauer. Although the site has been archaeologically investigated since 1926, very little is known about the layout and general structures of Orgame (Andrews 2010, 97. 114).

The ancient city of Orgame was located at 55m above sea level, on a promontory (today Cape Dolojman) on the former shore of the Black Sea (Andrews 2010, 93-94). Due to the sedimentation, the direct connection to the sea silted up and formed the shallow Lake Razelm, which is connected to the Black Sea only by a small opening (Andrews 2010, 93). In former times, the cliff occupied a prominent strategic position on the way from the Black Sea to the Danube Delta with the small island 'Bisericuta' opposite (Andrews 2010, 93). The subsurface of the cliff consists mainly of crumbly limestone (Andrews 2010, 102). While the northern part of the steep cliff partly collapsed into the lake, the slope is more shallow to the south (Andrews 2010, 94. 96). The city was founded as one of the first greek colonies on the western shore of the Black Sea in the 7th century BC along with Istros/Histria, Tomis and Kallatis (Andrews 2010, 2-3) and was completely abandoned in the 11th century AD (Andrews 2010, 93). The site is also known for the greek necropolis with tumuli north and northwest of the city, dating from the 7th century BC to the 3rd century AD (Andrews 2010, 97).

Magnetometry is a non-destructive archaeological investigation method and was chosen as the most suitable prospection method in this area. Some *intra muros* sections, including three basilicas, the main city gate and private dwellings, have been excavated and partly reconstructed, (Andrews 2010, 96); a few more structures can be traced by satellite images and by topographical anomalies (fig. 3). Some difficulties result from the vegetation and from the topography of the survey area; the steep mounds of the city wall and old excavation trenches required the application of the Foerstersonden-Magnetometer Ferex 4.032 (Foerster, Reutlingen) in a handheld quadro-sensor-configuration (**fig. 1** and **2**). The sample interval was set to 10 x 50 cm and the sensors were carried about 30 cm above ground in a 40 x 40 m grid. The raw data were processed with Data2Line (Foerster), Magpick (Geometrics), Geoplot 4 (Geoscan), Surfer 13 (Golden Software) and finally visualized in a grey shade plot.

The most exciting results of the campaign in 2016 were achieved *intra muros* in an area of almost 80 x 200 m (**fig. 3**, overleaf). The survey area is limited by the scarp in the northeast and the Roman theatre and the ancient harbor basin in the southwest, which is today covered with reeds. The magnetogram (**fig. 3**) revealed a dense settlement *intra muros* and *extra muros* buildings unknown until today, which are spreading out to the harbor area and the modern street running to the beach. The city wall with its tower (southwest) and rectangular projections (bastions) at regular intervals shows up as a sharp negative magnetic contrast. It is also clearly visible in the satellite image in the western and southern part.

Figure 1 *Magnetic prospection (Marion Scheiblecker) on the northern cliff of Orgame with the handheld Foerster Ferex magnetometer in a quadro-sensor configuration (view northwest to Lake Razelm). Photo: M. Schauer.*

Figure 2 *Magnetic prospection (Daniel Anton) on the southern mound of Orgame around the city wall with the handheld Foerster Ferex magnetometer in a quadro-sensor configuration (view south). Photo: M. Schauer.*

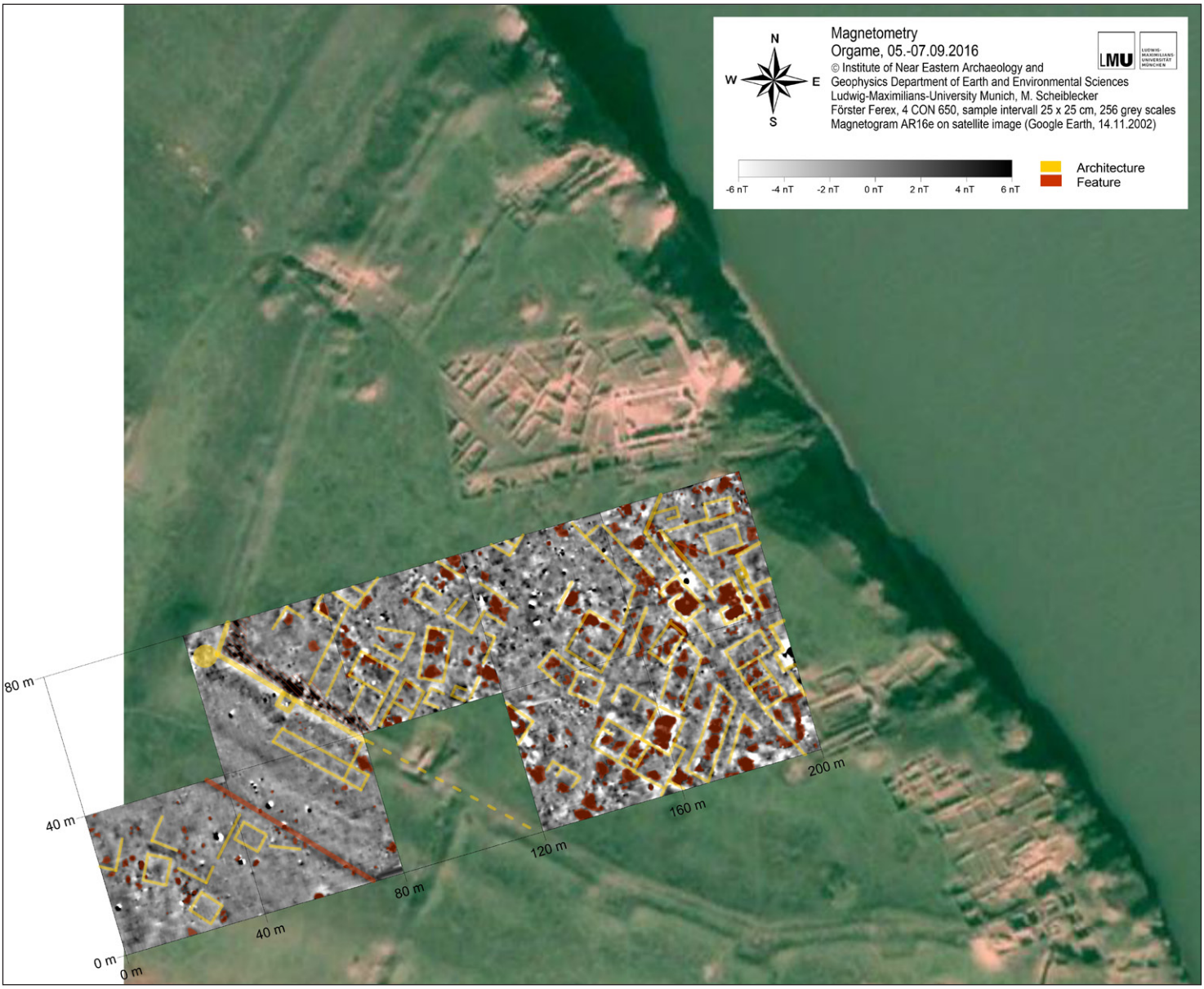
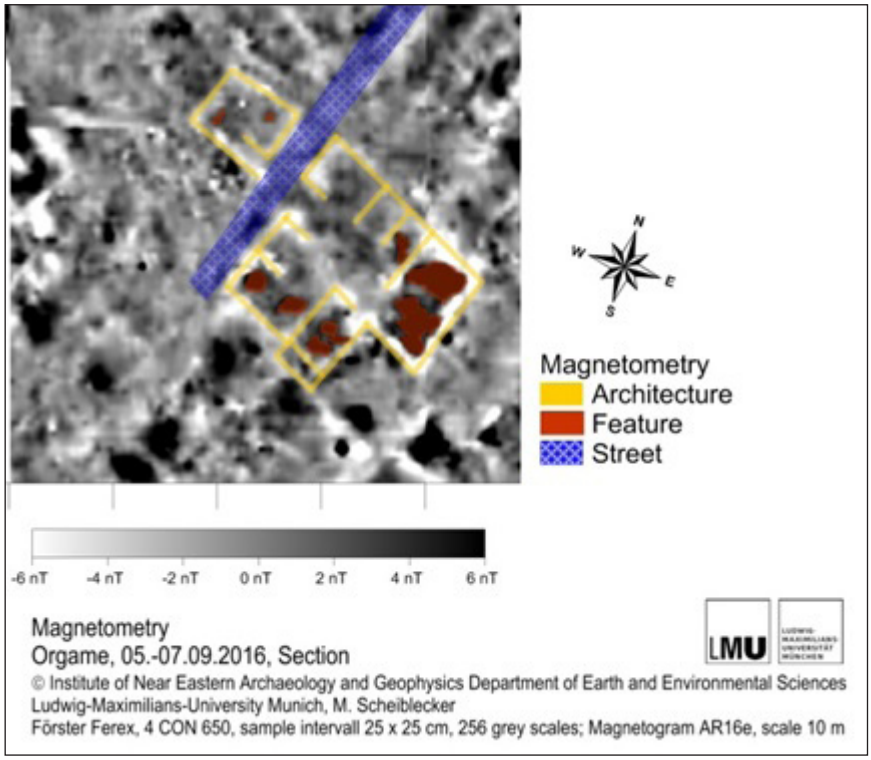


Figure 3 (above) *Orgame/Argamum intra muros. Magnetogram with interpretation on satellite image. Foerster Ferex, 4 CON 650, Gradiometer, sampling interval 10 × 50 cm, interpolated to 25 × 25 cm, dynamics in 256 grey scales, 40 m grid, on satellite image (Google Earth, 14.11.2002).*

Figure 4 (right) *Orgame/Argamum, Section of fig. 3 with examples for interpretation of architecture and street.*



The positive (dark) anomalies directly inside the wall (**fig. 3**, orange stripe) can be interpreted as highly magnetic debris, which was used to raise the embankment. Inside the city walls various layouts of houses, as well as streets, become visible, which can also be found in the excavated sections. Bright (negative) anomalies indicate limestone building material (**fig. 3**, yellow; Fassbinder 2017, 505-507), dark (positive) anomalies mark very burnt material and storage pits (**fig. 3**, red; Fassbinder 2017, 504). **Figure 4** depicts an interpretation of architectural structures: a small and a large building both

with an entrance directly from the street. Small and simple buildings with only one room occur often in the city; the example (**fig. 4**, western side) shows a rectangular limestone wall (yellow) with two positive anomalies (red) inside, which could be interpreted as cooking installations. The larger, extraordinary, building (**fig. 4**, eastern side) also consists of limestone walls (yellow) and has its main entrance from the street; it has at least six rooms on both sides. The back part of the southwestern room could be interpreted as a kitchen. The round structure (red) identified by a high thermomagnetic anomaly there can be interpreted as an oven. The two rooms in the eastern part of the building also show high magnetic anomalies (red), which are bordered by limestone walls with negative magnetic anomalies (yellow). It is remarkable that the type of high positive anomalies that are visible on the magnetogram are always connected with architecture and appear mostly inside of buildings. This could be a result from a burning event, where the roof collapsed.

Some architectural structures that are not rectangular do not yield layouts of houses; these could be a hint of more phases of settlement structures becoming apparent in the magnetogram. Since the magnetogram illustrates a 'timeless' picture, there is no more differentiation with respect to the dating of the structures.

The promising results of the 2016 campaign show that the prospection should be continued to complete the ancient city map of Orgame (*intra muros*) and to get an idea of the extension outside the city walls (*extra muros*). Moreover, the structure of the city with its organization and institutions could be reconstructed; it provides an extensive picture that a selective excavation cannot fulfill. Therefore the data supplies a detailed basis for specific excavations in the future, which would allow the dating of the structures resulting from the magnetogram.

References

Andrews, S. (2010) Greek cities on the western coast of the Black Sea: Orgame, Histria, Tomis, and Kallatis (7th to 1st century BCE), Graduate Theses and Dissertations. Paper 11712, Iowa State University, Iowa.

Fassbinder, J. W. E. (2017) Magnetometry for Archaeology. In: Allan S. Gilbert (ed.), Encyclopedia of Geoarchaeology, Springer, Dordrecht, 499-514.

ISAP News continues overleaf...

Ground penetrating radar survey at Berrington Hall walled garden, Leominster, Herefordshire

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Figure 1 *1887 sales particulars of Berrington Hall.*

Berrington Hall is located 4.5 km north of Leominster and 11 km south of Ludlow in the County of Herefordshire. The mansion itself was built c. 1778-82 and is a remarkable example of Georgian design. It is a Grade I listed neo-classical building constructed in local pinkish sandstone, with a massive pedimented portico comprising four unfluted Ionic columns. The mansion is situated in 4.65 ha of gardens and pleasure grounds designed by Lancelot 'Capability' Brown (Historic England 2017).

The walled gardens within the gardens and pleasure grounds consist of two connected structures; a semi-circular structure to the north, and a larger sub-rectangular structure to the south. The 1815 Ordnance Survey map shows the east, north and west walls of the walled garden as a continuous curved structure. However, a Tithe map from c. 1840 shows only the northern section of the wall as curved; the main part of the garden is rectangular and slightly offset from the curved section. The walled gardens were later modified and expanded, as shown in detail in a sales plan of 1887 (**Fig. 1**). By this date, the larger part of the curved walls had been replaced by a rectilinear arrangement called the 'Fruit Garden', with the last surviving curved northern section identified on the same plan as the 'Kitchen Garden'.

Since 1907, the Kitchen Garden has been occupied by farm buildings and it is now surrounded by a car park to the east and a flower garden and lawn to the south. Wessex Archaeology was commissioned by the National Trust to carry out a geophysical survey within these areas as part of an ongoing programme of archaeological works being undertaken to inform proposals for renovations to the gardens (Wessex Archaeology 2017a; 2017b). The main aims of this project were to determine the presence or absence of any structures or features associated with the garden, both within and outside the walls. It also aimed to determine, as far as possible, former garden designs and plans, particularly those shown in the 1887 Sales Particulars.

Given the propensity of standing buildings and hard surfaces within the survey areas, Ground Penetrating Radar (GPR) was considered the most appropriate technique to be deployed across the survey area. This was conducted using a GSSI SIR 3000 control unit with a 400 MHz antenna mounted on a three-wheeled cart with odometer to record

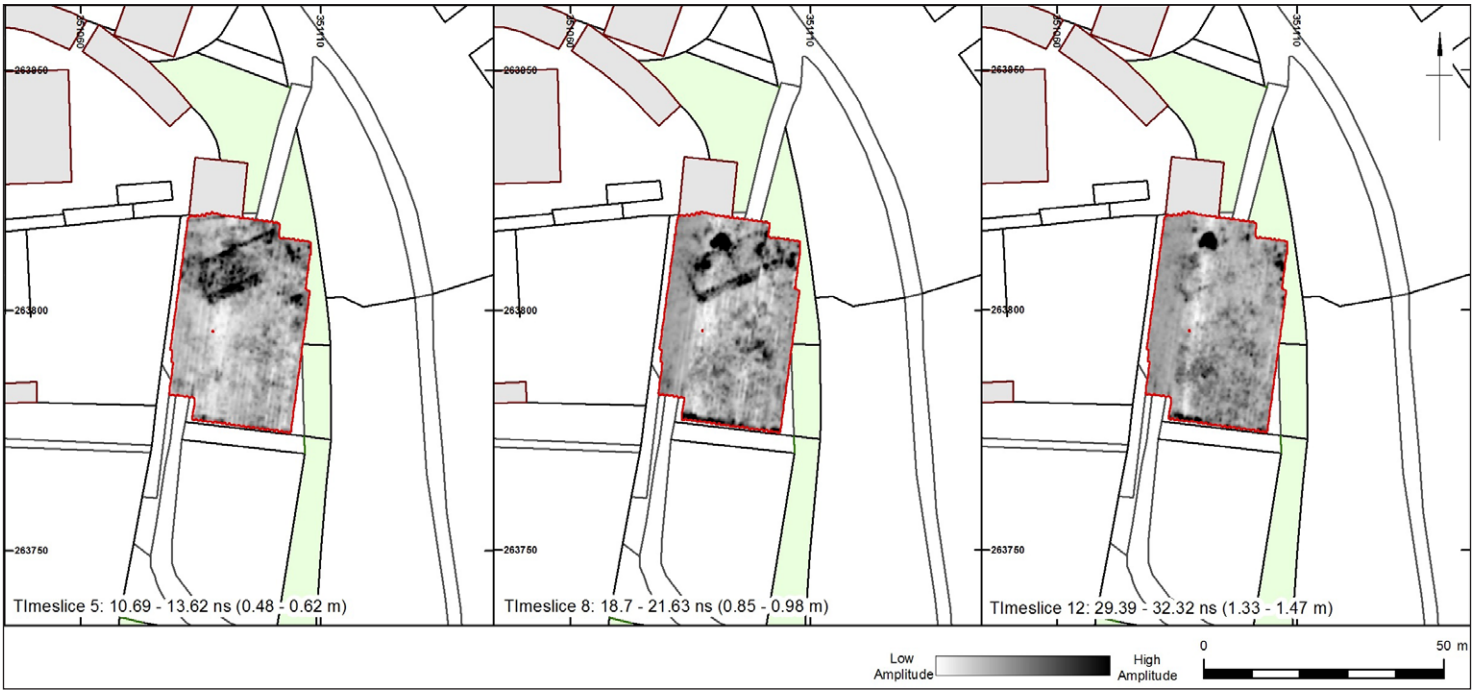
horizontal distance. Data were collected along traverses spaced 0.5 m apart at 40 scans per unit (1 unit = 1 m), with a possible time window of 60 ns. This setup has the potential of detecting features to a depth of 2 – 3 m in optimal conditions. Approximate depth conversions have been calculated by analysing suitable hyperbolic reflections, which can be used to determine the velocity of the GPR pulse through the subsurface deposits so that measured signal travel times can be converted to depths.

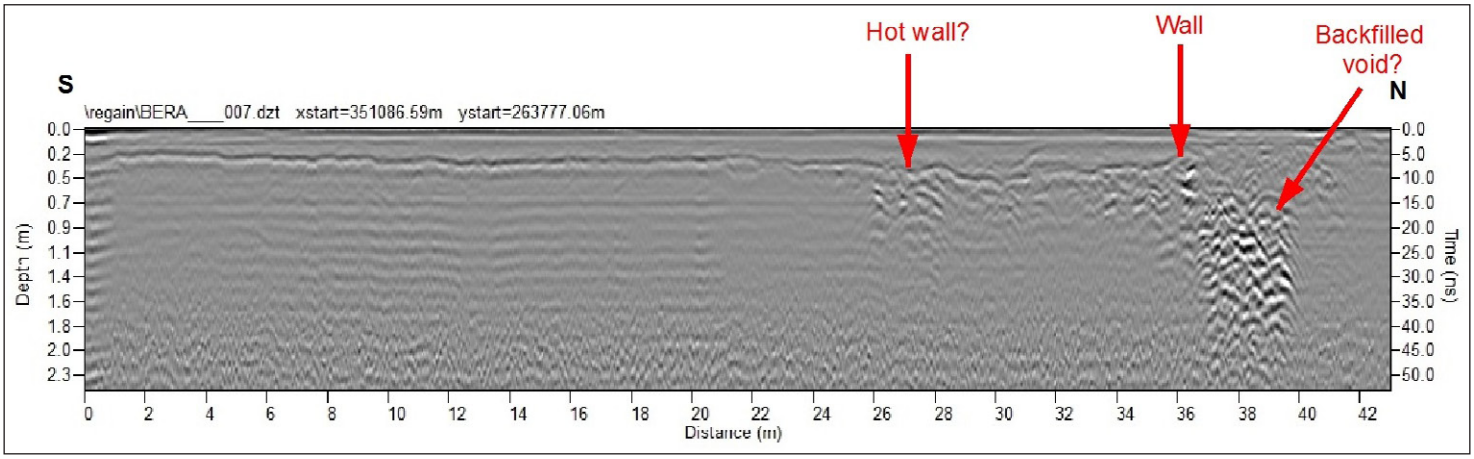
The GPR survey was undertaken across six areas, with a total of 0.73 ha achieved. A number of significant responses were identified, some of which are likely to be associated the historic layout of the walled garden. Perhaps the clearest of these was identified to the west of the walled garden in a tarmacked car park area (**Fig. 2**). This is first visible at 8.02 – 10.95 ns (0.36 – 0.55m) as a poorly defined, roughly rectangular area of high amplitude, but becomes more regular from 10.69 – 13.62 ns (0.48 – 0.62 m). At this depth a very clear recti-linear arrangement can be identified until approximately 32 ns (c. 1.45 m). This is orientated on a north-east to south-west alignment and covers an area measuring 20 x 9 m. This is associated with a building which is present on several historic maps and the sales plan from 1887. The form of the feature varies within the timeslices as it descends, influencing the interpretation of this structure.

At 10.69 – 13.62 ns (0.48 – 0.62 m) the western part of the structure is characterised by a higher amplitude than that of the eastern part of the building. This continues to be the case until 16.03 – 18.96 ns (0.73 – 0.86 m), where the building is more consistently represented. One possible explanation is that there is significantly more building debris within this area. It is possible that this is a result of an internal division which is also visible within this part of the building, and could account for additional debris following demolition of the building.

From 18.7 – 21.63 ns (0.85 – 0.98 m), a more complete view of the building can be visualised and the entirety of the southern wall can be identified. This wall is notably wider than the other walls of the property measuring up to 2m in width. The anomaly is also relatively amorphous and is not consistently represented by strong, high amplitude responses. In the corresponding radargrams, multiple hyperbolic reflections are visible, suggesting the wall

Figure 2 (top) *GPR survey results - selected timeslices.*
Figure 3 (bottom) *Selected radargram - a possible 'hotwall' and backfilled void are hypothesized.*





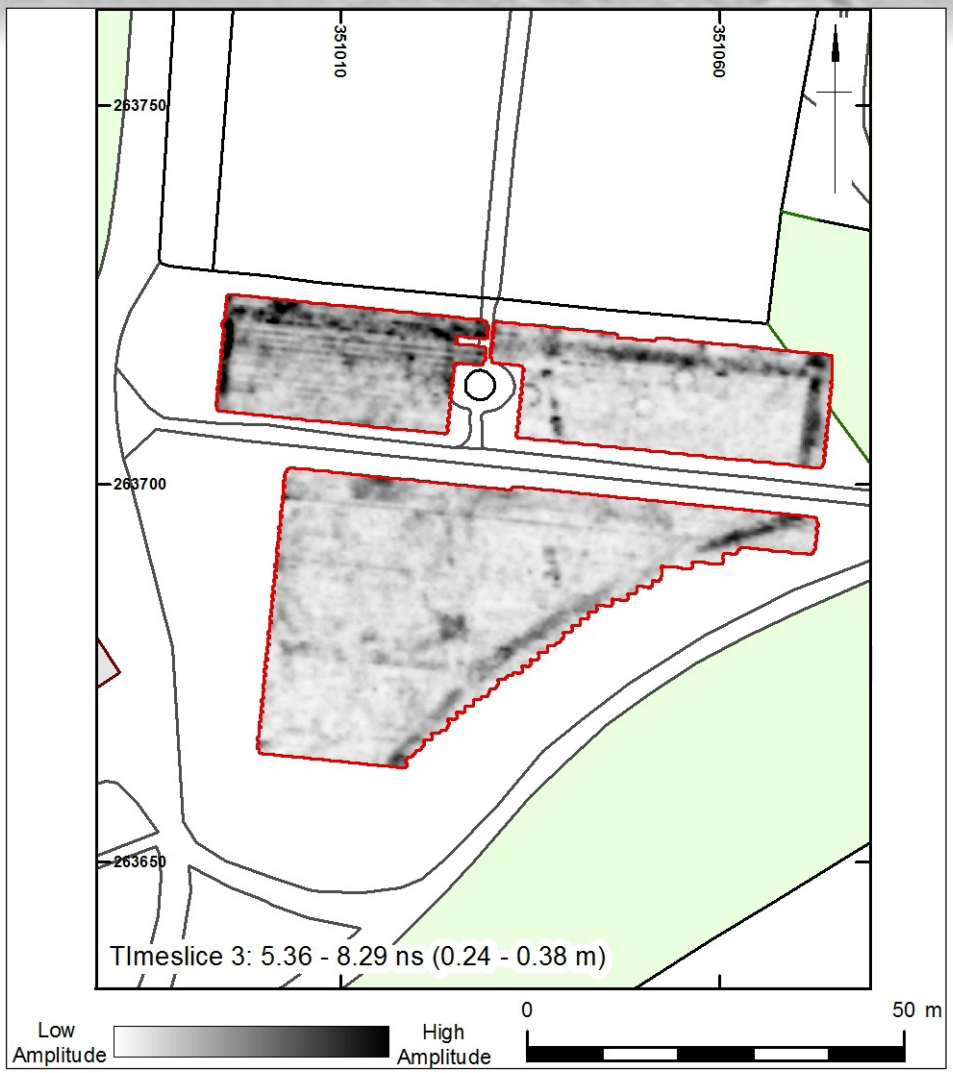


Figure 4 *GPR survey results - timeslice.*

A number of further responses were identified across the survey area that could be associated with a previous layout of the gardens. In particular, directly south of the walled garden there are several moderately high amplitude responses that are faintly visible within the uppermost timeslices (**Fig. 4**). These take the form of five curvilinear, roughly circular features that can be identified between 2.68 – 5.61 ns (0.12 – 0.26 m) and 8.03 – 10.96 (0.37 – 0.5 m). They are relatively consistent in shape and form, with a maximum diameter of c. 3.5 m. These are thought to relate to a series of circular plant beds distributed across the area. Such a layout can be identified on the 1887 sales plan for the area, which is annotated as flower beds. There are also several other rhombus shaped beds indicated on the 1887 plan, but these are not clearly visible within the GPR results. However, there are a number of very faint linear trends across the northern part area that may relate to several additional plant beds in this area.

In conclusion, the GPR survey was successful in identifying a complex range of features and provided a great level of information regarding their character and extent. When combined with historic mapping, the results of this contributed to a more detailed understanding of historic layout of the walled garden at Berrington Hall. This was particularly useful as both of these areas were located where other archaeological methods, such as Trial Trenching, were impractical.

may contain cavities (**Fig. 3**, previous page). One possible explanation for this is that this represents a 'hot wall'. Such features are common in walled gardens and were designed with hollow construction, allowing hot air to be pumped through the building, promoting the ripening of fruits. This interpretation is given further credibility by the 1887 Sales Particulars which labels the building as a 'conservatory' depicted with a glazed roof.

A further notable element of the building is located directly to the north of the structure. It protrudes 2.5m north of the northern wall, is roughly rectangular in shape, and measures a maximum of 4 m in width on the north-west to south-east axis. It extends much deeper than other elements of the building and is continuously visible until 42.75 – 45.68 ns (1.94 – 2.19 m), although it gradually reduces in size from 32.06 – 34.99 (1.33 – 1.47 m). As a path can also be seen to lead up to this area on the 1887 sales plan, one possibility is that it may represent an entrance or porch on the northern side of the property. However, this does not account for the strength and significant depth of the response identified. In the radargrams for the area there are a series of complex strong reflections, which could suggest the presence of a backfilled void (**Fig. 3**). As a result, it is more likely that this relates to an element of the structure, perhaps associated with a heating system that was required to be located at depth.

Bibliography

Historic England, Berrington Hall: List Entry Summary (accessed April 2017)
https://historicengland.org.uk/listing/the-list/list-entry/1000873

Wessex Archaeology, 2017a. Berrington Walled Garden, Leominster, Herefordshire. Historic Building Recording. WA Doc Ref. 115360.03 (Unpublished client report)

Wessex Archaeology, 2017b. Berrington Walled Garden, Leominster, Herefordshire. Results of Trial Trenching. WA 115360.06 (Unpublished client report)

Cartographic sources

1815 OS Map
1887 Plan of Berrington Hall and Grounds
1830s Tithe map

Flint Farm revisited

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This all started when a member of the local archaeological society phoned and asked if I knew that planning permission had been given to build houses on farmland near his house in Drayton, Oxfordshire. Of course not - the Planners don't consult the archaeological society around here and instead rely on the County Archaeology service.

It was a field where the Society had done a small dig in the 1990's and showed that the barrow there was probably not Bronze Age as it had Roman pottery deep in its mound and lacked a surrounding ditch.

There isn't space here to catalogue the events which have caused a good proportion of a Bronze Age enclosure there to have houses built on it. This is disappointing to say the least when the Parish council could, and would have been willing, to have rearranged the development so their large area of sports pitches could have gone over the archaeology. If this is widespread, it indicates that the current English system may be better at clearing sites for development than in protecting them.

The planning application had a survey done with caesium equipment, (one needs to be suspect of planning application supporting documents as those available to the public could well be cut down versions). This looked different to the small survey done there with a Geoscan fluxgate in the1990's, although it did get the ridge and furrow well. Landowner willing, we surveyed it with our Bartington fluxgates which got a presumed Bronze Age enclosure quite easily together with other features not identified in the caesium report. This is now on the Archaeology Data Services Grey Literature system:

https://doi.org/10.5284/1037962

To see what the guidance on these things is, I went to the 2008 English Heritage Guidance, now incorporated in the European Archaeological Council Guidelines. Figure 6 of the English Heritage Guidance shows the effect of increasing the reading density ending at the bottom with red boxes showing how post rings could be best found with a half metre line interval. Rather than just showing the effect of density using one piece of equipment, it had the results from the caesium and Bartington equipment side by side and to my eye the Bartington appeared not to have detected the southern ring as well as the caesium did.

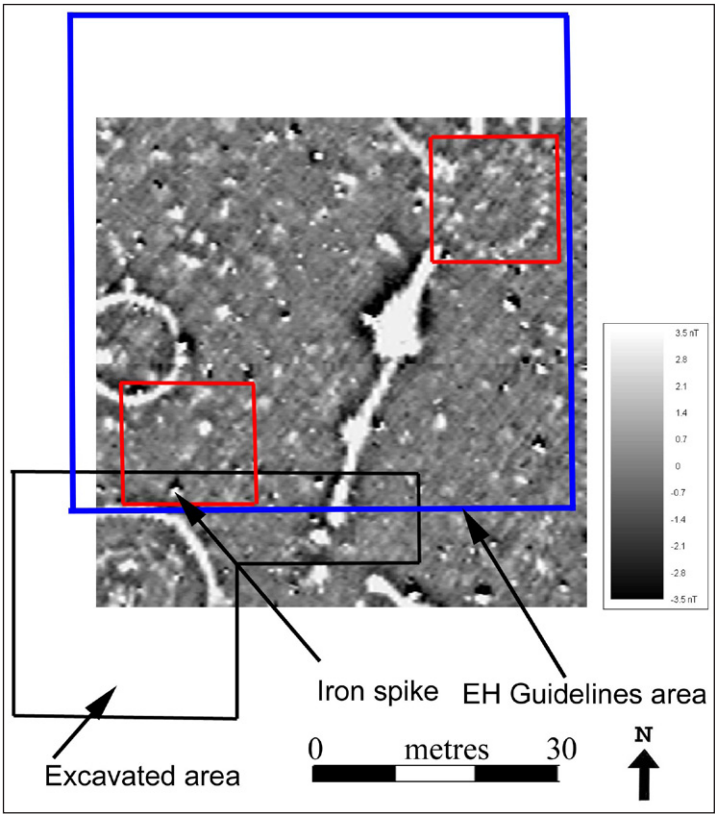
As this did not accord with the results from Drayton, I went to the source of that illustration. Archaeological Prospection 14:3 (2007), 151-166 has an article comparing caesium and Bartington fluxgate gradiometer equipment and shows that the English Heritage Guidelines illustration was from a survey at Flint Farm near Andover. Page 159 says "In particular the caesium data demonstrates the impressive resolution of post-hole structures that may be obtained through the use of high density (0.125 x 0.5 or finer) sampling intervals". Page 152 there says that the caesium sensor was at 20 cm above ground level whilst the Bartington bottom sensor was 50 cm above the ground. As signal strength declines rapidly as sensor height is increased, all I had to do was to re-survey Flint Farm at the 20 cm height to get a better comparison.

The location of the site can be obtained from the English Heritage Centre for Archaeology Report no 70/2004. Flint Farm, Fullerton Hampshire.

So, since the farmer was willing, we did a survey with our old Bartingtons to see if a lower sensor height would give a different picture. The short oilseed rape crop meant that we couldn't get down as low as 20 cm and had to settle for 25 cm. Half metre line interval, 8 readings per metre. Start South going North (see **fig. 1**).

No it didn't. The result was very similar to the Bartington

FIgure 1 *Previous work areas superimposed on Ab Arch Geo Bartington gradiometer survey 2017. Post rings highlighted.*



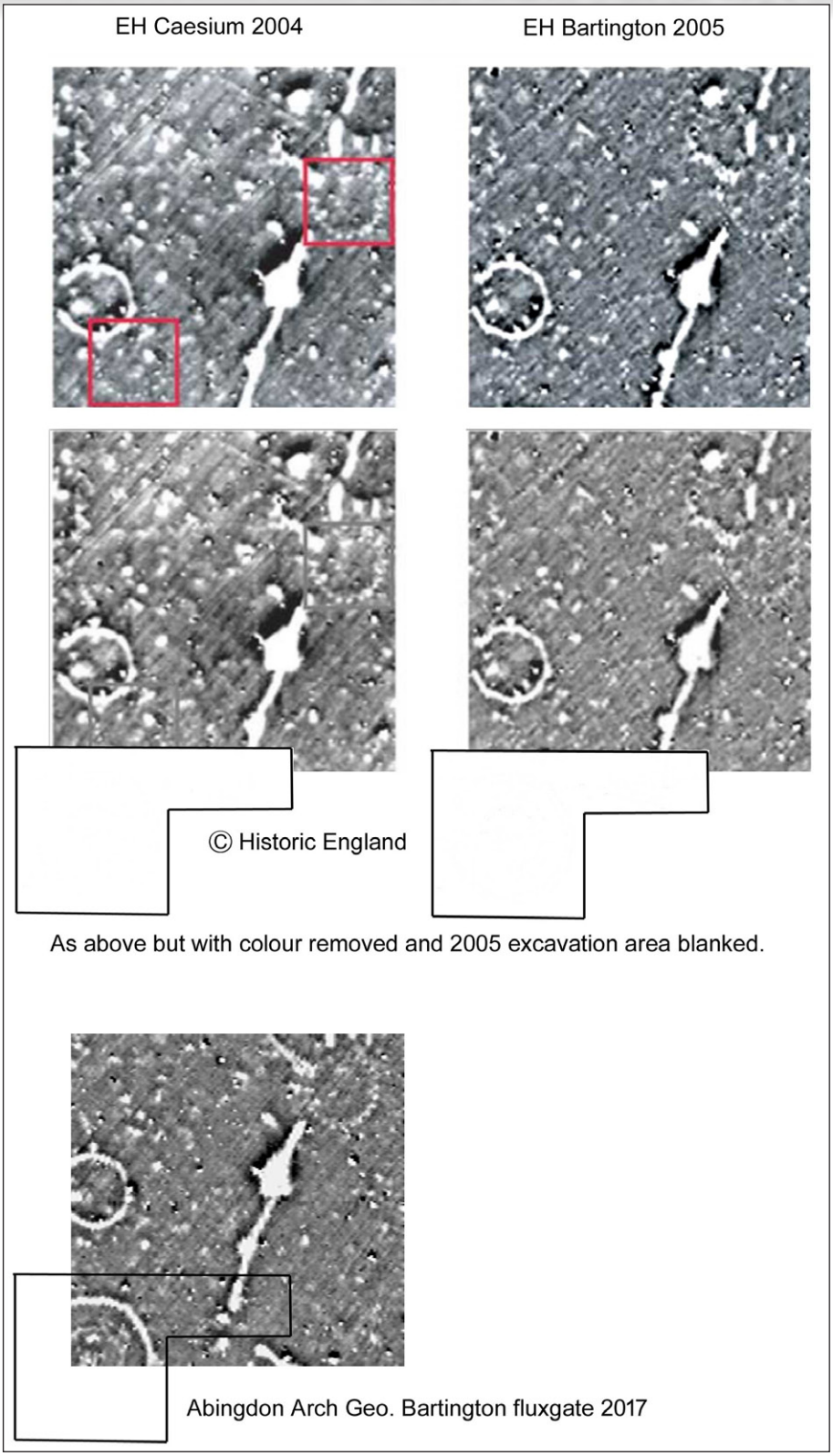


Figure 2 *English Heritage magnetometer survey results over area indicated in figure 1. Reproduced courtesy of Historic England. White is positive.*

survey in Figure 6 of the English Heritage Guidelines. I let the Historic England Geophysics Team know this and the response was that the 0.5m sensor height was a typo. It should have been 0.25 m. All that effort to detect a typo.

Before giving up, I had a look at the results and compared the iron spikes. Not for any good reason but they could move around and now we had 3 surveys of the area it could show how much movement there was which could tell us something about the movement of pottery in thin soils.
One iron spike was in both the pre-2007 and the 2017 Bartington surveys but not in the 2004 caesium survey. I would have been happy if 2004 and pre-2007 had agreed but not the 2017 and pre-2007. Whatever it was, it had to be beneath the plough soil. If it was that low down, it should have been detected in 2004.

So, I asked the Historic England Geophysics team when their Bartington survey took place. 2005. The front cover of the 2008 English Heritage Guidelines also shows the excavations there. This was in the summer of 2004 - before their Bartington survey (approximated in **fig. 1**).

It is hence a wonder that the Bartington survey found much in the excavated-away area at all. The responses will have depended on whether a chalky or a topsoil bit of backfill was in that area.

The extent of the excavations is probably most accessible by looking at the front cover of the English Heritage Guidelines. The report on the Danebury Environs Roman Programme is, according to the COPAC catalogue, rare in libraries. I suspect that librarians have been confused by the Danebury Environs Programme so think they already have it, or could be put off by the £150 price.

Fig. 2 shows the effect of removing the excavated area from the geophysics. That, in my view, would be a fairer comparison, although there is still a sensor height difference in favour of the caesium. It is for readers to decide if they can see much difference and whether it was fair to single out the caesium equipment for praise.

I like to think that the ferrous anomaly, which has enabled the date and extent of the intervening excavation to be questioned, was caused by a digger who gave up and threw their trowel into a post hole, having realised that they had spent their summer digging an unthreatened site where geophysics had already located most of the features. Perhaps they then found well paid employment which didn't involve destroying archaeological deposits. It may have been their greatest contribution to archaeology.

12th International Conference of Archaeological Prospection

The Organising Committee is pleased to invite you to take part in the 12th International Conference on Archaeological Prospection which will take place at the
University of Bradford, UK.

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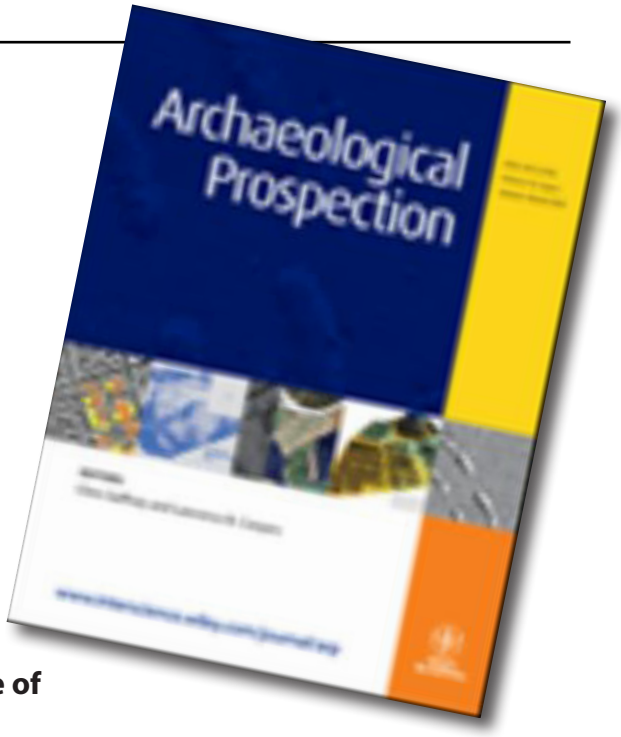

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