

Iron Age Enclosed Settlements in West Wales

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with contributions from

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This paper presents the results of several years' research on late Iron Age enclosed settlements in west Wales. Geophysical survey was conducted on 21 sites and three of these, Troedyrhiw, Ffynnonwen, and Berry Hill, were part-excavated. Most sites examined were heavily plough-damaged, but results of the surveys and excavations demonstrated that substantial archaeological remains survive. Approximately 60 enclosed settlements lay in the core study area of southern Ceredigion (Cardiganshire), half of which were oval in shape and half rectangular. Both types contain suites of buildings seen in much of the British Iron Age – round-houses and 4-/6-post structures. Evidence from the excavations supports data from elsewhere in the region indicating that small oval enclosures appear in the landscape in the 2nd–1st centuries BC, with rectangular enclosures constructed right at the end of the Iron Age. Dating is based almost entirely on radiocarbon determinations as, in common with other similar-aged sites in west Wales, artefacts are almost completely absent. It was not possible during excavation at Troedyrhiw to conclusively demonstrate late prehistoric use of the rectangular enclosed settlement, but a Roman pottery assemblage in the upper fills of the enclosure ditch coupled with a two phase entrance is interpreted as indicating Late Iron Age construction. More complex remains were revealed during excavations at Ffynnonwen, a circular enclosed settlement within a larger oval enclosure. Here, three round-houses, a 4- and 6-post structure and other remains were investigated and radiocarbon dated to the 8th–6th centuries BC through to the early Romano-British period. Berry Hill, an inland promontory fort, appeared to be unfinished and abandoned. Radiocarbon determinations indicated a Late Bronze Age construction (10th–8th centuries BC). The paper concludes with a consideration of a number of interpretive issues regarding settlement, enclosure, identity, and ways of living.

INTRODUCTION

The late prehistoric period in west Wales is characterised by numerous enclosed settlements. Indeed, little other evidence is available for the study of this period: there is a paucity of artefacts, burials are extremely rare, religious sites are absent, and field systems almost unknown. Approximately 800 Iron Age enclosed settlements are known in the region ranging in size from heavily defended hillforts in excess of 12 ha (although a size of 1–4 ha is the norm)

down to farmsteads with surrounding ditches and banks enclosing areas of less than 0.1 ha. The larger sites are, however, not common, and it is the smaller sites, with an average internal area of 0.15–0.50 ha, with a cluster of sites around 0.25–0.40 ha (c. 30–50 m across), that form the majority of enclosed settlements. Whilst even the smallest of these sites has been traditionally termed 'forts' (Fox 1952; Crossley 1963) or defended enclosures (James 1990; Williams & Mytum 1998) these interpretive terms have been avoided here for the smaller sites, though they have been retained for the larger examples. The possible reasons for enclosure are outlined in the discussion, and have to be considered in the light of the particulars of local context and the wider traditions of settlement enclosure discussed at more length in other regions (Willis 1999; Henderson 2007; Moore 2007).

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The larger sites, together with most of those over 0.50 ha and some of the smaller sites, are still defined by earthworks. However, many of the smaller sites are known only from cropmarks. These were first identified on vertical aerial photographs, with the discoveries published for Carmarthenshire by Savory (1954). However, it was not until the work of Professor St Joseph of Cambridge University (1961) that the potential for discovering defended settlements in this largely pastoral landscape began to be realised, with numerous discoveries made during the dry summer of 1976. Further reconnaissance by Terry James of Dyfed Archaeological Trust in 1984 and other dry summers of that decade increased the known number of cropmark sites dramatically (James 1984; 1988; 1990). Subsequent discoveries by Chris Musson and later by Toby Driver, both of the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) added to the number of known sites.

The aerial photographic cropmark discoveries also began to populate areas previously thought to be largely devoid of late prehistoric settlement, eg, in south-west Ceredigion (Figs 1 & 2). Here, prior to the cropmark discoveries, only two sites were known, both earthworks, one of which was the small hill-fort known as Castell Nadolig (SN 2985 5040). There are now *c.* 60 enclosed settlements known in the area. These are unusual for two reasons: first, the normal population of enclosed enclosures across the region comprises a wide range of sizes and a mixture of earthworks and cropmarks, whereas in south-west Ceredigion almost all sites are cropmarks towards the lower end of the size range; second, *c.* 50% of the sites are rectangular or sub-rectangular compared with *c.* 10% across the region. Rectangular enclosed farmsteads are a feature of the later Iron Age in the region – for example Penycoed in Carmarthenshire (Murphy 1985) – but the high proportion of this type of site in south-west Ceredigion meant that there was some reticence in assigning them to this period without additional evidence.

Fieldwork took place during the summers of 2004–2007, initially concentrated on rectangular cropmark sites in south-west Ceredigion: roughly a triangular area 20 km east–west and 20 km north–south lying between Cardigan, Aberporth, and Newcastle Emlyn. Subsequent work included the investigation of oval and rectangular enclosures, including some in north Pembrokeshire and western

Carmarthenshire. In these latter two counties larger earthwork defended settlements are well represented in the record. The study area is characterised by an agricultural landscape of rolling hills generally lying between 30 m and 180 m above sea level, cut by steep-sided small valleys. It is mainly a pastoral economy containing much semi-permanent improved grazing. Towards the coast, along the north-west side of the study area, arable for fodder – predominantly barley and maize – is more common. This coastal zone is exposed to Atlantic winds and is almost treeless apart from on steep, sheltered valley sides. These winds parch the vegetation in all but the wettest summers, producing conditions conducive for cropmark development. Away from the coastal zone the landscape is more wooded, with less arable and is not subjected to such marked summer parching. Ordovician siltstone/mudstone is the solid geology (British Geological Survey 1994). At the locations of the three excavations thin topsoil lay directly over these hard rock deposits, the strata of which were vertically pitched.

The project was designed to define the forms of archaeological data that were present on the sites, and to assess the quality of preservation on enclosed settlements in the region so that appropriate management plans could be drawn up. The evidence collected through study of aerial photography, geophysics, and selective excavation also allowed the regional patterns and site-based information to be available for interpretation in the light of recent theoretical and interpretive developments that had been applied to similar settlement types elsewhere in Britain (Gwilt & Haselgrove 1997; Bevan 1999; Haselgrove & Moore 2007; Haselgrove & Pope 2007; Davies *et al.* 2008).

IRON AGE ENCLOSED SETTLEMENTS IN WEST WALES – A REVIEW OF THE EVIDENCE

It is clear from a recent review of evidence by Davies and Lynch (2000) that the earliest enclosed settlements/hillforts of Wales lie within the wider British tradition and originate in the Late Bronze Age/Early Iron Age transition of *c.* 800–550 BC. Most Welsh evidence from large sites comes from investigations in the north and east of the country (Gardner *et al.* 1964; Savory 1971; Stanford 1974;

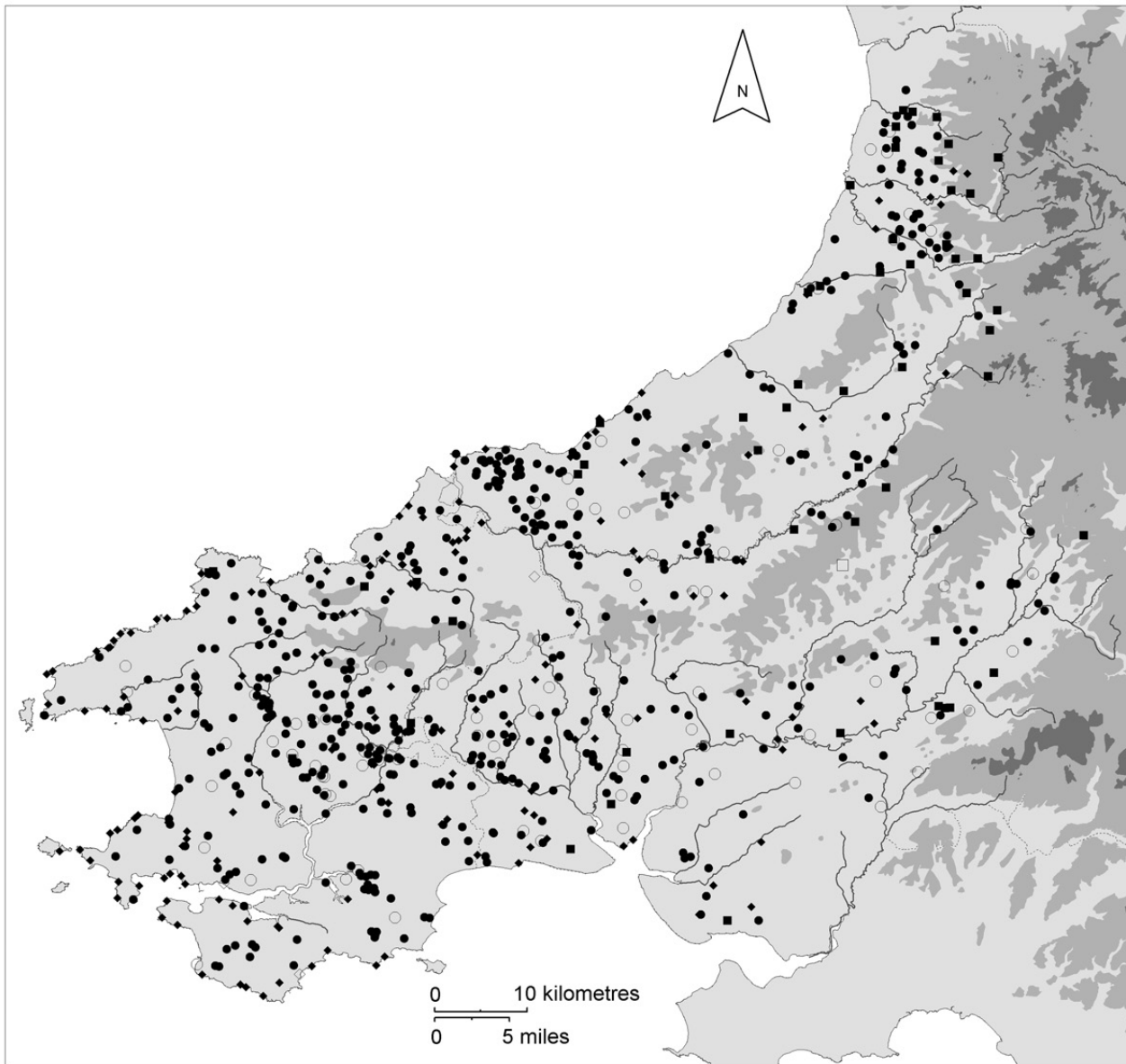


Fig. 1.

Distribution map of defended and enclosed settlements in south-west Wales: hillforts = filled squares, possible hillforts = open squares, promontory forts = filled diamonds, possible promontory forts = open diamonds, filled circles = defended enclosures, open circles = possible defended enclosures. Land over 250 m and 500 m shaded

1981; 1984; Guilbert 1975; Musson 1991) and while no modern excavation has been undertaken on the largest hill-forts in west Wales – from which Late Bronze Age dates could be expected – work on medium-to-large sites, such as Merlin’s Hill in Carmarthenshire (Williams *et al.* 1988) and Caer

Cadwgan in Ceredigion (St David’s University College 1984–6), has demonstrated at least Early Iron Age occupation. Radiocarbon dates from two coastal promontory forts also indicate early origins: at Porth y Rhaw (Crane & Murphy 2010) a series of dates indicate defence construction between the 8th and 4th

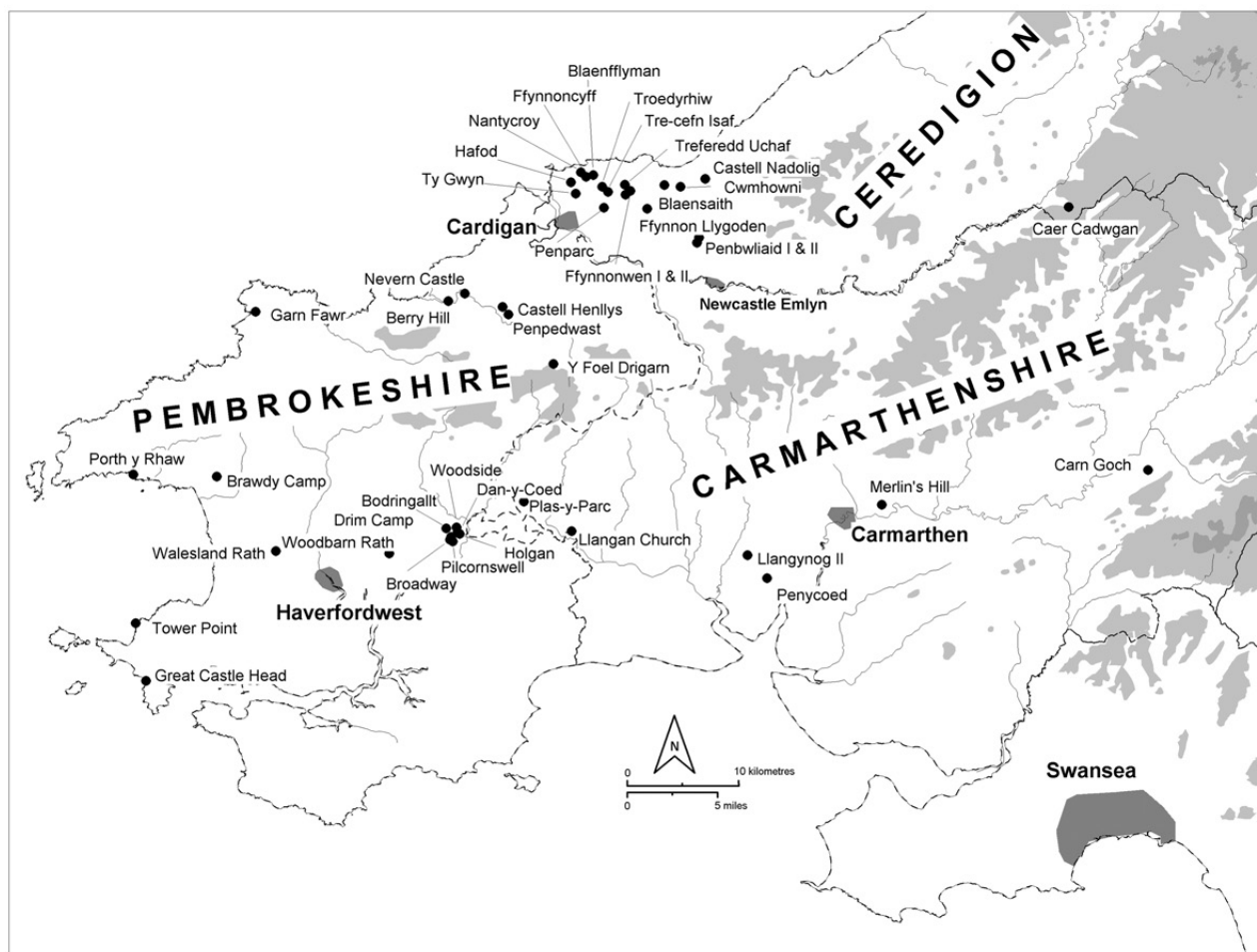


Fig. 2.
Location map showing sites named in text. Land over 250 m and 500 m shaded

centuries BC, and at Dale (Benson & Williams 1987) dates of the 9th or 8th century BC were obtained from complex defences, which included palisade trenches pre-dating the rampart.

Inland, within the Llawhaden group of enclosures, the pre-rampart occupation at Broadway, a medium-sized hilltop enclosure, consisted of stake-holes and gullies dated to *c.* 700–400 BC. This settlement is considered to immediately pre-date the construction of the rampart, and, at Drim, a palisade trench concentric to and 50 m from the rampart of a small later Iron Age enclosure returned a date of *c.* 750–400 BC (Williams & Mytum 1998, 53, 65). This pre-dates the later defences by several centuries but has no stratigraphic connection with them. Bronze Age

activity at other sites at Llawhaden – Woodside, Pilcornswell, and Holgan – seems to have no connection with the later enclosed settlements. At Brawdy Camp (Dark 1987) radiocarbon dates from a hearth and other features indicate occupation during the 8th–5th centuries BC.

Palisade trenches pre-dating main rampart construction are a common feature on large hillforts in Britain, with evidence often pointing to Bronze Age origins, often with a considerable time lapse between the palisade and the construction of the main rampart. Such a feature lies beneath the rampart at Castell Henllys, a mid-sized hillfort in an inland promontory location, but here extensive excavation demonstrated that the defensive bank was quickly built over the

palisade, even incorporating palisade timbers into the earthwork (Mytum 1999; forthcoming). Radiocarbon dates from the palisade suggest that it was constructed *c.* 400 BC, with dates from the ground surface beneath the ramparts supporting the *c.* 30 year period for the life of the palisade timbers to indicate a likely earthwork construction *c.* 370 BC. A La Tène I brooch beneath the rampart supports a 4th century BC date for the main defences.

Limited excavation, few artefacts, and the imprecision of the radiocarbon calibration curve hamper chronological precision and, therefore, analysis of site development for the later Iron Age. Nevertheless, broad trends are detectable. Along with Castell Henllys other mid-sized and small hillforts are constructed during the 4th and 3rd centuries BC, such as Pilcornswell and Holgan, both in the Llawhaden group. The evidence from these last two sites indicates that they were short-lived, and were replaced by smaller enclosed settlements/farmsteads in the vicinity. However, this comes from small-scale excavations and the overall trend is one of smaller enclosures filling up the countryside in the gaps between hillforts and larger defended enclosures. This pattern is demonstrated by large-scale excavation at Woodbarn Rath (Vyner 1982; 1986), which was constructed between the 4th and 1st centuries AD, and at the small Llawhaden enclosures of Woodside, Dan-y-Coed, and Bodringallt (Williams & Mytum 1998, 142), as well as at Walesland Rath (Wainwright 1971a). However, the extensive excavations at Castell Henllys indicate that the smaller hillforts could be deserted in the later Iron Age, albeit in this case with settlement shifting only a few metres to the annexe area of the original fort (Mytum 1991b).

The size, location, and form of hillforts and smaller enclosures vary considerably (Fig. 3). The largest, which, in the case of Carn Goch in Carmarthenshire (Hogg 1974) is in excess of 12 ha, are more usually *c.* 5 ha and located on the tops of prominent hills, are defended by stone banks or walls, as with the Pembrokeshire sites of Carn Ingli, Garn Fawr, and Y Foel Drigarn, and in the case of the last is also defined by ditches. Medium-sized and smaller hillforts can be found on many of the rounded summits of the lower hills. Typically, as at Broadway, Llawhaden (Williams & Mytum 1988, 6–7), they are oval or round in plan, measure 100–150 m by 100 m and are univallate, with substantial earthen banks and ditches. Less commonly these enclosures are bivallate, and rarely

multivallate, though some univallate examples may have outworks yet to be recognised. Promontory forts, coastal or inland, are usually smaller in area than hillforts (although some coastal examples are very large and some very small, coastal erosion makes accurate estimation of the original enclosed areas impossible in most cases), and utilise steep slopes or cliffs as part of their defensive system, with one, two or sometimes three lines of bank and ditch thrown up to protect the most easily approachable sides. Holgan Camp, Llawhaden (Williams & Mytum 1998, 7) is a good example of an inland promontory fort, and Castell Henllys is another. Sixty coastal forts can be found on the west Wales coast, with Tower Point near St Brides, Pembrokeshire (Wainwright 1971b) being a particularly good and well-preserved example, but many, like the recently-excavated sites of Porth y Rhaw (Crane & Murphy 2010) and Great Castle Head at Dale in Pembrokeshire (Crane 1999), have suffered from severe coastal erosion and little now survives of their interiors.

Smaller still in size are the enclosed settlements/farmsteads. These are found in large numbers with 562 known in west Wales. A selection of aerial photographs of cropmark sites in south Ceredigion is shown in Figure 4. The majority of these types of site are situated on farmland, some of which is subject to intensive cultivation. Given the vulnerability and the relatively small size of these sites it is remarkable that so many survive as earthworks (344 out of 562); 208 defended enclosures are recorded as cropmarks. For a full analysis of the hill-forts enclosures of west Wales see Murphy and Murphy (2010).

The shape of hillforts and enclosures is also varied, but with most (448) circular, sub-circular, or oval. Rectangular or square sites comprise *c.* 10% (84) of the total, as do sub-rectangular sites (94 in total). The remaining 161 are irregular in shape and are mostly coastal or inland promontory forts.

Concentric annexes have been recognised at 57 sites. They are occasionally defined by a bank and ditch surviving as an earthwork but the majority only survive as cropmarks. In general annexe ditches are slighter than the ditch surrounding the main inner enclosure, survive less well, and are therefore not as easily detected on the ground or by aerial photography. It is quite likely that many more enclosures have concentric annexes than the 57 so far recorded and that enclosed settlements with concentric annexes should be perhaps regarded as the

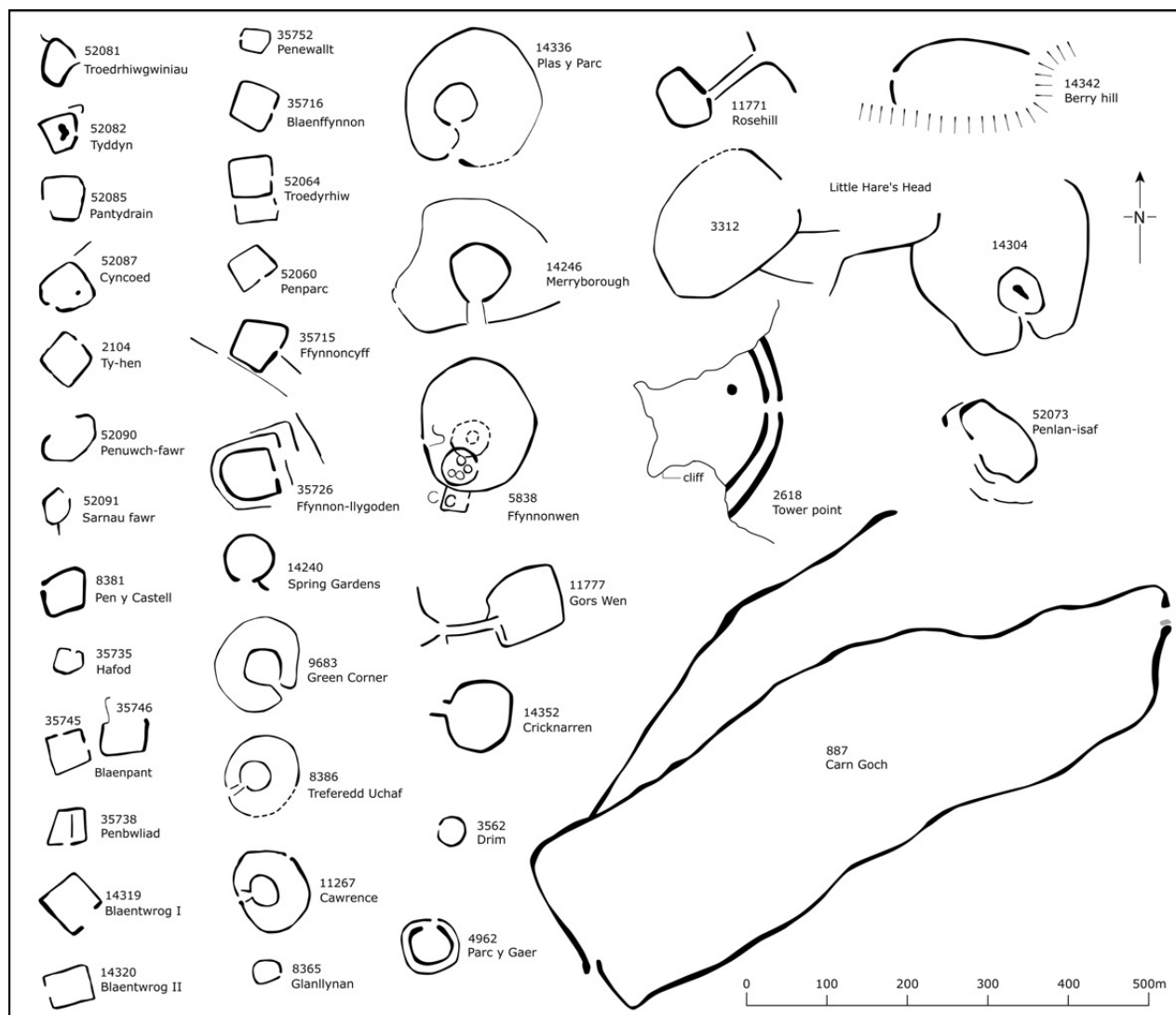


Fig. 3. a & (opposite) b.

Selection of Iron Age defended and enclosed settlements in southwest Wales. Numbers are records numbers assigned on the Dyfed Regional Historic Environment Record housed with Dyfed Archaeological Trust, Llandeilo, Carmarthenshire SA19 6AF

norm in west Wales, rather than as a regional variation. Other types of annexe have also been recognised, such as lobate enclosures and cross-banks cutting off ridge-tops, but they are a small, disparate group. Concentric annexes vary in size from less than 0.5 ha to over 10 ha. However, their size is usually in proportion to the inner enclosure, with the distance between the inner ditch and the annexe ditch being normally 45–60 m. They are clustered across central

Pembrokeshire and western Carmarthenshire, with very few elsewhere in west Wales. Aerial photography and geophysical prospection show that the annexes are empty of other features (although this has not been tested by excavation). On morphology alone it would seem that most of the concentric annexes were constructed at the same time as inner enclosures; this again, however, has not been tested by excavation (Figs 3a & b).

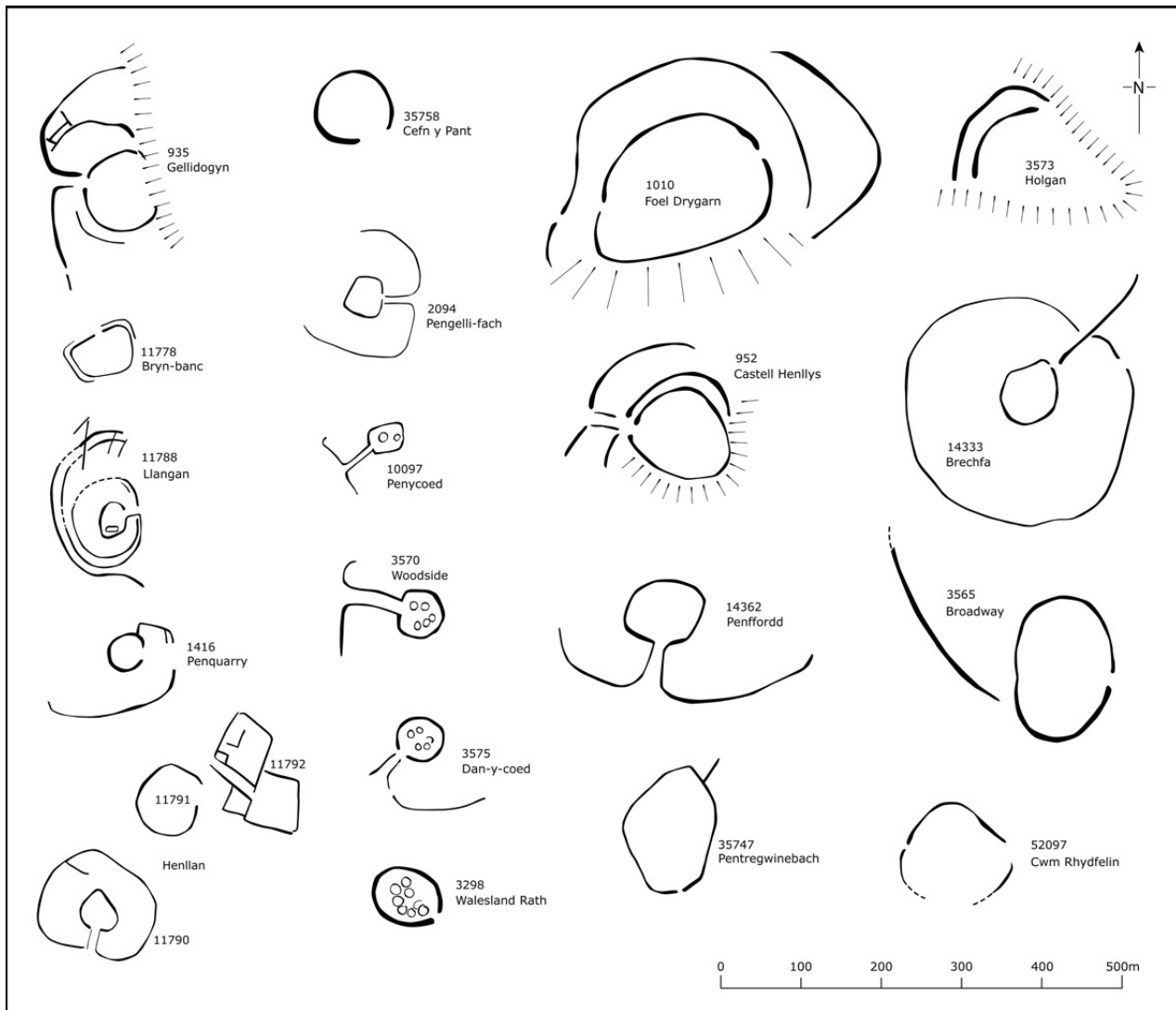


Fig. 3. b

As described above, hilltops, hill slopes and clifftops are the favoured positions for hillforts, promontory forts, and enclosed settlements, and apart from a handful of examples very few of these sites are located within 100–200 m of a stream or river, and there is rarely any evidence for springs or other sources of water closer to the sites, although hydrography may have been different in the Iron Age. No evidence of wells or for water storage has ever been found during excavations. It seems therefore that either ready access to water was not an issue for the

people who lived in these settlements, or that water-storage facilities are archaeologically invisible.

Paucity of artefacts from excavated sites is a major impediment to interpreting the Iron Age in west Wales, though on occasion some intra-site patterning has been identified (Mytum 1989). The area is virtually aceramic, and other finds are scarce. This problem hinders the establishment of chronological frameworks – scientific techniques and, particularly, radiocarbon determination with all its problems for application in later prehistory have to be relied upon

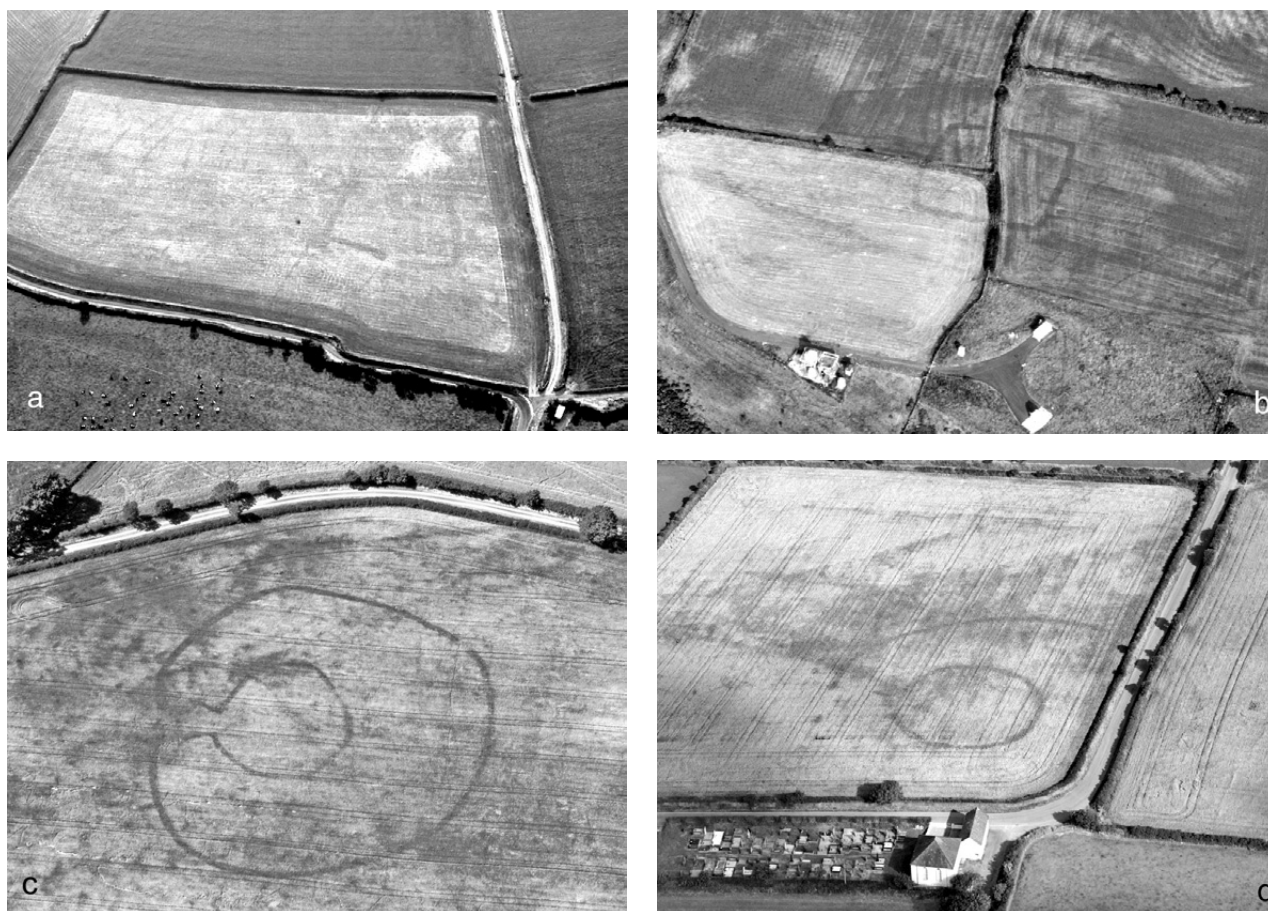


Fig. 4.

Four cropmark enclosures in south Ceredigion: a) Ffynnoncyff (record no. 35715, photo. ref. 89-cs-659); b) Ty-hen (record no. 2104, photo. ref. 96-cs-1735); c) Cawrence (record no. 11267, photo. ref. 96-cs-1435); d) Treferredd Uchaf (record no. 8386, photo. ref. AP_2005_1493). All photographs RCAHMW Crown Copyright

– and this hampers the identification of trade networks, economic activity, social interactions, and fine-grained cultural change. It also limits the potential for the recognition of ritual depositions, though these may have been made with materials that have degraded. The small numbers of artefacts from the three excavated sites described in this paper is typical of the region.

THE GEOPHYSICAL SURVEYS

Twenty-one sites were surveyed using a Geoscan FM36 fluxgate gradiometer. These magnetometry surveys were supplemented by topographic survey on

all sites except Penbwliaid II and Nevern Castle. Reports on the full results of the survey have been produced (Murphy *et al.* 2004; 2006; 2007 a & b), and are summarised in Table 1. Resistivity was used on two sites, Troedyrhiw and Blaensaith, in the early spring of 2005. Results were very poor and therefore this technique was not used on other sites.

The combination of geophysical survey and topographic survey was particularly effective as it allowed for more precise site interpretation than using just one form of data. Rarely did any earthworks survive, and where they did they consisted of very low banks which were difficult, if not impossible, to interpret without additional data. Conventional archaeological earthwork surveys were therefore not

TABLE 1. SUMMARY OF THE GEOPHYSICAL RESULTS

Site	Cropmark	Res	Extra detail	Comments	Exc
Berry Hill	Good	Mid	No		Yes
Blaenfflyman	Good	High	Limited	Internal divisions	
Blaensaith	Good	High	Yes	Houses	
Cwmhowni	Good	Mid	Yes	Pits and other features	
Ffynnoncyff	Good	Low	No		
Ffynnon Llygoden	Good	Mid	Limited		
Ffynnonwen	Good	High	Yes	Houses and other features	Yes
Ffynnonwen II	Good	High	Yes	House	
Hafod	Poor	Low	Negative	Not a defended enclosure	
Llangan Church	Good	High	Yes	Many internal features	
Nantycroy	Moderate	High	Yes		
Nevern Castle	None	Mid	No		
Penbwliaid I	Good	High	Yes	Possible houses	
Penbwliaid II	Poor	High	Negative	Not a defended enclosure	
Penparc	Good	High	No		
Penpedwast	Good	High	Yes	House	
Plas-y-Parc	Good	Mid	Limited		
Tre-cefn Isaf	Good	Mid	Yes	Possible house	
Treferedd Uchaf	Good	Mid	Yes	House and other features	
Troedyrhiw	Good	Mid	Limited		Yes
Ty Gwyn	Good	High	Limited	Ditches clarified	

Cropmark: Good = a clear cropmark of a defended enclosure; Moderate = a cropmark probably of a defended enclosure; Poor = a poor cropmark, possibly a defended enclosure. *Res* (geophysical resolution): High = traverses at 0.5 m intervals with readings every 0.25 m; Mid = traverses at 1.0 m intervals with readings at 0.25 m intervals; Low = traverses at 1 m intervals with readings at 0.5 m intervals. *Extra detail* (of geophysics): Yes = geophysical survey detected a lot of detail not visible on aerial photographs; Limited = geophysical survey detected some detail not visible on aerial photographs; No = no extra detail detected in geophysics; Negative = geophysics demonstrated that the site is not a defended enclosure. *Comments* (on geophysics) = lists some of the detail detected by the geophysical survey. *Exc* = site excavated

undertaken. The topographic surveys did, however, locate natural breaks of slope and general landform, information that assists in the interpretation of the geophysical data.

The objectives of the survey were to gather data to enable site characterisation in terms of form and, where possible, internal structure. The data would assist in assessing the vulnerability of sites and help in the formulation of management strategies, as well as allowing further interpretation of the late prehistoric settlement of the region. In the first year, 2004, eight rectangular enclosures were surveyed. The first survey, at the well-defined rectangular Ffynnoncyff cropmark enclosure, was low resolution with traverses at 1 m intervals and readings at 0.5 m. This level of survey detected the main ditches visible on aerial photographs, but revealed no additional evidence, and was of little help in characterising the site. A medium resolution survey – 1 m traverses and readings at

0.25 m – at Troedyrhiw was very effective in defining ditches but failed to reveal obvious structural detail although, with the benefit of 2005 excavation evidence, minor anomalies in the geophysical data are interpretable as post-holes. Generally only at a high resolution – traverses at 0.5 m intervals and readings at 0.25 m – was archaeological detail not usually visible on aerial photographs detectable. However, this resolution of survey is very time-consuming and only a selection of subsequent surveys was undertaken at this intensity. Results are summarised in Table 1 and shown as small-scale plots on Figure 5. Four examples of geophysical survey are presented in more detail – Blaensaith, Penpedwast, Treferedd Uchaf, and Llangan Church.

Blaensaith, Ceredigion (SN27594966) was the first survey to return results showing internal features, features indicative of Iron Age date (Fig. 6). It is a rectangular enclosure measuring 52 m north-east to

south-west by 47 m north-west to south-east with an internal area of 0.24 ha. A hedgebank overlies the north-western side, over the presumed location of the entrance. It is a cropmark but with very slight traces of bank within the ditch on the south-west side, occupying a gentle north-west facing slope at 175 m above sea level, just off the highest point of rounded hilltop 100 m to the south-west. The geophysical survey shows some of the bank to have collapsed into the ditch on the south-east side of the enclosure, and there are bands of occupation deposit along the inner face of the bank on the south-west side. Two round-house gullies are clearly visible: that in the south corner of the enclosure is *c.* 12 m diameter, possibly with an east-facing entrance flanked by two post-holes, and also possibly with a west-facing entrance. The house in the north corner is smaller, *c.* 10 m diameter, of two phases, and with a south-west facing entrance. There are hints of other internal features – pits, post-holes, and gullies – as well as other possible round-houses.

Penpedwast, Pembrokeshire (SN 1201 3903) occupies a rounded hilltop at *c.* 80 m above sea level. It is a rectangular, almost square 35 m across internally, cropmark enclosure with the north side defined by the top edge of a steep valley. The survey shows slightly bowed sides to the enclosure (Fig. 7), with the ditch on the east overshooting its junction with the southern ditch by *c.* 5 m. The ditch is of variable width being 2 m at its widest in the west, 3 m in the south and 5 m in the east. The south facing entranceway is clearly defined. A round-house drainage gully was identified in the centre of the enclosure and a cluster of pits or post-holes in the south-east corner. A higher-resolution survey was undertaken in parts of the interior to provide more information (not illustrated). Two doorposts and a possible central hearth are visible in the round-house, and a cluster of post-holes may indicate the position of a second round-house. A 4-post structure is also visible at this resolution.

Some of the best geophysical results were returned from the concentric enclosure at Treferredd Uchaf, Ceredigion (SN 226 499). It is located at 165 m above sea level and to the south, east, and west the land falls away gently giving wide-ranging views. To the north the land rises very gently a few metres to a high point 350 m away. Aerial photographs show an inner circular cropmark ditch, *c.* 35 m in diameter (Fig. 4). Concentric to this, *c.* 25 m distant from it is an outer circular enclosure, *c.* 85–95 m in diameter. The

entrances to both enclosures face west-south-west. Ditches flanking a possible entrance track run between the two entrances. A low (0.2 m high) earthwork bank runs around the inside edge of the inner enclosure ditch. This bank is visible on the geophysical survey as a wide band inside the ditch leaving an area a little over 20 m diameter available for occupation (Fig. 8). Within this internal area is what seems to be a round-house and other features, perhaps pits or post-holes. A distinct ‘hollow-way’ runs through the inner and outer enclosure entrances.

The most complex archaeological remains of all the surveys were revealed in fields surrounding Llangan Church, Carmarthenshire (SN 136 216; Fig. 9). The site occupies a gentle south facing slope at 50–65 m above sea level. There are no earthwork indications for an enclosure in the field to the south of the church; there are low undiagnostic earthworks in the field to the north. St Canna’s Church is likely to have early medieval origins (James 1992, 69), but an inscribed stone – ‘St Canna’s Chair’ – that formerly stood in the field to the north is now considered to be an antiquary’s forgery produced to support the well-cult of St Canna (Edwards 2007, 531), and is not of early medieval date. The redundant parish church lies in a sub-rectangular churchyard to the north-west of the inner cropmark enclosure which is sub-circular, *c.* 35 m diameter internally, with an east facing entrance approached by a ditched trackway (Fig. 10). There is a possible sub-rectangular building in the south side of the enclosure. High resolution geophysical survey (not illustrated) revealed this to be of two phases, with possible internal hearths and post-holes, though the impression of a sub-rectangular form could be created on the plots by the overlapping of two sub-circular buildings. A trivallate enclosure surrounds the inner enclosure, measuring *c.* 80 m internally east–west. Its north–south dimensions are difficult to estimate, but the geophysical survey seems to show one of the ditches curving round to the north some distance away. Here, in the field to the north of the church, lies a series of rectilinear cropmarks that probably relate to the enclosure. On the south side of the outer enclosure discrete geophysical anomalies indicate the position of hearths and furnaces.

The remains at Llangan are particularly difficult to interpret. The cropmark seems to be of a Late Iron Age enclosure, if a little unusual having a trivallate outer ditches. The church seems to have been established within the outer enclosure, with a possible

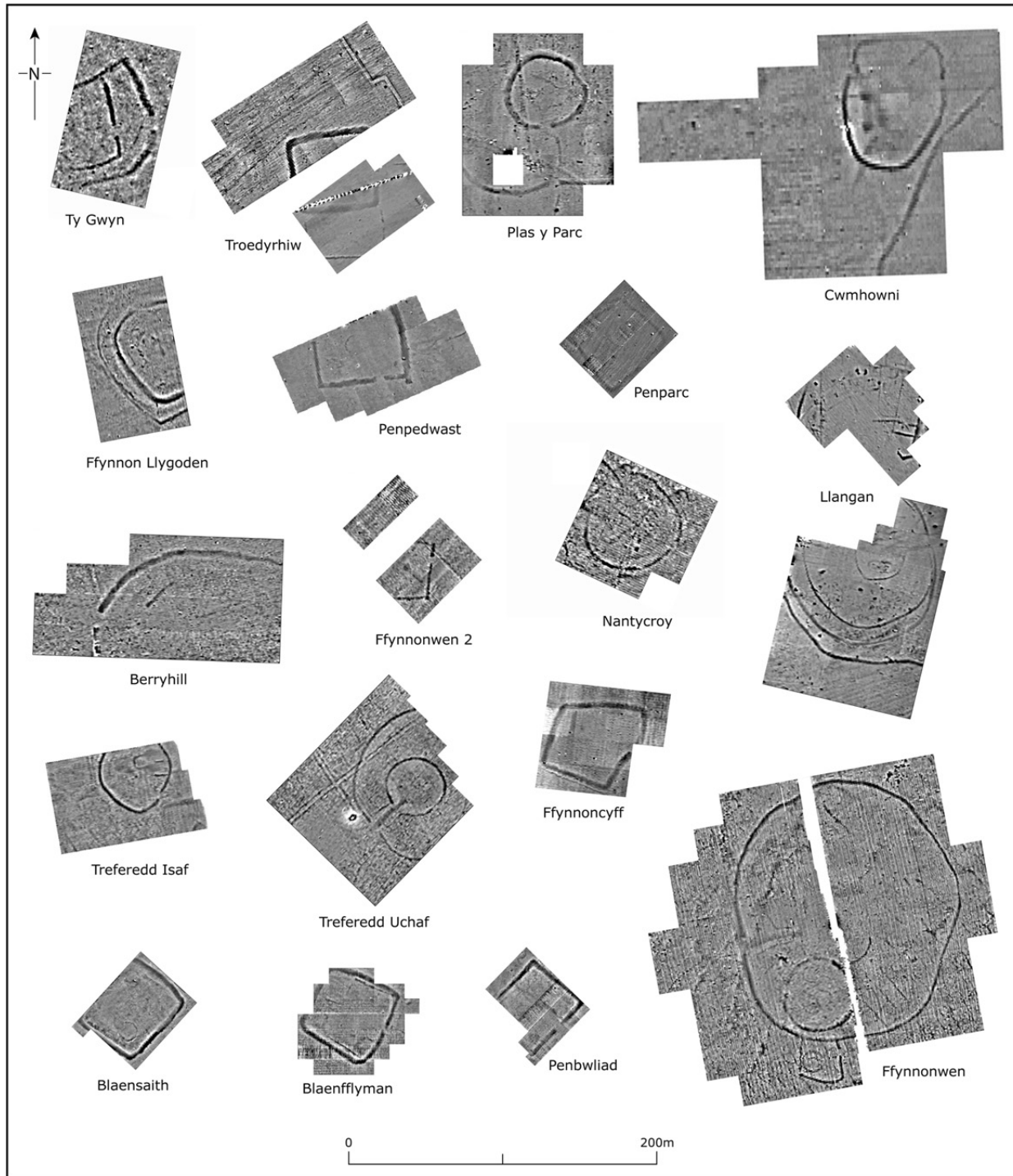


Fig. 5.
Plots of geophysical surveys

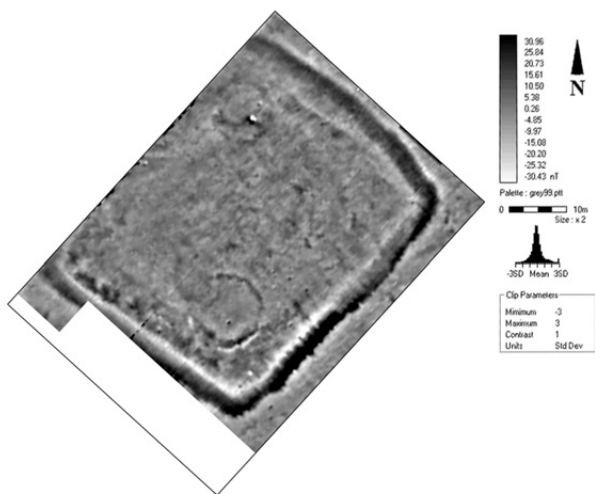


Fig. 6.
The Blaensaith geophysical survey

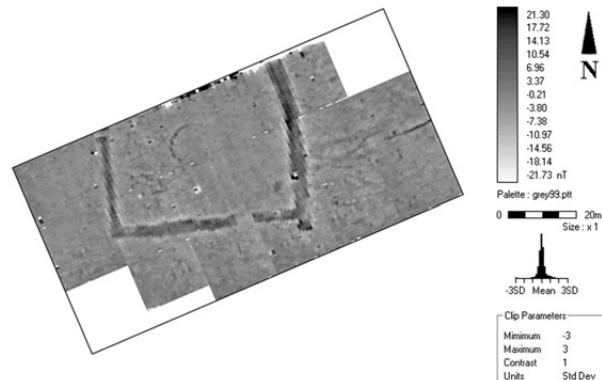


Fig. 7.
The Penpedwast geophysical survey

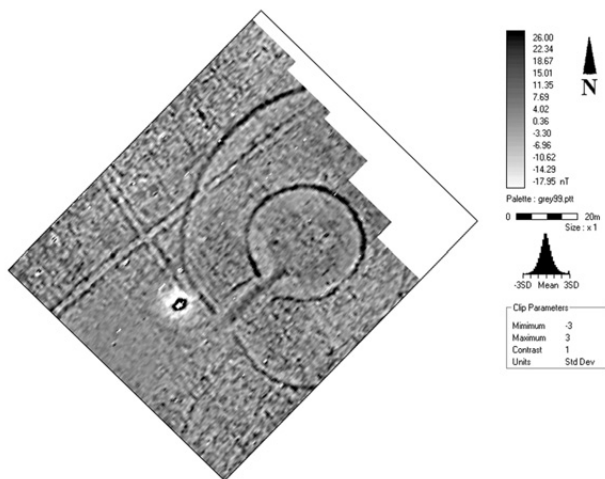


Fig. 8.
The Trefredd Uchaf geophysical survey



Fig. 9.
Aerial photograph of Llangan Church by T James, 1984.
Dyfed Archaeological Trust

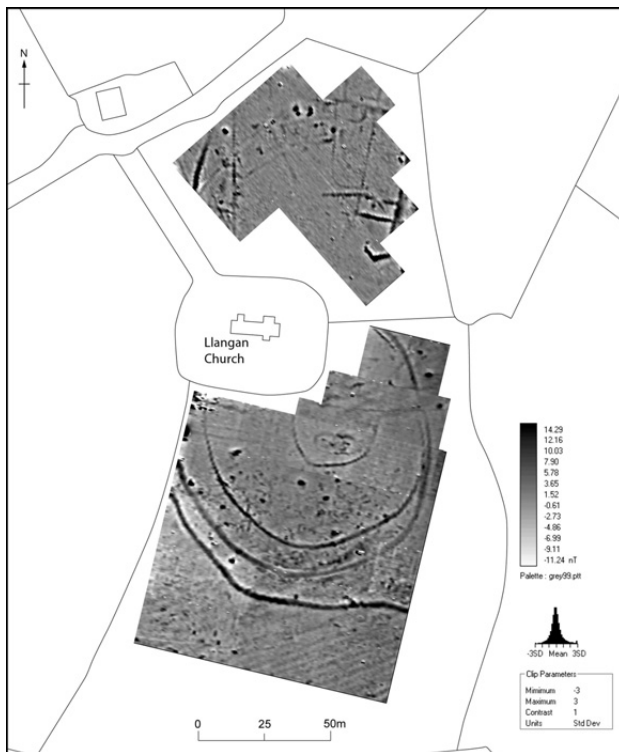


Fig. 10.
The Llangan Church geophysical survey

early medieval secular settlement within the inner enclosure. If a sub-rectangular building is present, the closest known parallels are structures from Dinas Powys in Glamorgan (Allcock 1963, 29, fig. 6).

EXCAVATION AT TROEDYRHIW

Troedyrhiw is a rectangular cropmarked enclosure measuring 50 m east–west and 45 m north–south, with an entrance in its eastern side, and a rectangular annexe to its south. It is located towards the top of a gentle east facing slope at 125 m above sea level. Two trenches were excavated, one over the entrance to the enclosure, Trench 1, and the other over the annexe entrance, Trench 2 (Fig. 11). Many of the excavated features are probably of Romano-British date and therefore only a brief summary of the results is presented here. A full report is lodged with the archive.

The entrance ditch terminals (9 & 39) investigated

in Trench 1 were rock-cut with V-shaped profiles, 3.4m wide and 2.6m to 3.4m deep (Fig. 12). Lower ditch deposits indicated rapid infilling: upper deposits slow accumulation. An assemblage of *c.* 200 sherds of 1st–4th century Roman pottery came from the upper ditch fills. Quartz boulders lay above the lower ditch fills, but mostly below the slowly accumulated upper deposits, and against the inner face of the ditches. Rock-cut post-holes indicate two phases of entrance gateway. The first phase was represented by two post-holes (19 & 25), one of which contained several sherds of Iron Age type pottery. A short length of shallow gully led from each post-hole. Their function is uncertain, but they may have held palisades tying the entrance posts into the bank. A track-way (63) up to 0.2 m deep and represented by a band of worn, smooth bedrock ran between the ditch terminals and the post-holes (19 & 25). One of the second phase post-holes (36 & 38) cut through this worn hollow-way (63). A sherd of Roman Black-Burnished ware was found in post-hole 38. A gully (20) ran from the south post-hole and is interpreted as a rear revetment to the bank. A series of shallow rock-cut pits, post-holes, and gullies in the interior of the enclosure formed no obvious pattern. Roman pottery was present in some of these features. The ditch terminals in Trench 2 were *c.* 0.7 m deep and had no distinguishing features.

The Roman pottery assemblage comprised about four dozen vessels (reported on by P. Webster). None was of local origin. The assemblage was dominated by Black-Burnished ware, but contained a few finewares. Pottery in an Iron Age tradition appeared in two contexts; this is the sort of ware which usually spans the Roman conquest of south Wales and, although it may be indicative of pre-Roman occupation, it nowhere appears in isolation from Romanised pottery.

The archaeobotanical assemblage (reported on by A.E. Caseldine and C.J. Griffiths) was dominated by wheat, mainly spelt wheat (*Triticum spelta*) but with some bread wheat (*T. aestivum*), confirmed by chaff remains. Much of the grain and chaff was assigned only to genus (*Triticum* sp.) because of poor preservation and might include some emmer (*T. dicoccum*). Twisted as well as straight grains suggest the barley (*Hordeum* sp.) was six-row rather than two-row and the appearance of the grains indicates that it was hulled. Oat (*Avena* sp.) was present but, in the absence of chaff, could be wild or cultivated. Small amounts of weed seeds such as redshank

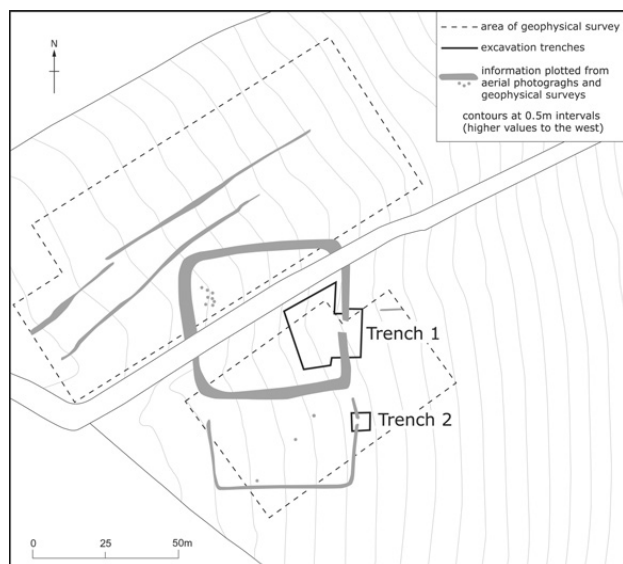


Fig. 11.

Location of the Troedyrhiw excavations in relation to the cropmark plot/geophysical survey

(*Persicaria maculosa*), docks (*Rumex* sp.), and orache (*Atriplex* sp.) as well as other remains, including hazelnuts (*Corylus avellana*) and gorse (*Ulex* sp.) spines, were recorded.

Overall the results from Troedyrhiw suggest a late prehistoric enclosed settlement continuing in use throughout the Romano-British period, with the inhabitants largely continuing a Late Iron Age lifestyle.

GEOPHYSICAL SURVEY & EXCAVATION AT FFYNNONWEN

Ffynnonwen was discovered from the air in 1996 by Chris Musson (RCAHMW). Aerial photographs show a large oval enclosure with an entrance to the west within which, in the south-west quadrant, lies a circular enclosure with an apparent north facing entrance. The site is divided in half by a north-south aligned field boundary. In 1996, both fields were under barley. After harvest the site was ploughed and put under grass. It was not ploughed again until after the 2006 excavation. The site lies at the southern end of rounded hilltop, just off the summit, at *c.* 170 m

above sea level (SN 2257 4912). Wide-ranging views to the west, south, and east are obtained from the site, but to the north these are blocked by ground rising just a few metres onto the summit. From the summit, the Preseli Mountains are visible 25 km to the south-west, the Black Mountain 65 km to the south-east, and to the west, north, and north-east the whole of the Cardigan Bay coast, up to the Llyn Peninsula 80 km away. On clear days, Ireland is visible to the west.

During the excavation (16 July–11 August 2006) the weather was exceptionally hot and dry, with temperature on the 19 July reaching 34°C, the hottest on record for Wales. Just two short periods of overnight rain were recorded during the four-week excavation but, by the following mid-morning, the excavation surface was dry and dusty.

Geophysical survey

Geophysical survey in 2005, measuring 100 x 60 m, over the south-west quarter of the site, encompassed the inner circular enclosure and part of the interior of the oval outer enclosure to the north of it. During 2006 excavation the whole of the outer oval enclosure was surveyed (Fig. 13, top).

On the geophysical plot the oval outer enclosure measures 160 m north-south and 140 m east-west, with slight bulge on the east side. A *c.* 12 m wide gap on the west side marks the entrance. A faint, wide anomaly within the entrance running east-west may indicate a hollow-way/track. A thin sinuous ditch/gully curves around this anomaly. To the east of the central dividing hedge-bank lies a distinct curving ditch. This seems to be continued as a slighter feature to the west, curving around to form *c.* 30% of a circle 45 m in diameter. What may be a 10 m diameter round-house gully lies in the centre of this circle, directly beneath the hedge-bank.

The inner circular enclosure is well defined. It consists of a ditch, *c.* 45 m internal diameter with what could be an entrance on its north side, or possibly on the north-western side. A least four circles, assumed to be round-house gullies each *c.* 10 m in diameter, lie within the enclosure. Discrete anomalies may represent pits and post-holes.

A square enclosure 25 m across, with an east facing entrance attached to the south side of the oval outer enclosure, contains a *c.* 13 m diameter round-house and other anomalies. Another possible round-house lies immediately to the west, outside this enclosure.



Fig. 12.
Troedyrhiw: plan of Trench 1, sections of ditch 9 & 39

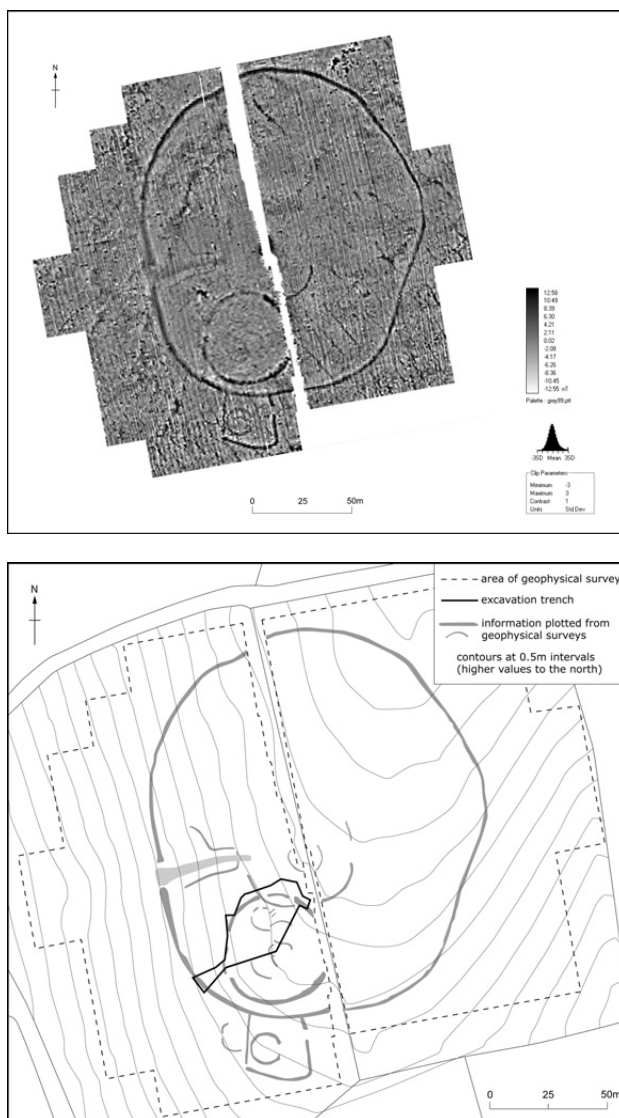


Fig. 13.

Top) Ffynnonwen: Geophysical survey. The survey of the inner enclosure was undertaken in 2005 at high resolution, the remainder was carried out in 2006 at medium resolution; bottom) location of excavation in relation to the simplified geophysical plot

A series of thin ditches aligned south-east to north-west, and most pronounced on the south-east side of the survey, may be remains of ridge-and-furrow cultivation. Outside the north-east side of the oval outer enclosure a cluster of pronounced anomalies could be hearths or furnaces. There are many other discrete and linear anomalies on the plot. Some of

these are likely to be geological features but, on the western side of the site, there appear to be ditches possibly associated with the enclosure.

Excavation

Initially it was planned to excavate a *c.* 25 m² portion of the interior of the inner circular enclosure against the hedge-bank that bisects the site, taking in at least one of the round-houses detected on the geophysical survey and the enclosure's entrance, which the aerial photographs and survey indicated lay on the north side of the enclosure. However, a site inspection in June revealed a badger sett in the hedge-bank close to where the south side of the ditch of the inner enclosure runs beneath the bank. As there is a legal requirement to maintain at least 30 m between badger setts and working machinery, the planned area of the excavation was pushed further out into the field, but still examining the possible entrance and at least one round-house. This adaptation accounts for the rather unusual shape of the excavated area (Fig. 13, bottom).

A machine removed the topsoil, which was on average 0.25–0.30 m thick and consisted of a stony silt loam. Topsoil lay over vertically-pitched Ordovician shale of the Ashgill Series (British Geological Survey 1994). In pockets this rock was shattered and intermixed with a veneer of glacial silts, but over most of the excavation it was hard, with the bedding planes clearly visible running in an approximately east–west alignment. Owing to the dry conditions, minor archaeological features such as pits, post-holes, and gullies were not immediately visible, but the ditch encircling the enclosure could be clearly identified. It was apparent that this ditch was continuous across the location of the supposed entrance on the north side of the enclosure (Fig. 14). As the geophysical survey indicated a possible break in the ditch on the west side of the enclosure the topsoil strip was continued into this area with the hope of locating the entrance. Again the ditch was continuous. In total a quadrant of the inner enclosure ditch was stripped of topsoil on the northern and western sides. Topsoil was also removed from a trench over the outer oval ditch near to where the inner and outer enclosure ditches run closest on the southwest side of the site. The final excavated area resembled a parallelogram *c.* 27 m north–south and 23 m north–west to south-east.

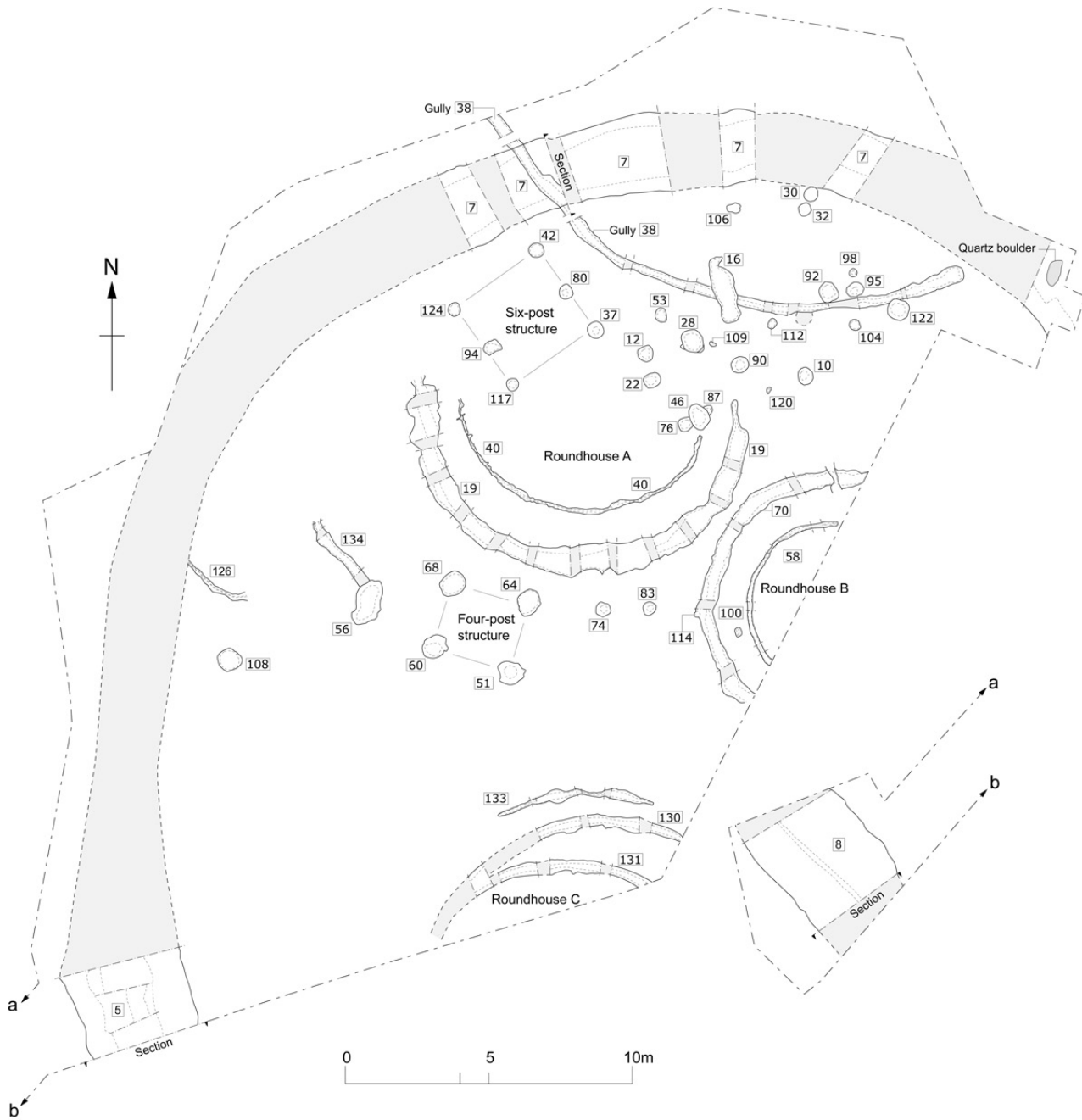


Fig. 14.
Ffynnonwen: excavation plan

Following topsoil removal the most effective method of cleaning the site in the dry conditions was found to be hard sweeping with yard brooms.

THE OUTER OVAL ENCLOSURE DITCH

The section through the outer oval enclosure ditch (8) lay *c.* 11 m, centre to centre, from the inner circular enclosure ditch on the south-west side of the site. A central 1.5 m wide machine-dug trench was initially excavated through the ditch. This was widened by hand to a 4 m long section. The ditch was rock-cut and had an open, V-shaped profile 3.8 m across, 1.1 m deep on the south side becoming shallower (0.75 m deep) on the north side (Fig. 15a). Four layers were recognised in the ditch, with both sections of the trench showing a similar sequence of deposition. The earliest fill (54: not shown on Fig. 15) was a thin, patchy, primary silt over which lay a silty loam (15) containing many small angular pieces of shale. Above this lay a less stony lay (14) over which was a similar, but slightly more humic deposit (13); this graded into the topsoil. There was no buried soil or other direct evidence indicating a bank flanking the ditch.

THE INNER CIRCULAR ENCLOSURE DITCH - SOUTH-WEST SIDE

A 3 m wide section, stepped in to 1 m wide midway down for safety reasons, was hand-excavated through the inner circular enclosure ditch (5) on the south-west side of the site. The V-shaped ditch was rock-cut, 4.2 m wide and 2.2 m deep, with steep, almost vertical sides (Fig. 15b). The depositional sequence was straightforward with several silt loam layers, stonier towards the bottom of the ditch and more humic towards the top. The earliest deposit (72) comprised 50% pieces of shale, above which overlay a less stony layer (71). Above this, layer 33 contained a quantity of large stones within the centre of the ditch, but otherwise was generally stone-free. The next layer (26) was largely composed of small angular pieces of shale which seemed to be derived from the eastern side of the ditch. Above this, layers 3 and 4 were relatively stone-free, with (3) merging with the topsoil. A spindle-whorl (902), made from a reused piece of Roman Severn Valley Ware (ident. P. Webster), was found in (3), and a piece of metallurgical residue was recovered from (4). There was no buried soil or other direct evidence indicating a bank flanking the ditch.

THE INNER CIRCULAR ENCLOSURE DITCH - NORTH SIDE

Five sections were hand-excavated across the ditch (7) on the north side of the enclosure where the geophysical survey and aerial photographs had indicated an entrance. The ditch here was found to be on average 0.30 m deep, but in some trenches as shallow as 0.10 m (Fig. 15c). The ditch had an undulating base and, even at its shallowest, had steep sides. The rock here was very hard and pockmarks from percussion tools were visible on the ditch floor. The ditch fill (2) consisted of a homogeneous silty loam with an even distribution of small stones. The ditch cut through the fill (25) of gully 38, the base of the gully surviving in the floor of the ditch.

On the eastern side of the excavation area a small and incompletely excavated section confirmed that ditch was steep-sided, rock-cut and at least 1 m deep and continuing down sharply. A massive quartz boulder lay in the centre of the ditch *c.* 0.8 m below the surface.

As with the other ditch sections, there was no buried soil or other direct evidence of a flanking bank. Clearly the shallow ditch explains the apparent entrance gap on the geophysical survey and on the aerial photograph.

THE INTERNAL AREA

Round-house A

The most obvious evidence for Round-house A was a length of curving gully (19), 18.5 m long with a U-shaped profile *c.* 0.8 m wide and 0.1–0.25 m deep which, if projected, approximated to a circle 10.4 m in diameter. It had a patchy primary silt of greyish-white silt (21) over which lay the main fill (6), a homogeneous silty loam. A small patch of charcoal rich soil (18) lay within (6) on the south side of the ditch – this seemed to be single period deposit, perhaps a basket of ash thrown into the gully. Gully 16 to the north may have been a continuation of 19 to the north of a gap for an entrance. The northern end of both gullies faded rather than abruptly terminated. Gully 16 cut the fill (25) of gully 38. A radiocarbon date of 40 cal BC–cal AD 130 (Beta-253726; Table 2) was obtained from fill (6), within deposit 18 providing a date of cal AD 10–220 (Beta-253727). A residual flint microlith was also recovered from (6).

Two post-holes (28, 46) between gullies 16 and 19 probably represent doorposts of an east facing entrance into the round-house. Both were *c.* 0.6 m diameter and 0.4 m deep, and both had packing stones to support posts. Centre to centre the post-holes were 2.6 m apart. Post-hole 46 had a well-defined post-pipe; it also cut two earlier, slightly smaller post-holes (76, 87). A small piece of probable post-medieval bottle glass and coal fragments came from post-hole 28, presumably indicating recent disturbance.

A curving length of gully (40) ran concentrically and 1.2 m within gullies 16 and 19. This gully was very shallow, generally less than 8 mm, and in places just it was a soilmark. It did not form a complete circle, being most pronounced on the south and west side. If projected it forms a circle 8.3 m diameter. It was too slight to contain any structural evidence, but it is assumed to have marked the wall line of the round-house.

Round-house B

Only the north-west side of this house was available for excavation. It consisted of an outer gully (70), with a projected internal diameter 8.1 m. It was *c.* 0.45 m across and 0.25 m deep and was filled with a homogeneous silty loam (69). Concentrically within it lay a slighter gully (58), *c.* 0.2 m wide and 0.1 m deep, with a projected diameter of 6.2 m. Clusters of small stones within the fill (57) may have been packing around small posts. Gully 58 terminated on the north side just inside the edge of the excavation. A small

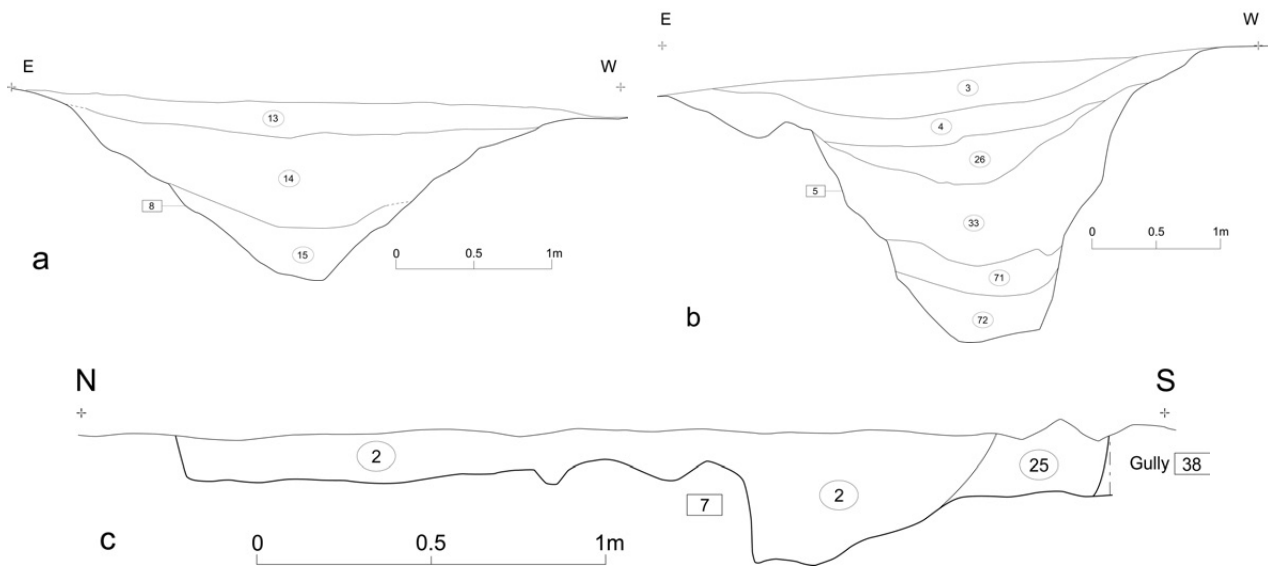


Fig. 15.
Ffynnonwen: sections of a) ditch 8; b) ditch 5; c) ditch 7

post-hole (114) lay on the edge of gully 70 and a second (100) lay between the two gullies. A radiocarbon date between the ranges 360–280 cal BC and 260–60 cal BC (Beta-253729) was obtained from fill 69.

Round-house C

Round-house C was evidenced by three curving, non-concentric, gullies towards the southern edge of the excavated area (133, filled by 132; 130, fill 128, and 131, fill 129), presumably representing three phases of round-house construction. The fills of all three were homogeneous silty loams.

Gully 133 was the slightest and least well preserved. It was *c.* 0.1 m wide and just 20–30 mm deep, and faded to nothing at the ends. As only a small arc survived, its projected diameter is difficult to calculate, but was probably in excess of 10 m. Gully 130 was 0.35 m wide and 50 mm deep with a projected diameter of 10 m, and gully 131 was 0.35 m wide and 8 mm deep with a projected diameter of 11 m. Gullies 130 and 131 converged at their western ends, but no relationship could be obtained owing to their very shallow depth at this point.

Four-post structure

Four substantial post-holes (51, 60, 64, 68), forming a square *c.* 2.6 m between their centres, lay to the south-west of Round-house A. They were all of similar dimensions, *c.* 0.90 m diameter and 0.40 m deep. Three (60, 64, 68) contained packing stones with well-preserved post-pipes, and the fourth (51) contained several layers suggesting that the packing stones had been removed.

Six-post structure

Six post-holes (37, 42, 80, 94, 117, 124) towards the northern side of the site formed a *c.* 3.5 m square. Of these, 37 and 80, had particularly well preserved post-pipes. All measured *c.* 0.55 m diameter and 0.25 m deep. Post-hole 117 had been carved out of hard rock.

Gully 38

A curving length of gully on the north side of the excavation was cut by the inner circular ditch (7) and by the outer gully (16) of Round-house A. The excavated length measured approximately 19 m, and was rock-cut, *c.* 0.3 m wide and 0.25 m deep. Stones in the fill (25) had been placed to support posts, indicating that the gully was a foundation for a palisade. At its eastern end it seemed to terminate just before it met the inner defensive ditch. However, it was not possible to confirm this owing to the dry weather and geological deposits of disturbed glacial silts. A fragment of a glass annular bead can be tentatively dated to the 8th–6th centuries BC, and charcoal returned a radiocarbon determination between the ranges 740–650 cal BC and 550–390 cal BC (Beta-253728).

Other features

A shallow pit (108: 0.7 m diameter, 0.1 m deep) with a charcoal rich fill lay on the western side of the excavation to the north of which lay a shallow, curving length of gully (126). Both must have pre- or post-dated a bank that lay inside the inner circular enclosure ditch. The gully was similar in character to some of the round-house gullies described above. A radiocarbon date of 390–200 cal BC was obtained from charcoal (Beta-253730).

TABLE 2. RADIOCARBON ANALYSES FROM FFYNNONWEN

Lab No.	Determination BP	2 sigma calibration	Context	Sample type	Dating implications
Beta -253726	1940±40	40 cal BC– cal AD 130	fill 6 in gully 19, Round-house A	<i>Corylus avellana</i>	Dates use of Round-house A; same feature as 253727. Gully faded out where would have run up over now removed defensive bank
Beta -253727	1910±40	cal AD 10–220	layer 18 in gully 19, Round-house A	<i>Prunus spinosa</i>	Charcoal-rich fill of drainage gully of Round-house A; poss. single basket-load of ash. Dates moment when drainage gully open (& therefore Round-house A in use)
Beta -253728	2380±40	740–650 cal BC 550–390 cal BC	fill 25, gully 38	<i>Betula</i> sp.	<i>Terminus post quem</i> for construction of inner enclosure. Gully 38 is recognisable feature on site, cut by enclosure's defensive ditch & by gully 16 of Round-house A. Poss. part of palisaded settlement
Beta -253729	2150±40	360–280 cal BC 260–60 cal BC	fill 69, drainage gully 70, Round- house B	<i>Corylus avellana</i>	Dates use of Round-house B
Beta -253730	2240±40	390–200 cal BC	fill 107, pit 108	<i>Corylus avellana</i>	<i>Terminus post quem</i> for construction of inner enclosure; pit beneath now removed defensive bank

Dates calibrated using CALIB REV 6.0.0. (Stuiver & Reimer 1993)

An oval, shallow pit (56: 1.5 m long, 0.8 m wide, 0.2 m wide) with a whitish-grey silt fill (55) lay to the east. The pit cut a short length of shallow gully (134). To the south of round-house A lay two shallow circular pits (74; 83), the fills of which contained numerous flecks of charcoal.

A group of pits and post-holes lay on the eastern side of the site, not all of which were excavated; they formed no coherent pattern. Some must have pre- or post-dated any bank that lay inside the inner circular enclosure ditch. Two post-holes (12; 53) and a pit (22) lay within Round-house A. Other features include eight pits (10, 30, 32, 90, 95, 106, 120, 122), some of which may have been post-holes, and five definite post-holes (92, 98, 104, 109, 112). The only relationship obtained was pit 92 cutting gully 38.

RADIOCARBON DATES

Radiocarbon dates from *Ffynnonwen* are shown in Table 2.

Finds

GLASS BEAD

A. GWILT

Half fragment of small annular bead; palisade gully 38 (Fig. 16). Dark blue, translucent; flattened upper and lower surfaces, convex external diameter face. One side is slightly thicker than other; internal face of perforation straight (original diameter 7.5–8.0 mm, thickness 2.2–2.9 mm, original internal diameter 3.1–3.5 mm, surviving weight

0.10 g). Charcoal from the gully returned a radiocarbon determination within the ranges 740–650 cal BC and 550–390 cal BC.

This is an undecorated small annular bead of Group 6 (ivb) (Guido 1978, 66–8). These beads are a long-lived Iron Age and 'native' Romano-British form with examples discovered on sites ranging in occupation between the 6th century BC and the 8th century AD (*ibid.*, 68). The radiocarbon date from this layer provides tentative support for the development of the type during the earlier Iron Age (although the possibility of it being intrusive within an earlier context cannot entirely be discounted). Prior to this dating evidence, the earliest securely dated context for these beads in Wales was found at Twyn-y-Gaer hillfort, Monmouthshire, where two examples were associated with phases dated 400–200 BC (Probert 1976; Guido 1978, 161). Annular and globular blue beads have most frequently been found in western Britain, with discoveries commonly made across south-western and central-southern England and south and west Wales. In west Wales, similar beads have been found at Castlemartin, Potter's Cave, and Nanna's Cave, Caldey Island, Moel Trigarn hillfort, Porth y Rhaw promontory fort, Coygan Camp and Burry Holms (Baring Gould *et al.* 1900; Leach 1917; Matthias 1927; Charlesworth 1967; van Nederveelde 1975; Walker 1999; Olles & Henderson forthcoming). These cobalt blue coloured beads may have been manufactured beside opaque yellow and yellow spiral and zig-zag decorated beads at the Meare Lake Villages in Somerset (Henderson 1982, 436–7; 1987, 178; Sablerolles & Henderson forthcoming).

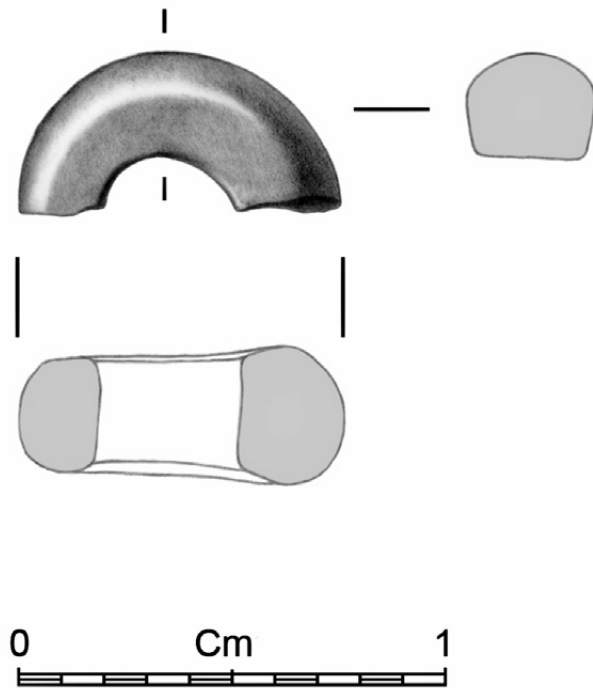


Fig. 16.
Ffynnonwen: glass bead. Drawing by J. Chadwick

SPINDLE WHORL

K. MURPHY

From fill 3 of inner circular enclosure ditch 5. A flat disc, 34 mm diameter, 5 mm thick with a 3 mm diameter central perforation made from a reused piece of Roman Severn Valley Ware (fabric ident. by P. Webster).

MICROLITH

L. AUSTIN

Fill 6 of round-house gully 19. Later Mesolithic microlith, obliquely blunted point 21 mm long, 4 mm wide, 1.5 mm thick. Honey coloured flint. Straight backed retouch on one edge along entire length, worked from ventral surface. Single dorsal blade scar visible. Obliquely blunted/retouched point edge 7 mm long at angle of *c.* 25 to backed edge.

METALLURGICAL RESIDUES

T.P. YOUNG

The only piece of possible archaeometallurgical residue, from fill 4 of ditch 5, is a block of vitrified and slagged ceramic weighing 175 g. The ceramic has a reduced-fired

grey silty fabric and is deeply vitrified, both from the original surface and from internal cracking. It has one flat, deeply vitrified face with a dark, almost black, glassy slag adhering. The slag surface shows small dimples, probably from contact with the fuel. The ceramic below this face shows intense vesicularity to a depth of 8–10 mm below the surface.

Only a small section of the probable opposing flat face survives, but enough to suggest the ceramic had a slab-like form, with a thickness of 40 mm thick. This opposing face shows very little vitrification. The piece shows fractured surfaces both into the slab and laterally, but preserves the slab margin. The slab margin is angled back from the slagged surface to the relatively unaltered face at approximately 45° to the slab orientation. Irregular globose slag masses extended from the smoothly vitrified face onto this face, suggesting slag flowage off the vitrified face. This terminal face appears to have received little direct heating and is therefore presumably original. The irregular slag is, in places, covered in secondary iron corrosion products.

The function of this piece is not identifiable. Its morphology suggests that it formed a plate jutting into a hearth or furnace – and as such might be lower margin of some sort of ceramic tuyère, but the details are hard to equate with any particular known tuyère style. The intensity of the vitrification and slagging certainly suggest an origin in a metallurgical process and the rusty accretion may suggest and elevated iron content for inclusions with the slag. On balance, an origin of this piece within the technical ceramic of a smith's hearth is probably most likely. Elevated temperatures sufficient to melt ceramic materials may, however, be achieved in a wide variety of settings (both deliberately and accidentally).

The overall lack of significant archaeometallurgical residues from Ffynnonwen implies that metalworking is unlikely to have been a significant activity on the site, at least within the excavated portion.

Archaeobotanical evidence

A.E. Caseldine & C.J. Griffiths

THE CHARRED PLANT REMAINS

Samples were taken from a range of features and processed using flotation with a minimum mesh size used of 0.5 mm. Identification was by reference to a modern seed collection and identification texts (eg, Jacomet 2006; Schoch *et al.* 1988). Nomenclature follows Stace (1991). The results are presented in Table 3.

Plant remains, other than wood charcoal, were scarce. Wheat (*Triticum*) was the most frequently recorded cereal and grain included spelt wheat (*T. spelta*), confirmed by the presence of glume bases, and bread wheat (*T. aestivum*). No chaff was recovered which would have confirmed the presence of bread or emmer wheat. Hulled barley (*Hordeum*) was identified and twisted as well as straight grains indicate that it was 6-rowed barley. The absence of chaff means that the oat could be either cultivated or wild. Other remains included weed seeds such as knotgrass

(*Polygonum aviculare*), nettle (*Urtica dioica*), ribwort plantain (*Plantago lanceolata*), sheep's sorrel (*Rumex acetosella*), and clover (*Trifolium* sp.) and gorse (*Ulex* sp.) spines, bracken (*Pteridium aquilinum*) leaf fragments, and heather (*Calluna vulgaris*) stems.

The fills from the outer oval enclosure ditch (8) produced only a few remains including sheep's sorrel, ribwort plantain, and grass seeds and rhizomes suggesting grassland or hay that had been accidentally charred or grassy material deliberately collected and used as tinder. Bramble (*Rubus* sp.) could indicate either food remains or collection with other material for fuel. A spelt glume base, and possibly the weed seeds, suggests crop processing waste. The remains from inner circular enclosure ditch (5) fills included a little barley, and sheep's sorrel and blackthorn thorns as well as ribwort plantain, grass stems and rhizomes, and a tree bud, reflecting general waste.

Plant remains were slightly more plentiful in some contexts from the internal area including the southern gully (19) of Round-house 1. Several spelt glume bases and wheat grains, oat and a few weed seeds were found in the main fill dated to 40 cal BC–cal AD 130. A discrete charcoal patch (18), dated to cal AD 10–220, within the main fill also contained a range of material including wheat grains, a spelt spikelet fork, a ribwort plantain seed, a heather root, and gorse spines and could represent a single basket-load of ash from a domestic fire. Post-holes 28 and 46, probably representing entrance doorposts, and 87 produced hazelnut fragments, bramble and weed seeds and grass rhizomes. Similarly, hazelnut was found in the outer gully (70) of Round-house B, dated to between 360–280 cal BC and 260–60 cal BC, along with a wheat cereal grain, hedge woundwort (*Stachys sylvatica*), and tree buds. Again fuel waste is indicated.

The 4-post structure produced wheat and barley grains from post-hole 60 and mouse-ear (*Cerastium* sp.) and stitchwort (*Stellaria* sp.) seeds came from post-hole 37 from the 6-post structure. This structure is considered not to have been contemporary with Round-house A on archaeological grounds and the assemblage, such as it is, does differ from those from other contexts associated with the round-house. The charred cereal from the 4-post structure could represent the remains of grain stored within it or waste from around the site.

The earliest evidence is from a gully (38), dated to between 740–650 cal BC and 550–390 cal BC, which was cut by the inner enclosure ditch and the outer gully of Round-house A. A wheat and a barley grain suggest some agricultural activity in the area prior to the enclosure. This is consistent with the interpretation that the gully was part of a palisaded settlement.

On the western side of the inner enclosure a shallow pit (108), dated to 390–200 cal BC, from under the bank produced slightly more remains including chaff, grain, weed seeds, tree buds, and a leaf fragment of bracken. The charcoal-rich fill suggests that this represents waste from a fire that was deliberately dumped in the pit. A gully (126) to the north of the pit yielded only an indeterminate cereal, a hazelnut fragment, and grass rhizome fragments.

Some of the pits and post-holes on the eastern side of the enclosure must have pre- or post-dated any bank that lay inside the inner ditch. Post-hole 12 and pit 22 in Round-house A contained only the occasional weed seed, cereal grain, and a number of fragments of charred material, possibly the remains of bread, in pit 22. Other pits (Table 3) produced barley and wheat, hazelnut fragments, a blackthorn thorn, and a sedge (*Carex* sp.) seed as well as wood charcoal, suggesting deliberately deposited fuel waste. The charred grain and chaff could reflect deliberate or accidental burning. Elsewhere, the other pits and post-holes sampled produced further wheat and oat remains, hazelnut fragments, tree buds and gorse spines (see Table 3) as well as charcoal and some bone fragments, again probably representing general fuel waste.

Discussion

Cereal evidence from the site is relatively scarce but suggests that wheat and barley were grown in the area from the time of the palisaded settlement onwards. There is no firm evidence for emmer wheat, although it may have been present, but spelt and bread wheat are both represented. There may have been changes in the relative importance of the cereal crops during the lifetime of the settlement with perhaps a greater emphasis on free-threshing cereals, namely barley and bread wheat, during the later phases, though these taxa are not represented in the latest dated deposits which are from Round-house A. Wheat and barley may have been grown as a mixed crop as well as separately. The status of oat at the site is uncertain and it may have been present only as a weed rather than as a crop.

Although grain dominates overall, the presence of chaff, notably glume bases, and a few weed seeds suggests that at least the later stages of crop processing were taking place at the settlement. Spelt glume bases were slightly more frequent in the Round-house A gully and probably reflect activity associated with the building. The assemblage from shallow pit (108) also contained a little more chaff, as well as grain, weed seeds, and other remains, including a relatively large quantity of wood charcoal, which suggests waste from a domestic fire. The relatively low amounts of chaff from the site could be a result of differential preservation as chaff is more likely to be destroyed than grain (Boardman & Jones 1990). Alternatively, chaff could have been used as animal feed rather than thrown onto fires. It is likely that the grain was stored as spikelets and processed as required on a day-to-day basis.

Overall the remains probably represent waste from domestic fires which was deliberately dumped or washed, blown, or trampled into the deposits. Many of the remains may derive from several events rather than a single one. The low level of cereal remains tends to suggest that cultivation was perhaps limited to a subsistence level.

The relatively few weed seeds limit interpretation of the surrounding environment and crop husbandry practices. Grassy habitats are suggested by ribwort plantain, sheep's sorrel, and clover, whilst nettle is often found growing on animal dung or close to buildings and knotgrass commonly

occurs on waste ground. However, most can also be associated with cultivation. Other remains such as bramble, gorse, blackthorn, and hazelnuts indicate rough ground or scrub. Hazelnuts, blackthorn, and bramble may have been collected as food to supplement the diet or incidentally with wood for fuel. Other wild resources deliberately exploited could include heather and bracken which might have been used for bedding and/or thatching.

CHARCOAL

In addition to the identification of charcoal for radiocarbon dating a limited assemblage from selected contexts was identified. Samples were examined from gullies, post-holes, and pits. Charcoal was randomly selected from the flots and residues and from hand-picked samples and fractured to allow examination of the wood anatomy. Identification was by comparison with modern reference material and by reference to Schweingruber (1978) and Schoch *et al.* (2004). The results are presented in Table 4.

Oak (*Quercus* sp.) and hazel (*Corylus avellana*) are the most frequently recorded taxa. Species present in lesser amounts include elm (*Ulmus* sp.), birch (*Betula* sp.), alder (*Alnus glutinosa*), blackthorn (*Prunus spinosa*), cherries (*Prunus* sp.), Maloideae type, which includes hawthorn, rowan, crab apple, common whitebeam, wild service-tree, and gorse (*Ulex* sp.).

The assemblages from the individual samples are too small to draw any firm conclusions, although the absence of oak, elm, and hazel and presence of blackthorn in the discrete charcoal patch (18) from the Round-house A gully contrasts with the other round-house gully samples (Table 3) and the pre-inner enclosure gully (38). It may represent waste from a single fire and, therefore, collection of fuel from one area of woodland rather than waste from possibly several fires and different areas of woodland, which might be the case for the other samples.

The absence of elm in other samples might also indicate exploitation of different areas of woodland, as may the occurrence of hawthorn type in post-holes 51 and 92 and gorse in post-hole 51, although these differences may simply be a reflection of the sample size. The absence of oak, elm, and hazel in the sample from the charcoal patch, which gave the latest date from the site, might indicate that these species had become less readily available by this time.

The evidence suggests oak, elm, and birch woodland with possibly an understorey of hazel and other scrub species. Equally species such as birch, hazel, blackthorn, hawthorn, and gorse may indicate colonisation of areas of abandoned ground and scrubby woodland. These species could also have been used to provide hedges to confine stock or protect cereal from stock. Alder was probably growing on damper ground near streams in the area.

Ffynnonwen: overall interpretation

Although the excavated features at Ffynnonwen were not archaeologically complex they represent a considerable time span. It seems that the inner enclosure would have had very limited open areas;

buildings took up a large amount of the available space. These buildings are of a type typically found on Iron Age sites in west Wales – round-houses and 4- and 6-post structures.

Although there were very few direct stratigraphic relationships between the excavated structures, and indeed between the structures and other features, it is clear that not all could have been contemporaneous. For instance Round-house A and the 6-post structure could not have co-existed. Also, if there had been an internal bank to the inner circular enclosure ditch, which seems a reasonable assumption, then the 6-post structure must pre- or post-date it. A bank is assumed here as the gullies of Round-house A fade at their northern ends where they would have run up over the foot of such a feature. However, there would have been only *c.* 2 m between the projected line of Round-house A's wall and the edge of the enclosure ditch. Two interpretations are possible: the bank was narrow and insubstantial at this point, or the bank was degraded and low when Round-house A was built. It is possible that the 6-post structure could have been a part of an early gateway into the enclosure accompanying the bank; this is unlikely as the enclosure ditch to the north, although very shallow, was sharp-edged and showed no traces of wear such as one would expect with the passage of traffic, but cannot entirely be ruled out as it is possible that a raised causeway formerly protected the ditch edges.

Apart from the interpretation as part of a gateway, the reason why the ditch was left so shallow on the north side of the enclosure is not easy to explain. Round-houses and other structures within the enclosure demonstrate intensive usage, and the radiocarbon date range shows occupation over several centuries, so the site was not simply abandoned before completion. It is possible that the very hard rock combined with the vertical pitched bedding planes running along the line of the ditch (east–west) proved impossible to excavate and that sufficient material was obtained from elsewhere around the ditch's circuit to construct a bank along the northern side. However, as noted above, the bank on the northern side may have been relatively narrow.

Stratigraphically the earliest element of the site is the palisade gully (38). This marries with geophysical anomalies forming a circular enclosure *c.* 45 m diameter containing a possible round-house. This could be a palisaded enclosure, pre-dating the circular enclosure defined by the substantial ditch, and

TABLE 3. CHARRED PLANT REMAINS FROM FFYNNONWEN

Context	003	004	013	014	015	006	018	025	125	069	009	011
Feature	D005	D005	D008	D008	D008	G019	G019	G038	G126	G070	P010	PH012
Volume (litres)	20	9	11	12	9	27	18	*	9	16	10	10
<i>Triticum dicoccum/spelta</i> grain (Emmer/spelt)	-	-	-	-	-	1	1	-	-	-	-	-
<i>Triticum spelta</i> spikelet fork (Spelt wheat)	-	-	-	-	-	-	1	-	-	-	-	-
<i>Triticum spelta</i> glume bases	-	-	-	1	-	8	-	-	-	-	1	-
<i>Triticum aestivum</i> grain (Bread wheat)	-	-	-	-	-	-	-	-	-	-	-	-
<i>Triticum</i> sp. grain (Wheat)	-	-	-	-	-	4	5	1	-	-	1	-
<i>Triticum</i> sp. glume base	-	-	-	-	-	2	-	-	-	1	-	-
<i>Triticum</i> sp. rachis frags	-	-	-	-	-	3	-	-	-	-	1	-
<i>Hordeum</i> sp. (Hulled) grain - straight (Barley)	-	-	-	-	-	-	-	-	-	-	-	-
<i>Hordeum</i> sp. (Hulled) grain - twisted	-	2	-	-	-	-	-	1	-	-	-	-
<i>Hordeum</i> sp. (Hulled) grain - indet	-	-	-	-	-	-	-	-	-	-	-	-
<i>Avena</i> sp. grain (Oat)	-	-	-	-	-	3	-	-	-	-	-	-
cf. <i>Avena</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-
<i>Avena</i> sp./Poaceae (Oat/grass)	-	-	-	-	-	-	-	-	-	-	-	-
Cerealia indet.	-	1	-	-	-	1	1	-	1	-	-	-
<i>Urtica dioica</i> L. (Common nettle)	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corylus avellana</i> L. (Hazel) frags	-	-	-	-	-	-	-	-	1	4	-	-
<i>Stellaria</i> sp. (Stitchworts)	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cerastium</i> sp. (Mouse-ears)	-	-	-	-	-	-	-	-	-	-	-	-
<i>Polygonum aviculare</i> L. (Knotgrass)	-	-	-	-	-	-	-	-	-	-	-	-
<i>Rumex acetosella</i> L. (Sheep's sorrel)	-	1	1	-	1	3	-	-	-	-	-	1
<i>Rumex</i> sp. (Docks)	-	-	-	-	-	1	-	-	-	-	-	-
<i>Calluna vulgaris</i> L. (Heather) - stem	-	-	-	-	-	-	1	-	-	-	-	-
<i>Rubus fruticosus</i> L. (Agg.) (Brambles)	-	-	1	-	-	-	-	-	-	-	-	-
<i>Prunus spinosa</i> L. (Blackthorn) thorn	-	2	-	-	-	-	-	-	-	-	-	-
<i>Trifolium</i> sp. (Clover)	-	-	-	-	-	-	-	-	-	-	-	-
cf. <i>Trifolium</i> spp. (Clover)	-	-	-	-	-	-	-	-	-	-	-	-
<i>Stachys sylvatica</i> L. (Hedge woundwort)	-	-	-	-	-	-	-	-	-	1	-	-
<i>Ulex europaeus</i> L. (Gorse) spine	-	-	-	-	-	-	3	-	-	-	-	-
<i>Plantago lanceolata</i> L. (Ribwort plantain)	2	-	1	-	1	1	1	-	-	-	-	-
<i>Juncus</i> sp. (Rushes)	-	-	-	-	-	1	-	-	-	-	-	-
<i>Carex</i> sp. (Sedges)	-	-	-	-	-	-	-	-	-	-	-	-
Poaceae (Grass)	-	-	1	-	1	2	-	-	-	-	-	-
<i>Pteridium aquilinum</i> (L.) Kuhn (Bracken) leaf frag.	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3. CHARRED PLANT REMAINS FROM FFYNNONWEN CONTINUED

Context	003	004	013	014	015	006	018	025	125	069	009	011
Feature	D005	D005	D008	D008	D008	G019	G019	G038	G126	G070	P010	PH012
Volume (litres)	20	9	11	12	9	27	18	*	9	16	10	10
Seeds indet.	5	-	-	-	-	1	1	-	-	1	-	-
Poaceae large rhizome/root frag.	1	-	-	-	-	-	-	-	-	-	-	-
Poaceae rhizome frags	18	-	6	7	-	9	-	-	2	-	-	-
Poaceae culm/rhizome frags	38	-	-	-	-	-	-	-	-	-	-	-
Tree bud	1	-	-	-	-	-	-	-	-	2	-	-
Thorn frag.	-	-	-	-	-	-	-	-	-	-	-	1
Charred material - indet.	-	-	-	-	-	3	-	-	-	-	2	-
Total	65	6	10	8	3	42	14	2	4	9	5	2
Bone frag.	-	-	-	-	-	-	-	-	-	-	-	-

Context	020	023	027	029	034	059	073	081	086	089	091	107
Feature	P022	PH046	PH028	P030	PP035	PH060	P074	P095	PH087	P090	PH092	P108
Volume (litres)	9	20	14	5	7	9	*	*	5	8	8	7.5
<i>Triticum dicoccum/spelta</i> grain (Emmer/spelt)	-	-	-	4	-	-	-	1	-	-	4	-
<i>Triticum spelta</i> spikelet fork (Spelt wheat)	-	-	-	-	-	-	-	-	-	-	-	2
<i>Triticum spelta</i> glume bases	-	-	-	-	-	-	-	1	-	-	1	5
<i>Triticum aestivum</i> grain (Bread wheat)	2	-	-	2	-	-	3	-	-	-	-	-
<i>Triticum</i> sp. grain (Wheat)	-	-	-	-	-	1	-	3	-	-	-	4
<i>Triticum</i> sp. glume base	-	-	-	-	-	-	-	-	-	-	2	2
<i>Triticum</i> sp. rachis frags	-	-	-	-	-	-	-	-	-	-	-	-
<i>Hordeum</i> sp. (Hulled) grain - straight (Barley)	-	-	-	5	-	-	1	-	-	-	-	-
<i>Hordeum</i> sp. (Hulled) grain- twisted	-	-	-	4	-	-	-	-	-	-	-	-
<i>Hordeum</i> sp. (Hulled) grain - indet.	-	-	-	4	-	2	1	2	-	-	-	-
<i>Avena</i> sp. grain (Oat)	-	-	-	-	-	-	-	-	-	-	-	-
cf <i>Avena</i> sp.	-	-	-	-	-	-	-	-	-	-	1	-
<i>Avena</i> sp./Poaceae (Oat/grass)	-	-	-	-	-	-	-	-	-	-	-	4
Cereal indet.	1	-	-	9	-	2	1	4	-	1	2	13
<i>Urtica dioica</i> L. (Common nettle)	-	-	-	-	-	-	-	-	-	-	-	1
<i>Corylus avellana</i> L. (Hazel) frags	-	2	-	5	-	-	-	-	3	-	2	-
<i>Stellaria</i> sp. (Stitchworts)	-	-	-	-	1	-	-	-	-	-	-	-
<i>Cerastium</i> sp. (Mouse-ears)	-	-	-	-	1	-	-	-	-	-	-	-
<i>Polygonum aviculare</i> L. (Knotgrass)	-	-	-	-	-	-	-	-	-	-	-	2
<i>Rumex acetosella</i> L. (Sheep's sorrel)	-	1	-	-	-	-	-	-	-	-	-	-
<i>Rumex</i> sp. (Docks)	-	-	-	-	-	-	-	-	-	-	-	-
<i>Calluna vulgaris</i> L. (Heather) - stem	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3. CHARRED PLANT REMAINS FROM FFYNNONWEN CONTINUED

Context	020	023	027	029	034	059	081	086	089	091	107
Feature	P022	PH046	PH028	P030	PP035	PH060	P095	PH087	P090	PH092	P108
Volume (litres)	9	20	14	5	7	9	*	5	8	8	7.5
<i>Rubus fruticosus</i> L. (Agg.) (Brambles)	-	1	-	-	-	-	-	-	-	-	-
<i>Prunus spinosa</i> L. (Blackthorn) thorn	-	-	-	1	-	-	-	-	-	-	-
<i>Trifolium</i> sp. (Clover)	-	-	-	-	-	-	-	-	-	-	1
cf. <i>Trifolium</i> spp. (Clover)	-	4	-	-	-	-	-	-	-	-	-
<i>Stachys sylvatica</i> L. (Hedge woundwort)	-	-	-	-	-	-	-	-	-	-	-
<i>Ulex europaeus</i> L. (Gorse) spine	-	-	-	-	-	1	-	-	-	-	1
<i>Plantago lanceolata</i> L. (Ribwort plantain)	-	1	-	-	-	-	-	-	-	-	-
<i>Juncus</i> sp. (Rushes)	-	-	-	-	-	-	-	-	-	-	-
<i>Carex</i> sp. (Sedges)	-	-	-	1	-	-	-	-	-	-	-
Poaceae (Grass)	-	-	-	-	-	-	-	-	-	-	2
<i>Pteridium aquilinum</i> (L.) Kuhn (Bracken) leaf frag.	-	-	-	-	-	-	-	-	-	-	1
Seeds indet.	-	1	-	-	1	-	cf1	-	-	-	21
Poaceae large rhizome/root frag.	-	-	-	-	-	-	-	-	-	-	-
Poaceae rhizome frags.	-	-	2	-	-	2	-	2	1	-	-
Poaceae culm/tuzome frags.	-	-	-	-	-	-	-	-	-	-	-
Tree bud	-	-	-	-	-	-	-	-	-	cf1	2
Thorn frag.	-	-	-	-	-	-	-	-	-	-	1
Charred material - indet	20	-	-	3	-	2	1	-	1	7	10
Total	23	10	2	38	3	9	16	5	3	20	72
Bone frag.	-	-	-	-	-	-	-	-	-	1	-

D = ditch, G = gully, P = pit, PH = post-hole, PP = post pit * Volume not available.

TABLE 4. CHARCOAL IDENTIFICATIONS FROM FFYNNONWEN

Context	006	018	025	069	128	009	107	047	059	091	Total
Feature	G019	G019	G038	G070	G130	P010	P108	PH051	PH060	PH091	Total
<i>Ulmus</i> spp. (Elm)	4	-	1	3	3	-	-	-	-	-	11
<i>Quercus</i> spp. (Oak)	2	-	3	3	1	7	4	6	9	3	38
<i>Betula</i> spp. (Birch)	1	2	2	-	-	-	-	-	1	-	6
<i>Alnus glutinosa</i> (L.) Gaertner (Alder)	-	1	1	-	2	-	1	-	-	-	5
<i>Corylus avellana</i> L. (Hazel)	3	-	3	3	4	3	4	2	-	5	27
<i>Prunus spinosa</i> L. (Blackthorn)	-	5	-	-	-	-	-	-	-	-	5
cf. <i>Prunus spinosa</i> L. (Blackthorn)	-	2	-	-	-	-	-	-	-	-	2
<i>Prunus</i> spp. (Cherries)	-	-	-	1	-	-	1	-	-	1	3
Maloideae type*	-	-	-	-	-	-	-	1	-	1	2
<i>Ulex europaeus</i> L. (Gorse)	-	-	-	-	-	-	-	1	-	-	1
Total	10	10	10	10	10	10	10	10	10	10	100

*Hawthorn, rowan, crab apple, common whitebeam, wild service-tree. G = gully, P = pit, PH = post-hole

voccupying a location more central within the oval enclosure. Given this near-central position of the palisaded enclosure within the larger oval one it is tempting to see them as contemporaneous, although there is no stratigraphic or confirmed chronological link between them. Apart from the palisaded enclosure and the circular ditched enclosure the interior area of the oval enclosure appears empty. Other buildings lie in a small annexe attached to its south side.

Owing to the paucity of artefacts, absolute dating is heavily reliant on the radiocarbon determinations. All the dates are from very small samples and from non-sealed deposits and residuality and/or intrusion should, therefore, be considered a possibility. The dates are, however, in compliance with the stratigraphic sequence. The earliest recognised feature on the site, gully 38 (part of a possible palisaded enclosure) returned a date of 740–390 cal BC and contained a glass bead tentatively dated to the 8th–6th centuries BC, and effectively provides a *terminus post quem* for the construction of the inner circular enclosure ditch and bank. The later date of 390–200 cal BC obtained from a small pit may also be interpreted as providing a *terminus post quem* for the inner circular enclosure ditch and bank. This hinges, however, on the interpretation that the pit was created prior to the construction of the bank, for which all direct physical evidence has now gone. Occupation of the enclosure in the 4th–1st centuries BC is indicated by the date (360–60 cal BC) from Round-house B, with slightly later usage, 40 cal BC–cal AD 220, for Round-house A. This indication of later use is of interest as Round-house A may have been constructed over the degraded remains of the defensive bank. Continued use of the site into the Romano-British period as possibly indicated by the radiocarbon dates from Round-house A is supported by the finding of a spindle-whorl made from reused Severn Valley Ware pottery.

A chronological summary of the site is thus: 8th–4th centuries BC construction of a palisaded enclosure; 4th–2nd centuries the palisaded enclosure is replaced by an enclosure protected by a bank and ditch; 1st century BC–2nd century AD enclosure defences degrade and occupation ceases at some point after this. This suggests that Fynnonwen was a repeatedly occupied site, possibly continuously, for a number of centuries, suggesting a desirable location for the exploitation of the plateau landscape. Although there was major restructuring of the settlement from between the palisade phase, with its

major entrance facing to the west on the evidence from the geophysics, to one facing east and shifted off-centre within the outer ditched enclosure, the implication is that the landscape exploitation in this area was maintained for a considerable time. This is in contrast to many other sites located by aerial photography, some of which have also been examined through geophysics, where only one of these phases is represented.

GEOPHYSICAL SURVEY & EXCAVATION AT BERRY HILL

Terry James of Dyfed Archaeological Trust discovered and photographed Berry Hill fort from the air in 1984 when it was under a barley crop and showed as a faint cropmark. This is the only aerial photograph of the site. Lying on a blunt promontory at 40 m above sea level, Berry Hill is an inland promontory fort and was selected for excavation to contrast with the rectangular enclosure excavated in 2005 and the circular enclosure investigated in 2006. To the south and east of the fort the land falls away steeply to the tidal marsh of the River Nevern. There are no apparent banks and ditches on these sides, but this could not be confirmed owing to dense blackthorn scrub covering the upper slopes. The fort lies on a high point, with land falling away gently to the north and slightly more steeply to the west. A ditch with traces of an internal bank protected these easily approachable sides.

The geophysical survey and the aerial photograph show the ditch enclosing a roughly oval area c. 120 m east–west and 75 m north–south, with a simple gap marking the position of a west facing entrance (Fig. 17). Traces of a bank are evident on the photograph and on the geophysical survey towards the western end of the fort. On the ground a scarp slope up to 1 m high marks the location of this bank on the north side of the entrance. Several sections of narrow, straight ditch were also detected by the geophysics. Apart from these the only geophysical feature of interest and not shown on the aerial photograph was the broken character of the ditch to the south of the entrance. It was decided to adopt the same excavation strategy as in previous years and investigate the entrance area and ditch terminals of the fort. An assemblage of Roman pottery from the ditch terminals had been recovered using this strategy at Troedyrhiw

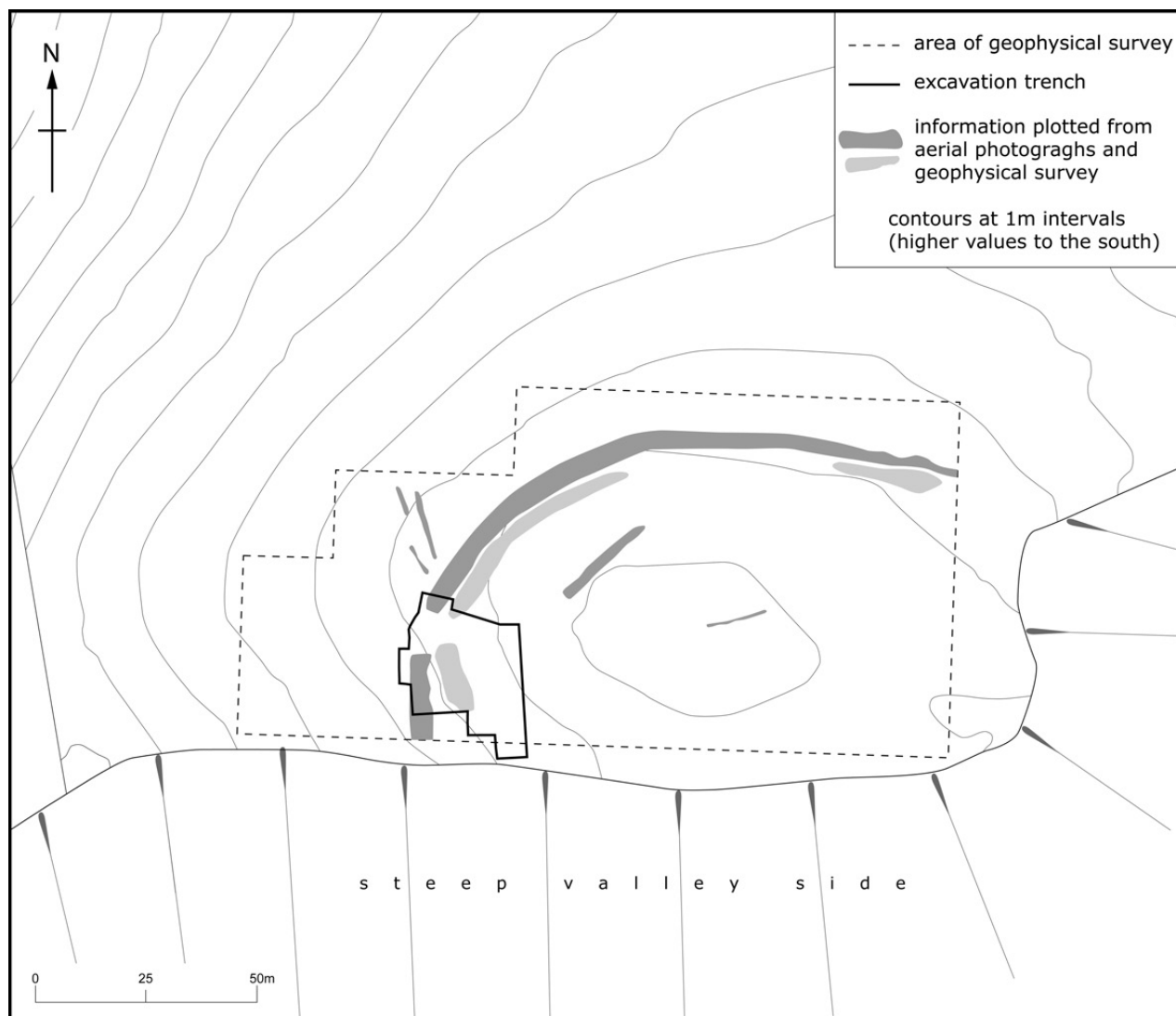


Fig. 17.
Berry Hill: location of excavation in relation to the cropmark/geophysical survey

in 2005, and it was considered likely that Berry Hill fort, located as it is 1.8 km from Newport beach and immediately above the sheltered Nevern estuary, would return a comparable assemblage of imported pottery as well as prehistoric imports. Moreover, its location and form was comparable to Castell Henllys which lies inland up a tributary of the same river, which has produced evidence of a long sequence during the Iron Age and Romano-British periods.

Solid geology comprised Ordovician shale (British

Geological Survey 1994). In the area of the excavation bedding planes were vertically pitched. Over most the excavated area ploughsoil averaging 0.3 m thick directly overlay hard bedrock with pockets of fluvio-glacial silty-clay across the site but concentrated around the entrance area.

Excavation took place in July–August 2007 (Fig. 17). An area of topsoil *c.* 30 x 27 m was machine stripped over the entrance but, apart from removal of large quartz boulders, all the ditch sections were dug by hand.

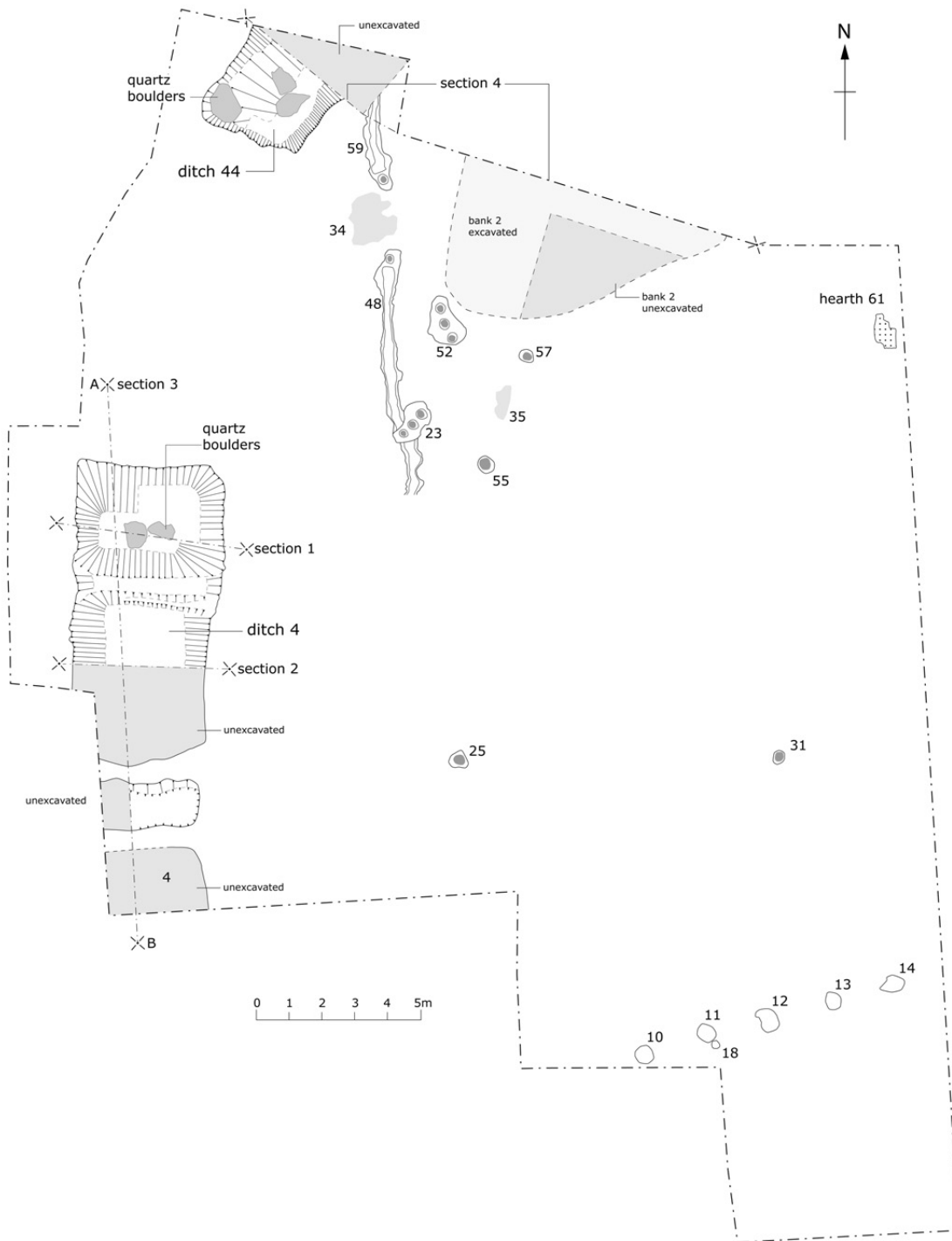


Fig. 18.
Berry Hill: excavation plan

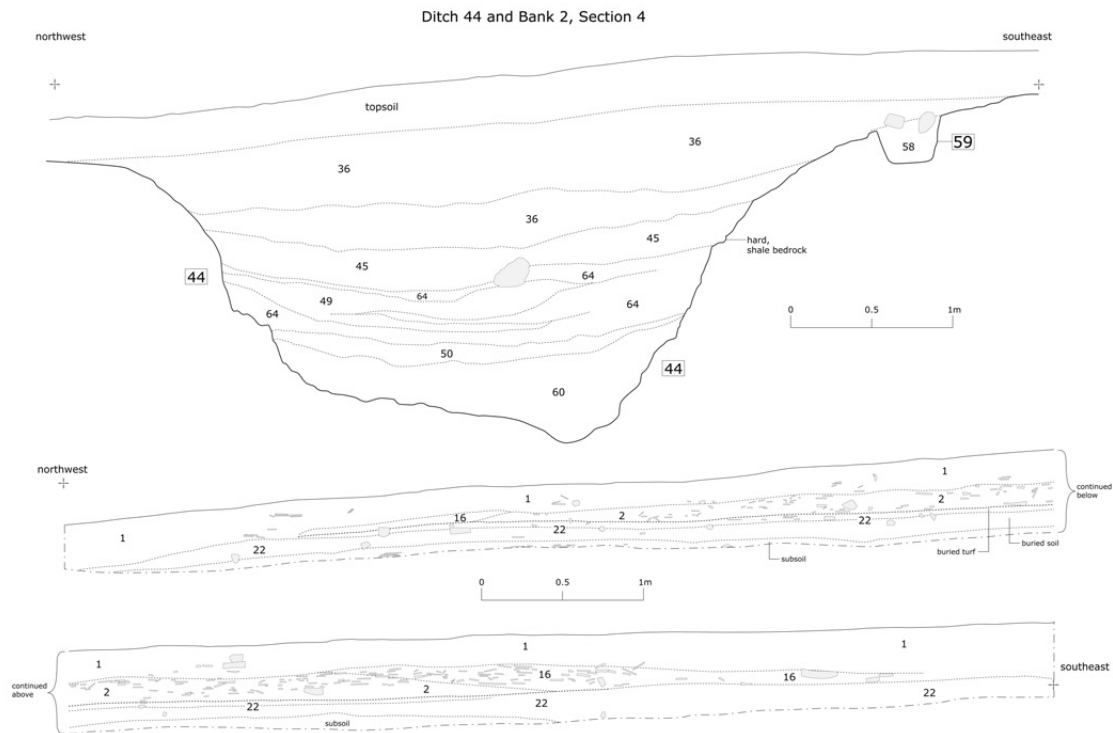


Fig. 19.
Berry Hill: section of ditch 44

Excavation

THE ENTRANCE

Two ditch terminals, remains of the bank on the northern side, and gate post-holes comprised the entrance. A gap or causeway of 11 m separated the terminals (Fig. 18).

North ditch terminal

Ditch 44, the north ditch terminal, was the simpler of the two (Fig. 19). A c. 3 m long portion was excavated; it was 4.5 m wide and 2 m deep with a square end, defined by steep, almost vertical, sides and a flattish bottom. It was rock cut, with the north-west side smooth where the builders had dug with the grain of the rock but jagged on the south-east side where slabs of rock had been prised out. Possible antler pick or other tools marks were noted. The ditch contained a simple sequence of fills, with no evidence of recuts or cleaning. Essentially the fills became progressively stonier and more gleyed with depth and record a slow, continuous accumulation of deposits. All were

'clean' in that they contained little charcoal, daub, or other material associated with occupation. Three massive quartz boulders, one from the upper fill (36) and the others from midway down, are likely to have come from a revetment to the defensive bank at the entrance.

South ditch terminal

The 4 m wide south ditch terminal (4) shows as a discontinuous signal on the geophysical survey, the reason for which became apparent on excavation, as the ditch had been dug as a series of short segments with spines of unexcavated bedrock left running across it. The segments were deepest at the north, terminal, end of the ditch and became progressively shallower to the south (Fig. 20).

The ditch terminal was essentially a rectangular, almost vertically sided, rock-cut pit, 2.5 m deep. However, the ditch bottom rose steeply to the south until it was less than 1 m below current ground surface, before gradually deepening again to a little over 1.2 m. The upper 0.8 m contained a dark brown silty-loam (3) similar to the topsoil. Towards the base of this fill were two massive quartz boulders, which, like those in the ditch to the north, are assumed to

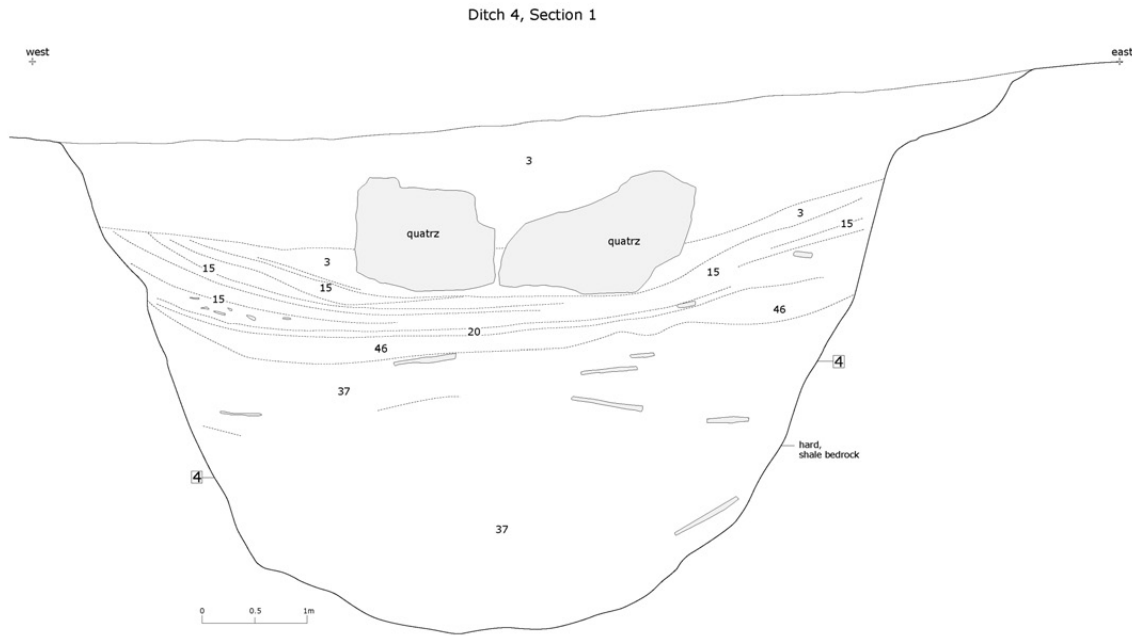


Fig. 20.
Berry Hill: section of ditch 4

have come from a bank revetment. Below this a series of thin lenses of brown and grey brown silty-loam (15) represent gradual accumulation in the ditch. A distinct dark sticky layer (20) with occasional charcoal inclusions below this may have been derived from occupation deposits. This was the only layer within the excavated ditch to have contained any significant amount of charcoal radiocarbon dated to between 1110–1100 cal BC and 1080–840 cal BC (Beta-253722; Table 4). Below this a dark-grey stone-free deposit (46) could represent soil development in the ditch. The remainder of the ditch fill comprised loose, angular pieces of shale (37), either representing deliberate backfilling or sudden collapse of a bank. Charcoal from this layer has been dated to 1260–1010 cal BC (Beta-253724).

To the south, where ditch 4 was substantially shallower, the sequence of fills was broadly similar except that there was evidence of a shallow recut (39), although this may have been a local feature. Essentially the sequence shows gradual accumulation of material except for the lowest fill (43) which contained over 70% shale pieces and may have been deposited over a relatively short time period. Layer 40, midway up the ditch, seems to have been a soil development with hints of a turf line and indicates a period of stabilisation in the accumulation process.

Bank

There was no trace of the bank to the south of the entrance (Fig. 19). To the north a *c.* 30 m long and up to 1 m high

earthwork scarp marks the location of the bank. On excavation this scarp was found to be a combination of a natural break of slope and the cumulative effect of the bank and ditch. Only the very base of the bank (2) survived as a *c.* 8 m wide and 0.10 m thick band of broken shale in a silty-loam matrix. There were no post-holes, palisade trenches, revetments, or other structural elements to the bank. Sealed by it was a 0.15 m thick buried soil (22) with a definite turf line. Charcoal from this soil has been dated to between 820–740 cal BC, 690–660 cal BC, and 650–550 cal BC (Beta-253723). Partly overlying and surrounding the bank (2) was a layer of bank wash (16: not shown on plan). This sealed gateway structural elements.

The gateway

Four post-holes arranged in two pairs comprised the gateway. Those to the exterior of the fort (23 and 52) were oval, 0.8 x 0.5 m and 0.5 m deep; both contained numerous packing stones defining what seemed to be three post-pipes in each hole. However, the stones had collapsed and it was not possible to obtain accurate measurements for each post-pipe, nor was it possible to obtain separate samples from the packing material and the pipe. The post-pipes were contemporary, and therefore each 'gatepost' consisted of three upright timbers. The width of the gate would have been 2.4 m.

A pair of post-holes (55 and 57) lay to the east and 2 m distant from the larger pair (23 and 52). These were circular, *c.* 0.3 m diameter and 0.4 m deep, with packing stones

defining posts. Fill 56 had a quartz boulder on the surface that may have been placed to fill a hole left when the post was removed. A small patch of worn quartz stones (35) located between the post-holes was probably the remains of a pebble track.

There was no stratigraphic connection between the two pairs of posts and so it is not known whether they are part of a single gate structure (as is most likely) or represent two phases of gateway. Post-hole 23 cut the fill of palisade trench 47, and bank wash (16) sealed all four post-holes.

The palisade trench

Gateway post-hole (23) cut the southern length of a palisade trench (48), and bank wash (16) sealed both portions. Each length of trench was *c.* 0.3 5 m wide and 0.3 m deep and contained large, upright stones. These were clearly packing stones, but it was not possible to identify individual post-pipes in the fills. The north end of the southern palisade (48) and the south end of the northern palisade (59) terminated in distinct post-holes with packing stones defining post-pipes 0.25 m diameter. The gap between these posts formed a 2 m wide gateway. A patch of worn quartz stones (34) in the gap, protected by the bank wash (16), represented the remains of a pebble surface.

The southern end of the south palisade (48) gradually became shallower, fading to nothing. For most of its course the palisade was dug through soft fluvio-glacial deposits, but at the south end it ran into hard bedrock. It seems likely that the builders were unable to dig through this hard rock and that the base of the trench rose over it, leaving no archaeological trace. However, post-hole 25 lay on the projected line of the palisade, and may have formed a deeper element of it.

THE INTERIOR

Few detectable archaeological remains survived in the interior of the fort and what was excavated is not easy to interpret. A line of five pits (10–14), with a smaller pit (18) adjacent to 11, may have been post-holes. However, no packing stones or other structural evidence were present and their fills were similar to the ploughsoil, perhaps indicating a recent date. A radiocarbon date of 800–520 cal BC (Beta-253721) was obtained from fill 7 of pit 12; topsoil could easily include charcoal from degraded features such as the buried soil beneath the rampart, so the charcoal in this fill may not relate to the post-hole itself.

Apart from an isolated possible small post-hole (31) the only other feature of interest was a patch of reddish coloured subsoil (61) associated with charcoal, which may have been the base of a hearth. Charcoal from this feature has been dated to 3090–2880 cal BC (Beta-253725).

RADIOCARBON DATES

Radiocarbon dates from Berry Hill are presented in Table 5.

Finds

Thirty-four small finds were recovered during the excavation: none was datable. Apart from three small fragments of burnt bone all were of stone and include possible slingshots and rubbing stones. Pieces of thin shale perforated by a single hole were the most common find (21); all from the fills of the two large ditch terminals (4 & 44). These perforated stones vary in size from 50 mm across up to 200 mm across. The holes also vary in size. Some have been shaped into a

TABLE 5. RADIOCARBON ANALYSES FROM BERRY HILL

<i>Lab No.</i>	<i>Determination BP</i>	<i>2 sigma calibration cal BC</i>	<i>Context</i>	<i>Sample type</i>	<i>Dating implications</i>
Beta -53721	2530±40	800–520	fill 7 of pit/post-hole 12	<i>Prunus</i>	One of line of pits/post-holes within interior of fort. Apart from hearth context 61 these are only definite features in interior
Beta-53722	2810±40	1110–1100 1080–840	charcoal rich layer 20 in ditch 4	<i>Ulmus*</i>	From only charcoal rich layer in the defensive ditches: 2/3rds up ditch. Dates late phase of infilling
Beta-53723	2580±40	820–740 690–660 650–550	layer 22 buried soil beneath defensive bank	<i>Prunus sp</i>	<i>Terminus post quem</i> for construction of defences; clear turf line beneath defensive bank
Beta-53724	2920 ±40	1260–1010	layer 37 loose stone fill at base of ditch 4	<i>Alnus glutinosa</i>	Loose-stone fill at base of defensive ditch; dates early infilling of ditch
Beta-53725	4330±50	3090–2880	hearth 61	<i>Corylus avellana**</i>	Hearth in interior of fort

*complete roundwood, 7 rings; ** complete roundwood, 2 rings

TABLE 6. CHARRED PLANT REMAINS FROM BERRY HILL

	Context	3	20	41	36	45	49	50	5	6	7	8	9	21	22	47	58
Feature		D	D	D	D	D	D	D	P	P	P	P	P	PH	BS	PT	PT
Volume (litres)		04	04	04	44	44	04	44	10	11	12	13	14	23	22	48	59
cf. <i>Hordeum</i> sp. grain (Barley)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Avena</i> sp./Poaceae (Oat/Grass)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Cerealia indet. frags	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Caryophyllaceae (Pinks)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
<i>Persicaria lapathifolia</i> (L.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Gray (Pale persicaria)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Persicaria hydropiper</i> (L.)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spach (Water-pepper)	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<i>Rumex acetosella</i> L. (Sheep's sorrel)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Rumex</i> sp. (Docks)	1	2	-	-	2	-	-	-	-	-	-	-	-	-	1	-	1
<i>Rubus fruticosus</i> agg. (Brambles)	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
<i>Prunus spinosa</i> L. (Black thorn) frags	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
<i>Prunus spinosa</i> L. thorn	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rosaceae - thorn	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Trifolium</i> sp. (Clovers)	1	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	1
cf. Fabaceae indet.	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<i>Plantago lanceolata</i> L. (Ribwort plantain)	-	1	-	-	1	-	-	1	-	-	-	-	-	-	1	-	-
cf. <i>Plantago lanceolata</i> L.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Galium mollugo</i> L. (Hedge bedstraw)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-

TABLE 6. CHARRED PLANT REMAINS FROM BERRY HILL CONTINUED

Context	3	20	41	36	45	49	50	5	6	7	8	9	21	22	47	58
Feature	D	D	D	D	D	D	D	P	P	P	P	P	PH	BS	PT	PT
Volume (litres)	04	04	04	44	44	04	44	10	11	12	13	14	23	22	48	59
	24	11	7.5	17.5	17	7.5	9	10	6	7	10	10	7	10	10	10
<i>Lapsana communis</i> L. (Nipplewort)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Carex</i> sp. biconvex + utricle (Sedges)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Carex</i> sp. biconvex	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cf. <i>Carex</i> sp. biconvex	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-
<i>Arrhenatherum elatius</i> ssp. <i>bulbosum</i> (Willd.) whole (Onion couch)	-	-	-	-	-	-	-	-	1	-	1	1	-	-	-	-
<i>Arrhenatherum elatius</i> ssp. <i>bulbosum</i> (Willd.) frags	-	-	-	-	-	-	-	2	5	4	3	-	-	-	-	-
cf. <i>Danthonia decumbens</i> (L.) DC. (Heath grass)	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-
Poaceae (Grass)	1	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-
cf. Poaceae	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Poaceae large rhizome/root frag.	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Poaceae rhizome frags.	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poaceae culm/rhizome frags.	2	-	1	-	1	1	-	-	1	1	-	-	-	3	2	-
Tree bud	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cf. Flowerhead	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Charred material - indet.	2	6	-	4	2	-	-	-	-	2	3	1	1	2	1	-
Total	10	32	2	8	10	1	1	5	7	9	11	2	3	11	4	4

D = ditch, P = pit, PH = post-hole, BS = buried soil, PT = palisade trench

neat circular disk with a neat round central hole; others are misshapen with roughly punched, eccentric holes. Some of the perforations exhibit rope or cord wear, and it is possible that some, at least, of these artefacts may have been weights.

Archaeobotanical evidence

A.E. Caseldine & C.J. Griffiths

THE CHARRED PLANT REMAINS

Samples were recovered from a range of contexts and procedures followed those at Ffynnonwen. The results are presented in Table 6.

Plant remains, other than wood charcoal, were scarce and cereal evidence was extremely rare. Fifteen contexts yielded only wood charcoal. The assemblages recovered from the fills of the ditch terminals included occasional weed seeds such as clover (*Trifolium* sp.), ribwort plantain (*Plantago lanceolata*), dock (*Rumex* sp.), buttercup (*Ranunculus* sp.), and grass (Poaceae) seeds, including possibly heath grass (*Danthonia decumbens*), and rhizome fragments. In general the assemblage from the ditches suggests grassland but an indeterminate cereal fragment and a goosefoot (Chenopodiaceae) seed from layer 3 in the south terminal hint at cultivation in the area during the latest phase of infilling.

One assemblage from a distinct layer (20) with charcoal inclusions in the south ditch differed from other fills in having a few woody plant remains, including blackthorn (*Prunus spinosa*) thorns and a bramble (*Rubus fruticosus*) fruitstone, which suggest scrub and waste ground and plants indicative of damper ground, namely water-pepper (*Persicaria hydropiper*) and sedge (*Carex* sp.) seeds. Blackthorn remains in layer 36 from the north ditch also indicate scrub woodland in the vicinity. The bramble and blackthorn might indicate wild foodstuffs, material that was collected as fuel or earlier clearance activity at the site. A date of 1110–1100 cal BC/1080–840 cal BC was obtained on charcoal from layer 20 and 1260–1010 cal BC from charcoal from a lower ditch fill (37).

The assemblage, including sheep's sorrel (*Rumex acetosella*), hedge bedstraw (*Galium mollugo*), and other taxa, from the buried soil (22) beneath the defensive bank (2) again suggests grassland, although most can be associated with cultivation including pale persicaria (*Persicaria lapathifolia*). The latter also commonly occurs where there is damp ground, whilst hedge bedstraw is frequently found in hedgerows. Charcoal has given a date of between 820 and 550 cal BC for the buried soil.

Plant remains from gateway post-hole (23) and the palisade trench (48, 59) were scarce but again suggest a range of habitats including waste and damp ground as well as grassland and cultivation. The latter indicated by an indeterminate cereal fragment and a possible barley grain. Nipplewort (*Lapsana communis*) may also indicate waste ground, although it can be found in hedges and open woodland

The remaining samples were from five pits in the interior of the fort. A radiocarbon date of 800–520 cal BC was obtained for charcoal from pit 12. All the samples contained onion couch grass (*Arrhenatherum elatius* ssp. *bulbosum*). This is typically found on rough ground and in hedgerows and with other coarse grasses, but it is also found in arable land where ploughing helps to disperse the tubers. It has been recorded from several sites in Wales, including Middle Bronze Age pits at Pennant Melangell (Caseldine 1994). Other grass seeds, clover, and sheep's sorrel provide further evidence for grassland. The presence of an oat (*Avena*) or large grass seed might indicate cultivation, while bramble could signify waste ground, scrub or hedges.

A date of 3090–2880 cal BC from the possible hearth demonstrates that this pre-dated construction of the fort and represents much earlier activity but no plant remains other than wood charcoal were recovered.

The low incidence of charred plant remains and scarcity of cereal is consistent with the archaeological evidence for light use and possibly incompleteness and abandonment of the fort. Whilst the presence of grassland clearly suggests pastoral activity, the importance of cereal cultivation in the local area cannot be ascertained with any degree of certainty from the limited evidence. Such evidence as there is tends to suggest only small-scale arable activity during the Late Bronze Age/Early Iron Age but might be misleading because of the nature of the site

Plant remains indicative of scrub woodland, or possibly hedges, is in agreement with the charcoal evidence. Overall, it seems likely that either grassland with open woodland and scrub or grassland with hedges occupied the area around the time of fort construction.

CHARCOAL

A limited amount of charcoal was identified from selected contexts. The methods follow the same procedure as for Ffynnonwen and the results are given in Table 7.

Species recorded include oak (*Quercus* sp.), elm (*Ulmus* sp.), hazel (*Corylus avellana*), alder (*Alnus glutinosa*), birch (*Betula* sp.), blackthorn (*Prunus spinosa*), cherries (*Prunus* sp.), hawthorn type (Maloideae), rose (*Rosa*), and gorse (*Ulex* sp.). There was some variation in the occurrence of the various taxa but this may simply reflect the comparatively small size of the samples. A larger assemblage was identified from the possible hearth (61) but this was species poor, producing only oak, hazel, and cherry. In comparison to the other samples and, given the earlier date of 3090–2880 cal BC, this suggests different woodland resources were available or the deliberate selection of certain species to make a fire during the Neolithic.

Although the amount of woodland and the relative proportions of the individual species cannot be ascertained from the charcoal evidence, it is evident that the woodland contained a variety of species around the time of fort construction. In addition to oak, elm was present, whilst alder may have been growing on damper ground. Many of the species are shrubby including blackthorn, hawthorn, rose, and gorse as well as hazel and birch and could indicate colonisation of land by scrub and secondary woodland

TABLE 7 CHARCOAL IDENTIFICATIONS FROM BERRY HILL

Context	20	37	6	7	22	47	58	61	Total
Feature	D4	D4	P11	P12	BS22	PT48	PT59	H61	
<i>Ulmus</i> spp. (Elm)	3	–	–	–	1	–	2	–	6
<i>Quercus</i> spp. (Oak)	4	2	6	2	4	5	6	26	55
<i>Betula</i> spp. (Birch)	–	–	1	–	–	2	–	–	3
<i>Alnus glutinosa</i> (L). Gaertner (Alder)	1	6	–	–	1	–	2	–	10
<i>Corylus avellana</i> L. (Hazel)	1	–	1	–	2	2	–	6	12
<i>Rosa</i> sp. (Roses)	–	–	–	–	–	1	–	–	1
<i>Prunus spinosa</i> L. (Blackthorn)	–	3	–	–	–	–	–	–	3
<i>Prunus</i> spp. (Cherries)	–	–	–	1	2	–	1	1	5
Maloideae type (Hawthorn, rowan, crab apple, common whitebeam, wild service-tree)	4	–	–	–	–	–	–	–	4
<i>Ulex europaeus</i> L. (Gorse)	–	–	–	–	1	–	–	–	1
Total	13	11	8	3	10	10	11	33	100

D = ditch, P = pit, BS = buried soil, PT = palisade trench, H = hearth

following abandonment. The date from the hearth indicates Neolithic activity and earlier impact on the woodland in the area. Equally, many of these species are found in hedges and could perhaps indicate former land use with the creation of hedges to contain and provide shelter for stock or, possibly, protection and shelter for cultivation.

Berry Hill: overall interpretation

Radiocarbon determinations provide the only dating evidence for Berry Hill. A *terminus post quem* for the construction of the defences is provided by the date of 820–550 cal BC from buried soil beneath the defensive bank. This date range does not comply with two dates from layers in the ditch of the 13th–9th centuries BC (1110–840 cal BC and 1260–1010 cal BC). One of the dates from the interior of the fort, from a line of pits, is compatible with the date from the buried soil, at 800–520 cal BC, while the second, from a hearth, indicates a Neolithic presence: 3090–2880 cal BC. The date from the buried soil therefore demonstrates that the fort was constructed during or after the 8th–6th centuries. The earlier dates from the ditch must therefore be from residual material, and indicate use of the site prior to the construction of the bank and ditch.

The paucity of archaeological features encompassed by the bank and ditch and the scarcity of charcoal, burnt stone, and calcified bone point to a unoccupied or only lightly used site, but the absence of datable artefacts cannot be taken as an indication of light use as few Late Bronze Age/Early Iron Age artefacts have been found in west Wales. In contrast, the wide date range of the radiocarbon determinations indicates considerable time-depth to the site, perhaps

one of several centuries if the widest date range of the radiocarbon determinations is accepted. The stratigraphic relationship between the palisade trench and one of the gateway post-holes also indicates some time-depth, but this may have been shallow, with the palisade pre-dating the gateway, bank and ditch by months or years rather than decades or centuries. The radiocarbon dates, albeit limited in number, suggest that occupation of the site did not continue past the 6th century BC. In respect of this, it is interesting to note that apparently unfinished nature of the south ditch terminal, and it may be that fort was never completed and was abandoned. This would account for the lack of evidence for round-houses and other buildings and the scarcity of occupation material.

ENCLOSURE, SETTLEMENT, AND SEQUENCE

The extensive survey and selective excavation programme in south Ceredigion and north Pembrokeshire provides a coherent set of data with which to consider a number of interpretive issues regarding settlement, enclosure, identity, and ways of living, each of which is discussed using this regional evidence within a wider comparative framework, placing west Wales in current debates regarding the archaeology of the Iron Age. The evidence can be compared, and where appropriate combined, with the other concentration of archaeological activity in the Llawhaden area of central Pembrokeshire (Williams & Mytum 1998) and the scatter of other sites investigated across west Wales.

Settlement definitions and sequence

The evidence from the excavations described here demonstrates a broad correlation between size and date, with larger forts appearing earlier in the Iron Age than those under *c.* 0.3 ha, which are later, constructed generally 2nd–1st century BC, though in some cases continuing to be occupied for several centuries. Discussion can therefore be split into two, first briefly considering the plethora of early settlement forms, followed by wider discussion of the smaller settlements. In the following discussion it is worth bearing in mind that virtually no unenclosed later prehistoric lowland settlement is known in west Wales. Recent work on the moorland of the Preseli Mountains, Pembrokeshire (Murphy *et al.* 2010), has, however, identified ample evidence for unenclosed prehistoric settlement in the vicinity of Carn Ingli and Y Foel Drigarn hill-forts, but its precise date has not been established, and excavation on a gas pipeline across south Pembrokeshire and Carmarthenshire has suggested the presence of late prehistoric unenclosed lowland settlement, although the results of this work are not yet available.

Larger enclosures

The larger sites, over 0.3 ha, have historically received limited attention in west Wales, and known forms cover a wider range of sizes, shapes, and topographic locations, so that generalisation is difficult (Murphy & Murphy 2010). Moreover, survey evidence and comparative morphology at sites such as Garn Fawr, Carn Ingli, and Y Foel Drigarn suggest that hilltop enclosures may belong to a wide chronological span with occupation or use, if not always construction, from the Neolithic through to the early medieval period (Hogg 1973; Thomas 1994). Coastal promontory locations, now much modified by erosion, and contour forts dictated in part by the topography, constrain plan analysis. However, those sites located on the rolling plateau areas can be considered, and these seem to begin during the later Bronze Age at sites such as Broadway, though with pre-enclosure occupation also present. Large palisaded enclosures are also known, from Castell Henllys and perhaps from Drim, but these are of Middle Iron Age date (Williams & Mytum 1998). In this context, the excavations at Ffynnonwen and Berry Hill are relevant.

At Ffynnonwen a palisaded enclosure pre-dates the inner earthwork where most excavation effort was

concentrated. The possible 8th–4th century BC date range is broad, but the latter part fits well with the dates for palisaded phases at Castell Henllys and Drim. Here, however, the palisade may have been a small central enclosure surrounded by the outer ditch, to which it would have been roughly centrally placed. This ditch was probably augmented by a low bank, now lost but which was probably constructed on its inner side, on the basis of the predominance of stone on the inner side of each fill layer. At the other known palisaded sites in the region the enclosure was much larger and no contemporary earthworks were located. A significant number of large, oval ditched enclosures similar to Ffynnonwen are known from aerial photography in west Wales, and the combination of outer earthwork and inner palisade may have been a common form. It is possible that the geophysics at Llangan (Fig. 5) suggests an origin with a settlement of this form, though with a more complex later history.

Berry Hill presents evidence for the short-lived nature of some site elements, with a palisade here being replaced, albeit briefly, by an earthwork. The sequence is similar to that at Castell Henllys. The palisade shows no sign of being rebuilt, the earthwork was not finished, and little occupation debris such as flecks of burnt clay and charcoal that normally occur, even on the artefact-poor sites of the region, suggests limited density and length of occupation, although a long pre-palisade and earthwork phase of occupation is suggested by the radiocarbon dates. It is unknown whether this occupation was a limited event, continuous, or discontinuous.

The evidence from the region, incorporating the fragmentary material from this campaign, suggests that larger oval enclosures, some with palisaded components, were constructed from the Late Bronze Age onwards, sometimes on sites that had had been intermittently occupied at earlier times but without any evidence of direct continuity of occupation. These sites represent the first phase of continuous archaeologically visible settlement in the region, though this may have more to do with the introduction of ditched enclosures that can be identified by aerial photography than with the movement of a significant population into the region. The upland settlement that is probably of late prehistoric date (Murphy *et al.* 2010) suggests that other forms of settlement may have already existed in the region, though few of the enclosed settlements suggest phases with either no definition or a

timber palisade, unlike other regions such as Northumberland (Willis 1999), the English Midlands (Gwilt 1997; Knight 2007), or the Thames valley (Lambrick 2009). This suggests a clear discontinuity in the structuring of settlement, with the use of enclosing features, often as at Ffynnonwen not particularly substantial but making a definite mark on the landscape, creating a pattern of activity that is continued in various guises for about a millennium.

Some larger enclosures were defined with substantial ditches, 2 m or more in depth and width, and incorporating topographic features which enhanced visibility and potentially defence. These may be inland promontory forts such as Castell Henllys, Berry Hill, and the pre-medieval phase of Nevern Castle, but also some of the coastal promontory forts and inland stone forts which all suggest more substantial investment in the defining features which may also include a defensive element, including *chevaux-de-frise* at Castell Henllys and Carn Alw (Mytum 1999; forthcoming; Mytum & Webster 1998). Only two of the 20th century excavations at Y Foel Drigarn (Baring-Gould *et al.* 1900) have taken place at a substantial hillfort in the study area, and even within west Wales as a whole only Caer Cadwgan (St David's University College 1984–6), Pembrey Mountain (Williams 1981), and Merlin's Hill (Williams *et al.* 1988) have received limited investigation in recent times. Aerial photography suggests that some more substantial sites may have been degraded by ploughing, but the limited number of known sites and restricted information about them makes interpretation problematic. Moreover, the contrast in site biography between the morphologically similar sites of Berry Hill and Castell Henllys demonstrates not only the long period over which certain topographic locations and site morphologies may be considered viable, but also the plethora of unknown variables that dictated which sites and communities were successful and which failed. These sites, their builders and their occupants were set within social, political and ideological worlds that were fluid and, at times at least, unpredictable. Whilst overall trends may be discernible and can be presented in a generalised regional grand narrative, exceptions in terms of both longevity and brevity of site viability should be expected and point to the variation in experience of different groups throughout later prehistory.

Smaller enclosures

Although the excavated sample in west Wales is relatively small, and evidence for the actual date of enclosure construction is not always available, particularly on cropmark sites, no early, that is pre-2nd century BC, smaller enclosed settlements under 0.3 ha have been identified for the region. This applies to all curvilinear as well as more rectilinear shapes, but it may be possible to offer some evidence that the latter only occur later in this sequence. Radiocarbon dates from Penycoed, Carmarthenshire, a small rectangular enclosure, clearly demonstrate that it was constructed in the late 1st century BC–early 1st century AD (Murphy 1985). However, dates from a similar, nearby site, Llangynog II, are less conclusive, indicating occupation in the Romano-British period, but not a date of enclosure construction (Avent 1973; 1975). At Troedyrhiw it can be argued that the context of the Roman pottery assemblage demonstrates 1st–4th century AD occupation of a late prehistoric enclosure. Although this evidence shows that rectangular enclosures were constructed broadly at the same time as small oval examples, such as those in the Llawhaden group (Williams & Mytum 1998), there is a hint that rectangular sites were constructed from the end of the pre-Roman Iron Age and so may only be a relatively late addition to the repertoire of settlement forms available from the 1st century BC onwards.

Both rectangular and circular enclosures defined settlements with similar functions: round-houses, generally accepted as dwellings, and 4-/6-post structures, possibly used for food storage, are found on both types of site. The density of occupation was high within the enclosures, and discussed further below. Within the variability in individual site layouts and histories, the various building blocks of settlement and their presence within the settlements suggests a common cultural repertoire seen across much of the British Iron Age from which particular choices were made in each context.

The large number of small enclosures across west Wales (Murphy & Murphy 2010) may be evidence of a rapidly rising population in the 2nd–1st centuries BC. What is not currently clear is whether these small enclosures replaced the earlier hillforts and medium-sized defended enclosures, in which case this may only be population shift rather than necessarily an increase, or whether they were in addition to them in which case it can be assumed that the number of people

inhabiting the landscape increased significantly. At Castell Henllys, for example, the inland promontory fort was abandoned in the later 2nd or 1st century BC but a smaller settlement was established immediately outside the main enclosed area, within its annexe. Small enclosures, both curvilinear and more rectilinear, were built in the surrounding area and would seem to date from this time onwards.

The appearance of the smaller enclosures scattered widely across the landscape certainly reflects changing social patterns away from the centralised society with nucleated, albeit still relatively small, settlements, to a looser association of people and groups of people. In south-west England it has been suggested that smaller enclosed settlements replaced hillforts as the main settlements in the late Iron Age as hillforts took on a more ritual or ceremonial role (Quinnell 2004); there is no evidence for this in west Wales. Instead there is a settlement shift that lasts for a long period, itself only to come to an end in the early medieval period, when occupation may move to farm sites that are still in use. Site abandonment and destruction is considered under enclosure, below.

The location of different settlement types within the landscape has only been examined in the broadest outline, but it is notable how large numbers of site of all dates and forms are located in non-defensive locations (Murphy & Murphy 2010). Whilst detailed research may indicate more subtle patterning, the gross trends suggest that there were few, large, upland defended sites of what would be typically termed hillfort forms, with a number of coastal promontory forts of greatly varying size (possibly more related to geography and the location of the narrow neck that any other cause) and smaller inland promontory forts placed along some of the river valleys. All other settlement was on hill-slopes or plateau areas, presumably locations selected for proximity to suitable agricultural land.

The lack of evidence for field systems, in contrast to many lowland areas of England, suggests that crops and animals may have been managed without the need for tightly defined and enclosed spaces, though some of the charcoal evidence suggests some species suitable for hedges. This may imply different animal management and control regimes to prevent the albeit probably limited cereal crops from being consumed by livestock, or that these could have been formed through archaeologically invisible field formations. Whatever their scale, extent and physical form this

has implications for concepts of land ownership, and the spatial marking of rights of access and use. Quite how all these matters were managed is unknown, but it clearly was not following methods chosen elsewhere in Britain where extensive field systems survive.

Enclosure

Enclosure of settlements can be for a number of purposes, of which defence has been most emphasised in the past. Only those sites in naturally defensive locations, such as those along a scarp as at Berry Hill, or a few larger hilltop forts in the region such as Garn Fawr and Y Foel Drigarn, suggest that this may have been a major consideration by their locations. As Berry Hill was apparently unfinished it does not provide definitive evidence regarding defensive capability and so consideration of the actions at this site will be examined alongside the smaller sites and can contribute particularly to the discussion below regarding the social and/or symbolic significance of entrances.

Most west Wales sites were defined by relatively modest earthworks and, given that this was normally only a single line of bank and ditch, these would have provided no strength in depth and little protection against more than the smallest war band. Therefore the most that the enclosures might generally supply in terms of protection is one of household safekeeping, limiting access to certain visible routes and allowing closure by gates at night. Even this proposed role may, however, more reflect our views on domestic security than later prehistoric priorities.

Three other functional reasons are offered for enclosure with relatively unpretentious ditches and earthen banks: protection against the elements, stock control, and social differentiation. The last may also link to belief frameworks as the symbolism of status is implied by this form of interpretation, though symbolism may be relevant to all groups and their settlements, including those of lesser status; ritual is not an exclusively elite practice.

Many of the settlements in the study area lie in exposed plateau locations and these, if not the other settlements on valley slopes, would have benefitted from the physical protection that the enclosing banks would have made from wind and driving rain. Even a bank 1 m high provides a deflection from the wind that would have protected structures, artefacts, and activities within the enclosure, and if there had been a hedge on top of this the protection would have been even more substantial (where banks have survived to

a reasonable height and been excavated, as at Drim (Mytum & Williams 1998) no palisade was evident). Given the small size of the interiors, the worst of the wind would have been carried above the whole occupied area, creating an oasis of calm. Whilst only some sites are in such exposed conditions, the enclosing earthworks would provide protection, drainage on a slope, and other physical protection. An earthwork ditch and bank is more easy to maintain than a wooden palisade and would not suffer during particularly strong winds. However, the deep ditches of the enclosures would have played no part in deflecting wind and rain, and therefore physical protection may not have been a primary function of the enclosures. Substantial banks can be constructed without quarry ditches, as is demonstrated by the high hedge-banks of west Wales, so the efforts required to cut the ditches (especially those substantially within bedrock) suggests that these features at least require alternative explanation.

Stock control may be a factor, but at most small enclosures the density of structures within the settlement would allow very limited space for animals; at best the occasional hobbled milk cow would be viable. It is more likely that if the bank and ditch were for stock control they would have been to keep animals out, as they would damage thatch through grazing and walls and roofing through leaning and scratching. Moreover, evidence from Iron Age round-house interiors at those sites where floor levels survive show a concern with cleanliness, a concern which may also be applied to the exterior areas within enclosures as evidence for middens is limited at many sites. Keeping stock from the interior would remove the problems of manure in the settlement, and would allow many activities that required good light to take place in the limited outside space without risk of disruption from animals. As with protection from the elements, deep ditches are not required for stock control, and some of the environmental evidence noted at these sites includes species well suited to hedging (see above). Indeed, they may have been an impediment to efficient control, if not a danger to stock, and so as with the exposure model, the presence of the ditches is not adequately answered.

Status may be implied by enclosure with a bank and ditch in several ways. The first is the obvious visual impression created by the earthwork when viewed in the landscape, either from a distance or as approaching the site. In relative terms these are not

impressive, no larger than the stone and earth field boundaries still so common in the west Wales landscape today, and no match for massive earthworks of major contour or promontory forts. The size of this feature may not have been important, and within the region there were no large earthwork sites to provide such a contrast. Moreover, it may be the social status implied by being allowed to have such a feature was sufficient. This may be linked to a symbolic association of status caused by the ditches being dug and the bank thrown up by those with social obligations to the occupants, as with early medieval Irish obligations or medieval feudal dues (Mytum 1992, 122–6), or by the actions of slaves indicating an even stronger level of power over others. An alternative is Sharples' potlatch model (2007) by which those creating the earthworks might use existing social debts to obtain the labour resources, though it may be that the converse was the case, and the builders built up social debts and obligations to others in the initial creation of the site. That the ditch at least did not have to be large is shown most dramatically at Fynnonwen, where the smaller enclosure ditch was unfinished where particularly hard and tightly bedded shale was encountered. At other points the ditch was deeper than expected, and it may be that the bank was evenly made by redistributing material around its circumference. This implies that the bank was more important than the ditch, a suggestion that supports the importance of visibility over defence, though as banks can be constructed more easily by merely scraping together superficial deposits and incorporating field clearance stones, the action of ditch digging was clearly significant in and of itself.

Enclosure sequences are largely simple, with single phase construction, though at Berry Hill a timber palisade was replaced by the bank and ditch, and entrances could have more complex sequences, as at Troedyrhiw. Other excavations where the ramparts survive to a reasonable height, such as Drim (Williams & Mytum 1998), suggest simple, single-phase dump rampart construction, and the ditch sections, even at the terminals, reveal no definite phases of recutting. This could indicate either no maintenance at all or regular or episodic cleaning with complete emptying of the rock-cut ditches which, given their solid edges, would be relatively easy to carry out, leaving no archaeological trace of intervening filling. The issues of ditch cleaning and recutting have been considered

by Chadwick (1999); he notes that regular cleaning would leave no trace, and this would be particularly so with the rock-cut ditches in these examples. The lack of recutting, which Chadwick (*ibid.*, 161) points out can only happen when the ditches have silted up to a considerable degree for it to be recognised in the excavated section, may reflect constant attention until the ditches no longer mattered, or that only their initial excavation was important. Thus, the lack of recutting at these sites indicates that whatever the reasons for the initial excavations were not repeated, unlike perhaps those at sites where recuts are present, as with some of the annexe ditches at Castell Henllys. Rees (2008) has considered further the potentially symbolic significance of ditch recutting, and indeed of backfilling, which may be present at Berry Hill, though he recognises that in many of his examples, as with these Welsh sites, neither frequently occur, so the absence of recuts is clearly a widespread pattern.

The ditch terminals at Troedyrhiw and Berry Hill both contained very large quartz boulders. These substantial rocks must have been collected from the landscape, probably lying as erratics. It is likely that these were used as highly visible revetments for the banks at the entrances of both sites. From a functional viewpoint these boulders could be thus removed from cultivated ground as clearance, and put to good practical use. The brightly coloured white and orange quartz would have made the approach visible, even at dusk, and would have effectively held back the bank from rapidly slumping back into the ditch. Large blocks of other rock also lie across the landscape, so the selection of quartz would seem to be deliberate.

Quartz has a long association with symbolic usage, extensively incorporated in Neolithic ritual structures and depositions (Burl 2000; Darvill 2002) and Bronze Age monuments (Lebour 1914). The use of quartz pebbles in early medieval burial and the enigmatic Irish *leachta* structures is widely attested (Marshall & Walsh 1998; Daniell 1997, 165) and they are also used in Welsh holy well construction (Jones 1954). There is no reason to assume continuity in meanings across such long periods of time, but rather that in different contexts and with varying sets of belief, symbolism can be attached to the bright, hard and distinctive material, whether in large angular blocks as at Troedyrhiw and Berry Hill (themselves separated in time by several centuries), or with smooth water-rolled pebbles in some of the other contexts. Associating the quartz with the entrance of the

enclosure may have held some symbolic significance at this liminal area, such as some form of protective function, or as a sign of a certain status.

Detailed consideration of the ditch terminal contexts in which the quartz blocks were found allows further assessment of their significance and what their form of deposition might mean. There are similarities and differences between the two sites.

At Troedyrhiw the blocks were found above the primary fills but still at relatively low levels in the ditches. The deposition of the blocks in the ditch terminals should be considered in the light of the primary gate arrangement. The boulders lie hard against the inner face of the ditch cut above the primary fills but immediately below a mixture of soil and stones that would not be the expected rapidly collapsing bank. This location does not suggest a natural movement, particularly as the force necessary to dislodge such large boulders would be substantial, unless they were set on loose material which is represented by the rapid infill which would have undermined the boulders. This construction seems unlikely; where large quartz blocks have been recorded in surviving revetment walling in the region, as at Castell Henllys, they have been placed firmly on the ground surface and used either on their own or in combination with drystone construction using shale. This suggests that the removal of the quartz blocks was a deliberate act, relatively early in the history of the site, suggesting that whilst the use of such materials may have been appropriate at the beginning it was no longer considered so at a later stage in the site's history. Whether this related to a change in symbolic value of such items, or a change in status of the inhabitants that made such a feature of the entrance inappropriate, is not known.

At Troedyrhiw a pair of post-holes marked a gate set just beyond the middle of the proposed bank width, the posts set at the foot of the bank and with short lengths of palisade running up and into the bank – not as the start of a continuous palisade but as fencing to ensure that there was no entry up the sloping bank terminals. The gate controlled the busy traffic that wore away a trackway that formed a hollow in the shale bedrock. It is likely that the quartz boulders sat between the gateposts and the ditch terminals, a distance of a little more than 2 m each side. Given the degree of wear in the trackway through the primary gate, it is likely that this entrance arrangement survived the removal of the quartz blocks for some time.

The Troedryhiw entrance was redesigned at some stage during the life of the settlement, and a sherd of Black-Burnished ware came from the fill of one of the post-holes, suggesting that this was during the Romano-British period. This gate was set back to the rear of the bank, and was complemented by an internal wooden revetment that ran in a trench which survived round all of the southern excavated area and was present in part to the north, though here the first length was wooden fencing joining the gate to the bank, indicating a rather different alignment and asymmetrical relationship between the gate and the bank which blocked off the well-worn trackway that had already been established into the interior that now ran to the north of where the new entrance directed visitors. This suggests a significant reorganisation of internal space within the settlement, beyond the area opened up for excavation.

The Berry Hill quartz blocks were found at much higher levels in the ditch profiles than at Troedryhiw. Two large blocks were set in the centre of the ditch width within the later silty fills of the south ditch terminal, suggesting that they rolled into the ditch at a very late phase. In the north terminal one block was found in an equivalent position to those on the north, indicating that a similar process occurred across the whole entrance, but two other blocks were at a lower level, indicating that destruction of the revetment was intermittent. Given that the lowest levels in the Berry Hill ditches were either deliberate infilling or rapid rampart collapse (and the angle of the shale material suggests the former) this suggests that partial destruction of the quartz revetment took place at Berry Hill though presumably here, unlike at Troedryhiw, this was part of the site destruction process. The other blocks that rolled into the ditch at much later date may also have been deliberately moved out of position to destroy whatever significance they may have once held, but more likely these were cleared into the ditch as part of agricultural improvement, largely levelling the banks and filling in the ditches to facilitate ploughing in the medieval or later period.

It is also possible that at these Welsh sites neither the entrance banks and ditch terminals nor the quartz revetments were important *per se*, but rather it was the act of construction that was paramount, with the finished earthwork secondary. This could have been to promote group bonding through communal effort, as suggested by Sharples (2007), though not necessarily

within a potlatch model creating social obligations which would place the site's occupants in a dependent position. It is also possible that the obligations emphasised existing asymmetrical social relationships, much as the creation of Irish ringfort banks and ditches may have been a physical representation of clientship relationships (Mytum 1992, 114–26). At Troedryhiw digging the enclosure ditch would have required the quarrying of *c.* 700 m³ of hard bedrock. This then had to be moved and formed into a bank. Assuming that one person could dig and move one cubic metre of rock a week (which is probably an under-estimation), then construction of the bank and ditch alone would have taken 13 people over one year to construct. This would probably have been beyond the capabilities of the Troedryhiw inhabitants, and supports the idea of communal effort, or of 'bought in' resources, albeit over a number of years with perhaps seasonal efforts linked to quieter periods of the agricultural year and possibly combined with other social activities involving dense social interaction of groups otherwise largely dispersed across the landscape. It is not possible to discern archaeologically whether the ditch was built at one go, or over a number of seasons; the unfinished nature of the Fynnonwen ditch may reflect a failure to maintain the necessary social obligations for the time required to construct the ditch in the solid rock, which may suggest that such labour obligations were time- or effort-limited. A similar scale of construction on a site where the glacial deposits often overlying the shale were present would have reduced the time and effort required, and this may have allowed the completion of the enclosure in such circumstances.

Annexes

The analysis of the function of annexes (in particular concentric annexes) to enclosed settlements has not progressed since Lady Fox's interpretation of them as cattle enclosures in the early 1950s (Fox 1952). The paucity of additional evidence since Fox's paper has hindered new interpretations. However, aerial photography and more recently geophysical survey have changed this, and now several annexe characteristics are apparent that assist in formulating new interpretations. First, there is no direct connection between annexes and the main, inner, enclosure. Second, aerial photography and geophysics show annexes to be empty; this has not been tested by excavation as the only extensively excavated annexe,

at Castell Henllys, cannot demonstrate early use or not because of all of the Late Iron Age and Romano-British period settlement in that area. Third, although annexes vary in size this is usually in proportion with the inner enclosure, with the distance between the inner ditch and the annexe ditch normally 45–60 m, and fourth, annexe defences are universally slighter than those of the main, inner, enclosure.

Absence of connection between main enclosures and annexes could simply be a factor of chronology – annexes being added after construction of the main enclosure. This, however, is not an adequate explanation as the common plan of enclosures with concentric annexes suggests unity of planning and construction, and perhaps lends credence to Fox's interpretation of annexes as cattle enclosures, as direct contact between areas reserved for stock and the settlement may not have been desirable.

The apparent absence of structures in annexes also lends support to Fox's theory. The evidence from the Ffynnonwen geophysical survey is significant here, as the 'extra mural' settlement attached to the outside of the annexe seems to have been deliberately located in order to keep the annexe free of buildings. However, there are many other possible explanations. Perhaps a form of in-field/out-field agriculture was practiced with the annexe the intensively cultivated in-field and used for seasonal grazing; this is a type of use that would leave little or no archaeological evidence. Alternatively, the annexe could have provided a buffer zone between the settlement and the wider world in which rituals such as processions, displays or 'sports' could have been enacted (such as the documented use of grassland areas outside Irish ringforts in the early medieval period).

The average distance for concentric enclosures between the bank and ditch of the inner enclosure and the annexe bank and ditch is roughly the range of a slingshot. While it is unlikely that purpose of all annexes was to keep enemies at a manageable distance, it is possible that some of the first constructed annexes were, and that this distance became traditional, perpetuated in later examples long after defensive considerations had passed. In this respect it is worth noting that the banks and ditches of annexes are quite slight, certainly not of defensive proportions. While this does not rule out annexes from having been cattle enclosures, cultivated fields, or ritual areas (not all of which are mutually exclusive), it is unlikely that they had a major defensive function. The annexes discussed here have some morphological similarities, and

identical problems of interpretation, with the 'banjo' enclosures found elsewhere in Britain (Fasham 1987; Lambrick 2009, 120–7) and which are one of the variants of enclosure form found within west Wales. The presence of defined trackways between the entrances of the inner and outer enclosure can be seen in the geophysics at Treferedd Uchaf (Fig. 8) and approaches defined by ditches and banks were partially investigated by excavation at Woodside and Dan-y-Coed (Williams & Mytum 1998).

The ending of enclosed settlement

The final phases of enclosed settlement in the region, based on artefacts or radiocarbon dates from stratigraphically late deposits, is generally assumed to be in the late Romano-British or, perhaps in some cases, the early medieval period; the latter may have been more common but the latest deposits on sites may well have been lost through ploughing, and the range of likely datable artefacts for the early medieval period are more restricted than for the Romano-British. Some sites, however, such as Berry Hill, could clearly be abandoned at a much earlier date, and others such as Walesland Rath (Wainwright 1971a) may have had intermittent occupation, though the irregular access to imported ceramics that often indicate only certain phases of dating may hide continuity of habitation and indeed long-term curation of the limited number of imported vessels.

Berry Hill demonstrates that substantial efforts could be invested in commencing construction of defining earthworks, but this work could cease. Whilst the ditch construction was apparently not completed at Fynnonwen, multiple phases of internal occupation suggests that this was no impediment to continued use. Indeed Round-house A suggests from its location and surviving fragmentary plan that it ran over a denuded bank, showing that occupation could continue when the enclosed form was less visible and was therefore no longer a socially significant distinguishing feature. By this point in the settlement history, the place rather than any one defining feature may have been what was important; its history, associations and meanings were already embedded in memory and social practices and the earthwork cannot have been necessary to reinforce or evoke this, otherwise its integrity would not have been violated by the round-house.

The erasure of enclosures from the landscape takes place after the period of concern here, but in some

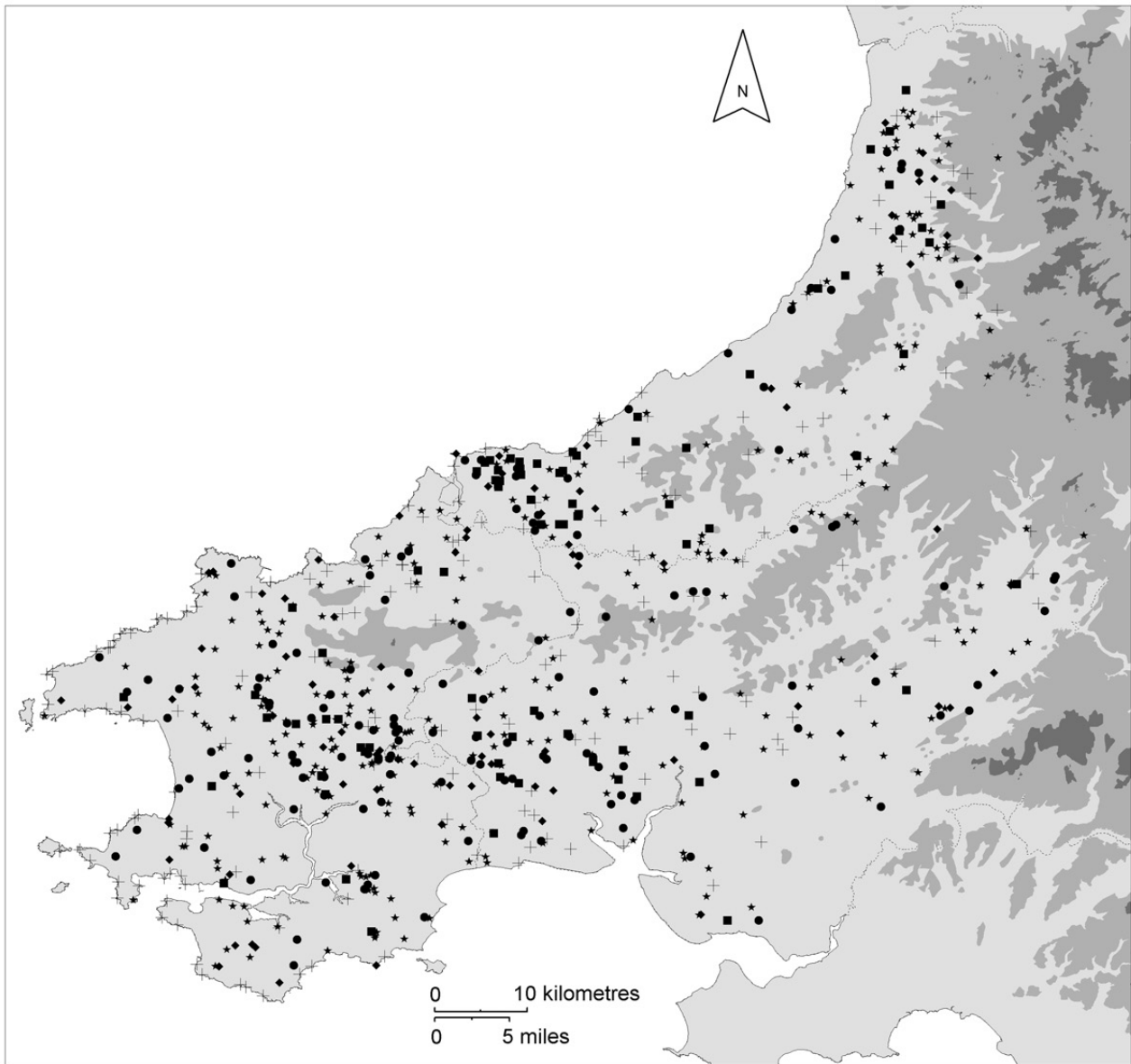


Fig. 21.

Distribution of rectangular and circular defended and enclosed settlements in south-west Wales: rectangular sites = squares, sub-rectangular sites = diamonds, circular sites = circles, sub-circular sites = stars, other/unknown = crosses

parts of west Wales the enclosed settlements are completely eradicated from the landscape so that post-medieval enclosure field systems ignore them, whilst in other such as parts of Pembrokeshire they are clearly marked on early Ordnance Survey maps

and survive to the present day. The enclosures around Llangan Church present an interesting example that can be construed as both continuity and discontinuity. The church is on the earlier site, but is not set within the inner enclosure, perhaps implying that some

elements such as this inner earthwork had already been removed, or continuity may only have been of a landholding associated with the settlement transferred to the church and a tradition of where the ancient settlement had been located. Only excavation could resolve this issue.

Identity

The location, form, and type of enclosing boundary may all have been used to create and reinforce a sense of identity. The formation of such boundaries can differentiate those living within from the rest of the population, creating one level of identity that may have represented the extended family. The smaller enclosed settlements, whatever their form or actual internal area, generally contain a limited number of round-houses, suggesting that they represent a certain level of social structuring; the small variations in the numbers of such buildings at different phases of any one settlement probably represent generational change, and whilst this points to biographies of individuals and families, these largely remain invisible in the archaeological record of this region.

Another level of identity may be represented by groups of enclosure with a similar form, especially when these occur in clusters. Variations in settlement form indicating different social groupings or patterns of social organisation have been identified in the Thames valley (Hingley 1984) and in Northumberland. The large numbers of rectangular enclosures in south Ceredigion, with the River Teifi forming the southern boundary, seems to indicate the presence of a late prehistoric cultural group (Fig. 21) that continues to be active through most if not all of the Romano-British period. The many rectangular enclosures have only been discovered in the past 15–20 years, suggesting that further fieldwork, and careful reconsideration of the less obviously classifiable sub-circular enclosures, may reveal other groupings. The settlement pattern pre-dating this group in the area is uncertain, so their antecedents are also unknown. It is possible that populations moving from the larger enclosed settlements chose different styles of enclosure as a marker of their varied identities, perhaps visible previously within the larger settlements by other cultural traits. The alternative is that these distinctive enclosures reflect a group entering the area for the first time and marking their distinctiveness by the chosen settlement form. Whilst invasion and migration models have been unpopular

since they were heavily used by culture-historians, there is no doubt that historical parallels offer many examples where aspiring groups have seized under-exploited landscapes and made them their own, sometimes moving only short distances but in other cases travelling far in search of suitable lands. The origins of the families establishing these settlements have implications for the ways in which they may have been constructed and the relevant social obligations for this to be achieved – already established or being established at least in part by this very process.

WAYS OF LIVING: THE CHANGING LIVED EXPERIENCE AND SETTLEMENT ELEMENTS

Aspects of the lived experience in the enclosed settlements can be considered, but this is limited given the paucity of artefacts and the lack of surviving floor levels and ground surfaces which would have given more secure information about activities, movement routes, and the portable material culture that would have framed the physical experience of living in west Wales in the late 1st millennium BC and early 1st millennium AD. Nevertheless, the physical topography, indications from the environmental evidence, and the structural evidence of the enclosures and structures, allows some thoughts on the lived experience of the sites' occupants, which sit within the range of evidence from many Welsh settlements (Ghey *et al.* 2007).

At both Troedyrhiw and Fynnonwen there was just one route in and out of the settlement and this would have framed the structure of daily living within and without the enclosure. The subsidiary southern enclosure at Troedyrhiw was not linked internally, but accessing it involved leaving one enclosure through the entrance and its well-worn trackway and then continuing round to the second entrance. This may have been marked by a gate, but usage was not as frequent – or as long – as at the main enclosure as there was no worn route into this site. Within the main enclosure, habitation must have been set back away from the entrance; this is also seen at the Llawhaden settlements, and may also explain the density of buildings in the Fynnonwen excavation as this was away from the presumed entrance, buried under the modern field bank, and so in all cases the round-houses were set well within the enclosure. At Fynnonwen the houses vary in diameter and in the case of Round-house C may have been constructed at different diameters

over time, suggesting changes in the biography of settlement for the roles and functions of some at least of the structures, as noted elsewhere by Gerritsen (2003). The round-house diameters sit well within the range found on other contemporary settlements in west Wales. As no internal features survived, use of space within the houses remains unknown.

It is likely that Round-house A faced east, though not directly towards the presumed enclosure entrance; the direction of the doors for other round-houses are unknown. Round-houses A and B were probably not contemporaneous if the radiocarbon dates accurately reflect the chronology, and imply a shift in location of one of the houses. If there were an inner bank then the wall of Round-house A would have ridden up onto this or it was degraded by this point. This shift of the round-house to a more peripheral location may suggest that the role of the defining enclosure was of less significance later in the history of the settlement, and the move would have created more space between the dwellings and the entrance. The 6-post structure cannot be contemporary with Round-house A, but whether it is an external structure to the earlier palisaded settlement marked by gully 38, part of an early entrance into the enclosure, or reflects a later use of the enclosure after Round-house A was demolished is uncertain. The phasing of the 4-post structure is unknown. Both Round-house A and B seem to be of a single phase, whereas Round-house C was rebuilt three times. This may therefore have been a fixed element of the settlement whilst other structures were erected and removed as requirements changed. The potential past dynamism of past settlements is often underplayed when excavated site plans are being placed in broad phased sequences, yet alterations could have been necessary as demographic structures changed generationally, even when other social and cultural factors remained fixed.

Low artefact densities

The sites reported upon here have low artefact densities, and most of these belong to the Romano-British period. This reflects the opportunities available and choices made in materials for tools and clothing, and also attitudes to re-use. Throughout the period all sites are in essence culturally aceramic, with the few Roman vessels from Troiedyrhiw (acquired in small numbers over a considerable time) merely highlighting that other options for food storage, cooking, and consumption must have remained central throughout.

The late prehistoric aceramic cultural tradition, combined with a pattern of artefact re-use and limited structured deposition of artefacts, is a phenomenon found across west Wales (Mytum 1989), and is exemplified by these sites. These behaviour patterns and attitudes to material culture create an archaeological record which does not reflect the complexity of objects that would have been necessary for these communities to function; the structural evidence and its similarities with those with materially rich archaeological records reminds us that the living past culture in west Wales may not have been greatly different in essence than elsewhere; it is merely its archaeological manifestation that seems impoverished. This can be seen even where substantial cultural deposits have accumulated, as in some parts of the Castell Henllys settlement with up to one metre of stratigraphy. This phenomenon is also recognisable in other regions such as Northumberland where most sites also produce a limited range and quantity of artefacts despite having rich and complex structural sequences (Jobey 1973; 1977; 1978; 1982). Native ceramics are absent or very limited in quantity and forms, and Romano-British period material is more prominent, though still in small quantities compared with sites along Hadrian's Wall.

In west Wales and Northumberland, the presence of some Romano-British period ceramic vessels does not indicate a substantial shift in the use of ceramics as opposed to baskets, wood, leather, and metal containers, as the numbers remain very small. Indeed, their presence may either indicate some Romanised traits of behaviour or attitudes that required a few such vessels, or an incorporation of these into a repertoire of containers that was already well developed and extensive, but merely archaeologically invisible.

Few deposits survived within any of the settlements to indicate patterns of refuse management, but most structural features were devoid of finds, suggesting that artefacts that would survive were not selected for structured deposition. Even though these sites have been extensively ploughed, there are sufficient locations where artefacts and ecofacts could have entered the archaeological record. The accumulation of finds in the upper fills of the ditch terminals at Troiedyrhiw do not seem to indicate other than routine domestic debris removal, and may even then be linked to a limited number of clearance events. The generally clean nature of deposits, with limited amounts of charcoal, fired clay, or burnt bone; suggest

that site maintenance was continuous and effective, probably with external middens (there is little room for such within the enclosures) which were then dispersed on the fields. The lack of finds and other forms of activity debris on sites such as Troiedyrhiw and Ffynnonwen that were clearly occupied for considerable blocks of time demonstrate that considerable efforts were devoted to removal of domestic debris from within the enclosures, with little refuse lying around to be incidentally incorporated into structural deposits. A high level of curation was also clearly practised; the slightly increased amount of Romano-British period material may as much suggest changing attitudes to material culture and that it could be more easily discarded as it could to increased use of items (Mytum 1988).

Subsistence activities

In general the low concentration of charred plant remains from enclosures in west Wales tends to support the suggestion that there was a predominantly pastoral economy during the Iron Age and Romano-British period. However at the same time it confirms the archaeological evidence that there was cereal cultivation. The earliest evidence, dating to the Late Bronze Age/Early Iron Age transition, for cultivation from Troedyrhiw, Ffynnonwen, and Berry Hill is the very limited evidence from Berry Hill and the possible palisaded enclosure at Ffynnonwen. There is little plant macrofossil evidence from elsewhere in west Wales dating to this period but it includes some from the promontory fort at Great Castle Head, Dale (Caseldine 1999) and from Brownslade, where the charred plant remains are thought to be contemporary with cultivation marks (Carruthers forthcoming).

At both Ffynnonwen and Troedyrhiw, from contexts which are Late Iron Age and Romano-British in date, there is more evidence of cereal cultivation. Although there are minor differences, the range of crops from these sites is generally consistent with that from other sites in west Wales dating to the same period, notably Dan-y-Coed and Woodside enclosures at Llawhaden (Caseldine & Holden 1998) and the promontory forts of Porth y Rhaw (Caseldine & Barrow 2010) and Great Castle Head, Dale (Caseldine 1999) where spelt dominated but hulled barley, bread wheat, and oat were also represented, as well as emmer. This contrasts with the Iron Age assemblages from Court Wood Enclosure at Pembrey

where grain of emmer and spelt were the dominant cereals in pre-rampart deposits and spelt grain the main cereal in the area of a four-poster (Hillman 1981). Whilst spelt was the main crop used for human consumption during the Late Iron Age and Romano-British period, bread wheat might have been a minor crop. Barley was probably grown largely as a fodder crop and oat might also have been grown, or at least tolerated as a weed, and used for animal feed. However both barley and oat may have been used for human consumption, especially if there was a poor wheat harvest.

It seems likely that most settlements in west Wales were involved in cereal growing, at least to some degree, although the earlier stages of crop processing, which would confirm this, are generally absent. These activities were probably taking place outside the settlements. The presence of chaff, however, suggests that the later stages of crop processing were taking place at the settlements and that grain was probably stored in spikelet form. As this is the case, it is difficult to know to what extent grain might have been traded because it would probably have been traded in spikelet form. It has been argued that carbonised seed assemblages cannot be used to distinguish between production and consumption at sites, but rather the scale of activity (Van der Veen & Jones 2006; 2007). The presence of samples rich in chaff suggests small-scale production and consumption resulting from day-to-day-processing at most sites in the region, such as Llawhaden and Great Castle Head, Dale. However at Troedyrhiw and Ffynnonwen, although crop processing was clearly taking place, much less chaff is evident at these sites. Although most of the samples are 'grain-rich' the amount of grain is small and there are no large grain assemblages. The low amounts of chaff on these sites might be due to differential preservation either when it was used as fuel or when it was burnt during accidental fires during crop processing. Alternatively, it might indicate the use of chaff for other purposes such as fodder. Failure of fodder crops, namely barley, might have necessitated its use, or a greater proportion of it, as animal feed. At Troedyrhiw it might also reflect increased livestock production. However, Troedyrhiw and Ffynnonwen were only partly excavated and further excavation and sampling may reveal greater quantities of chaff in other contexts. At the Llawhaden sites the samples were from round-houses, 4-post structures and 'rubbish' deposits, whereas at Troedyrhiw the samples

were mostly from the main enclosure ditch terminals and post-holes, especially those at the entrance, though some were possibly associated with buildings.

Charred cereal remains are more frequent from Troedyrhiw compared with Ffynnonwen and this might reflect an expansion in cereal production (although still comparatively limited) during the Romano-British period, or towards the end of the Late Iron Age. As at Dan-y-Coed, the possibility cannot be ruled out that this simply indicates a change in waste disposal practices and/or the type of context examined, but as at Dan-y-Coed and Castell Henllys it may also indicate a possible Roman stimulus to the economy (Williams & Mytum 1988).

CONCLUSIONS

The combination of aerial photographic renaissance, geophysical survey, and selective excavation has provided a model of structured research that has created valuable data at a number of spatial scales and with degrees of chronological precision. The project has demonstrated the survival of important structural remains even on heavily ploughed sites with shallow topsoil, and that sample excavation on small enclosed settlements can inform research into late prehistoric settlement even in regions with low artefact densities. The familiar building blocks of British Iron Age settlement – round-houses, 4-post structures, simple timber-framed gateways – have been identified, yet the histories of each excavated site reveal complexities in site biographies that belie any simple meta-narrative. Nevertheless, the aerial photographic and geophysical data (on some occasions also revealing internal structural information) allows expansion of the excavated evidence to reveal broad trends in which larger enclosures (preceded by palisaded sites) belong to the Middle Iron Age, to be followed by the construction of smaller enclosures in the later Iron Age (using evidence from all the excavations in west Wales this transformation probably took place in the 2nd and 1st centuries BC), and these settlements could continue in use through the Romano-British period.

The small enclosed settlements/farmsteads formed a dispersed settlement pattern with particular preference for the well-drained rolling plateau areas, though given the density of sites it would seem that most of the landscape was being exploited in one way

or another by the Late Iron Age and through much of the Romano-British period, despite the absence of ditched field boundaries. The charred plant remains suggest the use of hedges within a mixed agricultural regime where cereal production was present but probably not dominant and where perhaps only limited parts of the landscape were enclosed in any way. Acidic soil conditions prevented the survival of animal bone unless burnt (and for which then taphonomic biases make past economic patterns uncertain), but it is likely that herding in a relatively open plateau landscape, with woodland management of the steep valley slopes and limited meadows in the narrow valley bottoms, was the main agricultural emphasis. Artefactual evidence indicates few external contacts until the arrival of Roman artefacts, including ceramics, but earlier relationships may not have required movement of goods that would leave any trace. Extensive networks must have existed for arranging marriage and manipulation of limited but, no doubt, significant surpluses, and for the acquisition of items such as iron tools. These were not being produced at the settlements but would have been used and, no doubt, heavily curated and reworked, thus explaining their paucity as finds.

The enclosed settlements were successful cultural adaptations that lasted for many centuries before being abandoned in the late Romano-British or early medieval period, with a general settlement shift possibly to the locations of the current farms where a similar density of dispersed settlement was perpetuated but from unenclosed farms in lower-lying though still valley-side locations. The reasons for this shift are still unknown, but the effectiveness and longevity of the enclosed settlement in west Wales is now well demonstrated.

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