ISSN 0306-6924

# Archaeologia Cambrensis

VOLUME 166 (2017)

Cymdeithas Hynafiaethau Cymru
Cambrian Archaeological Association

*Archaeologia Cambrensis* 166 (2017), 141–173

# Excavations at Castell Mawr Iron Age hillfort, Pembrokeshire

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*Castell Mawr is a small hillfort in the community of Eglwyswrw, Pembrokeshire. Thought to have been built on a Late Neolithic henge, it was investigated with four trenches in 2012–13. These excavations revealed that Castell Mawr's main period of construction and use was in the Earliest/Early Iron Age during the late eighth–late fifth centuries BC with hints of an earlier human presence on the hilltop in the Late Mesolithic and Bronze Age. No definite evidence of any Neolithic activity was found, however, and the earthworks all date to the Iron Age. The hillfort's Iron Age sequence started with a roundhouse, followed by a pair of concentric timber palisades built during the late eighth–late fifth centuries BC. An enclosing rampart was constructed around the hilltop, followed by a cross-bank. The final activity post-dating the cross-bank dates to the fifth century BC, slightly earlier than or contemporary with initial construction at nearby Castell Henllys. The Castell Mawr/Castell Henllys sequence confirms Murphy and Mytum's (2012) model for long-term processes of settlement development in west Wales.*

## INTRODUCTION

Castell Mawr is a small hillfort of 2 hectares, situated on the crest of a gently rounded hill (at SN 11875 37768) above the confluence of the river Nevern and the Afon Brynberian in the community of Eglwyswrw, Pembrokeshire.[10] The hill reaches 149m above Ordnance Datum and commands views of the lower ground for some distance around including over the nearby promontory forts of Castell Henllys (Mytum 2013), Castell Llwyd and Cwm-pen-y-benglog (also known as Allt-y-Castell), as well as the coast and river mouth at Newport, but is ultimately overlooked by the slopes that lead up to Carn Meini some 5 kilometres to the south-west and Carn Ingli a similar distance to the west (Fig. 1). The underlying geology of Castell Mawr is Ordovician mudstone of the Drefach Group and tuffs.

Previous investigations and reviews of the hillfort include a geophysical survey in 1988 (Mytum and Webster 2003), a survey of its condition (Murphy *et al.* 2007) and a synthesis of existing information by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) (Wiles 2008). Mytum and Webster (2003, 2) suggested that the site was initially 'a Late Neolithic or Early Bronze Age hengiform enclosure, partially reused in the Iron Age or Romano-British period by an enclosed farmstead in the eastern part of the interior'. Wiles refers to the discovery of flints within the enclosure as potential support for the site as a Neolithic henge. Gibson (2012, 117) has identified Castell Mawr as a Class 2 henge, reused in the Iron Age, in his review of Neolithic henges in Wales.

The possibility that Castell Mawr might have initially been constructed as a Neolithic henge led to a research programme of earthwork and geophysical survey and excavation of this site in 2012–13 by the Stones of Stonehenge project. The hillfort lies close to two sources of Stonehenge bluestones, one almost

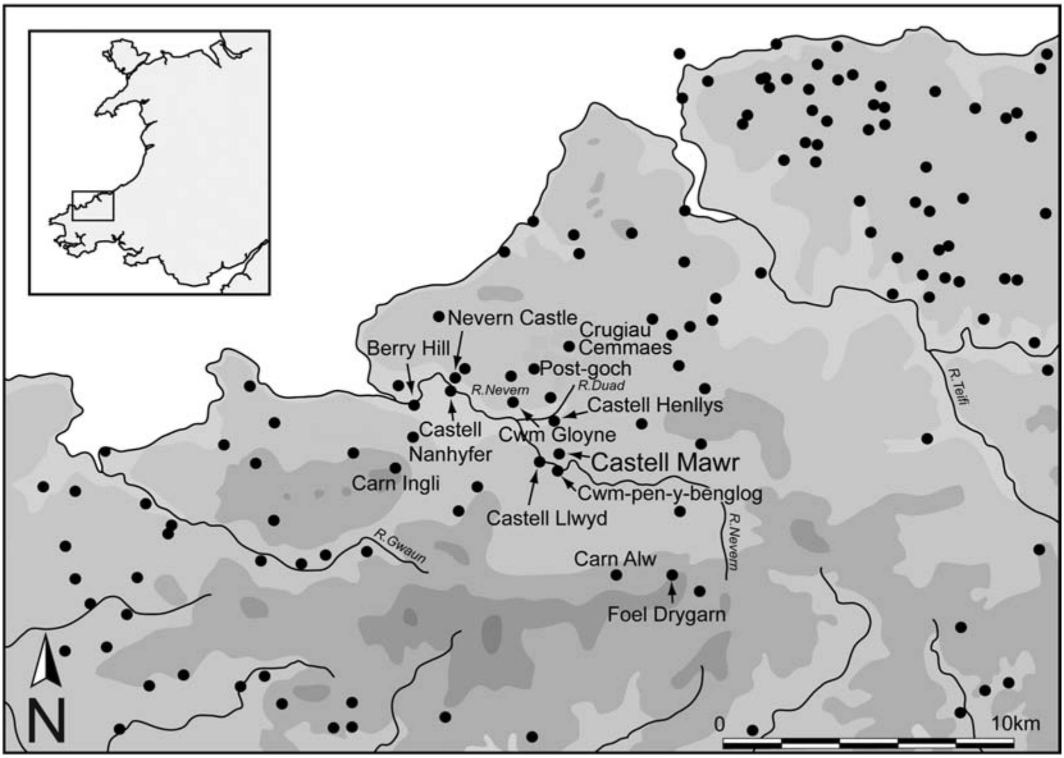


Fig. 1. Location map of Castell Mawr, showing other enclosed sites of known or suspected Iron Age date. Named sites are those mentioned in the text or otherwise major sites. *Drawing by Irene Deluis after Mytum 2013*.

4 kilometres to the south at Carn Goedog (Bevins *et al*. 2013) and the other just a mile away to the south at Craig Rhos-y-felin near Pont Saeson, Nevern (Pembs.) (Ixer and Bevins 2011; Parker Pearson *et al*. 2015). Thus it was thought that identification of a Neolithic henge beneath the earthworks of the hillfort might shed light on the social and economic context of the locality from which many of Stonehenge's bluestones were sourced.

## EARTHWORK SURVEY
By David Field and Rebecca Pullen

In plan the enclosure is slightly ovoid or rather cordate, the long axis, oriented west to east measuring 167m, while north to south is only a little less at 160m (shown in the new earthwork survey presented in Fig. 3). North and south halves of the enclosure mirror each other and consequently it is considered that the form is deliberate rather than an accident of layout or the result of the influence of topography.

The enclosure boundary comprises a wide, shallow ditch with bank within, supplemented by an external bank or considerable counterscarp. The ditch (*c*. 5m wide) today is just over 0.5m deep, but must have been considerably deeper. The bank (up to 10m wide) is generally separated from the ditch by a berm.

Fig. 2. Aerial view of Castell Mawr from the west. *Photograph: Toby Driver, 2012, © Crown copyright, Royal Commission on the Ancient and Historical Monuments of Wales*.

Internally, the bank commonly reaches a height of *c.* 0.2m although it achieves 0.5m in places. A further bank or wall sits on top of the bank's lower element.

The outer bank or counterscarp is up to 14m wide and up to *c*. 3m in height, but this also comprises a bank of varying proportions surmounted by at least one phase of walling. The impression of height is enhanced by an external step caused by ploughing which reaches over 0.5m in places around the monument. Despite this, and the fact that it is located slightly further down a natural slope than the inner, the outer bank retains a similar height and its greater volume gives it greater emphasis.

An apparently original entrance lies in the east (a), but is blocked by a later enclosure wall. In two other locations in the north (b) and west (c) the surmounting wall is freestanding—that is, it does not overlie a bank—and these points may also mark former entrances or gaps in bank construction. That in the west disappears beneath the later wall for some 40m and, although later digging obscures the ditch here, this could have marked an entrance in the west referred to by the Royal Commission (RCAHMW 1925, 225). There are also two modern entrances: one in the north-west and the other in the south.

The ditch appears to have been recut for there are no causeways at the entrance(s) and the only access across it is via a narrow, almost 2m-wide causeway in the south-east (d). This, however, is not original as it is matched by gaps that cut through the banks at this point.

The interior, comprising *c*. 1.3 hectares and measuring 130m north-to-south by 130m east to west, is divided into unequal parts by a generally north-to-south but curving cross-bank and ditch. This has straight elements at its limits but curves westwards to skirt the highest ground. Like the enclosure ditch,

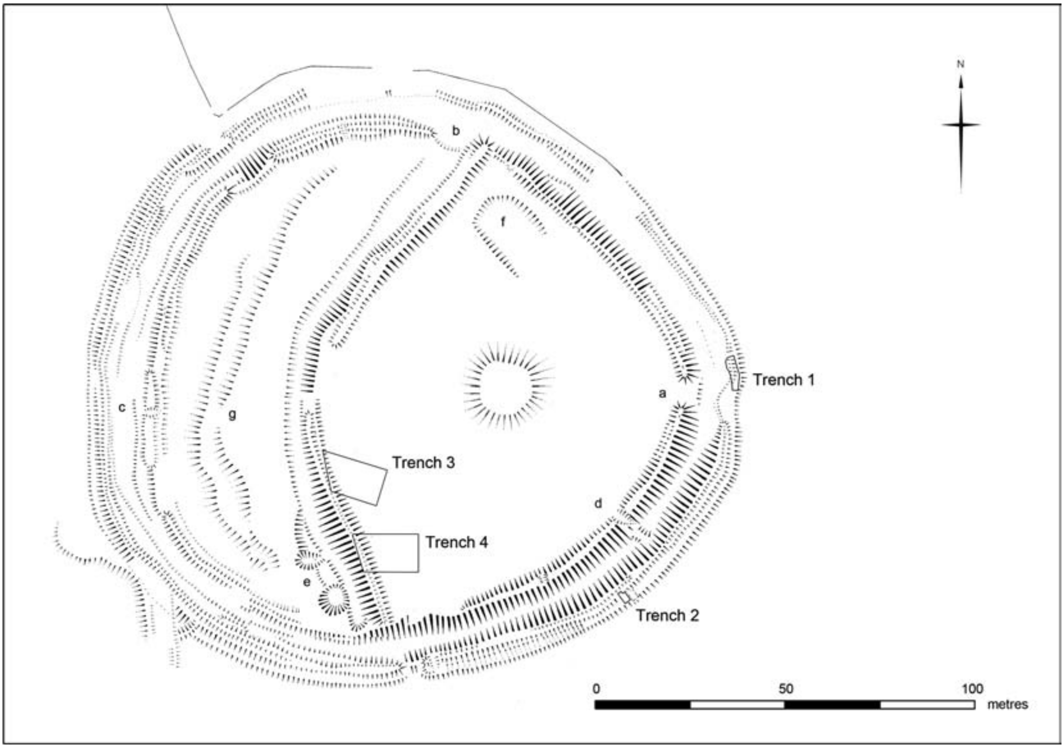


Fig. 3. Earthwork plan of Castell Mawr, showing the locations of Trenches 1–4 and areas (a–j) referred to in the text. *Drawing by David Field, Becca Pullen and Kate Welham*.

this cross-bank ditch is relatively shallow (up to 0.5m deep and little more than 5m wide). The adjacent bank is up to 5m wide and over 2m high in places, topped by a wall that enhances the impression of height. The ditch terminates almost 1.5m from the enclosure ditch in the south and, although not visible at this point, it may have respected the inner bank of the enclosure. In the north, the ditch flares out into the enclosure ditch effectively cutting through the bank at that point, indicating that the cross-bank was a later construction. The bank appears to be continuous, inhibiting passage from one part of the hillfort's interior to the other.

Two small quarries, little more than 1m deep, have been cut into the southern end of the cross-ditch (e). One is 7.5m in diameter and the other 7.5m by 5m. Tucked away in a corner of the enclosure, their use is likely to have been entirely local and related to activities within the enclosure.

The central area is slightly raised by *c*. 0.1m which, particularly in view of the evidence provided here by geophysical survey and excavation, is likely to represent post-medieval agricultural activity. In the north, within the angle of the enclosure bank and the cross-bank, a shallow, sub-rectangular hollow, 20m by 15m (f), may represent the site of a structure or stockyard.

In the western part of the interior, two shallow plough scarps *c*. 0.1m–0.2m high run north to south (g) for *c*. 60m then curve to the south-east. They appear to have levelled an earlier feature, perhaps a bank or platform. It is worth noting that the palisade recorded in the magnetometer survey (below) extends into this area while earth resistance indicates the potential presence of anthropogenic activity.

Externally, south-west of the enclosure, a modern field boundary approaches from the south and abuts the earthworks. Stone clearance has resulted in construction of a piled wall across the angle that may have provided a recent sheep shelter. A scarp, less than 5m to the west of the modern field boundary and mirroring its course indicates that the boundary itself may be of some antiquity, while its line leads slightly northwest to a curvilinear scarp that marks the edge of a platform with a radius of *c*. 20m. It is worth noting that the magnetometer survey (below) located a potential drip gully in this area.

In conclusion, the enclosure's cordate form, with symmetrical halves, appears meaningful in design and was possibly intentional. The fact that the outer bank has been built to a similar height as the inner despite the fact that it lies further downhill is undoubtedly significant and seems unlikely to be a defensive measure. The east-facing entrance may have been a significant component of the plan. Yet it does not provide access from any natural routeway, for the easiest access would have been from the north where field boundaries and lanes lead from springs around Castell Henllys. Should the anomaly noted in the west prove to be an entrance, it would provide an opposing cardinal partner.

At least three phases can be picked out from among the earthworks:

1. The earliest phase is the outer enclosing earthwork.
2. The internal cross-bank was secondary to this enclosure.
3. The wall surmounting the outer enclosure blocks the only certain original entrance and is of post-medieval date (see below).

## GEOPHYSICAL SURVEY

By Kate Welham and Charlene Steele

Magnetic and earth resistance surveys were conducted in September 2012 (Welham and Steele 2012). Magnetic survey was carried out using a Bartington Grad601 Single Axis Magnetic Field Gradiometer System (fluxgate gradiometer) with dual 1m Grad-001-1000L sensors over 20m by 20m grids with readings taken at 0.125m intervals along traverses spaced 1m apart, at a resolution of 0.1nT. Earth resistance survey was conducted over 20m by 20m grids using a Geoscan RM15-D resistance meter and a PA5 multi-probe array frame in the 0.5m configuration.

### Magnetometry

There are a number of linear positive magnetic anomalies to the north-east of Castell Mawr which are most likely associated with previous field boundaries or a possible enclosure (Fig. 4, top). A positive magnetic linear anomaly to the east of the Castell is of a difference alignment to the existing and previous field boundaries, which may indicate that it is a prehistoric, geological or agricultural feature. It is unclear whether this anomaly is related to a series of positive magnetic anomalies indicative of pits or negatively cut features adjacent to the bank of the Castell, near the eastern entrance. In the south-west of the survey, a circular positive magnetic anomaly 6m in diameter, may represent the drip gully of a small roundhouse.

The positive-negative magnetic anomaly encircling the Castell is most likely caused by the effects of the rising ground associated with the external bank. A similar, but weaker, response can be seen in the interior, where the survey area has approached the small interior bank and the cross bank. Within the eastern section of the Castell interior are a number of curvilinear, weakly positive anomalies (found on excavation to be palisade slots) concentric to the ditch and bank. The outer palisade slot extends into the western half of the Castell.

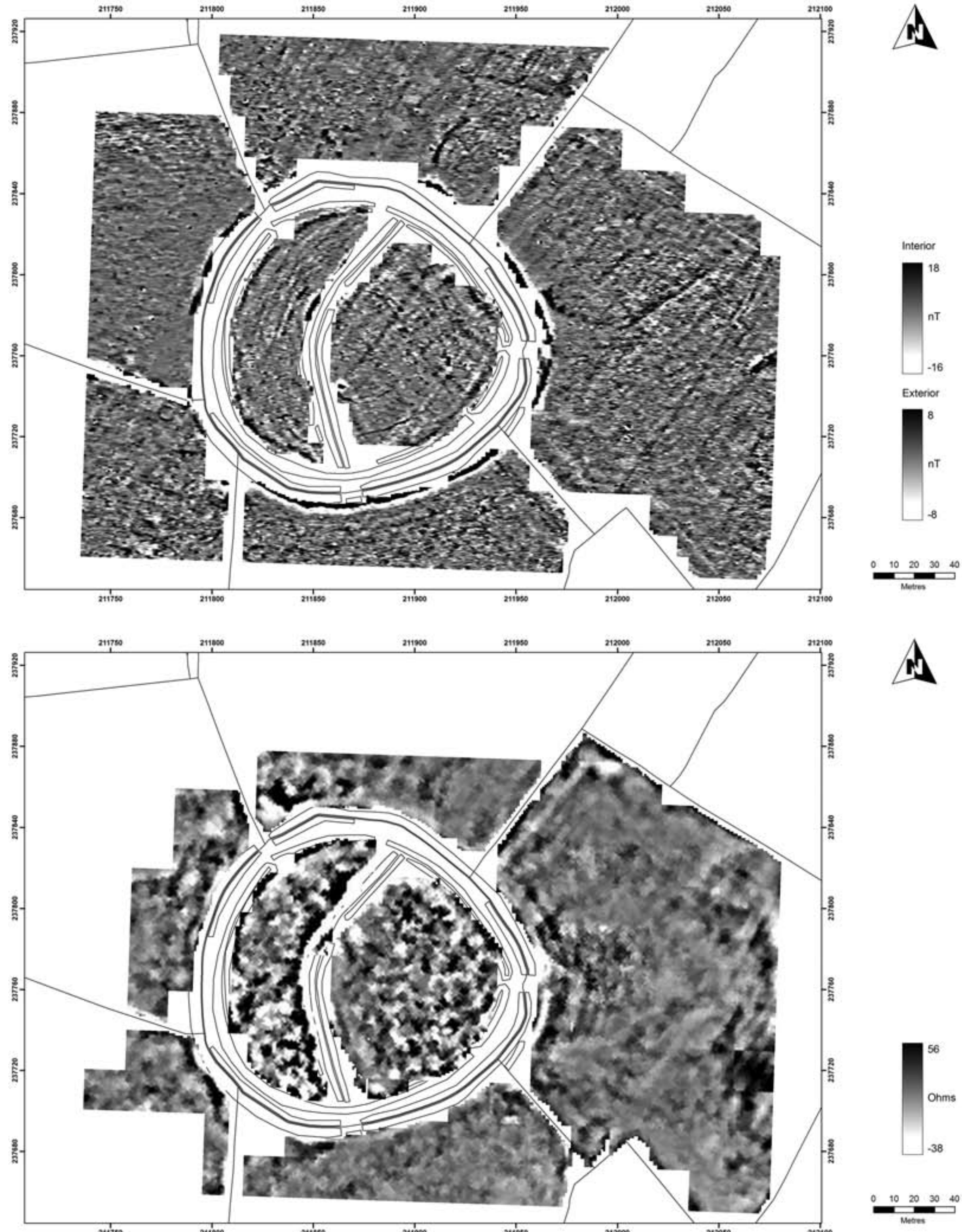


Fig. 4. ***Top*** Enhanced magnetometer plot (de-striped, de-spiked, clipped and interpolated) of Castell Mawr. ***Bottom*** Enhanced earth resistance plot of Castell Mawr. *Produced by Charlene Steele and Kate Welham*.

**Earth resistance**

Adjacent to the eastern entrance of Castell Mawr are several curvilinear anomalies which may be indicative of an external ditch with a causeway, and defensive banks protecting the entrance to the interior (Fig. 4, bottom). However, these anomalies could be entirely the product of past agricultural practices. There is further tentative evidence for a partial external ditch surrounding the Castell in the form of low resistance curvilinear anomalies contiguous with the course of the exterior bank (as detected in Trench 2, see below). The interior cross-bank exhibits a clear high-resistance response along most of its circuit. The ditch on the west side of the cross-bank shows as a curvilinear area of low resistance. A patchy area of low resistance immediately west of it is either a natural feature or indicative of anthropogenic activity. The greater level of disturbance within the hillfort, in comparison with the surrounding fields, is likely to be due to increased anthropogenic activity within the enclosure.

## ARCHAEOLOGICAL EXCAVATION

Excavations took place in two stages:

- excavation in September 2012 of the external face of the hillfort's outer rampart at two locations (Trenches 1 and 2) where the earthwork was suffering erosion by cattle poaching, in order to date the rampart's construction,
- excavation in September 2013 of two trenches (Trenches 3 and 4) within the hillfort's interior to investigate the concentric anomalies found on excavation to be palisade slots where they intersect with the internal cross-rampart, in order to date this part of the hillfort's sequence and characterize any archaeological features in this part of the enclosure.

**Trench 1 north of the east entrance**

A short section of the external bank, 9m long and 1m high, was cleaned of topsoil (001), mixed deposits of grey-brown bank slip (007) and intrusive root holes, down to the top of the natural mudstone subsoil (Figs 5–6). A small 0.5m-wide slot was cut into the rampart and buried soil at the north end of the trench to sample for optically stimulated luminescence (OSL) dating (see location on Fig. 6).

The orange mudstone that forms the subsoil (005) was covered by a buried soil of reddish-brown hue (004) which could be divided into a relatively stone-free A-horizon about 0.07m thick and a B horizon about 0.10m thick.

On top of the buried soil lay the primary rampart of redeposited orange mudstone (002), about 0.5m high. The only artefact from this layer was a flint core (Fig. 18, SF1). An OSL date of 3380–1590 BC (X5450; 4495±890 BP) from layer 002 raises possibilities of this being a Neolithic rampart but two dates of 740–180 BC (X5451; 2470±275 BP) and 70 BC–AD 250 (X5452; 1925±155 BP) from the buried soil (004) beneath would suggest that this rampart was constructed during the Iron Age. The latter OSL date in the Late Iron Age can be rejected since it is later than the radiocarbon date from the stratigraphically later layer 129 in Trench 3 which post-dates the construction of the cross-bank (see below).

Two layers of light brown, stony fill were found to lie on top of the primary rampart layer 002. One of these was located at the south end of the trench (layer 003) and has extended the north terminal of the rampart so as to narrow the east entrance. It contained two large blocks of stone. The other, a light brown layer (006), sits on top of layer 002 at the north end of the trench; it forms the foundations for a stone-built field wall constructed along the top of the rampart. An OSL date of AD 1500–1870 (X5449; 330±180 BP) from this layer confirms that this is a post-medieval wall.

Fig. 5. Trench 1 during excavation, viewed from the south-east. Scales 1m.
*Photograph by Mike Parker Pearson*.

**Trench 2 south of the east entrance**

Trench 2 was located about 70m south of Trench 1, and about 60m from the east entrance of the hillfort. In contrast to conditions within Trench 1, the erosion scar caused by cattle poaching was narrow so the trench was only 1m wide (Figs 7–8). However, the rampart is considerably higher (2m high) and steeper than encountered in Trench 1 (Fig. 9).

The subsoil in Trench 2 is completely different to that in Trench 1, being a soft yellow-orange sand (1009) on top of volcanic tuff bedrock. An OSL date from the subsoil dates its formation to 16,460–11,710 BC (X5448; 16100±2370 BP). The reddish-brown buried soil (1008) is similar in colour to that in Trench 1 but is softer and sandier. An OSL sample from this buried soil dates to 570–160 BC (X5445; 2380±200 BP). The primary rampart (1007) is constructed of medium-sized stones and yellow sand. Above it, a series of sequential layers of yellow and orange sand (1004–1006) constitute the secondary rampart. Layers of topsoil (1001) and brown soil (1002) cover the rampart along its top, where the remains of a field wall survive. It is clear that the secondary rampart was already a substantial earthwork prior to the field wall's construction, and is not a product of the rampart's reuse as a hedge bank (contra Wiles 2008). There is also a layer of displaced yellow-grey soil (1003) that has tipped down the exterior face of the rampart.

In contrast to Trench 1, there is evidence here of an external ditch (1010) around this part of the hillfort, which is corroborated by results from the geophysical survey. Only the three upper fills of this ditch were investigated. The lowest of these were two layers of brown loam (1013 under 1012) beneath dark brown

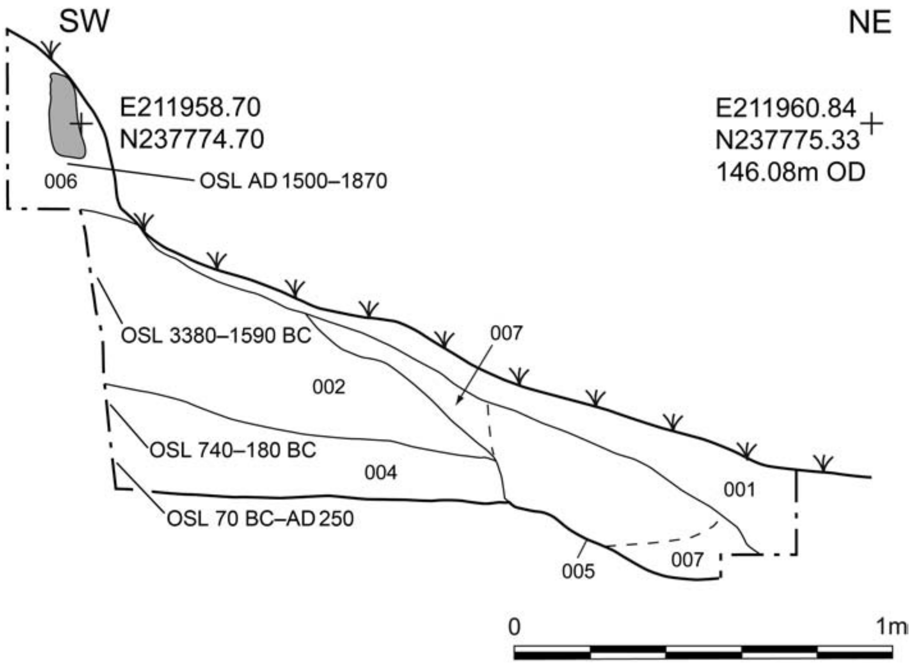


Fig. 6. Section through the northern edge of Trench 1, cutting through the outer edge of the hillfort's outer rampart. *Drawing by Irene Deluis*.

loam (1011). This last layer lay directly beneath an ancient ploughsoil (1014) which produced an OSL date of 810–300 BC (X5447; 2570±250 BP).

In summary, the ditch (1010), likely to be less than 3m wide, was dug close against the rampart, virtually cutting into the primary rampart deposit (1007). It was secondary to the primary rampart, and its upcast is likely to be the yellow-orange sand deposited as the secondary rampart (1004–1006). In contrast, the stony primary rampart (1007) is likely to derive from a potentially much deeper ditch, namely the *c*. 5m-wide internal ditch of the hillfort. Thus the rampart started as a henge-like construction, with the bank on the outside of the ditch, before the partial and smaller outer ditch was dug.

**Trenches 3 and 4**

In 2013 two 15–18m by 10m trenches were excavated within the southern part of the hillfort's interior on top of linear features identified as concentric palisade slots by the magnetometer survey. The western end of each trench was positioned across the western half of the cross-bank so as to examine the stratigraphic relationship between both sets of features. Trench 3 was the northernmost, examining the 55m-diameter palisade slot, and Trench 4 was the southernmost, examining the 97m-diameter, outer palisade slot.

Excavation of Trenches 3 and 4 commenced with excavation of 12 test pits (six arranged on a systematic grid in each trench) in order to establish the density of any flints or other artefacts within the 0.23–0.40m-deep ploughsoil. The ploughsoil in each test pit was sieved through a 10mm mesh. Despite records of flints being collected from the surface of the field in the past, the only find was an unmodified flint pebble. The lowest 0.05–0.1m of this topsoil consisted of a thin layer of mid to dark brown clay silt (171) within the base of the ploughsoil.

Fig. 7. Trench 2 during excavation, viewed from the south-east. Scales 1m.
*Photograph by Mike Parker Pearson*.

The ploughsoil and the topsoil on top of the cross-bank were removed by machine, except where the palisade slots' upright packing stones protruded into the plough zone; the ploughsoil above each palisade slot was removed by hand to avoid damage to the protruding packing stones.

The palisade slots and other features were excavated by hand, mostly with 50% of their fills being excavated and the other half left undisturbed. All soil from excavated feature fills was collected for environmental sampling, to ensure an appropriately large suite of carbonised plant and wood remains for palaeobotanical analysis and radiocarbon dating. A few features, such as the pit (120) for a possible robbed-out standing stone, were fully excavated.

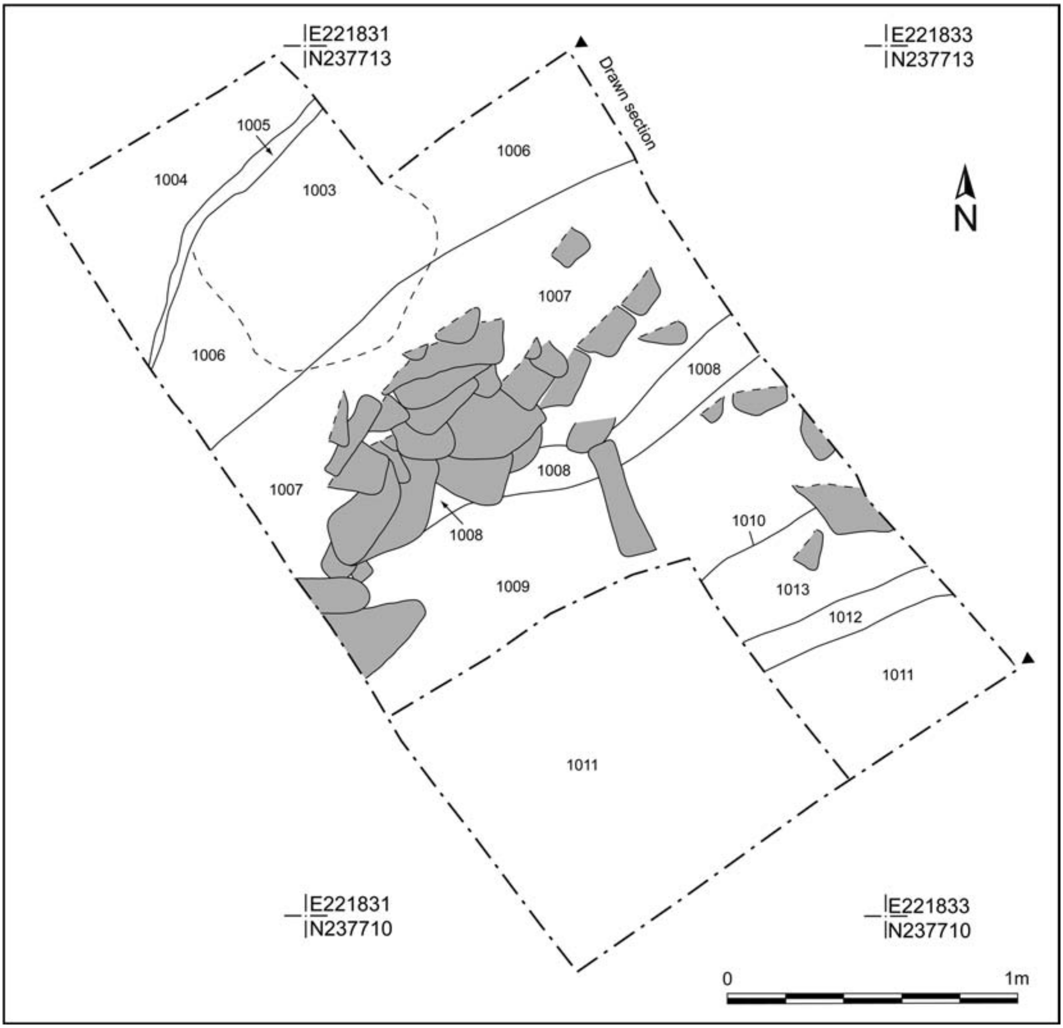


Fig. 8. Plan of Trench 2, showing the position of the section recorded on its east side.
*Drawing by Irene Deluis.*

**Trench 3: the inner concentric palisade slot**

The magnetometry plot shows that the inner concentric palisade slot circle bifurcates in two places. Excavation of one of these bifurcations in Trench 3 revealed that the palisade slot actually consisted of two phases, the later one (102) cutting an earlier circuit (104/106; Figs 10–11). Both palisade circles shared the same diameter of *c*. 55m but the centre of the later one (102) was positioned a few metres east of palisade slot 104/106's centre. Other significant features in Trench 3 included a large rectangular pit (153/156) and a well-preserved stretch of the cross-bank's stone-walled rampart (110).

*A deposit pre-dating cut features in Trench 3*

All deposits within both Trench 3 and Trench 4 lie on top of mudstones and their associated subsoil. In the western third of Trench 3, these were covered by a relatively stoneless brown-red clay silt (168),

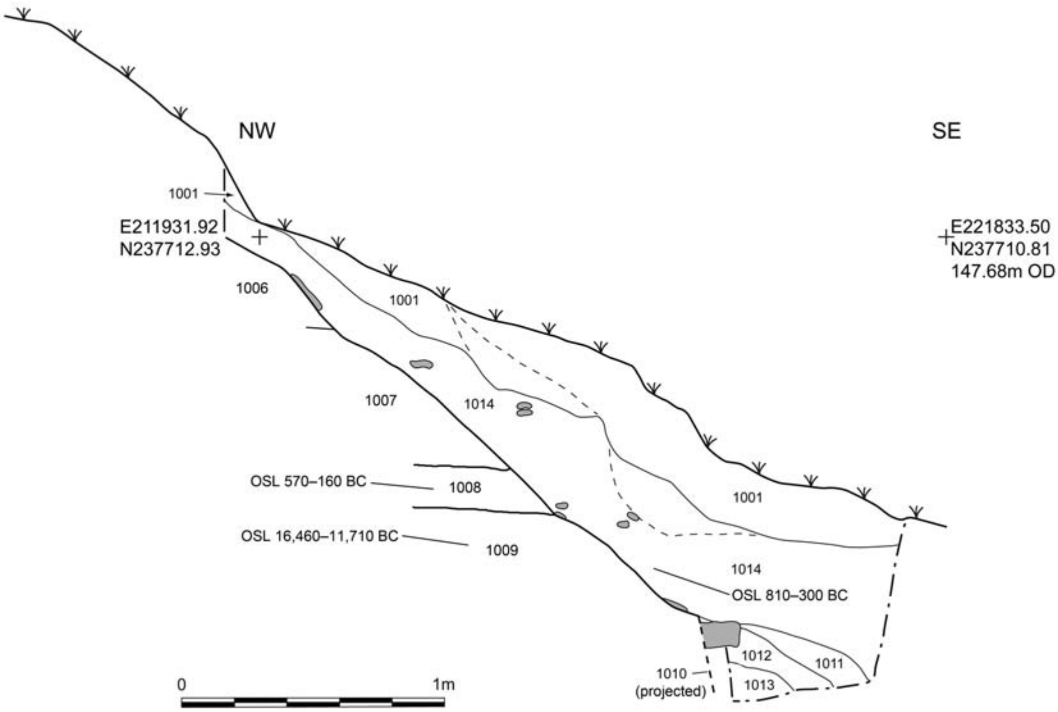


Fig. 9. Section through the northern edge of Trench 2, cutting through the outer edge of the hillfort's outer rampart. *Drawing by Irene Deluis*.

probably within a natural hollow, which contained flecks of carbonised wood and was earlier than all other features. Its depth was not established but carbonised oak (*Quercus* sp.) wood from this layer produced a date of 2290–2050 cal. BC (OxA-30510), making it likely to be the earliest deposit detected on the hilltop.

*The palisade slots and a roundhouse's penannular ditch*

Palisade slot 104/106 was 0.30m wide and 0.30m deep, filled with red-brown friable loam (103/105) and packed with stones (average size 0.25 × 0.15 × 0.05m), most of them placed on edge.

This palisade slot pre-dated palisade slot 102, as did a 7m-diameter penannular post-trench (108) and gully (174) for a roundhouse (Figs 11–12). Post-trench 108 (0.20m wide and 0.22m deep) contained occasional packing stones placed on edge within dark red-brown fill (107). It was set within a wider, curving, irregular gully (174), up to 1.3m wide and 0.25m deep, filled with grey-brown silt and small stones (173) which appears to have been a cut feature to contain the post wall. Roundhouse wall-trench 108 continued beyond the north edge of Trench 3 but probably re-emerged into Trench 3 as a 2m-long gully (164), 0.4m wide and 0.36m deep (Figs 11–12), filled with light brown clay-silt (163). The gully's terminal contained a posthole, and small stones placed on edge within the gully are probably packing for other, smaller posts.

Palisade slot 102 (0.60–0.70m wide and 0.37m deep) was filled with dark red-brown friable loam (101, 123 and 133) and was packed with stones (average size 0.3 × 0.2 × 0.05m), mostly placed on edge. One

Fig. 10. Aerial view of Trench 3, viewed from the north. *Photograph by Adam Stanford*.

of them is a hammer stone (Fig. 18, SF15). Carbonised roundwood of *Prunus* sp. from layer 101 provided a radiocarbon date of 760–400 cal. BC (SUERC-68383).

The soil micromorphology and soil chemistry of a single sample (from the post-pipe fill within the later inner palisade slot (101) in Trench 3 (location shown on Fig. 11) was analysed by Richard Macphail and John Crowther (Macphail and Crowther 2014). These analyses suggest middening from concentrated human occupation, with high phosphate levels and tissue fragments that could derive from faecal material of human and/or pig origin.

*Other cut features in Trench 3*

Pit 162 was circular and concave in profile, 0.5m in diameter and 0.18m deep, filled with brown–grey silty clay (161), burnt cobble stones and a burnt fragment of a stone artefact (Fig. 18, SF39). Pit 160 was sub-circular and flat-bottomed, 0.94m in diameter and 0.1m deep, and filled with red-brown clay silt and stones (130). *Prunus* sp. roundwood from this pit fill produced a date of 780–540 cal. BC (OxA-30511).

Pits 160 and 162, in the north-west part of Trench 3, were sealed beneath a layer of red-brown sandy clay and stones (159) that lay beneath the cross-bank. Close to the eastern edge of Trench 3, pit 150 was circular and concave in profile, 0.48m in diameter and 0.29m deep, filled with red-brown silt (149).

*Rectangular pit 153/156*

Within the centre of the area enclosed by the penannular ditch (106), there lay a sub-rectangular, flat-bottomed pit (153/156), 3.9m east–west by 1.2m north–south and 0.5m deep (Figs 11, 13). Its lowest fill (166/155) was a 0.29m-deep deposit of burnt stone fragments and large chunks of carbonised wood.

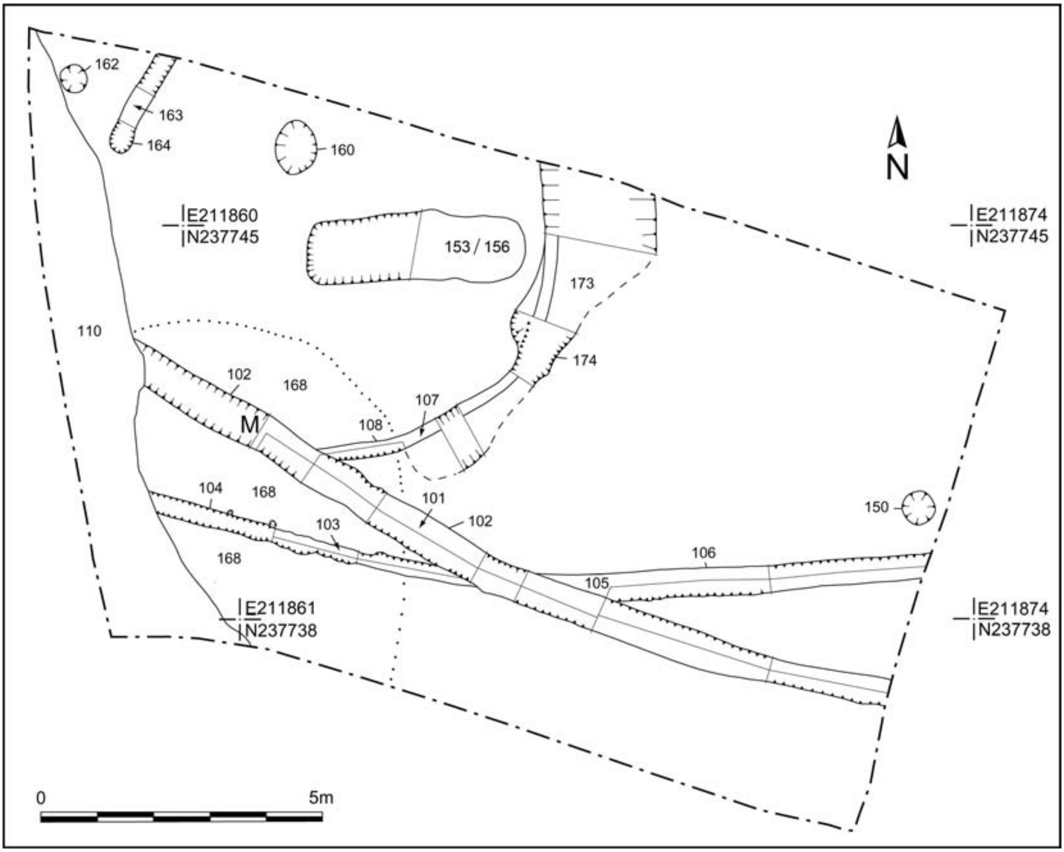


Fig. 11. Plan of Trench 3, showing the excavated features; 'M' marks the position of the soil micromorphology and soil chemistry sample. *Drawing by Irene Deluis.*

A fragment of elm (*Ulmus* sp.) charcoal was radiocarbon-dated to 370–110 cal. BC (SUERC-68384). Most of the stones were relatively large (0.35 × 0.15m) and derive from a variety of sources including river cobbles as well as angular rocks. All but the eastern end of layer 166 was covered with a deposit of yellow-brown clay silt (165) with stone fragments, most of them burnt. The top of the pit was filled with dark red-brown silt and small stones (layers 152 and 154). The sequence of deposits reveals that this feature was filled with branches and twigs that were set on fire and then covered with quantities of large stones that were burnt *in situ* by the fire. Most of these stones settled en masse on top of the burnt wood, compressing it against the base and sides of the pit to create a reducing atmosphere in which the wood became charcoal. Its only finds were a small quartz flake (SF25) from layer 166 and a notched stone plate (Fig. 18, SF31) from layer 152.

*The cross-bank rampart*

In Trench 3, the cross-bank rampart consisted of a drystone wall-face (110) standing to four or five courses and built against a wall core (111) of small stones (0.1 × 0.1 × 0.02m on average) within a thin matrix of yellow-brown silt. These were constructed on top of a layer of red-brown sandy clay and stones

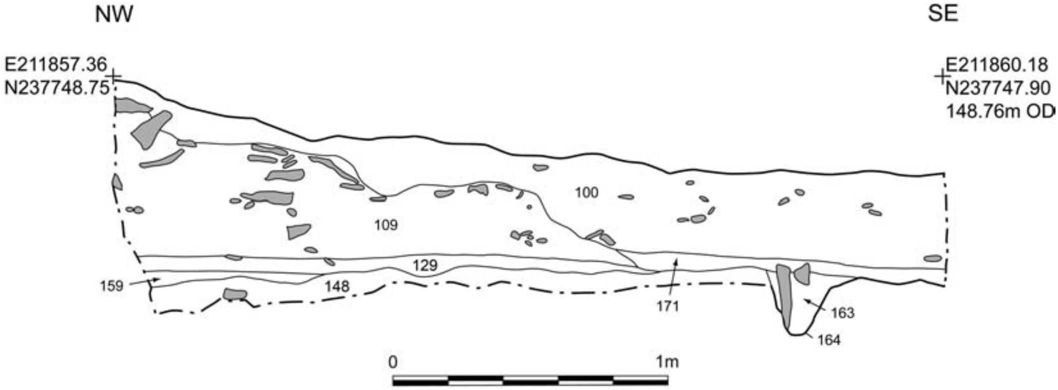


Fig. 12. Section though the west end of the northern edge of Trench 3, showing gully 164 and the eastern edge of layers (109 and 129) post-dating the cross-rampart (which lies beyond the north-west end of the drawing). *Drawing by Irene Deluis.*

(159) that separated the base of the rampart from palisade slots 102, 104/106 and cut features 160, 162 and 164. Layer 159 is a buried ploughsoil beneath the rampart.

The wall-face (110) is well-built and appears to have been constructed in three separate sections along the west side of Trench 3, each section having a different character and meeting the adjoining section at an apparent join. The length of the middle section is about 6m, suggesting that the wall was built in relatively short 'gang sections'.

Three layers post-date the wall. The first of these is a 0.1m-thick layer of stone fragments in a light yellow-grey clay matrix (148), forming a compacted surface abutting the base of the wall-face and resulting from the wall's construction. On top of this lay a 0.07m-thick layer of red-brown clay silt (129) with concentrations of carbonised wood fragments, one of which of oak roundwood (*Quercus* sp.) is dated to 510–380 cal. BC (OxA-30512).

Layer 129, along with the wall core and wall-face, was covered with a large deposit of stones and grey-brown clay (109), representing tumbled material from the collapsed rampart. Finds from layer 109 consisted of a grinding stone (Fig. 18, SF3) and a stone ball (Fig. 18, SF5).

### Trench 4: the outer concentric palisade slot and other features

*Palisade slot 126*

Palisade slot 126 (Figs 13, 15), with a width of up to 0.45m and a depth of up to 0.28m, has similar dimensions to those of palisade slot 102 in Trench 3. Its packing stones, mostly placed on edge and protruding into the modern ploughsoil (100 and 171), are also similar to those of the two palisade slots in Trench 3. With vertical sides and a flat base, the palisade slot also exhibits scalloping along its edges, especially along its west end. This scalloping is interpreted as resulting from the insertion of posts, generally each 0.15–0.2m in diameter, every 0.25–0.3m. This line of posts would have left narrow gaps between them but too close to allow passage by people or domestic animals. The palisade slot was filled with friable brown silty loam (125), containing packing stones that mostly lined the sides of the cut. As with palisade slots 102 and 104/106 in Trench 3, this appears to be largely the fillings of post-pipes, entering the cut after the decay of the palisade's posts *in situ*. There was no evidence that any of the posts had been removed. At its western end, the palisade slot's fill (125) contained burnt bone, a flaked stone

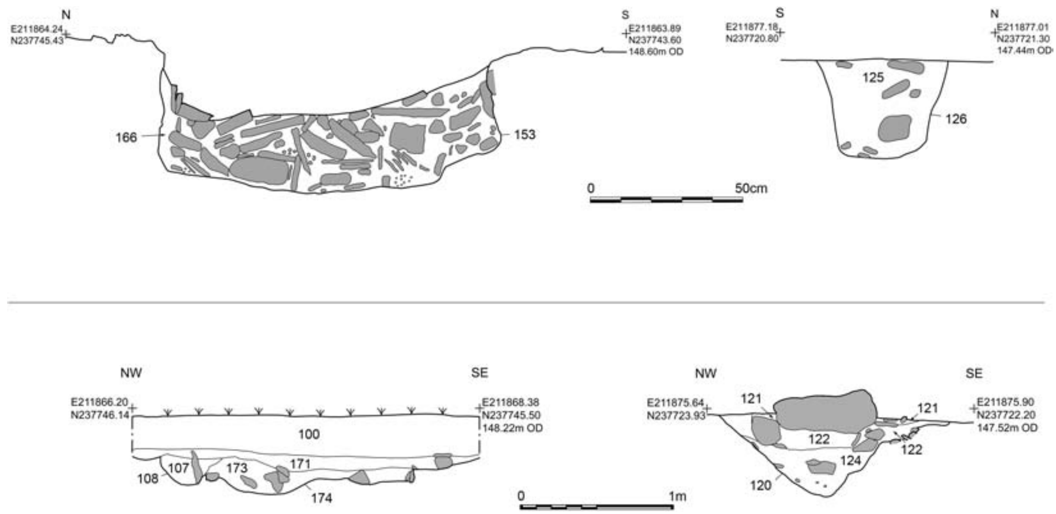


Fig. 13. Selected sections through features in Trenches 3 and 4. *Drawing by Irene Deluis.*

disc (Fig. 18, SF9) and large quantities of burnt stones. On the basis of their concentration along the base and sides of the palisade slot, it is likely that these artefact/ecofact-rich deposits entered the cut as it was dug and as the posts were erected. Radiocarbon dates were obtained on carbonised roundwood from the palisade slot fill (125): alder (*Alnus glutinosa*) gave a date of 760–430 cal. BC (SUERC-50773) and oak (*Quercus* sp.) a date of 770–510 cal. BC (SUERC-50774).

The concentration of burnt materials in the western part of Trench 4 raises the possibility that this section of the palisade slot was dug through an area where such materials lay within a midden on a since vanished land surface. The palisade slot here was sealed beneath the rampart (119 and 146) of the cross-bank by a 0.2m-deep red-brown clay and stony layer (151). If this were a buried ploughsoil (as it and its counterpart layer 159 in Trench 3 are thought to be), the presence of this cultural material within layer 151 supports the possibility that the burnt materials may have fallen into the palisade slot as it was being dug through a pre-existing midden subsequently destroyed by ploughing.

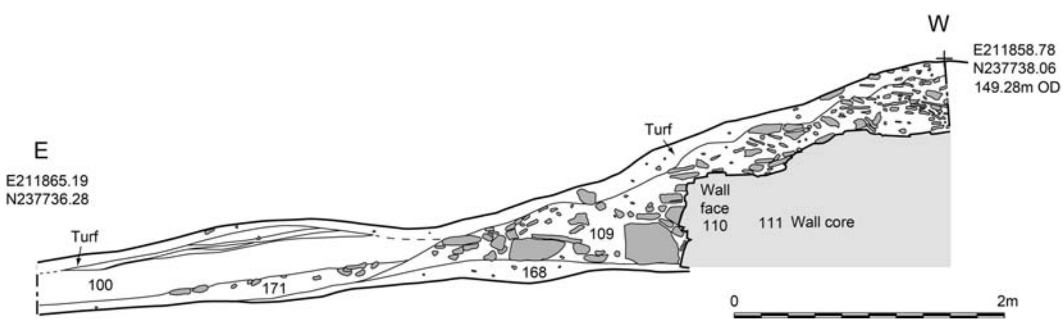


Fig. 14. Section through the west end of the southern edge of Trench 3, showing the cross-rampart and layers that it post-dates (168) and pre-dates (109 etc.). *Drawing by Irene Deluis*.

Fig. 15. Aerial view of Trench 4, viewed from the north. *Photograph by Adam Stanford*.

Towards the eastern end of Trench 4, a sub-circular scoop (128), 0.8m in diameter and 0.04m deep, was cut into the top of the palisade slot (126). It was filled with friable dark brown silty clay (127) and carbonised wood flecks. Although there was no artefactual material from it, the loose character of its fill reveals it to be of no great antiquity.

*Pit 120*

This pit was about 1.3m by 1m across and 0.55m deep (Figs 13, 15–16). Its primary fill was a thin deposit (0.03m deep but up to 0.1m) of yellow clay sand and small, angular stones (124). The main fill of the pit, above 124, was orange-brown clay sand (122), containing large packing stones on edge within the pit's western half. Similar large stones were displaced in the eastern half of the pit where the otherwise bowl-shaped profile altered to form more of a ramp-like slope towards the south-east. The top of layer 122 was capped by a large stone, about 0.7m long, that sat in the middle of the filled-in pit and protruded into the ploughsoil (100). The top of the pit was filled with a tertiary layer of mid-brown clay sand and small stones (121). The size and shape of this pit, together with its large packing stones and ramp-like south-east side, suggest that it could have been dug to hold a standing stone, about 0.5m wide and 0.4m thick. The disturbed packing stones on the east side and in the upper part of layer 122 could provide evidence for a standing stone's removal. Radiocarbon dates on hazel (*Corylus avellana*) roundwood charcoal and a carbonised nutshell from layer 124 respectively produced dates of 1500–1300 cal. BC (SUERC-51438) and 5210–4850 cal. BC (OxA-30509). A notched fragment of redeposited bedrock (SF38) from this layer is likely to have been the result of digging out the pit with a metal spike, indicating that the pit was dug out no earlier than the Bronze or Iron Age.

*Other cut features*

On the north edge of Trench 4, pit 132 was a shallow, sub-circular scoop, 0.27m in diameter and up to 0.05m deep, filled with dark yellow-brown silt (131). Pits 137 and 139 were contiguous bowl-shaped,

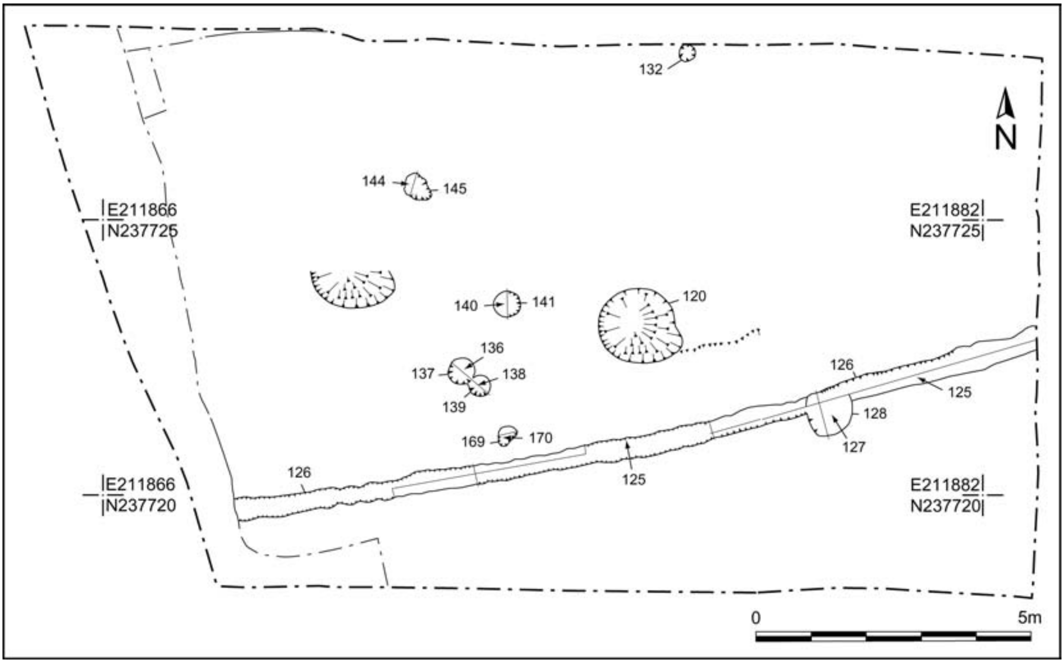


Fig. 16. Plan of Trench 4, showing the excavated features. *Drawing by Irene Deluis.*

sub-circular features in the western part of the trench. Pit 137, 0.45m by 0.32m and 0.1m deep, was filled with mixed dark brown and light orange silt (136). Pit 139, 0.56m by 0.42m and 0.14m deep, was filled by three layers: a primary fill of dark brown-grey silt (158), a second layer of light brown silt (157) and a top layer of dark brown-grey friable silt (138).

In the western part of Trench 4, pit 141 was a sub-circular feature with irregular concave sides, 0.63m by 0.55m and 0.07m deep. It was filled with friable dark brown silt (140). To the north of pit 141, pit 145 was a sub-oval, concave-sided feature, 1.2m by 0.6m and 0.16m deep. It was filled with friable light brown silt (144). In the south-western part of Trench 4 an oval pit (169), 0.3m by 0.25m and 0.11m deep, was filled with red-brown clay (170).

*The cross-bank rampart*

At the west end of Trench 4, the palisade slot (126) was sealed by a 0.2m-deep layer of red-brown sandy clay and stones (151) that was absent in the rest of the trench as the result of more recent ploughing where it was not protected by the cross-bank rampart (Fig. 17). Like its counterpart layer 159 in Trench 3, layer 151 was not a buried turf line (as was detected as layers 004 and 1008 in Trenches 1 and 2 beneath the hillfort's encircling rampart) but a buried ploughsoil on which the cross-bank was built. Layer 151 was partially covered by a thin deposit of light orange sandy silt (172) that did not extend as far as the north baulk of the trench and may be a primary deposit of wall core material.

The rampart's wall-face (146) and wall core (119) were constructed on top of layers 151 and 172. The wall-face was much less well preserved here than in Trench 3, standing at best only two or three courses high. As in Trench 3, the wall core (119) was formed of small stones in a thin yellow silt matrix, and the wall-face (146) showed evidence of having been built in 'gang-sections', with two locations where


Fig. 17. Pit 120, viewed from the west. Scale 1m. *Photograph by Mike Parker Pearson*.

there were discontinuities in the line of the wall-face. A layer of light orange-brown sandy clay (134/135) abutted the exterior of the wall-face (146), similar to layer 129 in Trench 3.

Tumbled stones and debris (116) from the collapsed rampart wall survived best in the southern end of the trench but extended along the entire wall-line as a deposit of large and medium-sized stones within a matrix of friable brown loam. The hollows left by robbing of the collapsed wall (116) had then filled up with stones brought from the quarry pits on the west side of the cross-bank in this part of the hillfort's interior. This stone rubble formed three deposits (117 and 118 beneath 115). A small fragment of burnt bone (SF4) was recovered from layer 116, and a complete saddle quern (Fig. 19, SF29) was found in layer 118. A struck stone flake (SF2) was found during trowelling of the surface of the subsoil in the north-east part of Trench 4.

## OPTICALLY STIMULATED LUMINESCENCE (OSL) MEASUREMENTS
By J.-L. Schwenninger

Optically stimulated luminescence (OSL) measurements (Table 1) of samples from contexts related to the outer earthworks in Trench 1 and Trench 2 (see location of samples in Figs 6, 9) were undertaken by the Research Laboratory for Archaeology and the History of Art, Oxford University.

The results are based on luminescence measurements of sand-sized quartz (180–255 microns) extracted from the samples using standard preparation techniques including wet-sieving, HCl (10%) treatment to remove carbonates, HF treatment (48%) to dissolve feldspathic minerals and heavy mineral separation with sodium polytungstate. Measurements were performed in an automated luminescence reader made by Risø (Bøtter-Jensen 1988; 1997; 2000) using a SAR post-IR blue OSL measurement protocol (Murray and Wintle 2000; Banerjee *et al.* 2001; Wintle and Murray 2006). Dose rate calculations are based on Aitken (1985) and are derived from the concentration of radioactive elements (potassium, thorium and uranium) within the samples.

The final OSL age estimates include an additional 4% systematic error to account for uncertainties in source calibration and measurement reproducibility. Dose rate calculations are based on beta attenuation factors (Mejdahl 1979), dose rate conversion factors (Guérin *et al*. 2011) and an absorption coefficient for the water content (Zimmerman 1971). The measured moisture contents of the sediments were

Table 1. Optically stimulated luminescence (OSL) results from Castell Mawr

| Layer | Lab. code | Radioisotopes† K % | Th ppm | U ppm | Field water % | External γ-dose rate§ (Gy/ka) | Cosmic dose rate (Gy/ka) | Total dose rate (Gy/ka) | Palaeo dose (Gy/ka) | OSL date (years before 2013) | Calendar date (rounded to nearest 10 years)* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trench 1** | | | | | | | | | | | |
| 6 | X5449 | 0.64 | 8.2 | 5.6 | 23 | – | 0.189±0.017 | 2.04±0.13 | 0.68±0.37 | 330±180 | AD 1500–1870 |
| 2 | X5450 | 0.92 | 8.4 | 4.1 | 22 | – | 0.182±0.015 | 2.02±0.13 | 9.07±1.70 | 4495±890 | 3380–1590 BC |
| 4 | X5451 | 1.01 | 9.7 | 3.9 | 23 | – | 0.176±0.014 | 2.08±0.13 | 5.14±0.47 | 2470±275 | 740–180 BC |
| 4 | X5452 | 1.09 | 9.8 | 4.1 | 16 | – | 0.172±0.013 | 2.39±0.16 | 4.59±0.19 | 1925±155 | 70 BC–AD 250 |
| **Trench 2** | | | | | | | | | | | |
| 1008 | X5445 | 1.51 | 7.6 | 2.9 | 24 | 0.795±0.080 | 0.205±0.005 | 2.22±0.13 | 5.27±0.30 | 2380±200 | 570–160 BC |
| 1014 | X5447 | 1.90 | 8.3 | 2.9 | 28 | 0.792±0.079 | 0.202±0.025 | 2.35±0.14 | 6.04±0.46 | 2570±250 | 810–300 BC |
| 1009 | X5448 | 1.86 | 6.2 | 1.9 | 28 | 0.896±0.090 | 0.195±0.019 | 2.30±0.14 | 36.91±4.94 | 16100±2370 | 16460–11710 BC |

† Measurements were made on dried, homogenised and powdered material by fusion ICP-MS with an assigned systematic uncertainty of ±5%. Dry beta dose rates calculated from these activities were adjusted for the saturation field water content expressed as a percentage of the dry mass of the sample.

§ Based on *in situ* measurements using a portable γ-ray spectrometer equipped with a 3 × 3 inch NaI (Tl) scintillator crystal and calibrated against the Oxford calibration blocks (Rhodes and Schwenninger 2007). For samples X5449 to X5452, the external dose rates were calculated from the concentrations of radioisotopes determined by fusion ICP-MS.

* cf. Mook 1986.

generally high but considered to be representatives of the mean water content during the burial period. The contribution of cosmic radiation to the total dose rate was calculated as a function of latitude, altitude, burial depth and average over-burden density based on data provided by Prescott and Hutton (1994).

## RADIOCARBON DATING

Radiocarbon dates from Castell Mawr, listed in chronological and stratigraphic order. The dates have been calibrated by OxCal v. 4.1 using the IntCal4 atmospheric calibration curve and are quoted at 2 sigma. The results are quoted elsewhere in the text in the form recommended by Mook (1986), with the end points rounded outwards to the nearest 10 years.

**SUERC-68383**
*Context*: 101, fill of palisade slot 102
*Sample*: *Prunus* sp. charcoal, roundwood
*Radiocarbon date*: 2419±37 BP
*Calibrated date at 95.4% probability*: 751–683 cal. BC (17.4%), 668–638 cal. BC (6.1%), 622–617 cal. BC (0.5%), 591–401 (71.5%) cal. BC

**SUERC-50773**
*Context*: 125, fill of palisade slot 126
*Sample*: *Alnus glutinosa* charcoal, roundwood
*Radiocarbon date*: 2460±20 BP
*Calibrated date at 95.4% probability*: 756–679 cal. BC (35.3%), 671–606 cal. BC
(20.1%) 600–430 (40%) cal. BC

**SUERC-50774**
*Context*: 125, fill of palisade slot 126
*Sample*: *Quercus* sp. charcoal, roundwood
*Radiocarbon date*: 2476±20 BP
*Calibrated date at 95.4% probability*: 765–517 cal. BC

**OxA-30512**
*Context*: 129, post-rampart layer in Trench 3
*Sample*: *Quercus* sp. charcoal, roundwood
*Radiocarbon date*: 2350±27 BP
*Calibrated date at 95.4% probability*: 508–499 (1.7%) cal. BC, 492–380
(93.7%) cal. BC

**OxA-30511**
*Context*: 130, fill of pit 160 in Trench 3
*Sample*: *Prunus* sp. charcoal, roundwood
*Radiocarbon date*: 2499±25 BP
*Calibrated date at 95.4% probability*: 776–540 cal. BC

**OxA-30510**
*Context*: 168, early layer in Trench 3 cut through by palisade slots
*Sample*: *Quercus* sp. charcoal, wood
*Radiocarbon date*: 3765±28 BP
*Calibrated date at 95.4% probability*: 2287–2130 (88%) cal. BC, 2086–2050
(7.4%) cal. BC

**SUERC-51438**
*Context*: 124, primary fill of pit 120 in Trench 4
*Sample*: *Corylus avellana* charcoal, roundwood
*Radiocarbon date*: 3145±31 BP
*Calibrated date at 95.4% probability*: 1499–1381 (83.9%) cal. BC, 1341–1308 (11.5%) cal. BC

**OxA-30509**
*Context*: 124, primary fill of pit 120 in Trench 4
*Sample*: *Corylus avellana*, carbonised nutshell
*Radiocarbon date*: 6091±33 BP
*Calibrated date at 95.4% probability*: 5207–5161 (7.7%) cal. BC, 5119–5108 (0.7%) cal. BC, 5080–4904 (86.5%) cal. BC, 4864–4857 (0.5%) cal. BC

**SUERC-68384**
*Context*: 166, lowest fill of pit 153/156 in Trench 3
*Sample*: *Ulmus* sp. charcoal, roundwood
*Radiocarbon date*: 2179±34 BP
*Calibrated date at 95.4% probability*: 365–161 (94%) cal. BC, 131–119 (1.4%) cal. BC

## ARTEFACTS

By Mike Parker Pearson and Ben Chan

There were very few artefacts from the excavations. All were of stone.

### Worked flint and other lithics

Despite the record of flints being found within the hillfort interior, only three pieces of knapped stone were recovered: a flint multi-platform flake core (Fig. 18, SF1 from context 002, a primary rampart deposit in Trench 1), a quartz flake (SF25 in layer 166 in pit 153 in Trench 3) and a flake of fine-grained tuff (SF2 from base of modern ploughsoil (171) in Trench 3). The core is of opaque light grey flint with an abraded but still relatively thick, light brown cortex. With multiple prepared platforms and flake scars up to 58mm length, this core has clearly been abandoned whilst still productive. The character of core working is consistent with later Neolithic multi-platform core working.

### Stone tools

Other than the struck lithics, there was a small selection of stone tools and worked stone:

SF3. Grinding stone (132 × 78 × 60mm thick), made from a waterworn igneous cobble, with two grinding facets at the narrower end; one of these facets is incomplete due to detaching of a flake where the artefact has been used as a hammer stone, indicated by peck marks at this narrow end. 962g, from collapsed rampart material context 109 in Trench 4 (Fig. 18).

SF5. Spherical stone ball (32mm maximum diameter) with a series of slight facets formed by abrasion. It has two small dents on opposing sides of the ball. It is possibly a sling-shot. 35g, from collapsed rampart material context 109 (Fig. 18).

SF6. Grinding stone (87 × 76 × 61mm thick), made from a waterworn igneous cobble with seven grinding facets (three on one end and four on the other) where this cobble has been worn down, possibly as the top stone of a saddle quern. 620g, from modern ploughsoil (100) in Trench 3 (Fig. 18).

SF9. Flaked stone disc (128 × 115 × 33mm thick), made from a split, slightly rounded metamorphic cobble; it has been crudely flaked at eight places around three-quarters of its circumference to give it a broadly circular appearance. 514g, from fill (125) of palisade slot 126 in Trench 4 (Fig. 18).

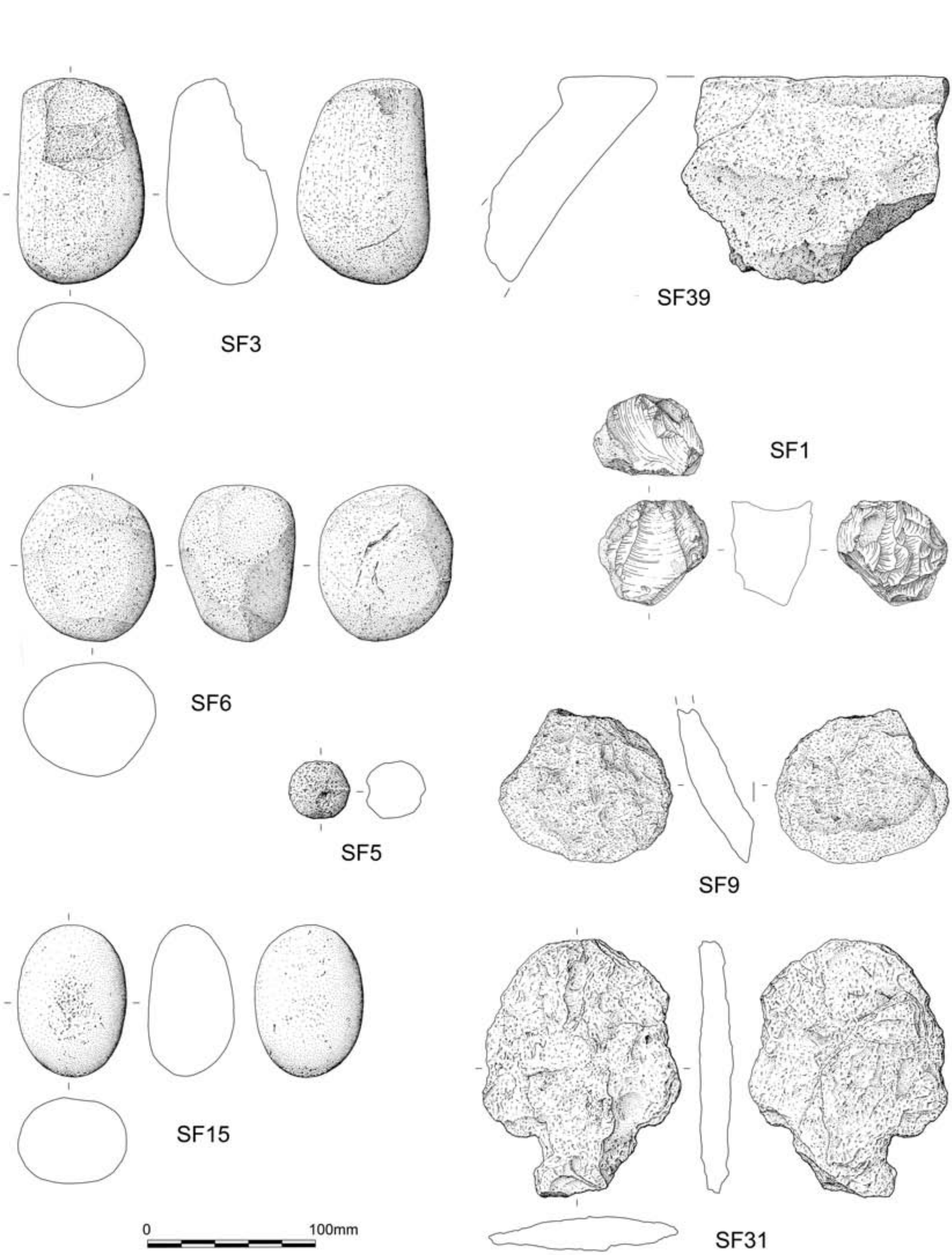


Fig. 18. Stone tools (SF3, 5, 6, 9, 15, 31, 39) and flint core (SF1). Scale 1:4. *Drawing by Irene Deluis*.

SF15. Hammer stone (84 × 59 × 48mm thick), made from a quartzite pebble, with two concentrations of peck marks at one end and in the middle of one flat face. 395g, from fill (101) of palisade slot 102 in Trench 3 (Fig. 18).

SF29. Saddle quern stone (295 × 310 × 88mm thick) of grey-brown gritstone with a single, slightly concave grinding surface, made from a large waterworn cobble. 12.4kg, from stone rubble deposit (118) overlying rampart in Trench 4 (Fig. 19).

SF31. A nearly complete notched stone plate (158 × 117 × 20mm thick) of flaked mudstone, in a round-tipped spade shape with two opposed notches at one end; one notch is 19mm wide but the other is incomplete where the corner of this flat proximal end has broken off. 355g, from upper layer (152) of pit 153 in Trench 3 (Fig. 18).

SF39. A burnt worked stone artefact (173 × 156 × 63mm thick), made from a fragment of metamorphic stone; two of its flat facets give it the superficial appearance of a fragment of rotary quern (which it is not) and the larger facet is slightly concave, suggesting light use as a grinding surface. 1,559g, from fill (161) of pit 162 (Fig. 18).

**Burnt stone**

A total of 648 burnt stone fragments, weighing 38.934kg, were recovered from the excavations. Most of these were of local sandstone and mudstone, many being broken river cobbles. Large quantities were recovered from the fills of the palisade slots: 6,802g from context 125 of the outer palisade slot 126, 1,105g from 103 and 105 of the earlier inner palisade slot 104/106 and 7,676g from 101, 123 and 133 of the later inner palisade slot 102. Whilst burnt stone was recovered from virtually every excavated context, larger quantities were encountered in contexts 130 (fill of pit 160; 2,758g), 152 (upper fill of pit 153/156; 4,505g), 161 (fill of pit 162; 5,155g) and 173 (fill of curving gully 174; 1,873g) in Trench 3, and context 134 (layer abutting rampart wall-face 146; 2,264g) in Trench 4.

Distributions of burnt stone reveal greater quantities in the north-west of Trench 3 and the west of Trench 4. Quantities in the penannular gully and earlier palisade slot in Trench 3 were less than in the later palisade slot.

**Burnt bone**

Small fragments of heavily burnt bone were recovered from contexts 125 (37g), 116 (3g) and 149 (1g). Most of those from the fill (125) of the outer palisade slot came from its western end where burnt stone was also common. Although the bone looks similar to cremated remains, it is presumably the only surviving portion of a much larger faunal assemblage that has generally not survived in the acid soil.

## CHARRED PLANT REMAINS AND WOOD CHARCOAL

By Ellen Simmons

Forty-four samples, representing 939 litres of soil, were processed by flotation using a 300µm mesh. Five samples were selected for analysis of wood charcoal and four samples were selected for analysis of charred plant remains, based on the results of an initial assessment. Identification was carried out using modern reference material in the Department of Archaeology, University of Sheffield and various reference works (e.g. Cappers *et al*. 2006; Schweingruber 1990; Hather 2000). Cereal identifications follow Jacomet (2006). Other plant nomenclature follows Stace (2010). Sorting and identification of charred plant material was carried out using a stereo-binocular microscope (×10–65). One hundred wood charcoal fragments from each sample were fractured manually and the resultant anatomical features

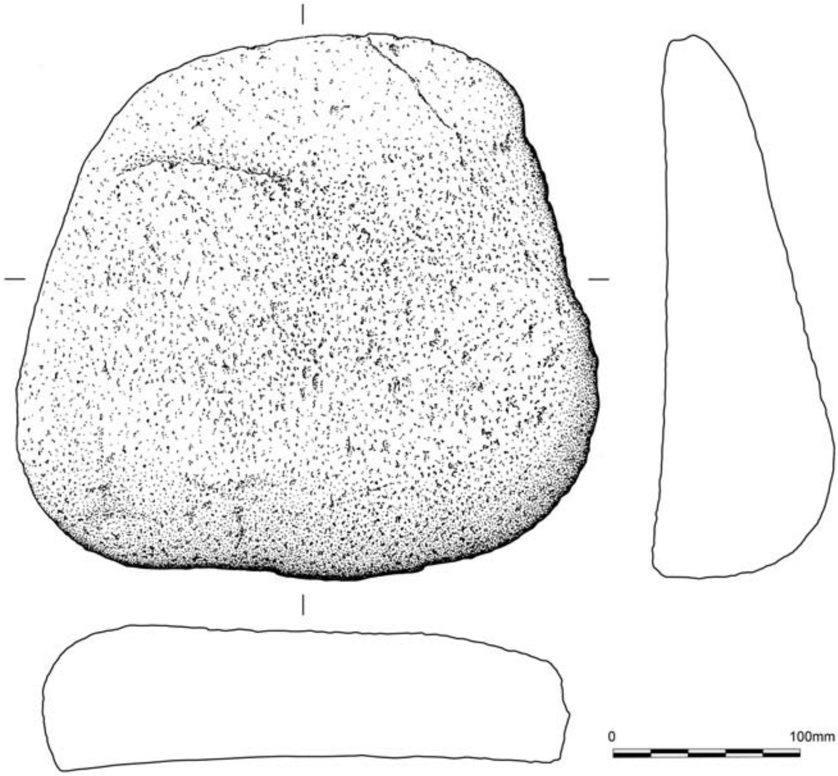


Fig. 19. Stone saddle quern (SF29) from Trench 4. Scale 1:4. *Drawing by Irene Deluis*.

observed in transverse, radial and tangential planes, using high-power binocular reflected light microscopy (×50, ×100 and ×400). A record was also made, where possible, of the ring curvature of the wood and details of the ligneous structure (Marguerie and Hunot 2007). The archaeobotanical composition of the samples is recorded in Tables 2 and 3.

**Charred plant remains**

Low concentrations of cereal grains and a single glume base were present in the samples. The crop types represented include hulled barley, with the presence of asymmetrical grains indicating the presence of six-row barley (*Hordeum vulgare* L. emend. Lam.), along with spelt wheat (*Triticum spelta* L.) and probable free-threshing wheat (*Triticum aestivum* s.l.). The low concentration of crop material may indicate that cereals did not represent a major component of the economy of the site or that crop-processing by-products were used for other purposes such as fuel. The presence of a rich assemblage of charred wild plant seeds indicates that the lack of charred crop material is unlikely to be due to poor preservation.

The wild plant seed assemblage consisted of a range of taxa commonly associated with grassland, along with taxa commonly associated with fertile disturbed soils and cultivation (Table 2). Wild seeds are therefore likely to have been harvested along with crops and charred as waste, as well as being collected from grassland or pasture and used as animal fodder, or charred as waste roofing or flooring material, or used as tinder.

Table 2. Charred plant remains from Castell Mawr

| Sample | 1106 | 1036 | 1067 | 1037 | |
|---|---|---|---|---|---|
| Context | 101 | 101 | 125 | 129 | |
| Feature | 102 | 102 | 126 | – | |
| Vol. processed (litres) | 21 | 20 | 30 | 14 | |
| Dating | 8th–5th cent. BC | 8th–5th cent. BC | 8th–5th cent. BC | 5th–early 4th cent BC | |
| Context type | palisade slot | palisade slot | palisade slot | occupation deposit | |
| **Crop material** | | | | | Ecology* |
| *Hordeum vulgare* hulled twisted grain (six row barley | – | 1 | – | – | |
| *Hordeum* sp. hulled grain (barley) | – | – | 1 | 2 | |
| *Triticum spelta* grain (spelt wheat) | 1 | – | – | 1 | |
| *Triticum* cf. *aestivum* sensu lato (probable free threshing wheat) | 1 | – | – | – | |
| *Triticum* indet. grain (indeterminate wheat) | – | – | 1 | 2 | |
| *Triticum dicoccum/spelta* glume base (emmer/spelt wheat) | – | – | – | 1 | |
| Total items of crop material | 2 | 1 | 2 | 6 | |
| Items of crop material per litre of soil | 0.10 | 0.05 | 0.07 | 0.41 | |
| **Wild/weed plant material** | | | | | |
| *Cytisus scoparius* (L.) Link (broom) | – | – | – | 3 | Sc, Wa |
| *Ranunculus acris* L./*repens* L. *bulbosus* L., (meadow/creeping bulbous buttercup) | – | 1 | – | – | G |
| *Ranunculus* sp. (buttercup) | – | 1 | – | – | G |
| Fabaceae (pea family) | 1 | – | – | – | |
| *Trifolium/Medicago* (clover/medick) | 4 | 2 | 16 | – | G, S, R, Wa, F |
| *Malus* cf. *sylvestris* (L.) Mill. pericarp (probable crab apple) | 3 | – | – | – | Sc, Wa |
| *Aphanes arvensis* L. (parsley-piert) | 1 | 1 | 2 | – | S, OG, Wa |
| *Urtica dioica* L. (common nettle) | 3 | – | – | 4 | F, S, Dp, Wd, Sc, SG, Wa |
| *Urtica urens* L. (small nettle) | – | – | 4 | 2 | F, S, Wa |
| *Corylus avellana* L. nutshell (hazel) | – | – | – | 49 | Wd, Sc |
| *Viola* sp. (violet) | – | 1 | 1 | 2 | |
| cf. *Brassica nigra* (L.) Koch (probable black mustard) | 1 | – | – | 2 | S, Wa, Dp |
| *Sisymbrium officinale* (L.) Scop. (hedge mustard) | 2 | 4 | – | – | S, Wa |
| *Persicaria maculosa* Gray/*lapathifolia* (L.) Delarbre (redshank/pale persicaria) | – | 3 | 2 | 1 | R, S, Wa, F OG |
| *Rumex acetosella* L. (sheep's sorrel) | 1 | 1 | 4 | – | |
| *Rumex palustris* Sm. (marsh dock) | – | 1 | – | – | Dp, R |
| *Rumex* sp. (dock) | – | – | – | 3 | |
| Caryophyllaceae (pink family) | 1 | – | – | – | |
| *Stellaria media* (L.) Vill. (common chickweed) | – | 4 | – | – | R, S, F |
| *Stellaria* cf. *media* (L.) Vill. (probable common chickweed) | – | 2 | – | – | |
| *Stellaria graminea* L. (lesser stitchwort) | – | 2 | – | – | SG, Wd |
| *Stellaria* sp. (stitchworts) | – | 2 | – | – | |
| *Cerastium fontanum* Baumg. (common mouse ear) | – | 3 | – | 4 | G, F, S, Wa |
| *Cerastium* sp. (mouse ears) | – | 1 | – | – | |
| *Spergula arvensis* L. (corn spurrey) | 3 | 2 | 18 | 2 | S, R, Wa |
| *Chenopodium* sp.(goosefoots) | – | – | 2 | – | |
| *Galium aparine* L. (cleavers) | – | – | – | 38 | S, Wa, F |

*continued*

Table 2. Charred plant remains from Castell Mawr *continued*

| Sample | 1106 | 1036 | 1067 | 1037 | |
|---|---|---|---|---|---|
| Context | 101 | 101 | 125 | 129 | |
| Feature | 102 | 102 | 126 | – | |
| Vol. processed (litres) | 21 | 20 | 30 | 14 | |
| Dating | 8th–5th cent. BC | 8th–5th cent. BC | 8th–5th cent. BC | 5th–early 4th cent BC | |
| Context type | palisade slot | palisade slot | palisade slot | occupation deposit | |
| | | | | | Ecology* |
| *Plantago major* ssp. *major* L. (greater plantain) | 1 | – | 4 | – | R, OG |
| *Plantago lanceolata* L. (ribwort plantain) | – | 2 | – | 1 | G, S, R |
| *Stachys arvensis* (L.) L. (field woundwort) | – | 1 | 1 | – | S, Wa |
| *Galeopsis segetum* Neck./angustifolia Ehrh. Ex Hoffm. (red/downy hemp-nettle) | – | 1 | – | – | S, Wa |
| *Prunella vulgaris* L. (selfheal) | 1 | – | – | – | G, Wa, Dp, F |
| *Clinopodium ascendens* (Jord.) Samp. (common calamint) | 1 | – | – | – | SG, S |
| *Juncus* spp. (rushes) | 2 | 3 | – | – | Dp |
| *Schoenoplectus lacustris* (L.) Palla | 1 | – | – | – | W |
| *Carex* sp. trigonous (sedges) | – | 1 | – | – | Dp, G |
| *Carex* sp. biconvex (sedges) | – | – | – | 2 | Dp, G |
| *Phleum pratense* L. (timothy) | 8 | 18 | 4 | 12 | G |
| Poaceae – Poa type (grasses) | 3 | 7 | 14 | 6 | G |
| Poaceae < 1mm (small seeded grasses) | 19 | 85 | 22 | 94 | G |
| Poaceae culm node (grass stems) | – | 3 | 7 | – | |
| Poaceae culm base (grass stem bases) | – | – | 6 | – | |
| Total items of wild weed plant material | 56 | 152 | 107 | 225 | |
| Items of wild/weed plant material per litre of soil | 2.7 | 7.6 | 3.6 | 16.1 | |

* S = segetal, R = ruderal, Wa = waste / rough ground, G = grassland, OG = open / short grassland, SG = shaded / rough grassland, Sc = scrub, Wd = woodland, F = fertile soils, Dp = damp soils, W = wet soils

The low concentration of charred crop material as well as the crop types and the presence of an assemblage of grassland taxa along with more typical weeds of cultivation in the wild seed assemblage is consistent with the charred plant assemblage recovered at the nearby Iron Age hillforts of Berry Hill and Ffynnonwen (Caseldine and Griffiths 2012).

## Wood charcoal

The wood charcoal assemblage from the fill of a natural hollow (168), which was radiocarbon-dated to the Early Bronze Age, as well as the assemblage from palisade slot fill 103, were both dominated by oak (*Quercus* sp.), with a small proportion of hazel (*Corylus avellana* L.) and some ash (*Fraxinus excelsior* L.) in context 168. Closely spaced annual growth rings were also noted as present in both assemblages of oak charcoal, indicating either poor growing conditions or trees which had been growing in established woodland. Tyloses were also noted in both assemblages of oak charcoal, as well as a high proportion of fragments with weak ring curvature, indicating the use of a high proportion of mature trunk wood.

The wood charcoal assemblage from palisade slot fill 101, the *in situ* charcoal deposit from rectangular pit fill 166 and occupation deposit 129, which was radiocarbon dated to the Early to Middle Iron Age, was

Table 3. Charcoal taxa from Castell Mawr

| | | | | | |
|---|---|---|---|---|---|
| Sample | 1079 | 1071 | 1078 | 1082 | 1037 |
| Context | 168 | 103 | 101 | 166 | 129 |
| Feature | – | 104 | 102 | 153 | – |
| Dating | 23rd–early 21st cent. BC | 8th–5th cent. BC | 8th–5th cent. BC | 8th–5th cent. BC | 5th–early 4th cent BC |
| Context type | natural hollow | palisade slot | palisade slot | rectangular pit | occupation deposit |
| Fabaceae (broom/greenweed/gorse) | – | – | – | 8 | – |
| *Prunus* sp. (cherry/blackthorn) | – | – | 3 | – | 14 |
| *Prunus* cf. *spinosa* L. (probable blackthorn) | – | – | 2 | 7 | 24 |
| Pomoideae (apple/pear/whitebeam/hawthorn) | – | – | 9 | 17 | 9 |
| *Rhamnus cathartica* L. (buckthorn) | – | – | 2 | – | – |
| *Quercus* sp. (oak) | 82 | 96 | 47 | – | 22 |
| *Betula* sp. (birch) | – | – | 1 | – | – |
| *Alnus glutinosa* (L.) Gaertn. (alder) | – | – | 4 | 2 | – |
| *Corylus avellana* L. (hazel) | 4 | 4 | 24 | 65 | 20 |
| *Populus*/*Salix* (poplar/willow) | – | – | – | 1 | 3 |
| *Fraxinus excelsior* L. (ash) | 4 | – | – | – | – |
| *Hedera helix* L. common (ivy) | – | – | – | – | 2 |
| Indeterminate | 10 | – | 8 | – | 6 |
| Total | 100 | 100 | 100 | 100 | 100 |

composed of a much greater diversity of taxa. Oak was present in contexts 101 and 129, although the use of smaller diameter wood was more frequently represented and tyloses and closely spaced growth rings were rare. Hazel was also well represented, along with a range of other taxa commonly associated with underwood, woodland clearings, woodland margins and scrub such as barberry (*Berberis vulgaris* L.), blackthorn (*Prunus* cf. *spinosa* L.) and taxa represented by Pomoideae.

The likely availability of established oak woodland in the vicinity of the site during the Early Bronze Age with increased availability of woodland margin and scrub taxa during the Early Iron Age, is consistent with palaeoenvironmental evidence from the region (Seymour 1985) as well as with the evidence for an increase in activity at the site during the Early Iron Age. The presence of a range of woodland margin and shrub taxa, along with oak, is also consistent with the charcoal assemblage recovered at the nearby Iron Age hillforts of Berry Hill and Ffynnonwen (Caseldine and Griffiths 2012).

## CONCLUSION

By Mike Parker Pearson

The 2011–12 excavations reveal that Castell Mawr's main period of construction and use was in the Earliest/Early Iron Age during the late eighth–late fifth centuries BC. Three radiocarbon dates on carbonised material hint at an earlier human presence on the hilltop in the Late Mesolithic and Bronze Age. Features of likely Bronze Age date consist of a natural hollow (168) with charcoal dating to within the Early Bronze Age (23rd–early 21st centuries BC) and a rock-cut pit (120), possibly a socket for a removed standing stone, with charcoal dating to the 15th–14th centuries BC within the Middle Bronze Age. There is little evidence of Neolithic activity, as had been anticipated, and the OSL dates from the outer earthworks indicate that these were not constructed until the Iron Age. Thus it is highly unlikely that Castell Mawr was ever a Neolithic henge.

The hillfort’s sequence and chronology can be described on the basis of observed stratigraphic relationships and dating, and likely sequences of construction of the earthworks. The most likely sequence starts with the construction of a pair of concentric timber palisades, 55m and 97m in diameter, during the late eighth–fifth centuries BC. The inner palisade circle was replaced (after its posts had decayed) in almost the same position by a second palisade circle of similar diameter, dating to 600–400 cal. BC at 71.5% probability (SUERC-68383). This later palisade circle slighted a penannular slot and gully that probably formed the outer wall of a west-facing roundhouse. There is no evidence for the location of the palisade enclosures’ entrances from either geophysics or excavation.

Some, if not most features within the concentric palisade enclosures are likely to date to this period. Human activity was intense, particularly by the time that the second inner post circle was constructed and in use. This activity is indicated by large quantities of burnt stone and carbonised wood charcoal, burnt bone fragments, and high levels of magnetic susceptibility and Phosphorous-P, the latter suggesting the presence of bone-rich middens. Carbonised cereals among the large plant assemblage indicate likely crop processing.

The area of the concentric palisade enclosures was enclosed, possibly at the same time or later, by a substantial earthwork, 167–160m in diameter, of cordate plan. Two OSL dates of 810–300 BC and 740–180 BC from the base of this rampart confirm its date of construction—sandwiched chronologically between the palisades and the cross-bank—during the late eighth-fifth centuries BC. There are traces of an external ditch for this 2m-high bank but these are ephemeral and partial; there was no sign of this ditch in Trench 1 although it was detected within Trench 2. The hillfort had an east-facing entrance, and there are suggestions that it may also have had a west-facing entrance, subsequently blocked.

A cross-rampart was constructed within the interior of the hillfort, separating off the eastern two-thirds of the interior from its west side. This rampart was constructed of rubble and soil and had the remnants of a drystone wall on its western, interior face. An occupation deposit (129) inside the cross-rampart contains charcoal dating to the fifth–early fourth centuries BC, between the end of the Early Iron Age (*c*. 600–400 BC) and the beginning of the Middle Iron Age (*c*. 400–100 BC).

Later activity within the hillfort includes a charcoal-filled pit (fourth–early second centuries BC) and a series of undated quarry pits dug outside and against the cross-rampart. The upcast from this quarrying includes a complete base of a saddle quern (likely to date before the third century BC), presumably displaced by this potentially much later episode of stone-robbing.

**The local setting of Castell Mawr in the first millennium BC**

The Iron Age of west Wales was virtually aceramic (Murphy and Mytum 2012, 308), enhancing the rarity of any surviving material culture and hampering identification and dating of sites from this period. The matter is made worse by the lack of preservation of bone or antler in the acid soil. Yet this part of north Pembrokeshire, north of the Preseli hills, has produced archaeological results in recent years that allow Castell Mawr to be put into context to some degree.

In the thirteenth–tenth centuries BC, during the Late Bronze Age, a 70m-diameter circular ditched enclosure was constructed at Bayvil Farm, three kilometres to the north-west, on the north bank of the river Nevern (Parker Pearson *et al*. forthcoming). After its ditch had largely silted up, a roundhouse gully and associated pits occupied its interior during the Earliest/Early Iron Age. These are potentially contemporary with the palisaded enclosures at Castell Mawr.

Another site with radiocarbon dates from this same Earliest/Early Iron Age period is the bluestone source at Craig Rhos-y-felin, Nevern, where a small, open site without any evident above-ground structures was occupied probably occasionally during the period from the late eighth to the fourth century BC (Parker Pearson *et al*. 2015, 1342, table 1).

The most thoroughly investigated Iron Age site in the vicinity is Castell Henllys (Mytum 2013). This small hillfort sits on a promontory on the north side of the Nevern valley and can be seen from downslope of the western ramparts of Castell Mawr, less than a mile away. Like Castell Mawr, its earliest phase consisted of a palisaded enclosure (although relatively irregular in shape), replaced by a stone and earth rampart. Radiocarbon dates indicate that Castell Henllys's earliest phase was not constructed until the late fifth century BC (Mytum 2013, 33–5).

Two un-investigated small hillforts, Castell Llwyd and Cwm-pen-y-benglog, lie within half a mile of Castell Mawr on its west and south sides, much lower down but overlooking the river Nevern. It is possible that these are 'outworks' contemporary with Castell Mawr, but they could also date to later in the Iron Age, possibly contemporary with Castell Henllys. A small rectangular enclosure (35m across) has been identified at Penpedwast, near Castell Henllys but is undated (Bosworth *et al*. 2006).

Impressive palisaded enclosures of likely later prehistoric date have been identified at Post-goch (Welham and Steele 2014) and Dryslwyn (Geoffrey Wainwright and Tim Darvill pers. comm.), three kilometres to the north-north-west of Castell Mawr. Slightly further away to the north-east is the complex of later Iron Age enclosures at Crugiau Cemmaes (Murphy and Murphy 2015). Upland enclosures and roundhouse walls on the northern slopes of the Preseli hills at sites such as Carn Ingli, Carn Alw and Foel Drigarn are likely to date to this broad period of later prehistory. In conclusion, Castell Mawr sits within what must have been a busy landscape of later prehistoric settlement in this part of the Nevern valley.

**Castell Mawr in its regional context**

The wider context of Iron Age enclosed settlements in west Wales has been systematically covered elsewhere (Murphy and Mytum 2012) so all that is required in this section is to assess how the evidence from Castell Mawr affects the chronological and geographical models put forward in that paper. At just over 2 hectares, Castell Mawr lies towards the smaller end of the spectrum for hillfort sizes in west Wales, much smaller than the largest (over 12 hectares) but just within the norm of 1–4 hectares for heavily defended, generally univallate hillforts, as opposed to smaller enclosed farmsteads that cluster around 0.25–0.4 hectares (Murphy and Mytum 2012, 263).

Radiocarbon dating from various sites has indicated occupation during the Earliest Iron Age (*c*. 800–600 BC) and the Early Iron Age (*c*. 600–400 BC), in the same time period as Castell Mawr. The coastal promontory fort at Porth y Rhaw, south Pembrokeshire, was constructed in the eighth–fourth centuries BC (Crane and Murphy 2010). Broadway hilltop enclosure and Drim palisaded enclosure, both in south Pembrokeshire, are also thought to have been constructed during the Earliest/Early Iron Age (Williams and Mytum 1998, 53; Murphy and Mytum 2012, 266) whilst Brawdy Camp has occupation dating to the eighth–fifth centuries BC (Dark 1987, cited in Murphy and Mytum 2012: 266). A possible palisaded enclosure, set within a later ditched enclosure at Ffynnonwen, south Cardiganshire, is dated to 740–390 cal. BC (Murphy and Mytum 2012, 289).

Closer to Castell Mawr, almost 5 kilometres downstream within the same valley, the roughly oval inland promontory fort of Berry Hill (*c*. 120 × 75m) has a sequence which includes construction of a palisade followed by a rampart (Murphy and Mytum 2012, 289–98). Although radiocarbon determinations produced a variety of dates from the Neolithic and Bronze Age (probably the result of redeposition), a date from the buried soil beneath the rampart of 820–550 cal. BC at 95.4% confidence (Beta-53723; 2580±40 BP) reveals that the fort was constructed in or after the eighth–sixth centuries BC.

Castell Mawr is the only hillfort (as opposed to promontory forts) within a small cluster of some 14 defended enclosures within the lower Nevern valley, a relatively typical concentration less dense than recorded clusters of sites in south Cardiganshire and South Pembrokeshire (Murphy and Mytum 2012, fig. 1; Mytum 2013; fig. 2.2). Its nearest neighbouring hillforts are the upland enclosures of Carn Ingli and Y Foel Drigarn over 8 kilometres away.

Murphy and Mytum (2102, 299) reveal a broad correlation between larger enclosures with earlier dates and smaller enclosures with later dates. In particular, they note that larger oval enclosures date to the Late Bronze Age and Early Iron Age (ibid.) whilst smaller curvilinear and rectilinear enclosures date no earlier than the second century BC (ibid. 300). Castell Mawr provides a particularly pertinent example of this chronological transition because of its close geographical relationship with the extensively excavated site of Castell Henllys (Mytum 2013). This smaller hillfort, located on a valley-side promontory 75m below the height of Castell Mawr, is very different not only in altitude but also in sight lines, plan, morphology and date, even though, like Castell Mawr, it started as a palisaded enclosure followed by a ditched and banked enclosure.

Dates for the first phase of Castell Henllys—the palisaded enclosure—are problematic; the two earliest dates from the site (on the radiocarbon calibration peak that covers a decade either side of 400 BC) are questionable (Mytum 2013, 31). Drawing on more satisfactory dates for construction of the rampart (one of them, OxA-14666; 2289±29 BP), together with the fact that the palisade was replaced while its posts were still standing (and therefore up to *c*. 25–40 years later), Mytum concludes that the ramparts were constructed in 400–360 cal. BC or *c*. 370 BC, with the palisade dating to *c*. 410 BC (Mytum 2013, 33–5).

The latest date for Iron Age activity at Castell Mawr is an occupation layer following construction of the cross-rampart, the third and final phase of enclosure building at the hillfort. This deposit is dated to 510–490 cal. BC at 1.7% probability and 500–380 cal. BC at 93.7% probability (OxA-30512). Thus Castell Mawr was occupied probably until shortly before 400 BC. This deposit, which could represent the final phase of activity at Castell Mawr (other than the filling of pit 153/156), is thus contemporary with or immediately prior to the founding of Castell Henllys, implying that the abandonment of the hilltop may have been linked with part of the population relocating to a less prominent place with limited capabilities for surveillance of their surroundings. In this light, it would seem likely that the two other promontory forts below Castell Mawr—Castell Llwyd and Allt-y-Castell (also known as Cwm-pen-y-benglog)—were also founded at this point around 400 BC.

The likely Early Iron Age date for construction of Berry Hill, potentially similar to the period of construction and use of Castell Mawr, would suggest that a process of fissioning also occurred at Berry Hill, leading to the founding of other small promontory enclosures further down the Nevern valley—such as Cwm Gloyne, Nevern Castle and Castell Nanhyfer—which formed part of the post-400 BC settlement landscape.

In conclusion, the results from Castell Mawr provide a fine-grained ground-truthing of Murphy and Mytum's model of settlement relocation from large oval enclosures on high ground to smaller inland promontory forts of less regular plan around 400 BC, the transition from the Early to the Middle Iron Age. Potentially, Castell Mawr and Berry Hill formed two separate centres of population along the lower Nevern valley, later dispersed into a string of smaller communities living along the sides of the valley.

The lack of Late Bronze Age ceramics or radiocarbon dates at Castell Mawr suggests that there was no substantial activity on this hilltop in the Late Bronze Age immediately before the earliest Iron Age constructions. Its foundation thus marked a break with the previous settlement pattern, evidence for which comes from the circular ringwork at Bayvil Farm and from redeposited material of this period from the ditch at Berry Hill. The (comparatively) large oval hillforts of the Early Iron Age may thus represent a collaborative activity designed to foster community cohesion, as has been suggested for this period in Iron Age Wessex (Sharples 2010, 116–24). In this regard, the concentricity and symmetry of Castell Mawr's palisade enclosures and the symmetry of its later, enclosing ramparts suggest that cosmological principles were employed in constructing community at a supra-household level. Building of the cross-bank deliberately slighted this architectural order, as did the construction of more irregular promontory enclosures at 400 BC where enclosure design now followed the contours of the land rather than geometrical abstraction.

## ACKNOWLEDGEMENTS

This work would not have been possible without the kind permission of the landowner: Mrs Elaine Williams and her son, Mr Emyr Williams. We also acknowledge the help and support of the late Iorwerth Williams who died in February 2012; this report is dedicated to his memory.

We are also grateful to staff at the Pembrokeshire National Park, notably Phil Bennett. Louise Austin, formerly of Dyfed Archaeological Trust, also provided help and information from the Historic Environment Record. Local residents are thanked for organising the successful public lecture meetings in Brynberian School in 2012 and in Moylgrove Community Centre in 2013. Scheduled Monument Consent was obtained from Cadw for the research within Castell Mawr. The research in 2012 was supported with grants from the National Geographic Society and the National Museum of Wales, with a benefaction from Mr Walter C. Davis of Tustin, California, in memory of his late wife, Joan. In 2013 our research was supported with a grant from the National Geographic Society, a stipendiary award from Washington University St. Louis, and travel awards from Aarhus University and Linnaeus University Kalmar. Our archaeological field team included 30 people in 2012 and over 70 people in 2013, who are too numerous to mention here individually.

## NOTES

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10. RCAHMW (National Monuments Record of Wales, NPRN 304047) records this hillfort as a 1.3 hectare oval enclosure but this refers only to the size of the area enclosed within the ramparts.

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VOLUME 166 (2017)



*Cover image*: Castell Mawr Iron Age hillfort, Eglwyswrw, Pembrokeshire, viewed from the west in 2012. *Photograph: Toby Driver, © Crown copyright, Royal Commission on the Ancient and Historical Monuments of Wales.*