CPAT Report No 1026

Walton Palisaded Enclosure GEOPHYSICAL SURVEY AND EXCAVATION 2009-10





THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

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GEOPHYSICAL SURVEY AND EXCAVATION 2009-10

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Report for Cadw

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1 INTRODUCTION

- 1.1 The Walton Basin (Fig. 1) has long been recognised as an area of considerable significance in its grouping and variety of prehistoric monuments. The earliest evidence of activity is provided by Mesolithic and Neolithic flint scatters, concentrating in the centre of the basin, mostly along a low ridge, although it is the complex of large-scale Neolithic monuments for which this area is best known.
- 1.2 A programme of recent survey and excavation has now confirmed the presence of a causewayed enclosure at Womaston, dated to around 3600 BC, together with a potential cursus near Hindwell which appears to be of a similar date (Jones 2008 and forthcoming). There is also a second, undated cursus at Walton Green.
- 1.3 At the time of its construction the most impressive monument in the Walton Basin would have been the very large palisaded enclosure at Hindwell. Defined by closely set posts, the palisade enclosed an area of around 34ha, some 1400 mature oak trees having been used in its construction. To date, this is the largest Neolithic enclosure in Britain (Gibson 1999a, 155). A similar enclosure lies further to the south, at Walton, and is possibly associated with an avenue of pits. In the same area there is also a very large ring ditch, around 100m in diameter, which has been the subject of recent excavations, the results from which indicate that it may have been constructed around 2,600 BC (Jones 2010).



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Plate 1 The northern part of the Walton palisaded enclosure viewed from the east, also showing two of the Roman marching camps with the Walton Court large ring ditch beyond. Photo CPAT 86-c-107

1.4 As part of the on-going, Cadw-funded project investigating prehistoric funerary and ritual monuments, a programme of excavation and geophysical survey was undertaken in 2009-10 to investigate the palisaded enclosure at Walton. The site lies to the west and north of Walton village, between the Summergil Brook and Riddings Brook (Fig. 1; SO 25355986) at an altitude of approximately 189mOD. The soils in this area are generally deep, well-drained, fine loams with slowly permeable subsoils, largely comprising river gravels, overlying drift from Palaeozoic sandstone and shale (Rudeforth *et al* 1984).



Fig. 1 The prehistoric monument complex in the Walton Basin, showing the location of the Walton palisaded enclosure

1.5 The enclosure was discovered by J K St Joseph in 1975 (St Joseph 1980, 48-50) and consists of a curvilinear alignment of pits visible as individual cropmarks on aerial photographs. The cropmarks are only apparent in fields to the west of the B4357, curving southwards across the A44 and to the south-east as far as the Riddings Brook. The similarity with the Hindwell palisaded enclosure is clear and the cropmarks are likely to represent the western side of an enclosure measuring about 300m across, which is possibly associated with a double alignment of pits forming an avenue to the south-west. The presence of the pit avenue has drawn comparisons with Meldon Bridge, Peeblesshire (Burgess 1976; Speak and Burgess 1999). The site is overlain by two scheduled Roman marching camps (SAM Rad 138).



Plate 2 The northern part of the Walton Palisaded enclosure viewed from the south showing the position of the pit avenue (arrowed). Photo CPAT 94-c-283.

- 1.6 Trial excavation by the Clwyd-Powys Archaeological Trust in 1998 investigated an area measuring 11m by 9m immediately to the west of the B4357, identifying an oval pit *c*. 4.3m long and 2m wide, for a post 0.4m or more in diameter, with a post ramp to one side (Dempsey 1998). Unfortunately, the excavations failed to provide any satisfactory dating evidence: a sample of oak charcoal was recovered from the post-pipe, but this was regarded as unsuitable for providing a reliable radiocarbon date for the construction of the monument given uncertainties about the nature of the charcoal and the fact that it was from slow-growing wood.
- 1.7 Prior to this a programme of magnetometer and resistivity survey had been undertaken by Stratascan in 1995 in an attempt to define at least part of the enclosure to the east of the B4357, where cropmark evidence is lacking. The results for the magnetometry were rather disappointing owing to the nature of the underlying river gravels. However, the resistivity did produce a number of anomalies, from which an arc was projected as a best fit for the line of the palisade, although this was far from convincing.



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2 GEOPHYSICAL SURVEYS

Gradiometer survey

- 2.1 A magnetometer survey was undertaken by CPAT in November 2009 in a pasture field on the eastern side of the B4357. In part this involved resurveying an area investigated in 1998, although the methodology adopted was such that it gave a density of readings four times that of the original survey, which it was hoped might produce more satisfactory results. The survey used a Geoscan FM36 fluxgate gradiometer, based on grids measuring 10m by 10m, with intervals between the traverses of 0.5m metre. The speed of each traverse was controlled such that readings were taken every 0.25m.
- 2.2 Despite the increased density of readings the survey failed to identify either the arc of the palisaded enclosure, or the ditches associated with the Roman marching camp.

Caesium vapour magnetometry

- 2.3 A second geophysical survey was conducted by ArchaeoPhysica, on behalf of CPAT, in March 2010, covering a similar area to the gradiometer survey but utilising caesium vapour magnetometry which is considerably more sensitive to magnetic changes (Fig. 3; Lewis and Roseveare 2010). This technique had previously been employed with spectacular results on the site of the Hindwell Palisaded Enclosure in 1999 (Gibson 1999b) and it was hope that the Walton survey would meet with similar success.
- 2.4 The results were, however, somewhat inconclusive, not least because of the large number of pit-type features present, most of which are likely to be natural variations in the gravels. Careful analysis of the data has led to the tentative suggestion of two potential arcs of pits, one of which might indicate the perimeter of the palisaded enclosure, although this is far from certain and without the known alignment to the west of the road these anomalies would not have been recognised as potentially significant (Fig. 4). Nevertheless this is the only indication of the eastern side of the palisaded enclosure and we can only hope that further aerial reconnaissance will eventually either confirm these results, or produce more compelling evidence for a different alignment.
- 2.5 There is now a growing body of evidence from a number of geophysical surveys in the Walton area to suggest that negative archaeological features such as pits and ditches are extremely difficult to detect where they are cut into the natural river gravels. The successes at Hindwell are an exception and are likely to be entirely due to the posts having been charred before erection, thereby producing a marked magnetic contrast with the surrounding subsoil. The fact that the resistivity survey in 1998 was equally unsuccessful is perhaps a result of the pits having been backfilled immediately with the excavated material, allowing little potential for differences in the moisture content of the fill and the subsoil.



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Fig. 4 Interpretation of the caesium vapour magnetometry survey showing two possible arcs of pits, 3 and 11, which may be associated with the palisaded enclosure (after Lewis and Roseveare 2010).

3 EXCAVATION

- 3.1 The project had originally intended to excavate an area on the south-west side of the enclosure, at the junction with the pit avenue, in the hope of determining their relationship and relative dating. However, this field was under cereal during the wet summer of 2008 and the late harvest afforded no opportunity to mount an excavation before ploughing and reseeding. The only area then available for investigation was in the pasture field to the west of the B4357, immediately adjacent to the 1998 excavation.
- 3.2 An area measuring 5m by 5m, with a small extension on the west side, was excavated by machine in early March 2010, removing up to 0.35m of topsoil (1) and plough-disturbed subsoil on to the surface of the natural river gravels. The outline of a large, oval pit (5) was immediately apparent, aligned north-east to south-west, cutting into the natural gravels and infilled with stony orange-brown clay silts.



Fig. 5 Plan of the 1998 and 2010 excavations

- 3.3 The south-eastern half of the pit was carefully excavated, revealing a large post ramp around 3.6m in length and up to 1.5m deep, sloping at an angle of 23 degrees. At the north-eastern end of the pit was a substantial post pit about 1.1m in diameter and up to 2.05m in depth, with near vertical sides.
- 3.4 Within the post pit there was clear evidence for a post pipe between 0.65m and 0.7m in diameter, infilled with river gravel in a matrix of orange-brown clay silt (10). Two voids were noted against the north-eastern edge of the post pit, presumably formed by the impact of the post as it was erected, with gravel containing numerous flat stones (10) sealing the voids and

infilling around the post. The upper fill of the post pipe comprised an orange-brown clay silt (6), suggesting the presence of a weathering cone.

- 3.5 The ramp was largely infilled with a mixed deposit of gravel and clay silt (7) containing obvious tip lines which suggested that material had been initially deposited against the post to provide support before the remainder of the ramp was infilled. The upper 0.35m of the ramp was infilled by a stoney orange-brown clay silt (8).
- 3.6 The only artefactual evidence came from a single piece of good quality, but unworked flint (Find no. 109) from the fill of the post pipe (10). Although there was no evidence to suggest that the post had been charred, significant concentrations and individual lumps of charcoal were noted at various levels within the fill of the post pit and ramp, samples of which have been retained for identification and possible radiocarbon dating. Bulk soil samples were also taken from the fill of the post pipe and the infilled weathering cone for palaeoenvironmental analysis.



Fig. 6 Section AA showing the ramp, post pit and post pipe (10)

3.7 A deposit of clay silt in the south-western corner of the excavation and extending beyond its limits, may be part of another pit (3), although this was not investigated and its position does not conform to that of the next post pit as plotted from aerial photography. It is possible that this held a medial post, between the main uprights, similar to those found at Meldon Bridge (Speak and Burgess 1999, 15-16), although there was no indication of a similarly placed feature between the two excavated postholes.



Plate 3 The post pit and ramp excavated in 2010, viewed from the south-west. Photo CPAT 3045-0015



Plate 4 The post pit and ramp excavated in 2010, viewed from the south-east. Photo CPAT 3045-0015

4 **DISCUSSION**

- 4.1 The presence of two palisaded enclosures in close proximity is perhaps a measure of the significance of this part of the Walton Basin during the Neolithic. Less than a kilometre to the south of the better known example at Hindwell, and close to the village of Walton, a curving alignment of large pits forms part of a second palisaded enclosure extending for around 280m north to south, which may be associated with a pit avenue to the south-west composed of two parallel rows of pits fourteen pits around 12m apart and extending for 75m in length.
- 4.2 To date cropmarks have only identified the western side of the Walton palisaded enclosure, with an arc of individual pits extending south-westwards from the B4357, across the A44, and to within 25m of the present course of the Summergil Brook. Given an average spacing for the posts of around 6m, it follows that approximately 70 posts would have been required to form the perimeter of the enclosure, as identified from cropmark evidence. Despite geophysical surveys employing three different techniques there is still no conclusive evidence for the eastern side of the enclosure, although recent caesium vapour magnetometry has tentatively extended the arc of pits by around 60m. Excavations in 1998 and 2010 have demonstrated that the posts are not tangential to the arc, as one might expect, but are positioned in such as way that the posts are likely to have been erected in an anticlockwise sequence. The reason for this is uncertain, although it may be related to the direction from which the timber was being brought, construction starting at the furthest point so that the erected posts did not form an obstacle as work progressed.
- 4.3 Compared with Hindwell the Walton example has proved more difficult to identify, and trial excavations in 1998 and 2010 have failed to produce comparable material for dating. This is in part a result of the practice at Hindwell of charring the posts, presumably as a means of preservation. Consequently, the post pits have been far more responsive to magnetometry and the charred remains of the posts have provided an ideal source of charcoal for radiocarbon dating. It is tempting to suggest that the charring of the posts represents a technological advance and that the Walton enclosure may therefore be the earlier of the two, following the developmental sequence outlined by Gibson (see below). The Hindwell palisaded enclosure has also proved more receptive to cropmark formation as in most years the fields are under a cereal crop, whereas at Walton the eastern side in particular has at times been under pasture. An additional problem for the eastern part of the enclosure is the presence of a number of palaeochannels which, in dry summers, retain moisture longer than the surrounding area, preventing the formation of cropmarks.
- 4.4 The Hindwell palisaded enclosure in particular is a truly remarkable discovery, enclosing an area of 35ha, which makes it by far the largest such site in Britain (Gibson 1997, 23-7). In a European context the only larger, comparable enclosure is the early Neolithic example at Urmitz on the Rhine, near Koblenz (Gibson 1999a, 155-158). Two trial excavations have revealed that the monument at Hindwell consists of a perimeter formed by a series of intersecting post-pits, each with an attendant post-ramp. The postholes averaged 2m in depth and would have contained posts 0.8m in diameter, which may have stood at least 6m above ground (assuming that at least one third of the post height would have been buried). The remains of carbonised oak posts were found within the post-pits, from which radiocarbon dates were obtained of 2900-2800 or 2700-2220 BC, and 2880-2800 or 2780-2460 BC. The spacing of the posts indicates that there were three posts every 5m, so that with a circumference of 2.35km, over 1400 posts would have been required to complete the perimeter, which in places was formed by a double row of posts.
- 4.5 The limited excavations at Walton and Hindwell have failed to produce any significant artefactual evidence and there is no clear indication of any internal structures or evidence for activity, although the 1998 caesium magnetometry survey did identify numerous large pits, at least some of which could be archaeological. The original appearance of the enclosures also

remains uncertain as it is impossible to determine whether the posts were free-standing, with gaps in between, or whether horizontal timbers were used to form a solid barrier. Topographical and geophysical surveys were carried out over the Hindwell enclosure in 1998, but these revealed no evidence of surviving earthworks (Gibson 1999b).

- 4.6 There is no indication as to whether either enclosure was constructed in a single season, although it is clear that both, but Hindwell in particular, would have required significant manpower to fell, shape and transport the timber, as well as to excavate the post pits and erect the posts. Consequently, it may be presumed that some form of contemporary settlement should be present within the immediate area. It is interesting that on neither site has geophysical survey identified potentially significant areas of burning which might be associated with domestic hearths or fires, or indeed for larger fires at Hindwell which might have been used to char the base of the posts. This could suggest that even during their construction the internal spaces were regarded as 'special', or at least separate from day to day life.
- 4.7 Both enclosures have some relationship with other monuments. At Walton there is a small ring ditch within a few metres of the south-west side of the enclosure, and there are two Roman marching camps overlying the northern part of the monument. At Hindwell there is evidence from the 1998 geophysics for part of the Hindwell cursus extending into the western end of the enclosure, immediately to the north of the entrance. Radiocarbon dates suggest that the cursus may predate the enclosure by around 900 years. There are also two round barrows within the enclosure, which is also overlain by the Hindwell Roman fort and a marching camp. To the east of the enclosure is a large, undated, triple ditched enclosure, and to the west are two smaller enclosures, which are also undated.
- 4.8 Gibson (1999a, 155) divides the Neolithic palisaded enclosures of Britain into three types based on construction techniques, although evidence from the small sample of sites which have been dated suggests an early form of smaller, fenced examples, such as Lyles Hill and Donegore in Co. Antrim, and Orsett in Essex, dating to the Early Neolithic, which morphologically belong to Gibson's Type III.
- 4.9 Type I sites, which may by Early Neolithic in date, are defined by a perimeter of individual posts, each set within their own post pit, as at Walton, with other examples at Meldon Bridge in Peeblesshire, Forteviot in Perthshire, Dungrait in Dumfries, Newgrange in Co. Meath, and Ballynahatty in Co. Down. Type II have a perimeter of closely spaced postpits, as at Hindwell, and also Greyhound Yard, Dorchester, Dorset, and appear to have been constructed just before 2500 cal. BC. Finally, Type III have the timbers set within a bedding trench and are likely to be slightly later in date than Type II. They include West Kennet I and II in Wiltshire, Mount Pleasant in Dorset, and Knowth in Co. Meath (Gibson 1999a, 155-6). However, excavations at Marne Barracks in Yorkshire in 2004 identified a palisaded enclosure which does not readily fit into the above typology, being formed by a two concentric circuits, each of which is composed of double posts, which has been dated to 2530-2310 cal. BC (Hale *et al* 2009).
- 4.10 On the basis of existing evidence the Walton palisaded enclosure is perhaps most similar to the site at Meldon Bridge, Peeblesshire (Burgess 1976; Speak and Burgess 1999), in that both appear to have associated pit avenues and may also have utilised watercourses to form part of the circuit. The plan of the Meldon Bridge enclosure, however, is rather more irregular in comparison to the curving arc of pits defining the Walton enclosure (see Fig. 7).
- 4.11 With the exception of Hindwell, which encloses 35ha, the average area encompassed by British palisaded enclosures is around 4.5ha, although in many cases the size of the enclosure must be estimated as the plans are incomplete. It is generally accepted that these enclosures were not defensive in nature, nor were they intended to hold stock, and a ceremonial purpose has therefore been assumed. Although there is currently no evidence for internal features at

Walton, other sites have produced a range of structures which could be associated but lack conclusive dating. There is a double-post circle within the Ballynahatty enclosure, a penanular ring-ditch surrounded by a timber circle at Forteviot, ring ditches at West Kennet, a multiple timber circle at Mount Pleasant and a group of 12 post-holes at Marne Barracks. Perhaps significantly, none of these features are place centrally within the enclosures (Hale *et al.* 2009, 281-6).



Fig. 7 Comparative plans of the palisaded enclosures at Walton and Meldon Bridge

4.12 It must be hoped that future aerial reconnaissance may prove successful in identifying further elements of the Walton palisaded enclosure, while the potential for radiocarbon dating raises the possibility of placing one of the major monuments within the Walton Basin in its true context with respect to the neighbouring archaeology.

5 ACKNOWLEDGEMENTS

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