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Excavations at Ysgol yr Hendre, Llanbeblig, Caernarfon: a possible construction camp for *Segontium* fort and early medieval cemetery

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with contributions by Derek Hamilton, Rosalind McKenna, George Smith, and Peter Webster

Archaeological excavations were carried out in 2010 and 2011 in advance of the construction of a new school at Llanbeblig, Caernarfon, Gwynedd. The excavations followed evaluation trenching informed by geophysical survey and covered the majority of the site. The focus of the excavation was an early medieval cemetery with five mortuary enclosures. The main part of the cemetery consisted of three mortuary enclosures surrounded by graves, with two more enclosures to the north. In addition a series of ovens was found which radiocarbon dating has demonstrated were of Roman date, from a time very close to the construction of Segontium fort, and possibly representing a camp for the builders of the fort. Other excavated features included a Neolithic pit and medieval features including pits, a corn drier and a gully containing large amounts of charred oats. The remains of a small late nineteenth-century farmstead and glasshouse complex were also recorded.

INTRODUCTION

Gwynedd Archaeological Trust (GAT) carried out a programme of archaeological mitigation in advance of the construction of Ysgol yr Hendre, to the north of Llanbeblig Road, Caernarfon (SH 4897 6236, Fig. 1) in 2010–11. The work was carried out in several phases for Cyngor Gwynedd Council, and was monitored on behalf of the local planning authority by Gwynedd Archaeological Planning Services.

Archaeological assessments and geophysical surveys were undertaken, which were used to inform the location of evaluation trenches (Kenney and Hopewell 2009; Jones and Rees 2009). This confirmed the existence of two mortuary enclosures initially identified from aerial photographs by Toby Driver of the Royal Commission on the Ancient and Historical Monuments of Wales (Driver 2006). The main phase of excavation started on 5 April 2010 and was completed on 30 July 2010, with a further shorter phase of excavation between 16–27 May 2011.[1]

The site lies at 50m to 40m OD on a ridge of ground between the rivers Seiont and Cadnant that flow north through the town of Caernarfon and out into the Menai Strait. It is over 1 kilometre east of the medieval walled town of Caernarfon but only 300m east of the Roman fort of *Segontium*. Although now on the very edge of the urban development of Caernarfon the site was in a rural location for most of its history.

Prior to excavation the area was occupied by two football pitches and a children's play area, with a rough, partly overgrown area to the south. The site is surrounded by twentieth-century housing to the north and west, and butts up against a twentieth-century extension of the cemetery of St Peblig's church on the south. To the east lie enclosed fields, though those immediately adjacent are currently under development.

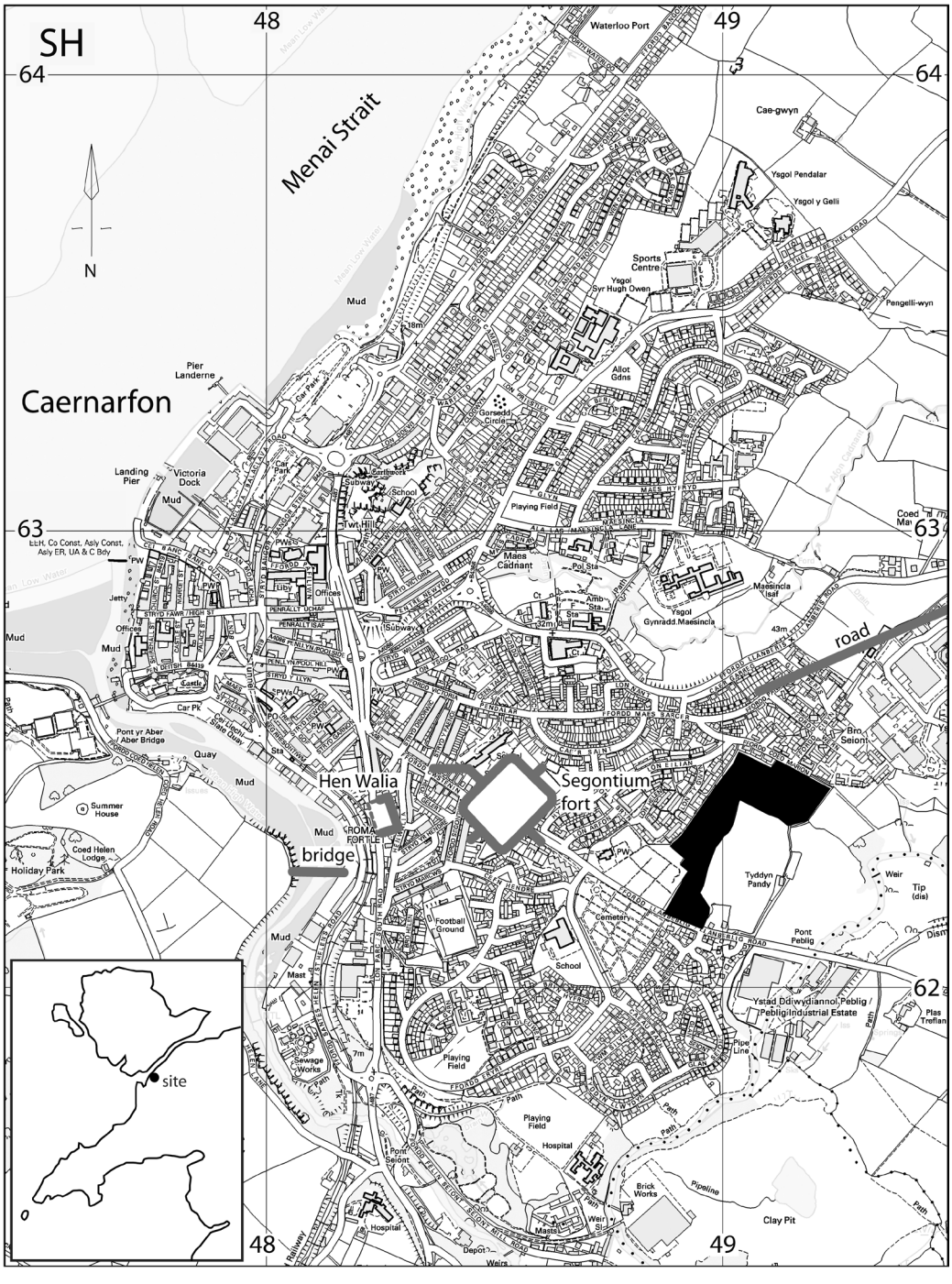

Fig. 1. Location of the site (in black) shown in relation to major Roman sites (grey). *Base map © Crown copyright Ordnance Survey. All rights reserved.*

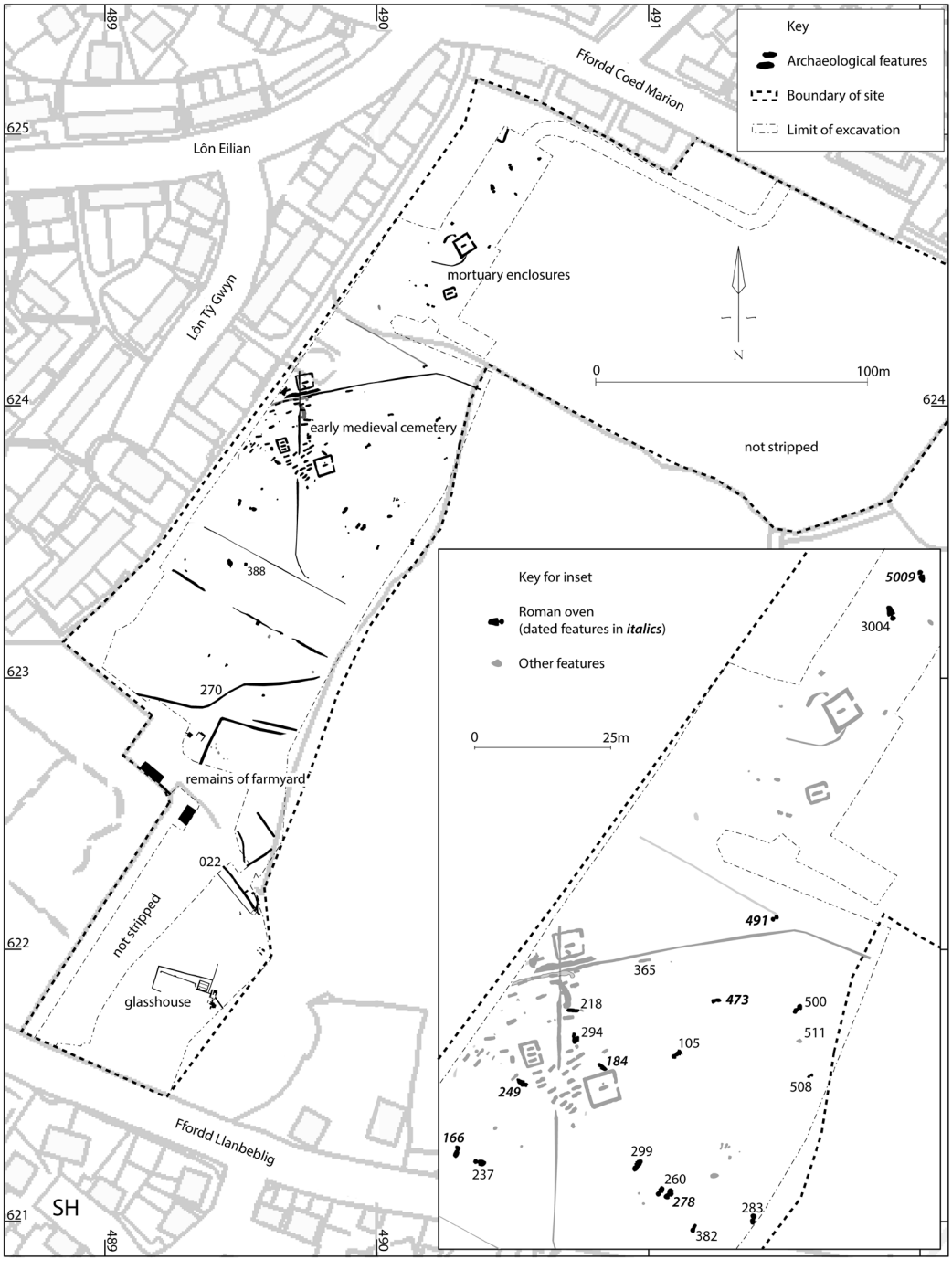

Fig. 2. Full plan of site with inset at larger scale showing location of Roman ovens. *Base map © Crown copyright Ordnance Survey. All rights reserved.*

The rocks underlying Caernarfon are Ordovician shales and these are overlain by glacial drift (Davies 1977; Casey and Davies 1993, 1). In their excavations of the Roman fort Casey and Davies noted that the subsoil was boulder clay mixed with deposits of coarse, orange gravel (Casey and Davies 1993, 1), and a stony boulder clay was exposed in the test pits dug at the start of this project (Kenney 2009). The ground sloped to the south-west, though the surface had been flattened by cultivation and creation of the football pitches.

The archaeological mitigation included the removal of topsoil and ploughsoil from areas to be impacted by the development. Much of the northern part of the area was not to be developed. This had been investigated by geophysical survey but only a small part was stripped (Fig. 2). The soil stripping was undertaken using a mechanical excavator with a toothless bucket under constant archaeological supervision. All potential features revealed were surveyed and evaluated. Detailed excavation and recording was undertaken on all significant archaeological features. Pits and ovens were generally half-sectioned but selected well-preserved examples were fully excavated. The graves and mortuary enclosures were fully excavated. Intensive cleaning was carried out around the mortuary enclosures to ensure that all graves were located.

Bulk soil samples were taken from features containing charcoal and/or finds, and from the bases of the graves in an attempt to recover any surviving fragments of human remains. These samples were processed by flotation and wet sieving using a 500-micron mesh for flotation, and 1mm and 10mm sieves for wet sieving. The residues were sorted by hand to recover finds and non-floating ecofacts. All residues were tested for magnetic metalworking debris and this was collected where present. Once sorted the residues were discarded. The flots were assessed by Rosalind McKenna, and further studied where necessary. All artefacts recovered were assessed by appropriate specialists and further analysed and conserved as necessary.

PREHISTORIC FEATURES

Neolithic pit

Feature 318 was a rather irregular shallow pit measuring 1.1m by 0.9m and 0.16m deep (Fig. 8). It had a layer of stones in the base, many of which were heat-cracked with a deposit of charcoal around them. The main fill was a brown silty sand which contained a collection of flint debitage. This pit also contained a small fragment of burnt pottery with a vesicular fabric suggesting a possible Neolithic date. The charcoal in the pit was mainly hazel and abundant hazel nutshell fragments were also found, possibly introduced on branches for fuel.

Two radiocarbon dates on charred hazel nutshells of 2560–2350 cal. BC (SUERC-41947) and 2840–2495 cal. BC (SUERC-41951)[2] are not statistically consistent (T'=15.0; v=1; T'(5%)=3.8), which suggests the deposit contained material of mixed ages. The later date (SUERC-41947) therefore provides the best estimate for the date of this activity.

No other securely prehistoric activity was identified on the site; other pieces of worked flint were recovered from residual contexts and might have originated from the same activity even though they were found some distance from pit 318. While prehistoric finds have been made in this area of Caernarfon, in particular the Bronze Age burial urn found nearby at Maes y Barcer,[3] there have been very few prehistoric features excavated in the area. In Arfon as a whole there are few Neolithic tombs known (Smith 2002) and around Caernarfon there are very few Neolithic finds with the exception of some stone axes. Although possibly a single feature this pit proves an important hint of late Neolithic settlement in the area.

A date of 2580–2460 cal. BC (NZA-26681) was obtained from pit 6041 at Parc Bryn Cegin, Llandygai (Kenney 2008) and two dates from pit 3718 found near Clynnog fell within 2565–2460 cal. BC (NZA-34256 and NZA-34257) (Roberts forthcoming). Both pits contained Grooved Ware pottery and occurred in locations where there was more than one phase of pit digging. These features fall within the very end of the Neolithic period, overlapping with dates for Beaker pottery in Britain (Parker Pearson *et al.* 2007) and the use of the later henge (Henge B) at Llandygai (Lynch and Musson 2001, 75–6). The scarcity of pottery in the Ysgol yr Hendre pit means that the cultural associations of the people who dug it cannot be investigated but features of this period are rarely excavated in north-west Wales making this pit of considerable importance. Only with more excavation and careful dating can an impression be built up of the distribution and nature of activity in this transitional period.

Other possible early pits

There were some other features scattered over the site with no evidence for dating but possibly early in date. Small pits 133, 388 (Fig. 2) and 340 (Fig. 8) had charcoal-rich fills but little sign of burning *in situ*. Feature 386 (Fig. 8) was a larger pit, measuring 1.5m in length, with bands of dense charcoal around the eastern edge and on the base, but again no sign of *in situ* burning. This feature was confused by being cut into the top of irregular hollow 372, but its fills were quite distinct from the fills of the hollow. Grave 369 clearly cut the fill of the hollow 372 and seemed to just clip the edge of 386. The degree of overlap was not large but it seems likely that the grave post-dated the pit. Pit 386 contained purely oak charcoal and pit 340 was dominated by ash. The charcoal in the base of hollow 133 was oak.

Close to the small early medieval mortuary enclosure 5003 in the northern part of the site, described below, were two pits. Pit 5011 was a neat oval, measuring 1.3m by 0.9m and 0.23m deep, while pit 5014 was more sub-rectangular in plan, measuring 1.6m by 0.8m and was 0.38m deep (Fig. 9). Both features were aligned roughly west-north-west to east-south-east, on quite a different alignment to the enclosure, and although their sides were quite steep they seemed to be too broad and irregular to be graves.

PIT OVENS AND THE POSSIBLE SITE OF A CONSTRUCTION CAMP FOR *SEGONTIUM*

Pit ovens

Scattered over an area about 150m long were 18 features comprising two adjoining pits and interpreted as a type of oven (Fig. 2, inset). A few of these features were interspersed amongst the graves however many were located around the fringes of the cemetery to the east, south-east and south-west. These features were roughly figure-of-eight shaped in plan and the two pits seemed to form two chambers (Figs 3–4), one of which had evidence of *in situ* burning and must have held a fire, while the other, although containing charcoal, generally lacked traces of burning. A few were more irregular in shape, but the two chambers could still be distinguished, and most of the irregularity was due to animal burrowing.

All these features ranged in length from 2.98m to 1.40m, in breadth from 2.0m to 0.65m and in depth from 0.58m to 0.12m, though some were undoubtedly truncated. The evidence suggests that both chambers functioned together. Most of the fire chambers had orange-red heat-affected soils or clay on their bases and sometimes up the sides, but this was not a deliberate lining and appears to be the result of the heating of the natural substrate into which the ovens were dug. The second chamber, without the fire, was generally filled with layers of charcoal and burnt clay that had been raked out of the fire chamber. Where the layers were well preserved, several raking-out events could be defined—usually two or three events but never more than five. This raking out may explain a prominent ridge of heat-affected natural or

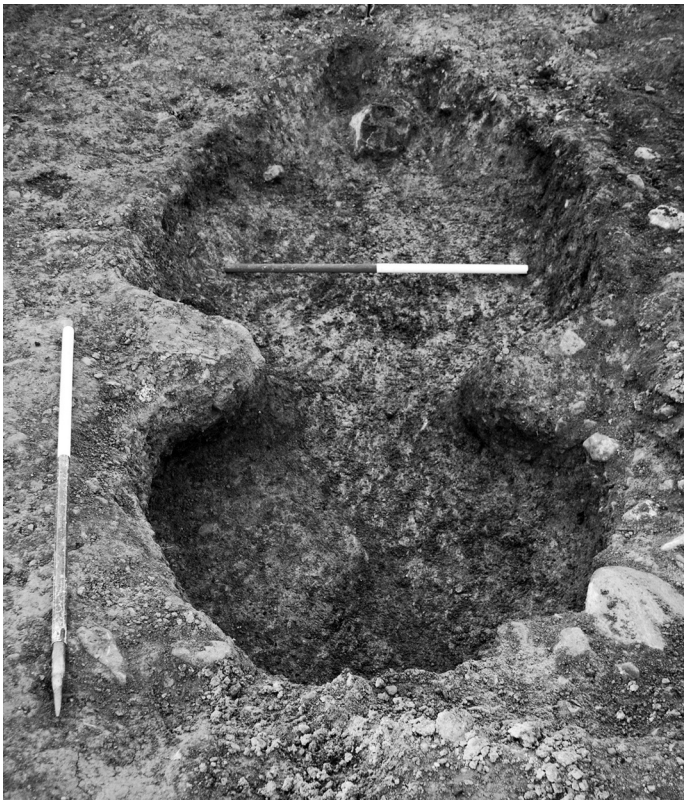

Fig. 3. Roman oven 5009, viewed from the north-west. The chamber on the near side was entirely reddened by burning. Scales 1m.

clay between the two chambers in several ovens. As some of the soil in the base of the fire chamber was raked out each time this may have resulted in the ridge being left.

Several of the ovens contained stones; 237 had a flat cobbled floor in the fire chamber (Fig. 4), but in most cases the stones were large and rounded with no definite structure, and occurred in either chamber. It is possible that the stones were structural, but they may have been present to help retain heat.

Ten of this group of features showed evidence of the slumping of heat-affected material around the sides of the fire chamber, apparently related to collapse during abandonment. Oven 5009 in particular showed a clear sequence of disuse including lumps of bright orange heat-affected material that seemed to have fallen in from an overhanging roof to the fire chamber (Fig. 4). This strongly suggests that the oven was roofed and the roof material was soil. The oven might have been dug into and under the soil, but this would have been difficult as the resulting roof would have been very fragile. It is more likely that the roof was formed by sods, cut with both soil and grass, placed on a support of branches, as has been suggested for features at Forest Road, Kintore, Aberdeenshire (Cook and Dunbar 2008, 134). The burnt collapsed chunks of soil in 5009 may therefore have been remains of turves.

There were very few small finds within the fills of these features, including a corroded nail, tiny fragments of burnt bone, very occasional flint flakes and a single abraded sherd of probably Roman

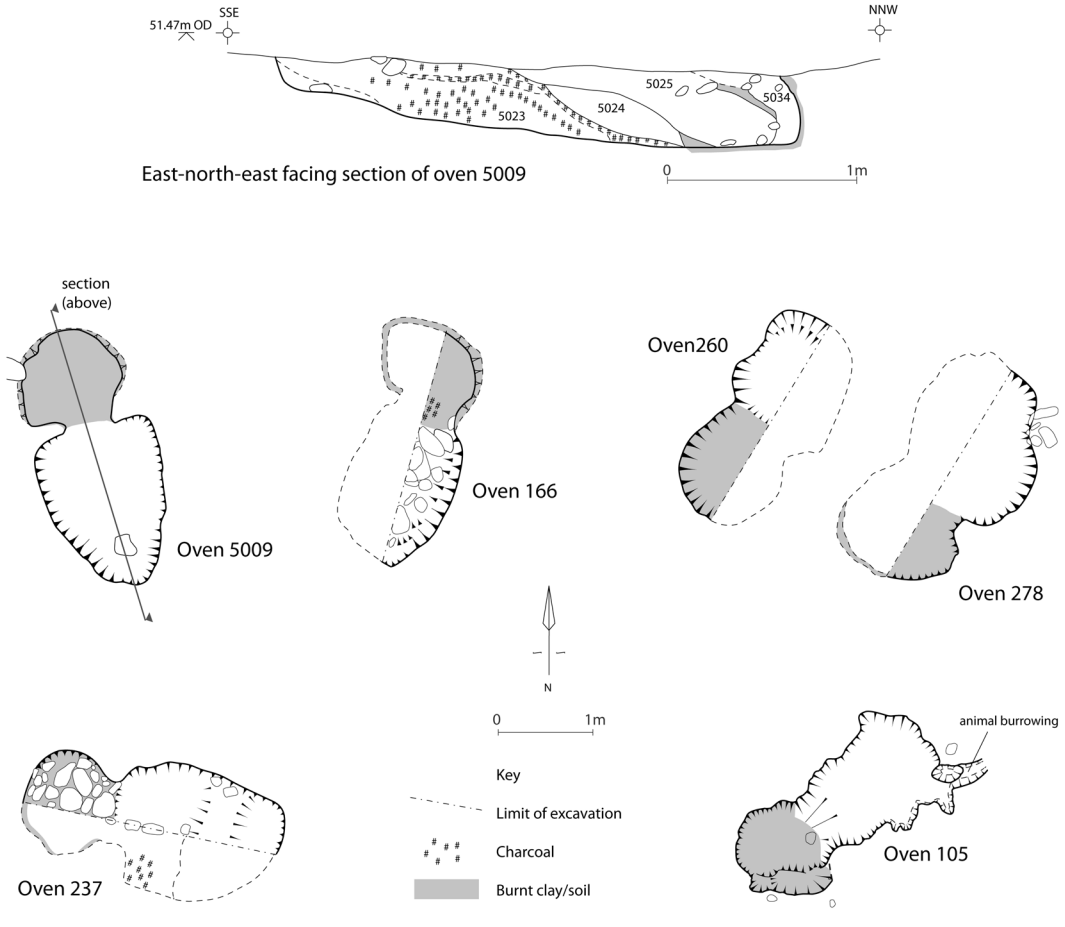

Fig. 4. Plans of a selection of Roman ovens and the section through oven 5009.

pottery. All the finds could either have been residual or intrusive in the ovens and could not be used to date them. A series of radiocarbon dates was therefore obtained to date the ovens and these are discussed below. The fuel used in the ovens seems to have been mainly oak, with some hazel, ash and willow/poplar. Elm was also occasionally used. The samples from the ovens produced very small assemblages of plant macrofossils both in terms of abundance and diversity; seven features contained indeterminate cereal grains, two contained wheat grains, three contained barley grains and two contained oat grains (see report by McKenna below). These quantities do not suggest corn drying activity; accidental charring of grain would be expected at a much higher level in this case. It is more likely that the grain was introduced with fuel, especially straw, to light the fire.

Other features were also scattered over the site, some also showing *in situ* burning. Some of these were clearly not related to the ovens and are described below, but two features might be associated. Feature 247 was a patch of burnt soil measuring 0.85m in length and 0.85m in breadth, which was probably the site of a small fire, with a small pit 254 next to it (Fig. 8). A fragment of late second-century samian ware was found adjacent to feature 247. Pit 511 was similar to the ovens in that the sides and base of the cut were

burnt orange-red, indicating *in situ* burning, and a layer of dense charcoal layer at its base were probably the remains of the last fire. However, it was sub-circular in plan, measuring 1.3m in length, 0.90m in breadth and 0.20m in depth, so it was not classed as one of the figure-of-eight-shaped ovens (see Fig. 2 for location).

Dating the ovens By Derek Hamilton

A Bayesian approach has been adopted for the interpretation of the chronology of the ovens at Ysgol yr Hendre (Buck *et al.* 1996). Although simple calibrated dates are accurate estimates of the dates of the samples, it is the dates of the archaeological events represented by those samples which are of interest. In the case of the ovens it is the overall chronology of the use of these features in this area that is under consideration, not necessarily the dates of any individual samples.

Methodology is now available which allows the combination of these different types of information explicitly, to produce realistic estimates of the dates of archaeological interest. It should be emphasised that the *posterior density estimates* produced by this modelling are not absolute. They are interpretative *estimates*, which can and will change as further data become available and as other researchers choose to model the existing data from different perspectives.

The technique used is a form of Markov Chain Monte Carlo sampling, and has been applied using the program OxCal v4.1. Details of the algorithms employed by this program are available from the on-line manual or in Bronk Ramsey (1995; 1998; 2001; 2009a). The algorithm used in the model described below can be derived directly from the model structure shown in Figure 5.

Results from the seven ovens dated as part of this programme have been analysed within a Bayesian model (see report below for methodology and full details of dates). There was little archaeological evidence for the dates of the ovens. The only assumption of the model is that the dates belong to a single phase of activity.

Two dates were obtained from each oven dated and in most cases these were statistically consistent and the samples could be the same actual age. The exceptions were oven 184, the date on a carbonised wheat grain (SUERC-41941) from which was much later than the other date and was probably intrusive. The two results on a carbonised wheat grain and ash charcoal from oven 249 are only statistically consistent at 3σ, suggesting either that one of the measurements is a slight statistical outlier, or that the feature was in use for some period of longevity.

The chronological model developed for the ovens has good agreement between the radiocarbon results and the archaeological assumption that this is a unified phase of activity (A_{model}=106). The model estimates that this activity began in cal. AD 25–80 (95% probability; Fig. 5, *start: Oven activity*), and probably in cal. AD 50–75 (68% probability). It lasted for up to 80 years (95% probability; Fig. 6, *span: Oven activity*), and probably for only 1–30 years (68% probability). This activity ended in cal. AD 60–120 (95% probability; Fig. 5, *end: Oven activity*), and probably in cal. AD 70–90 (68% probability).

After having excluded SUERC-41941 as intrusive, the remaining measurements from the ovens are statistically consistent (T'=15.6; v=12; T'(5%)=21) and all could be the same actual age. This suggests that the span of activity may have been shorter, rather than longer.

The fragile nature of the ovens suggests that each one was not reused for long periods. It is proposed that all the ovens might have been used over a very short period of time, as part of a single event, and the results showing that the radiocarbon measurements are statistically consistent do lend some support to this interpretation, or at the very least do not make it unlikely.

Working from the hypothesis that these ovens are all related to a single short-lived event it is possible to suggest a more precise date for that hypothetical event by combining all the radiocarbon dates. This form of combination is Bayesian and is not to be confused with the procedure whereby two or more radiocarbon

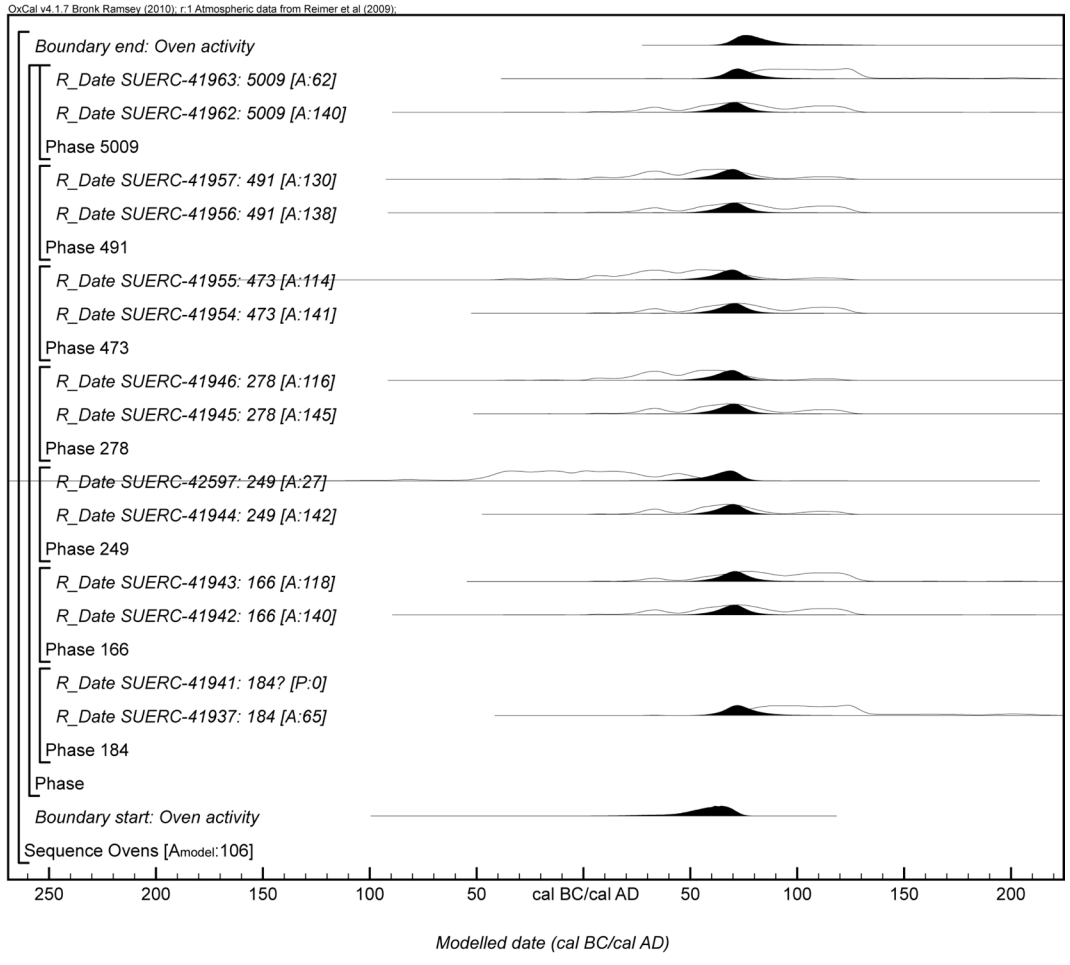

Fig. 5. Chronological model for the activity associated with the Roman ovens. Each distribution represents the relative probability that an event occurred at some particular time. For each of the radiocarbon measurements two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model use. The other distributions correspond to aspects if the model. For example, '*start: Oven activity*' is the estimated date that activity began at this site, based on the radiocarbon dating results. The large square 'brackets' along with the OxCal keywords define the overall model exactly.

ages on the same material are combined prior to calibration using the method described in Ward and Wilson (1978). In OxCal, these two very different methods are called using the *Combine* and *R_Combine* commands for the Bayesian and Ward and Wilson methods, respectively. The *Combine* method is the preferred one, especially as it also allows for the evaluation of dates through the production of individual indices of agreement.

Since we are attempting to model the year that the hypothetical event occurred, an estimate that is expected to be very precise, it is important to account for sources of offset in the radiocarbon measurements.

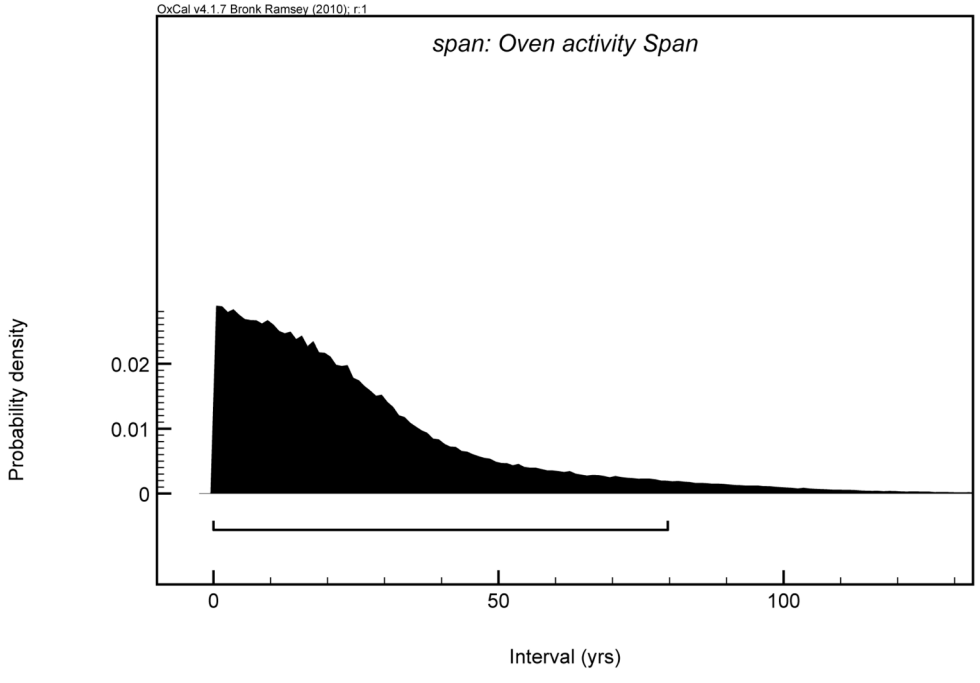

Fig. 6. Span of activity associated with the use of the Roman ovens. The span is derived from the chronological model shown in Figure 5.

In the case of charcoal, the radiocarbon age is a mean measurement of a few years' growth and so will always be slightly earlier than the year that the material was used. It is possible to account for these slight offsets by building outlier analysis into the model (Bronk Ramsey 2009b). This can be done explicitly using the *Outlier_Model* command in OxCal, and in this case the generic model for charcoal has been implemented with a 100% probability applied that any given measurement is an outlier (e.g. older than the feature), with the exception of SUERC-41944, a measurement on a grain of wheat that presumably was charred as part of the use of the oven and is not likely to be residual.

Overall the model has a good agreement (A_{model}=77), and it estimates that the material in the ovens dates to cal. AD 60–85 (95% probability; Fig. 7, *Ovens*), and probably to cal. AD 65–80 (68% probability). The construction of *Segontium* fort is poorly dated but historical evidence suggests that it was built soon after AD 77 (Casey and Davies 1993). A correlation plot for the oven dates against cal. AD 77 suggests the dated material may just pre-date when *Segontium* was constructed (71% probability). Considering that the charcoal date is likely to just pre-date the use of the ovens it is quite plausible that, if the ovens were used as part of a single event, that this event was contemporaneous with the construction of *Segontium*.

Discussion of the ovens

The majority of features referred to above as ovens had one circular chamber in which a fire had been lit. In the best preserved cases there is an indication of the collapse of an earthen roof. These enclosed chambers seem to have been designed to retain heat and closely resemble ovens for cooking. The degree of burning on the sides of these chambers indicates a fairly low temperature, certainly nothing approaching the temperature needed for firing pottery or other uses of kilns or furnaces.

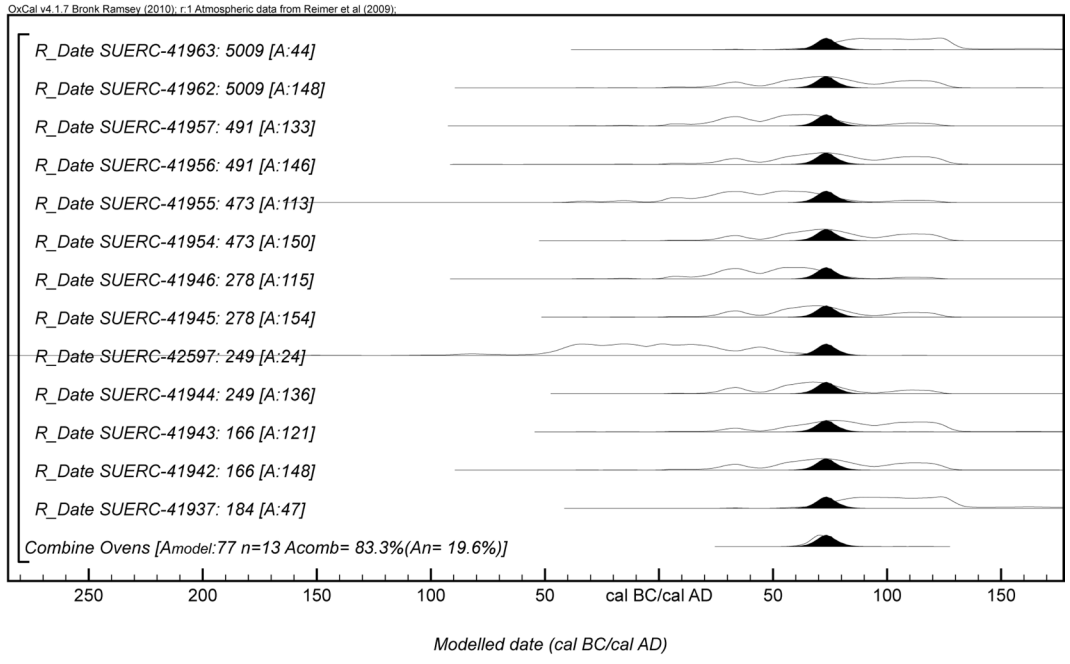

Fig. 7. Modelled date for the construction of the ovens assuming they all date to a period of about a year.

It is suggested that the second chamber was open to the air and allowed access to the fire chamber and that the remains of the fire were raked into this chamber. In several cases the remains of two or more fires seem to have built up suggesting that the fire chamber could still be used even though the second chamber was partially filled with charcoal and ash. It is usual in clay or pit ovens to remove the ash from the oven once it has reached temperature, insert the food, seal up the oven and leave to cook.

The suggestion of a roof over the fire chamber rules out these features as corn driers. Raking out the ash would be unnecessary for this function and the small number of charred cereal grains recovered also supports an interpretation as ovens rather than corn driers. The evidence therefore supports the interpretation of these features as ovens presumably for cooking food, presumably bread but possibly not exclusively so. The indications are that these structures were used perhaps a couple of times but were not designed for long-term use. The fragility of the roofs makes it unlikely that they would have withstood more than a few of firings. These were not the well-built and carefully designed clay ovens used for making bread in many modern cultures, but they seem to be an easily constructed temporary measure.

There were some possible pairings of ovens. Features 260 and 278 (Fig. 4) seem to form a pair and 299 and 382 extend the same alignment (Fig. 2). Features 166 and 237 were also close together, although not aligned. However most of the ovens seem to be separated from each other by about 15–20m. It is possible that this is an important clue as to how they were used and why there were so many within this area. The only other features that might be associated with the ovens were the small hearth 247 and a simpler possible pit oven 511.

The radiocarbon dates show that this activity started probably in cal. AD 50–75 (68% probability) and ended probably in cal. AD 70–90 (68% probability) (see Hamilton, above). The similarly late first or

second century AD date for much of the pottery scattered over the site may suggest that it originates from activity associated with the ovens, although only a single sherd of possibly Roman pottery came from one of the ovens. However, this relationship cannot be proved as this general scatter could have resulted from the manuring of fields with midden material originating from elsewhere. The presence of some late second-century and later items show that not all the pottery could have been related to the ovens.

The ovens were therefore Roman in date but apparently not associated with settlement or industrial activity, ruling out an extension of the vicus to the eastern side of the fort. The initial modelling of the radiocarbon dates shows that the ovens were probably used over a span of 1–30 years (68% probability). Neither dates nor other archaeological information can prove that all the ovens were strictly contemporary but both the dates and the distribution of the ovens is consistent with this hypothesis. Hamilton (see above) has shown that if the hypothesis is accepted and the dates are combined in a Bayesian manner there is a 71% probability that this combined date just precedes AD 77 and therefore it is likely that if the oven use was a single event that it occurred at about the same time that *Segontium* was built.

Roman military ovens excavated inside forts are generally more permanent structures than identified at Ysgol yr Hendre. Excavations by Casey and Davies in 1993 in the southern corner of *Segontium* revealed few ovens until the late fourth century (period 10 phase) when there were ovens and furnaces, mostly built of stone and clay. One of these features (842) was figure-of-eight-shaped. This was 4.6m long and dug 0.4m into the ground. The fire chamber contained much burnt clay suggesting a clay superstructure, and some of the clay had wattle impressions. The second chamber was full of charcoal. This feature is not dissimilar to the Ysgol Hendre ovens but unlike them had a well-built clay superstructure.

The simple design of the ovens means that they could potentially have been made by local people rather than Roman soldiers. There is, however, a site that provides very close comparisons and confirms a link between this style of oven and the Roman army. In 2000 a large site known as Forest Road was excavated, which covered a large part of the interior of a Roman marching camp at Kintore, Aberdeenshire (Cook and Dunbar 2008). This identified 116 ‘bipartite pits’ interpreted as ovens (ibid. 133). These varied in size and shape as the Ysgol yr Hendre ones do but were remarkably similar to those features. The two parts of the pits were interpreted as a cooking chamber and an ash pit. Some of the cooking chambers were lined with stones and clay but most were unlined. Some even had a slight ridge between the cooking chamber and ash pit, just like the Ysgol yr Hendre ovens. The ash pits seemed to have been open but the cooking chambers are interpreted as having been covered. Useful information was found to suggest how the chambers might have been covered. In oven O070 at Forest Road charred alder branches survived *in situ* and seemed to have been used to support possibly a turf roof over the chamber. Up to five cooking events were recorded in the Forest Road ovens, but no evidence that they had been used for long periods of time (ibid., 134–6).

The ovens were scattered over the Forest Road site in a way very reminiscent of the Ysgol yr Hendre site; generally singly but with some pairs and respecting other ovens suggesting that they were all visible at once, although the radiocarbon dates suggested that there were two phases of oven construction at Forest Road, dating to the first or second century and the third or fourth century AD (Cook and Dunbar 2008, 144–5, 352). Some of the ovens formed lines across the site and it was suggested (ibid., 144, 350) that the ovens represent the position of tents of individual *contubernia* (groups of 8 men). Gaps in the lines suggest that not all *contubernia* had an oven. At Ysgol yr Hendre ovens 299, 260, 278, and 382 (Fig. 2) formed a fairly clear line nearly 20m long but no other lines can be identified.

The similarity between the Ysgol yr Hendre ovens and those at Forest Road strongly implies that the former were Roman military field ovens. Four similar figure-of-eight ovens were also found within the marching camp at Bromfield, Shropshire (Davies and Jones 2006, 34, 147). The date of the Ysgol yr Hendre ovens suggests a link to the construction of *Segontium* fort, but Forest Road also demonstrates that

a temporary camp would be expected at Ysgol yr Hendre. Sommer (1984, 55) concluded that construction camps would be about the same size as the permanent fort that they were related to, and at least no more than twice the size. As the area stripped for this project was longer than *Segontium* fort it seems likely that if there was a camp in this area then at least one of the ditches would have been revealed. Ditch 270, in the southern part of the site (Fig. 2), which contained a few sherds of Roman pottery was too sinuous in plan to be part of a defensive work. Another ditch, 022, to the south also contained a sherd of Roman pottery but was on the same alignment as the nineteenth-century field boundaries (Fig. 2). This ditch was no more than 0.3m deep but Davies and Jones (2006, 24) list several marching camps with shallower ditches. However there is no evidence that ditch 022 continued to form part of a camp ditch. No trace of a camp can be seen on the aerial photographs.

Davies and Jones (2006, 20–7) discuss evidence that suggests that not all temporary camps had ditches, or had incomplete circuits. The use of *tribuli*, formed of stakes lashed together, or other similar devices may have provided sufficient defence without the need of ditches. It is possible that the ovens at Ysgol yr Hendre represent a Roman camp for which no other evidence survives. The date of the ovens makes it probable that if this was a camp that it was related to the construction of *Segontium* fort. The site is about 300m from the fort and separated from it by a shallow valley, but Sommer (1984, 55) identified construction camps up to 1 kilometre from the fort they are probably associated with, so the distance does not rule out a construction camp.

It is possible to envisage each *contubernia* camped at fairly regular distances apart, all with a tent and most with an oven. A large piece of leather, and several smaller pieces, found in a Roman well to the north-west of the fort in 1920 have been interpreted by Boon as pieces of tent panels from Roman army tents. He claims an early date for the tent panels and considers the 'intriguing, if romantic, notion that … [this is a piece] … of one of the very tents which, more likely than not, sheltered soldiers of Agricola's putative task force in A.D. 78'[5] (Boon 1975, 61). Further fragments of tent panels, dated to about 90 AD, were found in a well in 1977 (Boon 1985). Similar tents could have been used at Ysgol yr Hendre and such a camp would have left few archaeological traces other than the ovens.

THE EARLY MEDIEVAL CEMETERY

Main cemetery and mortuary enclosures

The archaeological discoveries were dominated by a cemetery with three mortuary enclosures and a further two mortuary enclosures to the north (Fig. 2). The main cemetery complex consisted of 3 mortuary enclosures and 46 graves with 4 other possible graves (Fig. 8). Two of the mortuary enclosures each contained a single central grave, while the third had 3 graves inside it. The extent of the cemetery was revealed in the excavations on the southern, eastern and north-eastern sides but to the western and north-western the cemetery may have continued under the Tŷ Gwyn housing estate.

Two of the mortuary enclosures (109 and 152), lying about 25m apart, were square with external measurements of 7.0m by 7.0m and 6.5m by 6.5m respectively. The ditches were up to 1.0m wide and 0.4m deep, with 152 more severely truncated than 109. The enclosures were on the same east-north-east to west-south-west alignment and each had an entrance in the east-north-eastern side. Each also had a central grave 2.1m long. The third enclosure, 108, was smaller than the other two and was rectangular in plan with dimensions of 5.5m by 4.0m, but had the same orientation. It also had a central entrance in the east-north-eastern side, and was defined by a ditch with a maximum width of 0.40m and depth of 0.38m. This enclosure contained 3 graves, with the largest grave (2.08m long) centrally located and smallest

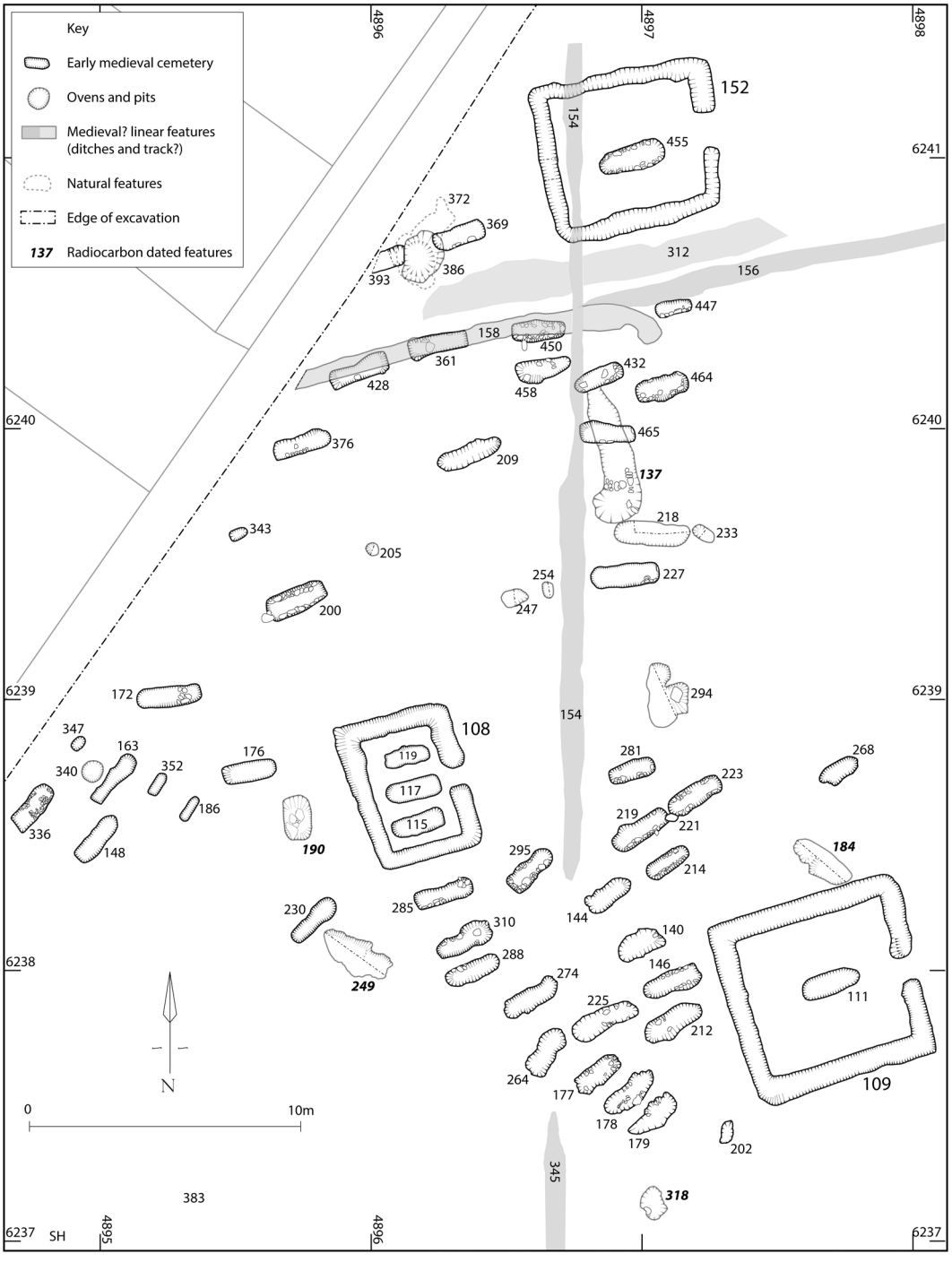

Fig. 8. Plan of main early medieval cemetery area.

grave (1.6m long) to the north. The enclosure ditches had shallow U-shaped profiles, with steep sides and fairly flat bases, and generally had fairly homogenous brown loam fills.

A total of 41 unenclosed graves were excavated, with 4 additional features that may have been graves. The graves varied in length between 2.6m and 0.6m and in depth between 0.6m and 0.1m, the variation in depth being largely due to truncation. There was no bone within any of the graves, as the acidic ground conditions were not conducive to its preservation. The only artefactual evidence within the graves and the enclosure ditches were a few sherds of eroded Roman pottery.

Fifty per cent of the graves were orientated east-north-east to west-south-west, 36 per cent were orientated north-east to south-west and 14 per cent were aligned closer to an east-west axis. Graves with the same orientation were generally grouped together and the graves closest to the mortuary enclosures tended to reflect the enclosure orientation, though none of the graves near enclosure 109 were on exactly the same alignment as the enclosure. A small group of graves west of mortuary enclosure 108 are on a more northerly alignment, and are consistent as a group, perhaps indicating a sub-group or reflecting some other determining feature off-site, further to the west.

Of the four possible graves, 202 (to the south-east of mortuary enclosure 109) and 343 (to the north of mortuary enclosure 108) were very small and could have been children's graves, although 202 seemed rather casually orientated. Both were very shallow but not much more so than three more convincing children's graves (186, 347, and 352) in a line to the west of mortuary enclosure 108. Feature 365 was to the east of the cemetery (Fig. 2, inset) and had a much greyer fill than the graves, so it was probably not a grave. Feature 393 (Fig. 8) was confused at the east end by pit 386 and extended under the baulk at the west end but its shape, profile and orientation strongly suggest that this was a genuine grave.

Mortuary enclosures in the north of the site

About 55m north-east of the northern end of the main cemetery was the southernmost of two other mortuary enclosures (Fig. 9). These lay about 11m apart and on slightly different alignments. They were similar in plan but the northern enclosure was considerably larger than the southern enclosure and unlike those to the south there were no associated graves surrounding them.

The southern enclosure, 5003, was rectangular in plan, measured about 5m by 4m externally and was orientated with its long axis east-north-east to west-south-west. Its ditch was about 0.8m wide and 0.36m deep, with steep sides, a flat base and an entrance in the east-north-eastern side, and a central grave 2.45m long. Much of the ditch fill, which was a stony brown sandy silt, might have come from erosion from a central mound into the ditch, but along the middle of the ditch was finer grey silt. This ended in two rounded terminals on the western side of the enclosure and apparently formed the fill of a recut of the ditch, with a new western entrance inserted to compliment the eastern one. Part way up the fill of the central grave (5005) was a thin band of dark grey loam forming a shallow trough in plan, *c*. 1.3m long. Although this did not contain organic matter it was thought it may be a cast of a timber, possibly a covering plank that collapsed into the grave as it decayed. In both the fill of the enclosure and the upper fill of the grave were pieces of dressed sandstone and the ditch also contained three eroded sherds of probable Roman redware.

The larger northern enclosure 5004 was nearly square and measured 7.3m by 7.3m externally, with a ditch about 1.2m wide and 0.44m deep, which had steep sides and a fairly flat base. It was aligned north-east to south-west with an entrance in the north-eastern side, and had a single central grave 2.1m long. The main fill of the ditch was a stony brown silt, but less stony, darker upper fills gave hints of a recut, however any western entrance had been cut away unrecognised by an evaluation trench. There were deposits of stone in the base of the ditch, especially near the corners, including a squared block of building stone, but these were not packing to support a superstructure. There was also a charcoal-rich deposit containing some pieces of

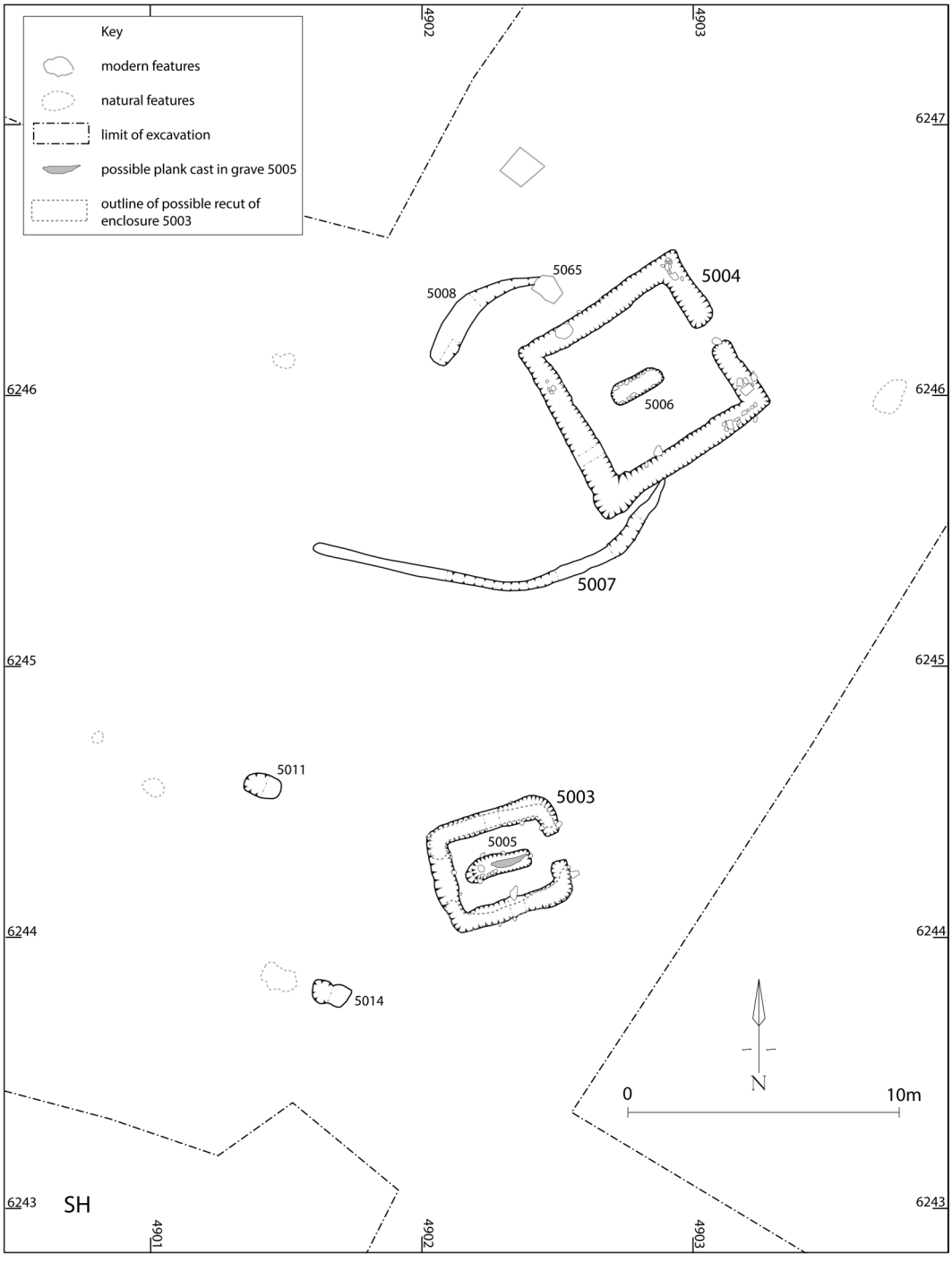

Fig. 9. Plan of northern early medieval mortuary enclosures.

pottery to the north-west of the entrance terminal. All the identifiable charcoal was hazel, and the pottery was Roman with datable sherds including eroded samian ware dating to *c*. AD 160–220. This deposit also contained fuel ash slag, small fragments of burnt bone and the bent tip of a nail, which may indicate that it was composed of material from fires and other domestic waste generated elsewhere. Hazel charcoal from this deposit was dated cal. AD 635–670 (SUERC-41964) and cal. AD 540–635 (SUERC-41965).[1] The two results are not statistically consistent, which suggests that this deposit contains material of mixed ages, but neither can be directly related to the deposition of the material in the ditch.

Discussion of the early medieval cemetery

The mortuary enclosures were defined by open ditches, but it was not clear whether the material from the ditches was spread inside the enclosures as a low mound or outside as a bank. The possibility that the ditches around the two northern enclosures were recut after they had silted up would suggest the desire to preserve the enclosures after the monuments had become partially obscured.

The enclosures were all on similar alignments, though enclosure 5004 was orientated a little more towards the north. They each had an entrance in the middle of the eastern side, and all contained central graves aligned on the entrance; enclosure 108 contained two additional graves either side the central burial. No graves cut each other or the enclosures and this lack of stratigraphy and the lack of dating material means that the chronological development of the cemetery is not known.

The mortuary enclosures indicate preferential treatment for specific individuals, reflecting, perhaps, their status when they were alive. In each case the layout of the surrounding graves leaves the entrance relatively clear, with the graves grouped in between the three enclosures. The layout of the graves between enclosures 108 and 109 indicates they are positioned to respect the enclosures. The enclosed graves might,

Fig. 10. Mortuary enclosure 109 and adjacent unenclosed graves, viewed from the south.

therefore, have formed a focus for the unenclosed graves. In particular the positioning and orientation of the graves south-west of enclosure 108 suggests an association between the graves and the enclosure. Similarly the graves south of enclosure 152 are aligned on the enclosure, and form a grouping, though a fairly rough one. As noted above, another group west of enclosure 108 share a common orientation, different to the adjacent enclosures, and it is possible these are focused on a now lost enclosed grave which lay to the west. The impression is of graves being added in small numbers, with some awareness of the location of earlier graves.

The variation in the length of graves is probably largely related to the height of the individual buried and therefore approximately indicative of age. There were three small graves (186, 347 and 352), less than 1m in length, set in a line in the south-western part of the cemetery, which were probably children's graves. Whether some of the graves measuring about 1.5m in length can be considered to be graves of women is more uncertain; they could be the graves of adolescent boys.

Many of the graves, including those inside the mortuary enclosures, had stones set against the long sides, in some cases stacked up to three stones high. These stones probably indicate that these graves had timber linings. Stones of the same sort were found in graves at Tŷ Mawr, Holyhead (Kenney and Longley 2012) and some of these had stains indicating timber planks. It would appear that these were not coffins but unjointed planks supported by packing stones. None of the graves had stone slab linings forming long cists but in effect the planks would have created similarly lined graves.

None of the finds from the cemetery could be closely associated with the graves. The majority of the pottery recovered was of a late first or second century AD date, and presumably accidently included in the grave fill. The charcoal-rich deposit in the ditch of mortuary enclosure 5004 is of particular importance because this material must have been dumped while the ditch was open. The pot sherds found in this dated to the second century AD while the radiocarbon dates were early medieval. The fuel ash slag and burnt bone fragments suggest this material came from a rubbish deposit. It is likely that some of this deposit, particularly the charcoal was produced not long before the material was dumped in the ditch, but the pottery indicates the inclusion of much older material. Without a better understanding of the origin and taphonomy of this material the radiocarbon dates cannot be used to directly date the mortuary enclosure. The building stone found in mortuary enclosures 5003 and 5004 must also have been introduced from elsewhere. The sandstone of these blocks is the same as that used in *Segontium* fort (Jenkins 2013), and might indicate a structure nearby built from stone reused from the fort, but there is no suggestion that such a structure formed part of the cemetery.

The wider context of the early medieval cemetery

The cemetery at Ysgol yr Hendre, characterised by the presence of mortuary enclosures and associated extended inhumation graves is typical of other cemeteries found throughout Wales which date from the early medieval period. Though the origins of the burial practices which gave rise to these features lie within Iron Age and Roman times there was a marked increase in the number of such cemeteries in the sixth to eighth centuries AD, which are usually considered to be burial grounds of kindred groups (Petts 2009, 109–32). During this period places of Christian worship would have been located elsewhere, within the principal settlement, and indeed there is no certainty that all graves within these early medieval cemeteries are Christian, as there is considerable evidence for the presence of pagans and Christians buried alongside one another. It is thought that the mortuary enclosures indicate specific focal graves, around which the remainder of the cemetery developed, though because of the lack of stratigraphic evidence it is rare to be able to demonstrate any sort of chronological development.

Square or rectangular mortuary enclosures have been excavated at five sites in North Wales (Tandderwen, near Denbigh; Capel Eithen, Anglesey; Trefollwyn, near Llangefni, Anglesey; Druid near

Fig. 11. Mortuary enclosure 5003, viewed from the west. Scale 1m.

Fig. 12. Mortuary enclosure 5004, viewed from the east. Scales 1m.

Corwen, and Llandygai, near Bangor) and at Plas Gogerddan, Dyfed in mid Wales, to which further reference is given below. Like the Ysgol yr Hendre cemetery (originally recorded as Tyddyn Pandy square barrow cemetery)[6] several of these sites were first found by aerial photography. Other sites are known only as a result of aerial photography and have not yet been investigated on the ground (Driver 2003, 71; 2006, 145, 147; 2008, 90; Crew and Musson 1996, 34). A square-ditched feature resembling an early medieval mortuary enclosure with a central grave was also identified by geophysics on a prehistoric site at Lower Luggy, Berriew, Powys (Gibson 2006, 167).

The number of mortuary enclosures on each site varies as do their sizes but they are all quite similar in ground plan, defined by square or rectangular trenches surrounding one or more graves. The term 'square barrow' is sometimes used for these features and some of the enclosure trenches may have functioned as quarry ditches to create a low barrow, as demonstrated at Tandderwen (Brassil *et al.* 1991, 64), Trefollwyn (Davidson *et al*. 2002, 73–7) and Druid (Jones *et al.* 2011; Jones *et al*. forthcoming). However, some features with the same ground plan may have had timber superstructures, as shown at Plas Gogerddan (Murphy 1992), Capel Eithin (White and Smith 1999) and Llandygai (Longley 2001, 109).

Sites with open ditches might be envisaged as low barrows surrounded by ditches, while those with foundation trenches seem to have been small timber structures, possibly plank-built and sometimes with roofs. There was no firm evidence on the Ysgol yr Hendre site of the enclosure ditches having supported timber structures so it is assumed that they were open and surrounded low mounds. As there were entrances formed by causeways through the ditches it might be assumed that the mound covered the grave but that there was a berm around it allowing access within the enclosure. Recutting of the enclosure ditches after they had largely infilled, as may have occurred at the two enclosures in Ysgol yr Hendre, is not reflected on the other excavated sites, but not all were fully excavated.

The other excavated mortuary enclosures are generally small, similar in size to the Ysgol yr Hendre examples, with sides usually about 5m long. There are larger examples with the largest at Tandderwen about 10m square and the largest at Druid possibly 9m square. The Lower Luggy enclosure is about 10m across (Gibson 2006, 167), and if the cropmark seen at Pennant Farm (Driver 2008, 90) is really an early medieval mortuary enclosure it seems to be particularly large at *c*. 20m square. Multiple enclosures have been identified at several cemeteries with three excavated at Plas Gogerddan, nine at Tandderwen, and six are known from Druid. Of the aerial photography sites there are up to five enclosures at Croes Faen, Bryn-Crug (Crew and Musson 1996, 34), possibly four at Ffynnon, Llangoedmor (Driver 2003, 71) and two or three at Penrhyn Park, Llangygai (Driver 2006, 147). The results from Ysgol yr Hendre shows that where a single enclosure might initially be spotted from the air more might be found on excavation. Although identifying surrounding graves from the air is difficult all excavated examples have external graves associated with mortuary enclosures. The two northern enclosures at Ysgol yr Hendre are therefore unusual in their lack of surrounding graves.

Cemeteries with similar square-ditched enclosures around burials were in use in the late Iron Age, especially in the Arras cemeteries of East Yorkshire, and also in parts of Scotland (O'Brien 1999). However, southern England in the Roman period had a similar tradition, which may have arisen from masonry mausolea in Roman cemeteries (Petts 2003). Poundbury in Dorset had both mausolea with stone foundations and square-ditched enclosures around graves. The main cemetery dated to the fourth century AD, but the square-ditched enclosures were just beyond its limits and could have been of a different date (Farwell and Molleson 1993). Four square-ditched burial enclosures within a Roman cemetery at Lankhills, Winchester were more securely dated to the fourth century AD (Clarke 1979, 183). This tradition seems to have continued into the post-Roman period especially in western Britain. Sites at Kenn, Devon and Stoneage Barton Farm, Bishop's Lydeard, Somerset had square ditched mortuary enclosures radiocarbon dated to the fifth to eighth centuries and mid-seventh century AD respectively (Petts 2009, 214).

Cemeteries of this type within Wales rarely produce datable material but those that have been dated fall within the fourth to eighth centuries, though cist graves of a later medieval date have been found in south-west Wales (Longley and Richards 2000; James 1992). At Tywyn y Capel cist graves were dated to the fifth and sixth centuries AD, and then superseded by dug graves (Davidson 2010). Two dates from the grave in the enclosure at Capel Eithin were quite different probably because they were on a large plank and suffered from old wood effect. Taking this into account a date in the seventh century AD would be possible (White and Smith 1999, 145). Two dates from graves in mortuary enclosures at Tandderwen suggested that they belonged to the fifth to seventh century and eighth to twelfth century (Brassil *et al.* 1991). The sixth- to seventh-century AD dates from mortuary enclosure 5004 at Ysgol yr Hendre provide an interesting addition to the dating of these features. These dates could be taken as a *terminus ante quem* date for the construction of the mortuary enclosure ditch, but as discussed above without an understanding of the taphonomy of the material the relationship to the digging of the ditch must remain uncertain. It is perhaps more rigorous to take these dates as a *terminus post quem* for the mortuary enclosure.

Roman burial custom decreed that cemeteries should lie outside the main areas of settlement, and outside the defences of forts and towns. Cremations were the principal burial rite of the first and second centuries AD, following which inhumation burials slowly became the norm. The cremation cemetery found south of the line of the Roman road south-east from *Segontium* is therefore typically sited. The burials were discovered while digging graves in the New Cemetery from *c.* 1850 through to 1947. There were about 14 burials represented, all cremations and buried in urns and other vessels. Dated vessels belonged to the late first to early second centuries AD (RCAHMW 1960, 163; Pollock 2006).

A scatter of other burials have been found mainly to the north of the fort (Pollock 2006), indicating the likely presence of other cemeteries around the fort with an emphasis on major roads, but perhaps not exclusively restricted to them. The present excavations have also shown that there were no burials within the investigated area between the early Roman cremation cemetery and the later inhumation cemetery at Ysgol yr Hendre. However, many areas remain unexplored or have been developed with no archaeological monitoring, which makes any identification of cemetery location (either cremation or inhumation) difficult to predict.

On the eastern side of the fort there was a Roman temple to Mithras[7] found and excavated in 1959, and located *c*. 150m from the present site. This was used in the third century and destroyed in the later fourth century AD. It was a stone building with a slate roof and contained features typical of mithraea elsewhere, having an antechamber, a sunken nave with benches and an alcove for the cult images. The temple was destroyed by fire and the altars of Mithras may have been deliberately broken (Boon 1960).

On the Ysgol yr Hendre site the stone found in the ditches of the northern mortuary enclosures may be derived from a Roman building as it was quite carefully dressed. It was not from the mithraeum as this was built of rough field stone (Boon 1960), so its origin from the fort seems most likely, especially as the same sandstone was used in the fort buildings. However, this does not explain why the stones were so far from the fort nor why they were so casually dumped. They may, therefore, represent the former existence of a building close to or on the site of the cemetery, but there is no evidence for the date and function of such a building.

Boon (1960, 156) speculated on the connection between the fourth-century destruction of the mithraic temple and the Christian presence of Saint Peblig (Publicius), to whom the medieval church was dedicated. The saint is traditionally claimed to have been the son of Macsen Wledig (Magnus Maximus) and to have lived in the fourth century (Boon 1960, 156; Bowen 1977). It is not unusual to find medieval churches located over the grave of an early martyr or saint (Edwards 2002). Saints and martyrs resided in heaven, unlike the souls of ordinary mortals who were awaiting resurrection, and therefore communication with God through the corporeal remains of saints was actively practised (Brown 1981, 2–4). To build a church

over the grave of such a person gave the church particular credibility. However, it was also possible for remains of holy persons to be moved, or translated, from their original resting place, and many churches acquired valuable relics this way. The influences governing the siting of Llanbeblig church are not now easily ascertained. It has been suggested that the location of the church close to or over the earlier Roman cemetery and its dedication to a Roman Christian may indicate the continuity of Roman Christianity (Casey and Davies 1993, 16; Davidson 2009, 42–3). That the church is located well away from the site of the eleventh-century settlement where the medieval borough was to be established also suggests a pre-eleventh-century foundation, or at least the presence of pre-eleventh-century features which dictated its location. The present remains of the church contain no material earlier than the thirteenth century. The relationship between the cemetery at Ysgol yr Hendre and the medieval church must remain ambiguous, though the concentration of burial and religious monuments within the area east of the fort can hardly be entirely accidental, and would indicate continuity of religious practice here, culminating in the construction of the church dedicated to St Peblig in the twelfth or thirteenth century.

Military occupation of *Segontium* is thought, primarily on coin evidence, to end in the year 393, with the withdrawal of garrisons to the continent to assist the usurper Eugenius. Casey and Davies (1993, 16) argue for a continuity of settlement around the fort after the withdrawal of the military troops, though were unable to find any supporting archaeological evidence, with the exception of two coins dating from the ninth and tenth centuries. The cemetery at Ysgol y Hendre provides the necessary evidence to confirm their proposition, though the identification of a settlement contemporary with the cemetery still eludes us.

MEDIEVAL FEATURES

Possible corn drier 137 was of a different type to the Roman ovens. It measured *c*. 7m in length with a maximum width of 1.5m and maximum depth of 0.28m (Fig. 8). The narrower end, likely to be the flue, curved toward the north-west and contained a large amount of burning. The southern end was sub-circular with a flat base and with no signs of burning, but traces of a possible stone lining. After excavation two early medieval graves, 432 and 365, were found sealed below this feature, and a third grave, 458, was partly obscured by its fill. The two soil samples from this feature produced relatively small assemblages of plant macrofossils. The most abundant remains in the samples were oat grains, followed by indeterminate cereal grains. Barley and hazel nutshell fragments were also recorded in both samples. Overall, the low numbers of grains and weed seeds in the samples indicates the accidental burning of cleaned grain and its subsequent disposal (see report by McKenna below). The long flue attached to a rounded chamber suggests that this feature was a corn drier. The fire would have been at the north-west end of the flue, which is why this was burnt, and the length of the flue would prevent sparks reaching the grain suspended over the pit at the southern end. Many corn driers were stone-lined and stones within this feature suggested a disturbed lining. The amount of charred grain recovered from the feature was fairly small but the scarcity of weed seeds suggested the burning of cleaned grain as may have occurred if there was an accident during the drying of the grain. More charred grain might be expected from a corn drier but the quantity would depend on the number and severity of accidental burnings, possibly related to the duration of use of the feature.

This is the only feature to have a clear stratigraphic relationship with any of the early medieval graves as it cut across at least two and probably three of them. Radiocarbon dates were obtained on two samples of carbonised barley grains, cal. AD 1050–1260 (SUERC-42596) and cal. AD 1220–1280 (SUERC-41961). The two results are not statistically consistent (T'=8.2; v=1; T'(5%)=3.8), suggesting the deposit may be of mixed age material, and the later date (SUERC-41961) may provide the best estimate for the formation

of the deposit. It is therefore likely that all memory of the existence of the early medieval cemetery was lost before the corn drier was constructed.

Within the main early medieval cemetery area was a sub-rectangular pit 190, measuring 1.6m by 1.0m and 0.25m deep (Fig. 8). Its long axis was aligned north-south, which suggests that it is unlikely to be a grave. In the base of the pit were a few large stones, which were not obviously heat-affected, and the fill contained a sherd of Roman Black Burnished ware, and a fragment of burnt non-human animal bone. It also contained a significant charred cereal assemblage dominated by indeterminate cereal grains, but with significant numbers of oats and small numbers of barley and wheat grains, together with several weed seeds. This may indicate the dumping of spoilt grain or domestic waste into the pit (see report by McKenna below). Radiocarbon dates on charred cereal grains from this feature demonstrated that despite the pottery the feature was medieval in date. Two dates on samples of carbonised wheat and barley of cal. AD 1040–1215 (SUERC-41952) and cal. AD 1025–1170 (SUERC-41953) are statistically consistent and the later result provided the best estimate for the formation of this deposit.

The small steep-sided feature 205, 0.42m in diameter and 0.22m deep, was also found within the early medieval cemetery. Its upper fill contained an assemblage of charred cereal grain including wheat, barley and oats, and charred weed seeds. This feature was not dated but the similarity to the assemblage from pit 190 suggests it is also of medieval date.

Running from the south-eastern side of early medieval mortuary enclosure 5004 was the slight gully 5007 (Fig. 9). This curved gently and survived for a length of 15m. It was 0.5m wide and up to 0.22m deep, and seemed to cut through the in-filled ditch. This gully may have continued on the northern side of the mortuary enclosure as 5008, which was a similar shallow curving gully, although more truncated. The gully was filled with a dark-grey silt with lenses and patches of charcoal, composed of hazel and willow or poplar, suggesting fuel woods. It also contained a surprising large charred cereal grain assemblage composed mainly of oats (over 4000 grains) with a small amount of wheat and barley, some weed seeds, particularly grass seeds, and fragments of hazel nutshells. It also contained a single charred garden pea. Most of these remains probably relate to a single event, possibly the disposal of a spoilt grain store, an accident whilst drying the grains or the remnants of a meal (see report by McKenna below). In addition there was a quantity of fuel ash slag presumably from the burning event that charred the cereal grains.

The pea and an oat grain were radiocarbon dated to cal. AD 1525–1660 (SUERC-41966) and cal. AD 990–1120 (SUERC-41967) respectively. The two results are very different, and given the amount of oat in the deposit it is likely that the single garden pea, dated to the early post-medieval period, was intrusive. Therefore, SUERC-41967 provides the best estimate for the formation of this deposit of cal. AD 990–1120.

These features may have been located within a contemporary field system as several excavated ditches pre-date the current field pattern, which has been much the same since the eighteenth century. However, ditches are difficult to date and pottery, charred plant remains and other finds might erode into the fill or be dumped in as the ditch is infilling and be unrelated to the time of its digging and use. A narrow north-south ditch, 154 (Fig. 8), up to 0.8m wide and 0.25m deep, cutting across the cemetery has been broadly dated because it was covered by fill from the medieval corn drier 137 and so this ditch appears to pre-date the thirteenth century AD, but might be contemporary with pit 190. The large gap between this ditch and ditch 345 further to the south seems to have been due to truncation and was not original. As ditch 154 cut the early medieval mortuary enclosure 152 it was presumably in use somewhere between the seventh and thirteenth centuries. The relationship of 154 to other early ditches was unfortunately unclear but it is possible that 154 cut ditch 158 and a parallel stony layer 312 (Fig. 8), possibly a trackway. Ditch 158 was up to 0.9m wide and 0.5m deep. Its north-eastern end curved to the south-east at its terminal, and the ditch had been preceded by a much longer, shallow ditch 156, 0.7m wide and 0.18m deep, which

continued the alignment to the east. The alignment of ditches 158 and 156 were exactly parallel to the early medieval mortuary enclosure 152 suggesting that the latter was visible when the ditches were dug. Following this alignment meant that ditch 158 cut along a line of early medieval graves, so while the enclosure might have been visible its significance and the presence of the graves may have been forgotten. It appears that ditches 156 and 158 formed a field boundary established when the mortuary enclosure was still an upstanding earthwork monument. Ditch 154 seems to represent a complete alteration of the field boundaries after the square barrow had been levelled by ploughing as the latter ditch disregarded the enclosure, cutting through it.

Discussion of medieval activity at the site

The dates from the corn drier 137 suggest it was used in the thirteenth century AD and possibly earlier. Corn driers are required both to preserve grain and to allow easier milling. They are particularly important where oats are the main crop as these tend to be picked under ripe and then require drying (see report by McKenna below). Corn driers can also be used to encourage malting of barley. Most of the identifiable grain from 137 was oats but there were also some barley grains but these showed no sign of sprouting so malting was not demonstrated on this site. Whilst the drying of corn will have been undertaken throughout prehistory, specific structures for this purpose date from Roman times onwards (O'Sullivan and Downey 2005; Scott 1951). Simple pit driers, either lined or unlined, are often dated to the medieval period. A partially stone-lined corn drier at Cefn Du, Anglesey was dated to cal. AD 1000–1280 (Wk-9275) (Cuttler *et al.* 2012). A corn drier at Graeanog, Clynnog was dated between cal. AD 880–1160 (CAR-934) to cal. AD 1040–1280 (CAR-932) (Kelly 1998, 132), and one at Parc Bryn Cegin, Llandygai to between cal. AD 880–1160 and cal. AD 1040–1350 (Kenney 2008, 108). The dates from Ysgol yr Hendre fit quite comfortably in this range. It seems likely that the medieval expansion of the use of corn driers was related to the increased importance of oats in this period, so that more of the grain produced required drying.

Pit 190 was also demonstrated to be medieval in date, rather earlier than the corn drier. The charred plant remain assemblage from the pit was larger than that from the corn drier but generally similar with oats dominant but barley also present. No burning was recognised in the pit nor did the large stones it contained appear to be suitable for lining stones. Although there was a fairly high charcoal content in the fill this did not form a coherent layer as would be expected from a fire in the pit. It would be tempting to interpret this feature as a simpler form of corn drier but these factors suggest that it was not. Whatever the function of pit 190 it does show that there was medieval activity, as possibly does pit 205. The charred plant remains assemblage from this was similar to that in pit 190, making it possible that the two pits were roughly contemporary.

Gully 5007 was not particularly well-dated as one of the radiocarbon dating samples (the garden pea) was intrusive. Leaving a single date to suggest a medieval date, possibly slightly earlier but perhaps overlapping with pit 190. The charred plant assemblage shows that oats had become the dominant cereal type by this date. The mix of grains suggests that oats were planted as the main crop and small amounts of wheat and barley were included as crop weeds, as well as wild grasses. The ability of oats to grow on poorer soils may indicate that crop cultivation expanded out of the best arable areas in this period. However, it is more likely that it represents the use of a more appropriate crop for the local conditions as much of the soil in North Wales is acid and of fairly low fertility, the soils are often heavy and water-retentive and there are low summer temperatures. Oats do better under these conditions than other cereal crops and their adoption would presumably have increased yields (see report by McKenna below).

The need to dry oats before storage or milling and the quantity of grains present in the sample perhaps suggests that the deposit in gully 5007 is most likely to have been from an accident during drying. Cooking

or other processes are less likely to result in the charring of so much grain even when something goes wrong. At 15m long the gully is far too long to be the flue of a corn drier and there was no evidence of a drying chamber. Feature 5008 was largely truncated but appeared to be a slight gully like 5007, with no evidence of *in situ* burning. Pit 5065 was a recent feature and not part of 5008, so it is hard to interpret 5008 as a corn drier either. Radiocarbon dates show that the corn drier 137 was later than 5007 so it must be concluded that the origin of the burnt grain was not found during the excavations. Presumably 5007 was the boundary ditch to a small enclosure and was a convenient dumping ground for the charred grain. However, it seems unlikely that the charred material would have been transported far before dumping so it is possible that there are the remains of a medieval corn drier somewhere under the unexcavated parts of the site, possibly just the north-west or south-east of 5007.

POST-MEDIEVAL FEATURES

Glasshouses

In the southern part of the site were the remains of a glasshouse defined by a low brick wall (Fig. 2). Six metres east of the end of this building was a small brick structure with a concrete floor and 3 steps curving down into the building, which was set about 1m into the ground. It contained a substantial brick structure, which probably supported a boiler, and functioned as a boiler house to heat the glasshouse to which it was linked by a pipe protected under large slate slabs. There was also a third brick building that appeared to have been a potting shed and the remains of a possible coal store. On the 1888 first edition 25 inch Ordnance Survey map a track is shown running from Llanbeblig Road to a building, not labelled on this map but shown on the 1918 map as a glasshouse. By this time there were two other glasshouses and related structures. The Gallt-y-Sil Isolation Hospital for infectious diseases was built in 1904 opposite Tyddyn Pandy.[8] It is possible that the glasshouses had been extended to provide food for the hospital. Aerial photography shows that the glasshouses had been entirely demolished by 1948 when small paddocks and allotments can be seen in the field.

Farmyard

A small farmyard was identified during the archaeological assessment of the site, when the remains of some brick buildings were visible (Fig. 2). Further brick structures were exposed within the excavated area and the remains of a stone cottage were recorded during the watching brief. The foundations of another small brick structure were found about 38m to the south-east. The 1888 Ordnance Survey map shows three small buildings, the south-eastern most of which was the stone cottage. There was also a well. By 1918 these three buildings had been converted into an enclosed rectangular farmyard, with additional buildings and small paddocks or gardens. The farm was still in existence in 1950, but had been demolished by 1966 (as seen on aerial photographs).

RADIOCARBON DATING

By Derek Hamilton

Methodology

A total of 24 samples were processed for radiocarbon dating. These samples were of charcoal and charred macrobotanical remains recovered from 12 individual features that included a corn drier, mortuary enclosure, pit with grain and another with Neolithic flint, a gully with an abundance of charred oats,

and seven ovens. All the samples were processed and dated at the Scottish Universities Environmental Research Centre, East Kilbride (SUERC).

All the samples were short-lived single entities (Ashmore 1999). They were pre-treated following methods described in Stenhouse and Baxter (1983); they were then combusted as described in Vandeputte *et al.* (1996) with the graphite targets prepared following Slota *et al.* (1987). The graphite targets were measured by Accelerator Mass Spectrometry (AMS) as described by Xu *et al.* (2004).

The SUERC laboratory maintains rigorous internal quality assurance procedures, and participation in international inter-comparisons (Scott 2003) indicates no laboratory offsets; thus validating the measurement precision quoted for the radiocarbon ages.

The results shown in the catalogue below are conventional radiocarbon ages (Stuiver and Polach 1977), quoted according to the international standard set at the Trondheim Convention (Stuiver and Kra 1986). The results have been calibrated with the internationally agreed IntCal09 atmospheric curve of Reimer *et al.* (2009), using OxCal v4.1 (Bronk Ramsey 1995; 1998; 2001; 2009a). The date ranges in the catalogue have been calculated using the maximum intercept method (Stuiver and Reimer 1986; 1993), and quoted in the form recommended by Mook (1986) at 95% confidence with the endpoints rounded outward to 10 years when the errors are 25 years or greater, and to 5 years where they are less than 25.

SUERC-41937
Context: 183, fill of oven 184
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1891±22 BP
Calibrated date: cal. AD 65–205

SUERC-41941
Context: 187, fill of oven 184
Material: carbonised grain, *Triticum* spp.
Radiocarbon age: 182±24 BP
Calibrated date: cal. AD 1660–1950

SUERC-41942
Context: 169, fill of oven 166
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1927±24 BP
Calibrated date: cal. AD 20–130

SUERC-41943
Context: 169, fill of oven 166
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1916±25 BP
Calibrated date: cal. AD 20–130

SUERC-41944
Context: 262, fill of oven 249
Material: carbonised grain, *Triticum* spp.
Radiocarbon age: 1935±17 BP
Calibrated date: cal. AD 20–125

SUERC-42597
Context: 262, fill of oven 249
Material: charcoal, *Fraxinus* sp.
Radiocarbon age: 2003±29BP
Calibrated date: 90 cal. BC–cal. AD 70

SUERC-41945
Context: 280, fill of oven 278
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1933±20 BP
Calibrated date: cal. AD 20–125

SUERC-41946
Context: 280, fill of oven 278
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1949±20 BP
Calibrated date: cal. AD 1–120

SUERC-41947
Context: 319, fill of pit 318
Material: charred nutshell, *Corylus avellana*
Radiocarbon age: 3946±25 BP
Calibrated date: 2560–2350 cal. BC

SUERC-41951
Context: 319, fill of pit 318
Material: charcoal, *Corylus avellana*
Radiocarbon age: 4075±22 BP
Calibrated date: 2840–2495 cal. BC

SUERC-41952
Context: 199, fill of pit 190
Material: carbonised grain, *Triticum* spp.
Radiocarbon age: 893±21 BP
Calibrated date: cal. AD 1040–1215

SUERC-41953
Context: 199, fill of pit 190
Material: carbonised grain, *Hordeum* spp.
Radiocarbon age: 929±24 BP
Calibrated date: cal. AD 1025–1170

SUERC-41954
Context: 477, fill of oven 473
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1927±22 BP
Calibrated date: cal. AD 20–130

SUERC-41955
Context: 477, fill of oven 473
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1953±25 BP
Calibrated date: 20 cal. BC–cal. AD 130

SUERC-41956
Context: 492, fill of oven 491
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1926±25 BP
Calibrated date: cal. AD 20–130

SUERC-41957
Context: 492, fill of oven 491
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1944±22 BP
Calibrated date: cal. AD 1–125

SUERC-41961
Context: 136, fill of corn drier 137
Material: carbonised grain: *Hordeum* spp.
Radiocarbon age: 756±19 BP
Calibrated date: cal. AD 1220–1280

SUERC-42596
Context: 136, fill of corn drier 137
Material: carbonised grain, *Hordeum* spp.
Radiocarbon age: 858±29 BP
Calibrated date: cal. AD 1050–1260

SUERC-41962
Context: 5023, fill of oven 5009
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1927±24 BP
Calibrated date: cal. AD 20–130

SUERC-41963
Context: 5023, fill of oven 5009
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1893±20 BP
Calibrated date: cal. AD 65–135

SUERC-41964
Context: 5056, fill of mortuary enclosure 5004
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1386±21 BP
Calibrated date: cal. AD 635–670

SUERC-41965
Context: 5056, fill of mortuary enclosure 5004
Material: charcoal, *Corylus avellana*
Radiocarbon age: 1484±21 BP
Calibrated date: cal. AD 540–635

SUERC-41966
Context: 5067, fill of gully 5007
Material: charred pea, *Pisum* spp. L.
Radiocarbon age: 273±19 BP
Calibrated date: cal. AD 1525–1660

SUERC-41967
Context: 5067, fill of gully 5007
Material: carbonised grain, *Avena* cf. *sativa*
Radiocarbon age: 1001±24 BP
Calibrated date: cal. AD 990–1120

ROMAN POTTERY
By Peter V. Webster

The assemblage from this site is small and noticeably spread in date. Fragments of some 46 vessels were recovered, along with 4 brick fragments, not all certainly Roman. Almost an eighth of the vessels represented were in samian, including one form that went out of production *c*. AD 85. The remaining six vessels span the later first and second century. Other diagnostic sherds include a sherd of mortarium which is unlikely to have been made prior to *c*. AD 180.

Black-burnished ware was represented by fragments of only three or four vessels, none closely dateable although one jar neck seems likely to date to the second half of the Roman period rather than the first, while a bowl wall with lattice decoration is most likely to be second-century in date.

The diagnostic pieces are completed by a mortarium, probably from Mancetter-Hartshill and third- or fourth-century in date. Other vessels are represented only by wall fragments and are likely to be more local in origin and can only be given a generalised Roman date.

Overall the assemblage shows a slight bias towards the later first and second centuries, with at least one sherd which should have reached the area very early in the Roman occupation. It would seem to indicate Roman activity in or near the area investigated from the Flavian period through to at least the third century. The precise nature of that activity is unclear, at least from this comparatively small sample of sherds.

FLINT AND OTHER WORKED STONE
By George Smith

Flint

There are seventeen pieces of worked flint or chert from early medieval grave 361, ovens 238 and 265 and pit 318. Of these, four pieces (SF23, SF28, SF32) are from isolated contexts and probably unrelated.

Pit 318, however, produced thirteen pieces (SF33) comprising a small associated and contemporary group which came from the upper fill (322) over a layer of charcoal and burnt stones. All the pieces are waste flakes or fragments with no cores, utilised pieces or retouched tools, the better flakes having presumably been taken away. All but two pieces are of similar material and probably come from one knapping episode. The technology is marked by scalar flakes, with facets on both faces, resulting from the working of small pebbles of poor quality flint, probably dependent on use of an anvil to split the pebble. Two pieces are of a better quality flint. The same scalar technology is found in the worked flint and chert from the settlement activity that was found to pre-date the Trefignath chambered tomb, Holyhead, Anglesey and dated to *c.* 4000 cal. BC (Healy 1987). The technology therefore indicates a Neolithic date for the assemblage from pit 318, and this is supported by the radiocarbon dates of 2560–2350 cal. BC (SUERC-41947) and 2840–2495 cal. BC (SUERC-41951) from this feature. The two flints from oven 238 were made using similar materials and technology and although the two features were about 20m apart they could come from activity associated with that represented in pit 318. However the two features were about 20m apart.

Stone

Four worked stone objects include a small pebble and three pieces of shaped building stone. The pebble (SF31), from the fill of early medieval grave 212 is a small well-rolled naturally-shaped gravel pebble of dark, hard rock, possibly chert (D. Jenkins, pers. com.). It has not been artificially shaped but is a

natural slightly flattened sphere, 7mm dia. and 5mm deep. It has two slight incised holes, one in each flattened face. The holes are *c*. 1.5mm deep and slightly conical with rounded bases so appear to have been artificially incised as if attempting to create a bead. However, the holes are not exactly aligned with each other, face to face, and it is unusually small for a pebble bead so its identification remains somewhat suspect. The incisions are so small in diameter that, if they are man-made, a metal point must have been used, not a flint point, which would have created a wider, conical hole.

The fragments of building stone (SF04, SF05, SF07) from early medieval mortuary enclosures 5003 and 5004 are all similar broken fragments of sub-rectangular blocks of stone that have been chipped to produce faces on three sides to create slabs for construction of a coursed and faced wall. The pieces of worked building stone occur in contexts without an identifiable association with any stone construction so the pieces must have been deliberately introduced to the site for some other reason. The stone used is sandstone of probably Carboniferous age, beds of which are found around Caernarfon. Both Ordovician and Carboniferous sandstones were used in the construction of *Segontium* Roman fort (Jenkins 2013). The careful working of the stone suggests its use in a fairly prestigious building and its origin seems most likely to be from the fort.

CHARCOAL AND OTHER CHARRED PLANT REMAINS

By Rosalind McKenna

Of the 83 samples submitted, charred plant macrofossils were present in 37 samples, and identifiable remains were present in 32 samples. They were generally poorly preserved, and were lacking in most identifying morphological characteristics. The samples generally produced small assemblages of plant remains both in volume and diversity.

The most abundant remains were oat grains, and the presence of cereal chaff may indicate the use of cereals at the site, although most of the chaff came from the fill of early medieval graves and mortuary enclosure ditches, suggesting that it may have originated from burning stubble. Another, more indirect, indicator of cereals being used on site is the remains of arable weeds that were found in 9 of the samples, particularly from the medieval corn drier 137 and medieval pit 190. Charred hazel nutshell fragments were also present.

Charcoal remains were present in all 83 samples and there were identifiable remains in 42 samples. The preservation of the charcoal fragments was relatively variable even within the samples. The identifiable remains were dominated by oak and hazel. Ash and willow/poplar were also present, with small amounts of elm and alder, indicating a local environment with a range of trees and shrubs.

The charcoal assemblages from the varying features and phases are all very similar. A constant use of oak as the most popular fuel is selected with hazel, ash, willow/poplar, alder and elm also being utilised in varying amounts. Only a single sample produced identifiable charcoal from the early medieval grave fills (sample 092, grave 163) and the only identifiable fragments were oak. A single sample from an early medieval mortuary enclosure (sample 508, 5004) also produced identifiable remains, and this contained purely hazel charcoal.

The samples from the Roman ovens and the medieval corn drier all produced similar remains, showing a predominance of oak, with hazel, ash, elm and willow/poplar being used as fuel.

Ash dominated the sample from the possibly early pit 340 (sample 089), and hazel dominated that from medieval gully 5007 (sample 509). The archaeobotanical evidence found in the samples was all very similar. Indeterminate cereal grains were present in eight samples from the cemeteries, in small numbers. Barley was present in small numbers in a sample (6) from the early medieval mortuary enclosure 109.

Oats were present in samples from the fills of early medieval graves 186 and 163, but again in very small numbers. Hazel nutshell fragments were also present in early medieval grave 186. Overall, the low numbers of grains and weed seeds in the samples from the early medieval period probably indicates the use of material cut from cultivated ground as fuel or stubble burning.

Samples from Neolithic pit 318 produced abundant hazel nutshell fragments. Together with the hazel charcoal also recorded from these samples, it may indicate that they are merely representative of complete hazel branches being burnt. Six samples from pit features produced plant macrofossils, particularly the pits 205 and 190, probably both of medieval date, which produced reasonable sized assemblages both in terms of abundance and diversity. The sample from 205 was dominated by indeterminate cereal grains, but also recorded the remains of barley, wheat and oat together with several weed seeds. A small number of hazel nutshell fragments were also recorded from this feature. The two samples from 190 were both also dominated by indeterminate cereal grains, but in addition they produced significant numbers of oats and small numbers of barley and wheat grains, together with several weed seeds. This may indicate the dumping of spoilt grain or a cooking mishap, or it may be the build-up of occupational waste and its subsequent deposition into the pit.

The samples from the Roman ovens produced very small assemblages of plant macrofossils both in terms of abundance and diversity. Seven features contained indeterminate cereal grains, two contained wheat grains, three contained barley grains and two contained oat grains. These were all however in very small numbers, and so little interpretation can be made other than to state their presence.

Two samples from the medieval corn drier 137 produced remains of plant macrofossils. Both samples produced relatively small assemblages both in size and diversity. The most abundant remains in the samples were oat grains, followed by indeterminate cereal grains. Barley and hazel nutshell fragments were also recorded in both samples. Overall, the low numbers of grains and weed seeds in the samples indicates the accidental burning of cleaned grain and its subsequent disposal.

Analysis of charred plant remains from medieval gully 5007

The assessment indicated that the most abundant remains in terms of volume from all the samples assessed, originated from sample 509, which came from gully 5007. Full analysis was carried out on this sample.

The sample produced a large assemblage of plant remains in volume. The most abundant remains were oat grains. Indeterminate cereal grains, lacking identifying morphological characteristics, were also recorded, and wheat and barley were present in small numbers. Charred hazel nutshell fragments and a small suite of weed/wild plants were also present within the sample.

Charcoal remains were abundant, and the total range of taxa comprises willow/poplar (*Salix*/*Populus*) and hazel (*Corylus*). Hazel was by far the most numerous of the identified charcoal fragments. The charcoal remains showed the exploitation of several species, with the prevalence of hazel being selected probably for use as firewood. Willow/Poplar was present in smaller numbers and these are species that are ideal to use for kindling. Bark was also present on some of the charcoal fragments, and this indicates that the material is more likely to have been firewood, or the result of a natural fire.

Oat grains dominated the charred macrofossil assemblage. These were divided into two size categories: large grains which were retained on the 2mm sieve; and small, slender grains which passed through this sieve. All of these may be from cultivated oats (*Avena sativa*), as the spikelets of this species usually have two fertile florets, the first producing larger grains than the second (Jacomet 2006).

Oats are often grown on poor, acidic soils, and in areas of high rainfall and low summer temperatures. Bristle oat, in particular, was a useful crop in the past for the most infertile soils in Wales and Scotland (de Rougemont 1989). Oats grow best on water-retentive soils such as loams and clays, and they are often spring-sown because they are not very frost-hardy. Rather than being ripened in the field, they should be

harvested in an under-ripe state to avoid the ears shattering prematurely, and then dried indoors, in ovens, or over hearths. They are valued for the high-energy fodder they provide to livestock, particularly draught animals.

Oats form a hardy crop which is less susceptible to wet weather and better suited to acid sandy soils such as those locally present than wheat or barley. It is possible that they were a significant crop at the site. Oats form an important source of animal feed, particularly for horses, but are also an important human food. Markham, writing in the seventeenth century, writes 'of the excellency of oats and the many singular virtues and uses of them in a family' (Markham 1668, 175–80) which include malt for ale, and as oatmeal for a variety of foods including bread, oaten biscuits, haggis and greets, as well as animal feed.

The abundance of the small, slender grains, together with the presence of several grass species, suggests that at least a proportion of these grains, are probably from wild species of oats. Grasses were also represented in the sample and included brome, bristle oat, and tubers of false oat-grass/onion couch.

Another, more indirect, indicator of cereals being used on site is the remains of arable weeds. Among these weeds, some of which are characteristic of cereal fields and rarely found elsewhere, are dock (*Rumex*), and common chickweed (*Stellaria media*).

If cereal processing were occurring at the site, it would be expected that some remains of cereal chaff would be found. There was chaff present but only in small amounts in comparison to the amount of grains recorded. However, the rarity of chaff is a phenomenon repeatedly reported from archaeological deposits, and although this may suggest that the grain was already threshed and winnowed by the time it reached the site, it may also show that any chaff was burnt up completely in the fires in which it was deposited. The former of these two theories is however the more plausible.

The deposit contained a mixture of grain and similarly sized weed seeds, such as grasses (Poaceae), which most likely represent the fine sieve product in the crop-processing sequence (Hillman 1981; Jones 1984). Fine sieving was most likely performed just before milling (Jones 1984, 46) or some other use, such as malting or parching (Hillman 1981, 137). Large-seeded weeds of crops were most likely removed by hand prior to preparing the grain for use in milling, parching, malting, cooking etc. (Jones 1984, 46). There was no sign of sprouting on the grains, so it does not seem to have been charred during roasting of the malt. It is therefore probable that the plant macrofossils represent the waste from a cooking accident.

A single garden pea (*Pisum sativum*) was present in the sample, and this was radiocarbon dated to cal. AD 1525–1660 (SUERC-41966), much later than the date of cal. AD 990–1120 (SUERC-41967) on a grain of oats from the same context, which suggests that the pea is intrusive and does not relate to the main assemblage from this sample.

The plant macrofossils were present within a shallow gully. In terms of taphonomy, it is likely that this sample represents secondary deposition of charred plant remains. This probably occurred through intentional dumping. The use of cereal processing waste as fuel is well attested (Hillman 1981; 1984) and disposal of spent fuel either into features such as pits or ditches/gullies or directly dumped onto the site seems a likely explanation for the arrival of this material on site. It is likely that this sample represents a single depositional event, possibly relating to either a spoilt grain store, an accident whilst drying the grains or the remnants of a meal. The preservation of the grains tended to be very good, and it was even possible to view the hairs on the oats which indicate they were of the cultivated variety. It is probable that the wheat and barley grains as well as the identified and unidentified grasses were incorporated into the oat crop as weeds.

The radiocarbon date on an oat grain of cal. AD 990–1120 (SUERC-41967) indicates the deposit dated to the end of the early medieval period or the start of the high medieval period. Comparisons with other sites in Wales suggest that it was fairly typical for early to high medieval rural and urban sites to be consuming predominantly oats. Where good preservation has enabled identification to species level

to be carried out, such as in the early medieval samples from Capel Maelog (Caseldine 1990, 102) and in a twelfth-century context from Loughor Castle, West Glamorgan (Carruthers 1994), both common cultivated oat (*Avena sativa*) and bristle oat (*A. strigosa*) were present. The assemblages of barley, oat and wheat are consistent with the Welsh early medieval period. Barley was common and oats were becoming an important crop plant (Greig 1991). A similar grain assemblage, containing oat, rye and bread wheat, was recovered from another early medieval site at Rhuddlan, Denbighshire (Williams 1985). The charred seeds of weeds of cultivated ground were also present, and had presumably been harvested with the crop.

Evidence from elsewhere in Wales suggests that oats were the main cereal of the medieval period, and remains of this crop have been found in medieval corn driers at Collfryn, Powys (Jones and Milles 1984), for example. There were also quantities of seeds from common weeds of cereal fields, which must have been harvested together with the crop. These included brome (*Bromus* sp.), amongst other species apparently indicating fields on acid and sandy soils.

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NOTES

1. The present paper provides a summary of the results of the excavations and post-excavation analysis. A more extensive report has been produced with detailed descriptions and full specialist reports (Kenney and Parry 2013) is available for consultation at the Historic Environment Record of Gwynedd Archaeological Trust and is also available from *Coflein* (www.coflein.gov.uk), the online database for the National Monuments Record for Wales. Gwynedd Museum and Art Gallery, Bangor holds the artefactual archive from the project, including the charred plant remains and charcoal. The paper and digital archive are held by the Royal Commission on the Ancient and Historical Monuments of Wales, Aberystwyth.
2. All radiocarbon dates are quoted at 95% confidence unless indicated otherwise.

3. Gwynedd Archaeological Trust (GAT), Historic Environment Record (HER) 3101.
4. The ovens are context numbers 105, 166*, 184*, 218, 237, 249*, 260, 278*, 283, 294, 299, 382, 473*, 491*, 500, 508, 3004, and 5009* (asterix indicates dated features).
5. See Hanson 1987 for the re-dating of Agricola's governorship.
6. National Primary Record Number 404650 (used to identify entries in the National Monuments Record), Driver 2006, 147.
7. GAT HER 3098.
8. The National Archives, Hospital Records Database, available at <http://www.nationalarchives.gov.uk/hospitalrecords>.

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