

Early medieval settlement and field systems at Rhuddgaer, Anglesey

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INTRODUCTION

Settlements dating to the period *c.* AD 400–1100 in Wales are still comparatively rare discoveries, although the number is gradually increasing. Apart from elite sites, notably hillforts in the earlier part of the period, they are often only recognized as a result of radiocarbon dating as diagnostic artefacts are usually rare. Very little indeed is known about contemporary field systems. Therefore, the geophysical survey and exploratory excavation of a well-preserved, early medieval settlement covered in sand at Rhuddgaer in south-west Anglesey is potentially of great significance. This article describes and analyses the results of archaeological work, including geophysical survey, relating to the unexpected discovery of several structures interpreted as an early medieval farming settlement and a series of field systems, the earliest of which appears contemporary with the buildings, and their broader significance. The archaeological excavation of one of these structures is also considered which, on the basis of radiocarbon dating, probably dates to the seventh or eighth centuries AD and incorporates a contemporary field boundary (Jones *et al.* 2012; Flook 2013; Hopewell *et al.* 2014; Hopewell 2016a). Details of the radiocarbon dates are given towards the end of the article.

LOCATION AND TOPOGRAPHY

The site and the broader survey area are located south-west of Rhuddgaer House in the community of Rhosyr in south-west Anglesey (Fig. 1). There are fine views from the site across the Menai Strait which take in the coastal lowlands of Arfon with the uplands of Snowdonia beyond stretching south-westwards towards the Llŷn. The wider survey area (centred on SH 4409 6363) lies on slightly undulating land at a height of between 4m and 10m above Ordnance Datum. The area is bounded to the west by the tidal portion of the Afon Braint and to the south by the river channel as it runs across the mudflats of Traeth Abermenai into the western end of the Menai Strait. The south-eastern side was also formerly bounded by a tidal inlet that was partly reclaimed by the construction of a cob and the canalisation of a small river called the Afon Sarn Goch in the nineteenth century (Jones 1989, 43). Prior to the reclamation, Dawson's Ordnance Survey drawing of 1818 shows a meandering channel and marshes running inland for 1.5 kilometres.³

Most of the survey area now lies within a series of large, heavily improved fields that have been under intensive arable cultivation in recent years. However, a strip of rough grazing within grassed over sand dunes lies between the fields and the coast at the south. The bedrock is part of the Clwyd Limestone Group (Howells 2007); there are outcrops of limestone and sandy conglomerate on the shore to the north-east overlaid by glacial drift. A band of highly fertile, free-draining, slightly acid but base-rich soil runs along the shore of the Menai Strait at its south-western end as far as the Braint estuary (CSAI 2017). There is currently a clear division between the cultivated fields and the dunes of the coastal strip which marks the edge of the extensive dune system of Newborough Warren to the west. This is to some extent an artificial

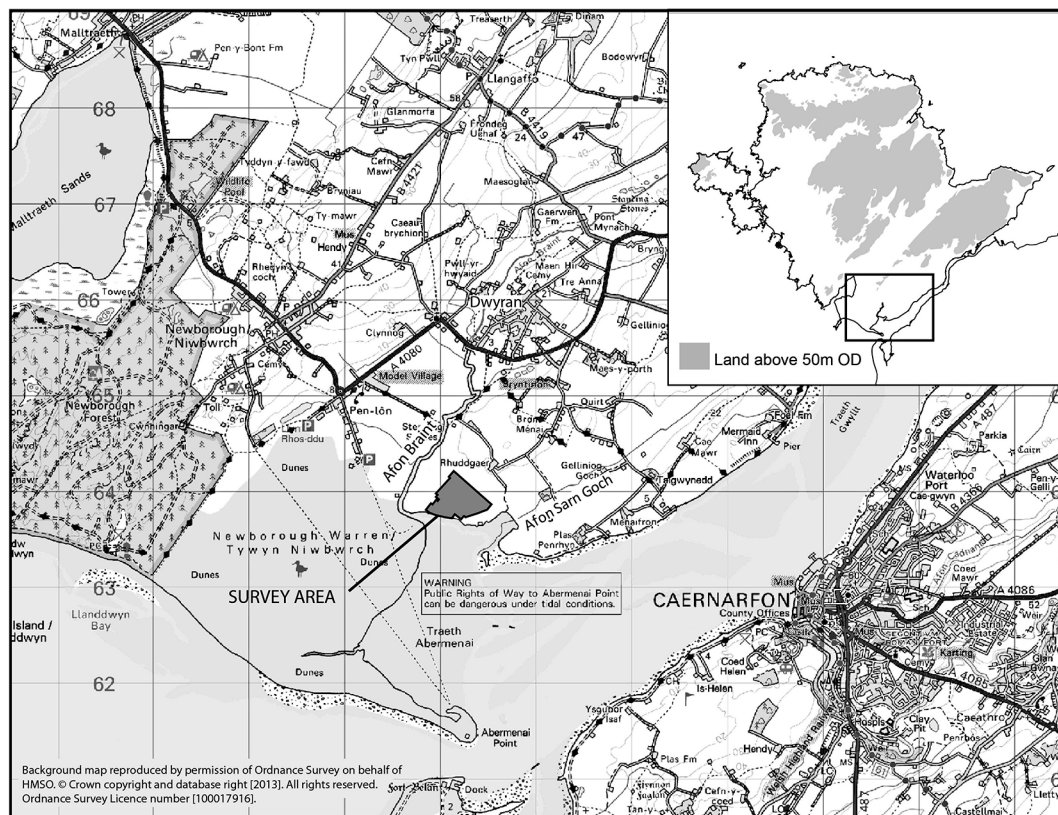


Fig. 1. Location map, showing extent of Rhuddgaer geophysical survey.

boundary; the south-western part of the cultivated fields has a high sand content and also floods quite extensively in wet weather indicating a layer of free-draining sandy soil, probably derived from the edges of the dunes, overlying an impermeable buried soil or glacial drift. The soils become less sandy further to the north-east. The sand was in all likelihood deposited during the documented inundation in the early fourteenth century which resulted in major topographic changes to parts of the south-western coastal fringes of Anglesey (see below).

HISTORICAL AND ARCHAEOLOGICAL CONTEXT

South-west Anglesey, on the opposite side of the Menai Strait from the auxiliary fort at *Segontium* (Caernarfon), the most important and long-lived military installation in north Wales (Burnham and Davies 2010, 220–3), is the most heavily Romanized part of the island. This includes the extensive complex of rectangular buildings at Tai Cochion, approximately 3.5 kilometres to the east, which is associated with a road leading down to the shore indicating the likely site of the ferry from the mainland. Occupation continued here, on the evidence of coins and ceramics, until the mid-fourth century AD (Hopewell 2016b). Evidence of settlement in the vicinity of Rhuddgaer itself is also first seen during the Roman

period. Rhuddgaer ('Red Fort') and Rhuddgaer House, situated 600m north-east of the excavation, are on the site of a settlement which occupied a natural platform on which the farm is now located. In the mid-nineteenth century the site was surveyed as a sub-rectangular enclosure with two banks and a long-cist grave was reported in the interior as well as the discovery of Roman pottery and second- and third-century coins (Williams 1861, fig. ; 1878, 136). However, the inner enclosure had already been partially destroyed and none of it survived by the time of the Royal Commission survey (RCAHMW 1937, 92), though vestiges of the outer enclosure are still detectable in the line of trees on the north-western side. The site would seem to be one of several hut-group settlements with sub-rectangular embanked and ditched enclosures on Anglesey (RCAHMW 1937, lxxv; Davies 2012, 379–80). Amongst these only Bryn Eryr has been the subject of modern excavation and was found to have been a farming settlement of relatively high status occupied during both the Later Iron Age and Roman periods (Longley *et al.* 1998; Waddington 2013, 144–6).

In 1878 parts of a lead coffin, originally filled with plaster, were found between Rhuddgaer House and the sea (Williams 1878, 137; Hughes 1925; 1926; RCAHMW 1937, 92; Nash-Williams 1950, no. 27). The various accounts of the discovery are inconsistent and the precise location unknown but it is likely that it was found between 450m and 600m south or south-west of Rhuddgaer House while part of the warren ('*cwningar*') was being brought into cultivation. The geophysical survey failed to recover any evidence for the site. The coffin, however, is most likely to have come from a Roman cemetery since a stone cist, cremations, pottery and tiles are all mentioned. The two long sides of the coffin were cast with an inscription in reverse reading CAMVLORIS HOI, recently reinterpreted as a Christian formula showing Irish influence, meaning 'Camuloris here' (Sims Williams 2003, 27). Lead coffins are usually dated to the later Roman period but the inscription could suggest an early fifth-century date (Pollock 2006, 75–6; Edwards 2016, 183–5, fig. 7.4). Although no Roman artefacts were recovered in the present excavation, a sherd of samian was found in 2014 in plough-soil further up the field to the north of the excavated site.

Apart from the recent discoveries, nothing is then known of the area until the beginning of the later middle ages. The mid-twelfth-century Latin life of Gruffudd ap Cynan (d. 1137) contains the earliest mentions of 'a port called Abermenai' ('*portum dictum Abermeney*'), probably located in the vicinity of Abermenai Point (Russell 2005, §§ 10.1, 12.1, 12.4, 14.11, 35.3). The only other known site from this period in the neighbourhood of Rhuddgaer is Llangeinwen Church, 1.85 kilometres to the north-west, which has stone sculpture probably of later eleventh- or earlier twelfth-century date (Edwards 2013, nos AN41–4). On the opposite side of the Braint, St Peter's Church, Newborough, which is located beside the site of the royal court (*llys*) of the princes of Gwynedd at Rhosyr (Johnstone 1999), is clearly visible from Rhuddgaer on a rise 2.56 kilometres to the north-west. The earliest documentary reference to Rhuddgaer itself is in a charter of Gruffudd ap Cynan ab Owain (c. 1190 × 1199) granting the estate to the Cistercian abbey of Aberconwy (Pryce 2005, no. 206). At the time of the Dissolution a windmill is recorded when the land of Rhuddgaer was purchased by William Bulkeley of Porthamel (Gresham 1983, 320). There are also documentary records of a medieval township called Aber-Braint ('mouth of the Braint') (Richards 1969, 62), but its precise location is unclear.

During the second half of the thirteenth century the cooling of the climate began to impact on more marginal communities and led to serious storms and coastal inundations of sand which resulted in the abandonment of land, not just in parts of Wales, but also elsewhere in western Britain, Ireland and beyond (Griffiths 2015, 103–9). There was a well-evidenced storm on 6 December 1330, which engulfed 183 acres at Newborough along with eleven cottages and 28 acres at Rhosyr, as well as land at Aberffraw (Carr 2011, 239; Bailey *et al.* 2001). This event was also thought to have buried the remains of the buildings of the *llys* at Rhosyr (Johnstone 1999, 274).

GEOPHYSICAL SURVEY

Four phases of geophysical survey were carried out within three large arable fields along with an expanse of rough grazing along the coast edge, in total covering an area of 17.85 hectares (Jones *et al.* 2012; Flook 2013; Hopewell *et al.* 2014; Hopewell 2016a). The survey was arranged in a series of 20m grids, which were tied into the Ordnance Survey grid using a Trimble GPS system and conducted using a Bartington Grad 601-2 dual fluxgate gradiometer at standard resolution (1.0m traverse interval by 0.25m sample interval). The results are combined into one greyscale plot (Fig. 2). An interpretation (Fig. 3) shows transcriptions of the major anomalies numbered and described in the text; clearly related field-boundaries were grouped together and assigned a single anomaly number and colour coded on the plan. The survey identified a series of complex linear anomalies extending across all but the northern extremity of the survey. These are best interpreted as a series of overlapping field systems representing several phases of land-use. Their morphology allows some phasing to be estimated from the survey results.

Field system 01 (in red) appears to be the earliest. The fields are roughly rectangular and of variable sizes and the boundaries are, in places, gently curvilinear rather than straight. The southern part of the

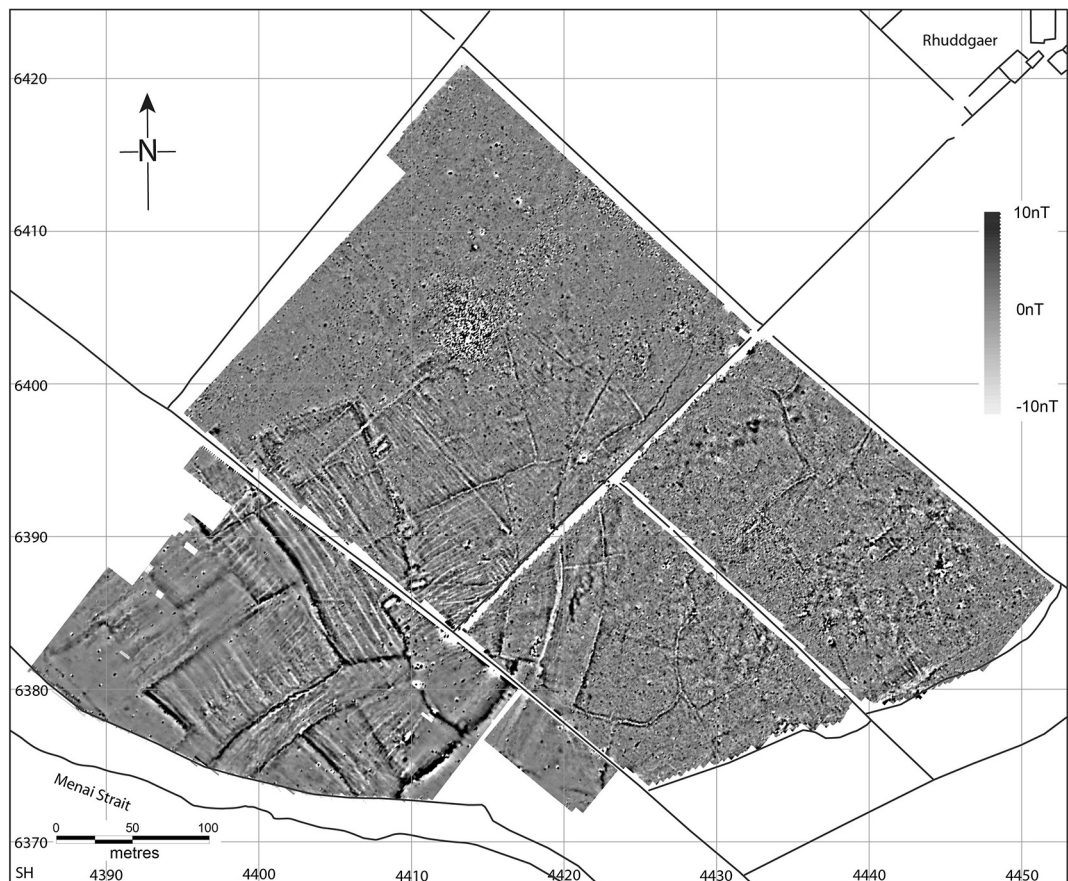


Fig. 2. Geophysical survey – greyscale.

system has been truncated by coastal erosion. A series of eight sub-rectangular positive anomalies (06 and 07) are located at irregular intervals along, and integrated within, the main north-eastern boundary of this field system. These are of a uniform size, about 14m long and 7m wide and are best interpreted as buildings. Most are set into the field boundaries suggesting that the buildings and boundaries functioned as an integrated series of structures. This would imply that this is a nucleated settlement of five or six buildings as opposed to the successive rebuilding of one or two structures. Building 06 appears to be enclosed within a rectangular enclosure defined by a faint negative anomaly that could indicate a stone wall. The group of structures in the centre of the possible settlement (just to the south of building 06) appears to contain at least one instance of overlying structures that would demonstrate that at least one had been rebuilt on a slightly different alignment.

A second series of fields adjoins system 01 (Field System 02, in brown). These boundaries produced less pronounced anomalies and this could be interpreted in one of two ways. The boundaries may be of a similar construction to those in system 01 but have been truncated or otherwise affected by ploughing and other agricultural activity. The sand cover could well be deeper close to the shore; the area of modern fields behind the coastal dunes is slightly lower and thus may have been more vulnerable to plough

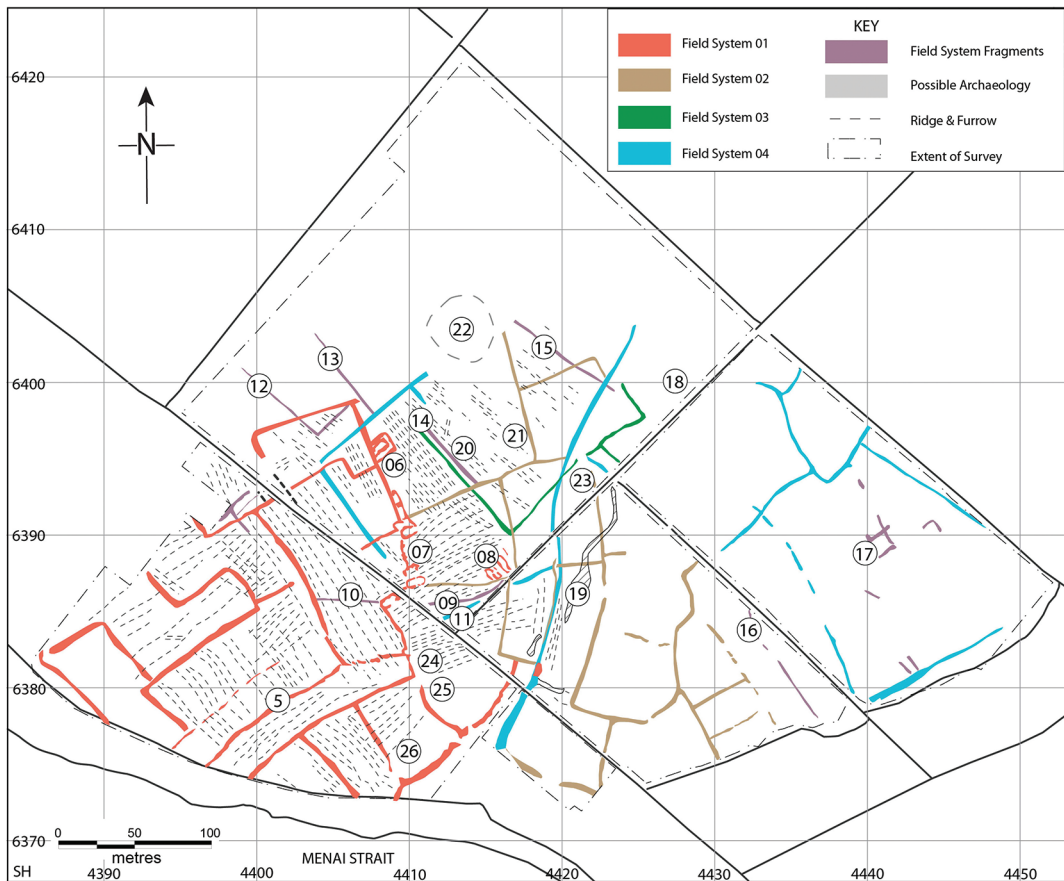


Fig. 3. Geophysical survey – interpretation plan.

damage. Alternatively, the field boundaries are differently constructed and were added to the existing boundaries of field system 01 at a later date. The strength of the anomalies associated with these field systems decreases towards the north and west and the shape of the fields remains constant suggesting that the former interpretation is likely, in particular in the central part of the survey. The anomalies on the eastern side are generally very fragmentary and cannot be interpreted with certainty.

The geophysical survey results within the dunes are somewhat unusual; topsoil usually contains magnetic material which will produce 'noise' that can mask deeper anomalies. In this case the sand is magnetically inert and up to 1m deep so the gradiometer is mainly sensing archaeology beneath this layer of sand which is close to the usual maximum detection range (*c.* 1m) for archaeological features. The sand is clearly at its deepest towards the south-west where the anomalies become weak and diffuse. This should be contrasted with the results in the northern and western parts of the survey where the boundaries produced clearly defined but weak responses suggesting that they are relatively close to the surface but heavily truncated.

Field system 01 and parts of 02 are overlaid by multiple parallel anomalies typical of the ridge and furrow of a medieval open field system. The ridges are mostly over 5m wide but vary between 3.5m and 7.8m. The ridge and furrow is aligned with field system 01, indicating that the boundaries were visible when the cultivation took place, but runs across the earlier field boundaries in many places demonstrating that they were sufficiently denuded for a plough to cross them. This stratigraphic relationship was subsequently confirmed by excavation (see below). More than one phase of ridge and furrow cultivation is visible in the south-western corner of the system. There is evidence of further phases of ploughing to the north, in system 02. Some of this is more closely spaced (about 2.0m) than the ridge and furrow, does not respect the orientation of the early boundaries and is presumably later. Two oval negative anomalies (08) with similar dimensions to anomalies 06 and 07 could be interpreted as further buildings. Their different magnetic responses suggest a different method of construction to those in field system 01.

There are at least two further phases of field boundaries. These do not, for the most part, respect the early 01/02 boundaries and it seems likely that these post-date the sand inundation that buried the early fields and that the early boundaries were no longer visible when these were constructed. Field system 03 (in green) is represented by a large rectangular enclosure. It is roughly aligned with the latest system 04 (in blue), the surviving elements of which can be matched with field boundaries marked on a Rhuddgaer estate map of 1792 by J. Corris.⁴ There are also fragments of linear features (shown in purple: 10–17) that appear to be of a similar character to the later (*i.e.* post-sand inundation) field boundaries but are fragmentary and cannot be resolved into a coherent pattern. Feature 18 seems to have a different character to most of the other linear anomalies and its wandering form (shown in Fig. 2) may suggest it is a natural water channel. This appears to continue as areas of noise (19) leading to a pronounced channel, now dry, running through the rough ground to the south-west of the cultivated fields, where it is currently visible as a low area. The boundaries of the early field systems 01 and 02 also coincide with those of the eighteenth-century system (04) in this area. The depth of sand may have been lower along the line of the channel thus exposing the earlier boundaries which were then reused in the later system.

Weak anomalies (20) and (21) are best interpreted as two ends of a wide linear feature, perhaps a bank of some sort. Anomaly 22 was a result of a concentration of stones, possibly heat affected, that was visible in the ploughed field. Possible interpretations include a burnt mound, a cairn or a boss of bedrock that has been broken up by the plough. Features 25–28 are typical magnetic dipoles caused by ferrous objects. Three of these are on the line of anomalies interpreted as former field boundaries and may be pieces of broken iron ploughshare indicating that large stones survive in the boundaries and that they are relatively close to the surface. The south-easternmost two fields contain many weak linear and

irregular anomalies (e.g. 16 and 17) that are probably fragmentary remains from both the early and later field systems.

The north and north-western part of the survey is, in contrast to the rest, almost completely featureless. The early phases of boundaries (01 and 02) seem to be restricted to the southern part of the project area and may never have extended further north. The estate map shows that the eighteenth-century boundaries (04) extended across this area even though the anomalies associated with these fade away. Very closely spaced linear anomalies that are nearly parallel to the current north-east to south-west boundaries can be distinguished in the background noise, particularly at the north. This may indicate recent plough scarring of the underlying substrate indicating relatively shallow topsoil. The lack of features in this area is therefore likely to be a result of destruction by intensive agriculture. This can be contrasted with the south-western part of the survey where the topsoil and sand deposits have provided a measure of protection.

In summary, the geophysical survey detected two separate sequences of activity with a major inundation of sand between them. The first comprises field systems 01 and 02. A group of eight sub-rectangular buildings (06, 07) appears to be incorporated into the field boundaries of 01 and could be interpreted as a nucleated settlement. Field system 02, including another two possible buildings (08), joins system 01, so both were roughly contemporary. Field system 02 produced anomalies with a different character to those of 01 and this could indicate a different building style or be the result of later agricultural activity. The latter is perhaps more likely and in either case they almost certainly functioned as a continuous field system for all or part of their history. Together these would have covered an area of over 10.5 hectares and the southern edge has clearly been truncated by the sea. These correspond to phases 2 and 3 in the excavation (see below). These were superseded by the ridge and furrow of a medieval open field system (phase 4) which appears to have existed for some time before the phase 1 to 4 remains were buried by wind-blown sand (phase 5) in the fourteenth century. The second period of use occurred when the sand dunes had stabilized and were brought back into cultivation (phase 6). The last relict field system (04) is shown on the estate map of 1792 but was removed when the current large rectangular fields were established during nineteenth-century estate improvements.

EXCAVATIONS

A trial excavation was carried out in 2014 comprising a trench 11m by 7m which examined one end of the possible building identified in the geophysical survey just south-west of the current boundary between the cultivated land and the rough grazing. It also examined part of an adjoining field boundary and its associated ridge and furrow cultivation (Hopewell *et al.* 2014). The overlying sand was removed and three small areas were investigated. The area was re-excavated as part of the 2015 excavation, which was designed to uncover the complete building together with an area alongside the former field boundary to the south-east (Fig. 4). An area of 40m × 20m was stripped of turf using a small mechanical excavator (Fig. 5). The overlying sand was also removed using the excavator but found to be very variable in depth from 0.2m at the western end of the excavation to about 1.0m at the north-eastern end. Therefore an area of 17m × 8m was left unexcavated. The excavations uncovered five principal phases of activity, with two further post-medieval agricultural phases (Hopewell 2016a, 14–15).

The main excavated area was recorded as a high resolution three-dimensional model using Agisoft PhotoScan. This allowed the major features to be drawn from an orthographic projection (Fig. 7) thus avoiding parallax errors. Smaller details were hand drawn at 1:20 scale and sections were hand drawn at 1:10 scale.

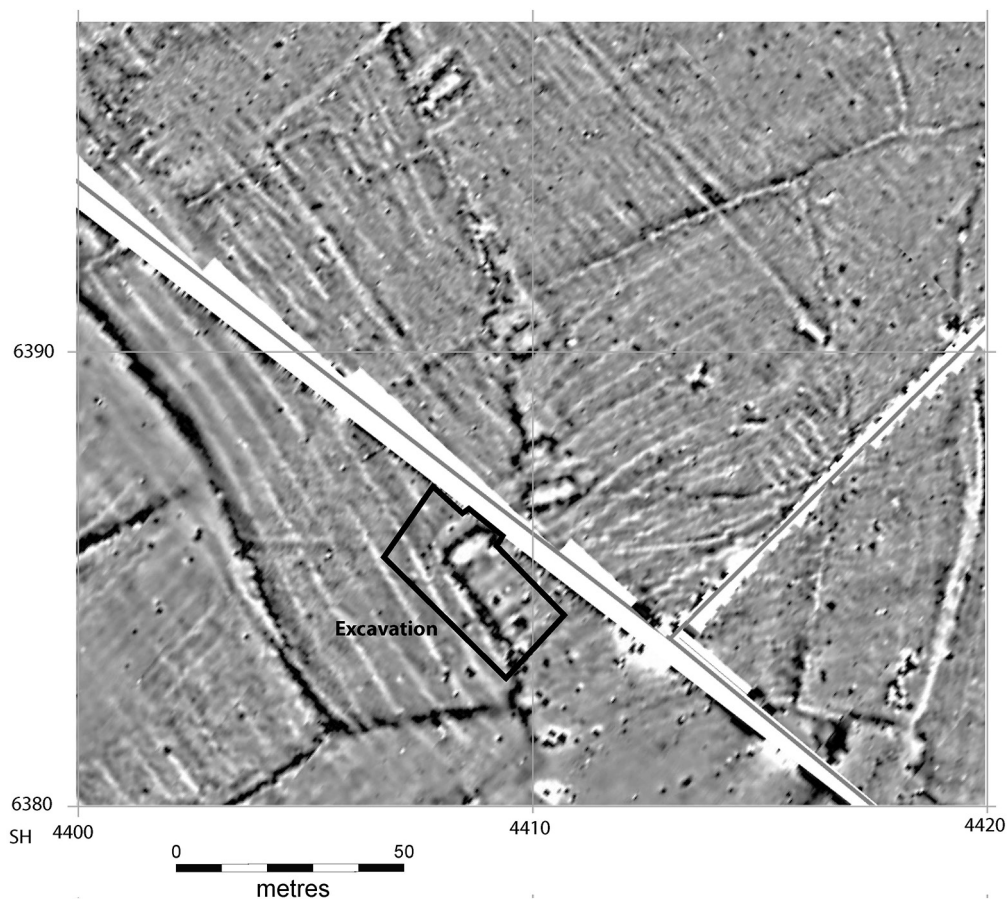


Fig. 4. Detail of geophysical survey and location of the 2015 excavation.

Phase 1 – early agriculture

The earliest activity on the site was represented by a layer of buried soil (532 and 546 inside building 530) sitting directly on the yellow-grey glacial substrate (514). This was a dark grey-brown, loamy sand, typically 0.3m to 0.4m deep, containing occasional flecks of charcoal. This was not investigated in any detail but was found to underlie the boundaries and buildings of the phases 2/3 enclosed field system. Its depth was determined by two small test-pits dug in 2014 (TP1 and TP2, Fig. 5) and on sections investigating the building 530 wall and the field boundary 512 (Fig. 9, Sections A, B, D and F). No datable material was recovered from this phase but it is presumably early medieval or earlier.

Phases 2 and 3 – building and field system boundary

The interpretation of the geophysical survey suggested that the second phase of activity on the site comprised an extensive field system (01) and eight buildings. This was broadly supported by the excavation, although the excavated building was found to include elements of an earlier structure. The earlier structure was therefore assigned to phase 2 and the main fabric of the building to phase 3.

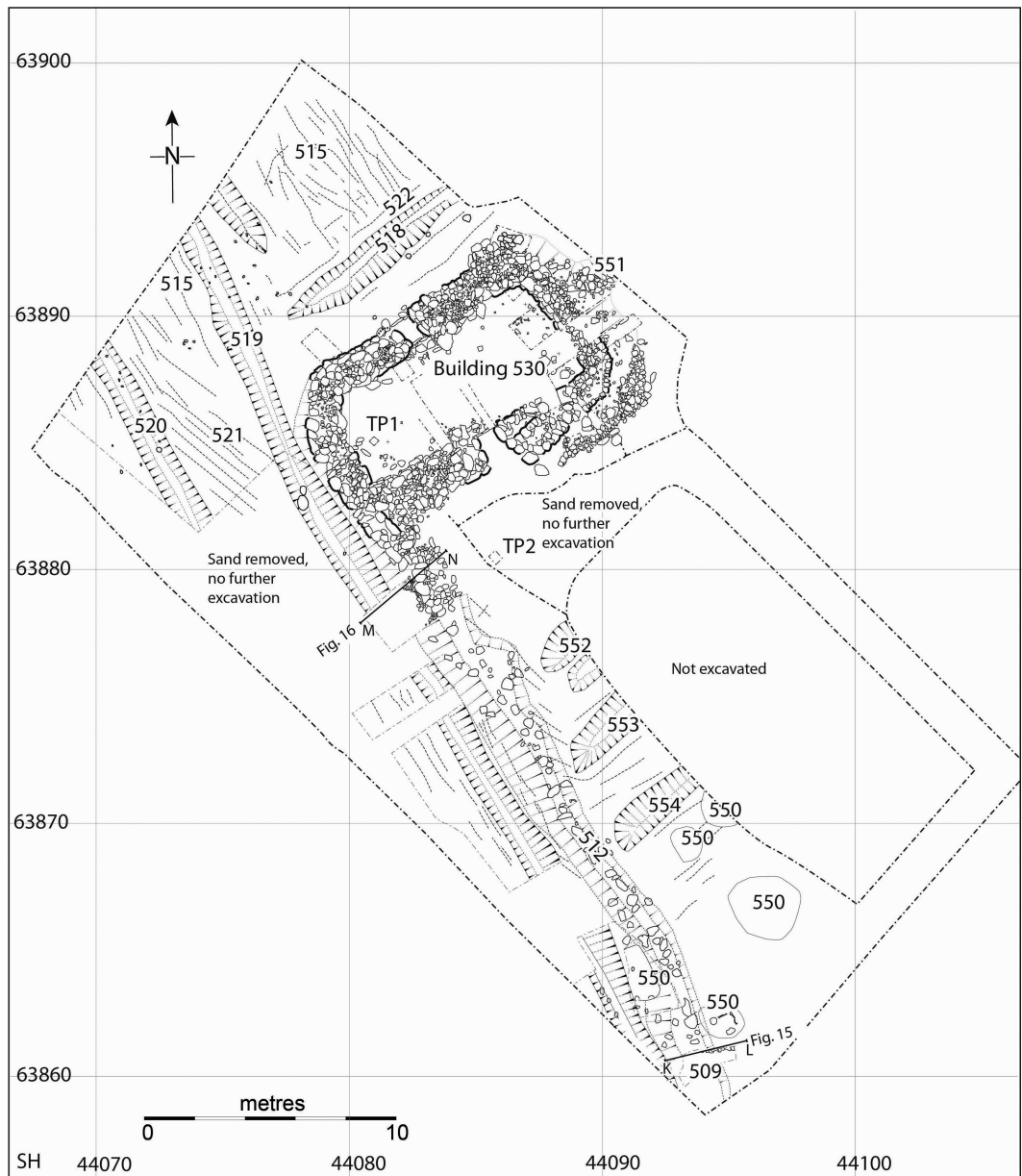


Fig. 5. Plan showing site after excavation.

The excavation of building 530 revealed the stone-built base of a roughly rectangular structure (Figs 6–7) aligned with its longest axis south-west to north-east. It had external dimensions of 12.2m × 7.4m and internal dimensions of 9.5m × 4.4m, narrowing to 3.8m at the south-west end. The external corners were rounded. The corners in the interior varied: all but the western were close to right-angled with

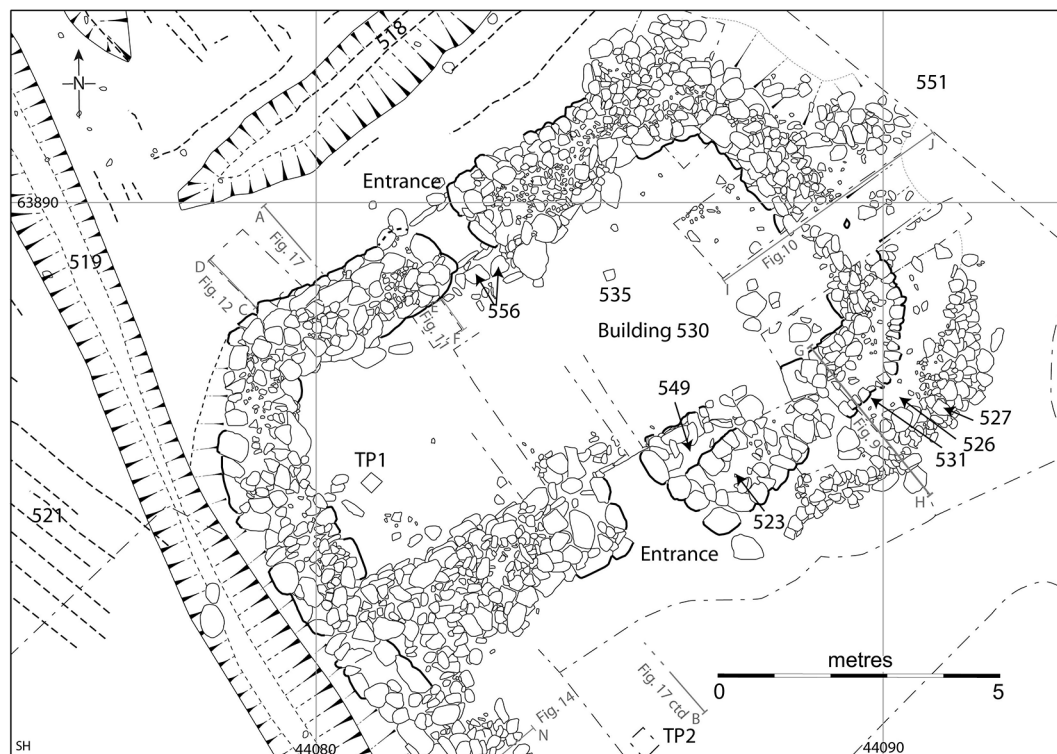


Fig. 6. Building 530 after excavation.

sharp corners. The westernmost corner was partly collapsed but its angle must have been greater than 90 degrees given the line of the wall to either side. The walls were about 1.4m wide with a clearly defined inner and outer face that was generally well preserved, but had collapsed in places. The majority of the surviving basal course of both the inner and outer face consisted of sub-angular glacial boulders, perhaps derived from field clearance, set upright to form a neat face. The core of the wall consisted of small stones and earth.

The construction was fairly uniform throughout the building apart from around the eastern corner. This area appeared to include elements of an earlier structure assigned to phase 2. The structural sequence was most apparent in the south-eastern wall where the base of an earlier wall (523) running on a different alignment to building 530 had been incorporated into the phase 3 masonry (Fig. 8). The phase 2 masonry was relatively lightly constructed with an earthen core. Its inner face and surviving core were buried by the later (phase 3) wall core and a roughly rectangular (in plan) section of walling (549) that formed the foundations of the inner face of building 530 and corner of the entrance. The outer face of the phase 2 masonry was incorporated into the foundations of the outer face of the phase 3 building resulting in a noticeably anomalous alignment of the wall in this area.

The masonry style in the eastern corner of building 530 was similar to that in the fragment of phase 2 masonry in the south-eastern wall. The outer face (531, Figs 6, 9, Sections A and B) was constructed from small rounded cobbles with some larger stones towards the base but without the upright large basal course seen elsewhere in the building. This was lightly built, acting as a revetment to the earthen wall core (529)



Fig. 7. Orthographic image of building 530 from the three-dimensional model using Agisoft PhotoScan.

which, in contrast to the rubble and earth core in the rest of the building, contained very few stones. The outer face was aligned with the phase 2 facing to the south-west. The line of the facing between the two elements was, however, broken by a deposit of mixed sandy soil that was probably a result of erosion or collapse. The similarities in the style of both the outer face and core strongly suggest that they were part of the same structure and should also be assigned to phase 2. The inner face was similar to that encountered elsewhere in the building, albeit with a very square corner, and may have been modified or rebuilt during its incorporation into the phase 3 masonry. The phase 2 masonry is discussed further in relation to field boundary 512 (below).

An additional earthen bank (545, 526) with a revetment of roughly piled stones (527), built against the outer face, extended around the eastern corner of the building. This was 1.3m to 1.5m wide and extended from the phase 2 wall (523) to a field boundary joining from the north-east (551). A large piece of willow or poplar charcoal was recovered from within the earthen bank which produced a radiocarbon date of cal. AD 440–650 (SUERC-63635) (see details below). This provides a *terminus post quem* for the bank but there is a distinct possibility that the charcoal was residual in the soil that the bank was built from so it could be later. The bank presumably acted as a buttress providing additional stability for the rather flimsy outer face. It is unclear whether this was part of the phase 2 structure or a later addition built to stabilize the corner after its incorporation into the phase 3 building. A layer of firm brown silty earth (525, Fig. 9, Section B) was recorded on top of the wall and associated bank in this area. This may have been a soil horizon that built up over the top of the wall after the building fell out of use but could, alternatively, be interpreted as the remains of a turf wall built on top of the stone-faced lower wall. This type of construction would also be consistent with the low, wide stone wall elsewhere in the building.

As previously noted, the basal courses of the wall consisted of boulders set upright and to a face. The excavation revealed considerable variation in the level of these stones. The base of the inner face close to the northern corner was close to the assumed floor level. A section was excavated through the interior deposits of the building in front of the wall (Fig. 9, Section C) to the south-west of the north-western entrance. The bases of the facing stones were up to 0.2m below the floor level and a possible foundation cut (537) was identified. This was not well-defined, particularly towards the presumed floor level where only a very diffuse and slight change in soil colour could be seen, and could not be identified in plan or elsewhere in the building. The outer face was partly buried by later plough-soil. A section was excavated through this in 2014 (Fig. 9, Section D) and the facing stones seemed to be sitting directly on the old ground surface (546). It appears that the basal course had been built in a somewhat ad hoc manner with stable blocks of stone being set directly on the ground with less conveniently shaped stones being set in a shallow foundation trench.

The wall core consisted of an infill of small boulders, cobbles and sandy soil. The basal course was topped by two or three courses of flat stones laid horizontally, usually with their long axis running into the wall. The inner ends of many of these stones had slumped causing the upper courses to tip back into the wall. This was probably a result of the loss of wall core after the building fell out of use. The stony core may have originally contained a significant proportion of earth which weathered out once the roof had been lost. A build-up of earth against the walls was recorded in section, particularly in the interior (534, Fig. 9, Sections B and D), and this could have been a result of this process. The upper courses consisted of fairly small stones and could be interpreted as a levelling layer, perhaps raising the stonework to the height of the top of the largest stones in the very variable basal course. This would have produced a wide flat wall, perhaps no more than 0.5m high. This hypothesis is supported by the relatively small amount of rubble that was encountered around the walls. Stone could, of course, have been removed from the building after abandonment for reuse elsewhere although the survival of the most useful large stones in the basal courses suggests that this was not the case.

Initial clearance did not reveal how the interior of the building had been accessed but removal of collapsed stone and sand revealed two opposing entrances, centrally placed in the longest walls of the building (Fig. 6). The walls of both entrance passages were built out of thick, sub-rounded slabs set on edge and standing to a maximum height of 0.7m. The passages were 0.6m to 0.75m wide. The inner and outer ends of the north-western entrance and the inner end of the south-eastern were defined by long narrow threshold stones set into the floor of the building. Both entrances were blocked with rubble. The outer end of the north-western passage contained a large 0.7m long boulder; the rest was blocked with a randomly orientated pile of stones. The stones had either fallen from the wall to either side or had been deliberately dumped, possibly during field clearance after the abandonment of the building.

The south-eastern entrance was less regular, splaying out slightly at the outer end due to the asymmetry in the wall caused by the phase 2 facing (523). One of the upright slabs forming the inner end of the

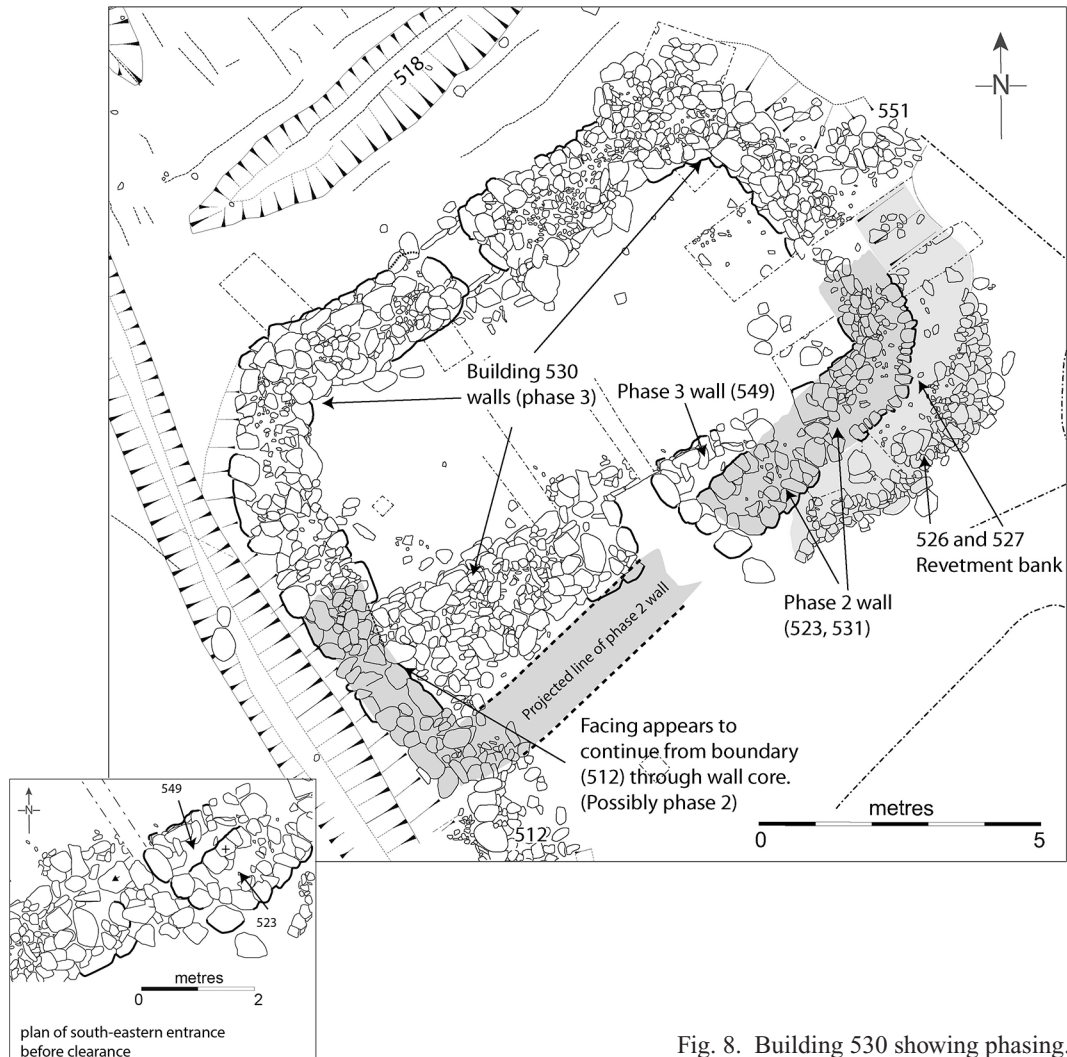


Fig. 8. Building 530 showing phasing.

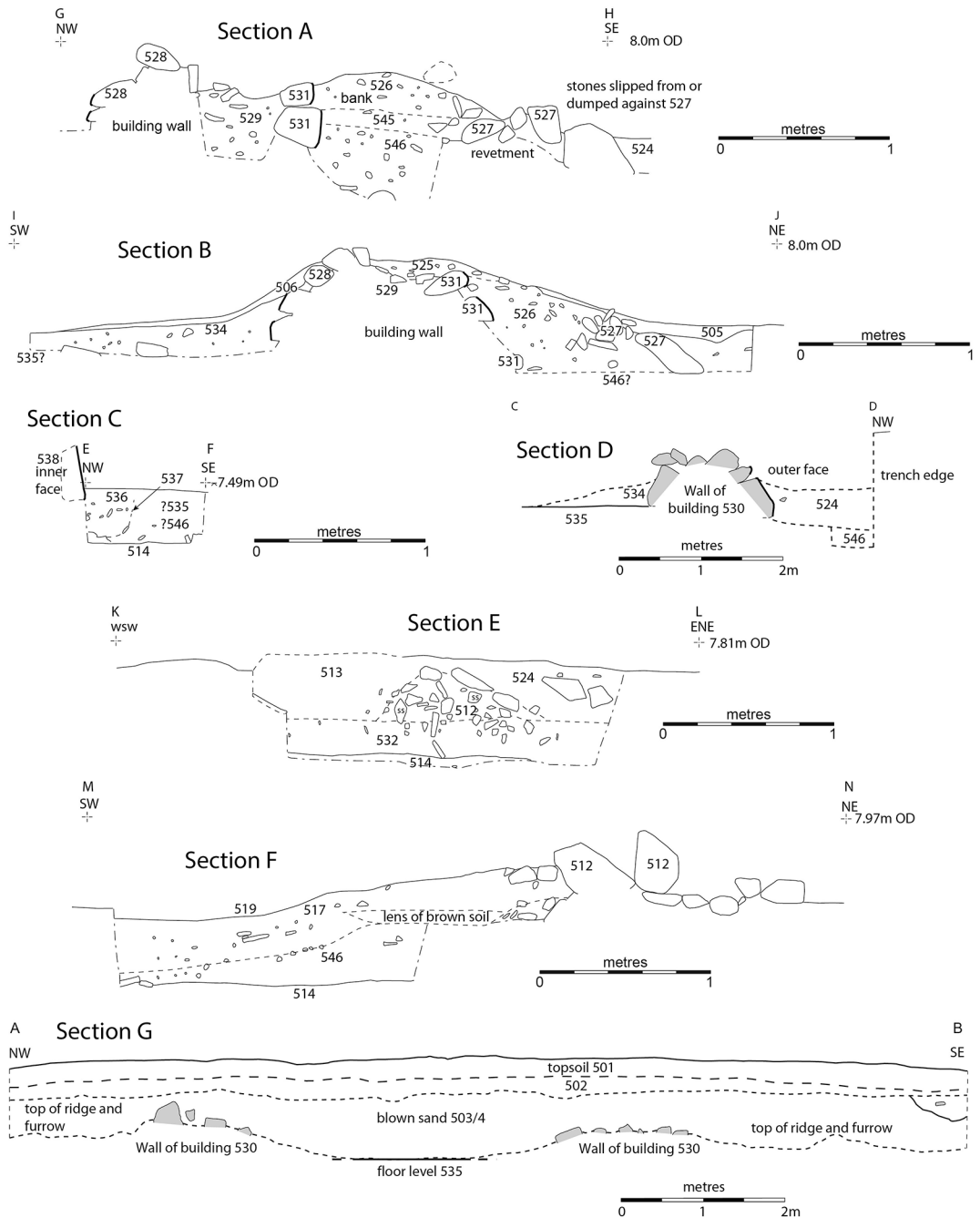
entrance had tipped sideways into the passage. In contrast to the north-western entrance, the infilling stones appeared roughly laid and, although not built to a face, contained an upright stone close to the centre of the passage (Fig. 8, inset). This suggests that the blocking was deliberate and functional and not simple dumping of agricultural stone. There had been no attempt to build it to a face and tie it in to the structure of the building making it more likely that the blocking was associated with secondary use of the building after its abandonment and loss of the roof, perhaps as an animal pen. The stones were lying on a thin (*c.* 15mm) layer of firm, slightly reddish, sandy-silt (548) which would have been the surface of the passage before it was blocked. This in turn sealed a small patch of charcoal and reddened, heat-affected soil (547) that was lying directly on a dark grey-brown loamy sand at the probable level of the floor in the building interior (either 534 or 546; see below). Charred cereal grains (species unidentified) from burnt deposit 547 produced a radiocarbon date of cal. AD 660–770 (SUERC-63636).

The excavation produced a good plan of the building but deposits associated with its use proved difficult to identify in both the 2014 and 2015 excavations. The deposit beneath the wind-blown sand in the interior of the building was a friable, dark-brown, silty sand (534) containing stones that appeared to be tumble from the building's walls. The surface was uneven, sloping up towards the walls and with a hump in the middle of the building. This context was interpreted as a build-up of soil that occurred after the abandonment of the building. Beneath this was a firm, grey-brown, silty sand containing occasional flecks of charcoal and fairly extensive iron panning (535). The top of this deposit was level with the threshold stones in the entrances, so it seems likely that this was a floor level of some kind. The deposit was, however, fairly homogenous and the only variations in colour appeared to be a result of gleying and iron panning; at this level the soil was wet and in places waterlogged. There were two slightly tilted, flat slabs set into the deposit just inside the threshold of the north-west entrance (556) that appeared to be part of a floor surface. The rest of the deposit contained no features apart from collections of randomly orientated stones protruding from the surface along the line of the south-western wall and to the east of the north-west entrance, which could be interpreted as tumble from the walls. No hearths, postholes or other features relating to the use of the building were present at this level. The parts of the deposit that were unaffected by gleying and iron panning proved to be indistinguishable from the former agricultural soil underlying the walls (546). The sondage (Fig. 9, Section C) excavated to investigate the possible foundation cut for the inner face was dug from the assumed level of the floor, through 0.32m of deposits in the building, down to the glacial substrate; however, it failed to distinguish any variation with depth and the possible wall foundation cut (537) was not distinguishable close to the surface. It is likely that the upper section of the deposits in the section was part of floor 535 and the lower parts of the deposits consisted of the phase 1 former agricultural soil (546). Two radiocarbon dates were obtained during the 2014 excavation from the upper section of these deposits. They were from two charcoal samples of possible holly wood and had similar radiocarbon dates, both of which are dated to cal. AD 770–950 (SUERC-51980, SUERC-51981).

There was not time to excavate the deposits in the interior of the building any further. Several soil samples were taken and it was noted that there were stones buried in the deposits at the north-eastern end

Fig. 9. (*Opposite*) Sections. **A** south-west facing section through the north-east wall of the building and revetment bank; **B** south-east facing section across the south-east wall of building and bank; **C** south-west facing section through the possible wall foundation trench; **D** section through medieval ploughsoil against the outer face of building 530; **E** south-east facing section of ploughsoil and field wall 512; **F** south-east facing section through field wall 512; **G** Profile across building 530 showing wind-blown sand.

of the building. It seems likely that the lack of any identifiable features, such as a hearth, postholes, or any distinguishable floor surface, is a result of the post-abandonment use of the building. No paving apart from the two stones by the north-west entrance was uncovered suggesting that building had an earthen



floor, possibly nothing more than the compacted surface of the underlying plough-soil (546) which was observed to be very hard when dry. It seems likely that secondary use of the structure, perhaps as an animal pen, after the roof had been lost would have resulted in trampling and mixing of the deposits resulting in the observed homogenous deposits. This interpretation is supported by the presence of tumble from the walls within the 'floor' deposits indicating post-abandonment disturbance.

There were few finds from the building but several flint flakes were discovered in the soil build-up within it. These were presumably residual, indicating post-abandonment trampling or mixing of the floor deposits, or the washing out of soil from the wall core. A large black chert flake was also found on the wall top during the 2014 excavations. Although these could be prehistoric and therefore residual, it is also possible that the larger flakes were associated with activity in the building since flints were used as strike-a-lights in early medieval contexts (Edwards 1990, 95). A rounded schistose stone ($0.3\text{m} \times 0.25\text{m} \times 0.12\text{m}$) with a circular hollow, 70mm in diameter and 19mm deep, pecked into one of its flat surfaces, was recovered from the top of the south-eastern wall, where it appeared to have been part of the upper facing (Fig. 10). The base of the hollow was rough with no fine wear suggesting that it had not originally been used as a door pivot or for any use that involved repeated movement, such as a fire bow. It could be interpreted as the basin to hold oil for a simple lamp (see Edwards 1990, 95, fig. 45e for an early medieval example from Garryduff, Co. Cork).

Field Boundary 512 was detected by the geophysical survey. It conjoined the south-western corner of building 530, extending as far as the southern limit of the excavation, and had been built on top of the phase 1 plough soil (532). Its construction was somewhat variable but consisted of edge-set stones up to 0.6m long set in a single line. Some were aligned with the direction of the wall, some across it, and most had slumped over. Occasional medium-sized stones were packed in between the edge-set stones with variable amounts of small cobbles and earth incorporated in different places (Fig. 9, Sections E and F). There was a scatter of loose stones along its north-eastern edge that had probably been eroded from the boundary by later agriculture. It was not built to a face apart from at the northern end (see below). The boundary may have evolved over time; its core appeared to be the edge-set uprights along with some roughly piled stones. The smaller stones may have been a secondary addition from field clearance. The section cut across the boundary at the southern end (Fig. 9, Section E) indicates an earthen component,

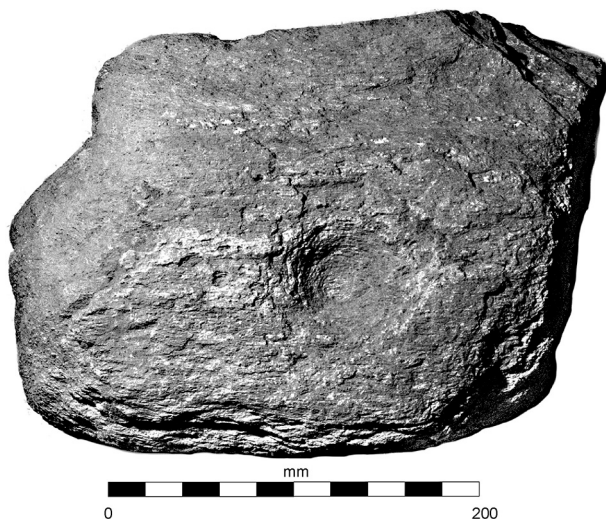


Fig. 10. Possible stone oil lamp.

perhaps indicating that it existed as an earth and stone bank with a core (or earlier phase) of larger stones. This had almost certainly been damaged and eroded by later agriculture.

The boundary changed character about 2m from its junction with the building where it could be traced as a double-faced wall with an earth and stone core. The south-western face was continuous with the outer face of the building. The north-western side had partly collapsed but enough survived to suggest that the face continued into the core of the building wall, possibly connecting to the inner face of the south-western wall of the building (Figs 5–6). The abrupt change in the character of the boundary and its relationship with the building wall could indicate that part of a pre-existing structure had been integrated into the southern corner of building 530. The earlier wall (523) incorporated into the eastern corner of the building could be part of the same structure, perhaps a similar-shaped building on a different alignment (Fig. 8). The projected line of the early facing and the end of the anomalous length of field boundary are in a fairly convincing alignment but further excavation would be required in order to test this hypothesis.

Phase 4 – medieval ridge and furrow

The ridge and furrow detected by the geophysical survey was well preserved beneath the wind-blown sand. The medieval plough-soil (517/513/524) was a dark-brown, slightly silty, humic sand; a marked change from the overlying clean sand above. The surface of the soil still retained somewhat irregular, parallel plough-marks from the last time that it had been cultivated and formed slight ridges between pronounced *c.* 1.0m wide and 0.15m deep furrows (519, 520, 552–4, Fig. 5). The furrows were the features that had been detected in the geophysical survey and were typically 5m apart.

A single linear hollow (518) alongside the north-west wall of building 530 was slightly deeper and wider than the other furrows and was at the end of a field that the geophysical survey shows extended to the east of building 530 and boundary 512 (Figs 2–3). The furrows in this field were laid out in a somewhat irregular fashion in order to avoid the buildings. A single linear feature resembling a deep but intermittent plough-scar or series of slightly elongated hollows ran 0.5m to the north-west of furrow/hollow 518 (522). It clearly marked the edge of this field although its origin was not clear, being too slight to be the remains of a hedge-line or pronounced boundary.

The plough-marks extended right up to the wall of the building. There was a build-up of plough-soil against its walls, blocked entrances and areas of tumbled masonry indicating that the building was ruinous during this phase of cultivation. The lines of the ridge and furrow detected by the geophysical survey also closely skirted the building to the north-east suggesting that this was in a similar condition.

Boundary 512 continued to act as a field division with furrow 519 running parallel to it in a north-west to south-east alignment and furrows 552–554 running up to it in a south-west to north-east alignment. The two sections through the boundary (Fig. 9, Sections E and F) show that there was a considerable build-up of plough-soil over it. There were several sharp plough-scars cut into both the north-east and south-west sides of the bank. These were initially thought to be modern, the sand cover being relatively shallow here. Those on the south-eastern side respect the line of the medieval ploughing so may be from the last ploughing of this period. Those on the north-east side are on a similar alignment to later ploughing (see phase 7, below) although there are possible indications of plough-scars turning at the end of the medieval runs which could indicate that they are early.

Phase 5 – sand inundation

The surface of the ploughed fields, the building and the field boundary were sealed by a layer of homogenous, clean yellow sand (503, 504, Fig. 9, Section G) that varied in depth from a minimum of 0.15m in places along the south-western edge of the excavation to a maximum of 0.62m at its eastern

extremity. In some places the horizon with the medieval plough-soil was sharp; in others there was a somewhat mixed interface. This appeared to be a result of slight weathering perhaps mixed with a small amount of blown sand indicating that there was a short time, probably no more than a few weeks, between the last ploughing and the sand inundation. Elsewhere, particularly in the building, the mixing appeared to be a result of animal burrowing, probably by rabbits.

The sand inundation overlies fields that were actively being cultivated and contains no consolidated turf horizons that would indicate a gradual build up with periods of stability. It therefore appears to have been a sudden and major event. This could well have been the documented inundation of 6 December 1330 (Lewis 1912, 53; Bailey *et al.* 2001). However, documentary evidence suggests that sand movement became an ongoing problem at Newborough: in 1561 an addition to the Record of Caernarvon includes an order made to forbid the pulling up of *moresg* ('marram grass') to stave off further encroachment by the sand (Ellis 1838, 298). The most likely scenario is that there was a sufficiently serious inundation to result in the abandonment of the agricultural land, probably in 1330, followed by a period where the dunes were unconsolidated and mobile and no stable horizons were formed, leading to a long-term build-up of additional sand. The sand cover eventually became sufficiently consolidated for the area to be taken back into cultivation in the post-medieval period.

Phases 6 and 7 – post-medieval to twentieth-century agriculture

Cartographic evidence and geophysical survey show that there were two or more phases of field system, post-dating the burial of the medieval field system, which were in turn superseded by the current eighteenth- or early nineteenth-century boundaries. A horse burial was the only evidence of activity from this period in the excavation. It is thought that the rough ground to the south-west of the current field system was brought into cultivation during the Second World War (phase 7). At the western end of the site, where the blown sand was very shallow, there is a patch of closely spaced plough-scars (521), parallel with the current field boundary, that may date from this phase of agriculture.

STRATIGRAPHY, DATING AND CHRONOLOGY

The primary aim of the exploratory excavation, limited to fifteen days, was to identify the nature and significance of the site and allow appropriate scheduling recommendations to be made. The significance of the discoveries to date indicates that there is clearly the potential for considerable further work.

The phase 1 earth underlying the building and field wall was not investigated to any great extent but it is stratigraphically the earliest layer, and is indicative of agricultural activity pre-dating the early medieval period. Residual finds of small flakes of flint and chert from the area suggest the possibility of prehistoric occupation, and the Roman finds reported from Rhuddgaer, as well as the site at Rhuddgaer House, also indicate activity in the area in the Romano-British period, although the lead coffin may be slightly later.

The early medieval and medieval phases (2–4) are dated by a series of radiocarbon dates (see below) and historically identifiable events or processes. Little of the evidence provides dating that can be closely tied into any structure or event but when viewed together can be seen as an outline chronological framework. The most securely stratified evidence was provided by the radiocarbon date of cal. AD 660–770 (SUERC-63636) from context 547 in the blocked entrance. This was a small discrete deposit of heat affected material and burning products, as opposed to mixed material that could be interpreted as residual within a context. This was lying on top of the dark brown deposit that extended across the interior of the building (floor layer 535 or phase 1 plough-soil 546). This would have been an area of high wear during the use of the building and some of the uprights forming the entrance passage wall were set in the soil, so it was

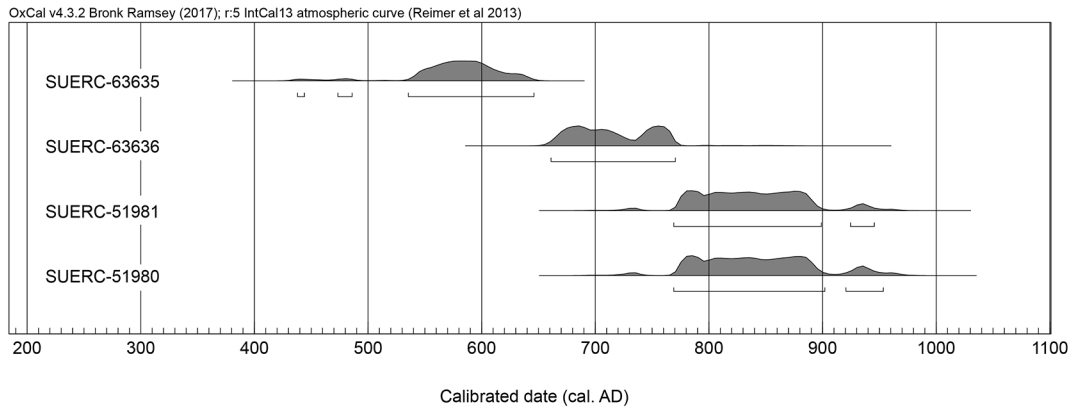


Fig. 11. Radiocarbon date calibrations.

unlikely to have been undisturbed phase 1 plough-soil and was therefore likely to be floor layer 535. The patch of burnt material was sealed by a shallow consolidated layer of sandy silt containing flecks of charcoal (548) that probably formed a surface in the passage prior to the blocking of the entrance. This could have been associated with the main use of the building or an initial build-up of earth after its abandonment and probable reuse. The radiocarbon date could therefore be associated either with the main use of the building or a phase of secondary use before the entrance was blocked.

The radiocarbon date of cal. AD 440–650 (SUERC-63635) from the revetment bank (545, 526) came from a piece of charcoal that could have been residual in the soil it was constructed from. This gives a *terminus post quem* for the construction of the bank. The bank was constructed to revet the fragment of phase 2 masonry incorporated into the phase 3 building, but could have been added at any time in the building's history, so the date cannot be tied to any specific phase or structure.

The two radiocarbon dates from charcoal fragments from the deposits within the building dating to cal. AD 770–950 (SUERC-51980, SUERC-51981) are later than those from the entrance and revetment bank. Floor layer 535 and phase 1 plough-soil 546 proved to be indistinguishable and the charcoal could conceivably have come from either deposit. This introduces a degree of uncertainty into the proposed dating sequence, particularly as the floor was likely to have been derived from or mixed with the earlier plough-soil. Floor layer 535 contained no features relating to the use of the building and it has been suggested that it was trampled or otherwise disturbed during reuse of the building, perhaps as an animal pen, after it had fallen into ruin. Small pieces of charcoal were observed throughout this deposit and these could have originated at any time during the use or reuse of the building so the somewhat later date from two of these fragments compared with the burnt grain in the entrance would not be anomalous.

All four of the dates fall within the mid-sixth to late ninth or early tenth centuries and, when seen as a group, strongly suggest early medieval activity. The typical lack of diagnostic finds from a site of this period also supports this observation. The radiocarbon dates and stratigraphy therefore provide a credible dating sequence supporting an early medieval date for the buildings and associated field system with a single well-stratified deposit of burnt material suggesting a later seventh- to later eighth-century date. The building fell out of use and, along with its associated field boundary, was eventually incorporated into a medieval open field system which was in turn buried by a sand inundation, probably in 1330.

CONTEXT, PARALLELS AND SIGNIFICANCE OF THE EARLY MEDIEVAL BUILDING

It has proved remarkably difficult to locate and identify dwellings and settlements occupied during the period *c.* AD 400–1050, not only across Wales but also in much of the rest of western and northern Britain. This is particularly true of those associated with ordinary farming communities rather than elites (Edwards and Lane 1988; Edwards 1997, 4; Blair 2013, 4–14). The problem is exacerbated when dealing with communities who did not necessarily live in enclosed settlements (which are more clearly identifiable in the archaeological record), whose dwellings only left behind very limited constructional evidence and who did not produce pottery. Furthermore, in much of Wales soils are acidic, thereby severely diminishing the survival of other types of material evidence. Equally, all too often developer-funded and other excavations in Wales have only recognized early medieval houses and structures associated with farming, such as corn-dryers, and other activities, such as ironworking, during post-excavation as a result of the radiocarbon dating. Therefore, even the very limited excavation of the remains of a substantial early medieval building at Rhuddgaer and its associated field-boundary, when seen within their wider landscape context, together with the results of the more extensive geophysical survey, are of particular significance.

As indicated above, building 530, the surviving parts of which were of drystone construction, was sub-rectangular in plan with rounded external corners and measured 12.2m × 7.4m externally and 9.5m × 4.4m maximum internally. The remains of an earlier, less substantial phase of the building (523) had been incorporated into later walling in the north-eastern area. The wide, low walls of the main phase were 1.4m thick and 0.5m high and were faced with stone with a rubble and earth core. It is argued that these functioned as sturdy footings for the superstructure rather than being the full height of the walls. What the superstructure consisted of is unknown but there are a number of possibilities. Wooden sill-beams anchored in some way on the top of the footings could have supported vertical or horizontal planks or, more likely, wattle and clay walls, thereby reducing the need for substantial quantities of timber. Alternatively, turf or turf-and-wattle walls could have been set directly on the stone footings, which would have provided solid foundations and helped to curb the damp. The build-up of earth noted around the stone footings and particularly in the interior (534), could be indicative of either walls of clay and wattle or turf, though it was suggested above that the origin of at least some of this was earth that had washed out of the walls once the roof had been lost. The size and sub-rectangular shape of the building suggest the former presence of a timber-framed roof, perhaps supported by one or two pairs of posts placed towards either end of the structure, with the roof-supports themselves resting on the tops of the walls. Though no interior postholes were found during the limited excavation, it is possible that the posts were supported on pads which need not have left any trace in the archaeological record. The roof itself was probably thatched with reeds or straw, but turf, though heavier, is also possible.

The building was aligned north-west to south-east and had two opposed, quite narrow entrances in the centres of the long (north and south) walls thereby suggesting it was used for domestic occupation. The presence of two entrances would have increased the amount of light entering the building throughout the day and one or both openings could have been closed to provide shelter from the prevailing wind and weather, a major consideration in this location. Though not clearly datable, the stone slab with a neatly pecked circular impression found reused in the upper course of the wall near the south-east entrance could have originally functioned when filled with oil as a simple light. Although the floor seems to have been of earth, no hearth or other internal features were uncovered so how different zones of the interior might have functioned is unclear. However, the relatively small internal dimensions, 9.5m × 4.4m maximum, and the likely lack of internal drains, suggest that the structure was not inhabited by humans and livestock simultaneously in the manner of a later medieval longhouse, though such buildings are characterized

by opposing entrances in the long walls providing a passage between the living area and the byre. It is possible, however, that one end was used for domestic occupation and the other for storage. Nevertheless, the trampled interior and blocked south-east door may well indicate that, after the building ceased to be a dwelling and the roof collapsed, it was utilized as an animal shelter.

As indicated above, the building is most likely to have been in use during the seventh or eighth centuries. The sub-rectangular shape and the sturdy stone footings suggest that the origins of this building type go back into the Roman period. Native communities on Anglesey and the adjacent mainland would have had contacts with Roman military and civilian establishments, notably the complex at Tai Cochion and, across the Menai Strait, the fort at *Segontium* with its *vicus* (Hopewell 2016b; Burnham and Davies 2010, 220–3), both of which had a range of rectangular structures. Consequently, aspects of Roman architecture would have begun to impact on native building styles. This led to the construction of rectilinear and polygonal enclosed hut-groups (some of which were built on top of Late Iron Age settlements) and the inclusion of rectangular structures alongside traditional roundhouses in both these and some other settlements with curvilinear enclosures. It is possible that at this stage roundhouses largely continued to function as dwellings while rectilinear buildings were, for the most part, used for livestock and agricultural storage and other activities, as well as industrial purposes (Waddington 2013, 106–8). Din Lligwy in north-east Anglesey and Cefn Graeanog 1 and 2 on the mainland near Clynog provide good excavated examples of rectilinear and polygonal enclosed hut-groups with stone-walled roundhouses and rectangular buildings. Unusually, an example of the latter, building B at Cefn Graeanog 2, seems to have been used as a dwelling. The sub-rectangular building, E and F, which was interpreted as a byre and storage area, also had opposed entrances which formed the way into the enclosure (Waddington 2013, 149–51, 223–7; Fasham *et al.* 1998, 27–8, 88, 90–1). In contrast, some open and enclosed settlements on Anglesey, such as Cefn Cwmwd and Bryn Eryr (with its Middle Iron Age sub-rectangular bank and ditch enclosure), continued to have roundhouses only which were constructed in a variety of materials: timber, wood and clay or turf, as well as stone. The last seems to have become more common as the period progressed (Waddington 2013, 107, 144–6; Longley *et al.* 1998; Cuttler *et al.* 2012, 30–65).

From the later fourth century onwards, settlements and their associated buildings become very much harder to discern in the archaeological record and what evidence there is, is often difficult to interpret and, with the cessation of Roman artefacts, including coins and ceramics, the construction of chronologies is entirely dependent upon radiocarbon dates. Nevertheless, there is a growing body of evidence to suggest that in north-west Wales hut-group settlements were not all abandoned around the time of the cessation of Roman occupation. Where they were, evidence of agricultural activities sometimes persisted suggesting that the locations of settlements might shift slightly but occupation continued in the vicinity, if not exactly on the same sites, over a very long period. This has been clearly demonstrated, for example, at Graeanog where there have been extensive excavations of a series of farmsteads on the fertile, well-drained gravels, which together span the Late Iron Age to the thirteenth century AD (Fasham *et al.* 1998, fig. 55; Waddington 2013, 225–30; Kelly 1982). On Anglesey evidence for the continuity or reuse of Later Iron Age and Roman period hut-group settlements in the post-Roman period remains very limited and difficult to decipher, particularly where radiocarbon dating is restricted or non-existent meaning that dating is dependent on stratigraphy and artefacts alone. For example, the artefactual assemblage from the early excavations at Pant-y-Saer, a curvilinear enclosed hut-group with two roundhouses, one with two rectangular attached annexes, clearly demonstrates Later Iron Age and Roman occupation extending into the fourth century AD. Whether the sixth- or seventh-century penannular brooch found in the wall of the south-west annexe denotes continuing use, reoccupation or casual loss is now, however, impossible to resolve unless undisturbed deposits remain for future investigation (Phillips 1934; Edwards and Lane 1988, 99–101; Waddington 2013, 155–7; Edwards 2008, 154). Similarly, at Cefn Cwmwd, an open,

roundhouse settlement of Later Iron Age and Roman date, there were overlying rubble spreads which, in addition to Later Iron Age briquetage, Roman pottery and coins, contained high-status finds of fifth- to seventh-century AD date. These comprise a Type G penannular brooch, a Byzantine garnet intaglio and a sherd of south-west Gaulish DSPA pottery,⁵ which together suggest early medieval elite activity on or in the vicinity of the site (Cutler *et al.* 2012, 30–65, 156–60, 198–9; Waddington 2013, 160–2). Thirdly, a curvilinear enclosed roundhouse settlement at Tŷ Mawr, Holyhead Mountain, was dated to the Middle–Late Iron Age, but a radiocarbon date from reoccupation deposits suggests renewed activity in the early medieval period. Two other stone-built structures (T3, T4) downslope from the enclosed settlement also produced radiocarbon dates spanning the fifth to eighth centuries AD associated with a hearth and charred plant remains, though because the excavations were conducted in the late 1970s and early 1980s, these lack precision (Smith 1985; 1987, 25; Waddington 2013, 158–60).

Arguably, the best parallel to date for the sub-rectangular plan, dimensions and drystone construction of Rhuddgaer building 530 is provided by building A at Graeanog East (Fasham *et al.* 1998, 113–57; Waddington 2013, 228–30). This settlement had a long history of use and reuse beginning in the Middle Iron Age and then up to three phases of Roman occupation before probably two of early medieval reuse. In the final Roman phase, which the excavator suggested dated to the fourth century but may have begun earlier in the later second century (Waddington 2013, 250), the site was at least partially enclosed and included one earlier roundhouse with a sub-rectangular annexe to which building A was added. The structure measured 10m × 4m internally and the thick walls were up to 0.7m in height. Then, after a period of abandonment, it was slightly modified and reoccupied and the last firing of the hearth was archaeomagnetically dated to between the sixth and end of the ninth centuries AD (2 sigma) (Fasham *et al.* 1998, 155). In addition, a keyhole-shaped corn-dryer was inserted into the remains of the roundhouse. Three radiocarbon dates, which together span the end of the ninth to the end of the thirteenth centuries, suggest that, although it could be contemporary with the reoccupation of building A, it is more likely to be associated with later agricultural activity.

At Rhuddgaer we may be seeing a slightly later stage in the evolution of settlements associated with early medieval farming communities on Anglesey. The geophysical survey suggests the existence of eight sub-rectangular stone buildings, some conjoined, one set within a rectilinear enclosure, and all located within a system of small rectilinear fields. Without further excavation it cannot be proved that all the structures are broadly contemporary, though it has been argued above that this is likely, and the excavation of building 530 has demonstrated two successive phases of construction. Further excavation would also be required to try and determine the functions of the other structures and to determine to what extent we are dealing with the farm of an extended family or the settlement of a wider kin group. Nevertheless, we seem to be looking at a different type of settlement from the hut-groups with their roundhouses or a mixture of round and rectangular buildings.

There is some evidence from Anglesey for other early medieval rectangular buildings which are unassociated with hut-groups. These are not, however, directly comparable with the building at Rhuddgaer beyond the shape, size and use of some stone in the foundations. The Rhuddgaer building with its broad stone footings is much more substantial. Firstly, at Carrog, Llanbadrig, in the north of the island, limited excavation of a small hilltop enclosure of Late Bronze or Early Iron Age date also revealed early medieval reuse. At this time part of the enclosure was demolished and the ditch infilled to create a platform on which a small rectangular dwelling was built (Smith 2014, 60–1, fig. 2.5). Only one corner of the building was excavated. Upright stones indicated the exterior edges of the walls and there were also postholes and interior paving. A single radiocarbon sample (SUERC-33073) from charcoal associated with the building provided a date of cal. AD 760–900 at 95% probability (Smith 2014, 81), which suggests that it may be slightly later than the building at Rhuddgaer.

Secondly, several early medieval buildings have been excavated at Llanbedrgoch, a high status settlement located not far from Traeth Coch in the east. Post-excavation is ongoing, but Mark Redknap (2004, 147–9) has argued that, in the pre-Viking period, the settlement consisted of a large, D-shaped, ditched enclosure datable to the sixth or seventh centuries within which stood a possible small roundhouse and a large rectangular timber hall, defined by two rows of postholes (Redknap 2000, fig. 109). During the late ninth and early tenth centuries at least five rectangular buildings were erected within the rebuilt stone enclosure (Redknap 2004, fig. 4). This phase is defined by artefacts, notably hack-silver and lead weights (Redknap 2004, figs 8–9), strongly indicative of Hiberno-Scandinavian occupation. Building 1, a dwelling, was sub-rectangular and measured approximately 10.5m × 5m internally with the door in the southern short end. The walls consisted of a ground-level timber sill with a revetment of limestone blocks which, it has been suggested, provided the foundation for a timber superstructure with the roof supported on posts (Redknap 2004, 150–3). The floor was slightly sunken and partially paved with the remains of a stone-lined hearth and raised bedding areas along the walls (Redknap 2000, fig. 109). The fragmentary remains of building 2, which was rectangular and measured 7.5m × 11m internally, consisted of a few courses of quite narrow drystone walling which would also have supported a timber superstructure (Redknap 2004, 153). In the absence of the recognition of a local building tradition in this period, Redknap has argued that building 1 in particular has several important features characteristic of Viking buildings—a rectangular shape, sunken floor, central, stone-lined, bow-shaped, rectangular hearth and wall benches. There are, however, differences, which led him to suggest that we may be seeing ‘a regional building tradition adapted to the local resources and environment’ (Redknap 2004, 167).

Finally, at the end of the period, excavation of the promontory fort at Porth Trefadog revealed the defences had been rebuilt in the twelfth century or earlier. In the interior were the remains of a rectangular domestic building with rounded corners measuring 10.5m × 5.5m internally. The walls were 1.2m thick and constructed with facings of stone bonded with clay with a clay core. It had later been used for ironworking which was radiocarbon dated to the eleventh or twelfth century (Longley 1991).

Elsewhere in Wales, other early medieval settlements and sub-rectangular buildings are also beginning to be recognized. Of these, the excavation at South Hook, Pembrokeshire, is particularly significant since it revealed a settlement engaged in iron-smelting and crop processing, including the presence of corn-dryers. However, compared with Rhuddgaer, the structures appear ephemeral and are certainly indicative of a different building tradition. Radiocarbon dates suggest activity from the late eighth to mid-twelfth century with several indicative of concentrated occupation between the ninth and eleventh (Crane and Murphy 2010, 185–6). Complexes 6 and 8 were interpreted as similar domestic structures. The former consisted of a shallow hollow associated with pits and postholes. The latter suggested that the structure was a slightly bow-sided wooden (possibly post-and-wattle) building approximately 11m × 6m (Crane and Murphy 2010, 131–7). In addition, complex 1 contained two iron-smelting furnaces and was identified as a workshop. It seems to have been a slightly sunken, sub-rectangular building approximately 10m × 4m with an entrance at the narrow southern end (Crane and Murphy 2010, 123–8). A likely parallel for this kind of sub-rectangular, sunken-floored building approximately 5m × 5m has also recently been identified at Conkland Hill, Wiston, Pembrokeshire (Hart 2014).

Further examples of early medieval sub-rectangular buildings have been identified in south Wales and the borders but all were excavated some time ago and therefore details are lacking. At the hillfort of Dinas Powys, Vale of Glamorgan, Leslie Alcock excavated drip gullies in the interior, which led him to suggest the former presence of two sub-rectangular buildings, which he identified as a possible hall and barn of sixth- or seventh-century date (Alcock 1963, 31–2, fig. 10; Seaman 2013). There are also examples associated with probable early medieval reoccupation of Roman sites at Roman Gates, within the legionary fortress at Caerleon, Monmouthshire, and in the courtyard of the former *mansio* at Cold

Knap, Barry, Vale of Glamorgan (Evans and Metcalf 1992, 54–6, 75, fig. 20; Evans *et al.* 1985, 67–8, fig. 9; Edwards and Lane 1988, 76–8). Lastly, postholes of two likely rectilinear buildings, one (XXXI) sealed by ridge and furrow, were identified beneath the later castle bailey at Hen Domen, Montgomeryshire, which was constructed in the 1070s, and have been identified as probably early medieval in date (Higham and Barker 2000, 27–9).

It has to be said that but for the radiocarbon dates, the Rhuddgaer building would probably have been regarded as later medieval. Large numbers of rectilinear house platforms and the foundations of rectangular, stone walled houses have been identified across Wales, particularly in the uplands, though some also survive at lower altitudes, mostly, like Rhuddgaer, on the peripheries of more productive land. The emphasis has tended to be on the recording of upland examples but there have been remarkably few excavations and, where these have occurred, dating evidence, usually in the form of pottery and increasingly radiocarbon dates, is sometimes lacking. Cefn Graeanog provides an important example of an excavated farmstead in the lowlands and is dated to the twelfth and thirteenth centuries (Kelly 1982). However, it has been argued that, although dating evidence is often poor and potentially such house platforms and stone-walled buildings could begin in the immediate post-Roman period, in practice most are likely to date between the twelfth and late seventeenth centuries (Roberts 2006, 1–5). Excavation of the Rhuddgaer building is therefore of particular significance because it confirms the likelihood that a proportion of farming settlements of this kind in the lowlands are indeed of early medieval date. Furthermore, their beginnings could be as early as the seventh or eighth centuries AD with the ultimate origins of the rectangular buildings stretching back into the Roman period, though the sub-rectangular shape and building techniques are clearly native.

FIELD SYSTEMS AND ECONOMY

The geophysical survey and exploratory excavations have also been important in revealing what has been interpreted as three successive field systems beneath the inundation of sand. These had been preceded by an earlier buried soil (532/546), stratigraphically the earliest layer, indicative of agricultural activity prior to the earliest surviving field system. Although this horizon is undated, the fertile, free-draining, slightly acid soils of the locality would undoubtedly have been attractive to farming communities, as the location of the nearby Romano-British settlement implies. The earliest extant field-system (phases 2 and 3) might indicate a major reorganization of the agricultural landscape broadly contemporary with the various sub-rectangular structures with which it is associated and in particular, the construction and occupation of building 530 in the seventh or eighth centuries AD, since one of the field walls (512) was clearly associated with the building. It is also possible, however, that the field-system is the product of a more gradual evolution over a longer period of time (Rippon *et al.* 2015, 335). In order to test such hypotheses further, more extensive excavation, both of the structures, and a sample of the field boundaries would be needed in order to obtain suitable evidence for radiocarbon dating to enable a better understanding of the chronology of the settlement and its associated fields. It may be argued nonetheless that the small, broadly rectilinear fields which have been recorded were once part of a larger infield-system. The later, phase 4, ridge and furrow is indicative of a change in farming technology commensurate with the introduction of a mould-board plough which turned the sod, thereby doing away with the necessity for cross-ploughing. The dating of this change in Britain is a matter of debate, though the inundation of sand at Rhuddgaer, in all probability in 1330 (see above), provides a clear *terminus ante quem*. It has generally been argued that the earliest evidence for the use of the mould-board in Britain is not until the tenth century. However, the recent discovery of a coulter at Lyminge, Kent, has led to the suggestion that it was introduced into this

part of England as early as the first half of the seventh century, though the ard continued in use in many areas until the end of the period (Banham and Faith 2014, 46–50; Thomas *et al.* 2014).

More generally, the landscape context of Rhuddgaer would suggest a mixed farming economy. Cereals would have been cultivated on the infield with the animals brought in after harvest to graze the stubble and manure the ground, though seaweed from the nearby shore may also have been utilized as fertilizer. Otherwise it seems likely that the animals would have been grazed on the outfield and taken advantage of meadowland along the Braint, salt-marshes at its estuary and rough coastal grazing along the shore of the Menai Strait. The charcoal evidence is extremely meagre but suggests willow or poplar and possibly holly were growing in the neighbourhood (Hopewell *et al.* 2014). Equally, it is likely that the inhabitants would have exploited their coastal environment to supplement their diet through coastal and riverine fishing, collecting shellfish and catching seabirds for their down and oil as well as consuming their eggs.

The phase 2 and phase 3 fields at Rhuddgaer are of particular importance because there has been very little recent investigation of either Roman or early medieval field-systems in Wales (Rippon *et al.* 2015, 295). This stands in sharp contrast to England, where there has recently been considerable research and argument concerning the scale of continuity of land-use and field-systems from the prehistoric and Roman periods into the early Middle Ages as well as management regimes that went with them (Oosthuizen 2013; Rippon *et al.* 2015, 304–42). Nevertheless, a preliminary survey of field-systems in north-west Wales has identified a number of relict landscapes, mainly on the fringes of the uplands. The Aber valley, Gwynedd, for example, demonstrates a complex pattern of fields and settlements in both prehistoric and medieval times, including a likely early medieval corn-dryer, together with a detailed pollen record (Kenney 2015, 16–17; Waddington 2013, 196; Woodbridge *et al.* 2012). However, in more fertile, lowland environments very little survives because of continuing intensive agriculture. In England, there is now a consensus on the expansion of the Anglo-Saxon economy during the long eighth century, as there was in Ireland and on the Continent at this time. This included increased cereal production which helped to deliver the surpluses which fuelled the economic upturn (Rippon *et al.* 2015, 331; O’Sullivan *et al.* 2014, 214; Davies and Flechner 2016, 377–85; Wickham 2000; 2005, 259–302, 383–588). In Wales, an increasing number of radiocarbon dates from corn-dryers and charred cereal deposits, as well as the pollen record, are also beginning to hint at a similar but smaller-scale expansion in cereal cultivation around this time. This may likewise have helped to provide a surplus paid in the form of food render to the owners of estates as indicated in the marginalia added to the Lichfield Gospels while it was at Llandeilo Fawr, Carmarthenshire, in the early ninth century and more generally in the Llandaf charter material centring on Gwent and Ergyng in south-east Wales and the borders (Davies 2015, 222–31; Edwards *et al.* 2016; Jenkins and Owen 1983; 1984; Davies 1978; 1979). Farming settlements, such as Rhuddgaer and South Hook, which, it may be argued, may also have been parts of larger estates, may therefore provide further evidence for a measure of economic expansion during the long eighth century. In conclusion, it may also be suggested that this small nucleated settlement set amongst fields at Rhuddgaer with a range of other economic resources in the neighbourhood represents a *tref*, a term found throughout the Llandaf charters, which refers to one or more farmhouses together with their associated land (Charles-Edwards 2013, 285).

ACKNOWLEDGEMENTS

The study and the geophysical survey were initiated by Matthew Jones of CR Archaeology, Tal-y-Bont, Conwy, funded by the Cambrian Archaeological Association. Further stages in the geophysical survey were carried out by Gwynedd Archaeological Trust, grant-aided by Cadw and the Anglesey Area of

Outstanding Natural Beauty Sustainability Fund (thanks to Efan Milner). Excavations, also grant-aided by Cadw, were carried out as community projects supervised by Gwynedd Archaeological Trust staff and the 2015 excavation was carried out in partnership with Bangor University. The excavation could not have happened without the hard work, skill and enthusiasm of the team of volunteers and Bangor University students who worked on the site. Education and training formed an important part of the projects and thanks are due to Anita Daimond, the former outreach officer of Gwynedd Archaeological Trust, for arranging activities for local schools and a well-attended open day.

We are grateful to the Marquis of Anglesey for consenting to the work on his land and to David Holmes of Jones Peckover, Land Agents for the Plas Newydd Estate, for arranging the agreement. Thanks also to Graham Williams of Natural Resources Wales for allowing the excavation on land managed as a Nature Reserve, as well as to Simon Sturrock of Y Felinheli and to David Devalle and Jenny Hollis of Rhuddgaer House for permission to carry out geophysical survey and allowing access to the excavation. Jane Kenney of Gwynedd Archaeological Trust carried out much of the on-site recording, initial post-excavation work and stratigraphic analysis for the 2015 excavation making the production of the report a relatively straightforward process.

NE would also like to thank the Leverhulme Trust, whose grant for a project on ‘Life in Early Medieval Wales’ has greatly facilitated preparation of the wider discussion in this article.

RADIOCARBON DATING

The dates were calibrated using OxCal 4.3.2 (Bronk Ramsey 2017) and the IntCal13 atmospheric curve (Reimer *et al.* 2013). In the text the ranges of the dates are quoted at 95% probability in the form recommended by Mook (1986), with the end points rounded outwards to the nearest 10 years.

SUERC-63635

Context: within earthen revetment bank (526) associated with building 530

Sample: large piece of willow or poplar charcoal (identification by Roz McKenna)

Conventional radiocarbon age: 1486±31 BP

Calibrated results at 95.4% confidence: cal. AD 438–444 (0.6%), cal. AD, 473–486 (1.6%), cal. AD 535–646

SUERC-63636

Context: burnt deposit 547; a discrete patch of heat affected and burnt material in the SE entrance of building 530

Sample: charred cereal grains (species unidentified; Roz McKenna)

Conventional radiocarbon age: 1296±31 BP

Calibrated results at 95.4% confidence: cal. AD 660–770

SUERC-51981

Context: upper deposits of floor 535, possibly associated with post-abandonment reuse of building 530

Sample: probable holly charcoal, 10mm long boat-shaped fragment (identification by Pat Denne: Hopewell *et al.* 2014, 16)

Conventional radiocarbon age: 1183±27 BP

Calibrated results at 95.4% confidence: cal. AD 768–898 (91.0%), cal. AD 924–945 (4.4%)

SUERC-51980

Context: upper deposits of floor 535, possibly associated with post-abandonment reuse of building 530

Sample: probably holly charcoal, possibly hazel, from a twig about 10mm diameter (identification by Pat Denne: Hopewell *et al.* 2014, 16)

Conventional radiocarbon age: 1179±30 BP

Calibrated results at 95.4% confidence: cal. AD 768–902 (87.5%), 920–953 (7.9%)

NOTES

1. Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, Gwynedd, LL57 2RT.
2. School of History and Archaeology, Bangor University, Bangor, Gwynedd, LL57 2DG.
3. British Library, Shelfmark OSD 318 item no. 26: R. Dawson, Llangefni (pen and ink drawing) Ordnance Survey 2 inches to a mile (1:31680), 1818.
4. Anglesey Archives, Llangefni: E. Hughes, 'Plans and Survey of the land in the Counties of Carnarvon and Anglesey, North Wales, Belonging to The Rev. Mr Edward Hughes, drawn by J. N. Corris, 1792', 1792.
5. DSPA = *Dérivées sigillées paléochrétiennes* Atlantic group, formerly D ware, probably produced in the Bordeaux area.

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Published with the aid of a grant from Cadw – Welsh Government