Recent Excavations at Llandygai, near Bangor, North Wales

Full excavation report
Volume III: appendices

GAT Project No. G1857
Report No. 764
December 2008

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
Craig Beuno, Ffordd y Garth, Bangor, Gwynedd, LL57 2RT

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Prepared for JacobsGibbs on behalf of
the Welsh Assembly Government

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APPENDIX II: PREHISTORIC POTTERY

Frances Lynch

Early Neolithic pottery

Sherds of typical Early Neolithic pottery come from three contexts on the site: the fill of postholes and other features defining the ground-plan of a rectangular building; from patches of protected old ground surface in the vicinity of this building; and from an elongated pit (1738) just to the south of it. The finds from these contexts (except for 2 tiny fragments from Trench 1404 and some hard, abrasive material from the old ground surface (contexts 1713 and 1758) which is not true pottery but is difficult to explain) were exclusively Early Neolithic. Residual fragments occurred in the fill of a later pit (1554) close by and in the pits of Pit Group I some 300m to the east. Apart from the two small pieces from Pit Group I, pottery of this period does not seem to have become incorporated in later features elsewhere on the site, even though other pits and disturbances were much closer.

All the sherds were undecorated and made from fine, well-smoothed, occasionally burnished and normally well-fired clays without obvious inclusions. The majority had the characteristic vesicular texture caused by the leaching out of angular inclusions which has been judged typical of 'Irish Sea Ware' (Lynch 1976) found in many parts of Wales and of Ireland at this period. Several findspots in both countries have produced radiocarbon dates of around 4,000 - 3,800 cal BC.

The seven rims (Fig. 14) and the few pieces of neck and shoulder indicate that they derive from normal shouldered bowls but very little of any vessel survives. Where size can be estimated it suggests bowls ranging from 160mm to 230mm in diameter and perhaps about 240mm to 280mm deep. The rims are out-turned, some rolled and some hooked, but all light and unemphatic. Four (SF 179, 130, 154, 84) demonstrate that the outer edge of the rim was added as a separate coil. Only two elements of shoulder survive; SF 77 suggests quite a sharply defined change of direction; SF 134 shows a softer profile.

The nearest parallels for shouldered bowls of this type were found associated with a very similar house excavated in 1967 less than a kilometre away on the site of the later Neolithic sanctuary (Lynch and Musson 2001, 27-36). The pottery came from the fill of postholes with dates ranging from 4,000 to 3,600 cal BC. Typologically the assemblages from both sites are too small to indicate trends. Nor can any typological distinction be made between the material from the postholes at Parc Bryn Cegin (SF 79, 84 and 77) and that from the patches of preserved old ground surface (SF 130, 179, 130, 138, 154, 134 and 149).

Undecorated shouldered bowls have come from several Neolithic sites in Wales. The most elegant group, with fine pointed rims and sharp shoulder carinations, is from the West chamber at Dyffryn Ardudwy, an undated site believed to be early (Powell 1973); material from the undated settlement at Clegyr Boia, Pembrokeshire is similar (Williams 1952 and Lynch 1969); a clumsier pot found beneath the cairn at Trefignath in a settlement context dated to around 3,900-3,800 cal BC (Smith and Lynch 1987, 75). Small assemblages, such as that from Din Dryfol (Smith and Lynch 1987, 118-9) confirmed its ubiquity, but do not add much to the chronological or typological argument.

The large segment of unshouldered bowl (SF 167, Fig. 14) from the elongated pit 1738 might be considered significantly different (Lynch *et al* 2000, 61), as is the surface treatment and the shape of the rim, which can be paralleled in 179 from the old ground surface. Analysis of the fabric of SF 167 shows this to be significantly different to the other sherds, and it may not originate locally like the other material (Williams and Jenkins 2008). Contexts with exclusively unshouldered Neolithic bowls, Carreg Samson in Pembrokeshire (Lynch 1975), Tŷ Isaf, Breconshire (Grimes 1939) and Pant y Saer, Anglesey (Scott 1933 and Lynch 1969, 155-6) are not closely dated and, apart from Tŷ Isaf, the assemblages are very small, so do not help to decide whether the unshouldered shape should be considered an integral part of the expected early Neolithic assemblage, or not. The presence of both shapes among the pre-cairn pottery at Gwernvale (Britnell and Savory 1984, 106-8), would suggest this, a conclusion reinforced by this discovery in the north where definitely early examples were not previously known.

Most sherds from Parc Bryn Cegin are small and abraded, suggesting that they are essentially domestic rubbish, a conclusion reinforced by a study of the material from the sieved residues which, apart from 2 small fragments from trench 1404, is entirely consistent with the larger pieces. A very few joins can be made between ancient breaks but they remain small pieces, except the large section of rim and body of the straight-sided pot, SF 167 from pit 1738. This might be considered a deliberate 'deposit' but the rest seem to be accidental inclusions.

Peterborough Tradition: Mortlake Style

Four vessels are represented by distinct rim forms, and possibly three others identifiable from body sherds with differing impressions within horizontal grooves.

Context

All sherds in this tradition come from pits within Pit Group I. Pot IA is the only pot in Pit 1052 and the pieces seem to have been placed in the pit with some care, although the pot was not complete. The other pots are represented by only a few small sherds; Pit 1036 held the remains of several pots; Pit 1049 a few body sherds from what might be a single pot, but in both instances there are additional featureless sherds. In Pit 1027 there are some body sherds which might belong to Pot IA; if this is so, this is the only case of pieces of a single pot being deposited in more than one pit. Some pieces of residual Early Neolithic pottery occurred in these pits even though they are a considerable distance from the Early Neolithic house. Most pits also contained flakes of Graig Lwyd stone, flint and charcoal and burnt stone.

Catalogue of Illustrated Finds

Pot IA

Fig. 28

Bowl, 260mm in diameter and perhaps 210mm high with a heavy overhanging rim, smooth concave neck and a body densely covered with horizontal ridges variously rusticated. Approximately half of the rim, but less from the body of the pot survives.

The rim forms a heavy collar, bevelled in the inside and decorated with two lines of impressions probably made with a bird bone. For most of the circuit they are cut by deep fingernail marks. The curved outer surface is 35mm deep, 24mm thick and decorated with a narrow ridge at the top and 4 deeply cut grooves/ridges. These ridges have been rusticated by short incisions and subsequently re-emphasised by gouging with a rounded stick, in some places using a stab-and-drag technique.

Beneath the collar is a short undecorated concave neck with a smoothed surface. The body below is straight, in that no sherds show a marked curvature. The scheme of decoration is horizontal lines of differing impressions creating a ridged surface right down to the flattened base where there is a patch of undecorated surface about 40mm in diameter.

The **upper body** has 3 sharply defined grooves/ridges about 10mm apart. This grooved surface is impressed with rows of triangular marks on the upper part of the groove and diagonal incisions on the apex of the ridge, creating a complex rustication. This may have been achieved by the diagonal use of a pointed spatula in a stab-and-drag motion. Below this band the **central body** is decorated with 6 or more lines of closer set impressions between less sharply defined ridges some 8-12mm apart. These impressions are double, either two twists of cord or the end of a bird bone, the latter being more likely. Above each impression there is the faint mark of the fingernail which held the marker. Below this middle section the **lower body** is decorated by grooving and stab-and-drag impressions made with a rough stick. The lines are less straight and evenly spaced, perhaps due to increased curvature, which may be seen on some pieces (SF 38). Five or six lines may be recognised on some sherds and they are presumed to continue down to the base.

The very heavy collar-like rim is unusual but can be paralleled at Bryn yr Hen Bobl and, in a less extreme form, at Trefignath, both in Anglesey (Lynch 1991, fig 28.17 and fig 4a.B). A rimsherd from the cave at Gop, Flintshire, associated with burials and a jet slider (Ellis Davies 1949, 274-80) and another from a drainage ditch close to the river Clwyd at Rhuddlan (W H Stead Collection unpubl.) show the same heavy, almost square profile and horizontal grooving, a feature also present among the large Peterborough assemblage re-deposited in the ditch of a barrow at Woodhouse end, Gawsworth, Cheshire (Manby 1977). Possibly these unusually heavy rims may prove to be a regional preference of North Wales and Cheshire, running through to the Peak District and south Yorkshire. The short concave neck and the heavily textured body with horizontal grooving, on the other hand, is typical for the style throughout Britain, as is the use of stab-and-drag techniques and various complex impressions. The rather straight-sided bowl suggested in this reconstruction is based on a large sherd (SF 45), which joins the neck, and on the bowls from Sarn y Bryn Caled, Powys (Gibson 1994, P1, fig.25) Ogmore, Glamorgan (Gibson 1998, fig 6.44) and Caldey Island, Pembrokeshire (Lacaille and Grimes 1961, 37-9).

The fabric is mainly light beige and rather poorly fired, but is harder and darker at the rim. It contains a quantity of angular stone tempering amongst which quartz is prominent.

Pot IB

Fig. 28

Two sherds, a rim and a piece of neck which do not join but share the same hard dark fabric with small quartz grains and neatly applied decoration.

A narrow convex rim with internal bevel; inner decoration: 4 lines of small stab-and-drag marks, neatly made; outer curved flange of rim: upper angle with 1 line of tiny diagonal marks; below this, diagonally set lines of stab-and-drag marks, the raised areas between them burnished. The curve of the neck below the rim is well

smoothed. The second sherd shows the almost-burnished curve of the neck with 2 lines of close-set possible stab-and-drag marks below, the beginning of a horizontally decorated body.

Pot IC
Fig. 28
A single small sherd from a rim very similar to B but with a sufficiently different decorative scheme to suggest a separate pot.

The decoration is neat stab-and-drag lines and lines made with a sharp roulette. There are 3 lines on the inner bevel, 2 stab-and-drag, 1 rouletted; on the outer bevel there are 2 rouletted diagonal lines.

These two slighter rims and their decorative schemes are very typical of the style and can be paralleled at several sites including Windmill Hill (Smith 1965 fig.33).

Pot ID
Fig. 28
Pot ID is a clumsier pot of same general type as B with inner edge inturned rather than bevelled and outer flange flat, decorated with 4 concentric lines of stab-and-drag marks. The curve below the rim is poorly formed and there are 2 lines of rough stab-and-drag marks below it. Two other small surface fragments with lines of stab-and-drag marks, creating almost a serrated effect, probably belong to the body of this same pot.

This variant on the fairly standard Mortlake rim can be seen at Ogmore on several sherds (Gibson 1998, pots 21, 28, 43) and at Cefn Bryn, Gower (Gibson 1995, fig 3.7, 8).

Pots E, F and G
Fig. 28
The body sherds, **E, F** and **G** must belong to at least two other pots because they are lighter in colour and less well fired. F and G, which come from Pit 1049, might be from the same pot; both are decorated with stab-and-drag made with a rounded point causing quite deep grooving. G might be close to a rounded base, hence the confused lines. They demonstrate the ubiquity of dense horizontal groove decoration on the bodies of these Mortlake vessels.

Discussion
As with all Later Neolithic pottery, the quantity of Mortlake style material from Wales has increased considerably over the last few years, but few assemblages have been large (Gibson 1995, Lynch et al 2000, 112). New finds have confirmed the distribution pattern already established which showed a predominance in the Marches. Radiocarbon dating has indicated a currency for all three styles during the period 3500-2500 cal BC and has failed to confirm the postulated typological sequence of Ebbsfleet /Mortlake/ Fengate (Gibson 1995, 30). However the rarity of Ebbsfleet Ware in Wales and the absence of mixed assemblages would suggest that it does mark the earliest appearance of the tradition. Mortlake, the most common variety (Gibson 1995, 27), and Fengate, on the other hand, are quite commonly found together, though it is interesting that here at Llandygai they are quite clearly separated spatially.

The two radiocarbon dates from Pit 1052 which contained the Mortlake bowl, PGI.A, fit very comfortably within the span of dates gathered more widely across Wales (Gibson 1995, 30 and Gibson 1999, 95-7). They span the period 3354 - 2927 cal BC, but perhaps the more precise date (3354-3089 cal BC (NZA26671) may be judge more useful. As at other sites, the Mortlake and Fengate dates overlap despite the spatial separation of the pottery.

The context in which this pottery is found has been quite variable. At Gwernvale and Trefignath Mortlake pottery has been associated with the closure of megalithic tombs, at Ogmore and Walton with settlement and at many sites with enigmatic pits such as these at Llandygai. Some of these pits may be enigmatic simply because the excavation context was restricted and the true nature of the site was not understood; others may be more justifiably judged enigmatic because the circumstances of deposition suggest deliberate rituals. These may be linked to adjacent sites of funerary or be of religious significance, which would suggest that the burial of rubbish was not the primary concern of the officiators. This is almost certainly true of the pits containing pottery inside and close to Henge B at Llandegai and of the pits found recently close to the stone circle and henge at Carreg Beuno, Berriew, near Welshpool (Alex Gibson, pers comm). It is probably also true of these ones on the slope above the Llandegai henges, though it is only the large scale of the excavations that has given this conclusion credibility.

Peterborough Tradition: Fengate Style

Approximately 27 vessels are judged to belong to this style. There are 20 apparently different rims, but a few may belong together, as may some of the 7 body sherds defined by variations of surface decoration. The ascription of bases to rims is also rather insecure.

Context

All the Fengate material comes from pits within discrete clusters: Pit Group II with four pots, III with perhaps 13 vessels, and IV with only three, none represented by more than a few sherds. Pit Group V is in fact only one pit containing the remains of 5 vessels, and VI was the only group where a mixture of styles may be recognisable since three vessels (VI.C, D and E) are judged to be Grooved Ware, although the ascription is not incontrovertible.

In all instances except Pit Groups II and IV, there is one vessel which is represented by a substantial number of sherds, normally representing almost half the circumference of the rim and a certain amount of the upper body. Clearly identifiable shoulder sherds are entirely absent and only a small proportion of the lower body is normally present with occasional fragments of base. The deposition within the pit usually suggests careful placing of segments of an already broken vessel. Alongside these 'major pots' there are minor ones represented by only a few sherds. This same pattern of deposition occurs with the Mortlake style vessels from Pit Group I and the Grooved Ware in Pit 1554 (Group VIII). It is just possible that PGIII.H from Pit 4069 and III.G from Pit 4092 are in fact part of the same pot, but normally sherds from any one vessel are confined to a single pit.

Typology and comparisons: Catalogue of Illustrated Pots (Table II.1)

The dominant pot-form present in Pit Groups II, III, IV and V is a medium-sized urn-shaped vessel, some 250mm in diameter, with a curved collar and in-turned bevelled rim with two lines of fingernail marks in a herringbone pattern. The collar has a distinct overhang and on some pots there are pits beneath this overhang.

The nature of the profile below the collar is less certain. On PGIII.A, B and C sufficient of the circuit of the rim and of the neck survives to establish with confidence the angle of the neck and it could suggest a conical, shoulderless profile, as favoured in many other reconstructions. However on PGV.A the angle is equally well-established and it is much more vertical and seems to demand a more Bronze-Age silhouette, even though the base is a narrow one. Moreover pieces of the neck and the upper part of the lower body on both pots show a slight outward curve, which suggests that there was indeed a lightly defined shoulder. Though no obvious pieces of shoulder can be recognised on any of the pots there is one sherd (PGIII.M) that might be part of just such a lightly defined shoulder. A flat base 80-100mm across is present in some cases.

The decorative schemes are various but all, except PGIII.F, involve hatched lines created by deep fingernail impressions. Where relevant sherds are available it can be seen that the neck as well as the collar is decorated and, except on PGIII.A, there are indications that the lower body is also covered with some form of decoration.

The Fengate style, of which these urn-like vessels are particularly characteristic, was first defined by Isobel Smith (1956, 106-19) from amongst the pottery excavated by Abbott from the Peterborough area and it has been recently been found in the well-studied pits from Kilverstone, Norfolk (Garrow, Lucy and Gibson 2006, fig 3.2). It is, however, very widespread. Very similar pot rims are present at Windmill Hill (Smith 1965, 78, fig.34), Downton, (Rhatz 1962, fig. 11.17) and West Kennet (Piggott 1962, 39, fig.12) all in Wiltshire. It also occurs in Yorkshire at West Heslerton and at Marton-le-Moor (Manby 1999, 71-3, fig.42 and in prep.) and perhaps in Scotland at Raigmore (Simpson 1999, 129, P.3, fig.13.2 no 6).

In Wales the style may, in the light of these better preserved pots from Llandygai, be recognised among the pottery from Walton previously ascribed to the Mortlake style as well as to Fengate, or to Grooved Ware (Gibson 1999, Pots 1, 6, 8, 12, 15, 16, 18 and 42). It occurs also at Ogmore on the Glamorgan coast, at Castell Bryn Gwyn in Anglesey and at Brynderwen near Abermule, Powys (Gibson 1998, Pot 10; Lynch 1991, 101; Gibson 1995, fig.3: 7.14). Another Welsh pottery group, previously identified as Grooved Ware, which may be added to the list is Hendre, near Mold (Brassil and Gibson 1999) where the context, a cluster of pits on a natural mound later used for Early Bronze Age burial, is also comparable. Where only the rims are present identification is difficult because they are very similar to the in-curved tops of Durrington Walls style jars, but these do not have the collar overhang, only a defining cordon.

Pots that clearly belong to this group are **PG II.A, B** (Fig. 29) and **C, PG IV.A** and **PG VI.B**, though none is well-preserved, **PG III.A, B, C, D**, **E** and **F** and **PG V.A** and **V.B**, the last being unique in having extra lines of decoration below the internal bevel.

Pot **V.A** (Fig. 32) is one of the most characteristic and complete, with bevelled rim, pits below the collar, probable shoulder and narrow flat base. The decoration on the collar, all carried out in fingernail impressions, is a series of concentric arcs, not the most typical of Fengate motifs. The decoration on the neck and on the body, extending down to the base, is lightly and rather carelessly incised cross-hatching.

Pot **III.A** (Fig. 30) is similarly complete but does not have the typical pits below the collar. The collar is decorated with a rough pattern of opposed hatching within which there are undecorated lengths. Below the collar the inward-sloping neck is decorated with lightly scored lines drawn with a rounded point and the lower body is undecorated.

Pots **III.B and C** (Fig. 30) are more fragmentary but have similar collar characteristics. However it is possible that these pots are truly conical like pots 2BA 452 AX from West Heslerton (Manby 1999, 73, fig.42). None of the lower part of C survives but there are several sherds from B, which show random stab marks continuing towards a base which is not present.

Pots **III.D and E** (Fig. 30) have sufficient characteristics for ascription. D has an unusual rounded overhang to the collar and E, which lacks a rim, has an unusual form of fingernail line, overlapping to give an impression of twisted cord.

Pot **III.F** (Fig. 30) has the appropriate bevelled rim with fingernail herring bone, curved collar and clear overhang, but the decoration on the collar is unusual for two reasons, the use of twisted cord (cord which had been finely whipped before twisting) and the circular *oculus* motif. Although it is badly shattered it can be reconstructed as two full triple circles surrounding what seems to be a definite dimple and enclosed by further arcs of cord. Such *oculus* motifs are rare in any style of Late Neolithic pottery but do occur on about four pots from Durrington Walls (Wainwright and Longworth 1971, 70, fig.29).

Pit cluster III includes another group of pots (**III.G, H, J, and K** (Fig. 30)) with curved collars but in this case the rims are not bevelled but pointed and the decoration is mainly by incisions, a series of roughly scored hatched triangles. It is likely that they are unshouldered, although in most cases insufficient of the neck remains to establish the angle.

It is possible that G and H are part of the same vessel. G has a line of fingernail marks on the top of the rim, which cannot be seen on H, but very little of the rim survives on H, a sherd, which demonstrates the variable depth of the collar. **III.J** is also very similar in shape and decoration, perhaps smaller in diameter, but made from a highly oxidised red clay. **III.K** is only rather tentatively ascribed to this group; it is made in a pale soft fabric and decorated with twisted cord. **III.I** has the more normal bevelled rim, but is completely undecorated as far as is known.

These vessels with collars and pointed rims are rather more difficult to find among the Fengate ware on other sites. However West Heslerton and Marton-le-Moor can again provide some parallels, from the same context as the bevelled rims. At least two bowls from Heslerton, 2BA 60 AS/AP and 2BA 60 AX/AR and pot 25 from Marton-le-Moor (Manby 1999, 71, fig.42 and in prep.) have relatively pointed rims and one shares the same decorative scheme on the collar. A similar pot (57.9) comes from pits at Thirlings, Northumberland (Miket 1976, fig.7: 11). All have pits below the collar, which the Llandygai pots do not, and the reconstructions suggest that they have a conical profile, which is likely to be the case at Llandygai.

The major vessel from Pit Group VI, **VI.A** (Fig. 33) has a straight collar decorated with panels of horizontal, vertical and oblique lines of fingernail marks and a rim with variously placed fingernail marks on its flat top. Such a collar would not be out of place on an Early Bronze Age Collared Urn, and the size and profile would also be appropriate, however the paired fingernail rustication over the neck, and especially the body, are not typical of Collared Urns in Britain and betray a Fengate origin. This vessel is the only pot in Pit 6034; it was broken in antiquity and is restorable in part, but not as large sections, though all parts of the pot except the shoulder are represented – a situation exactly comparable to that of the Mortlake bowl, PGI.A from Pit 1052.

Two very small rimsherds, **PGIV.B** (Fig. 31) and **V.C** (Fig. 32) do not belong to the predominant Fengate types at Llandygai or elsewhere. PGIV.B is the more interesting; a fragment of upright notched rim in a smooth well-fired brown fabric. Such notched rims can be found amongst Grooved Ware in northern England and Scotland (e.g. Noltland P3a (Sheridan 1999, 117, fig 12.4) but there is also a Fengate style pot (P276) from Windmill Hill which has a notched rim (Smith 1965, fig 34). This rimsherd comes from the same pit, 4103, as PGIV.A and C which are entirely typical of the style so there seems no reason to argue for a different ascription.

Pot PGV.C is represented by two small sherds in a thin hard beige fabric with a slightly bevelled rim decorated with a single line of fingernail marks. In view of the almost complete dominance of herringbone decoration in this situation, this rim is a little unusual but not outside the Fengate stylistic range. It is closely associated in Pit 4133 with others which are more characteristic.

The other illustrated sherds

PG II.D, **III.L**, **III.M**, **IV.C**, **V.D** and **E** (Fig. 31) are featureless body sherds with decoration, mostly random fingernail marks, triangular stab marks or lightly incised lines. It is possible that they may belong to some of the other illustrated pots, most are certainly very similar. Three demand a little more comment. **PGIII.M** (Fig. 30) has already been discussed in the context of possible shoulders on the urn-like vessels. It is interpreted as a possible shoulder because the curvature is asymmetric. **PGII.D** (Fig. 29) has close set incised lines, perhaps in hatched panels divided vertically, which is not like any of the other Fengate pots, except perhaps on an

unstratified Llandygai sherd, which combines vertical fingernail lines and incised hatching. Such panels are more reminiscent of Grooved Ware schemes. However the sherds are associated with pots II.B and C in Pit 4012. **PGIII.L** (Fig. 30) is a representative sherd from amongst several in Pits 4062 and 4092 characterised by a soft, 'moth-eaten' beige fabric, several having a light scoring on the outer surface, as if produced by a fine comb. No shape can be reconstructed from these essentially featureless sherds, though PGIII.K is made from the same 'moth-eaten' fabric.

Discussion

The Fengate style was recognised as a distinct variant of the later Neolithic English impressed wares defined during the 1920s and was incorporated into her Peterborough series – Ebbsfleet / Mortlake / Fengate by Dr Isobel Smith in 1956. She argued that the elongation of the Mortlake rim into the Fengate collar suggested a typological and chronological sequence, which would end with the ubiquitous Collared Urn. This view was accepted by Ian Longworth in his classic study of the development of Early Bronze Age pottery (Longworth 1984, 19-21) and vessels such as PGVI.A and PGV.A would certainly help this argument.

Despite its importance, there has been no major study of the style, perhaps because assemblages have normally been small and most have been sherd collections from uninformative contexts, such as isolated pits.

For the most part Fengate style pots have been found in loose association with Mortlake style bowls and, slightly less frequently, with Grooved Ware. This has led to their relative neglect, especially as several decorative traits are shared and small sherds are difficult to accurately distinguish. As far as the Welsh distribution is concerned this is very much the case. On domestic sites such as Ogmore and Walton (Gibson 1998 and 1999) the mixture is very close. In pits, probably ritual rather than domestic, a distinction does seem to be maintained, as can be seen here at Llandygai and at other smaller sites in the Marches where the two styles are not intermixed within one pit. The same would seem to be true in Yorkshire (Terry Manby pers. comm).

Typologically the Llandygai Fengate vessels form quite a tight group dominated by the collared pots with bevelled rims and fingernail decoration, which occur in all the pit clusters. In pit cluster III there is a smaller group of vessels with pointed rims and probably a more conical shape and there is a wider range of decorative techniques, such as incision, cord and stabbed impressions. Looking at Fengate pots from other sites in Wales, it is clear that the predominant type at Llandygai is also predominant elsewhere and may turn out to be regionally distinctive.

Radiocarbon dates for the Peterborough series as a whole suggest a span of perhaps a thousand years (3500-2500 cal BC) but the expected chronological sequence of Mortlake to Fengate does not seem to be reflected in the few Fengate dates which exist (Gibson 1995, 30 and Gibson and Kinnes 1997). Three radiocarbon dates for Fengate Ware are available from Llandygai; they span the period 3346 - 3020 cal BC, exactly coincident with the span of the two dates for the Group I pits with Mortlake pottery. One date (NZA26679) was obtained on residues on a sherd of pot PGV.A; the other two come from the fill of Pit 6072 which contained sherds of pot PGVI.B.

Grooved Ware

Nine Grooved Ware vessels can be recognised, one (PGVIII.A) present in substantial quantity, the others represented by only a few sherds.

Context

Grooved Ware comes from two find spots widely separated across the site. The main one, containing six pots, is located close to the Early Neolithic house, yet only contains one tiny fragment of residual Early Neolithic pottery (Pit 1553). Other pits occur close by (Pit Group VIII) but they do not contain deliberate pottery deposits, so this Grooved Ware pit, though it contains pottery deposited in exactly the same way as the Peterborough Tradition pits (one major pot broken into large segments with a few sherds of other vessels) is isolated from them by some 200m. It is also isolated from the other Grooved Ware find spots (Pits 6041 and 6043) 450m away amongst a loose clustering of pits identified as Pit Group VI. In this cluster the Grooved Ware pits are close together and adjacent to others which contain only a few grams, perhaps closer to the Fengate fabric, but not definitively identifiable. The other pits, isolated from them, contained pieces of an urn-like vessel (PGVI.A), almost certainly a Fengate pot but atypical, a fragment of a more typical Fengate collar (PGVI.B), other featureless sherds similar to PGVI.B and, in Pit 6061, a tiny thin-walled sherd with well-crushed grits which, though featureless, is reminiscent of Beaker fabrics from Llandegai Henge B. It is noteworthy that this is the only hint of Beaker pottery on this large site.

Catalogue of Illustrated Finds and comparisons

PGVIII.A

(Fig. 34)

Large segments of this pot survive involving almost 75% of the rim, but none of the lower body or the base. Several segments, broken in antiquity, join and the integrity of the find groups suggest that they had been quite carefully placed in the pit.

It is a flared bowl, 300mm in diameter; the height is conjectural. It has an upright rounded rim the upper 12mm thinned on the inside producing a slight ledge. The profile varies around the pot; in places the ledge is sharply defined, elsewhere it is little more than a bevel. On the outside the rim is encircled by a band 25mm deep of 4 -5 shallow grooves. Below this the pot seems to be entirely covered with random blunt stab marks made at an angle.

The fabric is thick (14mm) and rather poorly fired, yellowy beige in colour outside with a grey/brown core; the interior is sooted in places. The interior surface seems strangely 'corroded', almost as if it had been stabbed with some pointed instrument, the indentations being larger and deeper than on the outer surface. The fabric feels light despite its thickness and few inclusions are visible.

All the features of this pot suggest that it belongs to the Grooved Ware tradition: the light poorly fired fabric, the simple flared profile, the shallow horizontal grooving at the bevelled rim and the random stabbed decoration of the body. The flattened base is missing and it lacks any decoration on the inside of the rim, a feature common on pots of this type elsewhere. Parallels can be found at Hunstanton in Norfolk (Healy et al 1993) and in Yorkshire and Scotland where the relative restraint of ornamentation is comparable (Cleal and MacSween 1999).

PGVIII.B

(Fig. 34)

PGVIII.B is a flat-rimmed vessel 280-300mm in diameter decorated with sharply cut U-shaped grooves in two encircling bands, one with two grooves, and the other with three. A band of regular stab marks may lie between the two bands of grooves. The shape is essentially straight-sided but with a slight curve towards the base. It seems to be less flared than PGVIII.A.

There are three sections of rim amounting to 140mm (c.15 % of the circumference). There is significantly less of this pot and all the others in the pit than there is of A.

The rim is flat with rounded edges, 12-14mm thick and neatly smoothed. On the outside 15mm below it are 2 sharply cut grooves 8mm apart. Another 3 sherds may all belong to a single piece (*c*. 120 x 60mm) which does not join to the rim but provides evidence for another band of 3 grooves cut in the same way and for the band of regular stab marks, either above or below it. These wall sherds are 10mm thick. One rimsherd has suffered damage to the surface by the join is convincing.

The fabric is hard, well-fired and dark throughout, especially near the rim. The ancient breaks are unabraded.

PGVIII.C

(Fig. 34)

PGVIII.C is a piece from the body of a rather more curved jar, 220mm in diameter, similar to Pot B but made from a rather thicker and softer fabric, more like that of Pot D, but less eroded. The decorative scheme is like that of Pot B: 3 encircling grooves, V-shaped and deeply cut, with a plain band below and 1 or 2 grooves below that. The outer surface is buff, the inner one darker with a dark core.

These two pots are very similar to each other and to pots from sites such as Balfarg, Fife, and Flamborough, Yorkshire, where grouped horizontal grooves and limited in-filling are relatively common (Barclay and Russell-White 1993, 94-108; Manby 1974, 70-4). They could also be compared to Irish Grooved Ware in the Knowth style, which itself has been linked to Scottish material (Brindley 1999, 24).

PGVIII.D

(Fig. 34)

PGVIII.D is another large flat-rimmed jar with deeply cut horizontal grooving but in this case in a rather more elaborate design. Unfortunately only one segment of this pot survives.

It is 300mm in diameter, decorated with 2 encircling grooves above a band of diagonal hatching fading into uncertainty due to the eroded nature of the surface. It is possible that the decorative scheme may have been open triangles. There may have been some stabbed decoration as well but the surface of the pot is so eroded that it is impossible to be certain. A possible piece of base (50 x 20 x 15mm) suggests that the bottom diameter was only 20mm less than the girth, giving a very straight jar shape. A slight outward turn at the lower edge of the sherd is probably due to the vagaries of manufacture.

The fabric is quite hard and well-fired, especially at the rim, but the surfaces are softer and so pocked that it is difficult to see the decoration, though the V-shaped grooves are deeply cut. The outer surface is beige in colour, the inner one grey with a grey/brown core.

PGVIII.E
(Fig. 34)
Four small upright rimsherds belong to a smaller jar with a possible diameter of 140mm and a wall thickness of 8mm decorated below the rim with a panel of reversed diagonal hatching. Two other sherds are judged to belong to the base of the same pot since the fabric is identical. These suggest a straight upright wall 8mm thick turning in to an unusually thin base with a diameter of 100mm. Two other wall sherds may be close to the base. The other 18 fragments in the find group are small featureless pieces with the same fabric characteristics. Both the inner and outer surfaces of all sherds are deeply pocked and eroded. The colour is pinkish beige with a dark vesicular core. Stone grits can be seen on the surface, but not in the core.

Both Pots D and E may be compared to the jar from the Amesbury Chalk Pit (Harding 1988, fig.3.b) though they do not have the internal decoration which is common in these straight-sided jars in the south of England. P8 from Trelystan near Welshpool is another comparable piece, especially similar to PGVIII.E because of its multiple hatching (Britnell 1982 164). Pot D is very much larger than E and the other comparanda, but most Grooved Ware assemblages demonstrate that similar shapes may be made in different size ranges.

PGVIII.F
(Fig. 34)
The final pot from this pit, **PGVIII.F**, is very unusual and unfortunately represented by only one sherd. It is a thin pointed rim, presumably from a small bowl decorated with applied pellets. There seem to have been two lines of these, just on the rim and 16mm below it. The two surviving on the lower row are only 6mm apart and there is a possible scar of a third. All are 9mm across and 2mm high. The fabric is smooth-surfaced, dark and vesicular.

Bowls with applied pellets are very rare but there is one from Walton (Gibson 1999, P48) and possibly another from Trelystan (Britnell 1982, P15) in Grooved Ware contexts, but the closest comparisons come from Newgrange in Ireland where small pellets occur on three bowls in a thin dark fabric similar to PGVIII.F (O'Kelly *et al* 1983, fig.37).

PVI.C
(Fig. 33)
PGVI.C from Pit 6041 in Pit Group VI is an undecorated bowl in a smooth, hard fabric, brown throughout. The rim is simple, pointed and slightly inturned, and it is judged that the bowl would have been quite small (*cf* one from North Deighton (Manby 1999a, fig.6:4.5)).

It is not quite as thin and fine as PGVIII.E, nor so interesting, but it probably belongs to the same range of finer bowls, which occur in small quantities in most assemblages and are not stylistically distinctive.

PGVI.D
(Fig. 33)
PGVI.D, also from Pit 6041 is represented by a neatly made base, 140mm across, exhibiting one flattened vertical cordon and possibly the scar of another. There are 57 other featureless sherds in the same poorly fired fabric with orange inner and outer surfaces and a black core.

PGVI.E
(Fig. 33)
PGVI.E, from the same context, is represented by 22 sherds from the lower body and base of what was probably a large jar (300-340mm in diameter) decorated with vertical ridges emphasised by fingernail marks (which result from pinching the clay). The fabric differs from D. The outer pink/orange surface is very soft and has been worn and weathered, but the core, tempered with a lot of well crushed stone grit, is fairly hard.

Vertical cordons and ridges are a feature of Grooved Ware in most parts of the country. A number of similar bases come from Durrington Walls in Wiltshire (Wainwright and Longworth 1971, fig.34) and from North Carnaby Temple in Yorkshire (Manby 1974, 37-52). They also occur amongst the Grooved Ware from Walton and from Trelystan in Wales. There is a substantial section from the base of a large jar (GL96.883) with a much wider vertical cordon amongst the unpublished material from Glyn, Llanbedrgoch, Anglesey (Redknap 1995, 2000).

The 47g of pottery in pit 6043 is made up of 11 featureless sherds in a fabric similar to PGVI.C.

Discussion

The Grooved Ware from Llandygai is an important addition to the limited assemblages from Wales because of its size and variety (Longworth and Cleal 1999, 203-4,206).

In the light of these new finds it might be appropriate to re-assess the large rimless pot, B63, from Henge B at the nearby sanctuary (Lynch and Musson 2001, 68-9), though the definite indications of a rounded base are still a barrier to its ascription to the Grooved Ware series. Examination of the material from Glyn, Llanbedrgoch in the National Museum does not show very close parallels to the Llandygai assemblage, principally because of the absence of any obvious Fengate material (Redknap 1995, 2000). The Glyn vessels are much more tub-like than the Grooved Ware from Llandygai and the wide bases are all footed. However GL2000.2633/2453/2587, the most complete Grooved Ware pot from Glyn, does show a band of horizontal grooving overlaid by fingernail or stab marks below a simple rim, which is reminiscent of both B63 from the sanctuary and the more bowl-like pots, PGVIII.A-C. The rather soft beige fabric and the strange erosion of the inner surface are also superficially comparable.

Comparisons with the small assemblages from below the barrows at Trelystan (Britnell 1982) seem somewhat closer than with the larger group of material from Walton (Gibson 1999). Although both these sites are ascribed to the Durrington Walls style, the material from Llandegai, certainly from Pit 1553, should perhaps be deemed Clacton Style, now thought to be somewhat earlier than true Durrington Walls material (Garwood 1999, 157-9). If this is so, the date for the appearance of Grooved Ware at Llandygai would be round about 3000 cal BC, about the middle of the date range for the Welsh Peterborough tradition (Gibson 1995, 30).

The two dates obtained from Pit 1553 (NZA 26693 and 26694) span the period 2893-2670 cal BC and would seem to confirm the suggestion above that pots PGVIII.A-F are contemporary with the pottery from Trelystan (Britnell 1982) and rather earlier than some of the other Welsh Grooved Wares assemblages, such as that at Walton (Gibson 1999, 96-7). The two dates from pit 6041 which contained pots PGVI.C-E, sit rather awkwardly together, considering that they both come from the same sample. One (NZA26680) is earlier than expected (3482-3121 cal BC) and should perhaps be discounted. The other (NZA26681) gives a span of 2571-2458 cal BC, a little bit later than the Walton dates and sitting within the later half of the Durrington Walls style (Garwood, 1999, 156). Insofar as the pottery from pit 6041 can be assigned to a sub-style, it would fit with this later date. It is interesting that the run of dates from the Llandygai pits confirm the temporal unity of the Peterborough styles and their separation from Grooved Ware, a pattern which seems to be consistent across the whole country.

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Table II.1: Typological Features of Fengate Vessels at Llandygai

Feature	II A	II B	II C	II D	III A	III B	III C	III D	III E	III F	III G	III H	IIII	IIIJ	III K	III L	III M	IV A	IV B	IV C	V A	V B	V C	V D	V E	VI A	VI B
Curved collar	❄	❄	-		❄	❄	❄	❄	❄	❄	❄	❄	❄	❄	❄			❄			❄	❄					
Rim: herring bone	❄	❄	-		❄	❄	❄	❄	--	❄	✞	✞	✞	✞	✞			❄			❄	❄					
Rim: pointed											❄	❄		❄	❄												
Pits under collar	-	-	❄		✞	✞	✞	--	--	--	✞	✞	--	✞	--			❄			❄	-				✞	❄
Shoulder	-	-	-		?	--	✞	--	--	--	--	--	--	--	--		?	--			?	-				--	--
Straight collar /flat rim																										❄	
Flat base	-	-	-	-	❄	--	--	--	--	--	--	--	--	--	--			--			❄	-		❄		❄	--
Odd rim																			❄				❄				
Finger nail decoration	❄	❄			❄	❄	❄	❄	❄	❄	❄		✞					❄		❄	❄	❄	❄	❄	❄	❄	❄
Incised decoration				❄	❄	❄					❄	❄	✞	❄		❄	❄				❄						
Cord decoration										❄			✞		❄												
Stabbed impressions						❄							✞														

Key: ❄ Present ✞ Definitely absent –- feature not present in surviving sherds

PREHISTORIC POTTERY CATALOGUE
Pottery from features around the Early Neolithic House

Pottery from postholes and structural features of the house
(Listed from east to west)

Context **1486** Find No. **1101**
Upper fill of posthole ***1483***, one of the east gable posts of the building.
1101: Crumb, fine dark vesicular fabric

Context **1392** Find No. **1100, 1271, 1314**
From fill of pit ***1393***, on line of gable at E end of building.
1100: 1 fragment of red/black vesicular pot 7mm thick
1271: crumbs
1314: crumbs

Context **1655** Find No. 1008
Secondary fill of posthole ***1656***, SE corner of building
1008: 1 fragment, slightly odd fabric but looks Early Neolithic

Context **1441** Find No. **80**
From possible post-trench ***1404***
80: 1 sherd (23 x 23 x 7mm) of red (? Re-burnt) vesicular ware and 8 tiny fragments of same.

Context **1442** Find No. **1013** and **1134**
Fill of post trench ***1404***, inside E gable end of the building.
1013: 1 sherd (20 x 13 x 6mm) red/black vesicular + 6 crumbs
1134: crumbs only

Context **1443** Find No. **1012, 1040** and **1325**
Fill of post trench ***1404***, inside E gable end of the building. Possibly contemporary with 1445
1012: 18 Fragments of dark vesicular except 1 crumb ? burnt stone.
1040: 1 Fragment, Pink, rather abrasive **?? Romano-British**
1325: Frags/crumbs of dark vesicular

Context **1445** Find No.**79**and **1105, 1143**
From possible post-trench ***1404*** inside E gable end of the building
79: **Rimsherd** (20 x 28 x 6mm) a neatly out-turned rim with smooth but eroded (moth-eaten vesicular) surfaces. Pale beige throughout.
1105: 1 red/black vesicular fragment 6mm thick
1143: 1 dark vesicular fragment 8mm thick

Context **1446** Find No. **1011**
Fill of post trench ***1404,*** inside E gable end of the building; probably represents final silting of feature.
1011: Red/brown abrasive fabric with grits, fine and also rounded. Possible impressions on surface. Does not look Early Neolithic

Context **1516** Find No. **989**
Fill, with charcoal and ?burnt stone, of ***1515***, a posthole within the post-trench at E gable of building
898: red crumbs ?re-fired.

Context **1369** Find No. **1139**
Upper fill with stone packing, flint and worked stone, of posthole ***1370***, part of partition across E end of building.
1139: crumbs only

Context **1290** Find No. **1259, 1269, 1302**
Fill of ***1291*** a small posthole with packing stones, part of a partition across E end of building.
1259: 3 vesicular fragments, pink, black and brown.
1269: Fragment, brown vesicular fabric
1302: fragment of dark vesicular fabric.

Context **1340** Find No. **891 and 1016**
Fill with charcoal of ***1339***,a small pit or posthole inside E end of building
891: 1 sherd (30 x 30 x 6mm) of more compact vesicular ware with semi-burnished outer surface. Not entirely typical of the other Early Neolithic wares.

1016: 1 sherd (25 x 25 x 6mm) with a fine, coke-like texture, broken at a coil; 1 fragment similar.

Context **1405** Find No. **84** and **1014**
Fill of post pipe in Posthole ***1406***, one of the main aisle posts.
84: 1 sherd (15 x 15 x 7mm) dark vesicular ware, outer surface burnished. From the curve of the **neck of a shouldered bowl**
1014: 1 brown vesicular fragment 8mm thick ?burnished surface.

Context **1389** Find Nos. **82** and **77**and **1133, 1154, 1264**
Packing layer within Posthole ***1406*** with flint, Graig Lwyd flakes and burnt bone
77: **Vesicular neck sherd** (36 x 30 x 8mm), outer surface burnished, inner smooth but matt. This could be from near the **shoulder** of Find 84.
82: 1 featureless sherd (20 x 23 x 7mm) loose vesicular ware, outer surface semi-burnished. This could be part of the same pot; it is equally fine but there are more voids and the surface is matt.
1133: 1 dark vesicular fragment, 5mm thick
1154: 4 vesicular fragments (1 pink with some grits)
1264: 1 brown vesicular sherd (20 x 22 x 6mm) with burnished surface
and 1 fragment

Context **1513** Find No. **92** and **1010**
Packing around post pipes 1533 and 1570 in Posthole ***1532***, one of the main aisle postholes.
92: 2 pinkish sherds (22 x 25 x 6mm and 20 x 20 x 8mm) of slightly vesicular pottery with no visible grits.
1010: 4 reddish vesicular crumbs

Context **1555** Find No. **111**
From a slot (***1556***) possibly part of a partition within the house
111: Dark vesicular sherd (18 x 18 x 6mm) and 2 fragments of pinks ? burnt clay.

Context **1610** Find No. **120**
From a slot (***1611***) possibly part of a partition within the house
120: 1 small sherd (13 x 13 x6+mm) consistent with Early Neolithic date.

Context **1526** Find No. **1257**
Fill of post-pipe within posthole ***1519***, one of the main aisle posts of building.
1257: 1 crumb red/black.

Context **1403** Find No. **76**
From Posthole ***1402***
76: Sherd (23 x 22 x 12mm)? from lower body of pot; vesicular ware but thicker than normal; pinky beige with smooth matt exterior.

Context **1293** Find No. **1141**
Primary fill of ***1294***, a posthole on the south wall of the building
1141: 1 small sherd of thin, fine pottery possibly containing very fine grit.

Context **1683** Find No. **127**
From Posthole ***1684*** in west gable wall of Early Neolithic building
127: 1 sherd (40 x 25 x 11-8mm) of slightly vesicular pottery with a little grit. One edge has a straight bevel but it is more likely to be the top of a coil than a rim, or possibly due to damage with a trowel, which has certainly damaged other surfaces. It just might be part of a hemispherical cup, hence the tapered thickness. It is probably Early Neolithic, but not very typical.

Context **1709** Find No. **151** and **1261**
From recut (1707) within Posthole ***1691,*** one of the main West gable posts of the building.
151: 5 sherds and 3 crumbs of hard, well-fired vesicular beige/brown pottery. The largest is 30 x 25 x 8mm; some others are 10mm thick but they are all probably the same pot. 2 sherds have deep impressions one of which has caused a hollow in the outer surface. 1 sherd (20 x 20 x 8mm) has a marked ?internal curve which might be a shoulder, but it is too small for certainty. There is one crumb of red surfaced vesicular pottery.
1261: 6 small fragments of abraded pottery with unusual impression/inclusions (not decoration)

Context **1731** Find No. **172** and **1294, 1324**
From 'recut' (1707) within Posthole ***1691***
172: 2 featureless semi-burnished vesicular sherds (20 x 25 x 12mm and 20 x 25 x 9mm). One damaged by trowel. These sherds could be the same pot as the main group in Find 151
1294: crumbs
1324: 3 fragments of vesicular pottery

Context **1722** Find No. **1380**
Post-packing fill of posthole ***1691***, possibly re-deposited material from the digging of 1691
1380: 1 fragment of dark vesicular pottery.

Context **1723** Find No. **1379**
Post-packing fill of posthole ***1691***
1379: 4 fragments of dark vesicular pottery.

Finds from Pits close to the East Gable of the house

Context **1327** Find No. **71** and **1103, 1114, 1127**
From Pit ***1328*** close to East gable of the house
71: 1 sherd (30 x 25 x 7mm) possibly re-burnt, vesicular ware
1 fragment (12 x 10 x 7mm) dark vesicular ware, perhaps from a shoulder or rim.
1103: 2 small sherds 6-7mm thick red (?re-fired) and 5 crumbs, black
1114: 4 crumbs, black and pink
1127: 1 crumb

Context **1216** Find No. **65** and **1018, 1029**
From Pit ***1249*** near SE corner of building
65: 1 thin dark vesicular sherd (25 x 32 x 6mm) with semi-burnished outer surface
1 red sherd (20 x 14 x 8mm) possibly re-burnt
1018: 3 sherds and 8 fragments; 2 contain white grits the others are vesicular
1029: 3 fragments of dark vesicular fabric

Finds from Pit 1619 at west end of house

Context **1631** Find No. **1030, 1125, 1138, 1186** and **1258**
Charcoal-rich layer in pit 1619, contained the butt end of a stone axe.
1030: 1 sherd (20 x 20 x 7mm) with an internal curve suggesting a gentle shoulder. Fabric dark vesicular with minute grits making surface slightly abrasive. 3 scraps similar. 1 thicker piece (20 x 15 x 11) of more compact fabric with minute grits. This might be close to a thickish rim.
1125: 3 tiny scraps, 2 dark vesicular, 1 more compact.
1138: 1 scrap 8mm thick of pinky/beige vesicular fabric; 1 tiny scrap more compact fabric.
1186: 1 fragment (10 x 10x ?6mm) dark vesicular, with outward curve which might be near rim but the edge is a coil break not the rim itself.
1258: 1 sherd (27 x 15 x 7mm) of pink/brown vesicular ware without minute grits, rather soapy feel.

There are 3 slightly different fabrics present, all consistent with Early Neolithic wares. A bowl with everted rim and gentle shoulder curve is suggested.

Finds from Features West of the house

Context **1703** Find Nos. **136, 141** and **1027, 1140**
From secondary fill of Posthole ***1704*** at west end of line of posts SW of house
1 fragment (15 x 20 x 8mm) of vesicular pottery with badly eroded outer surface (136)
10 fragments (largest 25 x 30 x 5mm) of very loose vesicular, poorly fired, featureless. 11 crumbs of the same pottery (141).
1 sherd (20 x 12 x 8mm) is better fired, with a red outer surface and brown interior (141).
1027: 2 fragments and 3 crumbs of red/brown vesicular pottery with good inner surface
1140: red/black crumbs only

Context **1708** Find No. **899, 892** and **877**
From Posthole ***1704***
12 tiny fragments of red/black (washed) pottery consistent with Early Neolithic ware (899) 3 + 4 further fragments, similar (892 and 877). All are similar to the reddish sherd in Find 141

Context **1728** Find No. **1006**
Fill of possible beam slot ***1727***, to the W of the Early Neolithic building
1006: 1 crumb

Context **1730** Find No. **1126**
Fill of pit ***1729*** to W of Early Neolithic building
1126: red/black vesicular crumbs.

Context **1744** Find No. **179**
From a burnt patch near gullies west of house
179: Fragment (22 x 12 x 9mm) of the **outer edge of a rim** showing that it was made as an additional coil. Vesicular ware, pink/beige smooth matt outer surface, black core.

Context **1726** Find No. **167**
From upper fill of linear hollow or ditch (***1738***) S of house , with large rubbing stone
167: **Rim and body of a dark vesicular unshouldered bowl** 300mm in diameter. All sherds join to form a single section of pot 135 x 100mm. There are several recent breaks but the ancient breaks suggest that there were originally 4 sherds with very slightly abraded edges; however the fact that all sherds were found close together would indicate that the piece was broken in the pit, lying inside uppermost and struck by a sharp object. Whether that was ritually significant or accidental no one can say u The fabric is very hard and well fired, 7-9mm thick; brown surfaces, semi-burnished, especially on the inner rim and interior; core black with many small angular voids and no visible stone grit. The shape is undoubtedly unshouldered, with a slightly pointed rim with a wide overhang at one end of the piece, but with a more rounded profile, like that of Find 130 from Context 1670, at the other.

Context **1739** Find Nos. **1145, 1170, 1198, 1356, 1370, 1377, 1288**
Fill of linear hollow/ditch ***1738*** south of house
1145: 1 dark vesicular fragment with good inner surface
1170: tiny crumbs
1198: 2 vesicular fragments with good inner surface

1356: 5 red/brown vesicular fragments 6mm thick
1370: 2 crumbs
1377: 6 fragments with vesicular fabric but containing some v. fine grits.
1288: 3 tiny crumbs
All the residue finds are consistent with the main find.

Finds from patches of surviving old ground surface south and west of the house

Context **1670** Find Nos. **129, 130, 131, 132, 138**
From land surface surviving in a hollow (***1669***/***1670***) to south of house
129: 3 crumbs not inconsistent with Early Neolithic date.
130: 1 **expanded rimsherd** of hard vesicular pottery with smooth surface (where surviving), dark throughout. The rounded top of the rim has been formed from a thin coil, which separated from the one below in antiquity (stuck for drawing). The combined piece is 30 x 20 x 11+mm
130: 1 **out-turned rimsherd** (20 x 22 x 8mm) in pinker, softer vesicular pottery. The thin outer edge of the rim has been curled over.
130: 3 crumbs and a small sherd (20 x 20 x 7mm) of hard, brown vesicular pottery.
131: 1 featureless sherd of dark, hard but eroded pottery with a reddish exterior and sooted interior (30 x 25 x 6mm); 2 fragments of thicker and redder ?pottery with an abrasive feel; 2 fragments of stone
132: 1 sherd (25 x 25 x 8mm) of poorly fired vesicular pottery with a smooth matt outer surface.
138: 1 tiny fragment (12 x 10 x 6mm) of **everted rim**, very hard but not burnished; 1 sherd (30 x 20 x 7mm) and 2 fragments of hard but less compact vesicular pottery .

Context **1700** Find No. **139**
From land surface surviving in a hollow (***1669/1670***) south of house
139: 1 sherd of vesicular pottery (20 x 23 x 7mm) with badly eroded outer surface.

Context **1713** Find Nos. **143, 144, 145, 146, 147, 149, 153, 154, 157, 168 and 1028, 1137, 1255**
From an old land surface within the south side of a hollow (***1669/1670***) south of house
Finds 146, 147 and 153 are similar sherds, vesicular reddish in colour and 8mm thick; all are featureless.
143: contains 10 sherds 7-10mm thick vesicular with very moth-eaten pink/beige outer surface and dark, ?sooted interior. There is no indication of shape and no joins, though all may belong to the same pot of which 5400 sq mm may survive. There is a hint of stone grit in the fabric. An 11th sherd (20 x 17 x 7mm) may be closer to those in Find 149.
Finds 149 and 154 are similar dark vesicular sherds. 154 contains a fragment from the **tip of a rim** (8 x 15 7mm) and a piece from a **curved neck** (lacking interior surface (15 x 20 mm)). 149 contains dark vesicular pottery, 3 joining to make a piece (53 x 48 x 6mm) from the **curved lower body** of a pot, perhaps 160mm in diameter. The other pieces might also join to make a section 72 x 48 x 6mm. The fabric is hard, smooth but matt with a rather coke-like texture (very small voids).
145: a small sherd (15 x 16 x 6+mm) of rather abrasive pottery, not obviously vesicular and ***perhaps not Early Neolithic***
157 and 144 contain abrasive material, heavily gritted without good surfaces, rather similar to the ***burnt material*** from *Context 1758.*
168: is lighter than 157 but may also be ***burnt clay*** rather than pottery.
1028: 1 sherd (20 x 25 x 6mm) of dark vesicular pottery, 3 similar crumbs and 2 red slightly abrasive crumbs (see 145)
1137: 2 dark vesicular fragments 6mm thick
1255: 1 crumb
Virtually all the sherds in this context are small and abraded but recognisably Early Neolithic. Three different rimsherds suggest that very small quantities of three different pots are involved.

Context **1706** Find No. **137**
From land surface surviving in a hollow (***1716***) west of house
137: 1 sherd (35 x 20 x 8mm) of compact and only slightly vesicular undecorated pottery with brown surfaces and black core with a very little grit. Not entirely typical but almost certainly Early Neolithic in date.

Context **1512** Find No. **89**
From an animal burrow to W of house
89: Vesicular sherd (30 x 25 x 10mm) with slightly soapy feel to smooth surfaces; pink outer, pale grey inner surface.

Context **1692** Find Nos. **133** and **134**
From an animal burrow west of house
133: 1 sherd (30 x 30 7mm) of vesicular pottery with beige surfaces and black core.
134: 1 sherd from the **angle of a shoulder** (28 x 29 x 6mm) in vesicular pottery with good, semi-burnished surfaces, dark throughout. There is a definite but un-emphasised change of angle at the shoulder.

Context **1758** Find Nos. **222, 223, 224, 229** and **230**
From old ground surface surviving west of house
All are the same doubtful material, ***not identifiable as pottery***; perhaps burnt clay. All are slightly abrasive, some with visible grits. Most are hard and lumpish without obvious surfaces. The size of the lumps varies from 10 x 15 x 10mm to 25 x 19 x 19mm.

All the contexts associated with the house contain exclusively Early Neolithic pottery. The rims and the few pieces of neck and shoulder indicate that they derive from normal shouldered bowls but very little of any vessel survives. Most sherds are small and abraded, suggesting that they are essentially domestic rubbish, a conclusion reinforced by a study of the material from the sieved residues which, apart from 2 small fragments from trench 1404, is entirely consistent with the larger pieces. A very

few joins can be made between ancient breaks but they remain small pieces, except the large section of rim and body of the straight-sided pot, Find 167 from pit 1738. This might be considered a deliberate 'deposit' but the rest seem to be accidental inclusions. The nature of the finds is closely comparable to those from the house found in 1967. It should be remembered that the posthole fills were not sieved in 1967 so the quantity of crumbs etc is less.

The old ground surface contexts also include predominately Early Neolithic material, again small quantities of several different vessels. Context 1713 contains 1 sherd, which might not be Early Neolithic but it is not far from the norm. The hard, abrasive material from 1713 and 1758 is not true pottery but is difficult to explain.

Pottery from miscellaneous contexts within Trench 1

Context **1821** Find No.**799**
Fill of burnt tree hollow (1822)
799: 4 tiny red fragments, not certainly Early Neolithic

Context **1069** Find No. **86**
Patch of stone deposited by colluvation and ploughing
86: 1 sherd (15 x 15 x 12mm) of hard abrasive undecorated pottery with red inner and outer surfaces and a black core. Also some tiny fragments of the same fabric. This feels as if it might be Late Neolithic or even Early Bronze Age.

Context **1002** Find No. **90**
Ploughsoil
90: 1 sherd (25 x 25 x 11mm) with red/beige inner and outer surfaces and black core. Contains well-crushed grit. Similar to Find 86.

Context **1063** Find No. **829**
Fill of animal burrow (1064)
829: Softish orange crumbs only. Similar to material from 1099

Context **1099** Find Nos. **801, 834, 835**
Fill of intensely burnt feature (1098), possibly a burnt out burrow or tree hollow
All are lumps without clear inner or outer surfaces. 834 is more beige than orange with some stone inclusions; others are without obvious inclusions. This might be burnt clay or daub rather than pottery. There is just a possibility that it might be pieces of clay moulds. There are a number of curved surfaces, but none is recognisable, more like straw or sticks.

Pottery from Pit Group I and other features near road: Trench 1

There are 4 Peterborough pots here (B, C, D, and E), represented by very small quantities of sherds. There is one small abraded sherd of Early Neolithic material which is probably residual, and one piece of a clay ?tube or possibly a tiny cup made is a fabric quite unlike the Peterborough pots.

Context **1156** Find No **58**
Layer of OGS overlying feature 1096
2 sherds and 3 crumbs
1 sherd (25 x 19 x 6mm) vesicular, rather moth-eaten surface, abraded but one small patch of burnish on outside = ***Early Neolithic ? residual***
1 sherd (20 x 13 x 12mm) hard with largish grits; outer surface orange, core and inner black = ***? Late Neolithic or EBA***

Context **1257** Find No **68** and **1296**
From pit 1258 cut by ditch 1034
68: Crumbs only, but ***genuine pottery***; orange surface with darker core and some quartz grits. One crumb is 9mm thick.
1296: 1grm of pink/black crumbs

Context **1219** Find No **806**
From 1220, a likely animal burrow
19 pieces (crumbs and lumps) of uniformly bright orange clay, soft and light. No sign of surfaces, but a certain texturing and some stone inclusions. Some lumps are 15-18mm thick, all are rounded. This is burnt clay rather than pottery. Similar to find 835

Context **1048** Find No **22, 23, 50, 833** and **1022**
From Pit 1049
2 different Peterborough-style pots, A & B, are represented by very small quantities of sherds; the crumbs and fragments are consistent with this style, but may belong to other pots.
PG1.F. 45 x 35 x 11-12mm, with beige outer surface and darker inner and small/medium stone grits. **Decorated** with 5 evenly spaced lines of stab-and-drag decoration. No indication of size or shape of pot (22).
A featureless, thinner sherd from (23) may be part of same pot (F).
PG1.G. 50 x 35 x 14mm, with brown/beige outer surface and black inner; a less cohesive fabric than 1 with larger stone grits (some white ?quartz). **Decorated** with less coherent curved lines (4-5) of complex impressions, ?bird bone. No indication of shape or size except that the sherd is curved, possibly from near the base of a bowl (22).
Fragments with large angular grits but pinker fabric from (833) and (23) may belong and a piece from Pit 1036, (8) might also belong to this pot (G).
50: Crumbs only

833: Mainly crumbs but 1 undecorated piece 15 x 15 mm
23: Mainly crumbs, pink/beige in colour and generally consistent with the decorated sherds in 22 but not certainly from the same pots. 1 sherd (25 x 15 x 9.5mm) dark brown, rather vesicular fabric but harder than E. Neolithic and smooth but not burnished, with a slight curvature. The fabric is different from 22/23 sherds but generally similar to fine quality Peterborough sherds in Pit 1036 (7).
1022: 4 g of pink/black crumbs

Context **1026** Find Nos **1, 794 and 1025**
From Pit 1027. Disturbed by an animal burrow.
3 sherds from a single Peterborough pot (C) and 1 sherd from small ? cup
1: 1 **decorated** sherd (39 x 25 x 14mm - the only piece surviving to full thickness) Pink/beige outer surface with black core and possibly some burnt deposit on the inner surface; large fresh, angular quartz grits. Decoration just recognisable as two lines of round stab marks in grooves. (PGI.C)
Another sherd with poorly preserved outer surfaces are consistent with the above.
1 very soft, thin, yellow/beige sherd (2 x 20 x 5mm) with a rather moth-eaten but quite compact surface and no obvious signs of grits. This is sharply curved and may come from a small cup c. 70mm in diameter
794: Crumbs and 1 larger sherd (25 x 25 x 10mm) are also consistent with the above.
1025: 3grm crumbs, pink/black
Context **1035** Find Nos **6, 7, 8, 785, 790, 795, 831, 898** and **1023** and **1024**
From Pit 1036.
PG1.B. 1 very finely **decorated** rimsherd (35 x 24 x 16 (width of rim) - 9mm (neck)) Inner bevel of rim decorated with 4 lines of small stab-and-drag marks, neatly made; outer curved flange of rim: upper angle with 1 line of tiny diagonal marks; below this, diagonally set lines of stab-and-drag marks, the raised areas between them burnished. The curve of the neck below the rim is well smoothed. The fabric is dark brown throughout, hard and well fired with some small quartz grits. (8)
PG1.Ba. 1 **decorated** sherd (21 x 22 x 9-12mm) probably from below a rim similar to (B). Below the almost-burnished curve of the neck are 2 lines of close-set line of ?stab-and-drag marks. Fabric dark brown throughout and very similar to B. (7)
PG1.D. 1 cruder, coarser **decorated** rimsherd (35 x 30 x 16 (rim) - 14mm (neck)) of same general type as B with inner edge inturned rather than bevelled and outer flange flat, decorated with 4 concentric lines of stab-and-drag marks. The curve below the rim is poorly formed and there are 2 rough lines of stab-and-drag decoration below it. (6)
2 fragments of the outer surface of a bowl (both 20 x 17 x 4mm) **decorated** with close-set lines of stab-and-drag marks. The fabric and quality is close B and D and the decoration could fit either. They have been assigned to D because of proximity.
PG1.C. 1 small bevelled overhanging rimsherd (14 x 19 x 12mm), light brown throughout with angular quartz/mica grits. The decoration is neat stab-and-drag lines and lines made with a sharp roulette. There are 3 lines on the inner bevel, 2 stab-and-drag, 1 rouletted; on the outer bevel there are 2 rouletted diagonal lines. Although generally similar to PG1.B, it is slighter and the absence of the sharp incised line on the top of the rim suggests it is a different vessel (PG1.C) (1023).
PG1.E. 1 sherd (28 x 26 x 12mm); outer surface and core yellowy beige with dark inner surface; ?4 lines of decoration using twisted cord and a more circular stamp. No indication of the shape of the pot (831).
6: 1 sherd of ?pottery/burnt clay (20 x 25 x 5mm) red/pink throughout with a rounded edge (or possibly rim). The piece has a finger-width curve and might be the end of a tube of some kind or a tiny moulded cup (diameter *c*. 30mm).
831: 1 sherd (26 x 30 x 7mm) of undecorated vesicular pottery with a slight concave curve, possibly from a neck. The sherd is abraded and may be residual Early Neolithic
785: 1 fragment (15 x 20mm) with red outer surface and a possibly incised line. This and fragment (790) look more similar to material from Pit 1049 than the dark sherds in (6-8).
Fragments and crumbs in (795), (898) and (1024) are consistent with the dark sherds in (6-8)

Context **1051**; Finds nos. **11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 26, 27, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 47, 48, 804, 889, 920 and 1021 .**
From Pit 1052.
This large quantity of pottery seems to belong to a **single large Peterborough bowl in the Mortlake style** (PG1.A). There is variation in colour and effectiveness of firing and the extent to which ridges are sharp or smoothed, but such variation is to be expected in pots of this kind. The system of decoration varies down the body but at each change there are sherds, which show the transition. Only Find 38 contains a sherd, which might possibly be from another pot, but it is unlikely. Find 889 is a single sherd (20 x 25 x 7mm) of dark vesicular pottery which is likely to be **residual Early Neolithic material**.

Pottery from Pit Group II: Trench 4

These three pits contain only small pieces of pottery but the rimsherds are sufficiently distinctive to identify the style as Fengate, though the collarless curve of PGII.A can be paralleled among Grooved Ware at Durrington Walls. However the absence of a defined collar is not positively confirmed amongst any of the Llandygai pots.

Context **4048** Find No. **488**
Fill of Pit 4049.
488: 1 featureless sherd 25 x 15 19mm; pink outer surface with abundant angular stone grits.

Context **4022** Find Nos. **494**, **815 and 1002**
Fill of Pit 4021, close to Pit 4012
494: 1 rimsherd (60 x 48 x 13mm); smooth compact fabric with red/pink surfaces and brown core. An **in-curving rim** with fingernail marks in a herringbone pattern on the inner bevel and 4 lines of horizontal fingernail marks on the curved

exterior with an indication of a diagonal line below (PGII.A). No indication of the base of the collar survives. Possible diameter 250mm.
815: A washed fragment with rounded stone grit, which looks similar to 494.
1002: residue, pink crumbs

Context **4013** Find Nos. **706**, **490 and 1005**
Upper fill of Pit 4012
706: 1 sherd (40 x 30 x 12mm) from the **base of a collar with a deep pit** below it (PGII.C). Pink, abrasive fabric.
1 sherd (40 x 30 x 11mmm) from a **neck or collar with roughly scored hatching**, thin fine lines deeply cut (PGII.D). 2 fragments (20 x 20 x 10 and 15 x 15 x 10mm) with similar scoring. A crumb is similar. The scored sherds seem harder than the collar and more heavily gritted, but they could be the same pot.
1005: residue: crumbs similar to 706
490: 1 small **rimsherd** (PGII.B) with diagonal lines made with a fingernail on the outside(18 x 25 x 11mm) similar in shape to PGII.A and to many other rims from the site. The top of the rim is damaged but there is a hint of herringbone decoration surviving. The fabric is pink with much angular grit.
1 sherd (25 x 15 x 12mm) with **fine scoring** as Find 706
2 undecorated sherds (50 x 34 13 and 20 x 30 x ?mm) which are the same fabric as the collar in 706.
5 crumbs and 2 pieces of ? burnt clay.

Context **4014** Finds nos. **1389 and 1004**
Main fill of Pit 4012
1389: 1 sherd (38 x 29 x12mm) of red fabric with angular grits (as 490)
1004: crumbs similar.

Pottery from Pit Group III : Trench 4

Context **4068** Find Nos. **525, 526** and **1365, 1367** and **1371**
Fill of Pit 4069.
Pit 4069 contains quite a substantial section of the rim of one pot (PGIII.H) and only small fragments of another. There is a faint possibility that PGIII.H is part of Pot PGIII.F from Pit 4092.
525: Large sherd (80 x 55 x 12mm) from a **rounded collar** with virtually no overhang (260mm external diameter) decorated with rough deeply incised cross-hatching (PGIII.H). The fabric is hard with abundant stone grits but the surfaces have been smoothed over them. Both the inner and the outer beige surface have been sooted in places. The core is black.
526: 4 small sherds. Two are from **a pointed rim** 40 x 15 x 8mm) with diagonal incisions on the outside, in a hard brown fabric. It joins pot PGIII.H in 525. There is another possible rim,(10 x 20 x 7mm) more sharply inturned and undecorated (PGIII.I). It is less certainly a rim; it might just be from the base of a collar, but is rather too thin. The 4th sherd is featureless
1365, 1367, 1371: a very small quantity of fragments and crumbs which are slightly abrasive and not obviously related to the larger pieces recorded above.

Context **4061** Find Nos. **520, 521, 531, 533, 534, 626, 705** and **1374, 1385**
Main fill of Pit 4062.
520: 1 sherd (60 x 50 x 15-19mm) possibly from a **neck** where it approaches the shoulder (PGIII.M). There a light scratches on it, which might be decoration, but the pattern is not coherent. The fabric is beige/pink outside, with a black core and grey inner surface and contains large/medium stone grits. It is slightly soft to the feel.
521: 1 featureless sherd (40 x 25 x10mm) and 5 smaller similar ones. The fabric has a beige surface and brown core and is compact but stony. The surfaces have eroded badly giving the pottery a *moth-eaten appearance*. This fabric is also present in small quantities in 580 from Context 4093 in this Group.
531: 12 sherds and crumbs of softer beige-surfaced 'moth-eaten' fabric. 2 sherds have **combed decoration** on the outer surface, 1 sherd (46 x 30 x 8mm) is curved and has diagonal lines of ? twisted cord across what is judged to be part of a **collar** (PGIII.K), the 9 others are featureless but are clearly coil-built.
3 sherds (largest 25 x 25 x 9mm) of harder fabric with a good surface and lightly incised decoration (? Cross hatching)
1 very thick sharply curved red sherd (60 x 40 x 19mm) with an approximate diameter of 120mm and a small piece of abrasive red-coloured pottery.
533: 3 sherds and crumbs of soft beige surfaced 'moth-eaten' fabric with black core. 1 sherd (55 x 50 x 8mm) has an area of comb-marking on the outer surface. The other sherds (30 x 15 x 9 and 33 x 25 x 10mm) are featureless.
1 sherd (48 x 35 x 9+mm) possibly from a lower body with diameter about 140mm with lightly scored cross-hatching (PGIII.L). The fabric is hard, brown throughout with large angular grits. The incised pieces in 531 may belong.
534: 6 featureless sherds (largest 40 x 25 x 10mm) of 'moth eaten' fabric.
1 sherd more abrasive with large quartz grits.
626: 1 sherd (75 x 70 x 13-15mm) from **a curved collar with a pointed inturned rim** decorated on the outside with incised counter-hatching (PGIII.J). The fabric is hard, orange/red throughout with much large angular stone grit.
705: 1 lump not certainly pottery
1374 and 1385: only crumbs of slightly abrasive pottery not obviously related to the larger pieces found (except 531)

Context **4067** Find Nos. **522** and **627**
Burnt deposit in the bottom of Pit 4062.
The 2 fragments of pottery are rather unusual; perhaps they have been re-burnt.
522: 1 fragment of softish pottery with orange outer surface with unusual angular grits. 2 lightly incised lines on the outer surface, inner surface lost. Fabric unlike others.
627: 1 fragment of whitish gritted ware, which looks a little like Roman mortarium.

Pit 4062 contains only small quantities of 4 or 5 pots. There are two pots with curved collars, which are comparable to others from this pit group. The cross-hatched sherds may belong to a lower body,

which indicates that decoration regularly covered the entire body of the pot, a feature which distinguishes these Late Neolithic urn-like vessels from the later Bronze Age ones.

Context **4093** Find Nos: **529, 530, 540, 541, 532, 580** and **1026, 1146 1265, 1267, 1303, 1386**
The fill of Pit 4092. It contained a large quantity of pottery, a high proportion probably from one single vessel, but other pots are present in small quantities.

540: This rimsherd joins to Vessel PGIII.A with a recent break.

541: Sherds from stab-decorated body as in 580;
A curved sherd (30 x 12 x ? (coil break)) decorated with horizontal fingernail marks but not joining the main pieces of pot PGIII.C from 580 /530, may show the bottom of a collar;
small hard sherd with internal projection.

529 and 530: These small groups of finds contained cord-decorated sherds and a few others.

529: 1 **collar sherd with arcs of double twist cord impression** and, possibly, a central depression. 1 fragment joins to make a piece 59 x 40 x 16mm.

530: A sherd (38 x 30 x 19) from the **bottom of the same collar** with a line of decoration, indicating the direction of the arcs.

1267: another piece of the overhang of the collar, which very probably joins sherd 529
Rimsherd (30 x 25 x 13mm) with curved cord lines on the outside and the abraded remnants of an inturned rim with herringbone finger nail marks.

1026: Fragment (15 x 14 x12mm) of better preserved **rim** showing curved lines in cord on the outside and herring bone fingernail marks on the inside.

580: 4 fragments (*c* 25 x 20 x 14-15mm) with cord-decoration, which confirm the suggested re-construction of the decorative scheme: a deep (85mm) collar with an *oculus* pattern (triple circles carried out in impressed cord with arcs above and below). The inside of the circle was presumably plain but one sherd suggests that the centre may have been depressed to form a large dimple, but this is not confirmed by other pieces.
All the cord decorated pieces are in a very hard brown/black fabric with well-crushed grits and an abrasive surface, suggesting that one vessel, PGIII.E, perhaps about 300mm in diameter is involved, but little is present. Several undecorated fragments from the residues 1267 and 1026 are made from this fabric but nevertheless it is unlikely that much below the collar was present. A section of collar about 140mm wide (about 15% of the whole) might be reconstructed but the variation in condition of the rim suggests that it was never a single block and must have been deposited as broken sherds.

529: 1 sherd (50 x 40 x 16mm) with close set lines of **overlapping fingernail marks** on a curved piece which may be from a collar; hard, pink/brown fabric with large/medium stone grits. This piece has ancient breaks and the overlapping fingernail marks are unlike others present. There is another piece of fingernail-decorated collar in 580, which is probably the same pot (PGIII.D).
2 fragments of 'moth-eaten' fabric

532: **1 rimsherd** (60 x 45 x 8mm) from a vessel, very similar to Vessel PGIII.A in 580 but with a narrower collar (28-30mm deep) and only 200mm in diameter. All breaks are ancient suggesting that this is part of a separate vessel. Hard, brown/black fabric. The collar is decorated with finger nail marks in a counter-hatched triangular scheme. The inturned rim has fingernail marks in herringbone pattern.
There is a very **similar collar sherd**, obviously from the same pot and with ancient breaks, in 580. The likelihood is that this collared pot (PGIII.B) is conical, with no shoulder
1 large sherd (80 x 60 x 15mm) from a plain section of body, close to a collar with an internal diameter of 280mm. The fabric is rather poorly fired with medium stone grits. All breaks are ancient. It is rather thicker than the upper parts of other pots.
These finds, which may come from the upper levels of the pit, seem to represent only small quantities of pots. The breaks are ancient and they may be the result of casual incorporation rather than deliberate deposition. The style of pots represented is, however, similar to the larger deposits.

580: This is the main group of finds from this pit. Large quantities of a single vessel PGIII.A (280mm external diameter at the collar) are involved and many recent breaks can be joined. However ancient breaks leave the pot separated into 3 sections amounting to about 50% of the rim circumference, though only one piece of shoulder is present and not much of the neck. A segment of base and lower wall of a plain body may belong. The vessel, therefore, was never complete. This would seem to be the main deposit and looks deliberate. However other vessels are present. Some, such as parts of a lower body with random stab decoration, are represented by quite large pieces and others by only a few small sherds. Pieces of the moth-eaten fabric with comb marks similar to the material from Context 4061: 553 and 531 (PGIII.K) are present

'Moth-eaten' fabric as in Finds 521, 530, 531, 533 and 534 from Context 4061. There are 9 sherds in this fabric. One (30 x 20 x 8mm) has comb decoration on the outer light beige surface; another (45 x 35 x 10mm) has a slight curve and might come from near a shoulder, but the group is essentially featureless.

1 small sherd of pale vesicular fabric similar to small sherds from sieving material from other pits not originally thought to be 'pot pits'.

All three pits in Group III contained evidence of burning and pottery within the Fengate style. Only pit 4092 had significant quantities of any one pot, a large Fengate urn (PGIII.A) with a sharply inturned rim with herringbone decoration, of which a smaller example was found higher up in the same pit. Likewise the curved pointed collar (PGIII.F) from Pit 4092, another Fengate characteristic, was popular and is found in a different fabric in Pits 4069 and 4062 (PG.III.H and J). Cord decoration (PGIII.E) is relatively rare in Fengate Ware but the few pieces here can be ascribed to this style, rather than Mortlake, because the concentric circle and arc motifs are late, commonly occurring in a grooved technique at Durrington Walls. Other fabrics and possible decorative techniques such as the 'moth-eaten' sherds and their combed decoration are intriguing, but so little remains that not much can be said about them except that the rounded collar sherd (PG.III.K), if it belongs with the other pieces, suggests

that the unusual fabric is used in traditional ways. Although these pits are approximately the same distance from the Early Neolithic house as Group I pits it is worth noting that there is no residual Neolithic material here. Many of the small residual crumbs from sieving from this group are not obviously derived from the deposited sherds and suggest material within the soils. Although the urn shapes could be mistaken for Bronze Age pottery, I think they are all definitely Late Neolithic; as is their pit burial context, although the meaning of these deposits, which could still be merely 'rubbish', is far from clear.

Although certainty is impossible, there is a faint possibility that pieces of the same pot (e.g. 'moth-eaten sherds' in Pits 4062 and 4092) might be distributed in different pits in this group, which is not the case in others, where individual pots seem to be restricted to particular pits. Pots PGIII.H and F are also possibly part of the same vessel.

Pottery from Pit Group IV: Trench 4

Context **4099** Find No. **539 and 993**
Upper fill of Pit 4100 which contained possible packing stones, charcoal and burnt stones.
539: 2 small sherds and 1 crumb (PGIV.D). All have an orange/red outer surface, brown core and inner surface. The feel is abrasive with much well-crushed grit. One sherd (22 x 17 x 9mm) is featureless; the other (25 x 20 x 10mm) has possible fingernail decoration.
993: residue: 1 small brown sherd (15 x 10 x 6mm). Too small to positively confirm similarity to 539.

Context **4108** Find Nos. **551**, **827 and 1351**
Lower fill of Pit 4109.
551: 1 featureless sherd (25 x 25 x 7mm) and 3 crumbs of hard brown compact fabric, slightly abrasive to the feel (PGIV.E). Despite the thinness this is not Early Neolithic; it is closer to the brown hemispherical bowl PGVI.C from Pit 6041**.**
827: A washed fragment (15 x 10 x 7mm) is similar but with a paler surface.
1351: residue. 1 small sherd (20 x 15 x 9mm) of dark compact fabric as 551.

Context **4104** Find No. **703**
Upper fill of Pit 4103.
703: 2 rimsherds and 2 pieces of collar and 3 crumbs (PGIV.A).
Both **rimsherds** (20 x 25 x 14 and 12 x 20 x ?mm) are similar, with internal bevel decorated with herring bone fingernail marks and the exterior having lines of fingernail marks.
1 sherd (40 x 40 x 14) comes from the **bottom of a collar** decorated with counter-hatched lines of fingernail marks. There is a pit beneath the overhang of the collar.
Another sherd (27 x 32 x 12) may also be from a collar decorated with lines which are less certainly made with a fingernail.
The fabric of all is similar: quite well-fired with outer surfaces smoothed before decoration; relatively sparse angular grits; outer surfaces pink/brown with brown core. It is judged that all 4 pieces are part of the same pot.

Context **4102** Find Nos. **543**, **824 and 1003**
Lower fill of Pit 4103 contained large burnt ? packing stones.
543: 1 pink/beige sherd (25 x 30 x 12mm) with sooted inner surface (PGIV.C) is featureless except for 2 fingernail marks pinching the outer surface in a characteristic rustication technique, though the surface is not raised. Less hard and well-fired than the sherds in 703.
824: 1 pink crumb 7mm thick with ?impression on surface.
1003: residue: 2 fragments of the same slightly **inturned rim, the top cut by transverse notches** (PGIV.B). The fabric is smooth and brown throughout.

All three pits contained pottery, but in very small quantities. The style of the pottery is very similar to that in Group II and III pits; both contain fragments of characteristic Fengate collared vessels. The notched rim from 1003 is unusual. Burnt stones seem to be a notable component of the fills in this group and some of these stones gave the impression of being packing stones, so the pits may have had a practical function of some type

Pottery from Pit Group V: Trench 4

Only one of the two pits in this group, Pit 4133, contained pottery and all contexts are separately identified fills of this pit.

Context No. **4132** (upper fill) Find Nos. **555, 564 and 1266**
555: **Base of collar with a pit** (7mm diameter, 3mm deep); 2 fragments similar fabric. Hard fabric, brown throughout with large stone grits. Part of Vessel PGV.A, mainly in 568.
1 sherd (40 x 25 x 9mm) beige/black, rather softish fabric with a lot of angular grit and possibly some comb decoration and a very faint incised line on the outer surface.
1 red fragment (22 x 25 x 10mm) with 2 **fingernail marks**, fabric similar to sherds in 564.
3 fragments of black pottery with a lot of grits, without an outer surface (as 564)
564: 1 sherd (30 x 22 x 13mm) with a lot of grits; hard fabric, red outer and black inner surface; spaced **fingernail marks**. Similar to sherds in 555, 567 and 572.

Possible **pointed rim** (22 x 20 x 9mm) with most of the outer surface lost. Red fabric with much grit.
1 sherd (20 x 25 mm) inner surface only of hard black fabric with lots of grit.

1266: residue 17 small sherds and 47 fragments. 1 piece decorated with 2 fingernail marks is unusually thin for a lower body sherd. Some thinner plain dark sherds may be from the upright rim in 570 (PGV.C).

Context **4161** (fill from below large stone) Find No. **567**

567: 1 small sherd (20 x 25 x 13mm) with red outer surface, black inner and a lot of angular grit; **3 fingernail marks** in ? line. This might be part of lower body represented by 568.

Context **4149** (fill spreading up the North and west sides of the pit with a lot of charcoal) Finds Nos. **568, 569, 571, 572, 624, 625 and 590, 1142, 1311 and 1313**.

572, 625, 569: A run of **rimsherds** which join on ancient breaks to form **xxx**% of the circumference of a collared pot (Vessel PGV.A) 250mm in external diameter. The inturned rim is decorated with two lines of fingernail marks arranged in herringbone fashion. The curved outer surface of the collar (48mm deep) has concentric arcs formed by 5 or 6 lines of fingernail marks and there are spaced pits directly under the base of the collar. The pits, 20-40mm apart, are 4mm deep but do not pierce the wall. *Museum display sherds needed to complete info.*

558, 568, 570, 571, 624: Twenty-five sherds carrying faint cross-hatching in fine incised lines. The depth, thickness and spacing of the lines varies somewhat. Joining sherds show that this decoration covers the **neck** below the pits. The neck is at least 48mm deep but the shoulder does not survive. *Museum box contains 1 curved sherd with cross-hatching, which might be close to shoulder; 3 others and 3 crumbs, all with cross hatching.* Several fragments from 590, and all fragments from 1142, 1311 and 1313 belong to this pot.
Some of these sherds may come from the **body below the shoulder** for sherds from the base and close to it have rather incoherent cross-hatching, suggesting that the whole of the lower body might have been decorated in this way.

568: A substantial amount, perhaps 3/4 of a narrow (70mm diameter) **base** survives. The main piece is 42mm thick with very abundant large angular grits and decorated to the bottom with random dispersed fingernail marks. Other pieces of this base suggest that rough cross-hatched incised decoration also occurs at the bottom. A wall sherd, 40 x 30 x 17mm, which is close to the base has similar sharp incised decoration and various fragments without their full thickness suggest the same. Pieces from 1311 belong.
The fabric of the rim is hard and well-fired, brown throughout, with reasonably abundant stone grit, which causes the surface to be uneven. Some sherds in 572 have a pinkish surface, which is badly corroded, but the decoration is similar and the variation may be acceptable. Sherds from the neck are more beige, with a very black inner surface and core but are equally hard and contain large angular grits but they are less evident on the surface than lower down the pot. The base has a pink outer surface and is beige/grey inside; it, too is very abundantly gritted. The ancient breaks are sharp and unabraded.

All these find numbers also include a few sherds, which do not belong to Vessel PGV.A.
In 568 there is 1 sherd (55 x 35 x 14mm) with a slightly soft corroded surface with random stab marks; in 572 there is a pinkish sherd (50 x 40 x 14mm) (PGV.D) but the fingernail decoration is difficult to reconcile with Vessel PGV.A ; in 624 there is a large sherd (72 x 48 x 10mm) with extremely faint cross-hatching (PGV.F), but from the neck of a pot only 120mm in diameter, which suggests that other pots very similar to PGV.A may have existed and not been recognised among the lesser sherds.

Context **4147** (lowest full with a lot of charcoal and hazel nuts) Find Nos. **558, 559, 565, 570 and 1208, 1268, 1270, 1312**

558, 559, 570: include sherds, which are part of Vessel PGV.A of which the bulk was found at the sides of the pit. Most of the fragments from the residues from this context belong to the main pot.

558: Together with 8 sherds from the neck of Vessel PGV.A there was 1 sherd (52 x 35 10mm) with a smooth black interior and very rough beige exterior with protruding angular grits and rather incoherent decoration of deep ? nail and other marks (PGV.E). A rather similar sherd occurred in 570.

559: 1 sherd Collar with arc, and small fragment of rim.

570: contained 6 sherds and 3 crumbs of Vessel PGV.A, the largest 30 x 30 x 11mm, all decorated with cross-hatching.
1 sherd (20 x 26 x 9mm) red throughout
1 **rimsherd** (18 x 25 x 7mm), hard beige/brown throughout with small grits. The rim is upright with a fingernail mark on the top surface (PGV.C). Another piece of this rim came from 590 ; a featureless body sherd (30 x 40 x 7mm) came from 1268 and several small sherds in 1266 might belong to it, being hard and relatively thin.
1 small rough beige sherd, as above.

565: 1 **rimsherd** (35 x 26 x 9mm) from a curved collar similar to many others at the site but having decoration on the inside, below the inturned rim (PGV.B). The decoration on the inside consists of 5 lines of herringbone marks, made by a fingernail. Those on the rim are shallower than those below. The outside is decorated with shallow diagonal grooving, probably made by a fingernail. The fabric is hard, dark throughout with much large angular grit. The outer surface is uneven but has been smoothed. All breaks are sharp but ancient.

The distinctions recognised within the fills suggest quite a complex deposition history, and the fact that the bulk of Vessel PGV.A comes from the sides of the pit suggests that it might have been deliberately placed there, not accidentally incorporated in some process of back-filling. Quite a high proportion of the damaged rim is present, as is the base and these may have been the more carefully placed pieces. Smaller pieces, such as those mainly from the neck and body may have been more casually included since sherds can be recognised at all levels. In addition there are small pieces from two completely different rims PGV.B and C), perhaps part of another cross-hatched pot (PGV.F), featureless sherds from a red pot decorated with fingernail marks (PGV.D) which was equally widely dispersed through the pit, and a few pieces of badly decayed black pottery.

Pottery from Pit Group VI: Trench 6

Context **6060** Finds Nos. **843** and **986**

The fill of Pit 6061.
843: 1 tiny crumb of hard beige/red pottery 5mm thick with very finely crushed grit.
986: another crumb of the same.

Context **6054** Find Nos **840** and **981**
Fill of Pit 6055 with charcoal and burnt flint and stone.
840: 6 tiny crumbs of red abrasive pottery with well crushed grit.
981: crumbs of the same abrasive fabric.

Context **6081** Find No. **839**
Fill of a probable tree hole [6075].
839: 3 crumbs of hard red abrasive fabric

Context **6042** Find No. **780** and **1361**
Fill of Pit 6043 with charcoal and flints.
780: 11 small featureless sherds (largest 15 x 25 x 11mm) all in the same rather 'mealy' fabric; orange/beige outer surface, black core and inner surface. It has an abrasive feel with well crushed grits, including a few larger pieces.
1361: 3g crumbs as 708

Context **6086** Find Nos. **867, 900, 907** and **983**
Fill of Pit 6087, a long way from the other pits in this group.
867: A hard orange lump with stone inclusions. Doubtfully pottery
900: A similar lump. Doubtfully pottery
1 featureless sherd (22 x 25 x 7mm) and 1 fragment; hard red abrasive pottery
907: 1 featureless sherd (26 x 15 x 7mm); hard red abrasive pottery
1 thick sherd (40 x 40 x 22mm) of very hard pottery with quite plentiful angular grits and a red outer and black inner surface. The outer surface is uneven with some possibly deliberate depressions. The curve suggests it might be close to a shoulder.
983: Crumbs of similar red abrasive pottery.

Context **6066** Find Nos. **846, 849, 850, 852, 854, 859, 930, 902, 903, 988, 984, 1070; 860, 861, 862, 857 and 1188, 1207 and 1256**
Fill of Pit 6072.
The majority of find groups from this pit contain pieces of the same pot (930). They share a very similar hard fabric with medium-sized angular stone grits. The surfaces vary in smoothness and colour according to position on the pot; most are beige - grey but a few are red/brown.
930: **Base of a collar** (60 x 60 x 16mm) with 3 lines of fingernail marks and a small deep pit beneath the collar (PGVI.B). The external diameter is about 240mm. A small sherd from 988 joins this collar.
903: 2 small fragments from the edge of a collar are likely to belong to PGVI.B.
850: Sherd (32 x 27 x 11mm) with coil break and 3 lines of fingernail marks
846: Sherd (30 x 40 x 13+mm) with coil break and fingernail marks. Both of these are likely to belong to PGVI.B
852: Large curved sherd (50 x 60 x 28mm) probably from close to the base. The diameter is about 120mm. The outer surface is undecorated, beige and smooth but rather pocked. The clay contains rather more grit than some of the others.
849, 854, 859, 902, 984 and 1070 and an unstratified find group (856) contain 6 featureless sherds which very probably belong to PGVI.B, together with a quantity of crumbs and fragments.
860, 861, 862, 902: 5 sherds of hard brown pottery with much angular grit which includes quartz. These are unlikely to belong to PGVI.B and have been labelled PGVI.F. The 3 sherds in 869-2 have small triple marks on the surface, randomly placed and it is uncertain whether they are any form of deliberate decoration. All are 13mm thick and likely to belong to the same pot but are otherwise featureless. 902 contains 2 thicker sherds which look to be the same fabric but have no marks on the surface.
857: A featureless brick-red sherd (30 x 30 x 9mm) with medium grits and an abrasive surface, but softer and 'mealy', as some sherds (PGVI.D) in Contexts 6005 and 6043 in this Pit Group. A fragment from 854 is similar.
1188, 1207, 1256: small quantities of crumbs consistent with the other material from the pit.

Context **6073** Find Nos. **865** and **866**
Another fill of the same pit, 6072
865: 1 **possible externally-bevelled rimsherd** (25 x 25 x 8mm) with a fingernail mark on the top (PGVI.G). However the bevel may be due to excavation damage. The fabric is uniformly red with very well-crushed grits.
2 fragments of red/black pottery which probably belong to PGVI.B
866: 1 featureless red sherd (20 x 22 x 9mm) and 3 fragments similar to the possible rim above.

Most of the sherds in Pit 6072 are small and featureless but the collar of PGVI.B is sufficiently distinctive to indicate that the pottery belongs to the Fengate style, although, without the pit, one might have been tempted to call it Bronze Age. Very small quantities of 3 other fabrics (PGVI.D-type, PGVI.F and G) are represented.

Context 6005 Find Nos. 628, 766, 769, 773, 774, 775, 776 and 1109 .
Fill of Pit 6041, with flints and burnt stone
628, 766, 773, 774, 775: all contain orange surfaced sherds with a 'mealy' fabric (PGVI.D). Only the **base** in 773 has any significant features. The other featureless sherds are likely to come from the lower body.
628: 17 fragments, the largest 25 x 25 x 9mm, with orange inner and outer surfaces and a black core. All are the same thickness (9mm) The pottery is poorly fired and breaks easily.
766: 5 small sherds, the largest 25 x 25 x ?, the other smaller, all 9mm thick. There is a hint of ? fingernail impressions on 2 sherds.

769: contains 16 crumbs in the same fabric.
773: A segment, 80mm long, of a neatly made very flat **base**, diameter 140mm, thickness 13, with a section of surviving wall 45mm high and 11mm thick. There are traces of a **flattened vertical cordon** (11mm wide and 1mm high) on this wall and a hint in the roughened surface that another one may have existed 25mm apart. There are 2 fingernail marks, which may be accidental. 22 crumbs are of similar fabric.
774: 16 featureless beige/orange sherds all 10mm thick, all poorly fired.
775: 19 featureless sherds, poorly fired, orange surfaces with black core, all 12mm thick.
774, 776 and 783 all contain sherds of a thicker orange/black fabric which come from the lower body of a **large pot decorated with vertical ridges** and finger nail marks (PGVI.E). The outer pink/orange surface is very soft and has been worn and weathered, but the core, tempered with a lot of well crushed stone grit is fairly hard. A small piece of base may belong to this pot but there is not indication of any upper body sherds being present.
774: 6 featureless sherds without obvious ridges, largest 50 x 42 x 15mm, with a soft pink/orange outer surface and black core.
776: A small segment of **base** much rougher than 773, diameter 100mm, thickness 17, in a fabric similar to the ridge wall sherds. Not enough survives to show whether the decoration comes right down to the base.
A large **slab of wall** (100 x 70 x 16mm) from the body of a pot perhaps 340-300mm in diameter, **decorated with close-set ridges**. There are finger nail marks along the side of these ridges but they may be a product of manufacture rather than intended decoration, since the ridges have been created by raising them from the surface rather than by applying a separate strip of clay.
9 other ridged sherds, clearly from the same pot but with much more worn surfaces, and 2 crumbs.
783: 1 sherd (47 x 40 x 16mm) with ridges, 5 others, smaller, with hints of ridges and 11 crumbs.
627: Residue sample contains 19g of crumbs, which could belong to either of the pink/orange pots.
769, 774 and 776 contain sherds from what is probably a single undecorated **hemispherical pot with a neat pointed rim**, diameter about 200mm, in a semi-burnished hard brown fabric with little visible tempering (PGVI.C). The edges are crisp and some ancient breaks join but it was not buried as a single piece. Approximately 90-120mm of the upper 55mm of the pot may be represented.
769: A small **rimsherd** (20 x 17 x 9mm) with ancient breaks.
774: 2 **rimsherds** (55 x 35 x 10-5mm and 55 x 30 x 10-5mm). Some ancient breaks join to these sherds.
776: 7 featureless sherds (largest 65 x 30 x 9mm) and a fragment of pointed rim.
1109: 36g of crumbs consistent with 628

This pit contains elements of three different pots (PGVI.C, D and E). The two larger ones are represented by bases and lower wall sherds only. The use of cordons on both may suggest Grooved Ware. The smaller hemispherical cup is a common type at many periods and can be found among assemblages in most styles, but is the only example so far seen at Llandygai.

Context **6006** Find Nos. **768, 630, 990**
The fill of Pit 6034
All the pottery in this pit appears to belong to a single pot (PGVI.A), broken in antiquity and restorable in part, but not as large sections, though all parts of the pot are represented.
630: 1 base sherd 40 x 40 x ?18mm; wall above 12 thick; diameter of base 70-70mm. Decoration, vertical lines of fingernail marks, continues to the bottom.
1 wall sherd 45 x 30 x 12mm with a poor surface.
768: 6 sherds from the **rim and collar** of an urn-shaped vessel (PGVI.A), 240mm in external diameter. Only 2 sherds from the rim itself survive, showing decoration on the top. They join convincingly at an ancient break, which almost coincides, with a change in the decorative scheme on the top; concentric fingernail marks and diagonal fingernail marks, which extend over the front on the rim at some points. The inner surface is poorly preserved and there is no sign of decoration there. The rim does not join to the collar below so the full profile is uncertain, but there is little doubt that they are the same pot.
The collar is restored as 40mm deep and is decorated with lines of fingernail marks creating alternating panels of approximately vertical and horizontal lines. One incomplete section is slightly curved and might have been part of a concentric arc motif as on Vessel PGV.A rather than a skewed vertical, but no other sherd confirms this. The collar has been coil made and there are several sloping fractures. The bottom of the collar is sharply defined and several pieces of neck show the beginning of the curve under it. There is no evidence for pits in the wall at this point. Four sherds (3 illustrated) and a few surface fragments in Find 990 survive, combining to give a length of about 140mm which is not a continuous run.
There is one ancient join between the collar and the neck, confirming the unity of the pot, but no other joins could be made.
The neck is decorated by fingernail marks with a variable amount of rustication of the surface. Some sherds suggest that the intended scheme was paired fingernail marks in vertical lines, but it was not tidily achieved. The surviving depth of neck is 40mm. There are 9 sherds (largest 50 x 40 x 11mm) (3 illustrated) and 8 crumbs which may be from the neck, mainly the upper part. There is only one join to the collar. One fragment (20 x 23 x 10mm) shows a slight internal curve which might indicate the shoulder by not enough survives to reconstruct its angle.
The **lower body** is represented by 3 sherds and a single small piece of the base. They all show a pattern of vertical lines of finger nail marks, alternately deep and shallow. The largest sherd (80 x 46 x 11mm) has rather abraded edges which suggests that it was not freshly broken when it was buried. The 2 other body sherds (45 x 30 x 11mm and 32 x 30 x 15mm) (1 illustrated) are less neatly decorated and rather more yellow in colour, but the variation is acceptable within one pot.
Despite the small proportion of body present, since all pieces show decoration it is reasonable to suggest that the body was completely decorated.
990: Residue from sieving: 4 fragments with collar decoration.
7 crumbs
2 fragments possibly not from this pot; 1 orange; 1 black without angular grit.

The fabric of Vessel PGVI.A is consistent in all sherds though the colour varies from brown to red outside, with a black core and inner surface. It is very hard and well-fired with a lot of large/medium angular stone grit. The outer surface has been smoothed before decoration but the inner surface is very uneven with a lot of protruding grits.

This pit is unusually free of extraneous material, apart from the sherds of Vessel PGVI.A which was never complete and had become somewhat weathered since it had been broken. The rim of this pot is unlike the inturned ones favoured elsewhere on the site and it would be tempting to see it as Bronze Age, were it not for the overwhelming use of fingernail impressions and the extensive decoration of the lower body. Only in Ireland is decoration of the lower body of Collared Urns at all common and fingernail rustication is certainly not used. I would, therefore, ascribe this pot to the Fengate style.

Pit Group VI is well away from the others, on the lower slopes overlooking the river. It is amorphous and widely spread and several pits lack pottery. Five pits contain only crumbs and small featureless sherds, which are likely to be incidental inclusions. The predominant fabric is an abrasive red/black ware typified by the Fengate PGVI.B This is unlike the fabrics from the other Pit Groups where well-crushed grits are not common. Some of the tiny, thin crumbs in this fabric might possibly be Beaker pottery since it is not unlike the fabric used for Beakers at Henge B, but none has any diagnostic features. The absence of Beaker pottery on Parc Bryn Cegin where so much other Late Neolithic material was available, is noteworthy.

Pit 6072 (Context 6066/6073) has one predominant pot PGVI.B but only small sherds are present and it would be difficult to argue for deliberate deposition. The same is probably true on Pit 6041 (context 6005) where 3 pots are involved, but only in small quantities, though sherds are claimed to make up 34% of the fill content. Only Pit 6034 (context 6006) with an exclusive pottery content, suggests a deliberate burial.

Pottery from Pit Group VII: Trench 3

Context **3144** Find Nos **474** and **476**
Upper fill of pit [3146].
474: 3 fragments of prehistoric pot. Seem to be genuinely without grits and quite close to PGIII 580 odd fabrics.
476: 1 sherd of prehistoric pottery. Contains a lot of burnt out inclusions, including grass. 474, 475 and 476 all have similar texture

Context **3145** Find Nos **475, 1072**
Lower fill of pit [3146], possible animal disturbance.
475: 9 fragments of prehistoric pottery
1072: 2 small sherds of prehistoric pottery from sample <292>. There is a good deal of well-crushed angular stone grit here. Good surface. This might be L. Neol/BA

Context **3154** Find Nos **878**
Fill of pit [3155].
878: Prehistoric pottery fragments from sample <294>. This seems genuinely different from the sherds from Pit 3146. There are tiny fragments of a variety of grits here. 1 sherd has v. well-crushed grit as in Grp VI pits

Pottery from Pit Group VIII: Trench 1

Context 1304 Finds 1281, 1301, 1335
Fill of Pit 1305
1281: 1g, crumbs, various colours but all probably Early Neolithic
1301: 2g, crumbs, mainly Early Neolithic but 5 are pinker.
1335: 5g, 2 crumbs and 3 fragment of Early Neolithic fabric.

Context 1554
Fill of Pit 1553.
The pit contained a great deal of pottery from perhaps 6 different pots, none complete but present in quite large pieces. All the pots can be paralleled in Grooved Ware contexts such as the Walton Basin (Gibson 1999). Despite the nearness of the Early Neolithic house, no substantial residual Early Neolithic sherds were found in the pit, 20 crumbs and fragments (including an abraded rims) were found in the sieved residues from soil samples from this pit. In addition, a section from the centre of a polished stone axe and a flake of Graig Lwyd stone were found. Find numbers relate to clusters of sherds within the pit and in most cases they reflect the placing of sherds from one pot in a specific place. The deposit therefore appears deliberate and not subsequently mixed.

95, 101, 102, 103 and possibly 2 sherds from 105: Large segments of this pot, **PGVIII.A**, survive. It has an upright rounded rim the upper 12mm thinned on the inside producing a slight ledge. On the outside the rim is encircled by a band 25mm deep of 4 shallow grooves. Below this the pot seems to be entirely covered with random stab marks made at an angle. There is 1 sherd, which might come from near the base.
The external diameter at the rim is 240mm, the thickness of the top of the rim is 5mm and of the wall sherds is 12mm. The shape appears to be essentially straight-sided, with a gentle curve towards what would probably have been a flat base. All the find groups contain sections of the rim together with featureless sherds with random stab-decoration. Since

several pieces are in the museum it is not possible to accurately estimate what proportion of the pot is present, but it was certainly not complete since no base is recognisable. It seems to have broken vertically into straight segments about 60-70mm across and was perhaps slab-, rather than coil-, built.

The fabric is thick and rather poorly fired, yellowy beige in colour outside with a grey/brown core; the interior is sooted in places. The fabric feels light despite its thickness and few inclusions are visible.

105**:** 9 sherds, of which 7 are probably all from a single pot (**PGVIII.B**). The other 2 (50 x 45 15mm and 33 x 30 x 15mm) are likely to belong to Pot A from Find 101.

Pot B is a straight-sided, flat-rimmed vessel 280-300mm in diameter decorated with sharply cut U-shaped grooves in two encircling bands, one with 2 grooves, the other with 3. A band of regular stab marks may lie between the two bands of grooves.

There a two sections of rim amounting to 90mm (10 % of the circumference). The rim is flat with rounded edges, 12-14mm thick and neatly smoothed. On the outside 15mm below it are two sharply cut grooves 8mm apart. Another 4 sherds may all belong to a single piece (*c*. 120 x 60mm) which does not join to the rim but provides evidence for another band of 3 grooves cut in the same way and for the band of regular stab marks, either above or below it. These wall sherds are 10mm thick. Another small featureless sherd belongs.

The fabric is hard and well-fired and dark throughout, especially near the rim. The ancient breaks are unabraded.

96**:** A single dark, well-fired rimsherd (60 x 45 x 15-12mm) with a single thin groove 9mm beneath it. A diagonal section of the outer surface appears to have been removed leaving raised areas at either end, looking like two diagonal cordons. In other respects this rimsherd looks very similar to Pot B; the rim is a little thicker and the groove shallower and thinner (because of the loss of the surface). The estimated diameter is 240mm but the length of the sherd is not enough for certainty.

Within the variation seen in prehistoric pottery it is reasonable to suggest that this sherd comes from Pot B.

107**:** A single segment (85 x 60 x 12mm) of a straight-sided flat-rimmed pot (**PGVIII.D**) 300mm in diameter, decorated with 2 encircling grooves above an area of stabbed decoration and diagonal hatching fading into uncertainty due to the eroded nature of the surface. A possible piece of base (50 x 20 x 15mm) suggests that the bottom diameter was only 20mm less than the girth – a very straight jar shape.

The fabric is hard and well-fired, especially at the rim, but the surfaces are so pocked that it is difficult to see the decoration, though the V-shaped grooves are deeply cut. The outer surface is beige in colour, the inner one grey with a grey/brown core. The fabric is similar to Find 106, but thicker and more robust.

A single sherd (33 x 30 x 14mm) with 2-3 grooves may belong to Pot D.

108: A single large segment of pot and 3 crumbs probably from the same vessel. The large piece (65 x 75 x 13mm) comes from close to the rim of a rather more curved jar, 240mm in diameter (**PGVIII.C**), similar to Pot B but made from a rather thicker and softer fabric, more like that of Pot D, but less eroded. The decorative scheme is like that of Pot B: 3 encircling grooves, V-shaped and deeply cut, with a ? plain band below and 1 or 2 grooves below that. The outer surface is buff, the inner one darker with a dark core.

Also in this find are 2 small sherds which join at an ancient break forming a piece 52 x 35 x 7mm from the rim of a thin-walled vessel about 140mm in diameter (**PGVIII.F**). The piece has a rounded upright rim with 3 pellets (9-10mm across and 2mm high) below it. One pellet is close to the rim, the other two (6mm apart) and a slight scar, which might be that of a missing pellet, are little lower. Since the rim has been damaged diagonally it is possible that there might have been two rows of pellets, but this cannot be proved. The fabric is smooth surfaced, dark and vesicular with no visible grit, but the use of pellets is unknown in Early Neolithic pottery. A similar decorative scheme can be found amongst the Grooved Ware at Upper Ninepence, Walton, though on a rather heavier jar in a sandy fabric (P48, Gibson 1999, 90). It also occurs in the Boyne Valley, Ireland among Late Neolithic material.

106**:** Four small upright rimsherds belong to a pot (**1554.E**) with a possible diameter of 140mm and a wall thickness of 8mm decorated below the rim with a panel of reversed diagonal hatching (compare Trelystan P8 (Britnell 1982 164)).

Two probably join to make a section 50 x 30 x 8mm; the others are very small (22 x 25 x 8 and 10 x 22 x 8mm). One sherd (35 x 30 x 9mm) and 4 crumbs show evidence of hatched decoration.

2 sherds (40 x 45 8mm and 25 x 30 x 8mm) may possibly belong to the base of the same pot since the fabric is identical. These suggest a straight upright wall 8mm thick turning in to an unusually thin base with a diameter of 100mm. Two other wall sherds (30 x 40 x 10mm and 20 x 27 x 9mm) may be close to the base. The other 18 fragments in the find group are small featureless pieces with the same fabric characteristics.

Both the inner and outer surfaces of all sherds are deeply pocked and eroded. The colour is pinkish beige with a dark vesicular core. Stone grits can be seen on the surface, but not in the core.

1009 and 1136: finds from sieved residues. 20 fragments of Early Neolithic material including one small piece of eroded everted rim (drawn). 4 crumbs may be from the pinker Late Neolithic material.

Variable quantities of four flat-rimmed straight-sided jars with variations on the same decorative scheme of grooved bands and stabbed rustication were placed, presumably with some care, into the pit. Much smaller quantities of two other smaller pots are included, perhaps less deliberately.

APPENDIX III: ANALYSIS OF TEN POT SHERDS FOR ORGANIC RESIDUES BY GAS CHROMATOGRAPHY-MASS SPECTROMETRY.

Ben Stern

Sample preparation

Visible residues from the interior of each sherd were sub-sampled with a spatula. Weighed portions of each sub-sample were extracted with three aliquots of ~3 ml DCM:MeOH (dichloromethane:methanol 2:1, v/v), with ultrasonication for 5 min. followed by centrifugation (5 min 2000 rpm). Excess BSTFA (N, O- bis(trimethylsilyl)trifluoroacetamide) with 1% TMCS (trimethylchlorosilane) (*Pierce*) was added to derivatise the sample which was warmed overnight. Excess derivatising agent was removed under a stream of nitrogen. The samples were diluted in DCM for analysis by GC-MS. A know quantity of C_{34} *n*-alkane was added to each extract as an internal standard.

Instrumental (GC-MS)

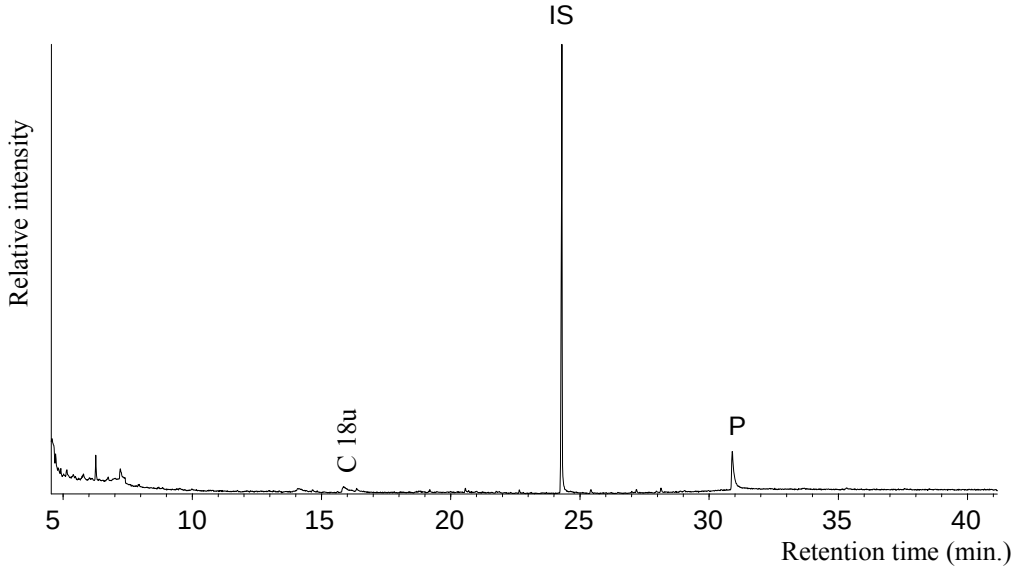
Analysis was carried out by combined gas chromatography-mass spectrometry (GC-MS) using a Hewlett Packard 5890 series II GC connected to a 5972 series mass selective detector. The splitless injector and interface were maintained at 300°C and 340°C respectively. Helium was the carrier gas at constant inlet pressure. The temperature of the oven was programmed from 50°C (2 min.) to 340°C (10 min.) at 10°C/min. The GC was fitted with a 15m X 0.25mm, 0.1□m OV1 phase fused silica column (MEGA). The column was directly inserted into the ion source where electron impact (EI) spectra were obtained at 70 eV with full scan from m/z 50 to 700.

Results

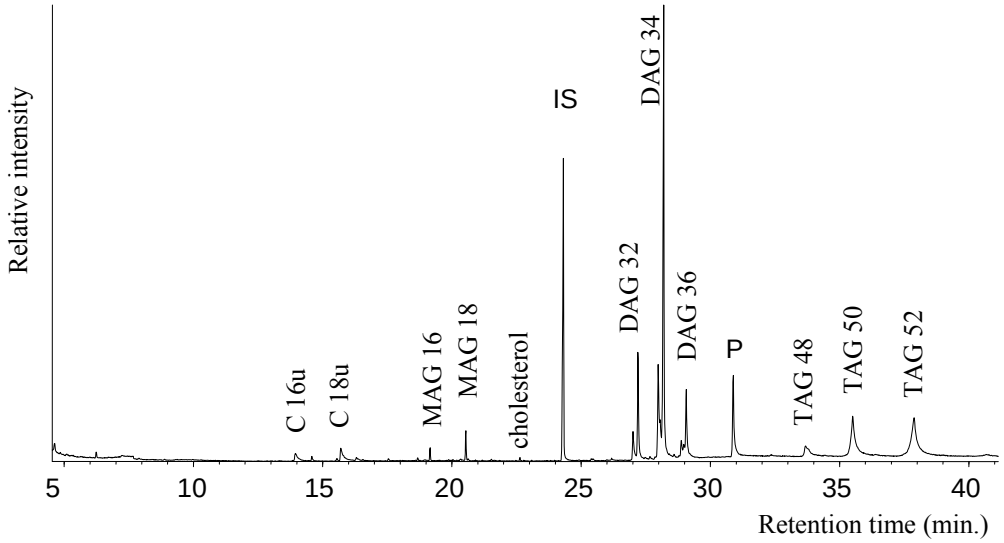
The results are presented as total ion chromatograms of the BSTFA derivatized solvent extract. These show each separated component of the solvent extract as discrete peaks, the area under each peak being representative of the abundance. The lower figures show a selected area of the chromatograms to illustrate the area of interest. Where identified, components have been labelled.

IS = internal standard, C_{34} *n*-alkane
P = phthalate plasticiser
WE = wax ester, with carbon number
C = saturated fatty acid, with carbon number. u = underivatised
OH = long chain alcohol, with carbon number
MAG = monoacylglycerol, with carbon number
DAG = diacylglycerol, with carbon number
TAG = triacylglycerol, with carbon number

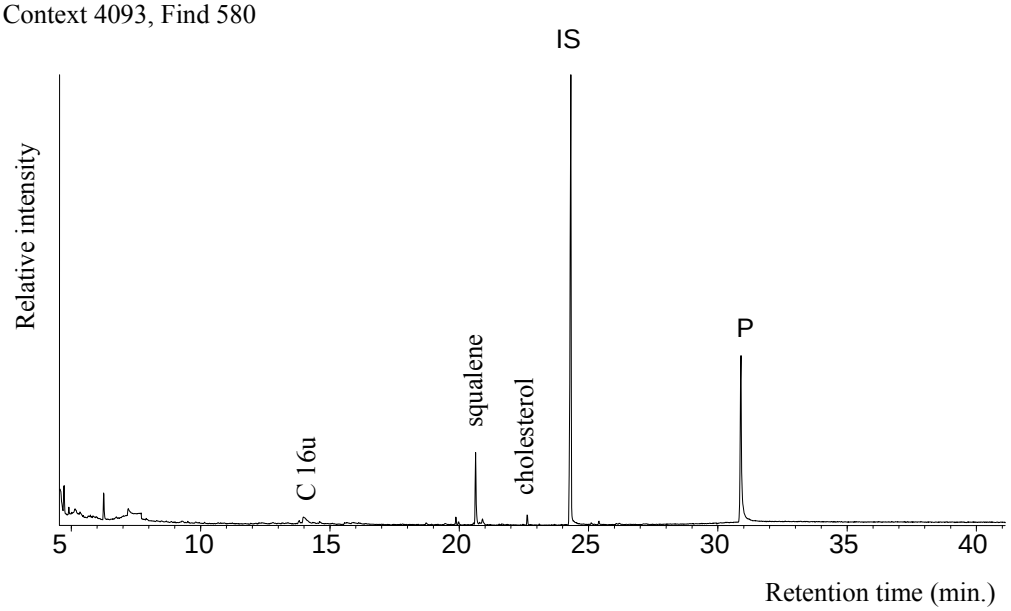
1431713, Context 1713, Find 143



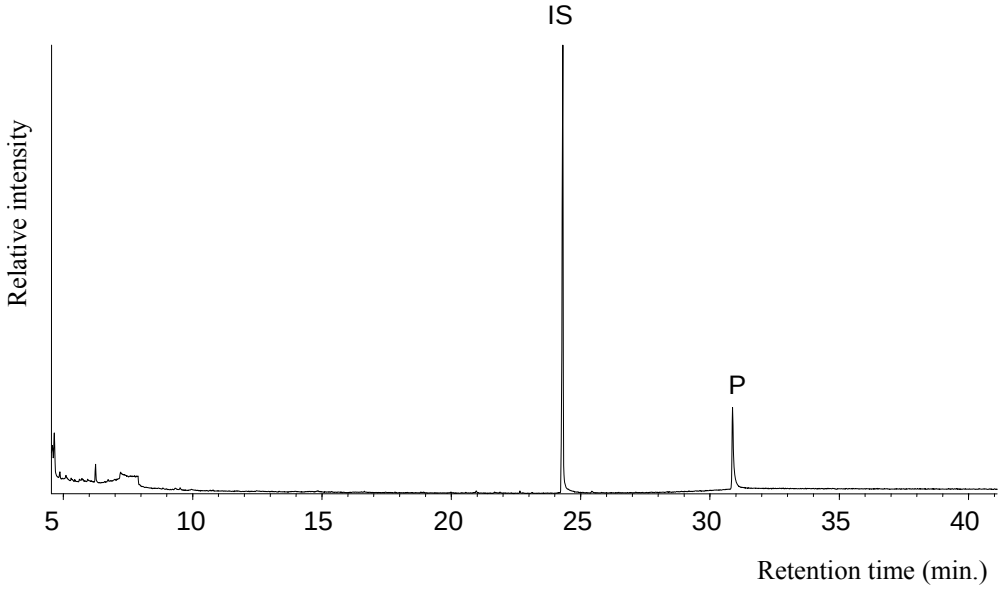
6005773, Context 6005, Find 773



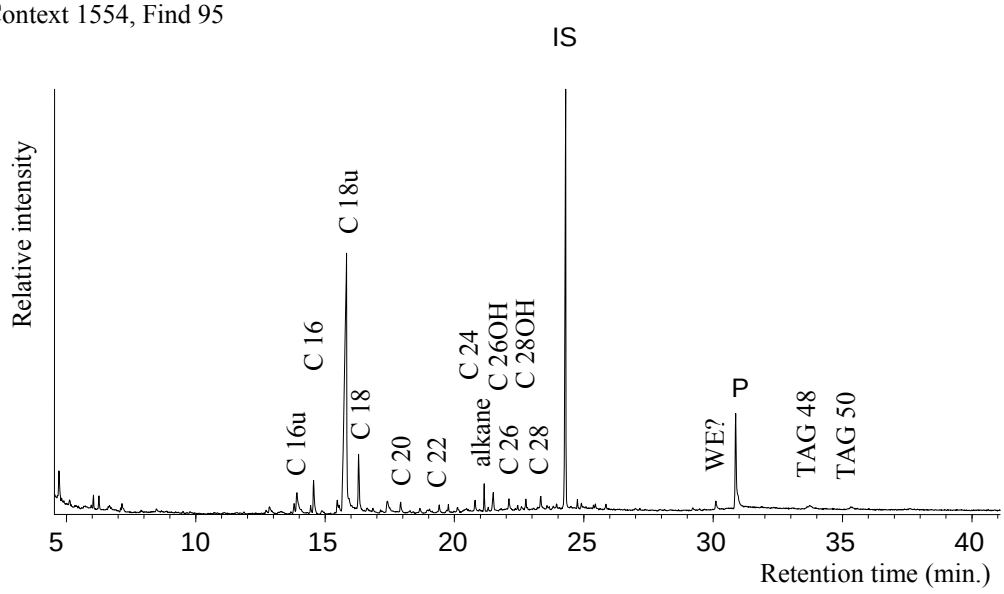
4093580, Context 4093, Find 580



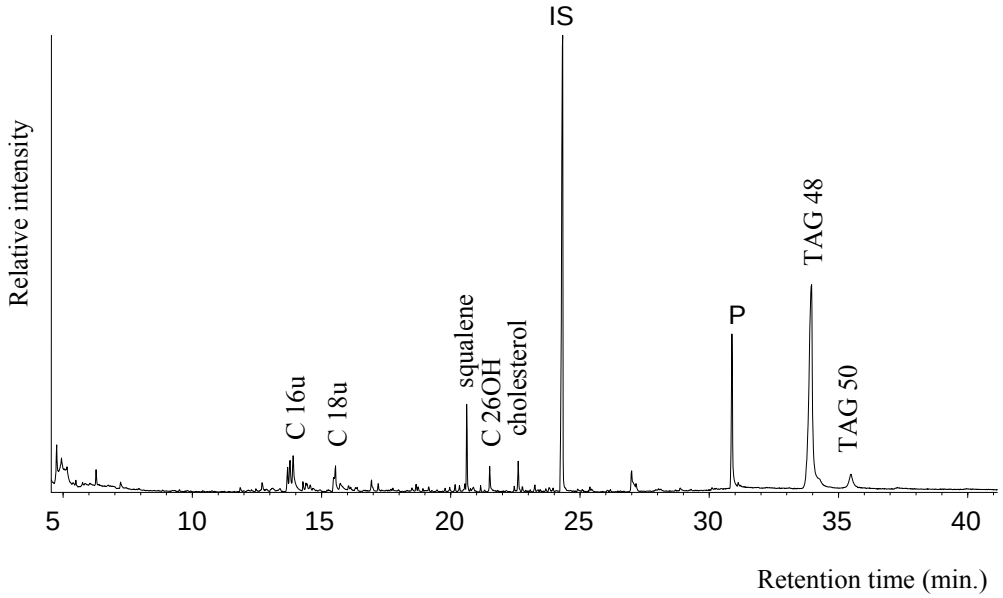
105140, Context 1051, Find 40



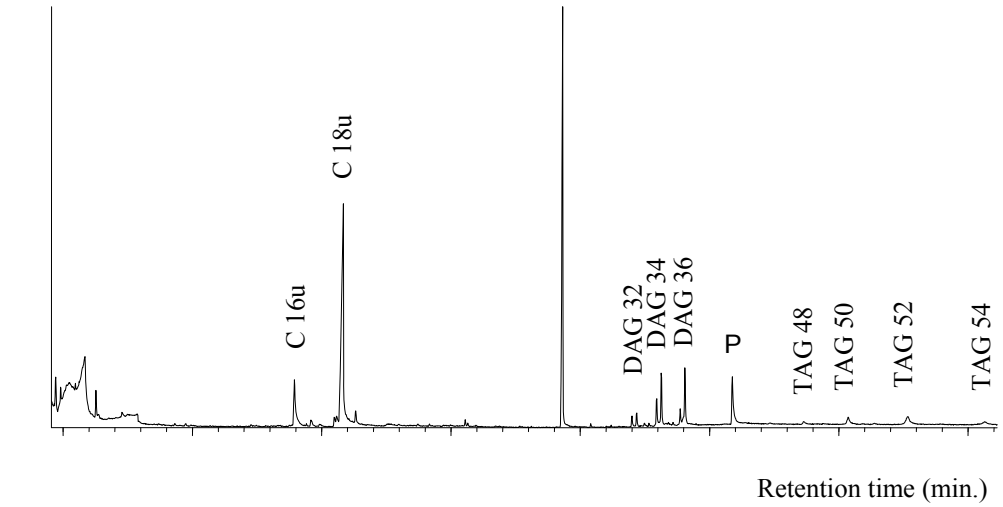
155495, Context 1554, Find 95



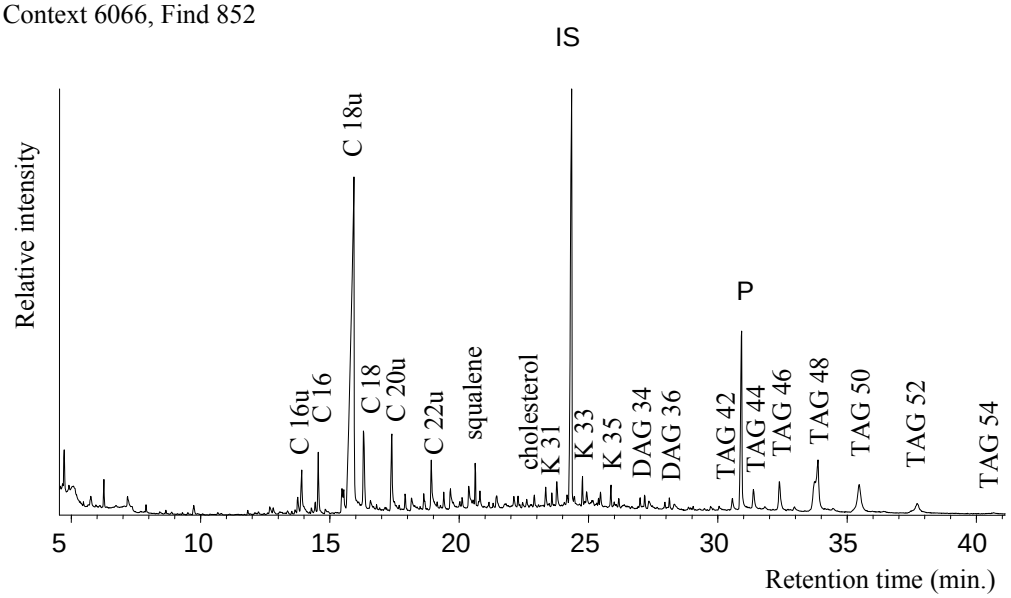
1554107, Context 1554, Find 107



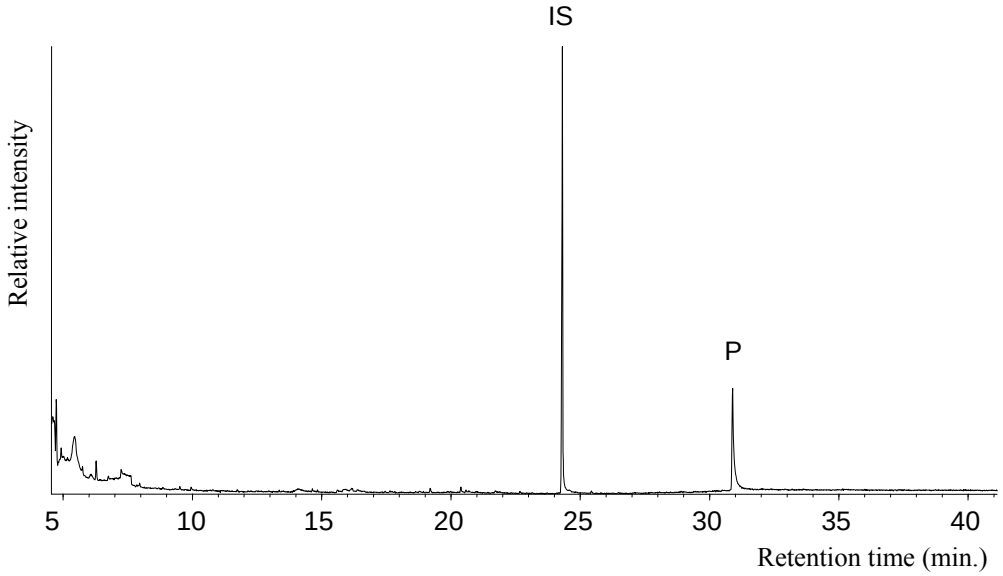
1670131, Context 1670, Find 131



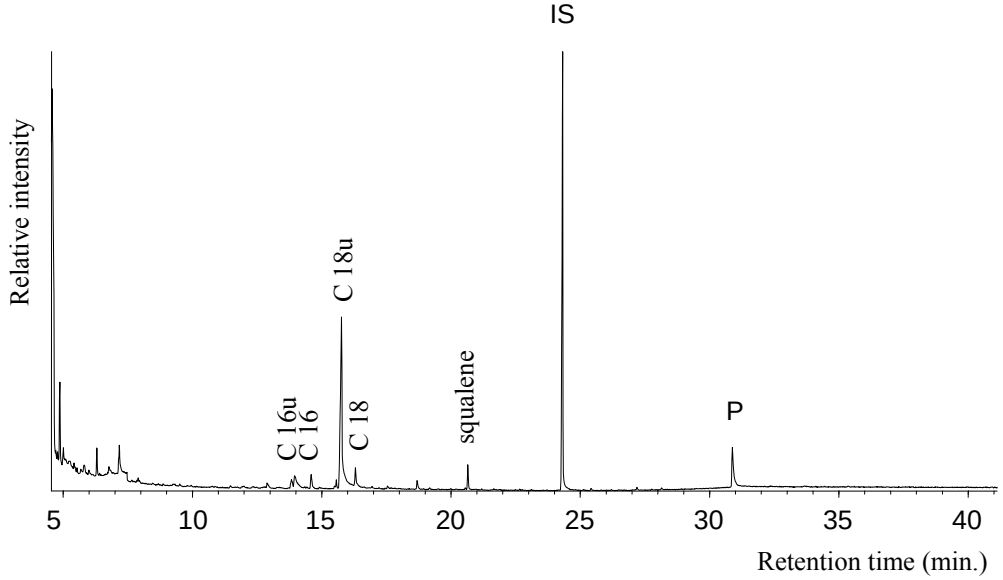
6066852, Context 6066, Find 852



10261, Context 1026, Find 1



4102543, Context 4102, Find 543



Summary

In the analysis of archaeological organic residues at trace levels many of the components extracted are known contaminants e.g. modern synthetic phthalates (P). These originate from a number of sources including packaging materials, sample preparation and instrumental artefacts etc. However, this contamination is easy to recognise and does not interfere with the analysis of any authentic lipids.

Cholesterol at low abundances was extracted from four sherds. Cholesterol is a marker for animal fats. However, the compound squalene was identified from many samples, this is important as both cholesterol and squalene are found on human fingerprints, and although cholesterol survives over archaeological time, squalene rapidly degrades. This implies that the cholesterol is not indigenous to the sherds and a result of recent handling.

Five of the sherds (Context 1713, Find 143; Context 4093, Find 580; Context 1051, Find 40; Context 1026, Find 1 and Context 4102, Find 543) yielded either no, or trace amounts of lipid. This is fairly typical of a residue study, where in my experience ~50% of sherds yield no lipid.

The remaining five sherds (Context 6005, Find 773; Context 1554, Find 95; Context 1554, Find 107; Context 1670, Find 131 and Context 6066, Find 852) yielded triacylglycerols and their degradation products the diacylglycerols, monoacylglycerols and the fatty acids. For the fatty acids, even carbon numbers were dominant across a range of C_{16} to C_{28}, with C_{16} and C_{18} the most abundant. Unusually, underivatised fatty acids (e.g. C18u) were recovered, this is either an instrumental/methodological artefact where the BSTFA derivatising agent has insufficiently derivatised the sample, or a result of degradation of the acylglycerols inside the instrument. Nevertheless this does not interfere with any conclusions.

The above evidence indicates that the original content was a triacylglycerol oil or fat, which has since partially degraded. The wide range of fatty acids, especially the longer chain ones, is indicative of a plant oil although this cannot be stated with certainty given the degradation of the sample.

In addition, odd carbon numbered ketones (C_{31} to C_{35}) were recovered from sample Context 6066, Find 852, these compounds are produced by heating an oil or fat, and are therefore likely to be produced during cooking.

Sample Context 1554, Find 95, yielded a possible wax ester and a number of long chain alcohols. Whilst the degraded state of these compounds cannot absolutely identify the origin of these, one possibility is beeswax. However, these compounds also occur in soil, so caution must be applied in interpretation.

APPENDIX IV: THE ROMAN POTTERY FROM PARC BRYN CEGIN, LLANDYGAI

Jeremy Evans with contributions by M Ward

Some 129 sherds of Roman pottery were presented for examination, weighing 0.686kg.

Fabric descriptions

BB1 - Black Burnished ware category 1, Poole Harbour area, Dorset. Williams (1977)
M01 - A whiteware pipeclay mortarium with red or black angular grog trituration grits. Mancetter-Hartshill.
M02 – Wilderspool Raetian type mortaria. The fabric has a dark blue-grey core with thin orange margins and surfaces with a thick dark red slip on the rim, with common translucent quartz sand temper *c*0.4mm. No trituration grits survive.
O01 - An oxidised fabric with an orange core, margins and surfaces, 'soapy' and 'clean'.
O02 - An oxidised fabric with an orange core, margins and surfaces, with a 'clean' matrix with occasional-some moderate sand *c*0.3mm.
O03 - An oxidised fabric with an orange core, margins and surfaces, with common moderate sand temper *c*0.3mm.
O04 - An oxidised fabric with a buff-orange core, margins and surfaces, with common fine-ish sand, *c*0.1-0.2mm.
O05 - An oxidised fabric with a buff-orange core, margins and surfaces, 'soapy', with some very fine lime >0.1mm.
O06 - An oxidised fabric with a blue grey core and orange margins and surfaces, with common coarse translucent quartz, *c*0.3-0.5.
O07 - An oxidised fabric with a buff-white core and margins and orange, oxidised surfaces, with some fine sand >0.1mm. Roman or post-mediaeval.
R01 - A greyware with an orange-brown core and grey margins and surfaces, with common moderate sand temper *c*0.2-0.3mm.
SGS – South Gaulish samian ware.
CGS – Central Gaulish Lezoux samian ware.
EGS – East Gaulish samian ware.

Catalogue of rimsherds and diagnostic sherds

Trench 2

Context 2098 SF221 Fill of small hole
Two fragments of possibly prehistoric pottery with a black core and brown margins and surfaces, 'clean', Wt >1g

Trench 3

Unstratified SF715

a) Five sherds, two joining, from a BB1 jar rim, with a cavetto-like rim, early-mid 3rd century. D. 14cms, RE 7%, Wt 6g
b) A BB1 jar rim, slightly beaded rim tip and wavy line burnish on rim beneath this, perhaps Hadrianic-early Antonine. D. 16cms, RE 5%, Wt 2g (Fig. 66)

Unstratified SF689
Three joining excoriated, eroded, samian rimsherds, probably CG ware, Dr 33, AD 120-200. D. 10 cms, RE 12%, Wt 5g

Context 3176 SF481 Fill of 3177, curving gully in evaluation trench near Roundhouse A
A largely excoriated samian bodysherd, probably from the base of a dish of form 18 or 18R, but the surfaces are mostly missing, SG, AD 70-110, Wt 5g

Context 3231 SF602 Fill of 3230, inner drain, Roundhouse A
A BB1 simple rimmed dish rim fragment, probably 3rd-4th century. D. ?cms, RE >2%, Wt 3g

Context 3267 SF563 Fill of 3266, inner drain, Roundhouse A
A badly eroded samian bodysherd, probably Les Martres and therefore *c*AD 100-125 Wt >1g

Context 3271 SF576 Fill of 3059, outer storm drain, Roundhouse A
A BB1 dish/bowl simple base, interior burnished, exterior has acute lattice and sooted. Hadrianic-mid Antonine. D. 9cms, BE 11%, Wt 10g

Context 3271 SF575 Fill of 3059, outer storm drain, Roundhouse A
Two joining fragments of a BB1 bowl bodysherd, interior burnished, exterior acute lattice or pointed arcs. Perhaps Hadrianic-mid Antonine. Wt 3g

Context 3271 SF582 Fill of 3059, outer storm drain, Roundhouse A
A badly eroded crumb lacking its surfaces. The orangey red fabric suggests East Gaulish ware of the Antonine period: probably from Rheinzabern c A D 160-180/200 rather than Heiligenberg c 135-160, but its identification as East Gaulish ware is itself uncertain. Wt >1g

Context 3271 SF574 Fill of 3059, outer storm drain, Roundhouse A
A BB1 flange rimmed bowl rim fragment, slightly sooted, Hadrianic-Antonine. D. ?cms, RE 1%, Wt >1g (Fig. 66)

Context 3271 SF574 Fill of 3059, outer storm drain, Roundhouse A
A BB1 flange rim bowl rimsherd with intersecting pointed arc decoration. Mid 2nd century. D. 16cms, RE 9%, Wt 18g

Context 3386 SF1263 Fill of 3387, inner drain, Roundhouse A
A BB1 dish base, exterior sooted, exterior decorated with pointed or intersecting arcs, perhaps mid-later 2nd century. D. 10cms, BE 10%, Wt 7g

Context 3693 SF659 Fill of pit 3694 in centre Roundhouse C
A largely excoriated samian dish bodysherd lacking almost all surfaces, SG, AD 70-110. Wt 6g

Context 3711 SF650 Upper fill of northern enclosure ditch
A samian bodysherd and a flake (possibly joining). There is a squared cleat hole on one side. Date uncertain, probably CG, AD120-200. Wt 3g

Context 3829 SF671 Heap of stones
A Mancetter reeded hammerhead mortarium with red painted vertical bands on rim, *c*AD 220-350. Fab M01. D. 37cms, RE 5%, Wt 24g (Fig. 66)

Context 3830 SF672 Burnt stone mound
A samian basesherd, eroded, excoriated on one side, probably though not certainly SG, AD 70-110. Wt 8g

Context 3831 SF674 Fill of 3842, SW end of ditch of Roundhouse D
Two completely excoriated samian bodysherds, probably burnt SG ware, AD 70-110. Wt 4g

Context 3928 SF690 Fill of shallow gully 3929, related Roundhouse D
a) Two BB1 jar rim fragments with wavy line burnished decoration, 2nd century. Wt 3g
b) A BB1 jar rim fragment with a beaded rim and wavy burnished line beneath, 2nd century. D. ? cms, RE >2%, Wt 2g
c) A BB1 jar rimsherd, probably 2nd century. D. 15cms, RE 5%, Wt 2g

Context 3991 SF719 Fill of gully 3992, running NW from Roundhouse D
Three joining oxidised sherds from a flagon rim, probably 1st-early 2nd century, Fab O03. D. 6cms, RE 20%, Wt 9g

Context 3991 SF717 Fill of gully 3992, running NW from Roundhouse D
Three sherds from a samian footring base. Central Gaulish dish form 31. An Antonine product, quite probably after c A D 150, but the piece is badly abraded and precise dating is difficult. Any signs of wear in use therefore cannot be discerned on the footring. Wt 25g, B.D. 10cms, BE 20% (Fig. 66)

Context 9012 SF692 Upper fill of trackway 9083

A Raetian type mortarium rimsherd with red slip on the rim, probably Antonine, probably from Wilderspool. D. *c*26cms, RE 6%, Wt 37g (Fig. 66)

Context 9161 SF734 Fill of gully 9162, SW of Roundhouse H
A very eroded excoriated samian chip, lacking surfaces, but taken to be SG rather than CG ware, *c*AD 70-110. Wt >1g

Context 9164 SF735 Occupation layer in interior Roundhouse H
An eroded and excoriated samian bodysherd, burnt as the fragments of the slip are black, presumably CG, AD 120-200. Wt >1g

Context 9164 SF736 Occupation layer in interior Roundhouse H
A BB1 simple rimmed dish rim fragment, exterior decorated with intersecting arcs, 3rd-4th century. D. ? cms, RE >1%, Wt 8g

Context 9164 SF740 Occupation layer in interior Roundhouse H
An eroded and largely excoriated samian bodysherd, exterior burnt, slip is black. Presumed to be SG rather than CG but not certainly so, AD 70-110. Wt 3g

Context 9164 SF741 Occupation layer in interior Roundhouse H
A BB1 eroded bodysherd and a BB1 simple rimmed dish rim, perhaps 3rd-4th century. D. ?cms, RE 3%, Wt 10g

Context 9164 SF745 Occupation layer in interior Roundhouse H
A BB1 simple rimmed dish rim, perhaps 3rd-4th century. D. ? cms, RE 3%, Wt 7g (Fig. 66)

Context 9164 SF746 Occupation layer in interior Roundhouse H
A very eroded, excoriated samian bodysherd, lacking all surfaces, CG, AD 120-200 Wt >1g

Context 9182 SF748 Fill of 9163, inner drain of Roundhouse H
A BB1 dish base sherd, interior burnished, exterior base decorated with a continuous loop burnished line, wall decorated with pointed arcs or arcs, perhaps mid-late 2nd century. D. 21cms, BE 8%, Wt 10g

Trench 4
Context 4058 SF492 Stony hollow
An eroded samian bodysherd, lacking most surfaces, probably CG rather than EG, *c*AD 120-200. Wt 2g

Discussion

Chronology
In terms of the date distribution of material from the site the peak would appear to be in the Flavian-Trajanic period, however the BB1 would appear to extend throughout the 2nd century and into the earlier 3rd century at least. The mortaria include a reeded Mancetter hammerhead mortarium that must date to after at least the second decade of the third century. There is no positive evidence of occupation beyond this, although a number of BB1 dishes could be of later date, but the assemblage is small, even for this type of site, and absence of evidence is not evidence of absence.

Roundhouse A
This contains a fragment of Les Martres samian dated AD 100-125 and several pieces of BB1 including a simple rimmed dish rim from the inner gully (3267 and 3231). The latter is a common 3rd-4th century form but does occur occasionally in the Hadrianic-Antonine period.

The outer ring ditch (context 3271) produced two sets of BB1 bodysherds from different vessels of Hadrianic-mid Antonine date and an East Gaulish sherd, perhaps from Rheinzabern, dated AD 160-180/200.

Overall material from this roundhouse dates from cAD 100 to the late 2nd century, with possibly 3rd century material also included, but the minimal date range might be AD 100-200.

Evaluation trench near roundhouse A
The curvilinear gully (3177), possibly a roundhouse ring ditch contains a South Gaulish samian sherd, Dr 18 or 18R dated AD 70-110.

Enclosure ditch to roundhouses C, D, and H
This contained three sherds of oxidised ware and a Central Gaulish samian ware sherd dated AD 120-200 from 3711.

Roundhouse C
Roundhouse C only produces a single sherd, a South Gaulish samian dish bodysherd from 3693 a pit in the centre of the house, dated AD 70-110. Given the quantity of pottery from the other roundhouses it is tempting to suggest that the absence of BB1 is significant here. Were that to be the case then use of this hut might have ceased by early in the 2nd century AD

Roundhouse D
This produced two South Gaulish samian bodysherds dated AD 70-110 from its ring-ditch 3831. There were also fragments from three BB1 jar rims of Hadrianic-Antonine date from associated gully 3928. Gully 3991 also produced a later 1st-early 2nd century flagon rim and a sherd of Central Gaulish samian ware dated AD 150-200. There was also an Antonine Raetian type mortarium rim from 9012, stones north-east of the roundhouse.
All this material fits within the date bracket AD 70-200.

Roundhouse H
This had associated with it a South Gaulish samian sherd dated AD 70-110 from 9161, a gully to the south-west. A Central Gaulish samian sherd dated AD 120-200, A BB1 simple rimmed dish with intersecting arc decoration of late 2nd to 4th century date, a South Gaulish samian bodysherd dated AD 70-110, two BB1 simple rimmed dish rims likely to be of 3rd-4th century date although they could be earlier, and a further Central Gaulish samian bodysherd dated AD 120-200 all from context 9164. There was also a BB1 dish base of mid-later 2nd date.
The material from roundhouse H certainly covers the date bracket AD70-200, but the three BB1 dishes are unlikely to all be of 2nd century date and its occupation as measured by pottery deposition would seem to extend into the 3rd century AD.

Fabric Supply
It is of note, that as on other rural sites in the region, the pottery from Parc Bryn Cegin is almost entirely composed of Romanised material. Nearly all of the pottery seems to have come to the site via the Romanised distribution system, unlike the situation in north-western England (Dore 1983), and the sources of supply are similar to those at Segontium.

Amphora is present, slightly surprisingly, at 1.6% by count and 34.1**%** be weight. Amphorae are only present on four of the seven North Welsh rural sites in Table IV.1, and levels here are relatively high, but in a very small assemblage. Table IV.1 shows the fabrics proportions (excluding mortaria) from rural sites and Segontium (after Casey et al 1993, Tables 16.1 and 17.2). As might be expected the only fabric represented is the commonest national type, Dressel 20 oil amphorae.

It is not clear that the presence of these fabrics implies the presence of their former contents at the sites, rather than simply a trade in empty containers.

The principal fabric in the assemblage is BB1 at 42.6**%** by count and 43.1**%** by weight (excluding amphorae which otherwise distort all the other fabric figures). The figures at first sight seem high, but actually comparison with Table IV.1 shows that these are very low figures for a North Welsh rural site, most other sites having this as the vast majority of the assemblage. Typical figures are the 76% from Bush Farm, 93% from Graeanog (Evans 1998), 86% from Melin y Plas and 64% from Bryn Eryr. Sites with comparable levels of BB1 are the apparently high-status site of Cefn Cwmwd with 45% by count and 36% from the small assemblage from Cefn Du, where the nature of the assemblage is enigmatic, although there are high-status aspects to it.

Nene Valley and other colour-coated wares are absent, as they are from lower status sites in Table IV.1.

Mortaria are represented by two sherds (1.6**%** by count) one is from a Mancetter-Hartshill vessel and the other is a Raetian type rimsherd, probably of Wilderspool origin and Antonine.

These two vessels represent the commonest source, Mancetter, and the second commonest source, Wilderspool, for mortaria from north Welsh rural sites (Evans forthcoming a, Anglesey).

Oxidised wares form a major part of the assemblage at Parc Bryn Cegin, at 36.5**%** by count. The majority of material in this class would appear to be of Flavian-Trajanic type, although some later pieces in Severn Valley ware, or a fabric of related tradition, also appear on some north Welsh rural sites, as for example the 3rd-4th century constricted-necked jar with bifid rim from Cefn Cwmwd (Evans forthcoming a, Fig 21.1, No 8).

Comparison with other North Welsh sites (Table IV.1) shows how unusual the Parc Bryn Cegin assemblage is in its level of oxidised wares. Most sites, if oxidised wares are present at all, have less than 10%, with the highest level being 14% from Cefn Cwmwd. These, and the dating of the samian ware from this site, imply relatively quite major coarse pottery use on Parc Bryn Cegin in the pre-Hadrianic period. This is most unusual, most sites showing scant evidence of pre-Hadrianic Roman pottery deposition and particularly scant evidence of pre-Hadrianic coarse pottery use.

Reduced wares are generally uncommon on north Welsh rural sites. There is only a single sherd at Parc Bryn Cegin amounting to 0.8% of the assemblage. This is fairly typical with only Bryn Eryr, of the rural sites in Table IV.1, having more than 2% of greywares. At Bryn Eryr the only reduced ware form was again of 2nd century date, as at Cefn Cwmwd, and corresponding to the peak of reduced wares at Segontium (Webster 1993, Table 17.3). Once again the level of greywares at Parc Bryn Cegin demonstrates how the pottery assemblages on the rural sites are a highly selected assemblage from what was available on the local markets, with nearly 18% of the Segontium assemblage being greywares, and similar levels coming from other forts. The lack of greywares from most rural sites probably suggests a general lack of interest in jars (or other forms) with fabrics not well adapted to cooking on an open fire or in the ashes, except on those sites with assemblages associated with higher status assemblages.

Table IV.1 Major fabric classes at North Welsh rural sites (by % count, Segontium by min vessels)

Fabric Class	Graeanog	Bush Farm	Melin Y Plas	Bryn Eryr	Cefn Cwmwd	Cefn Du	Segontium	Parc Bryn Cegin
Dressel 20 amphora	0	0	0	0.2	0	9	2.9	1.6
Other amphora	0	0.2	0	0	0	0	1.3	0
BB1	92.5	76.6	96	63.0	45.4	36	20.2	42.6
Shell-tempered	0	0	0	0	0	0	5.8	0
E Yks calcite grit	0	0	0	0	0	0	0.8	0
Nene Valley	0	0	0	2.8	0.5	0	3.0	0
Rhenish	0	3.6	0	0	0	0	0.2	0
Oxidised	5.2	6.9	0	7.6	14.6	9	18.4	36.5
White-slip flagon	0	1.2	0	0	1.0	9	Not determinable	0
Reduced	0	1.1	0	11.0	0.5	23	17.8	0.8
SG samian	0.9	0	0	4.3	1.0	0	13.1	5.4
MdV samian	0	0	0	0	0.5	0	0.5	0.8
CG samian	0.3	2.7	1	7.1	18.6	5	5.0	8.5
EG samian	0	0	0	0	1.6	0	0.5	0.8

Samian ware levels on the rural sites are generally very low, except at Bryn Eryr and Cefn Cwmwd (see Samian below), and nearly always have a Central Gaulish peak, despite the considerable amounts of samian reaching Segontium in the Flavian-Trajanic period.

Parc Bryn Cegin is the only rural site with a strong South Gaulish samian representation.

Samian

Summary

M Ward

The eighteen sherds represented a maximum of 14 vessels, of which approximately 39% was South Gaulish and 50% Central Gaulish ware with a further 6% from Les Martres and 6% from East Gaul. There was only one probable rimsherd (0.12 EVES). By weight the proportion of wares was 61% SG to 39% CG, the average sherd weight being only 3g. All the fragments were in very poor condition, most having suffered considerable erosion/decomposition as well as general abrasion in the soil; few sherds retained surfaces. Consequently only one vessel was firmly identifiable by form or fabric, an Antonine Central Gaulish Dr 31 bowl, otherwise none of the other vessels was precisely datable within the Flavian-Trajanic and Hadrianic-Antonine periods; one (dish) was probably Flavian; one Trajanic product of Les

Martres-de-Veyre was suspected; one (cup) may have been an Antonine product of Lezoux. Only three vessels were recognisable forms (one cup, one bowl and one dish). One indeterminate form, most likely a Central Gaulish product had seen cleat-type repair work, probably using lead.

Further comments
Jerry Evans

Most of the samian ware comes from stratified deposits, and very little of it can be identified to form. The only identified forms are a South Gaulish Dr18/18R, a Central Gaulish Dr33, and a Central Gaulish Dr 31.

Table IV.2: The Chronology of the Samian from Parc Bryn Cegin (by number of vessels represented)

Period	Vessels Represented by sherds from Unstratified deposits	Vessels Represented by sherds from Stratified deposits
Flavian		1
Flavian-Trajanic		5
Trajanic - early Hadrianic		1
Hadrianic		
Hadrianic - Antonine	1	4
Early - mid Antonine		
Antonine		2
Antonine - mid Third Century		
Mid - late Antonine		
Totals	**1**	**13**

Table IV.2 shows the date distribution of the Parc Bryn Cegin samian, it is most unusual in that nearly half of it is pre-Hadrianic. Other north Welsh rural sites produce some South Gaulish samian, but nearly all of them are dominated by Central Gaulish material. The only exceptions are the multi-period enclosure site of Castell Bryn-Gwyn on Anglesey which has produced sherds from three samian vessels, all Flavian and South Gaulish, with the Drag. 33 cup and platter form 15/17 represented (Wainwright 1962, 48) and perhaps Graeanog (Evans 1998) where, in a very small samian assemblage, there is marginally more South Gaulish material.

Cefn Cwmwd produced two South Gaulish samian vessels of first century AD date; 25 sherds of Flavian South Gaulish ware were also forthcoming from the Bryn Eryr farmstead (Longley et al. 1998); later first century samian also comes from Graeanog, Caernarfonshire (Evans 1998), Cefn Graeanog II, also Caernarfonshire (Going and Marsh 1998), and Dinorben, Denbighshire (Simpson 1964, 198; Boon and Savory 1971, 60).

Thus it is clear that these rural sites started to access Roman pottery supplies from shortly after the conquest, although they all seem to have been aceramic up until that point. However, initial access was often largely centred on samian ware, with relatively small quantities of pre-Hadrianic coarse pottery being used on these sites. Table IV.3 gives approximate proportions of samian ware and coarse pottery of pre-Hadrianic date from those sites with South Gaulish samian ware for which full catalogues are available.

Table IV.3 approximate quantities of samian ware and coarse pottery of pre-Hadrianic date from north Welsh rural sites

Site	SGS No	SGS %	Pre-Hadrianic coarse pot (max)	% pre-Hadrianic coarse pot
Cefn Cwmwd	2	6%	31	94%
Graeanog	3	15%	17	85%
Bryn Eryr	25	19%	107	81%
Parc Bryn Cegin	7	13%	46	87%

As can be seen samian ware is strongly represented on three of the four sites, the odd one out being Cefn Cwmwd where samian is strongly represented in the Hadrianic-Antonine period, as at Bryn Eryr. These levels of samian ware can be compared with the average (by weight) of 9.9% for samian amongst pottery

assemblages from Roman military sites in Britain, 8.2% in the case of major civilian sites, and 1.9% and 1.4% amongst assemblages from small towns/roadside settlements, and rural sites respectively (Willis 1999). There is little doubt that even at Cefn Cwmwd samian ware is disproportionately represented compared to the national pattern. Willis (forthcoming) has discussed this in the Cefn Cwmwd report. He argues that there is "a clear trend of selective acquisition of samian vessels amongst many indigenous communities, (or a selective trading of these wares to such communities). Hence pottery assemblages from rural sites of the mid and late first century AD often show an initially strong incidence of samian wares (e.g. Millett 1980), with a disproportionately high level of decorated vessels, predominantly bowls, being present (Willis 1997). This trend, whilst not universal, follows a wave pattern through Britain, as regions were incorporated into the Empire: samian is in the vanguard of Roman material appearing on indigenous sites, where it would have appeared novel. Further, it seems that sites of higher status, or distinctive identity, display the pattern to a greater extent, and the phenomenon is most apparent at sites in those regions lacking a deep pre-existing habit of ceramic use, and discard on site (cf. above). It would seem that there was a fashion for samian amongst local populations as a means of status or cultural display.

By the early second century AD this selective acquisition is typically no longer apparent, as pottery consumption at rural sites become much more focused upon functional vessels rather than those, such as samian, used in communal situations for display. Typically, therefore the proportions of samian are more modest and there is relatively less decorated ware.

Willis is certainly right about the early use of samian ware in North Wales as Table IV.3 shows, but it is less certain that high levels of decorated ware are part of this phenomenon. Where they do occur they tend to be on sites which display high status aspects in the 2nd century also, as, for example, Bryn Eryr.

Wider use of Roman pottery only takes place from the Hadrianic period onwards with the arrival of BB1 in the area. It is very clear from the differences between rural assemblages and that from the fort at Segontium that BB1 was differentially acquired on the rural sites. It is equally clear from the sooting patterns on vessels from these sites that BB1 was being used chiefly for cooking, and it would appear that most pottery use on the rural sites is because new cooking equipment became available to them which they found very useful. At some sites such as Bryn Eryr and Cefn Cwmwd samian ware is common in the second century and a very high proportion of it is decorated ware. This is fairly certainly being used for status display

Samian ware amounts to 15.5**%** of the entire pottery assemblage by count and 14.6% by weight (excluding amphorae) at Parc Bryn Cegin. This is a very high level, but no decorated ware has been identified from the site. This is also unusual.

Table IV.3 shows two other rural sites with high samian levels, Bryn Eryr and Cefn Cwmwd, but both of these had also very high levels of decorated ware. These latter two assemblages have both been interpreted as being of 'high status' in a region which did not have a strong tradition of ceramic use and consumption in the pre-Roman Iron Age and Roman periods and this seems borne out by other evidence from Cefn Cwmwd.

This makes the interpretation of the high samian ware level at Parc Bryn Cegin rather more problematic.

The average samian sherd weight at Parc Bryn Cegin is 3.6g, that from Cefn Cwmwd is 6.2g, and that at Bryn Eryr is similarly low (Longley et al. 1998, Table 1). Average sherd weights for samian in the order of 10 to 15.5 grams would appear to be normal for standard site deposits (cf. Fitts et al. 1999; Willis 2005). Thus the samian from Parc Bryn Cegin follows the typical North Welsh pattern, both for samian and coarse pottery, which is quite different from the national pattern. Willis (forthcoming) in discussing the Cefn Cwmwd assemblage notes that "It is of note that the samian assemblages from Melsonby and the Stanwick complex (North Yorkshire) have equally low average weights" (of 4.9g and 5.6g; data: Fitts et al. 1999). Haselgrove has posited (pers. comm.) that pieces of this fine ware were perhaps deliberately broken at Stanwick and Melsonby prior to their deposition, a practice which also seems likely in the case of the samian from Traprain Law. Alternatively, attrition via trampling, re-working and weathering may be significant in the case of Cefn Cwmwd, as well as Bryn Eryr. Whatever the explanation in the case of Cefn Cwmwd, a large proportion of these pieces from this site, as recovered, had reached their optimum point of breakage.

Table IV.4 Fabric proportions at Parc Bryn Cegin

Fabric	% Nosh	% Wt	% Wt	% MV	% RE	% BE	x sherd wt

			excluding amphora				
A01	1.6	34.1	-	0	0	0	117
B01	42.6	28.4	43.1	66.7	43.7	71.6	
M01	0.8	3.5	5.3	6.7	5.7	0	24
M02	0.8	5.4	8.2	6.7	6.9	0	37
O01	11.6	5.1	7.7	6.7	6.9	8.8	2.3
O02	13.2	4.8	7.3	0	0	0	1.9
O03	7.0	2.8	4.2	6.7	22.9	0	2.1
O04	2.3	2.8	4.2	0	0	0	6.3
O05	0.8	0.1	0.2	0	0	0	1
O06	1.6	3.1	4.6	0	0	0	10.5
P00	1.6	0.1	0.2	0	0	0	0.5
R01	0.8	0.1	0.2	0	0	0	1
SGS	5.4	3.9	6.0	0	0	0	3.9
MDV	0.8	0.1	0.2	0	0	0	1
CGS	8.5	5.4	8.2	6.7	13.8	19.6	3.4
EGS	0.8	0.1	0.2	0	0	0	1
N	129	686g	452g	15 rims	87%	102%	5.3g

Finewares

Finewares levels at Parc Bryn Cegin are high at 15.5**%** by count and 14.6**%** by weight (excluding amphorae), they comprise entirely samian ware.

Rural sites in the lowland zone (Evans 1993; Longley et al 1998) generally exhibit fineware levels of around 2-3% and rarely exceed 5%. Most of these North Welsh sites fall within this range (Table IV.1), but two stand out, Bryn Eryr and Cefn Cwmwd with fineware levels more appropriate for urban or military sites (Evans 1993). Both sites assemblages on this indicator seem to indicate strongly high-status pottery use. Parc Bryn Cegin undoubtedly groups with these sites on this measure, although, as noted above, it differs from both these sites markedly in not having a large proportion of decorated samian ware.

Function

Table IV.5 shows the functional analysis of the Parc Bryn Cegin assemblage by minimum numbers of rims in comparison with data from other north Welsh rural sites.

Table IV.5 North Welsh sites functional analysis (by minimum numbers of rims)

Site	Jars	Dishes	Bowls	Mortaria	Beakers	Constricted necked jars & flagons	Min no of vessels
Bush Farm	44%	27%	18%	6%	6%	0	n=55
Graeanog	56%	28%	4%	8%	4%	0	n=25 rims
Cefn Graeanog (Going and Marsh forthcoming)	64%	23%	11%	0%	3%	0	n=66
Bryn Eryr	33%	24%	31%	2%	7%	2%	n=45 rims
Cefn Cwmwd	23%	31%	12%	29%	2%	2%	n=42 rims
Parc Bryn Cegin	33%	25%	13%	13%	6%	6%	n=15 rims

The data from Graeanog, Cefn Graeanog and Bush Farm have high jar levels, which fall within a range typical of rural sites, although the Bush Farm data are at the lower end of the range. In contrast Bryn Eryr and Cefn Cwmwd have low jar levels, which can be compared with urban and military sites (cf. Webster 1993, table 17.4) and high tableware levels (i.e. dishes and bowls). Tableware levels are high at Cefn Cwmwd, Bryn Eryr and also at Bush Farm, are often higher than at military and urban sites (cf. Webster 1993, table 17.4) because the functional diversity of these rural sites is lower and drinking vessels are rare upon them.

It is clear from these data that Bryn Eryr and Cefn Cwmwd would seem to have high-status assemblages, both in terms of their functional composition, and also their levels of finewares and in the composition (and quantity) of their samian assemblages.

The Parc Bryn Cegin data group with Cefn Cwmwd and Bryn Eryr in terms of low jar levels, although tableware levels at 38% are not quite as high as on those sites. Mortaria are quite strongly represented at 13%, this could be a result of the small assemblage size, but it could relate to the Cefn Cwmwd pattern.

At Cefn Cwmwd there were a very high proportion of mortaria (29% by count and 33% by weight). This is so far a unique pattern for North Wales, although it is known on other highland zone rural sites in Cumbria (Evans forthcoming b, Table 1) where 27% of a composite assemblage from several rural sites consists of mortaria. Around a third of these mortaria fragments are quite heavily burnt, although this may relate to their disposal rather than use. In the Cumbrian case this author (forthcoming b), following Reece (1988), has suggested that these mortaria may have been used for activities associated with dairying.

Sherd size

The average sherd size at Parc Bryn Cegin is 5.3 g. This is comparable with the 7.0g at Bush Farm Port Dinorwic, 7.0g at Bryn Eryr, 5.1g at Melin Y Plas and 4.3g at Graeanog. These latter figures being far lower than for 25 groups from northern military, urban and villa sites (Evans 1985, Table 1.3), which ranged between 10g and 30g. The only clear exception amongst the rural sites to this pattern of low average sherd weight is at Cefn Cwmwd, which had an average sherd weight of 12.8g. The Cefn Cwmwd figures would seem to suggest that pottery was being used, or rather disposed of, in a rather different manner here to that on the other North Welsh sites.

Rivets

At Parc Bryn Cegin a single sherd has evidence of riveting, SF650, a Central Gaulish samian sherd of unidentifiable form which had evidence of a cleat X type riveting hole which would have contained a lead rivet. This gives a riveting rate for the assemblage of 0.9%, although on a small group.

The concentration of rivets on samian is the usual pattern on lowland zone sites (Evans and Rátkai forthcoming a; Wilson 2002), with occasional riveting of amphorae and mortaria, and more rarely other vessel types. The rate of riveting on lowland zone sites is generally low, around 0.1% or less of all sherds. (0.16 per cent at the urban northern site of Bainesse Farm, Catterick, 0.19% at the Warwickshire small town of Alcester, 0.08% at the rural site of Thornwell Farm, Chepstow, 0.0008% on a series of rural sites in West Yorkshire, and 0.1 per cent at the rural site of Worberry Gate, Somerset.)

In North Wales riveting is usually at a rather higher level, 2.5% at Bryn Eryr, 0.6% at Graeanog and 0.24% at Bush Farm, Port Dinorwic. Further most of this riveting was on BB1, with 15 rivet holes from these three sites, compared to two on samian. Also at all the other North Welsh sites where there is evidence the riveting it is with circular-sectioned iron staples, even on the samian, rather than the more usual, but weaker, lead, and the rivets on the samian ware are also of this type, whereas on lowland zone sites they are almost invariably of the 'cleat' X-cut type. It might be worth noting that modern repairs with iron staples can result in a serviceable vessel.

At Cefn Cwmwd there is a riveting rate (no of rivet holes/(total sherd no/100)) of a massive 6.7%. It would seem to be of note that the highest riveting rates amongst these sites come from Bryn Eryr, Cefn Cwmwd and Melin y Plas, all on Anglesey and arguably with more difficult contacts with Segontium, which would appear to be the obvious local market centre for BB1. The particularly high rate at Cefn Cwmwd might suggest that there was a clear demand here for much greater pottery supplies than were available.

Thus the Parc Bryn Cegin riveting rate would seem to be fairly typical for a North Welsh rural site.

Conclusions

Material from the site the peaks in the Flavian-Trajanic period, but extends throughout the 2nd century and into the earlier 3rd century at least. There is no positive evidence of occupation beyond this, although a number of BB1 dishes could be of later date, but the assemblage is small, even for this type of site, and absence of evidence is not evidence of absence.

The assemblage appears unusual for a North Welsh ‘native’ site. Most such sites have assemblages dominated by BB1, and although some South Gaulish samian ware may occur most of the other pottery is of Hadrianic or later date.

In contrast here, as the samian identifications confirm, nearly half of the samian is pre-Hadrianic and 41% of the coarsewares could be, their being oxidised wares. Samian comprises around 15**%** of the assemblage by count, a very high level, but there is no evidence that any of it was decorated.

The functional composition of the assemblage is also unusual, only five jar rims are present amongst the fifteen rimsherds (33%) a low level for such a site, and below the general range for rural sites, whilst table wares (dishes and bowls) also comprise 38% of the assemblage, a fairly high level.

The site would seem to have unusually strong early (Flavian-Trajanic) pottery use, which might suggest stronger than average contacts with the military or a military vicus.

It would seem to be of higher status than some rural sites, but the lack of any evidence of decorated samian ware is disconcerting given that large quantities of this have proved to be a good indicator of high-status sites in the region previously. The presence of a seal box on the site would also, perhaps, suggest closer than usual connections with the military.

Overall the site would seem to be of fairly high status in the early Roman period and to perhaps, have reasonably close military contacts.

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Catalogue of undiagnostic sherds

Cut number	Fill/layer number	Find number	Context	Pottery description
Trench 2				
	2002	SF688	Ploughsoil	A tile fragment, probably post-Roman. Wt 48g
2104	2098	SF256	Fill of small hole with beads	A fragment of oxidised fired clay, 'clean'. Wt 3g
2104	2098	SF309	Fill of small hole with beads	Nineteen fragments of oxidised fired clay. Wt 17g
Trench 3				
	3000	SF711	Unstratified	An oxidised bodysherd, Fab O06. Wt 6g
	3000	SF732	Unstratified	An oxidised bodysherd, Fab O01. Wt >1g
	3000	SF733	Unstratified	An eroded oxidised bodysherd, Fab O01? Wt >1g
	3002	SF649	Ploughsoil	An oxidised bodysherd, very eroded, Fab O02. Wt 5g
	3002	SF714	Ploughsoil	A small Dressel 20 amphora chip, 1st-3rd century. Wt 6g
	3002	SF731	Ploughsoil	An oxidised bodysherd, Fab O01? Wt 3g
	3018	SF467	Ploughsoil above roundhouse A	A BB1 jar base bodysherd. AD 120+ Wt 6g
3204	3205	SF704	Fill of gully in evaluation trench to W of Roundhouse A	A small oxidised bodysherd, fabric O05. Wt >1g
	3209	SF485	Ploughsoil above roundhouse A	A BB1 jar shoulder sherd bodysherd, exterior sooted. AD 120+ Wt 8g
3217	3218	SF629	Colluvium filling top of S enclosure ditch	Five oxidised, 'clean', fired clay fragments. Wt >1g
3230	3231	SF 493	Fill, inner drain, Roundhouse A	a) A BB1 (?jar base) bodysherd. AD120+ Wt >1g b) b) A greyware bodysherd, Fab R01. Wt >1g
3230	3231	SF496	Fill, inner drain, Roundhouse A	Three BB1 jar base sherds, could be from one vessel but not necessarily, and 11 BB1 jar bodysherds.AD120+ D. 11cms, BE 26%, Wt 34g
3175	3259	SF584	Primary fill of S enclosure ditch	Three joining oxidised jar bodysherds, Fab O02? Wt 3g
3275	3322	SF573	Primary fill, inner drain, Roundhouse A	A tile fragment, presumably tegula. Roman Wt 109g
3339	3338	SF702	Upper fill of post-mediaeval ditch	An eroded oxidised fragment, perhaps Fab O01 if Roman, probably post-mediaeval. Wt 5g
3496	3366	SF583	Fill of inner drain, Roundhouse A	An oxidised bodysherd from a large closed vessel, Fab O02? Wt 11g
3496	3495	SF606	Fill of inner drain, Roundhouse A	An oxidised bodysherd and four chips, Fab O03. Wt 2g
3549	3548	SF611	Fill of inner drain Roundhouse A	A BB1 fragment. AD 120+ Wt>1g
3566	3565	SF614	Fill of gully inside Roundhouse A	A BB1 jar base bodysherd. AD 120+ D. 7cms, BE 12%, Wt 8g
3700	3699	SF645	Lower fill C19th boundary ditch near Roundhouse H	An oxidised bowl with a footring base. Fab O01. D. 9cms, BE 9%, Wt 6g
3712	3711	SF666	Upper fill of enclosure ditch around Roundhouses C, D, and H	An oxidised bodysherd, Fabric O01. Wt 10g
3712	3711	SF658	Upper fill of enclosure ditch around Roundhouses C, D, and H	Two joining oxidised flakes, Fab O01. Wt >1g
3726	3725	SF668	Fill of storm drain, Roundhouse C	An oxidised flagon handle with three cordons, Fab O03?. Wt 8g
3992	3991	SF717	Fill of gully running NW from Roundhouse D	Two oxidised bodysherds, Fab O01. Wt 9g
3350	3999	SF716	Primary fill of enclosure ditch of Roundhouses C, D and H	Two oxidised joining everted jar rim fragments, Fab O01. D. 14? Cms, RE 6%, Wt >1g
	9168	SF739	Land-drain cutting Roundhouse H	An eroded oxidised bodysherd, Fab O02. Wt 5g
	9168	SF763	Land-drain cutting Roundhouse H	Five oxidised bodysherds, Fab O02. Wt 4g
	9176	SF742	Stone deposit west of Roundhouse D	A Dressel 20 amphora bodysherd, 1st-3rd century. Wt 228g
9184	9183	SF876	Upper fill pit in Roundhouse H	Two eroded oxidised bodysherds, Fab O02. Wt >1g

9186	9185	SF887	Fill of gully within Roundhouse H	Four BB1 jar bodysherds, AD 120+. Wt 2g
	9187	SF750	Occupation layer Roundhouse H	A BB1 dish/bowl base sherd, AD120+. D. *c*20cms, BE >6%, Wt 27g
9191	9189	SF737	Fill of posthole, Roundhouse H	A BB1 bodysherd, perhaps from a dish or bowl, AD120+. Wt 3g
9285	9267	SF759	Stone layer of trackway SE of Roundhouse H	Three joining eroded oxidised bodysherds, Fab O02. Wt 3g
	9303	SF928	Ploughsoil patch near structure F	Two oxidised eroded bodysherds, Fab O01. Wt 2g
	9303	SF929	Ploughsoil patch near structure F	Three oxidised bodysherds from the same vessel, Fab O07. (Roman) or post-mediaeval. Wt 4g
Trench 4				
	4002	SF654	Ploughsoil	Three oxidised sherds from the flange rim of a thick-walled bowl or mortarium. Fab O04. Wt 19g
4271	4270	SF616	Posthole fill adjacent building next to Roundhouse E	Two joining oxidised fragments, Fab O01? Wt >1g

APPENDIX V: POST MEDIEVAL POTTERY

Jonathan Goodwin

Non-technical summary

Stoke-on-Trent Archaeology undertook, on behalf of Gwynedd Archaeological Trust, an assessment of potential for further analysis on a small assemblage of ceramic material excavated from Parc Bryn Cegin, Llandygai, Gwynedd. The material was divided into fabric/ware types and vessel forms and was quantified by means of sherd count. The bulk of the material was post-medieval in date (mainly late 17th-late 18th century) with one medieval sherd. The post-medieval coarsewares were found to have affinities with material produced at the Buckley and Prescot potteries and may well represent the distribution of wares from these potting centres to North Wales.

Nonetheless, the Parc Bryn Cegin material has limited potential for further analysis as the post-medieval features from which the material derived are peripheral to the substantial evidence for earlier, prehistoric activity which survives on site. Further examination of the material from the post-medieval ditches and field drains would do little to facilitate a greater understanding of these features and the site in general. The only potential area for further research is in comparing the possible Buckley/ Prescot material with known wares from these production centres. This may aid a better appreciation of the identification and distribution of Buckley and Prescot wares in North Wales.

Introduction

Gwynedd Archaeological Trust carried out a programme of archaeological work (including strip, map and record and trial excavation) at Parc Bryn Cegin, Llandygai, Gwynedd, North Wales. The project revealed evidence of early and late Neolithic, Bronze Age, Iron Age/Romano-British and post-medieval activity on site. Post-medieval features comprised a series of field boundary ditches and drains from which a small assemblage of pottery was recovered. Stoke-on-Trent Archaeology was commissioned by Gwynedd Archaeological Trust to undertake an assessment of potential (in accordance with section 6 of English Heritage's *Management of Archaeological Projects*, 1991) on this material.

A total of 82 ceramic vessel sherds and two clay pipe bowl fragments were recovered from 29 contexts during excavations at Parc Bryn Cegin. The material was divided into fabric/ware types and vessel forms and was quantified by means of sherd count. Only one sherd, that from [3686], was examined under a x20 microscope. A full list of the material from the site is provided in appendix V.1: table V.1 shows fabric and ware type; table V.2 provides a list of vessel forms by ware type; table V.3 a list of spot dates for contexts, and table V.4 provides a full catalogue of post medieval ceramic finds.

Ceramic vessel sherds

Coarsewares dominate this group, principally in the form of undecorated coarse earthenwares, which constitute 51.3% of the total assemblage. Small numbers of slipwares (9.8%), blackwares (3.7%) and mottled wares (2.4%) also occur, along with single examples of iron-poor ware, Cistercian ware and a Midlands purple ware (each representing 1.2% of the total). A handful of refined wares, such as creamware, both decorated and undecorated white earthenware and bone china also feature, comprising just 26.8% of the complete assemblage.

The material spans a maximum period of some 600 years, from the 13th/14th to the 20th century, with a concentration of wares datable to the late 17th to early 18th centuries. The earliest sherd is the buff, green-glazed ware SF644 from [3686], which has distinct similarities to mid to late medieval (13th to 15th century) iron-poor wares found in Staffordshire and surrounding counties. The late 15th to early 17th centuries are represented by single examples of Midlands purple ware and Cistercian ware SF718 [3000] and SF56 [1154] respectively. The underside of the Midlands purple ware jar or cistern has a firing scar and glaze splashes, indicating its use as a saggar in the firing of Cistercian wares.

The late 17th and 18th centuries are well represented by coarse earthenwares in a limited range of forms, chiefly storage jars, some with heavy rims, and pans with sloping sides. Fabrics range from orange to purple in colour and are, in the main, laminated with white clay. This lamination is more obvious in the earlier examples, dating from around the late 17th to early 18th century (such as SF55, from [1113]), and may suggest a lesser level of clay preparation. Black or dark brown, iron-rich lead glazes feature on all but one example and are commonly applied to the interiors of pans and the interiors and exteriors of jars. The iron content of the glaze seems in some cases to derive from the clay body itself and in others from a slip coat applied to the body before glazing. It is also possible, in some cases, that iron (or other colouring agent) formed a component of the liquid lead glaze.

The slipwares also belong to this period and are present as thrown pans and dishes with everted rims, in the same basic fabric type as the coarse earthenwares. Decoration is simple, with trailed patterns in white

slip. Only one example, SF1076 from [4002], features a trailed design of more than one colour slip. A few, fragmentary examples of blackwares and mottled wares complete the coarsewares from this group.

The bulk of the refined wares date from the late 18th to the late 19th centuries. The group includes creamwares; white earthenwares, undecorated or with transfer-printed, painted or applied-slip designs; slip-decorated redware; and one example of bone china. The forms are mostly teawares (teapots, jugs, cups and saucers) or tablewares (plates only).

A single sherd of undecorated white earthenware, SF904 from [9304], and a buff kitchenware sherd, SF468 from [4047], look to date to the very end of the 19th century or 20th century.

A number of production sources can be suggested for the medieval and early post-medieval wares present within the assemblage.

The medieval sherd from [3686] has close parallels, in terms of fabric colour and inclusions to white and iron-poor wares found in Staffordshire and the Midlands as a whole (Ford 1995, 33-35; Ratkai 2004, 12; Goodwin 2005, 2-3). A single vessel in a hard grey-buff fabric with green glaze was recovered from excavations at Montgomery Castle (fabric B.7) and was thought to be a product of the Sneyd Green kilns, Stoke-on-Trent, or at least a related source (Knight 1990/91, 8). Other fine, green- to amber/yellow-glazed sandy whitewares from Montgomery (fabric B.9) were considered to derive from Shropshire (*ibid.*, 9). Comparable fabrics from Newton, Powys, have been attributed to the petrologically-identical clays of the Flintshire and Shropshire/Staffordshire coalfields (Jones 1988, 2; Courtney & Jones, 1988, 10). Alternatively, excavated sherds described as whitewares from Conwy Castle were ascribed to the Chester area (Butler & Evans 1977, 27), as were finds from Beaumaris Castle, thought to stem from a kiln site in Audlem (Dunning 1977, 8-9).

The distinctive orange and white laminated fabrics of the post-medieval coarsewares mark them as potential products of the Buckley potteries in Flintshire. Ceramic groups excavated from Pinfold Lane and Brookhill, Buckley (Davey 1987, 93-120; Amery & Davey 1979, 49-85), dating from the mid 17th to early 18th centuries, display similar fabric types and a range of thrown slipwares and lead-glazed coarse earthenwares. A comparison between the Parc Bryn Cegin material and Buckley sherds held in the Post-Medieval Reference Collection at The Potteries Museum & Art Gallery, Stoke-on-Trent, demonstrated clear similarities between the two groups. It is possible, however, that the wares may have been produced further afield at Prescot, on the South Lancashire coalfields. Coarsewares with black glazes and laminated, red and white fabrics comparable to Buckley products have been recovered from excavations in Prescot (McNeil, 1982/83, 59; Davey 1987, 98), examples of which feature in the Post Medieval Reference Collection. Both production centres had the means of distributing their wares to North-West Wales; by the 19th century, Buckley utilised established overland and coastal routes to supply a network of small local markets in North Wales, whereas Prescot was able to transport its goods through the port of Liverpool (Davey 1987, 98).

It is more difficult to indicate a point of origin for the wares of the 19th century, as this was a period of standardised, mass-production and global marketing. The potteries of north Staffordshire, Swansea, Liverpool and Bristol are all possible candidates.

The clay pipes

Two clay pipe bowls, SF504 and SF594, were recovered from contexts [3000] and [3443] respectively. Both share the same spurred form, with leaf-moulding on the front and back seams. The example from [3000] is a slightly smaller size than the bowl from [3443] and shows signs of having been filed down around the bowl mouth, presumably to allow the pipe's continued use after a break in this area. This is a common, widely available form, with examples from Bristol dated to *c*.1825-1845 (Jackson, Beckey & Baker 1991, 124-5, no. 94), from Carmarthen dated to the 19th century (Brennan, Evans, James & Dale-Jones 1996, 73, fig. 22, no. 130) and from Nottingham dated to *c*.1850-60 (Hammond 1982 76, fig. 27, no. 182) and *c*.1870 (*ibid*. 46-7, fig. 12, no. 57).

Conclusions

The Parc Bryn Cegin material has limited potential for further analysis. The post-medieval features from which the material derived, are peripheral to the more substantial archaeological evidence uncovered by the project, which focused on much earlier activity. Further examination of the material from the post-medieval ditches and field drains would do little to facilitate a greater understanding of these features and the site in general. As a body of ceramic material, the Parc Bryn Cegin assemblage is small and offers only a glimpse at the range of wares available to consumers in North Wales during the late 17th to late 19th centuries.

Acknowledgements
This report was written by Jonathan Goodwin of Stoke-on-Trent Archaeology (Report No. 179 May 2006). Thanks are due to Jane Kenney of Gwynedd Archaeological Trust and to David Barker of Stoke-on-Trent Archaeology Service.

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Appendix V.1: Catalogue of ceramic material from Parc Bryn Cegin

Table V.1: Fabric/ware types by context

Context	Fabric/Ware Type																
	IPW	CW	BW	MPW	SW	MW	CEW	CRW	WEW	WEW-TP	WEW-P	WEW-SD	REW-SD	BC	STW	BEW	
1001							1										
1007							1										
1113					2		2										
1125								2									
1132							6		1		7						
1145		1															
1251							1										
1408							12										
1411															1		
1440			1		1	2	9										
1536										2							
2001			1														
2020							3										
2036												1					
2086											3		1				
3000				1			1										
3063										1							
3156									1					1			
3332			1														
3406							1										
3486							1										
3522															1		
3686	1																
4002					5												
4047																1	
4056							3										
9085							1										
9304									1								
Totals	**1**	**1**	**3**	**1**	**8**	**2**	**42**	**2**	**3**	**3**	**10**	**1**	**1**	**1**	**2**	**1**	**82**
% totals	**1.2**	**1.2**	**3.7**	**1.3**	**9.8**	**2.4**	**51.3**	**2.4**	**3.7**	**3.7**	**12.2**	**1.2**	**1.2**	**1.2**	**2.4**	**1.2**	**100**

Key: IPW – Iron-Poor Ware; CW – Cistercian Ware; BW – Blackware; MPW – Midlands Purple Ware; SW – Slipware; MW – Mottled Ware; CEW – Coarse Earthenware; CRW – Creamware; WEW – White Earthenware; WEW-TP – White Earthenware-Transfer Printed; WEW-TP – White Earthenware-Painted; WEW-TP – White Earthenware- Slip Decorated; Red Earthenware-Slip Decorated; BC – Bone China; STW – Stoneware; BEW – Buff Earthenware

Table V.2: Ceramic vessel forms

	Fabric																Total	% Total
Form	**IPW**	**CW**	**BW**	**MPW**	**SW**	**MW**	**CEW**	**CRW**	**WEW**	**WEW-TP**	**WEW-P**	**WEW-SD**	**REW-SD**	**BC**	**STW**	**BEW**		
Jar							29								1		**30**	**36.7**
Jar/ Cistern				1													**1**	**1.2**
Jar/Jug							1										**1**	**1.2**
Jug	1										1						**2**	**2.4**
Pan							7										**7**	**8.6**
Pan/ Jar							1										**1**	**1.2**
Pan/Dish					5												**5**	**6.1**
Dish					3	1											**4**	**4.9**
Cup		1															**1**	**1.2**
Mug			1														**1**	**1.2**
Handled Bowl			1														**1**	**1.2**
Bowl								2					1			1	**4**	**4.9**
Teapot											1						**1**	**1.2**
Tea Cup										1							**1**	**1.2**
Saucer														1			**1**	**1.2**
Plate										2							**2**	**2.4**
Ewer											8						**8**	**9.8**
Bottle															1		**1**	**1.2**
Holloware			1			1			1			1					**4**	**4.9**
Flatware									1								**1**	**1.2**
Undiagnostic							4		1								**5**	**6.1**
														Totals			**82**	**100**

Key: IPW – Iron-Poor Ware; CW – Cistercian Ware; BW – Blackware; MPW – Midlands Purple Ware; SW – Slipware; MW – Mottled Ware; CEW – Coarse Earthenware; CRW – Creamware; WEW – White Earthenware; WEW-TP – White Earthenware-Transfer Printed; WEW-TP – White Earthenware-Painted; WEW-TP – White Earthenware-Slip Decorated; Red Earthenware-Slip Decorated; BC – Bone China; STW – Stoneware; BEW – Buff Earthenware

Table V.3: Spot dates for contexts containing ceramic material

Context	**Probable Date Range**
1001	18th century
1007	18th century
1113	late 17th-early 18th century
1125	early 19th century
1132	19th century
1145	late 15th-early 17th century
1251	late 17th-18th century
1408	18th century
1411	mid-late 19th century
1440	18th century
1536	mid-late 19th century
2001	late 17th-early 18th century
2020	18th century
2036	19th century
2086	late 18th-early 19th century
3000	16th-19th century
3063	early 19th century
3156	19th century
3332	late 17th-early 18th century
3406	18th century
3443	19th century
3486	18th century
3522	mid-late 19th century
3686	13th-15th century
4002	late 17th-early 18th century
4047	late 19th/20th century
4056	18th/19th century
9085	18th century
9304	20th century

Table V.4: full catalogue of ceramic material

context	description of ware	surface dec	dec in/on body	glzd	vessel form/ description	base	body	ge rim/ed	handle	profile	bowl	total no. shds	date	notes
1001	coarse e'ware				jar/jug	*						1	18th century	Orange fabric with white laminae. Splashes of dark lead glaze around exterior base. Looks to have slip coat on exterior.
1007	coarse e'ware			*	pan			*				1	18th century	Orange fabric with white laminae. Dark slip coat and lead glaze on interior and exterior.
1113	slipware?			*	pan/dish		*					1	late 17th -early 18th century?	Salmon-pink fabric with white clay pellets and laminae. Lead glaze on interior, no obvious slip coat. Possibly a fragment of slip-decorated hollow ware.
	coarse e'ware			*	pan?		*					1	late 17th- early 18th century?	Dense orange fabric with white clay pellets. Lead glaze over dark slip coat on interior.
	slipware	trailed white slip		*	pan/dish		*					1	late 17th- early 18th century	Salmon-pink fabric, lead glaze on interior

context	description of ware	surface dec	dec in/on body	glzd	vessel form/ description	base	body	g e rim/ ed	handle	profile	bowl	total no. shds	date	notes
1113 (cont.)	coarse e'ware			*	jar?		*					1	late 17th - early 18th century?	Orange/salmon pink fabric with white clay pellets and laminae. Lead glaze over dark slip coat on interior and exterior
1125	creamware			*	bowl	*						2 (conj.)	early 19th century	
1132	coarse e'ware			*	jar		*		*			6 (2 conj.)	18th /19th century	Dense orange fabric with sparse white clay pellets and minimal lamination. Dark slip coat and lead glaze over interior and much of exterior.
	white e'ware	polychrome painted		*	ewer?		*	*				6 (2 x 2 conj.)	mid 19th century	Possible polygonal moulded form. Floral decoration.
				*	small biconical jug		*					1	mid 19th century	Floral decoration
1145	cistercian ware			*	cup				*			1	late 15th – early 17th century	Soft orange fabric with brownish lead glaze on exterior.

context	description of ware	surface dec	dec in/on body	glzd	vessel form/ description	base	body	ge rim/ed	handle	profile	bowl	total no. shds	date	notes
1251	coarse e'ware			*	pan		*					1	late 17th – 18th century	Orange fabric with sparse white clay pellets and laminae. Dark lead glaze on interior.
1408	coarse e'ware			*	jar		*		*			6 (2 conj.)	18th century	Dense purple/red fabric with white clay pellets and laminae. Dark lead glaze over interior and exterior.
				*	jar		*	*				6	18th century	Orange fabric with white clay pellets and laminae. Dark slip coat and lead glaze over interior and exterior.
1411	stoneware			*	jar		*					1	mid-late 19th century	Off-white body with clear lead glaze over interior and exterior
1440	coarse e'ware			*	jar	*	*					7	18th century	Purple/red fabric with white laminae. Dark lead glaze on interior and much of exterior.
				*	pan	*						1	18th century	Orange fabric with white laminae. Dark slip coat and lead glaze on interior.

context	description of ware	surface dec	dec in/on body	glzd	vessel form/ description	base	body	ge rim/ed	handle	profile	bowl	total no. shds	date	notes
1440 (cont.)	coarse e'ware			*			*					1	18th century	Buff/salmon pink fabric with white laminae. Dark lead glaze on interior and exterior.
	blackware			*	hollow ware		*					1	early 18th century	Dense purple fabric with white clay pellets and laminae. Dar lead glaze on interior and exterior.
	slipware	trailed white slip		*	dish			*				1	18th century	Salmon pink fabric. Trailed slip under lead glaze on interior.
	mottled ware			*	dish/bowl		*					1	18th century	Salmon pink fabric with white laminae and iron-ore inclusions. Lead glaze on interior.
				*	hollow ware		*					1	18th century	Salmon pink fabric with white clay pellets and laminae and iron-ore inclusions. Lead glaze on interior and much of exterior.
1536	white e'ware	transfer printed (blue)		*	plate	*						1	mid - late 19th century	'Asiatic Pheasants' pattern

context	description of ware	surface dec	dec in/on body	glzd	vessel form/ description	base	body	ge rim/ ed	handle	profile	bowl	total no. shds	date	notes
1536 (cont.)	white e'ware	transfer printed (blue)		*	plate			*				1	mid - late 19th century	'Willow' pattern
2001	blackware			*	handled bowl				*			1	late 17th - early 18th century?	Dense purple fabric with dark lead glaze over interior and exterior.
2020	coarse e'ware			*	jar		*					3 (2 conj.)	18th century	Orange fabric with white laminae. Dark slip coat and lead glaze over interior and exterior. Corrugated exterior.
2036	slip-decorated e'ware	orange/ brown slip ground with dark slip over		*	hollow ware		*					1	19th century	
2086	white e'ware	polychrome painted		*	teapot		*					1	late 18th – early 19th century	
				*	undiagnostic		*					2	19th century?	

context	description of ware	surface dec	dec in/on	glzd	vessel form/ description	base	body	rim/ed	handle	profile	bowl	total no. shds	date	notes
			body											
2086 (cont.)	slip-decorated red e'ware	applied slip bands		*	bowl		*					1	late 18th – early 19th century	
3000	coarse e'ware			*	pan		*					1	18th/19th century	Dense orange/red fabric with sparse white clay pellets. Dark lead glaze on exterior.
	midlands purple ware				jar/cistern	*						1	16th - 17th century	Dense purple fabric with white clay pellets. Firing scar and splashes of dark lead glaze on underside of base.
	white pipe clay		moulded leaves on seams		pipe						*	1	19th century	
3063	white e'ware	transfer printed (blue)		*	cup	*						1	early 19th century	'Two Temples' pattern
3156	bone china	floral sprig	moulded rim	*	saucer			*				1	2nd quarter 19th century +	

context	description of ware	surface dec	dec in/on body	glzd	vessel form/ description	base	body	ge rim/ed	handle	profile	bowl	total no. shds	date	notes
3156 (cont.)	white e'ware			*	undiagnostic		*					1	19th century?	
3332	blackware			*	mug?		*					1	late 17th – early 18th century	Dense purple fabric with fine, dark lead glaze over interior and exterior.
3406	coarse e'ware			*	pan/jar	*						1	18th century	Dense purple/red fabric. Dark lead glaze on interior and exterior.
3443	white pipe clay		moulded leaves on seams		pipe						*	1	19th century	
3486	coarse e'ware			*	pan	*						1	18th century	Orange fabric with white laminae. Dark lead glaze on interior.
3522	stoneware				bottle/ink bottle		*					1	mid-late 19th century	Grey-bodied stoneware with iron wash on exterior.

context	description of ware	surface dec	dec in/on body	glzd	vessel form/ description	base	body	ge rim/ed	handle	profile	bowl	total no. shds	date	notes
3686	buff e'ware			*	jug?		*					1	13th-15th century?	Buff, iron-poor fabric with abundant, well-sorted, small to medium, sub-rounded quartz and sparse iron-ore inclusions. Green glaze over interior and exterior
4002	slipware	trailed white slip		*	Pan/dish		*	*				3 (2 conj.)	late 17th century	Orange fabric with white clay pellets and laminae. Dark slip coat and white trailed slip under lead glaze on interior.
	slipware?			*			*					1	late 17th century	Salmon pink/orange fabric with white clay pellets and laminae. Lead glaze over interior. Possibly fragment of slip-decorated hollow ware.
	slipware	Trailed white and dark slip		*	dish	*						1	late 17th – early 18th century	Dense purple/red fabric with white clay pellets. Trailed slip and lead glaze on interior.
4047				*	bowl	*						1	19th/20th century	Kitchenware, probably a mixing bowl

APPENDIX VI: FLINT, CHERT AND QUARTZ

George Smith

Introduction

The flint and chert pieces over 10mm in length were individually recorded and the dimensions of complete pieces recorded together with information about type, class, colour, platform, retouch etc and put onto a database. There were too few complete pieces to warrant any metrical analysis. Pieces less than 10mm were recorded as microdebitage and by count only although the numbers of different colours were recorded. Most items were given individual finds numbers on site but where several pieces were included under one number a sub-number was allocated to allow recording of each piece.

The great majority of material is of flint, mostly derived from pebbles. The few pieces of chert are clearly not the result of selection but because some chert pebbles were present amongst the flint pebbles providing the raw material. Being of poorer quality for flaking, the chert pebbles may have been actively deselected. There were also some pieces of crystal as opposed to vein quartz, the majority being pieces of microdebitage retrieved during sieving and comprised small chips or irregular fragments under 10mm maximum dimension. A few of these were slightly larger and, despite the small size of the parent material, could be seen to be struck flakes. It was clear that the material was being worked and three pieces are possibly secondarily retouched or utilised, the transparency of the material making identification difficult. These pieces are described by context along with those of flint and chert. There were also five small pieces of unworked quartz crystals: two from Pit Group 8, one from Roundhouse H in Trench 3, one from the burnt mound in Trench 2 and one from ditch 3282 associated with the roundhouses in Trench 3. These were very small but could be deliberate inclusions. A larger, square crystal found in pit 1619 next to the Early Neolithic building and in association with the broken stone axe is more likely to have been deliberately deposited.

Some contexts were sampled extensively for flotation sieving for environmental evidence and subsequent sorting of the residues produced a number of pieces of microdebitage. The sieving also produced a few larger flakes or worked pieces that had not been identified during excavation and these were recorded individually, including a few microlith pieces. The sieving was useful because it provides a more detailed view of the technology, of the raw material and of the processes of reduction and deposition. Most of the microdebitage pieces were small broad flakes, indicating edge shaping or thinning of non-microlithic implements.

Early Neolithic building

Summary

Category	*Flint*	*Crystal Quartz*
Flake	4	2
Flake frag	6	1
Irregular frag	1	
Microdebitage	62	44
Core frag	1	2
Split pebble	1	
Retouched piece	6	2
Casually retouched piece	2	
Utilised piece	3	1

Raw Material

All the pieces of flint with cortex present were from pebbles.

The microdebitage comprises all pieces under 10mm length, all collected during flotation and sieving of soil samples. This consists of 62 pieces from 21 different contexts. 45 of these pieces are well burnt and may be burnt chips or pieces derived from burning fractures. There were also 44 pieces of crystal quartz microdebitage, scattered fairly evenly in 21 contexts, almost the only occurrence of such material on the site as a whole.

The colours of all the pieces, including the micro-debitage were recorded excluding those that were clearly changed by burning and these were recorded just as burnt. The rest include buff, yellow-brown, red-brown and grey flint. Some of these flint colours may have been altered by slight burning, which is not always detectable.

Only two pieces were of mottled colour and both of these came from probable secondary contexts so may derive from activity later than the main assemblage.

Technology

There was an unusually high ratio of retouched/utilised pieces to waste pieces.

Only one flint core was found, a fragment of a small pebble core. The crystal quartz cores are fragmentary pieces of complete crystals with negative flake scars.

All the pieces were small, the largest complete flake being only 39mm long indicating a small size of available material. Surprisingly, the largest piece would have been a leaf-shaped arrowhead, but this was incomplete. However, the size of the blank needed for its manufacture suggests it may have been imported or made on imported material.

Retouched and utilised pieces

Category	Flint	Crystal Quartz
Leaf-shaped arrowhead	1	
Scraper	2	
Spurred piece	2	
Truncated piece?		1
Piercer	1	1
Casually retouched piece	2	
Utilised piece	3	

Arrowhead (Fig. 15, SF88). A burnt fragment from a long leaf or kite-shaped arrowhead. The estimated original dimensions are over 50mm long and over 21mm wide. This was found amongst the packing of a post-hole and therefore was in a primary context. The tip of the arrowhead was found during flotation sieving of all the soil from the pit.

Scrapers. Two convex end scrapers. One is a small scraper made on a split pebble (Fig. 15, SF61). It has a fresh, sharp edge with no sign of wear. Found in Pit 1249 at the south-east corner of the building. The other is made on a larger flake but also from a pebble (Fig. 15, SF173). It is heavily burnt and incomplete but seems to have had a fresh, unabraded edge. It was found in a secondary fill in a post-hole so may be intrusive or at least not in a primary context.

Spurred pieces. Two pieces. One is made on a flat, ecaillé type flake possibly derived from a pebble by the anvil technique (Fig. 15, SF1238). The other is a made on a small thick flake with notches at the end and side to give two spurs (Fig. 15, SF156).

Truncated piece. A small flake of crystal quartz retaining its bulb and of which the distal end may be finely retouched (Fig. 15, SF894).

Piercers. An *ad hoc* piece on a flint flake with a point that has been secondarily retouched (Fig. 15, SF1204). The possible piercer in crystal quartz is a segment of a flake with possible abrupt secondary retouch to a point although this may be just an irregular snap fracture (??Fig. 15, SF1239).

Casually retouched pieces. The example illustrated has fine retouch, microchipping and possible gloss on one slightly concave edge (Fig. 15, SF83).

Utilised pieces. Three flakes with gloss on sharp edges from possible utilisation for cutting.

Comments

This is an unusually high proportion of retouched pieces to debitage. The lack of evidence for knapping activity is perhaps to be expected inside the building.

The tool assemblage is varied and domestic including not just actual retouched types but casually retouched and utilised pieces showing that they did not derive just from deposits of newly manufactured objects.

Cutting tools, proper piercing or boring tools and fabricators are absent, but the assemblage is too small to be reliably representative of the range of possible types.

The crystal quartz pieces do not include any that are indisputably genuine tools but the material was certainly being worked in a normal manner, despite its small size and the wide scatter of microdebitage (of a similar quantity to that of flint) shows this was not just a one-off trial of an unusual and difficult material. Unfortunately we don't know what it was being used for. The only other record of its use in north-west Wales comes from the Lledr Valley in Central Snowdonia where it comes from a mixed but predominantly Later Mesolithic assemblage, which includes one possible narrow-blade microlith in crystal quartz (Smith 2001).

The only pieces of mottled flint are in probably secondary contexts so may not belong with this assemblage.

Small convex scrapers are normally regarded as typical of Beaker assemblages but they do occur in coastal assemblages of the Later Mesolithic period onwards elsewhere in Western Britain from Wales and Cornwall, where small pebbles provide the main raw material source. This was the case with the assemblage from occupation area beneath the Trefignath Neolithic chambered tomb, near Holyhead, Anglesey, where similar scrapers were found

(Healey 1987 50-9). Others were also found in verifiably early contexts at the Neolithic chambered tomb of Din Dryfol, south-west Anglesey (Lynch 1987).

The arrowhead is the only non-domestic object. This is also special as an arrowhead. It is a large example, particularly for Western Britain where small leaf-shaped arrowheads are typical in the Early Neolithic period, partly perhaps because of the small size and poor quality of locally available flint. This in any case would have been a large example amongst leaf-shaped arrowheads and may have been an even more unusual kite-shaped example because its sides are almost straight. This type is recorded as most common in Ireland and Scotland with a few recorded from Northern England from special burial deposits (Green 1984, 32). One also occurred in the Early Neolithic phase at Maiden Castle, Dorset (Sharples 1991, 223). However, they have also been found in Wales. In South Wales two were found (one a large 63mm long example) at the Neolithic chambered tomb of Gwernvale, Brecknock, in contexts contemporary with the use of the cairn (Healey and Green 1984, 126-7). In North Wales one was found at the chambered tomb of Dyffryn Ardudwy, Meirionnydd and two at the chambered tomb of Pant y Saer, Anglesey (Lynch 1969, 156). One of the latter was a large example, 60mm long, comparable to that from Parc Bryn Cegin.

The example here indicates a larger size and better quality raw material than the rest of the assemblage and so could have been imported. It was burnt and incomplete so there is a slight possibility that it could have been the tip of a fine one-piece sickle, which would be a rare but diagnostic tool-type for this period. It was certainly a delicate and probably special object. Its position, in a primary context amongst the packing of one of the main posts of the building may indicate a deliberate and meaningful deposit. The tip of the arrowhead, found during sieving, retains only one face and does not conjoin with the main piece so the arrowhead may have been complete before burning and much of it seems never to have been in the post-hole. This could be explained if it derived from an incomplete collection of the remains of the burning process as might occur in a funerary cremation buried in the pit.

Later Neolithic pit groups

Pit Group 1

Summary

	Pit 1027	*Pit 1036*	*Pit 1049*	*Pit 1052*	*Pit 1258*	*Pit 1321*	*Relict soil 1156*	*Ditch 1034*
Flake						1		
Flake frag	3		3	1				
Microfrag		5	71		5	1		
Retouched			1	1				1
Utilised			1					
Core								
Core frag							1	

Raw Material

All is of flint except for one piece of black chert. Only two pieces have cortex present and these are both of pebble flint, probably derived from the fluvio-glacial drift, or from beach deposits deriving from it. Black chert pebbles occur in the glacial drift and outcrops at several places in north-east Anglesey.

Of 82 pieces of microdebitage the majority derives from one pit, 1049 and of these 67 are the same yellow-brown colour, the rest in mixed colours. Only two are burnt. Two pieces are in a mottled flint light grey and dark grey flint, but the occurrence of mottling is uncertain since such small pieces may show variations within the piece. The larger flint pieces are in more evenly mixed colours, mainly light grey and mid-grey, with a few of yellow-brown and buff but none of mottled colour.

Technology

This is a very small group but mainly of debitage and this mainly of tertiary flakes. The one core is worked on a pebble of light grey flint. The use of pebble raw material is reflected in the small size of all the pieces, the largest complete piece being only 15mm long.

Retouched and utilised pieces

One piece exhibits a regular form. This is a small thin flake with microlithic truncation of the end (Fig. 28, SF 29). The other pieces have more casual retouch, there is another truncated flake and a possible spurred piece. One flake has gloss on the end, possibly from utilisation.

Comment
None of these pieces is diagnostic of date or function by type or by technique. The small size of the pieces, the lack of distinct forms, the mix of colours and the scatter through several pits suggests casual, probably domestic use and deposition. The occurrence of a large number of pieces of microdebitage in Pit 1049 is distinctive. The fact that most are of the same colour suggests that they derive from a single knapping episode but are not proportionate to the number of larger waste pieces present in the pit. Of these five pieces four are mid-grey and one is yellow-brown, the same colour as the bulk of the microdebitage.

Pit Group 2

Summary

	Pit 4012	*Pit 4016*	*Pit 4018*	*Pit 4020*	*Pit 4021*	*Pit 4024*	*Pit 4049*
Flake					6		
Flake frag					1		
Irreg frag	1						
Microfrag	32				29		
Retouched	1						
Utilised	1						
Core		1					

Raw Material
All pieces the struck are of flint. The core and one flake have pebble cortex. Six flakes and the one retouched piece are made from a dark grey-black, fine, possibly imported flint. There were also two unworked pieces of crystal quartz, which may have been deliberately collected (and deposited) objects.

The microdebitage comprises 61 pieces of which a few are burnt. Of the rest most is light or mid-grey with six pieces red-brown and four pieces mottled light grey/mid-grey. The larger waste and worked pieces are all light grey or dark grey.

Technology
Use of both small poor quality pebble and finer and probably larger imported flint raw material would lead to different types of waste. The one core present is made on a pebble and is small, single platform and conical of Mesolithic type but perhaps just represents the type of raw material that was available (Fig. 29, SF489).

Retouched and utilised pieces
The one retouched piece is a large flake of fine probably imported flint with neat serrations on one sharp side edge (Fig. 29, SF1096). The utilised piece is also made from this finer quality flint, a flake with gloss and microchipping on the side and end edges.

Comment
Serrated pieces are common in flint assemblages from throughout the Mesolithic and Neolithic periods. This piece is more likely to be Later Neolithic on the grounds that earlier pieces tend to be on blades (i.e. with a length over twice its width) and this is quite a large broad flake, although it is broken and so may originally have been a blade. A similar piece was found from a pre-cairn context at the Neolithic chambered tomb of Trefignath, Anglesey, but even so the piece was regarded as of Later Neolithic affinity (Healey 1987, 56). Functionally, the distinction between serrated pieces and saws is also not clear and this piece has quite large serrations although they are contiguous, and do not form separate 'teeth'. The serrations are sharp and fresh without obvious sign of wear, suggesting that the piece was either not used or was used for cutting soft material.

The presence of a significant number of pieces of microdebitage in two of the pits indicates that there was some flint knapping in the vicinity. The most notable feature is the presence of several pieces of finer, probably imported flint. A few pieces of better quality imported flint were also recorded at the Early Neolithic settlement at Trefignath, Anglesey), where pebble flint was the main source of raw material. The better quality flint was there interpreted as from the Irish Sea drift (Healey op *cit*).

Pit Group 3

Summary

	Pit 4062	*Pit 4069*	*Pit 4092*	*Pit 4093*
Flake	1			
Flake frag	3	2	1	
Microfrag	1	7	49	3 (Crystal quartz)
Core frag			1	

Raw Material

All are of flint except for three minute slivers of crystal quartz. Only one waste flake has cortex and that is from a pebble. All the pieces are probably derived from pebbles, with no finer flint that could be imported.

Most of the microdebitage is from one pit, 4092 of which 38 are of the same light grey-brown. The rest is of mixed colours. The larger waste pieces and the core, however are all light grey or mid-grey.

Technology

The core fragment is only 24mm long and 23mm wide and is probably a core rejuvenation flake, struck from a small, probably conical pebble core.

Comment

There are no retouched pieces and no other pieces diagnostic of date or function. The presence of debitage, including microdebitage suggests knapping nearby and perhaps accidental incorporation of the pieces in the pits.

Pit Group 4

Summary

	Pit 4100	*Pit 4103*	*Pit 4109*
Flake		2	3
Flake frag	1	2	4
Microfrag	1	10	11
Retouched			1
Casually retouched	1	1	
Utilised			1
Core frag			1

Raw Material

All are of flint. None have any cortex present but one piece is of a fresh dark flint that may be imported.

Some of the microdebitage is burnt. All is of light, mid or dark grey and one piece is mottled mid/dark grey, from Pit 4109. The larger pieces are also of grey flint and two pieces are mottled, from pits 4100 and 4109.

Technology

All derive from small flakes, except for the retouched piece and one of the casually retouched pieces which are larger, being 32mm and 48mm long respectively.

Retouched and utilised pieces

The retouched piece is a neatly made convex scraper made on a large re-curved flake retouched to a neat discoidal shape (Fig. 31, SF1252). The two casually retouched pieces have no particular form. One is a large flake while both have casual retouch and possible utilisation.

Comment

This is a small but well mixed assemblage with both utilised and waste pieces indicating manufacture and use close by. Both the scraper and the larger casually retouched piece are made on good quality mottled flint, which may be imported. The scraper is neatly made and while not reliably diagnostic would be more characteristic of the Later rather than Earlier Neolithic.

Pit Group 5

Summary

	Pit 4133	*Isolated find 30m from Pit 4133*
Flake frag	1	
Microfrag	50	
Core frag	1	
Casually retouched		1

Raw Material

All pieces are of flint. The core fragment is of pebble flint and mid-grey. The microdebitage is of mixed colours, some of which is burnt and occurs in all three layers in the pit. The flake fragment and one piece of microdebitage are of mottled mid-grey/dark grey flint. The mixed colours suggest that pebble flint was the main source but the occurrence of two pieces of mottled flint may suggest some imported material.

Technology

The probable use mainly of pebble flint indicates that the size and quality of the material would restrict the technology. The core fragment is a flat segment of a small pebble that has had a subsequent flake removal.

Comment

The one possibly casually retouched piece is a flake from a pebble with irregular but scraper-like microchipping on one edge. None of the pieces are diagnostic of date. The presence of a scatter of microdebitage of varied colours suggests that secondary working was taking place close by and was more extensive than indicated by the presence of only two larger worked pieces. The presence of mottled flint seems to be typically associated with Later Neolithic pottery here.

Pit Group 6

Summary

	Pit 6034	*Pit 6041*	*Pit 6043*	*Pit 6044*	*Pit 6047*	*Pit 6055*	*Pit 6061*	*Pit 6072*	*Pit 6087*	*Unstrat*
Burnt frag								1		
Flake		2	3			1	1	6		
Flake frag		4	3	1			1	6	1	1
Irreg frag								1		
Split pebble								1		
Microfrag	18	34	80		3	6		61	14	
Retouched	2	4	2					2		
Utilised		1								
Core frag		1								

Raw material

All pieces are of flint except for two pieces of crystal quartz microdebitage in Pit 6041. This includes eight pieces of pebble flint identifiable from cortex but there are 18 pieces of dark, better quality, probably imported flint. The pebble flint pieces are of mixed colours, yellow-brown, light grey, mid-grey and dark grey. Most of the better quality flint is dark grey/black but there are a few pieces of mottled light grey or mid-grey/ dark grey with distinctive fossil inclusions.

Of the 216 pieces of microdebitage 34 pieces are burnt and the rest is dominated by light grey-brown, mid-grey and yellow-brown colours, in contrast to the larger pieces of debitage and retouched pieces, which are dominated by mottled mid-grey/dark grey flint.

Technology

The size of the pebbles used would have allowed only small flakes but the possibly imported flint is represented by much larger flakes, fragments and worked pieces, the largest (Fig. 33, SF765) being 75mm long,

Retouched pieces

	Pit 6034	*Pit 6041*	*Pit 6043*	*Pit 6044*	*Pit 6047*	*Pit 6055*	*Pit 6061*	*Pit 6072*	*Pit 6087*	*Unstrat*
Convex scraper		2								
Scraper frag?								1		
Convex scraper/knife		1								
Edge retouched knife	1							1		
Serrated piece		1								
Spurred piece			1							
Microlith	2		1							

The convex end scrapers are made on fine, dark grey-black, possibly imported flint using the quality of the material to good effect with pronounced bulbs producing flakes with re-curved bulbar faces and an acute angle for the working edge (Fig. 33, SF770 and 779?). The largest scraper also has fine utilisation chipping along one straight sharp edge (Fig. 33, SF765). This is also the largest piece in the whole site assemblage and appears to have been damaged by a heavy direct blow or possibly trampling pressure on one face. The microdebitage from Pit 6072 included one narrow spall with steep retouch, which is interpreted as the snapped-off edge of a convex scraper.

The serrated piece is a thin blade that has been blunted by steep unifacial retouch on one side and has shallow unifacial flaking and fine serrations on the other side (Fig. 33, SF781). This would be classed as a D-shaped blunted-back knife except for its serrated edge. Blunted-backs on knives have been interpreted as aids to hafting and this piece could have been hafted as part of a multi-part sickle. There is some gloss from possible wear on both the serrated edge and back. Two other pieces are fragments of large thin flakes with edge retouch. SF 858 (Fig. 33) is an edge-retouched knife. SF 979.1 (Fig. 33) has one edge backed by neat steep retouch while the opposite edge, although not retouched, is naturally sharp and so seems also to be a knife.

One piece (SF778.2, Fig. 33) has abrupt retouch on two sides of the proximal end of a flake to create a projecting 'spur', which may be a type of piercing implement.

The one possibly utilised piece is a broad flake with microchipping on one edge and is made on mottled mid-grey/dark grey flint.

The two microliths include one complete narrow-blade scalene triangle (SF979.2, Fig. 4), 12mm by 6mm, in buff-coloured flint from Pit 6034 and two probable mid-section fragments of narrow-blade microliths from Pit 6043, one mid-grey, and the other buff. The scalene triangle is made on a narrow flake retaining its bulb and retouched on the end and one side.

Comment

Convex scrapers of the type found here are normally the most common tool type on Neolithic sites and are not typologically diagnostic except perhaps when large numbers are studied metrically. Even then their dimensions may be determined by the size of the available raw material, where pebble flint is used. The three examples here are clearly not made on flakes from the locally available pebble flint. Their size, shape and quality would be more typical of the Middle or Later Neolithic than earlier or later and comparable to scrapers from Later Neolithic sites in southern Britain, like Durrington Walls (Wainwright and Longworth 1971, 163-9), than with examples from closer at hand, e.g. at Capel Eithin, Anglesey (Aldhouse-Green 1999, 43-4).

The serrated piece is the most refined and distinctive tool type here. Simple serrated flakes or blades are frequent occurrences in Mesolithic, Early and Later Neolithic assemblages but this carefully-shaped example is more comparable to D-shaped backed knives of the Middle or Later Neolithic, e.g. at Fengate (Pryor 1978) or Durrington Walls (*op cit* 174). It is closely comparable to a knife from the Neolithic chambered tomb of Trefignath, Anglesey, in association with Late Neolithic pottery (Healey 1987, 55-6). That example was also made from possibly imported nodular flint.

Edge retouched knives and spurred pieces are common tool types that are not diagnostic of period but both the knives are on good quality flint that must have been imported.

The microlith pieces were found, like most of the microdebitage, as a result of flotation and sieving of all the soil from the pits. There were no microburins present to indicate specialised microlithic manufacture.

The microlith and two fragments are all on narrow blades and typical of the Later Mesolithic. They seem to have been made on locally available pebble flint unlike the larger implements. There are a few pieces of pebble flint

amongst the larger debitage. The microdebitage surprisingly includes a predominance of light grey-brown yellow-brown and mid-grey flint with only a few pieces of dark grey or mottled flint. This suggests that the larger implements were made elsewhere or brought to the site as blanks that needed little working while primary working was confined mainly to pebble flint.

Not a single arrowhead was found amongst this pit group or any of the other pit groups with Later Neolithic pottery. Oblique or transverse arrowheads are a typical occurrence on other classic Grooved Ware sites, such as Woodhenge or Fengate and their absence here must be significant, although difficult to explain. The groups of flint in the pits seem unlikely to be special deposits similar to the type of assemblages that are found in association with burials in as much as the finds from the pits include waste, broken, burnt and previously used pieces. This does not preclude the possibility that they were token samples of domestic debris although the scatter of disparate objects and the absence of retouched pieces in some pits seem to suggest simply inclusion as part of domestic debris. The microdebitage was almost certainly an accidental inclusion and the greatest number was in Pit 6043, which included only the spurred piece and the microlith. The microliths themselves must be accidental inclusions and residual pieces but are interesting because the fill of the pits can be regarded as providing a sample of the Neolithic environment, now lost except for what lithic pieces might survive in the modern topsoil, which was not sampled. Pit 6041 had little debitage although it included all the finer pieces, the two scrapers, the scraper/knife and the serrated piece and this is the one pit that might be regarded as special in terms of its content.

Pit Group 7

	Pit 3111	***Pit 3121***	***Pit 3139***	***Pit 3143***	***Pit 3146***	***Pit 3155***	***Pit 3186***	***Pit 3190***	***Pit 3236***
Flake frag						1			
Utilised					1				

The flint flake fragment was in yellow-brown flint, probably from a locally obtained pebble. The possibly utilised piece is a small rod-shaped fragment of crystal quartz (Fig. 34?, SF 1308). One end of this has some damage, possibly from use but more likely from production of the piece from the core by the anvil technique. Despite the lack of other flakes or pieces of microdebitage of crystal quartz this piece was certainly manufactured.

Pit Group 8

Summary

	Pit 1305	***Pit 1309***	***Pit 1553***	***Pit 1579***	***Pit 1584***	***Pit 1586***	***Pit 1596***	***Pit 1599***
Flake frag	1							
Irreg frag	1							
Microfrag			1 crystal quartz				1 flint 1 crystal quartz	

Raw material

The flake fragment is from a pebble core and is mid-grey as is the irregular fragment while the microfragment is light grey-brown. The irregular fragment has no recognisable bulbar or non-bulbar surface, so is probably struck from a pebble by the anvil or ecaillé technique.

Comment

These pieces give no suggestion of date or function and the small number suggests accidental or even residual inclusion.

Miscellaneous areas

Summary

	Tr 1 Burnt mound	*Tr 2 Burnt mound*	*Tr 2 Plough soil*	*Tr 2 Ditch 2157*	*Tr 4 Burnt mound*	*Tr 6 Burnt mound*	*Tr 3 Pit oven*	*Tr 4 Stone deposit*	*Tr 2 Bead cache*
Flake				1					

Flake frag	1			1	1				
Irreg frag		1		1		1			
Microfrag									1
Retouched		1			1			1	
Casually retouched									1
Utilised							1		1
Core			1						

	Tr 3 Plough soil North Enclosure	*Tr 3 Round house A*	*Tr 3 Plough soil Round house A*	*Tr 3 Round house D*	*Tr 3 Plough soil Round house D*	*Tr 3 Round house G*	*Tr 3 Round house H*	*Tr 3 Plough soil Round house H*	*Tr 3 Ditches*	*Tr 4 Round house E*
Burnt frag										1
Flake	1	1							1	
Flake frag									1	
Irreg frag		2				1			1	
Microfrag		2				5	3 flint 1 Crystal quartz		2	
Retouched		1	2	1		1		1		
Casually retouched			1		1					
Ecaillé							1			
Core										1
Pebble frag		1								

The above table shows all the pieces from significant deposits but omits a few isolated pieces. The latter comprise a utilised piece from a possible prehistoric feature in Trench 1, a flake fragment from a possible prehistoric feature in Trench 2, two irregular fragments from a tree-hole in Trench 3, one piece of microdebitage from a possible prehistoric feature in Trench 3 and a fragment of a possible truncated piece from Trench 1 and a utilised blade of fine imported flint from Trench 6. There are also two flakes from post-medieval contexts in Trenches 1 and 4 and a few pieces from unstratified contexts that are described with the ploughsoil finds, below.

Raw material

Of the pieces of identifiable origin eleven are pebble flint and three possibly imported better quality flint, one from Trench 3 Ditches, one from Trench 3 Pit oven and the other from Trench 4 Burnt mound. The very varied colours of the rest suggest the predominant use of pebble flint.

There were also two unworked pieces of crystal quartz. One came from the burnt mound in Trench 2 and is probably just a chance natural occurrence. One came from the roundhouse ditches in Trench 3 and may have been collected raw material associated with other lithic pieces in that area.

The larger size of the better quality, dark grey imported flint is shown by the piercer from Roundhouse A (Fig. 67, SF528), which is made on a flake that is incomplete and perhaps half its original length but is still 41mm long. This flake has a thin smooth, worn cortex that shows it came from a pebble not a fresh nodule showing that the better quality flint on the site, although imported may have originated from the western seaboard, rather than from inland to the east.

Technology

The use of pebble flint is reflected in the small size of the complete pieces of pebble flint, the largest 28mm long, whereas two pieces of the finer imported flint are 68 and 42mm long (Fig. 51, SF472 and 585). Both cores are pebbles, one of buff flint, the other light grey flint, struck from more than one direction (Fig. 4, SF701). The *ecaillé* piece also results from working a pebble.

Retouched pieces

	Tr 2 Burnt mound	*Tr 4 Burnt mound*	*Tr 4 Stone deposit*	*T3 RHA*	*Tr 3 Topsoil RHA*	*Tr 3 RHD*	*Tr 3 RHG*	*Tr 3 Topsoil RHH*
Edge retouched knife	1	1						
Barbed and tanged Arrowhead			1					
Piercer					1			
Serrated piece						1		
Spurred piece				1	1			
Thumbnail scraper								1
Microlith							1	

There are two pieces associated with burnt mounds. One, from a burnt mound in Trench 2, is a fragment of an edge-retouched knife with neat scalar flaking (Fig. 51, SF881). This is made on a flake with concave profile and is a simple form of plano-convex knife indicating a date in the second millennium BC. The other, from a burnt mound in Trench 4, is another knife made by casual retouch of a flake of dark, good quality flint with fine retouch along one sharp side edge (Fig. 51, SF585). The waste pieces in ditch 2157 may derive from activity associated with the nearby burnt mounds in trench 2 but are not diagnostic of date or function although there is only pebble flint, no better quality material.

The utilised blade from pit-oven 3133 in Trench 3 has utilisation microchipping and gloss on one side edge and around the tip (Fig. 51, SF472).

The bifacial barbed and tanged arrowhead (Fig. 51, SF581) is made from light brown flint, probably from a pebble and came from a layer of rounded stones identified as a natural deposit in Trench 4.

The retouched pieces from roundhouse contexts comprise two spurred pieces from Roundhouse A, a serrated blade fragment from Roundhouse D, a thumbnail scraper from Roundhouse H and a microlith from Roundhouse G. The latter (Fig. 4, SF1228) is a small scalene triangle retouched on three sides, possibly originally retaining a bulb and made on light brown, probably pebble flint.

Small 'thumbnail' scrapers occur in all periods especially where pebble flint, like this one (Fig. 51?, SF757), is the only locally available material, so are not chronologically diagnostic. The piercer (Fig. 67, SF528) from Roundhouse A is made on the end of a large flake, the tip of which has been narrowed by alternate retouch and there is some possible utilisation microchipping on one sharp side edge. One of the spurred pieces was made by fine abrupt retouch on a flake from a pebble (Fig. 67, SF482). It is unusual because it has a longer tang-like spur than most spurred pieces and was made on the bulbar end of the flake so could be an unfinished tool such as a knife.

The three pieces from near the bead cache include one possibly casually retouched flake and one utilised piece. Both may be just a result of accidental trample damage. The former is a flake with steep inverse retouch along one side and the latter is a small flake with end damage.

Comment

The association of a few pieces with burnt mounds may provide some evidence about their use and the presence of two cutting tools is worth noting and the possible correspondence between any radiocarbon date and the typological dating of SF881.

One utilised blade (SF472) came from a layer of redeposited clayey material over Pit oven 3133 in Trench 3. This is the only lithic find from such features on the site. It may be a residual and accidental inclusion although the fact that it is in fresh condition with no damage despite being a thin and delicate flake suggests it could have been *in situ* since its deposition. The size and quality of the piece, using imported flint, means that it is likely to derive from the Later Neolithic activity on the site.

The arrowhead (SF581) is not a common type for Wales being of the Conygar Hill type as defined by Green (1984), a type most commonly found in burials in association with Food Vessels, for example at Clocaenog, Denbighshire (Savory 1980, 144 &198). It is complete and undamaged and so is unlikely to have been moved since its deposition, suggesting that it was not a stray loss, as is often the case with arrowheads, but a deliberate deposit. If so it may be that the stony deposit was the remains of a cairn and that the arrowhead belonged with a cremation burial that may not have been recognisable if no pot accompanied it.

There is a small but significant group of material from Trench 3, which is interesting because that trench was dominated by the presence of the roundhouse settlement. Although Pit Group VII was dated to the Bronze Age it produced only one lithic piece, and is unlikely to have accounted for the other pieces in the trench. The pieces do not seem technologically or typologically different from the material associated with the Later Neolithic pits and one, the microlith is quite clearly residual. The probable explanation for the recovery of this group of material from Trench 3 was that much larger areas of topsoil were subject to view because of the extensive hand excavation needed over the

round-house settlement in that trench, compared to other trenches where topsoil was removed more completely before hand excavation. The topsoil in other trenches may therefore also have contained a small scatter of lithic pieces that were not recovered and because of the small numbers present, could not have been usefully sampled.

The microlith is of narrow blade, Later Mesolithic type. It was found during flotation sieving of soil samples, as for the other microlith pieces found in Pit group VI. Like them it must be residual as is most likely for the other lithic pieces from roundhouse contexts. The serrated blade, on yellow-brown flint, could be of the same period as the microlith. The sieving of a large quantity of soil from roundhouse contexts and the few lithic finds from them provides good evidence that there was only minor Mesolithic activity in this area.

Ploughsoil

Summary

The positions of most pieces of from the ploughsoil were located and these are included in the description of material from the relevant nearby features. The most significant group of material was from Trench 3, where the roundhouse settlement was found. A few, described here, were isolated and identifiable only to Trench.

	Trench 2	*Trench 3*	*Trench 4*	*Trench 6*	*Trench 8*
Flake	1				
Flake frag	1			2	
Irreg frag	1		1		
Split pebble		1			
Retouched	1	2			
Casually retouched			1		
Utilised	1				
Core					1
Core frag	1				
Battered piece			1		

Raw material

All pieces are of flint and of those identifiable as to source in Trench 2 three are pebble flint, in Trench 3 two are pebble flint. In Trench 4 one is pebble and two are finer flint as is one in Trench 6. The predominance of pebble flint is shown also by very varied colours amongst all the material. The battered piece is a large flake of fresh dark grey-black, probably imported flint with distinctive irregular battering all around its edges. This is probably a stray modern introduction like a group of similar pieces found during the 1966-7 excavations and interpreted as deriving from flint brought in to supply a flint grinding mill at Tal-y-bont in the 19th century (Lynch and Musson 2004, 116).

Technology

Both the cores were derived from pebbles, the one complete core is small, 35mm by 27mm by 19mm, struck from two perpendicular directions. The use of pebble flint is reflected in the restricted size of pieces.

Retouched pieces

	Trench 2	*Trench 3*	*Trench 4*
Spurred piece?	1		
Truncated piece?		1	
Edge-retouched knife		1	
Casually retouched piece			1

None of these pieces are diagnostic of date but are of a varied group of functions that represent probable domestic activity.

Comment

These are a few scattered pieces, none of which form a significant group or association so cannot be used to add to understanding.

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APPENDIX VII: STONE ARTEFACTS

George Smith

Pebble tools

Artefact associated with the Early Neolithic House

135. Found in the fill of a post-hole (1656), with other packing stones. A natural elongated oval pebble of a hard igneous stone (possibly fine-grained tuff – Jenkins, below). In shape and size it is very similar to an axe but it has not been shaped, worked or obviously utilised in any way. There is possible slight abrasion at each end but this could have been present before collection. Similar elongated pebbles are found with later Mesolithic flint assemblages in coastal Cornwall such as at Carn Greeb (Jacobi 1979, 59) and south-west Wales, such as at Nab Head (Wainwright 1963). Some examples have faceting or chipping on the tip of unknown function but possibly from use as flint fabricators. This one is certainly a collected and introduced object and may have been collected just for its curiosity value because of its elegant shape. However, its shape would have made it ideal for use as a pebble tool, as described, giving it some value and so could have been deliberately deposited as an 'unused' tool.

Artefact from the Late Neolithic Pit Group VIII

274. Pebble hammer. From Pit 1596. A long, finger-shaped natural pebble of hard igneous rock (dolerite – Jenkins, below) chipped at both ends from use as a light hammer. This was probably a fabricator or retouchoir for flint or other stone artefacts. This pit actually contained no flint but did contain two retouched flakes of possible (but not provable) Mynydd Rhiw stone and two worked pieces of Graig Lwyd stone, one a flake, the other a fragment from a ground and polished axe. The close contextual association makes it seem a good chance that the pebble tool was used to produce these artefacts. It is a shape of pebble that would have been difficult to find, giving it some value and as it is complete and undamaged, apart from its use wear, may have been deliberately deposited rather than discarded.

Querns and rubbing stones

Artefacts associated with the roundhouse settlement in Trench 3

473. (Fig. 67) Burnishing/Rubbing stone. From the topsoil above roundhouse A. A broken fragment of an oval pebble of a fine hard dark red igneous rock, which must have been carefully collected for its hardness and smoothness and perhaps unusual colour. It has a general polish from repeated handling and one face has localised more developed polish from burnishing, possibly used in a side-to-side motion. The tip also has facets from repeated abrasion with the tool held at a slight angle to the working area. There is also a flat worn facet on one side edge, parallel to the long axis of the tool. There area also areas of light peck marks near to the end on both faces from use as a light hammer. This pebble was carefully chosen for the particular qualities of the stone, which is unusual and probably derives from the glacial drift. Similar flat stones with polish have been suggested to be leather working or metal working tools and been found in undated contexts at Capel Eithin (White and Smith 1999), Rhos-y-Gad (Lynch 1991,365) and Melin y Plas (Davidson and Hughes forthcoming), all on Anglesey. However, this one was a multi-functional tool. The end facets are similar to those on pebble tools associated with later Mesolithic coastal sites, perhaps from use as flint fabricators but pebbles with similar facets from use as grinders have been found at the Middle Bronze Age settlement of Mellteyrn Uchaf, Llŷn (Ward and Smith 2001) and on Iron Age sites in Somerset (Coles 1987, 150-4) and so seem to have been fairly standard tools with some common, everyday use, such as in food preparation. The multiple uses shown by this tool make production of artefacts of materials such as leather, horn, bone or wood seem likely where abrading, burnishing and perhaps hole-punching or riveting were all needed.

480. Saddle quern fragment. (Orthoquartzite, possibly basal carboniferous, e.g. from Benllech, Anglesey – Jenkins, below). From a layer of stony colluvium above roundhouse A. A fragment from the edge of a sub-rounded slab of coarse conglomerate. It has one concave worn asymmetric surface showing it is from a saddle quern.

789. Saddle quern fragment. (Orthoquartzite, possibly basal carboniferous, e.g. from Benllech, Anglesey – Jenkins, below). Embedded in the subsoil within roundhouse C. A fragment of conglomerate with a gently curving outer surface, probably shaped by pecking, and one slightly concave worn asymmetric surface showing it is from a saddle quern. Querns and mortars have been found in several places elsewhere *in situ* in the floors of excavated roundhouses, where they had been set to be used, for instance at Pant y Saer, Anglesey (Phillips 1934) and Cefn Graeanog, Caernarfon (Kelly *et al* 1999, 45). This may therefore be the remains of such an *in situ* quern.

595. Saddle quern rubber fragment. (Orthoquartzite, possibly basal carboniferous, e.g. from Benllech, Anglesey – Jenkins, below). An unstratified find from trench 3. A fragment from a large, thin flat slab with one flat worn face and an outer edge that has been chipped to a curvilinear shape. If it was a saddle quern rubber the worn surface would be most likely to be asymmetric but the worn surface is quite flat. Therefore it could have been

the upper stone of a flat disc quern, a type introduced during the Roman period. However, the worn face has no concentric wear marks to confirm this.

682. Saddle quern fragment. (Orthoquartzite, possibly basal carboniferous, e.g. from Benllech, Anglesey – Jenkins, below). An unstratified find from trench 2. A fragment from a thin slab with an original curvilinear outline and one slightly concave worn face. Similar to 595. Asymmetric wear suggests it is part of a saddle quern rubbing stone.

557. Pillow stone/Working slab. (Dense sandstone or tuff – Jenkins, below). From a possibly natural animal hole or tree hollow in trench 4. A fragment from a large natural cobble. One slightly concave face has been smoothed from use, probably as a pillow stone in food preparation or leather or fibre working.

758. Whetstone. (Fine silicified sandstone or tuff – Jenkins, below). A natural elongated sub-rounded pebble, 116mm by 35mm by 21mm, that has been worn on one face. From the surface of the subsoil in trench 3, so possibly associated with the roundhouse settlement.

1032. Quern or rubber fragments. Five small shattered rock fragments, of medium-grained igneous rock, two are evidently burnt and the rest may be too. (Lower Palaeozoic, possibly Cambrian, Arfon – Jenkins, below). From a gully in trench 3, probably associated with the roundhouse settlement. Two have flat worn facets so probably derive from a broken quern or rubber.

1250. Quern or rubber fragment. Burnt fragment of medium-grained igneous rock. (Lower Palaeozoic, possibly Cambrian, Arfon – Jenkins, below). From the lower fill of pit 9315 within roundhouse G. This has one flat, worn facet and so probably derives from a broken quern or rubber.

Comment

The absence of beehive rotary querns is notable as such types of querns are believed to have come into use in north-west Wales in the later 1st century AD (Hughes 1977, 6) and pottery evidence from Parc Bryn Cegin suggests some occupation at least continuing into the 3rd century AD. However, there is good evidence that saddle querns continued in use through the first millennium BC and the Roman period. One was found still *in situ* in a roundhouse excavated at Pant y Saer, Anglesey and must have still been in use until occupation ceased, sometime in 4th century AD (Phillips 1934). Rotary querns were also found at the roundhouse settlements of both Bryn Eryr (Anglesey) and Bush Farm (Caernarfon), occupied during the same period as Parc Bryn Cegin (Longley *et al* 1998). Of three roundhouse settlements excavated in advance of the new A55 road on Anglesey, two, Cefn Cwmwd and Cefn Du, produced several saddle querns and beehive rotary querns, while one, Melin y Plas produced only a saddle quern (Davidson *et al* forthcoming). The latter settlement was quite poorly preserved compared to the others and produced fewer finds so the absence of rotary querns may not be significant and the same may be the case at Parc Bryn Cegin. What was distinctive about these sites was the presence of a number of stone mortars at all of them, while none were found at Parc Bryn Cegin. Mortars were clearly important for food processing in a similar way to querns and at Pant y Saer (*op cit*) one was found *in situ* close to the saddle quern. The presence a range of mortars at the A55 settlements was suggested to be because of the introduction of new fashions of food or preparation as a result of Roman influence through involvement in the market economy. The lack of mortars at Parc Bryn Cegin could be because, as indicated by the Roman pottery, it had its peak earlier than the A55 settlements, and so was not flourishing and benefiting to the same degree from the market economy for agricultural products as were the settlements on Anglesey.

Spindle whorls

463. (Fig. 67) From disturbed soil above roundhouse A, trench 3. Made from a selected flat pebble of decorative fine purple-red sandstone. Slightly chipped and ground to shape around the perimeter. The neatly central hole is 7mm diameter, parallel-sided and drilled.

471. (Fig. 67) From a drainage gully associated with roundhouse B, trench 3. Grey and burnt fragment, probably of lignite that may have originally been a more decorative black with some polish. The whorl has been broken across and split through its thickness along a natural bedding plane. The hole is 7mm diameter parallel-sided and drilled but slightly off-centre. However it may originally have been centre, the whorl later worn or damaged in use.

535. (Fig. 67) From a boundary ditch around the roundhouse settlement in trench 3. Made on a fragment split from a pebble of schist, which has natural lamina and has been chosen for its decorative banded appearance. It has one natural pebble face and one split face and has been carefully ground to shape although only part of this ground

edge remains, the rest being chipped in use. The neatly central hole is countersunk in profile showing it was bored rather than drilled, perhaps using a flint tip.

Comment

These three whorls are simple, common types used in the Late Iron Age and through the Roman period. Four comparable stone whorls were found nearby during the previous Llandegai excavations associated with the Iron Age and Romano-British occupation there (Lynch and Musson 2004, 103). Two of those were drilled and two were countersunk and two had slight decoration. Their main value is in showing the use of wool to produce threads and probably fabrics and therefore access to sheep products, in the absence of any direct bone evidence.

The whorls are quite plain although the stones used were in each case chosen for some decorative value by colour or texture and so they show some quality of manufacture and could have been produced by a craft specialist. This contrasts with whorls made on quite irregular fragments of local slate, such as those at Cefn Graeanog II (Kelly 1998, 42-3) and Bush Farm, Caernarfon (Longley *et al* 1998, 237), which were clearly not specialist products even though the latter (close to the fort of Segontium), seems to have been benefiting from the Romanized economy.

Three Iron Age sites in the Somerset Levels, Meare Villages East and West and Glastonbury Lake Village, have produced between them over 600 whorls providing a good overview of the range of types. Most were of stone but other materials used included bone, antler and baked clay. Meare Village East, occupied between the 3rd C BC and the early 1st C AD, produced some 190 whorls (Coles 1987, 157-68). These were of a variety of materials, mostly local limestone, mostly plain and of various sizes and cross-sections. Those of softer materials were all drilled but the stone was either drilled or, in the case of the harder stone, countersunk. Iron finds included a number of rods that might have been drills. There were also a considerable number of flints that seem to have been used or re-used on the site and have created considerable debate about the use of flint during the Iron Age. However, the flint assemblage did not include any drill or awl points that might have been used to countersink the holes in the stone whorls and the same was the case at Parc Bryn Cegin, amongst a number of flint objects recovered from the area of the roundhouse settlement.

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Appendix VII.1
Table of petrology of worked stones compiled by David Jenkins

SF	Context	Wt.	Sample	Petrology/morphology
135	1655	876g	Axe-shaped stone	Well rounded elongated pebble with random striae on surfaces. No obvious evidence of usage (e.g. terminal battering). Fine grained, buff, with small (1mm) clasts and occasional rounded vesicles. Natural pebble of probable local origin (e.g. Snowdonia tuff?)

274	1596	430g	Possible hammer stone?	Well rounded elongated pebble but with well battered terminations and possible polish on one surface. Massive with a mesh of plagioclase laths and interstitial anhedral pyroxene and iron ores. Typical dolerite (probably Snowdonian) with evidence of usage for battering and possibly polishing.
480	3116	1,810g	Fragment of quern stone	Angular buff coloured block with planar abraded/polished upper surface and curved lower surface. Poorly sorted sandstone with sub-angular quartz grains (1-12mm) with some pink quartz. Moderately porous with patchy fine white crystalline cement. Weak bedding parallel to main faces. Orthoquartzite, probably basal Carboniferous, possibly NE Anglesey but lacking diagnostic features (c.f. 595, 682).
557	4141	4g	Stone	Sub-rounded stone with weathered Fe/Mn stained surface. A dense compact sandstone although some pellety structures suggesting volcanic origin. Jenkins thinks this is a naturally abraded stone.
595	3000	1588g	Fragment of quern stone	Angular buff coloured fragment with planar polished upper surface and curved lower surface. Poorly sorted sandstone with sub-angular quartz grains (1-18mm), relatively massive with no obvious bedding. Orthoquartzite, probably basal Carboniferous, possibly NE Anglesey but lacking diagnostic features (c.f. 480, 682).
682	2000	1408g	Quern fragment	Angular buff coloured block with curved lower surface and abraded, polished planar upper surface. Mostly fine-grained (0.5-1mm) sandstone with coarser (1-5mm) layer at upper surface. Mostly sub-angular quartz and possible rare jasper, i.e. bedding parallel to polished surface. Porous, moderately cemented only. Orthoquartzite, probably basal Carboniferous, possibly NE Anglesey but lacking diagnostic features.
758	3002	133g	Polishing stone?	Sub-rounded elongated pebble with rectangular cross section. Hard dark bluish grey finely banded. Some edges show striations perpendicular/oblique to the edges. A hard rock – possibly a local Snowdonian silicified tuff, and possibly used for polishing/honing.
789	9283	1502g	Quern fragment	Large fragment with an abraded/polished sub-planar surface and an outer curved surface. Coarse/medium sandstone and sub-rounded/angular quartz up to 16mm with possible jasper and platy carbonaceous material. Porous with partial interstitial white finely crystalline cement. Textural bedding perpendicular to slab. A fragment of quern from shaped/abraded orthoquartzite of probable basal Carboniferous origin, possibly from NE Anglesey.
925	2131	200g	Daub/plaster-like material in fill 2098 with glass beads	Buff coloured (10YR6/3 'pale brown') aggregate of small gravel (5-20mm: well rounded to sub-angular with flakes of shale) in a loamy matrix with small (<5mm) irregular, soft, white calcareous fragments and some distinctly pinkish inclusions (e.g. 2.5YR6/6 'light red'). Weakly bonded, friable material with some surfaces showing shearing and fractures indicative of being smeared; some areas show pink pigmentation. Probably fragments of daub including lime and possibly pigments.
1032	3676	53g	5 quern fragments?	Small angular varying grey fragments all with one abraded/polished planar surface. Fine/medium sandstone with 0.3-0.5mm sub-rounded quartz, occasional black iron-ore minerals and rare lithic grains. Massive with no obvious bedding. Medium quartz sandstone, possibly Lower Palaeozoic/Cambrian? (c.f. 695, 1041)
1250	9314	36g	Quern fragment	An angular fragment with one abraded/polished sub-planar surface with some pink staining (due to firing?). Medium/coarse (1-3mm) sandstone, sub-angular/rounded grains, mostly quartz with occasional lithic (fine white rhyolite?) clasts. Massive with moderate porosity only. Medium quartz/lithic sandstone, probably Lower Palaeozoic/Cambrian? (c.f. 694, 695, 1041, 1032).

APPENDIX VIII: REPORT ON GRAIG LWYD LITHICS

John Llywelyn Williams

The assemblage is made of Graig Lwyd rock and a range of fine and coarse-grained fabrics are represented. The material is fresh and unweathered and fragments with adhering cortex or with developed alteration rims are very few in number. Most fragments show clean, sharp fracture surfaces similar to the material excavated at Graig Lwyd Site B rather than the heavily patinated assemblages from Site F (Williams and Davidson 1998).

1 - Graig Lwyd lithics within and outside the Early Neolithic Building

The lithics are divided into three groups.

Group 1 – Lithics with polished surfaces

These comprise 4 pieces, which range from the half fragment of a polished axe to a microflake. The material may be further divided into lithics within the building and those outside.

Polished lithics outside the structure

Included are the following –

From pit 1619: stone axe fragment (SF226, Fig. 15?) – (for material see appendix IX below). Burnt fragment in pit 4m west of building in association with Early Neolithic pottery sherds, flint and quartz fragments. (Note pit FB 151 in 1960 excavation was 5m S of Neo Building).

From pit 1729: flake (SF1097.1, Fig. 15) with polished surface (associated with unpolished reduction chip (SF1097.2) – cf. with similar unpolished reduction chips from within building, e.g. SF1226, 1292 etc). Flake SF1097.1 is a disk shaped example (L=45mm) removed from a polished object (axe?) with no further retouch. Vestigial flake scars observed on polished surface. Flake removed from a previously broken object to give a steep angled, facetted platform. The pit, which was *c.* 18m west of the building also contained 2 flint flakes, 1 microflake and some crumbs of pottery.

Polished lithics within the structure

Included are the following –

From post trench 1404: thinning flake (SF1037, Fig. 15) – thin, L=27mm with one polished surface (associated with unpolished microflake SF1224).

From posthole 1532: microflake SF1225 with polished surface associated with unpolished microflake SF1167 and burnt and broken fragment SF511.

Group 2 – Unpolished lithics

Lithics outside the structure

Included are –

From pit 1729: reduction chip (SF1097.2) associated with flake SF1097.1 above.

From pit 1647: *c.*23 microchips (SF1276) from pit *c.* 4m to NW of building (these were recovered through sieving and some are very small) in association with thin flake (SF1099) with cortex at distal end (L=37mm) with surface showing at least three earlier flake scars hinging against cortex. The latter is probably not Graig Lwyd rock.

From hollow 1669 containing relict soil/occupation deposit: SF871 – thin reduction flake struck transversely to length (flake width = 20mm; flake length = 37mm. Microflake SF1226, a small trimming/chip with angled platform identical with examples from outside building in pit 1729 (SF1097.2) and polished chip from within the building in posthole 1532 (SF1225).

Lithics within the structure

Lithics include -

Microflakes from posthole 1291 (SF1292), from post trench 1404 (SF1224), and from posthole 1532 (SF1167)– small trimming/chips with angled platforms identical with examples from outside building in pit 1729 (SF1097.2) and polished chip from within the building in posthole 1532 (SF1225).

Three reduction flakes, two from posthole 1406 (SF890) – narrow, thick, truncated reduction flake, triangular in section, and 85 – long, thin core trimming flake struck transversely to length (flake width =13mm; flake length = 43mm. One flake from posthole 1519 (SF1036), a truncated secondary reduction flake struck longitudinally.

From posthole 1532: a large, formless, reduction flake in 3 fragments (SF511); calcined with no apparent bulb; probably Graig Lwyd but await identification of axe fragment SF226 since both appear similar – probably because of being calcined.

Group 3 – Non-Graig Lwyd lithics

From pit 1619: a thick, truncated flake (SF116) with flake beds on upper surface on coarse grained rock - probably not Graig Lwyd (see addendum below).

2 - Graig Lwyd lithic assemblages from the later Neolithic pit groups

Pit Group I

A series of six small pits comprise this group and in combination have produced the largest collection of Graig Lwyd lithics on site, numbering 36 pieces. They are associated with flint debitage, charcoal, hazelnut shells, burnt clay, burnt bone, burnt stone and Peterborough (Mortlake) sherds with additional residual Early Neolithic sherds in two of the pits. In general the lithics are made on a coarser textured facies of Graig Lwyd rock than the corresponding collection from within and in the vicinity of the Early Neolithic building. As a result flaking features, such as bulbs and bulbar scars, are not so well developed. The collection is divided as follows –

1) Block and block fragments

Included are - fragment SF2 (from pit 1027) (Fig. 28), which could be interpreted as an axe sharpening tranchet flake; fragment SF28.1 (from pit 1052), a thick, triangular sectioned, preliminary core reduction flake with convergent flake facets (L=7cm;W=5.5cm);

2) Reduction flakes – struck transversely and longitudinally

Included are - flake SF3 (from pit 1032), the best example in the collection of a secondary axe trimming flake struck transversely from a wide facetted platform with the ratio of width greater than length (W 6.5cm; L=3.2cm). Flake SF51.2 (from pit 1049), a transverse reduction/thinning flake; flake SF28.2 (from pit 1052), an example of a truncated secondary reduction flake struck longitudinally; and a small reduction chunk (SF1043) from pit 1027.

3) Thinning/trimming flakes

Included are - flake SF793.1 (pit 1027) example of large (L=57mm, W=35mm) thinning flake struck longitudinally; flakes SF24.1 (pit 1049), SF66.2 and SF66.3 (pit 1258) examples of thin thinning flakes.

4) Trimming flakelets and chips

Included are –

Flakelets – from pit 1049: SF24.2-4 and SF51.3; from pit 1052: SF28.3 (Fig. 28); from the relict soil context 1156: SF59.1; from pit 1027: SF793.2, and SF1043.2.

Chips – from pit 1321: SF72.1-2; from pit 1049: SF1042.2-7, and from pit 1258: SF1279.1-3.

5) Thinning flakes/flakelets with polished surfaces

Included are a group of six examples- flakes SF24.1 (Fig. 28), SF51.1, SF1042.1 (Fig. 28) and flakelet 798 from pit 1049, flake SF66.1 from pit 1258, and flake SF70 from pit 1321. The flakes vary in length between 40mm to 35mm and have been struck from simple striking platforms to produce longitudinal flakes that are either disk shaped or 'blade' shaped. Two disk- shaped flakes (SF51.1 and SF70 (Fig. 28)) represent the first removals from an object with a polished surface and in the other three examples partial remnants of the polished surface remain following removal by earlier flake facets. A manganese oxide concretion has formed on the surface of a number of flakes. Flakes with secondary retouch are not present.

Pit Group III

The group comprises three pits that contain sherds of Fengate pottery, flint debris, quartz, charcoal, hazelnut shells and 5 examples of Graig Lwyd rock debitage. Of the latter one fragment is a truncated, longitudinally struck thinning flake (SF1107, from pit 4092); one a small trimming flake (SF1369 from pit 4069); and the remainder are three microchips (SF1131 from pit 4092). Polished surfaces are not observed in the group.

Pit Group V

The group consisted of two widely separated pits one of which produced one flaked, unpolished chip of Graig Lwyd rock (SF1297) in association with Fengate pottery, flint, charcoal, hazelnut shells and burnt bone.

Pit Group VI

The group includes 10 pits divided into three sub-groups. One isolated pit and a pair of pits contained Fengate pottery, whilst a group of seven pits included one pit with a quantity of Grooved Ware sherds. Several of the pits also contained flint tools, charcoal and hazelnut shells. Four fragments of Graig Lwyd rock were deposited in two of the pits containing Fengate pottery. Pit 6072 produced a large (L=45mm, W=43mm), rectangular, truncated, reduction chunk displaying numerous flake removals on both faces (SF 1033). Pit 6034 contained a narrow thinning flake

retaining a small portion of cortex (SF1035.1) and two microchips (SF1035.2-3). These were associated with a thin tabular flaked fragment of a fine-grained slate? (1035.4). Examples with polished surfaces are not present.

Pit Group VIII

The group comprised of six pits placed in a rough oval arrangement and lying to the south west of the Early Neolithic building. Two fragments of Graig Lwyd rock were identified along with two flakes with an unidentified geological provenance (see appendix IX for analysis).

Fragment SF113 (Fig. 34) is a roughly rectangular fragment (L=45mm; W=45mm), with a part polished surface, which is a remnant of a larger object that has been forcibly broken. The polished convex side and a small portion of the (upper?) polished surface remain, but two large flakes have removed the greater part of this surface; a transverse single fracture has truncated all the dorsal face of the object. Fragment SF113 was associated with Grooved ware pottery in pit 1553 that also included quartz, charcoal and hazelnut shells.

Flake SF1341 (Fig. 34) is a large (L=43mm, W=30mm), oval shaped, first removal from an object with an irregular ground or polished surface; the flake has a steep angular platform. The flake was associated in pit 1596 with flint debitage, quartz, charcoal, and hazelnut shells, but no pottery.

The two flakes of undetermined provenance are interesting because they are the only retouched examples in the whole site sample in addition to having small attachments of cortex. Specimen SF1346 (Fig. 34) is a poorly constructed side scraper on a thick, cortex bound flake and is associated in pit 1305 with featureless sherds, flint, charcoal and hazelnut shells. Specimen SF109 (Fig. 34) is a thin shaping flake with slight retouch and was present with axe fragment SF113 in pit 1553.

Discussion

The assemblage is interesting since the debitage represents a flake destruction rather than a flake construction sequence. Identifiable axe flaking debitage is sparsely represented, accounting for circa 7% of the sample, and when present is exemplified in single examples of primary mass reduction flakes. Thinning and secondary shaping flakes, characterised by their thinness and curved profiles, are noticeably absent, as are spalls and trimming chips which share similar typological properties. The presence of an axe-sharpening flake may be entirely fortuitous and the specimen is open to typological reinterpretation. The evidence would suggest that axes were not flaked on site.

The destruction sequence is well documented and consists of specimens that span all three of the identified typological categories. Thinning flakes, generally of formless type, but retaining remnants of a polished surface, represent the dominant class of evidence. This is supported by a single flakelet with a polished surface but the most significant fragment is the remnant core (SF113, Pit Group VIII) of a polished axe which is the likely source of some, but not of all, the thinning flakes. The reduction of such laboriously finished objects, as well as un-flaked nuclei, was undertaken on site as the destruction sequence indicates, but this was not seemingly done for any utilitarian purpose. Not a single Graig Lwyd debitage flake at Parc Bryn Cegin has been retouched to form a serviceable tool although, potentially, Graig Lwyd stone offers a convenient and plentiful source that could be exploited locally. Indeed, throughout the Neolithic of north western Wales the debitage of axe making was not used for this purpose in preference to utilising flint, a foreign and thus much more exotic commodity. It should be noted that the two flakes from another source were retouched, and may not be related to axes or other polished tools.

In conclusion it appears that Graig Lwyd polished axes, and axe making debitage was brought presumably from the area of the type source, to Parc Bryn Cegin, where it was systematically disaggregated and the resultant flaked assemblage buried in a series of pits. This act appears not to have been undertaken for any domestic/utilitarian purpose, but may be considered as a further example of the ritual fragmentation of a highly valued commodity, a phenomenon that has been identified elsewhere in the Neolithic of Britain.

Williams, J. Ll. and Davidson, A., 1998. 'Survey and excavation at the Graiglwyd Neolithic axe-factory, Penmaenmawr', *Archaeology in Wales* 38, 3-21.

Addendum

All the lithics with a provenance identification query have been submitted to Dr Brinley Roberts on 19. 11. 06. His report follows a macroscopic identification with a hand lens and he could be more specific if higher magnification had been available.

Fragment SF868 – From the surface of the fill of post-medieval ditch 6091. Lower Palaeozoic erratic with poorly developed cleavage – silica cemented hornsfels or devitrified rhyolite. Block showing excellent ice striations on one face and picked from the drift and flaked. Not Graig Lwyd and not an axe preform in its present condition but may have been considered as a possible block for making an axe before being abandoned.

Flake SF1035, Pit 6034, Pit Group VI - Lower Palaeozoic rock with definite cleavage, but not Graig Lwyd.

Flake SF1099, Pit 1647, adjacent to the Neolithic building – flake with definite cleavage but not Graig Lwyd.

Flake SF116, Pit 1619, adjacent to the Neolithic building – Not Graig Lwyd but possible microgranite or crystal tuff, similar to Padarn Tuff. Flake truncated, in similar manner to many of the Graig Lwyd flakes from the assemblage, and showing flaked dorsal surface.

Flake SF1107, Pit 4092, Pit Group III – probable Graig Lwyd flake

APPENDIX IX: PETROLOGICAL ANALYSIS OF THE STONE AXE AND TWO FLAKES

Heather Jackson

The stone axe

The axe was sliced to create a polished sectioned at the National Museum of Wales and the resulting thin section is described below. The thin section is currently held in the Archaeopetrology Collection of the Department of Geology, National Museum of Wales (accession number not yet ascribed).

Petrological Description

The axe (Fig. 15?) is made from a fine-grained (0.05-0.15mm) silicic tuff. It has a partially recrystallised silicic matrix, which constitutes 60% of the sample, and occasional larger crystals of anhedral quartz and plagioclase feldspar, 0.10-0.15mm in size. Minor chlorite and biotite are also present, as are lithic fragments containing biotite and quartz. Lithic fragments of this nature are not usually found in a silicic tuff, so they could indicate partial reworking of the tuffitic material. There is no evidence of any welding textures. The tuff also contains a small percentage of secondary sphene (titanite) and sericite, and patches of iron oxide measuring up to 0.15mm across, which could not be further identified.

Provenance

Unfortunately the provenance of this axe cannot be attributed with confidence, as there are many different locations from which Ordovician volcanic tuffs such as this may derive. It does not fall clearly within any of the known Neolithic axe groups.

The flakes

Two flakes (Fig. 34) excavated at the Parc Bryn Cegin site were supplied to the National Museum of Wales for analysis, by the Gwynedd Archaeological Trust. These were examined visually and analysed by X-ray diffraction using a PanAlytical XPERT Pro X-ray diffractometer.

Visual Description

Flake 1346

This flake is light greenish grey in colour with small (0.1mm) black encrustations of manganese on its surface. It has a 2.5mm white silica weathering crust and its surface is dotted with infrequent maroon patches up to 0.6mm across, which derive from the alteration of ferromagnesian minerals. The matrix is predominantly cryptocrystalline, although a few small (0.5mm) weathered laths of feldspar are visible.

It is texturally a fine grained quartz-rich volcanic rock such as a feldspar-phyric rhyolite or quartz-feldspar tuff.

Flake 109

This sample is a light greenish grey igneous rock containing quartz and feldspar. It has a white, 2mm thick silica weathering crust on one edge. The flake surface is scattered with infrequent irregular maroon blotches which range form 0.6mm to 2mm in size and have derived from the weathering of ferromagnesian minerals. This sample is richer in feldspar than Flake 134.6 and weathered laths of up to 0.5mm are visible on its surface.

Its macroscopic appearance suggests that it is a feldspar-phyric rhyolite or feldspar rich silicic tuff.

X-ray diffraction

Well defined peaks above background were present for both samples. These were matched with the database of known minerals and a match was found with quartz, albite and clinochlore. Quantitative analyses of the percentages of each mineral were not made, but semi-quantitative estimates of the percentages of measured minerals within each sample were. These estimates are not sufficiently accurate for detailed comparison with other samples, but suggest that the two flakes have a chemically similar composition.

3.1 Flake 1346 (NMW x-1970)

Figure 1 shows the main peaks identified from the collected diffraction pattern for Flake 134.6. Details of the parameters under which this sample was run are presented in Appendix 1. A semi-quantitative estimate of the proportions in the sample suggests that this flake is approximately 44% quartz and 56% albite. This is consistent with it having a volcanic origin.

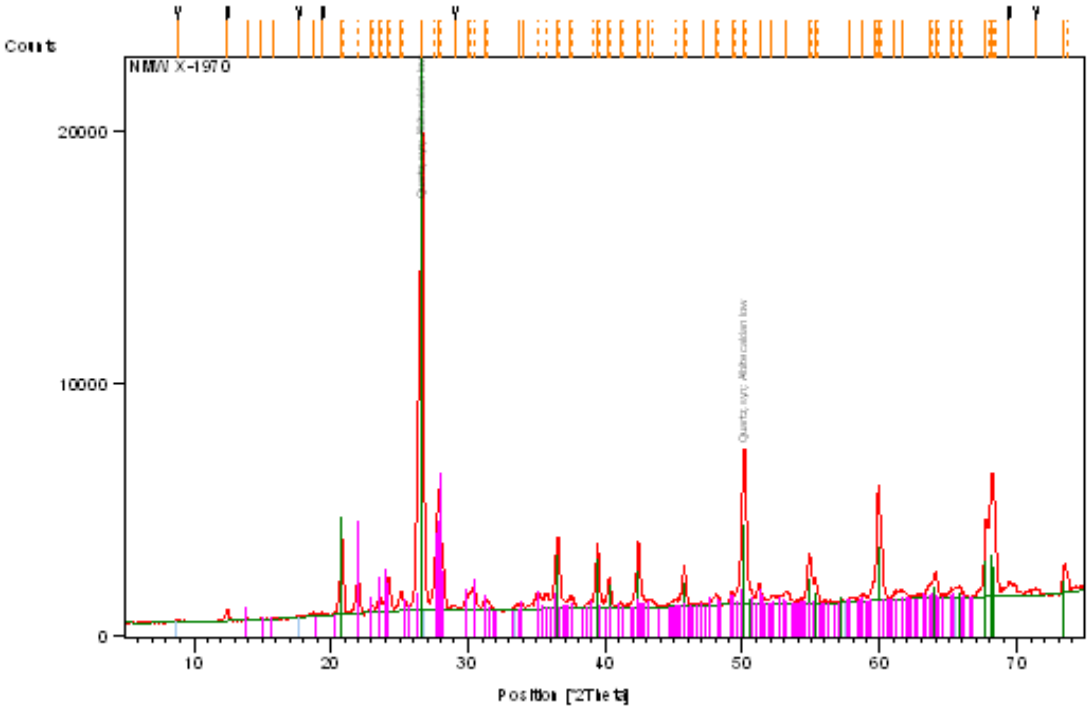

Figure 1: Diffractogram of X-ray peaks for Flake 134.6 (NMW sample x-1970)

Flake 109

Figure 2 shows the main peaks identified from the collected diffraction pattern. Details of the parameters under which this sample was run are presented in Appendix 2. A semi-quantitative estimate of the proportions in the sample suggests that this flake is approximately 72% quartz, 18% albite and 10% clinochlore.

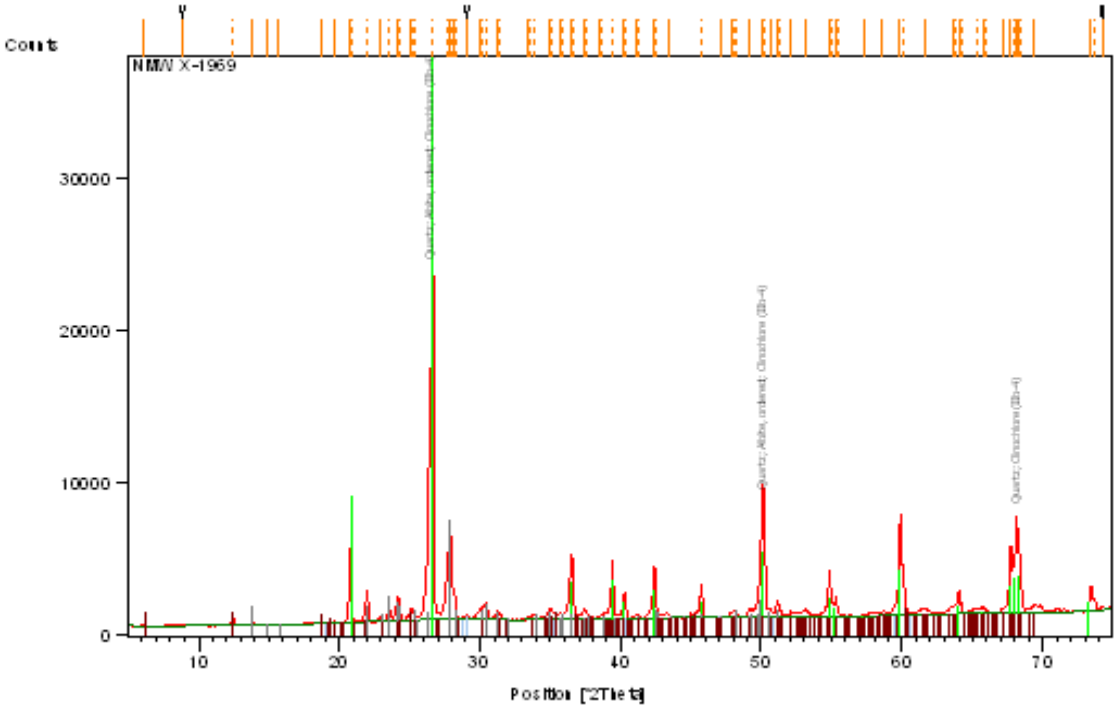

Figure 2: Diffractogram of X-ray peaks for Flake 109 (NMW sample x-1969)

Despite the apparent differences in these percentages, the traces are sufficiently similar to suggest that both flakes originally came from the same source.

Comparison with other material

The flakes from Parc Bryn Cegin were compared visually and by X-ray diffraction with items from Mynydd Rhiw Axe factory, as they appear very similar to material from this site. The composition of Mynydd Rhiw rock, when analysed semi-quantitively, is approximately 57% albite, 44% quartz, when only these minerals are detectable. It may also contain 6% - 13 % clinochlore (in which case the percentage of quartz is adjusted accordingly). Flake 1346 therefore falls comfortably within this range and could derive from Mynydd Rhiw on the basis of its detectable mineralogy. However, Flake 109, despite containing the same minerals as those detected in Mynydd Rhiw samples, does not have them in the usual proportions. Semi-quantitative analysis is not a particularly accurate method for comparing percentages of constituents, so this alone does not discount an origin on Mynydd Rhiw for this flake.

The flakes were also compared visually under the binocular microscope with flakes from Mynydd Rhiw and Graig Llwyd. Flake 1346 appeared similar to material from Mynydd Rhiw, with the exception of the visible feldspar which has not previously been noted from this site. Flake 109 appeared less similar to Mynydd Rhiw material, partly as a result of having more visible feldspar and partly due to the presence of maroon weathered pyroxenes. Neither flake appeared similar to the material examined from the site at Graig Llwyd, as both flakes are finer grained and greener in colour than the Graig Lwyd material.

Conclusions

X-ray diffraction traces suggest that these flakes are compositionally similar to material from Mynydd Rhiw, but the textural and mineralogical features observed in the samples do not confirm this as the source. As North Wales contains many examples of silicic rocks which could share the chemical composition of the Mynydd Rhiw rock, unless examples which share the visual characteristics of these flakes are found amongst excavated Mynydd Rhiw material, it would seem most likely that these flakes originally derive from another North Wales source.

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Appendix IX.1
Anchor Scan Parameters for Flake 1346

Dataset Name:	NMW X-1970
File name:	C:\X'Pert Data\Geology\XRD Log\NMW X-1970.xrdml
Sample Identification:	G1857 1346
Comment:	Flake, Graig Lwyd, possible Mynydd Rhiw material Configuration=MPSS Vertical system, Owner=User-1, Creation date=9/8/2005 1:13:35 PM Goniometer=PW3050/60 (Theta/Theta); Minimum step size 2Theta:0.001; Minimum step size Omega:0.001 Sample stage=MPSS (vertical system); Minimum step size Phi:2.5 Diffractometer system=XPERT-PRO Measurement program=NMGW, Owner=User-1, Creation date=10/10/2005 11:58:10 AM
Measurement Date / Time:	3/3/2008 11:59:11 AM
Operator:	National Museum
Raw Data Origin:	XRD measurement (*.XRDML)
Scan Axis:	Gonio
Start Position [°2Th.]:	5.0084
End Position [°2Th.]:	74.9634
Step Size [°2Th.]:	0.0170
Scan Step Time [s]:	27.1365
Scan Type:	Continuous
PSD Mode:	Scanning
PSD Length [°2Th.]:	2.12
Offset [°2Th.]:	0.0000
Divergence Slit Type:	Automatic
Irradiated Length [mm]:	10.00
Specimen Length [mm]:	10.00

Measurement Temperature [°C]:	25.00
Anode Material:	Cu
K-Alpha1 [Å]:	1.54060
K-Alpha2 [Å]:	1.54443
K-Beta [Å]:	1.39225
K-A2 / K-A1 Ratio:	0.50000
Generator Settings:	30 mA, 40 kV
Diffractometer Type:	0000000000008943
Diffractometer Number:	0
Goniometer Radius [mm]:	240.00
Dist. Focus-Diverg. Slit [mm]:	100.00
Incident Beam Monochromator:	No
Spinning:	No

Appendix 2

Anchor Scan Parameters for Flake 109 (NMW x-1969)

Dataset Name:	NMW X-1969
File name:	C:\X'Pert Data\Geology\XRD Log\NMW X-1969.xrdml
Sample Identification:	G1857 109
Comment:	Worked stone (flake) Graig Lwyd, possible Mynydd Rhiw material Configuration=MPSS Vertical system, Owner=User-1, Creation date=9/8/2005 1:13:35 PM Goniometer=PW3050/60 (Theta/Theta); Minimum step size 2Theta:0.001; Minimum step size Omega:0.001 Sample stage=MPSS (vertical system); Minimum step size Phi:2.5 Diffractometer system=XPERT-PRO Measurement program=NMGW, Owner=User-1, Creation date=10/10/2005 11:58:10 AM
Measurement Date / Time:	3/3/2008 10:12:55 AM
Operator:	National Museum
Raw Data Origin:	XRD measurement (*.XRDML)
Scan Axis:	Gonio
Start Position [°2Th.]:	5.0084
End Position [°2Th.]:	74.9634
Step Size [°2Th.]:	0.0170
Scan Step Time [s]:	27.1365
Scan Type:	Continuous
PSD Mode:	Scanning
PSD Length [°2Th.]:	2.12
Offset [°2Th.]:	0.0000
Divergence Slit Type:	Automatic
Irradiated Length [mm]:	10.00
Specimen Length [mm]:	10.00
Measurement Temperature [°C]:	25.00
Anode Material:	Cu
K-Alpha1 [Å]:	1.54060
K-Alpha2 [Å]:	1.54443
K-Beta [Å]:	1.39225
K-A2 / K-A1 Ratio:	0.50000
Generator Settings:	30 mA, 40 kV
Diffractometer Type:	0000000000008943
Diffractometer Number:	0
Goniometer Radius [mm]:	240.00
Dist. Focus-Diverg. Slit [mm]:	100.00
Incident Beam Monochromator:	No
Spinning:	No

APPENDIX X: MICROWEAR ANALYSIS OF THE FLINT ASSEMBLAGE

Jolene Debert

1. Methods

The assemblages from the Early Neolithic building and mid and late Neolithic pit groups were inspected. All the flints were examined and their basic characteristics described; the results are given in appendix X.1. Only those flints that appeared to contain microwear or stereotypical traces of heat exposure were sent to SEM. The presence of usewear was determined through the examination of the flint's surface with a 10x hand lens. The usewear of each lithic tool is recorded by location (proximal or distal end, left or right lateral side, ventral, dorsal or bifacial surface) and by part of that section (body, edge, ridge, depression or arris). The type of usewear is described as (1) microchipping, i.e. small flakes removed during use not exceeding 5mm (Kooyman 2000); (2) polish, i.e. a general smoothing and removal of topography, caused by abrasion (Andrefsky 1998); and (3) striations i.e. linear scratches caused by abrasion (Kooyman 2000). Microchipping was recorded as step or feather terminating, transverse, perpendicular, isolated or grouped; polish, as fully or partially developed or rounded; and striations as perpendicular, parallel or transverse to the edge deep or shallow and isolated or grouped.

1.1 Scanning Electron Microscopy (SEM) & Environmental Scanning

Electron Microscopy (ESEM) SEM and ESEM are micro-analytical techniques that use electron diffraction to image and analyse materials not observed with the resolution offered by conventional visible techniques. The operation of these instruments is identical; the only difference is the environment in which the sample is housed. The sample 4 chamber in a standard SEM is a high-pressure gas-free vacuum (Potts et al. 1995).

This enables the electron beam to impact the sample without losing resolution or diffracting. However, to keep the sample from charging (taking on a negative charge) when expose to the electron stream, the sample must be coated with a non-charging material (gold, carbon and/or palladium). Whereas, with ESEM the vacuum is set lower allowing the introduction of water vapour; this vapour neutralises any charging on the sample's surface and the higher-powered electron beam is not interrupted so the sample is left uncoated. In both techniques an electron beam is scanned across the surface of the sample. When the electrons made contact with the surface, secondary electrons are released. These are picked up by a detector which consists of a scintillator that emits light when it was hit with the electrons and a photo multiplier that picked up the light signal and produces an amplified electrical output (Knutsson 1985, Potts et al. 1995). Collection of these secondary electrons produces the 3D topographic images.

Additional analysis involves the identification of the elements (e.g., silicon, iron, etc) of which the specimen is composed. Both techniques have similar limitations to this compositional analysis. Elements lighter than atomic number 8 (oxygen) cannot be measured in SEM and the ratio of the detectable elements is often skewed by the high quantity of metallic coating. ESEM is slightly more sensitive identify up to and including the atomic number 6 (carbon) and without the coating the spectrum produced is un-skewed representing the composition of the sample alone. However, this level of analysis was not applied to the Llandygai collection.

The microwear analysis was preformed using SEM for 19 flints and ESEM for 2 flints. The flints selected for microwear analysis were washed with soap and water, then double distilled water and finally acetone. The acetone was necessary to kill any organics as well as to dry the samples before mounting and coating. Samples were mounted onto individual aluminium stubs. Carbon tape was used to attach the lithics to the stubs. The samples 1-19 were coated with gold under a vacuum before being placed inside the vacuum-sealed chamber of the SEM. This coating, the disk and the adhesive must all be non-magnetic, to prevent "charging" which causes electron scatter (Knutsson 1985). Samples 20-21 were again mounted using carbon tape but left uncoated.

2. Lithic Analysis Results

2.1 Flints from the Early Neolithic Timber Structure

To simplify the discussion of the flints found in association with the Early Neolithic timber structure, they have been divided into two, those found in the interior and those found outside the structure.

2.11 Interior of the Structure

Sixteen flints of diagnostic size were recovered from the interior of the structure. Small flake fragments were also recovered and are included in table X.1 (appendix X.1). The majority of the larger flakes were found in post packing, posthole fill or pit fill. Fourteen of the sixteen larger flakes were retained and identified to either their stage in manufacture or lithic flake type. There were only two pieces representing the primary stage of manufacture: one split nodule and one piece of shatter. There were four flakes from the secondary stage: two secondary flakes and two shaping flakes. Three blades or microblades were recovered, two with usewear. Of the more formal retouched tool classes two scrapers and a broken projectile point were found but were not available for analysis. The only formal tool that was analysed for microwear was a spokeshave.

There is some evidence of other Early Neolithic timber structures being burnt down after use; the flints were examined for traces of exposure to heat; 54.5% show evidence of heating. However, until experiments are run to see

the extent of burning in different situations, it remains unclear if these flints were subjected to heat before or after deposition.

2.12 Exterior of the Structure

The eleven flake collection sites from the exterior of the structure yielded four flakes of diagnostic size (table X.2). Regarding the stages of manufacture, one piece of shatter represents the primary stage of production. One secondary flake and one blade were also collected. An additional, secondary flake was reworked into a hafted scraper. The flints found both inside and outside the structure were recovered from postholes, pits and stakeholes. Interestingly, the flints from the exterior of the structure show a similar amount of heating, 46.6%, to those found in the interior of the structure.

2.2 Pit groups

Fourteen flints were studied from pit group 1, three of which were burnt. A considerable number of flints were found in the pit group 2, the majority being flake fragments. The primary stage of manufacture could be represented in the nodule recorded during excavation; though this was not included in the analysis collection. There are two flakes from the secondary stage of manufacture: one shaping and one thinning. One finishing flake and a snapped blade both without usewear suggest that the final stage of manufacture was located somewhere in the area. Only one utilized piece was found: a shaping flake, which was included in the microwear analysis. There is only one set of flake fragments that suggests exposure to heat and these were not included in the analysis collection and thus their heat exposure cannot be confirmed.

In pit group 3 the lithics excavated were quite broken with only one flake being identifiable to the secondary stage of manufacture. Five of the thirteen flints collected showed evidence of heat exposure. However, only two of these five were included in the analysis collection and therefore, the inclusion of the other flints are based on the excavators' records of burn traces on the flint fragments. From pit group 4 the lithics collected included three pieces of primary shatter, one shaping flake from the secondary phase of manufacture, two blades, one snapped and a scraper. Only the scraper contained retouch and usewear and was retained for the microwear analysis. The lithics from pit group 5 comprised flake fragments with only one unbroken flake, therefore, no flints from this group were examined with SEM for microwear.

Pit group 6 contained a rather large lithic collection compared to other pit groups. In total 61 separate bags, often with multiple pieces were collected. The primary stage of manufacture is represented in two split pebbles, and four pieces of shatter. The secondary lithics include five shaping flakes. Two finishing flakes show possible tool manufacture in the area. Two micro blades, one blade, two snapped blades, four scrapers including one that was hafted, are the finished products found in pit group 6. Only two flakes and some fragments came from pit group 8, one flake was burnt.

2.3 Miscellaneous

Some of the flints studied came from other features including two burnt mounds and an earth oven at various locations across the site. These pieces were selected for study due to being particularly fine pieces.

3. Microwear Analysis Results

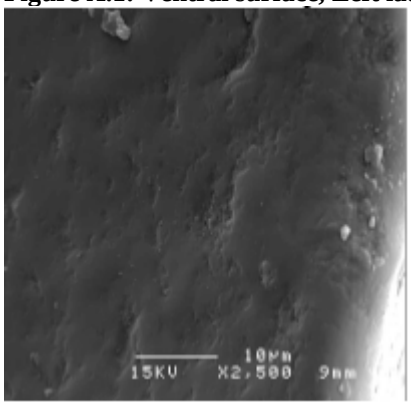
3.1 Early Neolithic Timber Structure

Six flints that were associated with the early Neolithic timber structure were selected for microwear analysis. A small tan flint blade found in the upper fill of a partition post in the east of the structure was labelled sample 1 (1369.73). A tan flint spokeshave found in the packing fill of one of the main aisle posts was sample 2 (1389.1238). Sample 3 (1725.156) was collected from a gully west of the structure and was a haftable scraper. Sample 4 was a grey flint blade found in the postpipe fill of one of the main aisle posts (1405.83). A grey flint blade from the secondary fill of a postpipe on the main aisle posts was sample 5 (1569.513). Sample 6 (1703.924) was a secondary flake from the secondary fill of a posthole, the first of a line of three west of the structure.

3.11 Sample 1 (SF 73)

Sample 1 was selected for its lateral edge gloss. When examined with SEM the gloss was confirmed. The lateral edges on both the ventral and dorsal sides show considerable polish and contained a high number of striations. The two lateral edges show similar wear but the development of polish is far greater on the left lateral edge, when defined dorsally. Both the ventral and dorsal surfaces on the left edge were examined in depth. On the left ventral lateral edge gloss extends 40um from the edge (Figure X.1). Transverse striations are found within 60 um of the edge. Rounding and polish of topographic highs continues for 70 um from the edge. Similar usewear was seen on the dorsal surface.

Figure X.1: Ventral surface, Left lateral edge

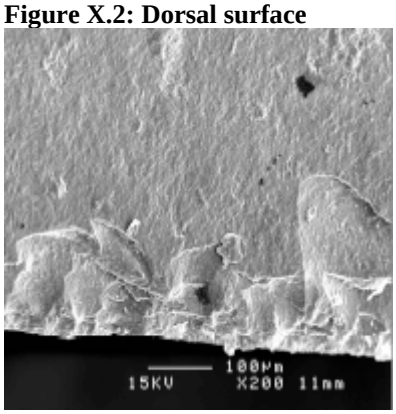


The right lateral side contained the same usewear as the left except that it was poorly developed. The gloss extended only 5 um from the edge. Polish continues in patches for another 20 um from the gloss, and transverse striations were found within 40 um of the edge. This suggests that the right lateral side was used in the same ways as the left side, though it was used less intensely and/or for a shorter period of time. On the proximal end there appears to be a hafting area. This area was visible during the initial examination and was confirmed during the microwear analysis. The hafting area contained considerable levels of microchipping, creating a rough texture, which greatly contrasted with the nearby polished regions. There was some minimal rounding of topographic highs, but these were limited to small areas of the haft area, suggesting that these were the areas that contacted the haft material. Overall, only one side of the flint contains the extreme levels of wear often seen in sickle type use. The body of the tool contains little wear and the gloss is visible at the macroscopic level on this edge. This suggests that one side of the tool was used less than the other. This of course remains to be confirmed with experimental work. Nonetheless, it is clear that sample 1 was a micro blade used to cut plant material of some type, as the microwear is a kind of sickle gloss (Juel Jensen 1985, Andrefsky 1995).

3.12 Sample 2 (SF 1238)

Sample 2 is a spokeshave made of a caramel or tan coloured flint. The edge angle of the unifacial concave scraping area ranged between 52 and 53 degrees; which 9 are somewhat acute for scrapers but within the range for spokeshaves (Kooyman 2000). The dorsal surface was examined as only one edge can generally be seen when using SEM. The scraping surface clearly shows retouch and then within these scars are much smaller microchipping scars. The microchips are chained, that is they are continuous across the edge. The flakes appear to have been initiated on the ventral surface at a perpendicular angle in the centre and then generally angling out along the curved sides of the scraping surface (Figure X.2).

Figure X.2: Dorsal surface

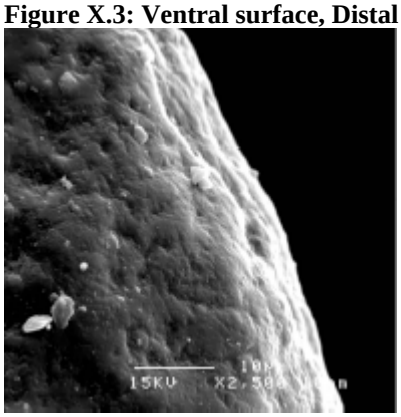


There are a few isolated striations on the dorsal surface. These striations display similar configuration to that of the microchips, perpendicular at the centre of the edge and transverse on the curved sides. There are some areas of polish on the very edge of the dorsal scraping surface and a general rounding just off the edge. However, the majority of the polish is found on the edge surface between the ventral and dorsal surfaces. This suggests that the area of contact is between the two surfaces, meaning the scraper was used in a bi-directional mode. This was confirmed when the ventral edge was examined and confirmed as having a similar microchipping pattern to that of the dorsal surface.

3.13 Sample 3 (SF 156)

Sample 3 is a secondary flake that has been reworked into a haftable scraper. This expedient tool is composed of pink flint. The pink colour of the flint is probably natural and not the result of exposure to heat, as there are no other secondary heat characteristics present. Sample 3 is unifacial with a retouched distal end (scraper edge) and a retouched proximal end (haft end). The scraper edge has an 10 angle ranging from 87-92 degree, which is well within the expected range for scraper edges (Kooyman 2000). The scraper edge was examined with SEM. There was some polish development on the topographic highs immediately around the edge on both sides. These areas are isolated and become rounding at about 1mm from the edge. Within these areas there are some transverse and perpendicular striations usually not in groups of more than 3 (Figure X.3).

Figure X.3: Ventral surface, Distal end

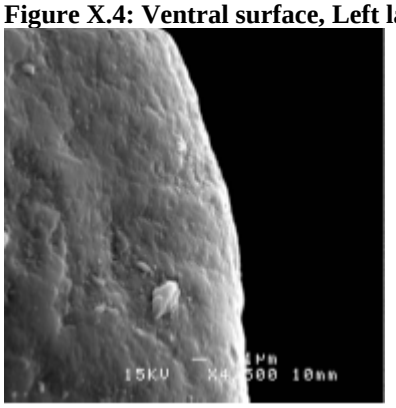


The haft area was minimally retouched and formed a tanged haft. The area around the haft had minimal usewear. The microwear included isolated microchipping. These microchips were taken off at a transverse and seemly random orientation. There was minimal rounding on some of the topographic highs left behind by the retouch. This could possibly be a result of post-depositional damage or wear due to proximity of the area to the haft.

3.14 Sample 4 (SF 83)

Sample 4 is a grey flint blade, initially suspected of being a sickle blade. The termination of this unifacial blade is broken, while the proximal end is intact. When the dorsal side is in an upward position the right lateral edge has edge angles ranging from 33-36 degrees, and the left from 35-41 degrees. These edge angles are within the expected range for sickles and knifes (Juel Jensen 1985, Andrefsky 1995). Both lateral edges contain similar usewear and so will be described together. Along the edge there is a band of polish that in some areas appears to form a gloss, and has completely removed all topography. 10-15 um away from the edge the polish is restricted to topographic highs and rounding is found in between. After 20 um rounding of high areas and relatively untouched low areas is seen and continues until the rounding dissipates to the natural rough texture of the material in the body of the tool about 15 um further. The polished areas also have parallel and transverse striations, often grouped (Figure X.4).

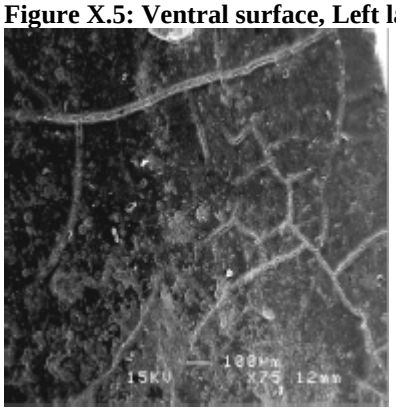
Figure X.4: Ventral surface, Left lateral edge



The haft area of the tool contains very few microchip scars, and very minimal retouch. Instead there is an abnormal amount of rounding, including those of high and low topography. In the areas of ridges and edges there is some development of isolated spot polish that is connected to other areas of polish by rounding. This suggests that there was considerable movement of the flint within the haft or that the flint was subjected to a post-depositional process that eroded its surface. This latter explanation can be eliminated, as the body of the tool, which should be exposed to the same process, remains relatively unworn.

3.15 Sample 5 (SF 513)
Sample 5 was a grey irregular flint blade. This piece was examined for microwear on the lateral sides and for exposure to heat. Under microscope examination the edges contained no usewear. Instead, the entire body of the flint contains similar microwear patterns. The surface of the flint was considerably rounded with a great reduction of original topography and with the polished areas often chained. Only the extremely low-lying areas were untouched. Several shallow steep sided pits were found. The dominant feature was cracking. These are found over the surface especially in areas of minimal topography (Figure X.5). The cracks formed acute and right angles with each other. Interestingly, these cracks were not visible at the macroscopic level, but could still represent what is normal termed crazing. Crazing is the cracking of the surface of flint, caused by escaping interstitial water vapour when flint is exposed to heat. Therefore, with the increased lustre, which is visible microscopically as surface polish, pits and the microscopic crazing, it is likely that sample 5 was exposed to heat.

Figure X.5: Ventral surface, Left lateral edge

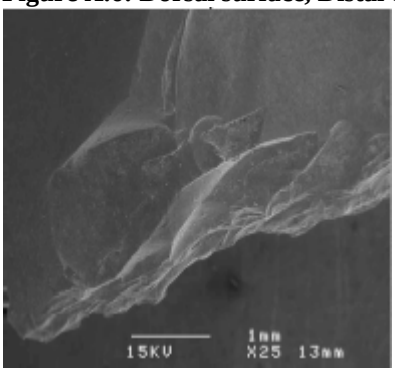


3.16 Sample 6 (SF 924)
Sample 6 is a tan secondary flint flake originally thought to have been used as a hafted knife. However, when examined with SEM no microwear was found to support this conclusion. The haft area was devoid of microchipping and rounding. The suspected knife-edge showed no rounding, polish or striations normally found with cutting wear; instead it showed a random mixture of macro and microchipping suggestive of normal edge damage.

3.2 Pit Group 1
Three flints from pit group 1 were examined for microwear using SEM. These were numbered samples 10 through 12. Sample 10 was 1051.29, sample 11 was 1033.67 and sample 12 was 1048.25. All three samples were selected for their suspected microwear as none of them appear to have been exposed to heat. This pit group was dated to the Mid Neolithic, given their association with Mid Neolithic pottery a claim that was later confirmed with two radiocarbon dates (Kenney & Davidson 2006).

3.21 Sample 10 (SF 29)
Sample 10 is a light brown/grey flint blade with minimal retouch to the distal end. The distal edge angle is approximately 45 degrees. The distal area was the focus of the microwear examination. There was angular microchipping across the used edge, which was contained within the large retouch scars, suggesting that the pattern was from use and not manufacture (Figure X.6). At great magnification polish was visible at the very edge of the tool. Within the blanket of polish there were groups of striations running parallel to the edge. This usewear was confined to an area less than 2mm from the edge. This usewear is consistent with a cutting motion, suggesting that sample 10 was a minimally retouched expedient knife.

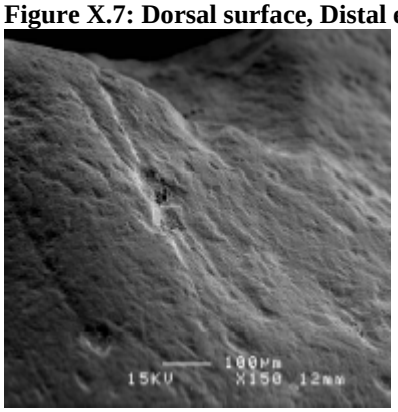
Figure X.6: Dorsal surface, Distal end



3.22 Sample 11 (SF 67)

Sample 11 was composed of black chert or in all likelihood a silicified mudstone, though a thin section would be necessary for the determination. There is a considerable amount of retouch along the edges of this unifacial scraper. The use edge itself appears to have broken during use, been retouched and then used again. The edge angles support this hypothesis. The edge angles on the unbroken area are about 70 degrees in the area of resharpening the angles are about 110 degrees. This hypothesis, as well as, its use as a scraper was tested with microscopic examination. SEM found that the scraper edge contained considerable wear. The scars from retouch were considerably polished and extended in large interconnected areas for a considerable distance off the edge. In the polish groups of striations perpendicular and parallel to the edge were found (Figure X.7). There was little to no microchipping on the dorsal edge surface suggesting the material scraped was soft. The resharpening area showed similar though less developed wear to that on the older surface.

Figure X.7: Dorsal surface, Distal end



A hafting area was found in the proximal area of the tool. This area contained classic well-developed haft wear (Keeley 1982). This microwear included isolated microchips, spot polish and rounding of topographic highs. The well developed haft wear, scraper wear as well as having been resharpened, suggests that this tool was in use for a considerable period of time.

3.23 Sample 12 (SF 25)

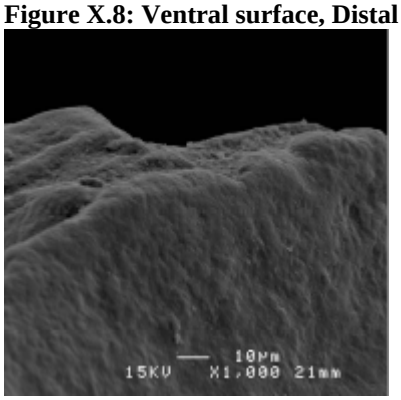
Sample 12 is comprised of a grey flint material that retains 30% cortex in the platform area. This was recorded as a thinning flake or an irregular blade with possible microwear on left lateral side when viewed dorsally. However, when examined with SEM the chipping showed no pattern and minimal associated microscopic features. This suggests that the flint was unused when deposited and has only typical non-use edge damage.

3.3 Pit Group 2

Only one flint was selected from pit group 2. Flint 4014.491 was numbered 13 and examined with SEM. Pit group 2 was dated based on the presence of three large Mid Neolithic Peterborough ware pottery sherds (Kenney & Davidson 2006).

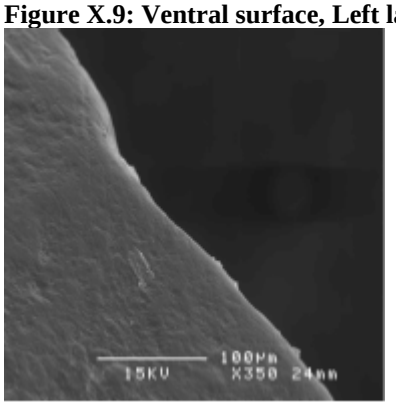
3.31 Sample 13 (SF 491)
Sample 13 is a light grey flint shaping flake. This unifacial tool has cutting microwear on the left lateral edge when viewed on dorsal surface and scraping wear on the distal edge. However, there does not appear to be any area for hafting. The distal scraping area contained considerable ridge polish on the edge and rounding in the low-lying areas (Figure X.8). The ventral surface was examined and contains no microchipping scars. There are groups of perpendicular striations in the areas of polish. This lack of chipping with the ridge polish pattern and perpendicular striations suggests that the distal scraping edge was used in a uni-linear motion from ventral to dorsal surfaces.

Figure X.8: Ventral surface, Distal end



When the cutting edge on the left lateral side was examined, a very different usewear pattern to that of the scraping edge was seen. The polish was continuous along the edge removing the topography completely within about 1mm of the edge. There were groups of five or more striations within the edge polish; these were transverse and parallel. The transverse striations were only in one direction starting distally at the edge and going into the tool at an angle of about 30 degrees to the edge (Figure X.9).

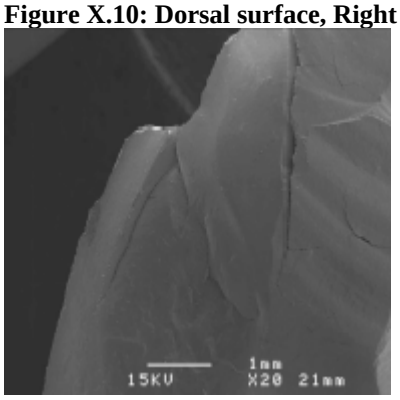
Figure X.9: Ventral surface, Left lateral edge



3.4 Pit Group 4
Two flints were selected from pit group 4 to be examined for microwear. The flint numbered 4106.826 was called sample 14 and was selected for microwear analysis due to macroscopically visible evidence of heat exposure. Sample number 15 was chosen as it contained microwear, and was numbered 4106.1252. Both flints come from the same pit fill, which is interesting as sample 15 shows no features of heat exposure and sample 14 shows quite a few.

3.41 Sample 14 (SF 826)
Macroscopically, this light grey flint showed increased lustre, crazing and some black staining. These are three of the four major signs of heat exposure (Luedtke 1992). This flint was examined to confirm its exposure to heat as well look for possible microscopic secondary features. Cracks were found throughout the body of the tool, either at right or acute angles to each other and confirm the macroscopic crazing. Interesting no pits were seen, though several areas show considerable fracturing and flaking of the surface (Figure X.10). It is possible that due to surface fracture the water vapour was able to escape and pits did not develop. It is also possible that the areas of fracture are a microscopic feature of heat exposure not typically discussed as few heated sampled are examined at high magnification. Though both of these suggests will need to be tested with additional examinations and experimental work.

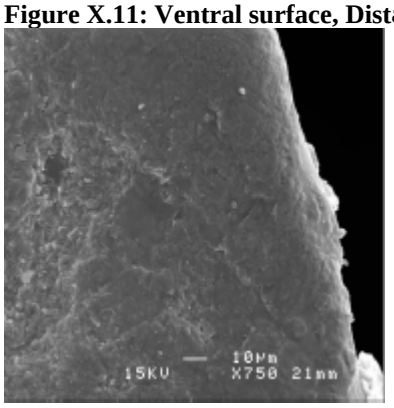
Figure X.10: Dorsal surface, Right lateral side



3.42 Sample 15 (SF 1252)

Sample 15 is a tan flint unifacial scraper. The use edge is on the distal corner of the right lateral side of the dorsal surface. The edge angle in the centre of the edge is 40 degrees and towards the lateral sides of the edge the angle tends towards 60 degrees. There is well developed blanket polish up to 20 um from the edge. This polish changes to chained then isolated as you move further away from the edge. Within the area of polish there are groups of two to five striations perpendicular to the edge. There were pits visible under the microscope that were not visible at the macroscopic level (Figure X.11). The body of the tool is relatively devoid of usewear, however, there is considerable alteration of the surface. This alteration is in the form of rounding, it is a general rounding of features and is quite different from the microwear polish found on the scraping surface. It is possible that this is the result of a post-depositional process or heat exposure, possibly also causing the formation of the pits.

Figure X.11: Ventral surface, Distal edge



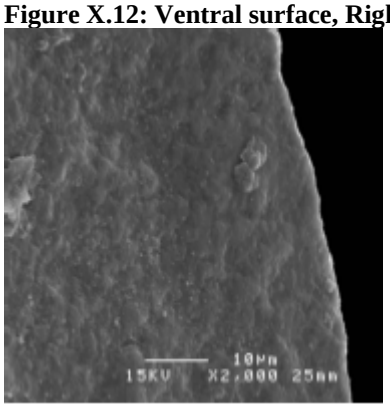
3.5 Pit Group 6

Pit group 6 is the next group to be discussed, as no flints in pit group 5 were examined for microwear. Six flints were selected from pit group 6. These flints were selected as they appeared to be retouched and used. Sample 16 was 6066.858, sample 17 was 6042.778, sample 18 was 6005.771, sample 19 was 6006.979.1, sample 20 was 6042.779 and sample 21 was 6005.781. Samples 20 and 21 were examined using ESEM unlike the other samples in which SEM was used. All samples were collected from pit fills that were dated to the later Neolithic due to the presence of later Neolithic pottery (Kenney & Davidson 2006).

3.51 Sample 16 (SF 858)

Sample 16 is a dark grey snapped flint blade. The right lateral side when looking dorsally appeared to contain no retouch but instead evidence of use. There was little to no microchipping along the use edge or elsewhere on the tool; instead there was a general rounding of the tool, suggesting that there was some nontraumatic post depositional process. The lack of microchipping on the use edge suggests that the material of use was soft. There is polish of the right lateral edge. Along the very edge, well-developed blanket polish extends no more than 10 um. Beyond the blanket polish, is isolated polish spots, this extends another 5-10 um from the edge. There are some short parallel and transverse striations associated with the polish and found in groups of three or more. The edge angle of this tool was between 40 and 43 degrees. This edge angle along with the polish and striations suggest that the tool was used to cut a soft material in a bi-directional motion. The bi-directionality is indicated by the transverse striations, which are both proximal to distal and distal to proximal off the use edge (Figure X.12).

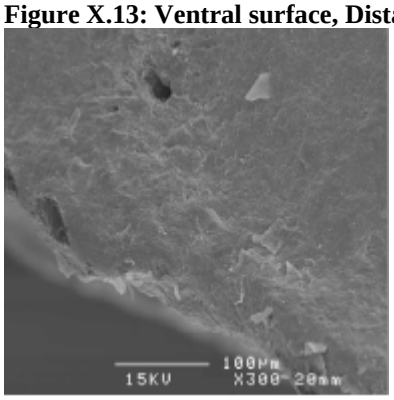
Figure X.12: Ventral surface, Right lateral edge



3.52 Sample 17 (SF 778)

Sample 17 is a hafted scraper composed of a tan and black mixed flint. The edge angle ranges between 85 and 95 degrees, which is well within the expected range for scrapers (Kooyman 2000). Midway down the lateral sides there are notches probably used for some type of haft. The interesting thing about these notches is that they are aligned perpendicular to the long axis of the tool, however the scraper edge is roughly 10 degrees off the long axis. Either suggesting that the scraper was hafted and used at angle or that after breakage of the original 90 degree scraper surface the tool was resharpened at this angle and reused. When examined microscopically pits were discovered on the surface of the tool. These are steep sided deep pits often associated with a crystalline interior (Figure X.13). These pits were found throughout the surface of the tool and are not associated exclusively with usewear. However, some of the pits are found along micro fracture zones.

Figure X.13: Ventral surface, Distal end

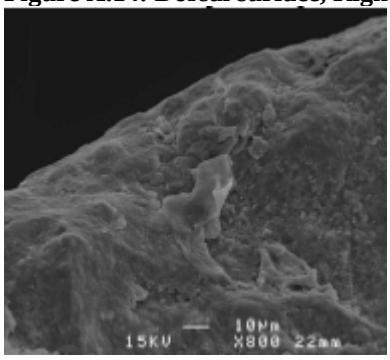


The microwear found on the scraper edge includes minor polish development on the very high areas of a narrow band along the ventral surface of the edge. There were very few striations found in the polish, when found they were isolated, short and perpendicular or transverse to edge. Microchipping was the dominant form of usewear along the scraper edge. Feather terminating microchipping is found on both the dorsal and ventral surfaces of the scraping edge. The area between the two surfaces contains some step terminating microchips with rounding and isolated polish on the ridges between flake scars. This usewear suggests a bi-directional scraping motion on a medium hard to hard material.

3.53 Sample 18 (SF 771)

Sample 18 is the midsection of a broken blade made of white grey flint. Only the right lateral side when viewed dorsally appears to have wear. The edge angle of this side is 45 degrees. The entire tool has a general rough surface suggesting that minimal post depositional wear took place. The used edge itself retains a considerable amount of its original topography suggesting that the tool was used for a short period of time. The usewear on the right lateral side includes polish confined to the edge of the tool. This polish is somewhat patchy being connected by areas of rounding and not extending 10 um from the edge. There were a few striations associated with the polish, these tended to be short, transverse and their location was dictated by the rough topography that still remains (Figure X.14). Overall, this appears to be a cutting tool used for a short period of time, possibly an expedient tool.

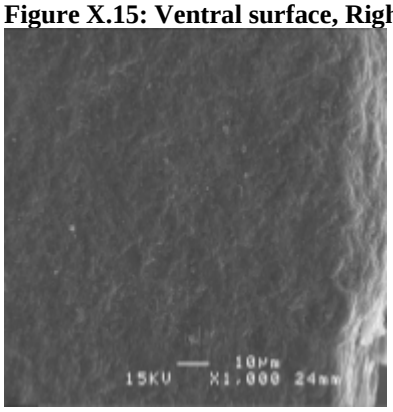
Figure X.14: Dorsal surface, Right lateral edge



3.54 Sample 19 (SF 979.1)

Sample 19 is a dark grey brown flint scraper. There is a possible break along the use surface that is opposite the termination. This area is referred to, as opposite the distal area as it is not the true proximal area. It appears that this area opposite the distal area was broken prior to tool manufacture. Additional breaks on both the left and right lateral sides suggest that this flake fragment was reworked into a scraper. The 60-65 degree edge angle of the use edge supports the idea that this was used as a scraper. The ventral scraper surface is polished within 10 um. This polish is interconnected and in some areas forms a blanket polish removing all topography. Within the polish there are long-shallow and deep-short transverse and perpendicular striations (Figure X.15). Besides the polish there are isolated microchip scars along the surface. These are removed at a 90-degree angle to the edge.

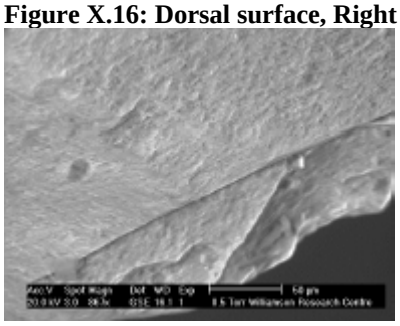
Figure X.15: Ventral surface, Right lateral edge



3.55 Sample 20 (SF 779)

Sample 20 is a dark grey flint scraper. The scraper edge is on the right lateral side of the tool when view dorsally. The termination is hinged making it difficult to rework, this may be why the right lateral side was chosen for modification. There is a notch on the right side of the proximal area suggesting that the scraper was hafted. Microwear examination of the proximal area confirms this notch as part of a haft. There was considerable microchipping in the retouch scars on the dorsal surface of the scraper edge to the sides of the main contact area of the use edge. Polish was found for 20 um along the edge and then along the ridges of the contact edge. Polish was also seen for another 10 um on the dorsal surface. Short perpendicular striations were found in and around the polished areas of the edge (Figure X.16). It is unclear due to the considerable polish and rounding of the contact edge if the motion of use was uni or bi-directional, however, it can be assumed that the material was medium to medium soft.

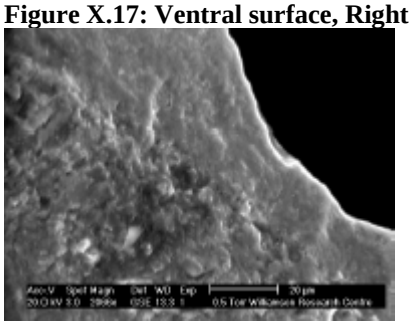
Figure X.16: Dorsal surface, Right lateral edge



3.56 Sample 21 (SF 781)

Sample 21 is a grey flint scraper. The two lateral sides were both used. The retouching of these two edges has connected in the distal area, completely removing any trace of the termination. This is a formal unifacial tool with very even and perpendicular macrochipping to both edges. There is no evidence that this tool was hafted. The right lateral side has a more acute edge angle of approximately 45 degrees and the left lateral side has an edge angle of about 65 degrees. These edge angles suggest a cutting function for the right lateral side and a scraping function for the left lateral side. When the tool was examined microscopically these functions were confirmed. The cutting or right edge contains parallel striations and edge polish extending 10-20 um from the edge (Figure X.17). There is minimal microchipping suggesting that the material cut was medium to medium soft. The scraping or left edge has polish extending 20 um from the edge on the ventral surface, relatively few microchipping scars, though some are present with rounding and polish affecting the ridges. This is classic scraper wear though the high level of polish suggests again that the material was somewhat soft, probably medium hardness and that this tool was used for a considerable length of time.

Figure X.17: Ventral surface, Right lateral edge



3.6 Miscellaneous

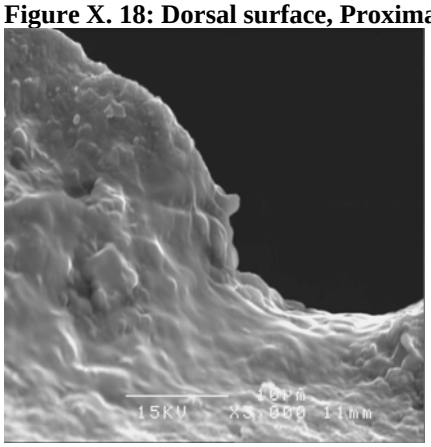
Samples 7-9 are from various locations across the site. Sample 7 (4210.585) was found on the edge of burnt mound 4199, sample 8 (2179.881) was from beneath burnt mound 2176, and sample 9 (3122.472) was found in the earth oven 3133.

3.61 Sample 7 (SF 585)

Sample 7 is a light-brown/caramel flint thinning flake or blade. The right lateral side when observed from the dorsal side has been retouched minimally. This unifacial tool appears to have been held in a haft in the proximal area. The edge angle ranges from 30 to 40^{o}, which indicates that the edge was probably used for some type of cutting.

The haft area contains some rounding and even the start of spot polish with short striations that shows the direction of movement in the haft (Figure X.18). The use edge has parallel and transverse striations. There were isolated microchips and at an angle to the edge, which suggests that the force of the detachment was also at an angle. There is polish along the use edge, which extends into the body of the tool some 10-15 μm. Overall it appears that this tool was used to cut materials of a medium to medium-hard texture.

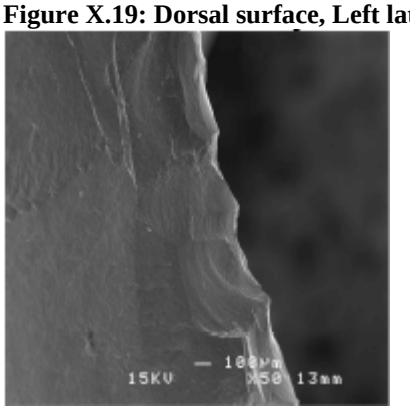
Figure X. 18: Dorsal surface, Proximal end



3.62 Sample 8 (SF 881)

Sample 8 is light grey thinning flake or blade. This unifacial tool was retouched both in the proximal and distal areas. The left lateral side when viewed dorsally meets the right lateral side due to retouch of the use edge. It appears that this tool was held in the hand as there is no evidence of a haft. The left lateral side has an edge angle of 50-57 degrees, which may indicate a cutting function for the tool. The polish along the edge extends some 15-20 um on topographic highs but only 5 um continuously on the edge and contains transverse striations that both run proximal to distal and distal to proximal off the edge. There is considerable microchipping along the edge (Figure X.19), which suggest that the material being cut in a bi-directional manner was probably of a medium to medium-hard texture.

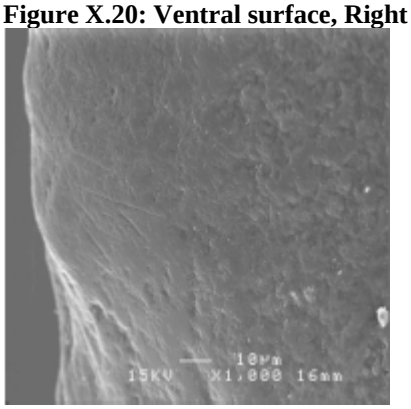
Figure X.19: Dorsal surface, Left lateral edge



3.63 Sample 9 (SF 472)

Sample 9 is a brown flint blade that appears to have been used on both the right and left lateral sides. The edge angles on both sides are similar at about 30 degrees. These edge angles suggest a cutting function. There are two notches to the sides of the proximal area, which was probably used to haft the tool. The edges contained continuous microchips. There was rounding to the majority of the ridges left behind by these scars. In some areas polish developed within 10 um of the edge. With this polish there were large numbers of striations of transverse and parallel to the edge (Figure X.20). This microwear may indicate that the material of use was medium-hard and that this tool was used for a length of time.

Figure X.20: Ventral surface, Right lateral edge



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Appendix X.1

Table X.1: Flints from Interior of Early Neolithic Timber Structure

Fill/Find/	Flake type/ use	Material type	Platform shape/ #scars	Dorsal scars	Termination	Edge angle	Cortex	Retouch/ Microwear	Heat	Location
1216/61	Concave scraper	Grey Flint	Cortex						Burnt	Fill of pit, neat SE corner
1255/966	Flake fragment									Fill of posthole, part of south wall
1336/1173	Flake fragment									Fill of small pit or posthole, east end inside
1369/73	Microblade	Tan Flint	Collapsed	2	Broken	L: 34-35º R: 52-53º	0%	Yes/yes		Upper fill of posthole, Partition East of Structure
1389/1238	Spokeshave	Tan Flint	Collapsed	2-3	Feather	52-53º	0%	Yes/ yes		Packing fill, main aisle post
1389/964	Broken flake	White Flint	Broken	3	Broken	Na	25%	No/no	Lustre, crazing	Packing fill, main aisle post
1389/1230	Flake fragment								Burnt	Packing fill, main aisle post
1389/1199	Flake fragment								Burnt	Packing fill, main aisle post
1389/88	Broken projectile point									Packing fill, main aisle post
1405/83	Blade/ sickle	Grey Flint	Plano-convex, lipped/2	3	Broken	L: 35-41º R: 35-41º	15%	Yes/yes		Postpipe fill, main aisle posts
1443/963	Flake fragments								Burnt	Fill of post trench, inside east gable end
1443/1305	Flake fragments									Fill of post trench, inside east gable end
1444/1233	Flake fragment								Burnt	Fill of post trench, inside east gable end
1445/1204	Flake fragments								Burnt	Charcoal deposit post trench, east gable end
1446/968	Flake fragments								Burnt	Fill of post trench, east gable end
1526/961	Shaping flake	White Flint	Plano-Convex/ 2	3	Hinge	Na	10%	No/no	Lustre, crazing, potting, black staining	Fill of Postpipe, main aisle post
1513/962	Broken flake	Red Chert	Broken	2	Broken	Na	0%	No/no	Lustre dorsal, potting dorsal	Packing around postpipes, main aisle post
1513/923	Split nodule	Tan Flint	Na	Na	Na	Na	100%	No/no		Packing around postpipes, main aisle post
1513/97 **#1**	Scatter	Grey Flint	Broken	2	Broken	Na	35%	No/ no		Packing around postpipes, main aisle post
1513/97 **#2**	Secondary flake	Red Chert	Oval/ 3	4	Feather	Na	0%	No/no	Potting, black staining	Packing around postpipes, main aisle post
1513/962	Flake fragments									Packing around postpipes, main aisle post
1552/1194	Flake fragments									Fill of Postpipe within main aisle posthole
1552/1214	Flake fragment									Fill of Postpipe within main aisle posthole
1569/513	Microblade	Grey Flint	Cortex	3	Feather	L: 54-59º R: 42-53º	5%	Yes/yes	Lustre	2nd fill of postpipe in posthole, main aisle post
1569/110	Blade	Carmel Flint	Cortex	1	Broken	Na	25%	No/no		2nd fill of postpipe in posthole, main aisle post
1569/1235	Flake fragments								Burnt	2nd fill of postpipe in posthole, main aisle post
1569/512	Shaping flake	Grey Flint	Triangular/1	2	Broken	Na	0%	No/no		2nd fill of postpipe in posthole, main aisle post
1635/1130	Flake fragment								Burnt	Fill of short slot, South wall of structure
1670/973	Broken flake	Grey Flint	Broken	2	Broken	Na	5%	No/no	Lustre dorsal only	Occupation level, interior of structure
1709/173	Scraper								Burnt	Fill re-cut within posthole, West gable end
1709/1212	Flake fragments								Burnt	Fill re-cut within posthole, West gable end
1709/1237	Flake fragment								Burnt	Fill re-cut within posthole, West gable end
1713/150	Flake fragment									Fill re-cut within posthole, West gable end
1713/152	Secondary flake	Tan Flint	Oval/2	3	Feather	Na	25%	No/no		Occupation level, interior of structure

Table X.2: Flints from the Exterior of the Early Neolithic Timber Structure

Fill/Find/	Flake type/ use	Material type	Platform shape/ #scars	Dorsal scars	Termination	Edge angle	Cortex	Retouch/ Microwear	Heat	Location
1327/1110	Flake fragment								Burnt	Fill of pit, outside east gable end
1631/228	Broken flake	Grey Flint	Broken	3	Outrepasse	Na	5-10%	No/no	Lustre, crazing, potting	Fill of large pit, West of Structure
1631/1124	Flake fragment								Burnt	Fill of large pit, West of Structure
1632/960	Flake fragment									Fill of large pit, west of structure
1648/1277	Flake fragment									Primary pit fill, NW of structure
1665/959	Flake fragments								Burnt	Fill of posthole, 1 of 3 in line west
1665/1236	Flake fragment									Fill of posthole, 1 of 3 in line west
1703/924	Secondary flake	Tan Flint	Broken	3	Feather	45-48º	0%	No/no		2nd fill of posthole, 1 of 3 in line west
1703/1229	Flake fragment									
1725/156	Secondary flake/ Hafted scraper	Pink Flint	Irregular/ 3	2	Feather	87-92º	0%	Yes/ yes		Stake hole fill, East of Structure
1730/166	Broken flake	Grey Flint	Broken	3	Broken	Na	20-30%	No/no	Lustre both sides	Pit fill, West of Structure
1730/169	Shatter	Tan Flint	Na	3	Na	Na	0%	No/no	Lustre	Pit fill, West of Structure
1731/1285	Flake fragments	Chert								
1739/1289	Flake fragment								Burnt	

Table X.3: Flints from Later Neolithic Pit Group 1

Fill/Find/	Flake type/ use	Material type	Platform shape/ #scars	Dorsal scars	Termination	Edge angle	Cortex	Retouch/ Microwear	Heat	Location
1026/817#1	Microblade	Grey Flint	Oval/ 3	2-3	Outerpasse	Na	10%	No/no		Fill of small pit 1027
1026/817#2	Broken flake	Tan Flint	Broken	2	Broken	Na	0%	No/no		Fill of small pit 1027
1026/817#3	Broken flake	Grey Flint	Collapsed	2	Feather	Na	0%	No/no		Fill of small pit 1027
1033/67	Hafted scraper	Black Chert	Retouched	3-4	Retouched	71º 109º	0%	Yes/yes		Fill of medieval ditch
1048/25	Microblade	Grey Flint	Cortex	2	Outerpasse	Na	30%	No/no		Fill of small pit 1049, by 1036, 1052
1048/49	Microblade	Tan Flint	Collapsed	2	Feather	Na	0%	No/no	Lustre dorsal	
1048/506	Shaping flake	Carmel Flint	Convex-convex, prepared, lip/ 1	2	Broken	Na	0%	No/no		Fill of small pit 1049, by 1036, 1052
1048/507	Blade	Grey Flint	Broken	3-4	Broken	42º left	0%	No/no		Fill of small pit 1049, by 1036, 1052
1048/508	Broken flake	Grey Flint	Broken	3	Feather	Na	0%	No/no		Fill of small pit 1049, by 1036, 1052
1051/10	Primary flake	Tan Flint	Triangular/ 1	3	Broken	Na	60%	No/no		Fill of pit 1052
1051/29	Blade	Dark grey Flint	Plano-convex/2	3	Retouched	46º	0%	Yes/yes		Fill of small pit 1052
1156/60#1	Split pebble	Grey Flint	Na	Na	Na	Na	60%	No/no	Lustre	Bronze age disturbance
1156/60#2	Small shatter	Grey Flint	Na	Na	Na	Na	0%	No/no	Lustre, crazing, potting	Bronze age disturbance
1303/69	Microblade	White Flint	Plano-convex, lip/1	2-3	Broken	Na	0%	No/no		Fill of pit 1321, cut by 1258 and 1034

Table X.4: Pit Group 2

Fill/Find/	Flake type/ use	Material type	Platform shape/ #scars	Dorsal scars	Termination	Edge angle	Cortex	Retouch/ Microwear	Heat	Location
4013/958	13 Flake fragments									Upper fill of pit 4012
4013/1387	Flake fragments									Upper fill of pit 4012
4014/491	Shaping flake/ cutting	Grey flint	Broken	3-4	Feather	30-32º	0%	Yes/yes		Main fill of pit 4012

4014/957	2 flake fragments									Main fill of pit 4012
4014/1096	Snapped blade	Dark grey Flint	Broken	3-4	Broken	Na	0%	No/no		Main fill of pit 4012
4014/1205	11 Flake fragments								2 burnt	Main fill of pit 4012
4014/1348	4 Flint flakes									Main fill of pit 4012
4015/489	Nodule									Pit 4016 fill
4022/819#1	Broken flake	Brown Flint	Broken	1	Feather	Na	85%	No/no		Pit 4024 fill
4022/819#2	Broken flake	Brown Flint	Broken	1	Feather	Na	95%	No/no		Pit 4024 fill
4022/819#3	Broken flake	Brown Flint	Broken	2	Feather	Na	0%	No/no		Pit 4024 fill
4022/819#4	Finishing flake	Brown Flint	Crushed	3-4	Feather	Na	0%	No/no		Pit 4024 fill
4022/819#5	Thinning flake	Brown Flint	Convex-convex, lip/ 1	1-2	Feather	Na	30%	No/no		Pit 4024 fill
4022/823	Shaping flake	Brown Flint	Broken	1	Hinge	Na	0%	No/no		Pit 4024 fill
4022/838	Flake fragment									Pit 4024 fill
4022/956	33 Flake fragments									Pit 4024 fill

Table X.5: Pit Group 3

Fill/Find/	Flake type/ use	Material type	Platform shape/ #scars	Dorsal scars	Termination	Edge angle	Cortex	Retouch/ Microwear	Heat	Location
4061/546	Broken flake	Brown Flint	Broken	2	Broken	Na	95%	No/no	Potting, crazing	Main fill of pit 4062
4061/955	Broken flake	Grey Flint	Broken	2	Broken	Na	0%	No/no		Main fill of pit 4062
4061/1350	Flake fragment								Burnt	Main fill of pit 4062
4061/1373	Flake fragment								Burnt	Main fill of pit 4062
4067/909	Secondary flake	Grey Flint	Cortex/1	1	Feather	Na	5%	No/no		Charcoal rich fill of pit 4062
4068/1316	Flake fragment									Fill of pit 4069 with Neolithic pottery
4068/1364	Flake fragment									Fill of pit 4069 with Neolithic pottery
4068/1366	Flake fragment									Fill of pit 4069 with Neolithic pottery
4068/1368	Flake fragments									Fill of pit 4069 with Neolithic pottery
4093/579	Broken flake	Grey Flint	Broken	1-2	Feather	Na	90%	No/no	Lustre	Fill of pit 4092 w/Neolithic grooved ware
4093/1106	Large flake									Fill of pit 4092 with Neolithic grooved ware
4093/1128	Flake fragment								Burnt	Fill of pit 4092 with Neolithic grooved ware
4093/1153	Flake fragment									Fill of pit 4092 with Neolithic grooved ware
4093/1282	Flake fragment									Fill of pit 4092 with Neolithic grooved ware

Table X.6: Pit Group 4

Fill/Find/	Flake type/ use	Material type	Platform shape/ #scars	Dorsal scars	Termination	Edge angle	Cortex	Retouch/ Microwear	Heat	Location
4099/720	Broken flake	Grey Flint	Plano-convex/2	1	Cortex	Na	45%	No/no		Fill of pit 4100, pottery & packing stones
4099/1358	Flake Fragment									Fill of pit 4100, pottery & packing stones
4101/542	Shaping flake	Grey Flint	Coarse material	5	Outerpasse	Na	0%	No/no	Lustre	Lower fill of pit 4103, cuts line and shares large stones with 4099
4102/818	Broken flake	Grey Flint	Broken	3	Hinge	Na	0%	No/no		Lower fill of pit 4103 with pottery & packing stones
4102/828	Broken flake	Grey Flint	Broken	3	Broken	Na	0%	No/no	Potting, crazing, black stain	Lower fill of pit 4103 with pottery & packing stones
4102/954	Flake Fragments									Lower fill of pit 4103 with pottery & packing stones
4104/1338	Flake Fragment									Upper fill of 4103
4105/1352	Flake Fragments									Two phases of slumping in section over 4102
4105/1390	Flake Fragment									Two phases of slumping in section over 4102
4106/721	Broken flake	Grey Flint	Na	2	Na	Na	0%	No/no		Fill of pit 4109, lining cut under 4108, erosion

										deposit?
4106/826	Shatter	Grey Flint	Na	Na	Na	Na	0%	No/no	Lustre, crazing, black stain	Fill of pit 4109, lining cut under 4108, erosion deposit?
4106/1252	Scraper	Tan Flint	Plano-convex/1 prepared	2-3	Feather	42-58º	0%	Yes/yes		Fill of pit 4109, lining cut under 4108, erosion deposit?
4107/550#1	Snapped blade	Grey Flint	Crushed	3	Broken	Na	0%	No/no	Lustre, potting, crazing, black staining	Upper fill of 1409, with quern stone & charcoal
4107/550#2	Broken flake	Tan Flint	Broken	2	Broken	Na	05	No/no		Upper fill of 1409, with quern stone & charcoal
4107/550#3	Shatter	Tan Flint	Na	Na	Na	Na	0%	No/no	Lustre, crazing	Upper fill of 1409, with quern stone & charcoal
4107/550#4	Broken flake	White Flint	Broken	2-3	Broken	Na	0%	No/no		Upper fill of 1409, with quern stone & charcoal
4107/1150	Flake Fragment									Upper fill of 1409, with quern stone & charcoal
4107/1340	Shatter	Grey Flint	Na	Na	Na	Na	0%	No/no		Upper fill of 1409, with quern stone & charcoal
4108/552	Broken blade	Tan Flint	Broken	2	Broken	Na	10%	No/no		Lower fill of 4109, with pottery, charcoal & red soil
4108/953	Flake Fragment									Lower fill of 4109, with pottery, charcoal & red soil
4108/1336	Flake Fragments									Lower fill of 4109, with pottery, charcoal & red soil
4108/1349	Flake Fragments									Lower fill of 4109, with pottery, charcoal & red soil
4108/1357	Blade	Brown Flint	Triangular/ 1	3	Outerpasse	Na	0%	No/no		Lower fill of 4109, with pottery, charcoal & red soil

Table X.7: Pit Group 5

Fill/Find/	Flake type/ use	Material type	Platform shape/ #scars	Dorsal scars	Termination	Edge angle	Cortex	Retouch/ Microwear	Heat	Location
4132/1234	Flake fragments									Upper fill of 4133, with pottery
4147/1104	Flake fragment									Lowest fill of 4133
4147/1169	Flake fragments								Burnt	Lowest fill of 4133,
4147/1284	Flake fragments									Lowest fill of 4133,
4149/560	Waste flake									Fill of 4133 N & W sides,
4149/952	Flake fragments									Fill of 4133 N & W sides,

Table X.8: Pit Group 6

Fill/Find/	Flake type/ use	Material type	Platform shape/ #scars	Dorsal scars	Termination	Edge angle	Cortex	Retouch/ Microwear	Heat	Location
6007/633	Split pebble	Dark brown Flint	Na	Na	Na	Na	50%	No/no		Near 6041
6065/844	Flake fragment									Deposit overlaying pit 6044
6006/979	Flake fragments									Fill of pit 6034
6006/979.1	Scraper	Dark grey Flint	Broken	2	Hinge	60-65°	0%	Yes/yes		Fill of pit 6034
6005/765	Flake fragment									Fill of pit 6034
6005/767	Broken flake	Dark grey Flint	Broken	3	Broken	Na	0%	No/no		Fill of pit 6034
6005/770	Scraper									Fill of pit 6034
6005/771#1	Snapped blade	White Chert	Broken	3	Broken	R: 46°	0%	No/yes		Fill of pit 6034
6005/771#2	Broken flake	Dark grey Flint	Broken	1	Broken	Na	0%	No/no		Fill of pit 6034
6005/771#3	Finishing flake	Dark grey Flint	Crushed	4	Feather	Na	0%	No/no		Fill of pit 6034
6005/777	Shaping flake	Grey Flint	Triangular/3	2	Outerpasse	Na	0%	No/no		Fill of pit 6034
6005/781	Scraper									Fill of pit 6034
6005/782#1	Shatter	Dark brown Flint	Na	Na	Na	Na	0%	No/no		Fill of pit 6034
6005/782#2	Shatter	Dark brown Flint	Na	Na	Na	Na	0%	No/no		Fill of pit 6034
6005/782#3	Finishing flake	Dark brown Flint	Crushed, prepared	4	Feather	Na	0%	No/no		Fill of pit 6034

6005/951	Flake fragments									Fill of pit 6034
6005/111	Flake fragment									Fill of pit 6034
6042/778#1	Broken flake	Tan/ black Flint	Concave-convex/1	2	Broken	Na	0%	No/no		Fill of pit 6043
6042/778#2	Hafted scraper	Tan/ black Flint	Broken	2	Broken	86-92°	0%	Yes/yes		Fill of pit 6043
6042/778#3	Broken flake	Dark brown Flint	Broken	4	Broken	Na	0%	No/no		Fill of pit 6043
6042/778#4	Broken flake	Dark brown Flint	Broken	2	Broken	Na	0%	No/no		Fill of pit 6043
6042/779	Blade									Fill of pit 6043
6042/1200	Flake fragments									Fill of pit 6043
6042/1201	Flake fragments									Fill of pit 6043
6042/1232	Flake fragment									Fill of pit 6043
6042/1322#1	Micro blade	Tan Flint	Triangular/2	2	Feather	Na	20%	No/no		Fill of pit 6043
6042/1322#2	Broken flake	Tan Flint	Broken	2	Broken	Na	0%	No/no		
6042/1322#3	Broken flake	Light grey Flint	Broken	2	Broken	Na	0%	No/no		
6042/1362	Flake fragment									Fill of pit 6043
6063/978	Flake fragment									Upper fill of pit 6044
6048/950	Flake fragments									Fill of pit 6047
6048/1231	Flake fragment									Fill of pit 6047
6054/841	Shaping flake	Dark grey Flint	Crushed	4	Outerpasse	Na	0%	No/no		Fill of pit 6055
6054/949	Flake fragments									Fill of pit 6055
6060/948#1	Shaping flake	Grey Flint	Crushed	2	Feather/outerpasse	Na	0%	No/no		Fill of pit 6061, pottery
6060/948#2	Broken flake	Tan Flint	Broken	1	Feather	Na	0%	No/no		Fill of pit 6061, pottery
6066/853	Broken flake	Tan Flint	Broken	1	Broken	Na	35%	No/no		Upper fill of pit 6072 pottery, stone fragments
6066/855	Broken flake	White Flint	Broken	1	Broken	Na	0%	No/no		Upper fill of pit 6072 pottery, stone fragments
6066/858	Snapped blade	Dark grey Flint	Plano-convex/2	2	Broken	R: 41-43° L: 61-72°	0%	No/yes	Lustre	Upper fill of pit 6072 pottery, large stone fragments
6066/908#1	Broken flake	Dark grey Flint	Broken	3	Broken	Na	0%	No/no		Upper fill of pit 6072 pottery, stone fragments
6066/908#2	25% of pebble	Light grey Flint	Na	Na	Na	Na	35%	No/no		Upper fill of pit 6072 pottery, stone fragments
6066/908#3	Micro blade	Tan Flint	Broken	2	Feather	Na	0%	No/no		Upper fill of pit 6072 pottery, stone fragments
6066/908#4	Broken flake	Tan/pink Flint	Broken	1	Hinge	Na	20%	No/no		Upper fill of pit 6072 pottery, stone fragments
6066/908#5	Broken flake	White/orange Flint	Convex-convex/2	2	Feather	Na	0%	No/no		Upper fill of pit 6072 pottery, large stone fragments
6066/908#6	Flake fragments								Lustre, pots, crazing, black stain	Upper fill of pit 6072 pottery, large stone fragments
6066/975#1	Broken flake	Orange/ black chert	Broken	3	Hinge	Na	0%	No/no		Upper fill of pit 6072 pottery, tone fragments
6066/97#2	2 broken flakes	White Flint	Broken	1	Broken	Na	0%	No/no	Lustre potting, crazing	Upper fill of pit 6072 pottery, large stone fragments
6066/975#3a	Broken flake	Tan Flint	Broken	1	Broken	Na	0%	No/no		Upper fill of pit 6072 pottery, large stone fragments
6066/975#3b	Finishing flake	Tan flint	Plano-convex/2	3	Outerpasse	Na	0%	No/no		
6066/975#4	2 shatter	Grey Flint	Na	Na	Na	Na	0%	No/no	Lustre, pink	Upper fill of pit 6072 pottery, stone fragments
6066/975#5	Flake fragments								Pitting, crazing	Upper fill of pit 6072 pottery, stone fragments
6066/976#1	Broken flake	Brown Flint	Broken	1	Broken	Na	35%	No/no	Lustre	Upper fill of pit 6072 pottery, stone fragments
6066/976#2	Shaping flake	Tan/red Flint	Triangular/1 lipped	4	Outerpasse	Na	0%	No/no	Crazing, potting	Upper fill of pit 6072 pottery, stone fragments
6066/1071#1	Broken flake	Light grey	Cortex	1	Broken	Na	50%	No/no		Upper fill of pit 6072 pottery, stone fragments
6066/1071#2	Shatter	Light grey Flint	Na	Na	Na	Na	15%	No/no		
6066/1195	Flake fragments									Upper fill of pit 6072 pottery, stone fragments
6066/1211	Flake fragments									Upper fill of pit 6072 pottery, stone fragments

6066/1215	Flake fragments								Burnt	Upper fill of pit 6072 pottery, stone fragments
6073/893	Broken flake	Tan Flint	Cortex	1	Cortex	Na	15%	No/no		Fill of pit or posthole 6072, burnt looking
6073/896	Shaping flake	Light grey Flint	Broken	2-3	Outerpasse	Na	0%	No/no		Fill of pit or posthole 6072, burnt looking
6073/977	Flake fragments									Fill of pit or posthole 6072, burnt looking
6086/974	Flake fragments									Fill of pit 6087

Table X.9: Pit Group 8

Fill/Find/	Flake type/ use	Material type	Platform shape/ #scars	Dorsal scars	Termination	Edge angle	Cortex	Retouch/ Microwear	Heat	Location
1304/1283	Flake fragments									Fill of pit 1305 part of pits S of early Neolithic structure
1304/1334	Broken flake	Light brown Flint	Broken	3	Broken	Na	0%	No/no		Fill of pit 1305 part of pits S of early Neolithic structure
1597/1251	Primary flake	White Flint	Oval/2	2	Broken	Na	50%	No/no	Crazing ventral	Fill of 1596 part of pits SW of early Neolithic structure

APPENDIX XI: PETROLOGY OF CLASTS RECOVERED FROM PARC BRYN CEGIN

Dr David Jenkins

Summary

A petrological examination has been made of the rock fraction from 23 contexts at the Parc Bryn Cegin excavations by GAT. This indicated that the rock types identified were all consistent with a source in the local Snowdonian glacial deposits with no obvious exotic material. There was no significant variation in composition across the site nor any significant variations according to the archaeological period of context. There was, however, evidence of a slight preference for doleritic/mafic rock types in the fired material from the burnt mounds.

1. Introduction

23 samples of rocks (*i.e*. mostly >30mm) recovered from excavations by GAT at Parc Bryn Cegin were examined to establish their petrology. This was done in order to

- **a.** identify the source of rock materials, particularly of any exotic material introduced to the site
- **b.** establish whether rock types varied spatially or with time across the site, and
- **c.** establish whether there had been any selective usage of material for a specific purpose, such as use in the burnt mounds that had been identified.

A representative 10-12 clasts were selected from rock fractions collected from each site. These were fractured to provide a surface of the fresh unweathered rock and, if necessary, also washed to provide clean surfaces. The rocks were then examined with a hand lens (x10) and where necessary with a zoom stereomicroscope (x15-x75), and the results were recorded and placed into one of 12 rock type groups. The general shape and evidence of firing in the form of red hues in the surface zones and of incipient cracking were also recorded.

2. Results

The results are presented in table XI.1. The samples are grouped according to trench and field descriptions together with context numbers and a broad description of shape (i.e. R – rounded; r – sub-rounded; a – sub-angular; A – angular). Evidence of firing through colour and/or cracking was also noted (**F**). The following 12 broad rock types were recognised, although these groups were often diverse and intergrading. Relative abundance was denoted by + (= occasional) or ++ (= common); nature and depth of any weathering rinds was also recorded. However, in view of the heterogeneity of the local deposits and the small samples sizes (12±) examined, no statistical analysis was attempted on the analytical data obtained.

1. Dark grey fine-grained micaceous **siltstone** showing bedding and/or cleavage;
2. Dark (greenish) grey **sandstones,** often poorly sorted with sub-angular grains; well cemented with minimal porosity.
3. Grey **sandstones,** reasonably well sorted with sub-rounded grains, well cemented with minimal porosity.
4. Pale (grey/brown) sandstones with rounded, well-sorted quartz dominant (**orthoquartzites),** and incomplete cementation.
5. Grey **lithic sandstones/tuffs,** generally with well-graded but variable clast sizes in a finer matrix, the clasts often lithic in nature; well cemented with minimal porosity.
6. Pale-grey/grey **rhyolitic tuffs**, often displaying weak/moderate cleavage, varying from fine grained massive with feldspar phenoclasts and welded (ignimbrite) structures to coarser tuffs with angular lithic and crystal clasts.
7. Pale-grey massive **rhyolites**, usually with white weathered surfaces, often displaying small feldspar phenocrysts and occasional fluidal structures small nodules (5mm) or banding, and often a weak cleavage
8. **Microgranite/diorite** – pale, fine grained (<2mm) crystalline with granitic texture comprising quartz, feldspar and minor ferromagnesian/iron-ore minerals, often showing a "podzolic" weathered surface.
9. **Dolerite**, dark greenish grey in colour, in which a characteristic fabric of a mesh of plagioclase laths enclosing dark clinopyroxene and iron ore minerals can be recognized.
10. Obscure **mafic rock types**, dark in colour often with deep brown weathered

zone, sometimes with visible crystals of a ferromagnesian/iron-ore minerals, but generally lacking a recognisable mineralogy or fabric under the zoom microscope – interpreted as altered dolerite, basalt or mafic tuff.

11. Purple strongly cleaved **slate**

12. White aggregates of **vein quartz**, one with fragments of grey host rock and green chlorite

3. Discussion

3.1 Provenance of rock types

All 12 rock types identified are consistent with the local Snowdonian glacial deposits as a source, These incorporate material from the Ordovician volcanic (**7** & **5, 6;** lavas and tuffs) and sedimentary rocks (shales/siltstones; **1)** and sandstones (**2, 3, 4**) from the Nant Ffrancon valley (*e.g.* Bronllwyd grits) and also from a range of shales/slates/siltstones (**1,11)**, and sandstones (*e.g.* St Anns grits; **2, 3, 4**) from the Cambrian slate belt and Arfon platform to the East. Many of these categories intergrade (*e.g.* **2-3-4-5**) and many could be traced to specific rock exposures, although the source of some of the sandstones (*e.g*. the slightly porous pale orthoquartzite – **4**) is not familiar. These rock types are accompanied by intrusive dolerites (**9;** *e.g.* from the Carneddau sill*)* and by related, but obscure, mafic rocks (**10**), some similar to a small local outcrop of granular-textured "dolerite" a km to the SSW of the site (SH 590695). There are also microgranites/ microdiorites (**8;** *e.g.* Bwlch y Cywion & Moel Perfedd) from the flanks of the Nant Ffrancon. Of these 12 rock groups, 9 are present within the sample of "natural" (sample 745) examined, whilst the orthoquartzites (**4**), microgranites (**8**) and dolerites (**9**) are not.

There is no evidence on site of any material from the northern Irish Sea till, which can be found exposed on the coast 2.5km to the north east, for example at Capel Ogwen (SH 617725): thus no stones of distinctive Carboniferous cherts, limestones, or of schists or coarse granites and granite gneisses were found. It can be concluded, therefore, that only local Snowdonian glacial material was present on site and utilized. Within these glacial deposits there is a predictable concentration of the harder rhyolitic rocks and well cemented sandstones over the more extensive but softer shales and siltstones. By contrast, amongst the lithic artefacts, (*see* appendix VII.1), the (Carboniferous) orthoquartzites and probably the (Cambrian?) lithic sandstones used for querns are not represented in the rock clasts examined from the 23 excavated contexts.

3.2 Spatial and temporal variations in distribution

When divided into three groups from the upper eastern (*14* contexts), middle (*4*) and western areas (*5*) of the site, there were only slight trends evident. For example the eastern portions tended to higher/more common occurrences of rhyolitic and mafic rock types (6, 7, 9, and 10) and the western portions in the dark grey sandstones (2). Similar possible trends were suggested when the samples were divided into Neolithic (*7* contexts), Bronze Age (*11*) and Iron age/Romano-British (*2*) groups, with the dark grey sandstones and mafic rock types (2, 9, 10) being slightly higher in the Neolithic contexts and the sandstone/tuffs (4) in the Iron Age contexts. However, bearing in mind the small sample sizes involved and inherent small-scale variability of glacial deposits, larger sample sizes and a more rigorous analysis would be required to confirm such trends. There were no obvious trends shown, for example the restriction of particular rock types to particular groups.

3.3 Selective use of rock-types

Many of the samples examined were from sites identified as "burnt mounds" (12 contexts) or "ovens" (3), and contained clasts showing evidence of the influence of fire (15) in the form of reddish hues and/or cracking. When the occurrence of the rock types and evidence of firing was examined on this basis, the most common occurrence in fire-associated contexts was shown by the mafic rocks (9/10; 55%) and the highest incidence of firing was shown by dolerite clasts (9; 60%) and sandstone/tuffs (5; 55%). This suggests that there was a small relative concentration of mafic rocks, and of dolerites in particular, in contexts associated with fire. Such a preference for dolerites has been observed in other sites and presumably relates to the more favourable thermal properties of this massive, mafic crystalline rock type. This resulted in a degree of preferential selection for cooking purposes of this relatively uncommon rock type, which comprised only 4% of the one "natural" sample examined.

Table XI.1: Petrographic analysis of clasts recovered from various contexts at Parc Bryn Cegin, Llandygai G1857)

					xx –common x - occasional			**Clast petrography**					**F** - cracked & reddened				
					1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Trench	**Sample No.**	Context No.	Sediment Type	Area (E,M,W) Age (N,B,J)	Siltstone dark grey	Sandstone dark grey	Sandstone grey	Orthoquartzite white/pale	Sandstone /tuff, dark	Rhyolite tuff pale	Rhyolite lava pale	microgranite	Dolerite	Unidentified mafic	Slate	Vein quartz
T1	**13**	1087	Oven fill	B E		+ **F**	+	+ **F**	+	++ **F**	+					
	114	1511	Oven fill	B E			++ **F**	+	+ **F**	+	++		+ **F**			
	4	1035	Pit fill	N E	+		+ **F**		++ **F**	++ **F**	++	+	+ **F**			
	17	1097	Burnt mound	B E			+ **F**	+		++	++ **F**	+				
	28	1160	B mnd pit fill	B E			+			++	++	+ **F**		+ **F**		
	29	1158	B mnd pit fill	B E	+		++ **F**			+	++					
	135	1635	Slot fill, Neo.	N E		+	+			++	+	+				
T2	**745**	2052	Natural - till	- E	+	+	++		+	+	+			+	+	+
	497	2145	Bnt. mnd pit fill	B E		+	+	+ **F**		++ **F**	+		+ **F**			
	622	2167	Burnt mound	B E			+				++ **F**			++		
	618	2173	Bnt. mnd pit fill	B E		+ **F**	+ **F**	+ **F**		++ **F**	+ **F**		+			
	668	2287	Burnt mound	B E			+ **F**		+ **F**	++	++	+	? **F**	+ **F**		
T3	**348**	3315	Oven fill	B M			++ **F**	+ **F**		+ **F**	+	+ **F**	+	+		
	713	3194	Ditch fill	- M			++ **F**		+ **F**				++ **F**		+	

	714	3196	Ditch fill	- M		+ **F**	+ **F**				+ **F**		++	+		
	614	9282	Roundhouse H	I M			+	+		++	++ **F**			+		
T4	**384**	4199	Burnt mound	B E			+	++	+	++	+		+			
	397	4276	Roundhouse E	I E	+		+		++ **F**	+			+ **F**			+
T6	**641**	6054	Pit fill	N W		+	++ **F**			+	++	+	+ **F**			
	635	2198	Bnt. mnd pit fill	N W	+	+	+	+		++	++					
	605	6014	Bnt. mnd pit fill	N W				+		++		+		+ **F**		
	643	6057	Bnt. mnd pit fill	N W		++ **F**	++ **F**		+		+ **F**	+	+			
T7	**709**	7044	Bnt. mnd pit fill	N W		++	++			++						

NB* General "Area": E = east, M = middle, W = west;
General "Age": N = Neolithic, B = Bronze Age , I = Iron Age/Romano-British
Clast abundance: + = occasional', ++ = common; **F** = fired

APPENDIX XII: REPORT ON THE ROMAN GLASS

H.E.M. Cool

The glass from the site may divided into two groups. There is the large group of beads recovered from the bead cache pit [2104] and a small group of vessel fragments and beads found scattered in other contexts. Most of this latter group were found associated with Roundhouse H with five of them coming from context 9182 (the fill of the inner drain [9163]). These scattered items will be considered first followed by a discussion of the material from the bead pit.

Six fragments from blue/green square bottles were found (SF 747, 749, 751, 752, 755, and 886). This vessel type was very common from the later first to earlier third century (Price and Cottam 1998, 194-8). It is frequently the only vessel type found on rural sites as can be seen in the settlements at Bryn Eryr and Bush Farm (Henderson in Longley *et al* 1998, 227), possibly indicating that the people who lived on such sites found a use for whatever was transported in them. Here, however, it seems very likely that the fragments were present on the site as raw material for bead making. On two of the fragments (SF 749 and 755, Fig. 71) the edges had been ground smooth to make the fragments into rectangular and triangular shapes. Whilst this might have been done to make them suitable for use as playing pieces, it would also have made them ideal raw material for bead making. It is likely that in antiquity many beads were made from re-heating chunks of glass using tongs or pincers and iron mandrels as this is the most economical use of the raw material. Experimental work has shown that a much better product results if the chunks are cubic than if fragments taken directly from broken vessels are used (Gam 1993). Preparing the fragments by grinding them to a regular shape would certainly pay dividends if a bubble-free product was wanted. A fragment of glass had been prepared in this way at Cefn Cwmwd on Anglesey (BUFAU excavations unpublished) and at that site there is certainly evidence that beads were being made.

If glass beads were being made using blue/green glass on the site then that might explain two of the other items which are certainly unusual. The polychrome bead (SF 727, Fig. 71) uses blue/green glass as a ground and is, as far as I am aware, unparalleled. It could well be a candidate for local production. There is also part of a blue/green plano-convex 'counter' (SF 754). Roman glass counters are normally made of opaque white and very dark glass appearing black. Other colours are much rarer. It may well be that this was made here as a setting for an item of jewellery, or again what currently appears to be a counter could have in fact been a block prepared for melting. Another uncommon bead is the spherical blue/green bead (SF 753, Fig. 71). Generally in most Roman bead assemblages deep blue and mid green colours are preferred, blue/green beads are much less common. The later second /earlier third century group of beads found in the drains of the legionary fortress at Caerleon and the product of casual loss may be taken as an example (Brewer 1986, 149 nos. 26-73, 152 nos. 1-26). Of the 74 beads found there, there is only one example made of blue/green glass.

On balance, therefore, though no glass working waste was found, it seems highly likely that bead manufacture was being carried out on the site. All of the glass items, with one exception, could have been associated with this activity in some way. The exception is the long blue biconical bead recovered from the topsoil near the large burnt mound (2176) (SF 676, Fig. 71), which is of a more common Roman form in use from at least the second century (Guido 1978, 98).

Given the likely bead production on the site it is somewhat ironic that no connection can be made between that and the items in the bead cache pit. As already discussed the settlement bead industry seems to have been based on blue/green glass. In the pit, by contrast, the beads are deep blue and red. Given that catalogue entries would be very repetitive the two types are described here. Full details are listed in the archive. The drawings illustrate the range of sizes and decorative detail.

The commonest type represented with 230 examples is a deep translucent blue annular bead decorated by opaque white trails arranged in a wave pattern. They have an average diameter of 18.5mm ranging from 17 to 21mm, and an average length of 10mm ranging from 8 to 13mm (see fig. 73). The opaque white trailing is sometimes put on with one continuous trail and sometimes uses more than one trail. The aim was to produce a wave pattern. Generally this is competently done but sometimes the wave resembles a random scribble (see fig. 74). The number of waves on the examples where this can be counted ranges from two to eight with four and five being by far the commonest (see Table XII.1).

type	*2*	*3*	*4*	*5*	*6*	*7*	**Total**
5a	3	19	110	75	18	3	228

Table XII.1: number of waves on the blue and white beads

The nature of the trailing differs. On some it has not been marvered smooth with the surfaces of the bead. On these in some places it stands proud and has a slightly blobby appearance (see fig. 73). On others it is marvered smooth. On these there tends to be small yellowish spots visible in the white glass. It does not seem that these are deliberate

decoration. They seem more likely to be impurities in the glass as in some white trails small black streaks can also be seen.

When all of the beads are laid out together difference in the nature of the blue glass can be seen. Some are a very bright and very translucent blue. Others are a noticeably darker and less bright. It is noticeably that the bright blue beads tend to have the blobby trailing, whilst the darker ones have the smoother, yellow spotted trailing. The two 'types' described should be seen as the extreme ends of a spectrum. Those in the middle cannot be easily assigned, and as this would be very subjective no attempt has been made, but the extreme ends are clearly different. (This was confirmed by showing the beads as laid out to people other than the author). It would seem very probable that the blue and white beads represent at least two batches and given the different way in which the trailing is applied at least two bead makers. It should be stressed that in each case this should be regarded as a minimum. There are some, for example, that are noticeably oval in outline, but whether this should be seen as evidence for a third hand is open to question.

The beads retain information about how they were made. SF 200 (fig. 73) consists of two beads joined close to the perforation at one point. SF 185 retains a very sharp spike by one side of the perforation and SF 192 has a raw scar in that position (fig. 73). Several others have sharp irregularities around the perforations. Many show a combination of small chips around the perforation and dulled bands. The evidence suggests that they were made by trailing blue glass around a mandrel, which was then tooled into individual beads and trailed. The end result would have been a cylinder of beads joined by thin collars. When this cylinder had been removed from the mandrel and was cold they would have been snapped apart resulting in the little chips seen around the perforations. Any spiky irregularities would have been ground away resulting in the dulled bands that can be seen.

This group gives every appearance of being very new. It is to be expected that if they had been much used the fresh appearance of the chips around the perforations would have been dulled through wear. Other than SF 185, and possibly SF 192, all of these beads were wearable and it is not a workshop group in the normal sense. Such groups are characterised by deformed and misshapen beads, small trails, fragments of glass retaining pincer marks and the like. A good example of such a group can be seen at York (Bayley and Doonan 2000). This shows all the characteristics of the sort of debris that can be expected and this group contains none of them. Four examples do show strain-cracking and in one case the bead is now granulating (SF 202, 204, 203, 453). These defects though were probably not apparent at the time when the group was deposited.

This type of bead is a relatively common one. It is Mrs Guido's Group 5A, which she dates from the fourth century BC to the seventh century AD whilst admitting that the early ones are not so strongly coloured as ones such as these (Guido 1978, 63-4). She listed just under fifty examples in her schedules. More have been found since then but the total number is still less than seventy. This find has thus tripled the number known which is quite remarkable. Dating beads is always difficult as they can survive long after they were made. A broken bead string merely results in many loose beads to be re-strung in a different pattern possibly incorporating new beads or indeed older ones. There is also the problem of residuality. This explains the long date spans derived from the contexts that they were found in that Guido assigns to different types. If one looks in more detail at the strongly coloured blue ones found in dated contexts there is a distinct concentration in ones of the middle to late first century. An example from Usk came from a pre-Flavian context (Manning *et al* 1995, 107 no 4). One came from an early context in the legionary baths drain at Caerleon and can be dated to AD 75-85, whilst four others are from the slightly later phase dated to c. AD 85-100/10 (Brewer 1986, 147, nos. 7, 17-20.). These clearly reflect loss whilst in use. Another came from Castleford in a context dated to C. AD 80 –88 (Cool and Price 1998, 186 no. 108). This concentration of dates may be reflecting nothing more than the fact that the mid first century is the period when it first becomes easy to closely date items due to the influx of Roman material culture. On balance though, it would seem that the most likely period for the deposition of a freshly made group such as this would thus seem be in the first century AD.

The other type of bead present consists of a drawn cylinder of red glass (appearing opaque). The diameter of the beads in all cases is 5 to 5.5mm. Six complete examples are present ranging in length from 40 to 49mm. Another thirteen beads of this type were assigned small find numbers. They range from recognisable fragments where one end only is broken to small slivers and strands. Calculating the original number of red beads in the pit is thus difficult, but ten broken fragments ranging in length from 35 to 50mm were present suggesting a minimum of sixteen. The way in which the glass has weathered is very unusual. Even the complete examples retain a granular grey/brown appearance. Some fragments are so fibrous that they resemble straw. I had never encountered glass that had devitrified in this way before but Professor Ian Freestone informs me that he has seen something similar in orange-red mosaic tesserae from San Vincenzo (Italy). He suggests that the fibrous effect is caused by the devitrification following the lines of the internal bubbles which, as the tubes forming the beads are drawn, are naturally elongated parallel to the length of the bead. He further observes that devitrification like this is sometimes caused by the glass being very low in calcium which would make the glass unstable. Without chemical analysis it would not be possible to confirm that this was the case here, but something like it may be suspected.

The use of red glass to make beads is very unusual in both Iron Age and Roman bead-making tradition. Within a Roman context the presence of red beads often indicates a very late fourth or fifth century date. Such a date is unlikely here in the light of the association with the blue and white beads. The form of the bead is also unusual.

Long cylindrical beads are not part of the late Iron Age bead making tradition, as annular forms were preferred at that time. They do occur in the Roman tradition but in that a bead would be considered long if it was 20mm in length, rather than the 40 to 50mm length that appears to be the rule here. Thus in both colour, form and the type of glass used the red beads appear to be very unusual and, as far as I am aware, they are unparalleled.

Altogether this is a most unusual group. Glass beads are not generally thought of as something that was appropriate to hoard, but this group should probably be thought of in that way. The deposition of so many new beads suggests that they were regarded as being of value. What the cause of the deposition was we can only guess. Was it for safe keeping, was it to appease or please a deity? If it was for safe keeping, did these beads have a special value to the community in which they were initially used that went far beyond merely personal ornament? Were they the mark of a special rank or role within the community? To speculate further, this group *could* have been deposited about the time when the Roman army was campaigning in North Wales culminating in the attack on Anglesey in AD 60 (Tacitus *Annals* XIV. 29-30). Was the stress the community was under as the result of this, the cause of the deposition? It may be noted that several of the mid to later first century examples of blue and white beads cited above came from military contexts, and it could be argued that they might have been the possessions of soldiers who had fought in the Anglesey campaign. The Usk example is pre-Flavian, and all could have been deposited within two decades of those events. Were they the spoils of war, taken from the defeated enemy because they had marked individuals as special in some way? As already noted this is speculation, but what the Bryn Cegin bead cache undoubtedly suggests is that Guido Class 5a blue and white beads may have had a value to their owners that has not hitherto been suspected.

Catalogue excluding contents of [2104]

Prismatic bottle body fragments; Blue/green,
SF 747 T3, context 9182
SF 751 T3, context 9182
SF 886 T3, context 9167

SF 676 Long biconical bead; opaque mid blue glass. Length 12mm, diameter 4mm, perforation diameter 1mm. T2, context 2002.

SF 727 Annular bead. Blue/green ground with band of opaque white glass running around girth into which are set 9 translucent deep blue spots. Length 11mmmm, diameter 20mm, perforation diameter 3mm. T3, context 9122.

SF 749 Prismatic bottle body fragment; triangular. Edges ground smooth. Dimensions 31 x 28mm, thickness 8m. T3, context 9187

SF752 Bottle, blue/green. Fragment from edge of reeded handle. Also one small chip. T3, context 9182

SF 753 Spherical bead, slightly irregular; blue/green glass. Length 9mm, diameter 10mm, perforation diameter 2.5mm. T3, context 9182.

SF 754 Plano-convex counter; blue/green. Four strain cracked fragments forming approximately one-third. Diameter c. 15mm, thickness 7mm. T3, context 9182.

SF 755 Prismatic bottle body fragment; rectangular. One edge ground smooth. Dimensions 33 x 13mm, thickness 4.5mm. T3, context 9231.

SF 1039 Body fragment; blue/green. Distorted by heat. Dimensions 23 x 14mm, wall thickness 2mm. T2, context 2036.

Acknowledgements
I am most grateful to Professor Ian Freestone for so generously sharing his encyclopaedic knowledge of glass with me, and providing advice on the red glass discussed above.

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APPENDIX XIII: METAL OBJECTS

XIII.1 Iron, lead and copper alloy objects

Evan Chapman

Catalogue

Copper alloy

SF369 Plate fragment the two longer, opposite, edges appear original, but the other two are clearly broken. There are faint traces of incised decoration on one face. 28x22x2mm (context 3002)

SF372 Roughly L-shaped lump with the remains of a socket in the thicker end. Very little origin surface survives. Just possibly the remains of a draw or cupboard handle. 20x17x11mm (context 3002)

SF517 thimble apparently formed of a copper alloy inner shell with the remains of a white metal (or possibly iron) surface layer, which had the characteristic thimble dimple pattern. 23x17mm (context 2002)

SF587 Post-medieval rectangular buckle, with a curved profile. There are traces of beaded decoration around the edges of the front face. The tongue and axial bar are missing and the frame is in two pieces. 37x34x2mm. (context 3002)

SF710 Flat, post-medieval, button, diameter 21mm (context 3486)

Iron

SF121 small triangular lump 35x31mm (context 2034)

SF478 short length of rod, probably part of the shaft of a nail, length 28mm (context 3018)

SF487 fragment from a strip, 78x34x3mm (context 4047)

SF591 bent nail (context 3383)

SF592 nail, length 59mm (context 3271)

SF708 strip, in two pieces, 150x47mm (context 1007)

SF709 sub-triangular plate, 73x53mm (context 1007)

SF729 nail head (context 9168)

SF764 curved bar fragment (context 9173)

SF911 horseshoe (context 1135)

SF912 lump with small square core of iron (context 1053)

SF913 horseshoe fragment (context 3522)

SF914 horseshoe (context 3522)

SF915 horseshoe (context 3522)

SF916 horseshoe (context 3522)

SF917 horseshoe fragment (context 3342)

SF918 screw or bolt (context 3116)

SF919 horseshoe fragment and strip bent up at one end, 115x53mm (context 1070)

SF927 small triangular lump 38x33mm (context 9303)

Lead

SF161 waste, 10g (context 2002)

SF162 domed oval, possibly a weight, 49x37x13mm, 132g (context 2002)

SF163 folded sheet fragment, 21x15x4mm, 8g (context 2002)

SF367 waste, 15g (context 3002)

SF368 irregular lump with possible traces of perforations, 41x27x14mm, 95g (context 3002)

SF371 sub-rectangular piece of sheet lead with a notch in the middle of each short edge, possibly a tag of some sort, 22x15x1mm, 4g (context 3002)

SF518 sheet fragment, 22x17x2mm, 4g (context 2002)

SF519 Off cut from a strip, 16x13x3mm, 5g (context 2002)

SF599 slightly irregular curved strip, probably the remains of a ring or hook, diameter *c.*20mm, thickness 3mm, 2g (context 3484)

SF996 minute fragment, 5x4x1mm, <1g (context 4197)

SF1092 irregular lump, waste, 107g (context 1002)

Metal Detector Finds

SF165 Flat copper alloy button, diameter *c.*27mm

Flat headed copper alloy stud with thick shaft of circular section, diameter 15mm, height 9mm, diameter of shaft 5mm.

Rectangular lead washer with circular perforation. 20x17x3mm, diameter of perforation 6mm.

Triangular off cut of lead sheet, 22x19x2mm. (context 2002) metal detected objects

SF1093 3 flat copper alloy buttons, diameters *c.*15mm
Copper alloy bell-shaped terminal with loop on top. Filled with remains of leather. 27x14x11mm
Copper alloy elongated D-shaped buckle or loop. 27x27x3mm
Shotgun cartridge cap
Copper alloy ring or pipe off cut, diameter 20mm
Short length of square sectioned copper alloy rod, length 33mm, thickness 3mm
Conical copper alloy ferrule or nozzle, length 21mm, diameter 19mm tapering to 14mm
Copper alloy knob, the head is bulbous with a perforation in one side and the shaft is threaded, length 39mm
Domed copper alloy stud head on an iron shaft, diameter 10mm
Lead seal from sack of fertiliser or similar
Fragment of a hard white metal plate
Lead / lead alloy cylinder
Lead rod of circular section, stepped in at one end, length 29mm, diameter 18mm
Lead shot of various sizes
Curved strip of lead
Off cut of lead sheet
Flat lump of waste lead (+) – metal detector finds

Conclusions
Most of the finds examined are, in themselves, undatable. Those that are, are clearly of a post-medieval (18^{th}-20^{th} century) date, and the remainder are most likely to be of similar dates. The copper alloy plate fragment (SF369) could be Roman, it would certainly not be out of place in a Roman context, but in itself is not definitely Roman. In my opinion there is nothing amongst the material worth further study or publication.

XIII.2 Conservation and analysis of the roman seal matrix box (SF 615)
Phil Parkes

Background
The object was found during excavations at Parc Bryn Cegin, Llandygai. It was delivered to Cardiff University during August 2005. The brief was to conserve the copper alloy object and analyse the contents in order to aid identification.

Summary
The object was identified by Janet Webster (Cardiff University) and Mark Lewis (Curator, National Museum Caerleon) as being a Roman seal box, used to protect the wax seal during transport. The box is rectangular and decorated with a simple celtic-type design in a cobalt-blue enamel, with a calcium antimonate opacifier. Much of this enamel survives in a good condition. It also appears that there was another coloured enamel in the areas around this, possibly a red, but the remains are very decayed and mostly missing.

Within the box are the remains of a red-coloured substance, which analysis showed to be beeswax with a red ochre (iron oxide) pigment used to colour it. A block of dirt and fibrous material was also present within the seal box. Two samples of the fibrous material from inside the box were examined under a binocular microscope but appeared to be naturally occurring vegetable fibres rather than the 'string' which may have been used to secure the document.

Condition
On arrival the object was in a poor condition (*Fig. XIII.1*). It was broken into two larger pieces, with smaller pieces accompanying it. The metal surface was covered with a layer of dirt beneath which is a powdery corroded surface. The object contained what appears to be dirt with fibres within it and a hard red-coloured substance.

Figure XIII.1: Object before conservation

Conservation

The object was x-rayed prior to conservation (*Fig XIII.2*). This revealed a swirling Celtic-type decorative pattern on the surface of the object, possibly inlay of some sort. The x-ray of the smaller part revealed holes, although no apparent decoration.

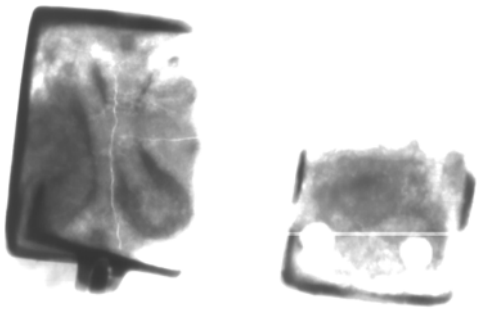

Figure XIII.2: X-ray image of the 2 larger parts of the object

The object required consolidation prior to cleaning due to the extremely friable nature of the corroded surface. Consolidation was carried out with 5% and 10% solutions of Paraloid B72 in acetone, applied by brush. Several applications were made in order to give a workable surface. The object was then cleaned mechanically using a scalpel and glass bristle brush. This removed the overlying dirt and revealed an inlaid blue enamel design. Possible remains of other enamels were also revealed, although these were extremely decayed. Some dirt remains on the surface of the object as removing it is likely to remove the small amounts of decayed enamel which survive on the object.

After cleaning the parts were readhered where possible, using a 20% solution of Paraloid B72 in acetone to seal edges, then Araldite 2020 epoxy resin to adhere the two pieces. The large chunk of red substance inside the object, which was loose, was readhered with a spot of HMG Paraloid B72 adhesive.

Samples of the material from the inside of the object as well as other loose fragments, which could not be readhered, were separated out and packaged in crystal boxes for future work.

Figure XIII.3: Object after conservation

Analysis

A sample of the hard red substance from inside the seal was taken an examined using a CamScan MaXim 2040 analytical scanning electron microscope (SEM) with backscattered electron (BEI) detectors and an Oxford Link ISIS energy dispersive X-ray spectrometer (EDX).

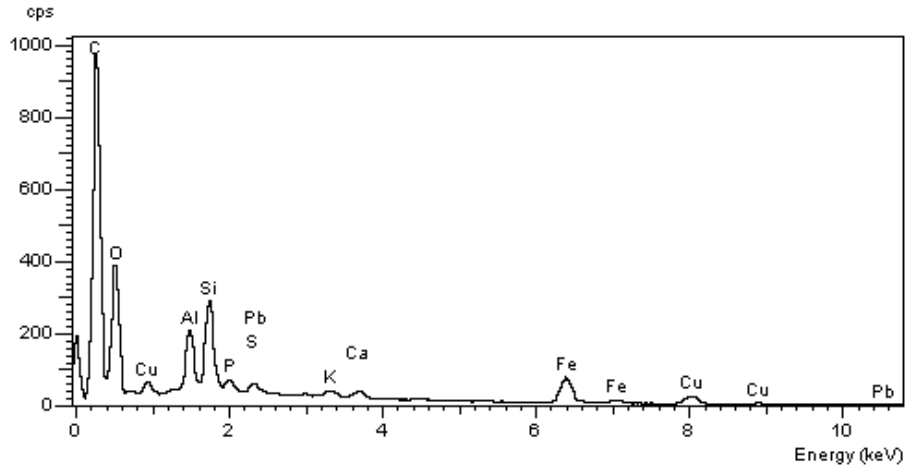

Figure XIII.4: SEM-EDX analysis of red substance

The analysis indicated that iron was present in the material, as well as copper, lead and silica from the copper alloy and dirt (*Fig XIII.4*). The presence of the iron is likely to be as an iron oxide, possibly indicating a pigment.

Another small sample of the red substance was placed into a sample tube and had a small amount of chloroform added to it in order to separate the organic and inorganic components.

The inorganic component was analysed using X-ray diffraction (a Philips PW1710 diffractometer with CuKα radiation at 35kV and 40 ma for 25 minutes). The mineral phases were identified from the diffraction data using an identification software package PW1876 PC-Identify Version 1.0B based on the ICDD (International Centre of Diffraction Data) powder diffraction database of diffraction patterns

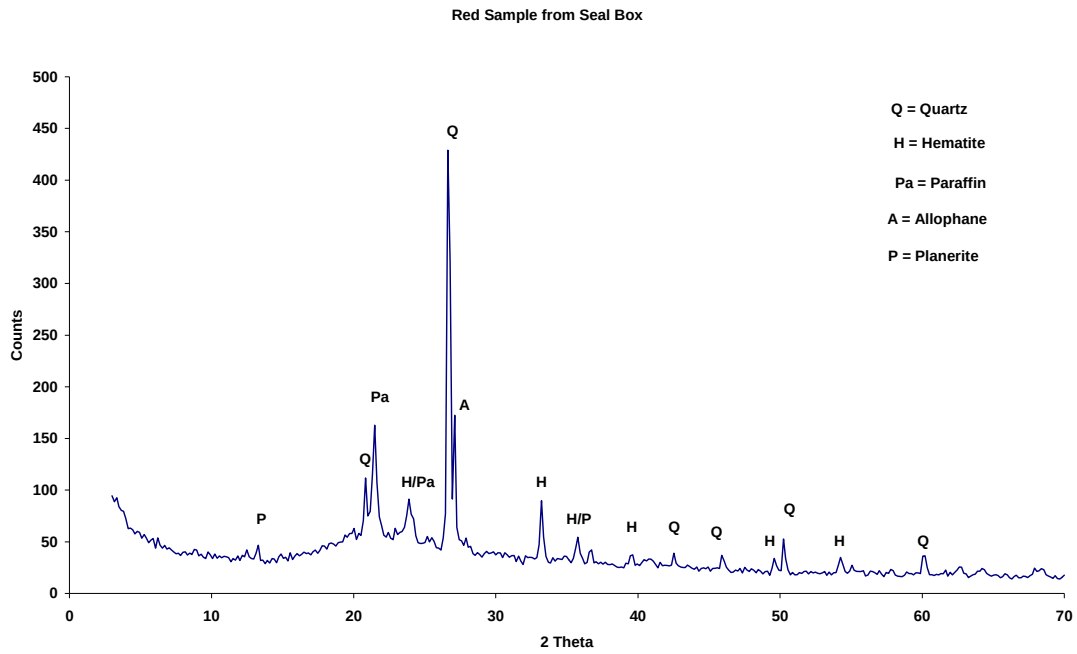

Figure XIII.5: XRD analysis of the red substance

The results (*Fig. XIII.5*) show that haematite (iron oxide) is indeed present within the substance, most likely indicating the presence of a red ochre pigment.

The organic matter extracted from the red substance was analysed using a Perkin-Elmer Spectrum One FTIR Spectrometer. The sample was from the seal box was processed (red line below) and compared to a sample of modern beeswax (blue line below). The results are conclusive that the organic component of the substance within the seal box is beeswax.

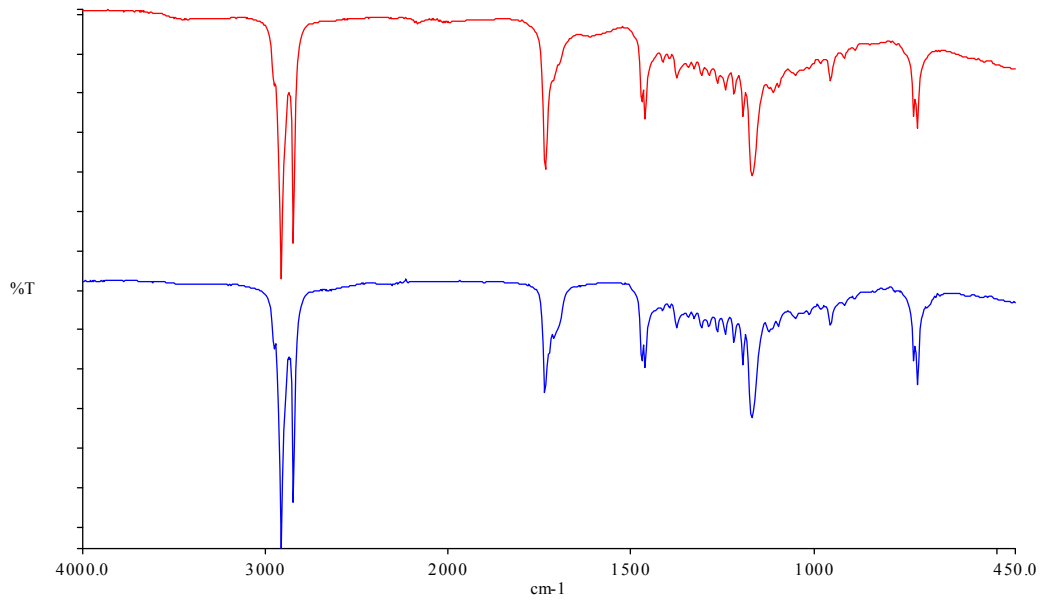

Figure XIII.6: FTIR analysis of the organic component of the red substance: Red line is sample, blue line is modern beeswax

Storage and Display

Although the object has been consolidate and readhered it remains fragile and should be handled with care. I would recommend that it be stored in a sealed box with silica gel to maintain a low relative humidity (<40% RH). If a low humidity environment cannot be provided for the object on display it should be inspected regularly for any signs of fresh corrosion, usually seen as brighter green spots on the surface.

References

J. D. Bateson, Enamel-working in Iron Age, Roman and Sub-Roman Britain: the products and techniques, BAR British Series 93, 1981

XIII.3 Description and discussion of the seal box (SF 615)

Evan Chapman

This is a large rectangular Roman seal box (Fig. 67) used to protect the wax, often impressed with a seal, which secured the binding of a packet or writing-tablet. The lid is decorated with a scroll pattern in a Celtic sinuous, reversed, 'swash N' design (Kilbride-Jones 1980, 187; MacGregor 1976, xix), with an additional dot in the middle of each edge. The 'N' and the dots are inlaid with blue enamel, the field was also originally enamelled but no clue to its colour now remains. The four circular motifs within the 'swash N', at the ends and the angles, now also lack their enamel suggesting that they may well originally have been the same colour as the field. The hinge is in the middle of one of the shorter edges. The base is now incomplete but appears originally to have been pierced by four holes in the bottom. There is a patch of brown organic material of uncertain composition, about 15mm^2, adhering to one corner of the base. Lid: length 33mm, width 25mm [broken]; depth 10mm; base: length 32mm, width 23mm, depth 5mm.

There is an apparently virtually identical example from Lincoln in the British Museum (Brailsford 1951, 78 fig.40.10). Related examples, with the 'N' the 'right way' round are known from Caerleon (Lloyd-Morgan 2000, 357 no.51); Chesters, Northumberland (Kilbride-Jones 1980, 187 fig.56.5); Great Walsingham, Norfolk (Bagnall Smith 1999, 42 no.54); London (Hattatt 1989, 462 no.142); Humby, Linolnshire (Ward 1911, 228, fig.64.G); and Wroxeter (Baker *et al.* 1997, 197 no.2).

Date wise it would fit comfortably with the second century Roman pottery found in the later phases of the roundhouse.

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XIII.4 Coins and tokens

Edward Besley

Find

128 Probably a second-century *sestertius*; worn and corroded.

366 (Marcus Aurelius, AD 161-80): silver *denarius* (fragmentary) in the name of Divus Antoninus; reverse DIVO PIO, altar, as RIC (M.A.) 441; *c*.161, commemorating the recently deceased Antoninus Pius (138-61).

667 Probably a 1st-2nd century AD *as* or *dupondius* but no design survives.

159 Uncertain copper alloy, perhaps post-medieval.

160 Uncertain copper alloy, likely to be Roman.

586 Silver penny, Edward I (?), London. The coin is heavily worn, clipped and holed; weight 0.51g (7.8gr). Likely to have been lost in the 15th (or even early 16th) century.

4 Uncertain; perhaps a penny of George III, 1806-7 issue.
5 George III, penny, 'Cartwheel' type, dated 1797; somewhat worn.
158 George VI, sixpence (.500 silver), dated 1944; somewhat worn.
370 Anglesey, Parys Mines Co, copper token halfpenny, dated 1788.
373 George III, halfpenny for Ireland, dated 1805.
516 George V, halfpenny, date uncertain.
921 Probably George III, halfpenny, 1799 or 1806/7.
922 George III, halfpenny, probably 1806-7 issue.

Metal-detected:

1094a Copper halfpenny, probably George III, 1806-7.
1094b Victoria, copper farthing; uncertain date, pre-1860.
1094c Ireland: copper alloy weight for a French gold *pistole*; first half of eighteenth century.

XIII.5 Report on metallurgical residues and clay

Peter Crew

Introduction

Some 1,500 g of slag and other materials thought to be metallurgical residues and some 500 g of clay were submitted for assessment. The majority of this material was recovered, from a wide range of contexts, during the excavations. The post excavation programme of flotation revealed that many soil samples contained small quantities of magnetic slag.

All this material has been examined visually and a catalogue with brief descriptions has been prepared (Table XIII.1). One piece of slag, from roundhouse E, was cut and polished for microscopic examination.

Material types

Eight types of material were recognised, as listed in the catalogue and described below.

Clay. The clay samples vary considerably in colour and fabric. A few pieces are not burnt, though the majority is lightly and evenly burnt to a pink or pink-red colour. None of this clay is necessarily associated with metalworking and it most probably derives from domestic hearths or, possibly, from ovens. The lack of shaping or wattle impressions makes it unlikely that the clay was used as daub.

Lining. There is one piece of quartz grogged clay (SF656) from roundhouse E. This is heavily vitrified and would have formed in the high temperature zone of a smithing hearth, near the blowing hole. The grog would have been deliberately added to make the clay more refractory.

Smithing hearth slag cakes. There are two nearly complete examples of smithing hearth slag cakes, (SF577) from roundhouse A and (SF600) from a pit associated with this roundhouse. These cakes form in a smithing hearth just below the blowing hole and are usually attached to the vitrified clay lining, hence the broken front surface when they are removed to clean the smithing hearth. These slags typically have a plano-convex shape or a convex-convex shape and the lower surfaces can have a characteristically contorted surface due to the slag cooling in a bed of small charcoal. These cakes are formed from slag and hammer scale deriving from the iron being refined or forged, mixed with some clay fluxed from the high temperature zone of the hearth. The size of the cake depends both on the cleanness of the iron stock being forged and the time for which the hearth has been used. The larger example, weighing over 700 g, is towards the upper end of the weight range for smithing hearth slag cakes and represents a full day's work, forging or refining quite a large quantity of iron. It is a particularly well-formed cake and demonstrates that the smith had good control over his hearth conditions. These slag cakes are quite robust and are often found in a complete state and it is curious that more examples were not found during the excavations.

Slags. The majority of the slags found are small amorphous prills and broken fragments, which are quite often magnetic. None of these slags are in themselves diagnostic of a particular stage of the iron-working process. However, the lack of smelting residues, the small overall weight of slag found and the two smithing hearth slags make it most likely that all of the slags from Parc Bryn Cegin are from iron smithing.

The prills would have formed in the hearth, cooling in the charcoal bed, but had not become incorporated in the smithing hearth slag cake. The broken fragments are probably from the removal of hearth slag cakes. The slags also include small pieces of low density vesicular glassy material, which forms from the hearth lining being fluxed by fuel ash.

The largest piece from (SF707), from roundhouse E, was cut and polished for microscopic examination. This showed the slag to be wüstite (iron oxide) rich, with frequent tiny droplets of iron and with iron shells

around small fragments of charcoal trapped in the slag, which would have created locally reducing conditions. This is a slag typical of smithing.

Flotation residues. The residues from floated soil samples with possible metallurgical associations were examined for the micro-residues, which are diagnostic of iron smithing. The residue from (SF1062) from roundhouse E produced 21 g of magnetic material, most of which was of irregular shape, but there were several small slag spheres which are formed during the smithing process. The residues from some 60 other samples, from a wide range of contexts, produced only tiny amounts (less than 1 g) of similar irregular magnetic material. It is curious that only one of these residues contained hammerscale, albeit only 2 flakes. Scale can fragment to a magnetic dust, which can be lost in flotation, but some hammerscale usually survives from smithing contexts. Either it was not recognised or was not recovered because of the procedures used. On its own these residues are not diagnostic but in view of the general character of the other slags it is almost certain that they are from smithing. The very small quantities of material recovered suggest that most of the residues are in secondary or tertiary contexts.

Coal and coke. A very small quantity of coal was recovered from (SF935) in roundhouse D. Several other samples (SF730, 797, 936, 939) from roundhouse C and the gully of house D had small quantities of material which is almost certainly coke. This would have been produced fortuitously under reducing conditions in a smithing hearth and is an indication that coal fuel was used. Although coal can not be used for smelting, mainly because of its sulphur content, there is growing evidence for the use of coal in Roman and Medieval smithing sites. The source of this coal was most probably one of the well known Anglesey deposits, which were mined during the historic period.

Iron. One find of iron (SF995), heavily mineralised and coated in corrosion products, is most likely to be forge waste and thus fits with the general evidence for smithing.

Glassy slag. There is one piece of dense glassy slag (SF338), which is not a normal residue of the iron-working process. It was suggested in the post-excavation catalogue that this may be related to glass working, but there is no other evidence to support this hypothesis. It may be that this material is simply molten glass, from a discarded object.

Summary

All of the metallurgical residues derive from the refining and smithing of iron. As there is no smelting evidence from this site, it is most probable that the iron stock in the form of partly refined billets or bars was brought to the site from elsewhere. The total weight of material recovered, less than 1.5 kg, could have been produced from only a small number of smithing operations. However, it is probable that this collection of debris is far from complete, either in terms of material types or of the quantity likely to have been produced. Some of the material derives from Romano-British contexts relating to the hut group, from where there is some evidence for the use of coal as fuel. The small deposit from outside roundhouse E may be of earlier date, which will be confirmed by the radio-carbon dating programme.

The evidence from Parc Bryn Cegin is a useful reminder that such debris is ubiquitous, though it is not always recognised nor reported adequately.

Table XIII.1: Catalogue of metalworking debris

Find No	Context	Material	Wt (g)	Description
338	3000	Glassy slag	33	Dense glassy flow with cooling surfaces, generally a dark grey colour with lighter streaks; pale green colour visible in thin pieces.
577	3271	Slag cake	221	Irregular flattish slag cake, 75 x 65 x 15mm thick, lightly magnetic. Small smithing hearth slag cake.
578	3276	Slag	2	Small piece low density glassy vesicular slag
600	3490	Slag cake	793	Large cake of dense slag, 125 x 100 x 30mm thick. Convex-convex shape, broken front. Magnetic throughout. Smithing hearth slag cake.
617	4282	Mn wad	11	Small fragments of soft Mn-rich concretion, natural deposit
620	3490	Slag	23	Irregular prill of non-magnetic slag
655	4250	Slag	11	Vesicular glassy low density slag, non-magnetic
656	4250	Lining	32	Quartz grogged clay 25mm thick, heavily vitrified for 10mm, with dark glassy cooling surface. Hearth lining from near blowing hole.

662	4250	Slag	8	Dense magnetic slag, coated with secondary corrosion products
707	4250	Slag	257	Some 60 small pieces slag, including fragments of lining and dense prills, some magnetic. Largest piece cut and polished.
730	9107	Coke	5	Low density glassy black material with small evenly sized vesicles
796	4276	Stone	15	Dense quartz rich stone
797	3892	Coke, slag	1	One piece coke (as 730), one fragment of fuel ash slag
935	3959	Coal	<1	Tiny fragments of coal
936	3959	Coke, slag	7	Tiny fragments of coke (as 730), one piece low density fuel ash slag
939	3582	Coke	2	Tiny fragments of coke (as 730)
995	9446	Iron	3	Two flat flakes fragments of mineralised iron, coated with corrosion products. Probably forge waste.
1062	4250	Slag	21	Small irregular fragments of magnetic slag, including several spheres and prills
1147	9052	Slag	7	Glassy vesicular non-magnetic fuel ash slag
1163	4250	Slag	14	tiny fragments of magnetic slag
1164	9052	Slag	4	tiny fragments of magnetic slag, with some spheres
1210	4229	Coal	<1	tiny fragment of coal
1245	4250	Slag	9	tiny fragments of magnetic slag with some spheres
1304	9317	Slag	<1	tiny fragments of magnetic slag, two flakes hammer scale
1328	4250	Slag	16	small fragments of magnetic slag
1329	4250	Slag	14	small fragments of magnetic slag with some spheres
1330	4250	Slag	12	small fragments of magnetic slag with some spheres

APPENDIX XIV: THE BIOLOGICAL REMAINS

Alexandra Schmidl, John Carrott and Deborah Jaques

Summary

This report presents the results of analyses of assemblages of biological remains recovered from a large number of sediment samples from excavations at Parc Bryn Cegin, Llandygai, Bangor, Gwynedd, North Wales. The excavations revealed features dating from the Early Neolithic to the medieval period overlain by eighteenth and nineteenth century field boundaries, including an Early Neolithic building, several Mid to Late Neolithic pit groups, Early Bronze Age burnt mounds, a Mid Iron Age ring-groove roundhouse and several other roundhouses of a Late Iron Age/Romano-British settlement, 6th-7th century metalworking hearths and a medieval corn drier. In addition, a small number of subsamples extracted from monoliths were examined for pollen survival.

Ancient biological remains recovered from the samples were largely restricted to small quantities (though there were occasionally quite large amounts) of poorly preserved charcoal representing the remains of both structural timbers and wood used as fuel. All of the identified tree species would have been found in local woodlands of their respective periods. Small numbers of other charred plant remains, primarily of cereals and hazelnut shell, were recovered from a significant proportion of the samples. In most cases, these were of little interpretative value but did provide material for an extensive series of radiocarbon dates and a subsequent chronological analysis. A small number of charred plant assemblages from deposits associated with the Late Iron Age/Romano-British Roundhouse A, the nearby (but much later) medieval corn drier and the 6th-7th century metalworking hearths, were able to provide rather more information.

A single fragment of unstratified oyster shell was recovered and there was a small quantity of bone, most of which was burnt. None of the bone appeared to be human (though the poor preservation means that this possibility cannot be entirely excluded) and it is likely that, regardless of date, most of the vertebrate remains represent animal bones discarded as food or butchery waste.

No pollen survived with the subsamples examined.

List of tables and figures

Table XIV.2g. Biological remains recovered from samples from features associated with the Late Neolithic pit groups in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Pit Group VII.

Table XIV.2h. Biological remains recovered from samples from features associated with the Late Neolithic pit groups in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Pit Group VIII.

Table XIV.3. Biological remains recovered from samples from burnt mound features in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.

Table XIV.4. Biological remains recovered from samples from earth oven features in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.

Table XIV.5. Biological remains recovered from samples from the fills of possibly prehistoric feature 7055 (Trench 7) in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.

Table XIV.6a. Biological remains recovered from samples from features associated with Roundhouses (including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Roundhouse A.

Table XIV.6b. Larger grain assemblages recovered from deposits associated with Roundhouse A.

Table XIV.6c. Biological remains recovered from samples from features associated with Roundhouses (including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Roundhouse B.

Table XIV.6d. Biological remains recovered from samples from features associated with Roundhouses (including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Roundhouse C.

Table XIV.6e. Biological remains recovered from samples from features associated with Roundhouses (including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Roundhouse C/D.

Table XIV.6f. Biological remains recovered from samples from features associated with Roundhouses (including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Roundhouse D.

Table 6g. Parc Bryn Cegin, Llandygai, Bangor, Gwynedd, North Wales: Biological remains recovered from samples from features associated with Roundhouses (including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Roundhouse E.

Table XIV.6h. Larger grain assemblages recovered from deposits associated with Roundhouse E.

Table XIV.6i. Biological remains recovered from samples from features associated with Roundhouses (including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Structure F – possible roundhouse.

Table XIV.6j. Biological remains recovered from samples from features associated with Roundhouses (including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Structure G – possible roundhouse.

Table XIV.6k. Biological remains recovered from samples from features associated with Roundhouses (including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating: Roundhouse H.

Table XIV.7. Biological remains recovered from samples from deposits associated with the bead cache from Pit 2104, with notes on the presence of material suitable for submission for radiocarbon dating.

Table XIV.8. Biological remains recovered from samples from post-medieval features in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.

Table XIV.9. Biological remains recovered from samples from all other features in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.

Table 10. Parc Bryn Cegin, Llandygai, Bangor, Gwynedd, North Wales: Vertebrate remains from all periods in context number order.

Figure XIV.1. Relative proportions of charred cereals in the larger grain assemblages recovered from deposits associated with Roundhouse A (including those from the possible Corn Drier 3671).

Figure XIV.2. Relative proportions of charred cereals in the larger grain assemblages recovered from deposits associated with Roundhouse E.

Technical report: Biological remains from excavations at Parc Bryn Cegin, Llandygai, Bangor, Gwynedd, North Wales (site code: G1857)

Introduction

Remains recovered from 518 bulk sediment samples ('GBA'/'BS' *sensu* Dobney *et al*. 1992) processed by GAT and twenty-one small subsamples extracted from five monoliths were submitted to Palaeoecology Research Services Limited (PRS), County Durham, for an evaluation of their bioarchaeological potential.

Methods

Sediment samples

The bulk sediment subsamples were processed by GAT prior to delivery to PRS, and the unsorted 'flots' (hereafter termed washovers) and biological remains recovered from the residues submitted for evaluation. The weights and volumes of the subsamples were recorded before being placed onto 500 micron nylon mesh in a sieving tank. The light organic fraction was washed over into a 500 micron sieve to collect the washovers. Both the washover and residue fractions of the processed subsamples were dried.

Plant remains were recorded using a low-power microscope (x7 to x45) and seed and fruits were identified by comparison with modern reference material at PRS and the use of published works (Cappers *et al*. 2006 and Jacomet 2006). Larger pieces of well preserved charcoal were randomly selected from different contexts for closer examination and specific identification in order to obtain an accurate indication of the taxa represented within the assemblages. Identification of charcoal was undertaken with reference to the photographs and descriptions in 'Wood anatomy of central European Species' (Schoch *et al*. 2004). Nomenclature for plant taxa follows Stace (1997).

An important consideration during the investigation of the biological remains was the identification and selection of suitable material for submission for radiocarbon dating by accelerator mass spectrometry (AMS), for example, charred grains or hazelnut shell fragments. In some instances no such material was identified within deposits for which it was nevertheless considered important that radiocarbon dating be undertaken and, in these cases, the identification of charcoal from short-lived tree species or unidentified wood of only a few years growth (twigs) was attempted.

There were also twenty-one small sediment subsamples extracted from five monolith samples – Samples 185 and 186 from a pit near the Early Neolithic building, Samples 339 and 492 from hollows which had collected colluvial deposits (some possibly peri-glacial and some due to ploughing) and Sample 491 (which appeared to be a soil forming within a natural glacial hollow). These were examined for the presence of microfossil remains using the 'squash' technique of Dainton (1992). This method was originally developed to rapidly assess deposits for their content of eggs of intestinal parasitic nematodes but routinely reveals the presence of other microfossils, such as pollen and diatoms; in this instance the principal focus being the presence/absence and state of preservation of pollen to determine if more detailed study would be of value. Slides were scanned at 150x magnification with 600x used where necessary.

Only a single fragment of shell was recovered. This was examined and identified as closely as possible but there was too little material to warrant any detailed study.

For the vertebrate remains notes were made, where appropriate, concerning the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Other information, such as fragment size, butchery evidence and fresh breakage, was noted, where applicable. Fragments were identified to species or species group using the PRS modern comparative reference collection. The bones, which could not be identified to species, were described as the 'unidentified' fraction.

Results

No pollen grains or other identifiable microfossils were recorded from the 'squash' subsamples from the monoliths (Sample 185 – Contexts 1628, 1629, 1631, 1632, 1633 and 1639; Sample 186 – Contexts 1623, 1624 and 1629;

Sample 339 – Contexts 4162 (3 subsamples), 4163 (2 subsamples), 4165 and 4166; Sample 492 – Contexts 4073, 4078 and 4079; Sample 491 – Context 4223 (2 subsamples)) and no further investigation was undertaken.

The detailed results of the investigations of the plant remains recovered from the bulk sediment samples are presented by archaeological grouping in Tables XIV.1 to 9, with summary overviews given in the following text sections (using the same archaeological groupings and in chronological order).

The single fragment of shell was a small (~1 g) flake of an oyster (*Ostrea edulis* L.) valve from an unstratified layer in the area of Context 2141 (Trench 2, Sample 736, Small Find 677).

Very small quantities of burnt bone were recovered from 25 contexts (33 samples) which represented a range of chronological periods. Ten of the deposits were of Neolithic date, with two of Early Iron Age date and three assigned to the Romano-British period. A further six could only be dated as ?prehistoric, whilst four contexts were undated. Most of these deposits were pit fills, with some of the later material being recovered from the fills of gullies associated with Roundhouses A and E. Details of the number of fragments recovered, their weight, and notes on their identification and preservation are presented in Table 10.

Early Neolithic building

Biological remains recovered from 103 sediment samples from fills of features associated with the Early Neolithic building were submitted (see Table XIV.1). Most of the samples contained modern intrusive/contaminant remains in the form of numerous rootlets, earthworm egg capsules and uncharred seeds and fruits of goosefoot (*Chenopodium*), meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.), raspberry (*Rubus idaeus* L.), lesser/marsh stitchwort (*Stellaria graminea* L./*S. palustris* Retz) and chickweed (*Stellaria media* (L.) Vill.).

Ancient biological remains were largely restricted to charred plant material, predominantly tiny fragments of silted charcoal. Overall, there was rather little variation in the appearance of the charcoal. This suggest that, although the particular wood species could not be identified, it is likely that most was of one type of wood – as the differing anatomies and moisture contents of different woods, together with variations in decay and combustion, would combine to produce assemblages with a less uniform appearance if more than one species were well represented. Some of the larger charcoal fragments were identified as oak (*Quercus*), hazel (*Corylus*) and, in small quantities, pine (*Pinus*). In five of the deposits, Contexts 1255, 1276, 1293, 1443 and 1445, some of the oak charcoal was in the form of silted 'slivers' and probably derived from structural timbers. Pine was only rarely present, being identified from just two deposits (Contexts 1673 and 1696, fills of a post-hole and a stake-hole, respectively).

Fairly large quantities of hazel (*Corylus avellana* L.) nut shell and a few poorly preserved cereal grains (one identified as barley – *Hordeum distichon* L./*H. vulgare* L.) were recovered from Contexts 1405 (fill of Post-hole 1406) and 1513 (packing around Post-pipes 1533 and 1570 within Post-hole 1532 – one of the main aisle posts). Small quantities of charred hazelnut fragments and identifiable cereal grains (emmer wheat - *Triticum dicoccum* Schübl.) were recorded in samples from a number of other contexts associated with the Early Neolithic building. On the east end of the building (fills of Pits/Post-holes 1291, 1335, 1370, 1377 and 1381) and at the eastern gable (Post-trench 1404, and Post-holes 1483, 1495 and 1515). Pits or Post-holes 1394, 1619, 1704, and 1729 and packing material within Post-hole 1779 at the western end and to the west of the building, as well as other fills within the building, also contained a little hazelnut shell and some of these features gave a few cereal grains (mostly eroded, distorted and unidentified) too. A small number of identifiable charred cereal grains was present in the fills of Post-holes 1666 and 1691 and included barley, emmer wheat and naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.). Context 1216 (the fill of Pit 1249 located near the south-east corner of the building) produced an assemblage dominated by hazelnut shell (31 fragments) and five cereal grains (which included both emmer and naked wheat).

Evidence of an additional food resource, one charred fruit stone of blackberry (*Rubus fruticosus* L. agg.), was found in Post-trench 1404 inside the east gable end of this Early Neolithic building. Evidence of weeds associated with crop fields were restricted to finds of (*Galium aparine* L.) from Post-holes 1406 and 1483, and sun spurge (*Euphorbia helioscopia* L.) and knotweed (*Persicaria*) from the fill of Post-hole 1666.

Late Neolithic Pit Groups I - VIII

Biological remains recovered from 76 samples (see Tables XIV.2a to 2h) were recorded – although three of the samples from Pit Group I gave no ancient remains (Contexts 1010, 1092 and 1095). Again, most of the submitted remains were of modern waterlogged (not charred) rootlets, with some earthworm egg capsules. More than 60% of the samples were also contaminated with modern seeds and fruits. The most frequently recorded of these was goosefoot, with smaller numbers of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), elder (*Sambucus nigra* L.), grass family (Poaceae), knotweed, meadow/creeping buttercup, pea family (Fabaceae), raspberry and silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.).

Charcoal and small numbers of cereal grains formed the bulk of the ancient plant remains recovered. The vast majority of the charcoal fragments were too small or too heavily deformed to be identified. Within the identifiable charcoal fraction, hazel was the most frequently recorded species, followed by oak, with a single piece of pine (*Pinus*) from Context 6065 (Pit Group VI).

Remains of food plants recovered from the samples were restricted to fragments of charred hazelnut shell, which was recorded from all of the Pit Groups (sometimes in large quantities, e.g. Pit Group IV – Context 4019, Pit Group V – Context 4147, Pit Group VI – Contexts 6065 and 6086), and traces of cereal grains in just three deposits. The few cereal grains were from Pit Groups II (Context 4013) and VII (Contexts 3137 and 3142). Most were poorly preserved (distorted and eroded), but at least two cereals were present, namely barley and wheat (*Triticum*).

All of the samples from deposits in Pit Group VIII, which was associated with the Early Neolithic building (from Contexts 1304, 1308, 1554, 1583, 1592, 1594, 1597), gave some charred hazelnut (with fairly large quantities present in Contexts 1304 and 1308) and small amounts of unidentifiable charcoal.

Burnt Mounds

Ancient biological remains recovered from the 59 samples of this group were restricted to quite large quantities of, mostly unidentifiable, wood charcoal, with a few charred grains and hazelnut fragments. Most of the samples also contained undisaggregated sediment lumps, modern waterlogged rootlets and earthworm egg capsules (see Table XIV.3). Almost half of the samples contained modern contaminants such as fruits and seeds of blackberry, black-bindweed, goosefoot, knotgrass (*Polygonum aviculare* L.), meadow/creeping buttercup, silver/downy birch and thistle (*Cirsium*).

Charred cereal grains were recorded from Contexts 1097, 1720 and 2200 and included barley and emmer wheat. Although, these remains were too few to be of any real interpretative value, their scarcity suggests that it is highly unlikely that crop processing (or domestic activity relating to food preparation) was taking place on any scale in the vicinity of these features.

Other food plant remains were restricted to occasional fragments of charred hazelnut in Contexts 1097, 2169, 2209, 2289, 4210, 4233 and 6016.

The majority of the charcoal fragments were too small or too heavily deformed to be identified. Amongst the identifiable remains, hazel was the most frequently recorded species and there was also some oak. The charcoal from some of the deposits (Contexts 4222, 4233, 4234, 4235 and 4238) was mostly silted 'slivers' – probably from structural oak timbers. Seven deposits (Contexts 6014, 6026, 6038, 7040, 7047, 7048 and 7049) gave 'mineral replaced' (red-brown coloured from iron oxides) charcoal fragments probably indicating 'mineral-rich' water flowing nearby.

Earth ovens

The 18 samples from earth oven features produced a large quantity of wood charcoal (see Table XIV.4). Most of the samples also contained lumps of fused ash and modern intrusive/contaminant material including waterlogged rootlets, earthworm egg capsules and fruits and seeds of black-bindweed, chickweed, fumitory (*Fumaria*), goosefoot, knotgrass, meadow/creeping buttercup and spurge (*Euphorbia*).

Context 1087 gave two charred cereal grains (barley and wheat) and a small number of charred hazelnut fragments; occasional fragments of the latter were also present in Contexts 1260, 1261 and 3130.

For three of the deposits (Contexts 3122, 3130 and 6062), none of the recovered charcoal was identifiable. In each of the other assemblages the charcoal was predominantly hazel, with lesser quantities oak.

Feature 7055

The ancient biological remains recovered from three samples from this feature comprised large amounts of wood charcoal, with most of the samples also containing lumps of fused ash and modern waterlogged rootlets (see Table XIV.5). Two of the samples contained modern contaminants in the form of fruits and seeds of goosefoot and knotgrass. A single unidentifiable grain was found in Context 7051 and the charcoal layer from this feature produced mainly hazel. Overall, the botanical remains were too few to be of any real interpretative value.

Roundhouses B, C, D and H

Ancient biological remains recovered from Roundhouse B (three samples) consisted chiefly of large amounts of, mostly unidentifiable, wood charcoal (see Table XIV.6c). Most of the samples also contained undisaggregated sediment lumps, modern waterlogged rootlets, earthworm egg capsules and modern contaminants such as fruits and seeds of goosefoot and buttercup (*Ranunculus* subg. *Ranunculus*). Remains of food plants were restricted to traces of cereal grain (naked wheat in Context 3148) and one fragment of hazelnut shell in Context 3023.

Forty-nine samples were processed from Roundhouse C, some of which yielded large quantities of, mostly unidentifiable, wood charcoal (see Table XIV.6d). Almost half of the samples contained modern contaminants such as fruits and seeds of blackberry, black-bindweed, elder, fumitory, goosefoot, knotgrass, meadow/creeping buttercup and silver/downy birch. There were a few cereal grains from Contexts 3649, 3672, 3693, 3696 and 3741, from which barley, oat (*Avena*), emmer/spelt and spelt wheat were identified, and there was also a trace of chaff (a glume base) of emmer/spelt wheat – probably representing food waste from hearth areas. There was only a little hazelnut shell which occurred in Contexts 3627 and 3681. Most of the recovered ancient plant assemblages were dominated by

charcoal fragments; some of the larger fragments (from Contexts 3584, 3585, 3648 and 3709) could be identified as, predominantly, hazel, with small quantities of oak.

The ancient biological remains recovered from Roundhouse C/D (four samples) were mostly unidentifiable wood charcoal (see Table XIV.6e) in quite large quantities. The samples also contained modern contaminants such as fruits and seeds of black-bindweed, goosefoot, hemp-nettle (*Galeopsis*) and raspberry. Context 3348 gave a single grain of wheat and some of the larger pieces of charcoal from Contexts 3254 and 3370 were identified as hazel.

The ten samples from Roundhouse D each produced rather small amounts of mostly unidentifiable wood charcoal (see Table XIV.6f). All of the samples contained modern contaminants rootlets and four also included some other modern remains in the form of fruits and seeds of species such as blackberry, black-bindweed, elder, goosefoot and knotgrass. There was no evidence of ancient food plants and the only identifiable charcoal fragments were of oak from Context 3957.

Most of the samples from Roundhouse H (14 in total) produced small amounts of largely unidentifiable wood charcoal (see Table XIV.6k), with larger, though (in general) equally poorly preserved, quantities from five deposits (Contexts 9164, 9167, 9182, 9183 and 9276). All of the samples also contained modern rootlets and other contaminants, such as fruits and seeds of goosefoot, knotgrass, knotweed family (Polygonaceae), meadow/creeping buttercup, pea family, and silver/downy birch, were present in some. Contexts 9164, 9183 and 9276 gave a few charred cereal grains (wheat) and also a little chaff (glume base of *probably* emmer wheat) indicating food waste. Remains of other food plants were similarly sparse, with just a little hazelnut shell from Contexts 3627 and 3681. The assemblages from most of the deposits were dominated by unidentified charcoal fragments, but some larger fragments of hazel were identified in Contexts 9164, 9182 and 9185 and oak charcoal was found in Context 9276.

Late Iron Age/Romano-British Structures F and G

Ancient biological remains recovered from Structure F (43 samples) were, once again, mostly of unidentifiable wood charcoal (see Table XIV.6i). Almost half of the samples contained modern contaminants fruits and seeds (including some of blackberry, dock (*Rumex*), goosefoot, knotgrass, knotweed, meadow/creeping buttercup and silver/downy birch). Food plants were restricted to ?emmer wheat from Context 9120 (a grain and a glume base) and hazelnut shell in Context 9075. Some of the charcoal from Contexts 9021, 9053, 9100, 9150, 9313 and 9332 was identified as hazel, and some from Contexts 9120 and 9206 as oak.

The assemblages of ancient biological remains recovered from Structure G (22 samples) were also principally of unidentifiable wood charcoal (see Table XIV.6j). Most of the samples contained modern contaminants of fruits and seeds of fumitory and goosefoot. Contexts 9061 and 9328 contained some identifiable charcoal which was of hazel.

Roundhouse A

Ancient biological remains recovered from the 56 samples from Roundhouse A included large quantities of wood charcoal (mostly unidentifiable), charred grains and a few nutshell fragments (see Table XIV.6a). Most of the samples also contained undisaggregated sediment lumps, modern waterlogged rootlets, and earthworm egg capsules, and almost half of the samples contained modern contaminants such as fruits and seeds of blackberry, black-bindweed, goosefoot, knotgrass, meadow/creeping buttercup, silver/downy birch and thistle.

Only a few charred cereal grains were recovered from Contexts 3231, 3267, 3276, 3313, 3344, 3346, 3364, 3495, 3548, 3565, 3575 and 3604. Identified taxa were barley, emmer wheat, naked wheat, oat, rye (*Secale cereale* L.) and spelt wheat. There was also some chaff (glume bases, rachis segments) of barley, emmer/spelt and spelt. Overall, these remains were too few to be of any real interpretative value, though clearly they indicated food waste and hence human activity. Grain assemblages from Contexts 3540, 3669, 3670 and 3718 (the probable corn drier) were far more substantial (see Table XIV.6b) and gave valuable interpretative evidence regarding past crops. Remains (e.g. oat grains and hazelnut shell) from the corn drier were submitted for radiocarbon dating (via AMS) and returned medieval dates between the 11th and 13th centuries AD which indicated that this feature belonged to a later phase of activity than the roundhouse itself. In addition, Context 3517 (central feature – ?hearth) and Context 3569 (gully) also produced valuable assemblages of cereal grains.

The remains from the vast majority of the deposits were predominantly of charcoal fragments. Some larger fragments from Contexts 3158, 3176, 3188, 3231, 3267, 3313, 3434, 3517, 3561, 3565, 3569, 3669, 3670 and 3718 were identified as oak, hazel and, in small quantities, ash (*Fraxinus*) and pine.

Roundhouse E

Ancient biological remains recovered from 36 samples from Roundhouse E included large amounts of mostly unidentifiable wood charcoal, charred grains and a few hazelnut shell fragments (see Table XIV.6g). Most of the samples also contained undisaggregated sediment lumps, modern waterlogged rootlets, earthworm egg capsules and almost 83% contained modern contaminant fruits and seeds including those of blackberry, black-bindweed, dead nettle (*Lamium*), dock, fumitory, goosefoot, grass family, knotgrass (*Polygonum* spp. including *Polygonum aviculare* L.), knotweed , meadow/creeping buttercup, raspberry and thistle.

Nine deposits (Contexts 4197, 4229, 4245, 4247, 4249, 4253, 4266, 4276 and 4282) each gave a small number of cereal grains. Crop plants such as barley, emmer wheat, naked wheat, oat, and spelt wheat. were identified, but there was very little chaff (just glume bases of emmer wheat in Contexts 4197 and 4276). More substantial grain assemblages (see Table XIV.6h) were recovered from Contexts 4179, 4250, 4307 and 4403 and were able to provide information regarding crop husbandry during the $6^{th}/7^{th}$ centuries AD. There were a few fragments of charred hazelnut shell from Contexts 4245 and 4307 and a larger quantity was recovered from Context 4249.

Within the identifiable charcoal fraction hazel was the most frequently recorded species (in Contexts 4227, 4249, 4250 and 4379), followed by oak. Context 4230 produced mostly charcoal 'slivers' – probably derived from structural oak timbers. There was also a little ash charcoal from Contexts 4179, 4250 and 4403 (particularly the last).

Bead cache in Pit 2104

Each of the four samples (from Contexts 2090, 2098, 2125 and 2126) produced some unidentified wood charcoal (see Table XIV.7), which formed the majority of the ancient biological remains recovered. All bar one (Sample 226, Context 2125) contained undisaggregated sediment lumps and modern waterlogged rootlets were present in all but Sample 234 (Context 2126). Two of the deposits, Contexts 2090 and 2098, contained modern contaminant seeds of goosefoot and the latter two blackberry fruitstones. A single unidentifiable cereal grain and one fragment of hazelnut shell were recovered from Context 2098 and probably derived from human activities nearby. The small size and poor condition of the fragments of charcoal from this feature prevented any identification to species level and, in general, the plant remains were of no real interpretative value.

Bronze Age features (pit 1390 and spread 1263)

Ancient biological remains recovered from two samples comprised moderately large amounts of silted charcoal (see Table XIV.8) – predominantly hazel with a small admixture of oak – and two charred fragments of hazelnut shell. These remains were indicative of human activity in the vicinity, but were of no further interpretative value.

Other features

Seventeen samples were processed and fairly large amounts of charcoal, together with a few charred cereal grains and fragments of hazelnut shell were recovered (see Table XIV.9). Most of the samples also contained undisaggregated sediment lumps and modern contaminants (e.g. waterlogged rootlets and modern fruits and seeds of blackberry, fumitory, goosefoot, knotgrass and meadow/creeping buttercup). The majority of the charcoal fragments were too small and/or too heavily deformed to be identified, but, within the identifiable fraction, oak was the most frequently recorded species, with some hazel also present. The charcoal from three deposits (Contexts 1821, 2023 and 3117) was mostly in the form of 'slivers' – probably derived from structural timbers. Context 4223 produced several unidentifiable cereal grains and one that could be identified as oat. Remains of another food resource, hazelnuts, were noted in Contexts 9447, 9452 and 9454.

Discussion

An important consideration in the recording of the biological remains from the sediment samples was the identification of suitable material for radiocarbon dating of the deposits to be attempted. In many cases sufficient charcoal (largely unidentified) was present for this purpose (at least via Accelerator Mass Spectrometry – AMS). However, where present, short-lived plant structures (such as charred cereal grains and fragments of hazelnut shell) should be preferred as these are unlikely to have been stored for more than a few years, so that the date returned is likely to be close to that of the charring event – though consideration must be given to issues of residuality and possible reworking of individual small remains. There are two possible sources of error if charcoal is used for dating. Firstly, the piece of wood may be from the centre of the trunk or a large branch of the tree ('stem wood'), and the time span between the growth of this wood (its carbon content being fixed at the point of cell formation) and the death of the tree may be several tens (sometimes hundreds, in the case of long-lived species such as oak for example) of years. Secondly, prior to becoming burnt the wood may have been stored or formed part of a structure, also perhaps for many years. Both of these 'old wood' problems may result in a radiocarbon date significantly earlier than the charring event being returned. If charcoal is used for dating, then pieces with the waney edge (i.e. where the terminal annual ring is preserved) should be selected—this is most likely on fragments from relatively young wood such as twigs or small branches.

Details of the remains selected for dating and the methods employed to interpret the chronology of the site are presented within the appropriate section of the site report. Dates given in the following text sections reflect the summary conclusions of this study (all dates shown are calibrated radiocarbon dates following the results of the chronological analysis).

Modelling of the radiocarbon dates obtained from samples associated with the Early Neolithic building gave an estimated start date for use of the building of 3800-3670 BC (95% probability) and probably 3760-3700 BC (68% probability) and an end of use date of 3690-3610 BC (95% probability) and probably 3670-3620 BC (68% probability).

The span of use of the building was, therefore, estimated at 10-140 years (95% probability) and probably 40-110 years (68% probability).

The recovered remains included large numbers of fragments of charred hazelnut shell. From this it might be concluded that hazel was a more important food resource than cereals at the Llandygai site at this period. However, one must consider that hazel nutshell is inherently robust and survives charring well. It may, therefore, be somewhat over-represented in these deposits as has been suggested may be the general case for British Neolithic sites (see, for example, Jones 2000, Monk 2000 and Rowley-Conwy 2004). At least three species of cereals were present, namely emmer wheat (*Triticum dicoccum* Schübl.), barley (*Hordeum distichon* L./*H. vulgare* L.) and naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.), but only in very small numbers; making the relative importance of the various crops difficult to assess. However, on the available evidence, emmer seems to have been the most important cereal during the Early Neolithic period at Llandygai. The charred remains were mostly representative of waste from the processing of hulled cereals which need to be parched and pounded to separate the chaff – parching involves heating in order to facilitate de-husking of the grains so that remains of these forms are more likely to become charred and so may be over-represented (compared with free-threshing crops) in a charred assemblage.

Most of the British Neolithic sites which have provided archaeobotanical data are located in the chalkland areas of southern England (Greig 1991) where the primary cereals recorded have been emmer wheat (*Triticum dicoccum* Schübl.) and bread wheat (*Triticum aestivum* L.). A Neolithic timber hall at Balbridie, Scotland (Fairweather and Ralston 1993) and two large houses at Lismore Fields, England (Jones, in press) contained large grain assemblages indicating the importance of cultivated cereals. In his 2004 reconsideration of the origins of agriculture in Britain (and elsewhere), Rowley-Conwy (2004) concluded that the Neolithic population was neither nomadic nor dependent mainly on wild foods.

According to the criteria of Asouti and Austin (2005), the charcoal assemblages of the Early Neolithic building can be characterised as representing both short-term (e.g. hearths) and long-term (non-domestic areas such as fills, etc) deposits. Hence, data provided by identification of the charcoal from different features can be used for a palaeoenvironmental reconstruction of the landscape surrounding the site at Parc Bryn Cegin, Llandygai, and also provide information about the human impact caused by the selection of particular tree species for various purposes. Charcoal identified from Post-holes 1254, 1277 and 1294 (forming part of the south wall) and Post-trench 1404 (inside the eastern gable end of the building) was exclusively 'slivers' of oak (*Quercus*) and probably derived from structural timbers of the building itself; long-lived oak trees provide excellent timber for the construction of substantial structures (bringing qualities of size, strength and durability). Pine charcoal (identified simply as *Pinus* but in fact it must be Scots pine, *Pinus sylvestris* L., as this would be the only pine species growing in the area at the time) from Post-hole 1676 and Stake-hole 1697 may indicate that this wood species was also used for structural timbers. Hazel (again, identified simply as *Corylus*, but it must be *Corylus avellana* L.) charcoal was also frequently recorded from a variety of deposits within the building. The coppicing of hazel has been employed as a form of woodland management, to provide uniform timber for construction (of, for example, trackways, wattle fencing etc) since the Neolithic and is well documented from across the British Isles (see, for example, Caseldine 1988, Hillam *et al.* 1990, Rackham 1980, Taylor 1988). Mighall and Chambers (1995) have published three pollen diagrams for Snowdonia (North Wales) and have shown that, during the Neolithic period, the woodland of the area was characterised by high proportions of alder (*Alnus*), hazel (*Corylus*) and oak (*Quercus*), with lesser communities of birch (*Betula*) and pine (*Pinus*). Here then, as might be expected, the range of species identified within the charcoal assemblages reflects the availability of wood in the surrounding area and the selection of particular trees for timber.

The assemblages of plant remains recovered from each of the Late Neolithic pit groups were of rather similar composition, consisting largely of small quantities of unidentifiable charcoal. A few gave trace amounts of charred cereal grains which can be interpreted as food waste but were too few to provide an indication of their relative importance. Both of the identified species, barley and wheat, occur frequently at Neolithic sites in the British Isles (Greig 1991). Hazel was the wood species most frequently identified within the charcoal assemblages from the Late Neolithic pit groups and, as above, presumably derived from human exploitation of the local woodlands (see Mighall and Chambers 1995). The assemblages of identifiable remains were too small to provide any significant archaeobotanical information, but material submitted for radiocarbon dating (mostly fragments of charred hazelnut shell) did confirm Neolithic dates (ranging from around 3600 to 2200 BC) for these deposits.

Samples from the Bronze Age burnt mounds yielded very little evidence for crop plants or gathered foods. Occasional fragments of charred hazelnut shell and small numbers of charred remains of barley and emmer wheat were recorded from some of the contexts. Radiocarbon dating confirmed a Late Neolithic to Early Bronze Age date (clustered around 2400 to 2000 BC) for most of the mounds, but one (T6 Burnt Mound 6094) appears to be rather earlier (around 3300 BC) and at least two (T2 Burnt Mounds 2167 and 2287) somewhat later (around 1250 BC).

The recorded plant remains were in accord with Greig's synthesis of the archaeobotanical evidence for field crop plants from Bronze Age sites in the British Isles, which indicates that barley, emmer and spelt wheat were, in general, the most important cereals of the period (Greig 1991). These food remains were too few to be of any further interpretative value, however. In contrast, many of the burnt mound deposits were 'charcoal-rich', though the represented species were, again, restricted to just hazel and oak. The charcoal from the fills of burnt mound Pit 4208

(an irregular oval 'trough') was mostly in the form of 'slivers' of oak and probably originated from a timber structure associated with this feature. According to the pollen diagrams from Snowdonia (Mighall and Chambers 1995), woodland clearing (for fuel and timber and/or increased space for agriculture and settlement) in the Bronze Age increased the relative proportions of light-demanding wood species, such as alder, birch and hazel, and these were regularly associated with coppicing. It could be argued that this is reflected in the proportions of hazel and oak charcoal identified from these features, with hazel becoming (subjectively) more frequent and oak (generally) less so when compared with the assemblages from deposits associated with the Early Neolithic building. However, this could simply be a consequence of a requirement for the more extensive use of oak timbers within a structure as substantial as the Early Neolithic building.

The samples from the earth ovens produced rather little archaeobotanical evidence. There were a few charred food remains of grains of cereal crops (barley) and gathered resources (hazelnut shell fragments), and a little hazel charcoal to indicate human activity, but no assemblages of any significance. The results from radiocarbon dating indicated that some of the earth ovens (e.g. Earth Ovens 3133 and 6033) were contemporary with the Early Neolithic building and that others (e.g. Earth Ovens 1072, 1230 and 1510) were contemporary with the later (around 1100 BC) burnt mounds (e.g. T1 Burnt Mound 1097, T2 Burnt Mounds 2167 and 2287).

Overall, the assemblages of ancient plant remains recovered from deposits associated with Roundhouses B, C, D and H (which, together with Roundhouse A, form the Late Iron Age/Romano-British roundhouse settlement; Structures F and G may also be related, see below) showed a similar composition. Many consisted primarily of small quantities of fine unidentifiable charcoal, but there were some which gave larger quantities and larger fragments (though these were often still too poorly preserved for identification). The wood species that were identified were confined to hazel and oak; almost certainly originating in nearby woodland. Charred cereal grains of barley, emmer/spelt wheat (*Triticum dicoccum* Schübl./*T. spelta* L.), naked wheat, oat (*Avena*) and spelt wheat (*Triticum spelta* L.) were present in very small numbers, and probably reflect the range of cereals utilised at the site during this period of occupation – radiocarbon results dating this to between, approximately, 200 BC and 400 AD – but were too few for any more detailed analysis. Similarly, the small numbers of fragments of charred hazelnut probably represent the remains of a gathered food resource but were of no further interpretative value.

Structures F and G (possible Roundhouses) gave few interpretable remains. Charred, and most likely ancient, remains included a single cereal grain (emmer wheat) and a trace of gathered resources (one fragment of hazelnut). These, and occasional fragments of charcoal (mostly unidentifiable) were the only indicators of human activity recovered. Comparison of the radiocarbon dates obtained from remains from Structures F and G suggested that they slightly pre-date Roundhouses C and H; their use falling largely in the last third of the first millennium BC and extending into the first century AD (and perhaps the second).

The fifty-six samples from Roundhouse A were, in the main, similarly unproductive of interpretable assemblages of biological remains. Seven of the deposits yielded moderate charred cereal assemblages, however (Table XIV.6b). Unfortunately, the preservation of these botanical remains was rather poor and a relatively large portion (between 37 and 91%) of the cereal grains from each sample could not be identified to species or even genus level (see Figure XIV.1). Experiments by Boardman and Jones (1990) have shown that grains subjected to high temperatures with relatively good oxygenation exhibit gross deformation, 'puffing' and loss of surface detail, whereas slow charring in oxygen-deficient conditions produces grains the overall shape and surface details of which are well preserved. The high degree of distortion and poor preservation evinced by the remains would, therefore, indicate a high charring temperature and good oxygenation.

No radiocarbon dates were obtained from deposits other than those associated with the possible Corn Drier 3671, but, stratigraphically, Roundhouse A forms part of the Late Iron Age/Romano-British roundhouse settlement and hence is likely to be contemporary with Roundhouses B, C, D and H (see above). The cereal assemblages from Context 3517 (from a ?hearth) and Context 3569 (gully fill) were consistent with such a date. The most abundant crop plant was spelt wheat, with other cereals such as emmer wheat, naked wheat and rye (*Secale cereale* L.) present in small numbers (see Figure XIV.1). Archaeobotanical evidence indicates that spelt wheat was the main cereal crop of the British Isles at this time (Greig 1991, Van der Veen and O'Connor 1998). The botanical remains from the ?hearth (Context 3517) appear to have been charred (presumably accidental) by exposure to a fairly high temperature, and the low concentration of remains and mixture of crop taxa present implies waste disposal rather than an origin in a store of grain. In contrast, the relatively high proportion of chaff in the assemblage from the gully fill (Context 3569) can be interpreted as a by-product from a late stage of crop-processing (van der Veen and Jones 2006).

Remains from two of the four deposits related to the possible Corn Drier 3671 (Contexts 3669 and 3670) and from the nearby Post-hole 3717 (Context 3718) were sent for radiocarbon dating. Modelling of the results returned consistent results and suggested that the span of use of Corn Drier was 0-160 years (95% probability) and probably 0-90 years (68% probability) – estimated start 880-1160 AD (95% probability) and probably 1000-1130 AD (68% probability) and estimated end 1040-1350 AD (95% probability) and probably 1080-1240 AD (68% probability). Clearly this feature was of much later date than the use phase of Roundhouse A and this was reflected in a marked difference in the character of the cereal assemblages recovered.

Oat (*Avena*) was by far the most frequently recorded of the identifiable grains (see Figure XIV.2) in the deposits from Corn Drier 3671. Where floret bases were present, a precise identification to the cultivated species of oat, *Avena sativa* L., was possible; there were no indications of the presence of the wild form and it seems reasonable to assume that the vast majority (if not all) of the oat remains recorded were of the cultivated species. Other cereals such as barley, naked wheat and rye were identified, but only in low numbers.

Comparison with archaeobotanical data from other medieval sites in Gwynedd, and elsewhere in Wales, suggest that this is not unusual for the period and, indeed, may reflect the general case that oat was the main cereal of the time. An early medieval farmstead at Cefn Graeanog, Clynnog-fawr (Gwynedd) produced assemblages with oat as the main cereal (Hillman 1982) and, according to Jones and Milles (1984), a 15th century corn drying kiln at Collfryn, Llansantffraid Deuddr (Powys) also yielded an oat-dominated grain assemblage (with lesser components of emmer/spelt and naked wheat).

All of the wild plant species from the samples yielding the larger grain assemblages were common 'weeds' of cereal fields and almost certainly harvested accidentally together with the crop; an assertion strongly supported by their range and, in general, relative abundance in the corn drier deposits and scarcity in the other fills. The most numerous remains were of corn marigold (*Chrysanthemum segetum* L.) and brome (*Bromus*). Less common were cleavers (*Galium aparine* L.), knotweed (*Persicaria*), nipplewort (*Lapsana communis* L.), ribwort plantain (*Plantago lanceolata* L.), sheep's sorrel (*Rumex acetosella* L.), stinking chamomile (*Anthemis cotula* L.) and wild radish (*Raphanus raphanistrum* L.) – see Table 6b. Following the ecological indicator values of Ellenberg *et al*. (1992), corn marigold and sheep's sorrel suggest that the crops were grown in fields with acid and sandy soils.

The radiocarbon dates obtained from deposits associated with Roundhouse E showed two distinct phases of activity. Material from post-holes and other deposits directly related to the roundhouse itself returned Late Bronze Age/Iron Age dates in the range 780-220 BC. Dates obtained from two deposits with metalworking debris were much later and modelling of the results estimated the start of this activity at 480-650 AD (95% probability) and probably 570-640 AD (68% probability) and its end at 600-760 AD (95% probability) and probably 620-680 AD (68% probability). The duration of the dated metalworking activity was, therefore, estimated at 10-80 years (95% probability) and probably 10-40 years (68% probability); it should be noted that the small number of dates available may result in an overestimate of the duration, however.

All four of the larger grain assemblages from Roundhouse E consisted of reasonable quantities of remains (Table XIV.6h), but often these were so poorly preserved that they were could only be recorded as unidentified cereal grains (Cerealia indet.); as much as 61% of any one assemblage could not be identified more closely. Following Boardman and Jones (1990), the poor condition of the remains implied that the grains had become charred under similar conditions to those experienced by the Roundhouse A (including Corn Drier 3671) assemblages (i.e. high temperatures and well oxygenated). The composition of the identifiable fraction of all four cereal assemblages was quite similar (see Figure XIV.2) – containing barley, oat and naked wheat. This suggests that the undated assemblages (from hearth deposits Contexts 4307 and 4403) were contemporary with the dated metalworking hearths (Contexts 4179 and 4250) rather than the earlier use phase of the roundhouse itself.

Here a precise identification of the oat grains was not possible as the required diagnostic chaff was not present; though the presence of moderate assemblages *suggests* that they were more likely to be of the cultivated species. Similarly, it is not possible to differentiate between the hexaploid naked wheat, *Triticum aestivum* L., and the tetraploid forms, *T. durum* Desf. and *T. turgidum* L., on grains alone (Hillman *et al*. 1995, Jacomet 2006).

The assemblages are consistent with the Welsh 'early medieval' period. Barley (*Hordeum distichon* L./*H. vulgare* L.) was common and oat (*Avena sativa* L.) was 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, North Wales (Williams 1985).

All of the remains of wild plant taxa recorded were from 'weeds' of cultivated ground, especially nitrophiles such as members of the goosefoot (fat-hen – *Chenopodium album* L.) and knotweed (black-bindweed – *Fallopia convolvulus* (L.) Á. Löve, knotgrass – *Polygonum aviculare* L., knotweed) families (see Table 6h). These few remains almost certainly represent weeds of the cereal crops harvested accidentally along with them. The dearth of remains, together with the scarcity of cereal chaff, could suggest that the assemblages derive from the later stages of crop-processing or carefully cleaned stores of cereals (Jones 1984, Van der Veen 1992).

Very little vertebrate material was recovered from these excavations despite the extensive and systematic sampling of the deposits from this site. The largest accumulations came from deposits (mainly pit fills) associated with the Early Neolithic building, and in particular from Context 1327, the fill of a pit. However, only six of the deposits (Contexts 1327, 1389, 3142, 4108, 4307 and 9447) produced more than ten fragments and only one fragment from the entire assemblage could be identified to species (a horse tooth from near Burnt Mound 2031). In general, the fragments were small (many less than 10 mm) and mostly of reasonable preservation, but many of the fragments had rounded edges and surface erosion was common. For most of the bones, it was not possible to determine from which skeletal element they had originated.

All of the fragments, bar the horse tooth, were white in colour and had been calcined. This could indicate that the bones had been burnt at high temperatures of 800ºC or higher or that they had been subjected to prolonged exposure

to lower temperatures. However, other factors can also have an effect on bone colour, such as (amongst others) the position of the bones within the fire (Nicholson 1993), whether the bones have been stripped of soft tissue (McKinley and Bond 2001) or the availability of oxygen during burning. This last factor has recently been shown by Walker and Miller (2005) to be crucial to the chemical reactions that determine the colour of the bone.

As noted above, the only fragment identified to species was a single horse maxillary tooth, which, unfortunately, was recovered from an unstratified context near Burnt Mound 2031. Identification of other fragments was more problematic but, where some level of determination was possible, the remains represented animals of medium size, consistent with the bones of sheep/goat, pig or small cervid. The fragments (approximately 349) recovered from Context 1327 (a pit fill associated with the Early Neolithic building) were thought by the excavators to represent a human cremation. Although for the most part unidentifiable, this assemblage included fragments of possible horncore (although it could not be determined whether these represented large or medium-sized mammals) and none of the remaining fragments had the appearance of burnt human bone. Additionally, the rather rounded edges of the fragments and the high degree of fragmentation did not suggest that the bones had been immediately incorporated into the deposit from which they were recovered, something one would expect if the remains were those of a human cremation. Whyte (2001) suggested that burnt animal bone was more likely to be discarded in such a way that it was subjected to further disturbance, such as trampling, for example, and so further fragmentation would occur. None of the bones recovered from Context 1327, or from any of the other deposits, showed the characteristic cracks and splits normally associated with burnt human bones (Whyte *ibid*.). The presence of cremated human remains seems highly unlikely but, given the large proportion of unidentifiable fragments, it cannot be entirely ruled out.

It is likely that, regardless of date, most of the vertebrate remains represent animal bones discarded as food or butchery waste.

Recommendations

The small quantities of biological remains recovered from the samples should be retained as part of the physical archive for the site.

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Table XIV.1. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Biological remains recovered from samples from features associated with the early Neolithic building in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.

Key: Cont = context number; Sam = sample number; Subgroup = feature association within the structure; Bags = number of separate washover bags submitted; Wt = total weight of washover submitted (in grammes); Charcoal Ids = identified wood species present (if any); AMS = presence of remains considered good candidates for submission for radiocarbon dating via accelerator mass spectrometry (AMS), for example, charred grains or hazelnut shell fragments. In some instances no such material was identified within deposits for which it was nevertheless considered important that radiocarbon dating was attempted and, in these cases, charcoal from short-lived tree species (usually hazel) or unidentified wood of only a few years growth (twigs) was used.

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1216	42	Fill of pit 1249	Fill of pit 1249, located near the SE corner of building	2	111	some modern rootlets, a few earthworm egg capsules, six uncharred seeds of goosefoot (*Chenopodium*) - modern, fragments of charcoal (to 25 mm), 31 charred fragments of hazelnut shell, five charred cereal grains (three charred grains of emmer wheat (*Triticum dicoccum* Schübl.), one charred grain of naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.) and one charred unidentifiable cereal grain (poorly preserved)	oak (*Quercus*) – dominant, hazel (*Corylus*)	Yes
1255	40	Side walls	Fill of 1254, a post-hole forming part of the S wall of the building	2	84	five earthworm egg capsules, two uncharred seeds of goosefoot (*Chenopodium*) - modern, and some charcoal 'slivers' (to 20 mm)	probably oak (cf. *Quercus*)	No
1276	43	Side walls	Fill of 1277, a post-hole on the S wall of the building	1	556	mostly charcoal 'slivers' (to 20 mm)	probably oak (cf. *Quercus*)	No
1290	45	Others	Fill of 1291, a small post-hole, part of a partition across the E end of the building	2	39	undisaggregated sediment lumps (to 1 mm), modern rootlets, three earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*), mostly charcoal (to 10 mm), 24 charred fragments of hazelnut shell and one charred unidentifiable cereal grain (poorly preserved)	-	Yes
1293	51	Side walls	Primary fill of 1294, a post-hole on S wall of the building	1	438	mostly charcoal 'slivers' (to 45 mm)	probably oak (cf. *Quercus*)	No
1314	50	Burnt patch	Fill of burnt patch 1315, just inside possible doorway in SW corner of the Early Neolithic building	1	8	undisaggregated sediment lumps (to 1 mm), modern rootlets, two earthworm egg capsules, mostly charcoal (to 10 mm) and one charred grain of emmer wheat (*Triticum dicoccum* Schübl.)	-	Yes
1327	59	Others	Fill of pit 1328, located just outside the line of the E gable end of the building	1	10	undisaggregated sediment lumps (to 1 mm), modern rootlets and a few charcoal fragments (to 12 mm)	-	No
1327	60	Others	as above	1	3	undisaggregated sediment lumps (to 1 mm), modern rootlets and a few charcoal fragments (to 12 mm)	-	No
1336	58	Others	Fill of 1335, a small pit or post-hole inside E end of the Early Neolithic building	1	18	modern rootlets, two earthworm egg capsules, mostly charcoal (to 10 mm), two charred fragments of hazelnut shell and one charred grain of emmer wheat (*Triticum dicoccum* Schübl.)	-	Yes
1338	57	Others	Fill of 1337, on the line of the N aisle posts of the Early Neolithic building	2	28	a few earthworm egg capsules, three uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm) and 14 fragments of hazelnut shell	-	Yes
1340	61	Others	Fill of 1339, a small pit or post-hole inside the E end of the Early Neolithic building	2	98	a few modern rootlets, one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) and four seeds of goosefoot *(Chenopodium)* - both uncharred and probably modern, mostly charcoal (to 20 mm) and 11 charred fragments of hazelnut shell	-	Yes
1369	62	Others	Upper fill of post-hole 1370, part of a partition across the E end of the Early Neolithic building	1	28	a few modern rootlets, three uncharred seeds of goosefoot (*Chenopodium*) - modern , mostly silty charcoal (to 15 mm), 17 charred fragments of hazelnut shell and one unidentifiable charred cereal grain (distorted and eroded)	-	Yes
1371	63	Others	Post-pipe within post-hole 1370, part of a	1	14	mostly charcoal (to 10 mm) and two charred fragments of hazelnut shell	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
			partition across the E end of the Early Neolithic building					
1378	67	Post-hole fill	Fill of 1377, a possible post-hole just E of the Early Neolithic building	1	4	mostly undisaggregated sediment lumps (to 1 mm), modern rootlets, one earthworm egg capsule, some charcoal (to 5 mm) and two charred fragments of hazelnut shell	-	Yes
1380	68	Pit fill	Fill of 1379, a possible post-hole, just E of the Early Neolithic building	1	7	mostly undisaggregated sediment lumps (to 1mm), one earthworm egg capsule and a few charcoal fragments (to 5 mm)	-	No
1382	65	Post-hole fill	Fill of 1381, a post-hole to the E of the Early Neolithic building	1	8	mostly undisaggregated sediment lumps (to 1mm), modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, a few charcoal fragments (to 5 mm) and two charred fragments of hazelnut shell	-	Yes
1384	66	Tree hollow	Fill of 1383	1	8	mostly undisaggregated sediment lumps, modern rootlets, one earthworm egg capsule, one uncharred seed of goosefoot (*Chenopodium*), probably modern, and a few charcoal fragments (to 5 mm)	-	No
1389	69	Post-hole fill	Upper part of the fill of post-hole 1406	1	2	three uncharred seeds of goosefoot (*Chenopodium*) – modern and a few charcoal fragments (to 5 mm)	-	No
1389	72	Post-hole fill	Upper part of the fill of post-hole 1406	1	23	small stones (to 5 mm), one earthworm egg capsule, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm) and 55 charred fragments of hazelnut shell	-	Yes
1389	73	Post-hole fill	Lower part of the fill of post-hole 1406	1	12	small stones (to 5 mm), mostly charcoal (to 13 mm) and eight charred fragments of hazelnut shell	-	Yes
1389	76	Post-hole fill	Upper part of the fill of post-hole 1406	1	43	one earthworm egg capsule, three uncharred seeds of goosefoot (*Chenopodium*) - modern, one uncharred insect fragment (an elytron - also modern), mostly charcoal (to 13 mm), 42 charred fragments of hazelnut shell and one charred nutlet of cleavers (*Galium aparine* L.)	-	Yes
1389	77	Post-hole fill	Lower part of the fill of post-hole 1406	1	11	modern rootlets, three earthworm egg capsules, three uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm) and two charred fragments of hazelnut shell	-	Yes
1389	81	Post-hole fill	Upper part of the fill of post-hole 1406	1	81	modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm) and 10 charred fragments of hazelnut shell	-	Yes
1389	91	Post-hole fill	Lower part of the fill of post-hole 1406	2	30	few modern rootlets, earthworm egg capsules, mostly charcoal (to 10 mm) and five charred fragments of hazelnut shell	-	Yes
1392	78	Others	Fill of pit 1393, on the line of the gable end of the Early Neolithic building	1	13	undisaggregated sediment lumps (to 1 mm), modern rootlets, one earthworm egg capsule, mostly charcoal (to 14 mm) and two uncharred seeds of goosefoot (*Chenopodium*) – modern	-	No
1395	71	Post-hole fill	Fill of scoop/post-hole 1394. Probably part of a partition across W end of the Early Neolithic building	1	6	undisaggregated sediment lumps (to 1 mm), modern rootlets, one earthworm egg capsule, one uncharred seed of goosefoot (*Chenopodium*) - modern, charcoal (to 10 mm) and three charred fragments of hazelnut shell	-	Yes
1399	74	Post-hole fill	Fill of post-hole 1398, forms part of the N wall of the Early Neolithic building	1	10	undisaggregated sediment lumps (to 1 mm), a few modern rootlets and some charcoal fragments (to 10 mm)	-	No
1401	75	Post-hole fill	Fill of post-hole 1400, forms part of the N wall of the Early Neolithic building	1	4	very sandy, mostly modern rootlets, three uncharred seeds of goosefoot (*Chenopodium*) – modern, and a few charcoal fragments (to 10 mm)	-	No
1405	79	Post-hole 1406	Post-pipe within post-hole 1406, one of the main aisle posts	2	109	modern rootlets, two earthworm egg capsules, three uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 18 mm), 81 charred fragments of hazelnut shell and one unidentifiable charred cereal grain (poorly preserved)	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1442	82	Post trench 1404	Lower fill of post trench 1404, inside E gable end of the Early Neolithic building	3	103	undisaggregated sediment lumps (to 1 mm), a few small stones (to 10 mm), a few modern rootlets, two uncharred insect remains (elytra - also modern), six earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 20 mm) and one charred fragment of hazelnut shell	oak (*Quercus*) – dominant, hazel (*Corylus*)	Yes
1443	83	Post trench 1404	Upper fill of post trench 1404, inside E gable end of the Early Neolithic building	1	247	modern rootlets, two earthworm egg capsules, five uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal 'slivers' (to 30 mm), nine charred fragments of hazelnut shell, one charred fruit stone of blackberry (*Rubus fruticosus* L. agg.) and two charred grains of emmer wheat (*Triticum dicoccum* Schübl.)	oak (*Quercus*) – dominant, hazel (*Corylus*)	Yes
1444	84	Post trench 1404	Lower fill of post trench 1404, inside E gable end of the Early Neolithic building	2	144	a few modern rootlets, several earthworm egg capsules, three uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 20 mm) and seven charred fragments of hazelnut shell	oak (*Quercus*) – dominant, hazel (*Corylus*)	Yes
1445	85	Post trench 1404	Possible post-pipe within post trench 1404, inside E gable end of the Early Neolithic building	1	168	mostly charcoal 'slivers' (to 25 mm) and one charred fragment of hazelnut shell	oak (*Quercus*) – dominant, hazel (*Corylus*)	Yes
1445	86	Post trench 1404	as above	1	70	two uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal 'slivers' (to 15 mm), two charred fragments of hazelnut shell, one charred glume base of emmer wheat (*Triticum dicoccum* Schübl.) and two charred grains of emmer wheat (*Triticum dicoccum* Schübl.)	oak (*Quercus*) – dominant, hazel (*Corylus*)	Yes
1486	88	Gable ends - E end	Possible post-pipe within post-hole 1483, one of the E gable posts of the Early Neolithic building	1	14	a few modern rootlets, one earthworm egg capsule, two uncharred seeds of goosefoot (*Chenopodium*) - modern, three charred fragments of hazelnut shell and one charred nutlet of cleavers (*Galium aparine* L.)	-	Yes
1496	89	Gable ends - E end	Primary fill of post-hole 1495, one of the E gable posts in the Early Neolithic building	2	113	undisaggregated sediment lumps (to 4 mm), a lttle coal, a few modern rootlets, four uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal 'slivers' (to 15 mm), 11 charred fragments of hazelnut shell and four charred unidentifiable cereal grains (eroded and distorted)	-	Yes
1513	95	Post-hole 1532	Packing around post-pipes 1533 and 1570, within post-hole 1532, one of the main aisle posts	1	20	modern rootlets, two earthworm egg capsules, mostly charcoal (to 10 mm), 26 charred fragments of hazelnut shell and one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.)	-	Yes
1516	92	Gable ends - E end	Fill of 1515, a post-hole within post trench 1505, with evidence of burning, though not *in situ*.	1	37	modern rootlets, a few earthworm eggs, two uncharred seed of goosefoot (*Chenopodium*) - modern, one uncharred arthropod remain (modern), mostly charcoal (to 15 mm) and three charred fragments of hazelnut shell	oak (*Quercus*) – dominant, hazel (*Corylus*)	Yes
1522	96	Post-hole 1532	Fill of post-pipe 1533, within post-hole 1532, one of the main aisle posts	2	53	a few modern rootlets, mostly charcoal (to 10 mm), 10 fragments of charred hazelnut shell and eight charred cereal grains (poorly preserved)	-	Yes
1526	94	Post-hole 1519	Fill of post-pipe 1525, within 1519, one of the main aisle posts of the Early Neolithic building	1	54	a few modern rootlets, few earthworm egg capsules, mostly charcoal (to 15 mm) and 11 charred fragments of hazelnut shell	-	Yes
1549	97	Gable ends - W end	Primary fill of possible post trench 1548, just inside the W gable end of the Early Neolithic building	1	15	undisaggregated sediment lumps (to 1 mm), modern rootlets, four earthworm egg capsules, three uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 13 mm)	-	No
1552	98	Post-hole 1539	Fill of post-pipe 1551, within post-hole 1539, one of the main aisle posts in the Early Neolithic building	1	14	modern rootlets, a few earthworm egg capsules, mostly charcoal (to 15 mm) and one charred fragment of hazelnut shell	-	Yes
1555	101	Others	Fill of 1556, the partition slot in the middle	1	5	undisaggregated sediment lumps (to 1 mm), modern rootlets, mostly charcoal (to 5	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
			of the Early Neolithic building			mm) and two charred fragments of hazelnut shell		
1569	107	Early Neolithic building	Fill of the second post-pipe within post-hole 1532, one of the main aisle posts	1	60	a few modern rootlets, mostly charcoal 'slivers' (to 15 mm), nine charred fragments of hazelnut shell and one charred grain of naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.)	oak (*Quercus*)	Yes
1571	108	Post-hole 1572	Secondary fill of post-hole 1572, forming part of the S wall of the Early Neolithic building	1	6	modern rootlets, four earthworm egg capsules, mostly charcoal (to 10 mm) and three charred fragments of hazelnut shell	-	Yes
1571	110	Post-hole 1572	as above	1	22	modern rootlets, mostly charcoal (to 20 mm) and one charred fragment of hazelnut shell	-	Yes
1574	119	Post-hole 1572	Fill of post-hole 1573, with a post-pad at the base	1	2	mostly charcoal (to 5mm)	-	No
1587	111	Post-hole 1572	Fill of post-hole 1572, forming part of the S wall of the Early Neolithic building	1	44	modern rootlets, a few earthworm egg capsules, one uncharred seed of goosefoot *(Chenopodium)* - modern, and mostly charcoal fragments (to 20 mm)	-	No
1608	121	Others	Fill of post-hole 1609, related to the partition slot across the middle of the Early Neolithic building	1	26	undisaggregated sediment lumps (to 1 mm), modern rootlets, two earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm) and 17 charred fragments of hazelnut shell	-	Yes
1610	122	Others	Fill of slot 1611, part of the partition slot across middle of the Early Neolithic building	2	13	a few modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 12 mm) and three charred fragments of hazelnut shell	-	Yes
1612	123	Post-hole 1613	Upper fill of post-hole 1613, on the S wall of the Early Neolithic building	1	68	modern rootlets, one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) and one seed of goosefoot (*Chenopodium*) - both uncharred, probably modern, mostly charcoal (to 15 mm) and one charred fragment of hazelnut shell	-	Yes
1614	124	Post-hole 1613	Fill of post-pipe 1615, within post-hole 1613, on the S wall of the Early Neolithic building	1	59	few modern rootlets, mostly charcoal (to 20 mm)	-	No
1622	199	Fill of Pit 1619	Primary fill of large pit 1619, to the W of the Early Neolithic building	1	3	mostly modern rootlets, a few charcoal fragments (to 10 mm) and one charred unidentifiable cereal grain (poorly preserved)	-	Yes
1623	200	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	1	11	a few modern rootlets and earthworm egg capsules, mostly charcoal (to 13 mm)	-	No
1624	197	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	1	28	mostly rounded concreted ash and clay lumps (to 10 mm), a few modern rootlets and a few fragments of charcoal (to 5 mm)	-	No
1625	203	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	1	13	mostly undisaggregated sediment lumps (to 20 mm), a few modern rootlets and a little charcoal (to 10 mm)	-	No
1626	195	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	1	7	undisaggregated sediment lumps (to 1 mm), modern rootlets and a few charcoal fragments (to 5 mm)	-	No
1627	196	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	1	4	mostly undisaggregated sediment lumps (to 2 mm), a few modern rootlets and a little charcoal (to 10 mm)	-	No
1628	194	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early	1	10	a few rounded concreted ash and clay lumps (to 5 mm), modern rootlets and charcoal	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
			Neolithic building. Deliberate dump of clay			(to 10 mm)		
1630	198	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	1	5	undisaggregated sediment lumps (to 1mm), modern rootlets, mostly charcoal (to 10 mm) and one charred fragment of hazelnut shell	-	Yes
1631	126	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	2	154	undisaggregated sediment lumps (to 40 mm), a few modern rootlets, three earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 20 mm) and one charred fragment of hazelnut shell	-	Yes
1631	204	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	2	175	a few modern rootlets and earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 30 mm) and one charred fragment of hazelnut shell	-	Yes
1632	202	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	1	23	few undisaggregated sediment lumps (to 2 mm), modern rootlets, one earthworm egg capsule and mostly charcoal (to 10 mm)	-	No
1633	201	Fill of Pit 1619	Fill of 1619, large pit to the W of the Early Neolithic building. Deliberate dump of clay	2	36	mostly undisaggregated sediment lumps (to 25 mm), a few modern rootlets and a little charcoal (to 10 mm)	-	No
1635	131	Post-hole 1613	Fill of 1636, a short slot on the S wall of the Early Neolithic building	1	8	mostly undisaggregated sediment lumps (to 1mm), a few modern rootlets, two earthworm egg capsules, mostly charcoal (to 10mm) and one charred fragment of hazelnut shell	-	Yes
1648	129	Pit fill	Primary fill of possible pit 1647, located to the NW of the Early Neolithic building.	1	40	a few modern rootlets, mostly charcoal (to 15 mm) and 75 charred fragments of hazelnut shell	-	Yes
1649	130	Slot fill	Fill of post-hole/slot 1636, on the S wall of the Early Neolithic building	1	17	small stones (to 10 mm), three earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm) and one charred fragment of hazelnut shell	-	Yes
1654	136	Slot fill	Fill of post-hole/slot 1636, on the S wall of the Early Neolithic building	1	5	undisaggregated sediment lumps (to 1 mm), modern rootlets and a few charcoal fragments (to 5 mm)	-	No
1655	184	Post-hole 1657	Secondary fill of post-hole 1656, SE corner post of the Early Neolithic building	1	76	mostly charcoal 'slivers' (to 30 mm)	-	No
1661	137	Pit fill	Fill of pit 1662, immediately to the W of the Early Neolithic building.	1	6	modern rootlets and mostly charcoal (to 5 mm)	-	No
1663	138	Pit fill	Fill of pit 1664, lies immediately to the W of the Early Neolithic building and cut by 1662.	2	23	modern rootlets, six earthworm egg capsules, two uncharred seeds of goosefoot (*Chenopodium*), mostly charcoal (to 10 mm) and two charred fragments of hazelnut shell	-	Yes
1665	133	Line of posts	Fill of post-hole 1666, one of a line of three to the W of the Early Neolithic building	1	20	a few modern rootlets, five uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm), one charred seeds of sun spurge (*Euphorbia helioscopia* L.), one charred achene of knotweed (*Persicaria*), one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.), two charred grains of naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.), two charred grains of emmer wheat (*Triticum dicoccum* Schübl.) and four charred unidentifiable cereal grains (distorted and eroded)	-	Yes
1670	147	Old ground surface/occupa	A deposit within natural hollow 1669. This is probably a Neolithic occupation layer or	5	160	undisaggregated sediment lumps (to 3 mm), modern rootlets, 22 earthworm egg capsules, five seeds of goosefoot (*Chenopodium*) and one fruit stone of raspberry (*Rubus idaeus* L.) - all uncharred and modern, mostly charcoal (to 15 mm), nine	oak (*Quercus*) – dominant, hazel	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
		tion layer	old ground surface			charred fragments of hazelnut shell and two charred unidentifiable cereal grains (poorly preserved)	(*Corylus*)	
1673	142	Post-hole fill	Upper fill of post-hole 1676, on the N wall of the Early Neolithic building	2	24	a few modern rootlets and mostly charcoal (to 15 mm)	pine (*Pinus*) – dominant, hazel (*Corylus*)	No
1674	143	Post-hole fill	Fill of post-hole 1676, on the N wall of the Early Neolithic building. Evidence of *in situ* burning	2	11	a few modern rootlets, mostly charcoal (to 10 mm) and three charred fragments of hazelnut shell	-	Yes
1680	141	Pit/posthole fill	Fill of pit/post-hole 1681, part of a line of slight features to the W of the Early Neolithic building	1	3	mostly undisaggregated sediment lumps (to 2 mm), a few modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and some tiny charcoal fragments (to 5 mm)	-	No
1683	146	Post-hole 1682/1684	Fill of post-hole 1682, NW corner post of the Early Neolithic building	2	10	a few modern rootlets and earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) – modern and mostly charcoal (to 15 mm)	-	No
1685	148	Post-hole 1682/1684	Fill of post-hole 1684, NW corner post of the Early Neolithic building	1	8	undisaggregated sediment lumps (to 1mm), modern rootlets, one earthworm egg capsule and mostly charcoal (to 10 mm)	-	No
1692	150	Cut/fill	Small curvilinear feature, possibly resulting from animal or root disturbance. Located just W of the Early Neolithic building	1	17	a few undisaggregated sediment lumps (to 1 mm), modern rootlets, mostly charcoal (to 15 mm), seven charred fragments of hazelnut shell and one charred grain of emmer wheat (*Triticum dicoccum* Schübl.)	hazel (*Corylus*) – dominant, oak (*Quercus*)	Yes
1696	152	Stake-hole fill	Fill of stake-hole 1697, part of a group near the NE corner of the Early Neolithic building.	1	7	a few modern rootlets and mostly charcoal (to 13 mm)	pine (*Pinus*)	No
1700	155	Old ground surface/occupation layer	Part of Neolithic occupation layer or old ground surface preserved in a natural hollow	1	28	modern rootlets, seven earthworm egg capsules, mostly charcoal (to 8 mm) and one charred fragment of hazelnut shell	-	Yes
1703	153	Old ground surface/occupation layer	Secondary fill of post-hole 1704, one of a line of three to the W of the Early Neolithic building	1	10	mostly charcoal (to 10 mm), six charred fragments of hazelnut shell and three charred unidentifiable cereal grains (poorly preserved)	-	Yes
1708	156	Line of posts	Primary fill of post-hole 1704, one of a line of three to the W of the Early Neolithic Building	1	38	a few modern rootlets, mostly charcoal (to 10 mm), 24 charred fragments of hazelnut shell and two charred grains of emmer wheat (*Triticum dicoccum* Schübl.)	-	Yes
1709	176	Post-hole 1691	Fill of robbed out post-pipe 1707, within post-hole 1691, one of the main W gable end posts in the Early Neolithic building	1	21	modern rootlets and mostly charcoal (to 20 mm)	-	No
1713	159	Old ground surface/occupation layer	Part of Neolithic occupation layer or old ground surface preserved in a natural hollow	3	197	undisaggregated sediment lumps (to 5 mm), a few modern rootlets, 36 earthworm egg capsules, 13 uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 20 mm) and five charred fragments of hazelnut shell	-	Yes
1717	161	Post-hole 1656	Small patch of burnt clay in the top of possible post-pipe 1652 within post-hole 1656, SE corner post-hole in the Early Neolithic building	1	8	undisaggregated sediment lumps (to 1 mm), a few modern rootlets and charcoal (to 10 mm)	-	No
1718	163	Hollow fill	Fill of 1719, a small shallow feature to the W of the Early Neolithic building	1	1	mostly undisaggregated sediment lumps (to 1 mm), modern rootlets and a few charcoal fragments (to 5 mm)	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1722	180	Post-hole 1691	Fill of post-hole 1691, one of the main W gable end posts in the Early Neolithic building	1	12	modern rootlets, two earthworm egg capsules, five seeds of goosefoot (*Chenopodium*), one seed of chickweed (*Stellaria media* (L.) Vill.) - all uncharred and modern, and mostly charcoal (to 15 mm)	-	No
1723	179	Post-hole 1691	Fill of post-hole 1691, one of the main W gable end posts in the Early Neolithic building	1	27	undisaggregated sediment lumps (to 1 mm), modern rootlets, seven earthworm egg capsules, one uncharred insect remain (elytra - probably modern), one modern uncharred leaf fragment (10 mm x 10 mm), four uncharred seeds of goosefoot (*Chenopodium*) - modern, some charcoal (to 10 mm), one charred grain of naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.) and one charred unidentifiable cereal grain (distorted and eroded)	-	Yes
1728	211	Occupation to the W of the Early Neolithic building	Fill of possible beam slot 1727	1	5	mostly undisaggregated sediment lumps (to 1 mm), some modern rootlets, two earthworm egg capsules, three uncharred seeds of goosefoot (*Chenopodium*) – modern and a few charcoal fragments (to 5 mm)	-	No
1730	171	Pit fill	Fill of pit 1729, to the W of the Early Neolithic building	1	62	a few modern rootlets, two earthworm egg capsules, mostly charcoal (to 20 mm), six charred fragments of hazelnut shell, one charred grain of emmer wheat (*Triticum dicoccum* Schübl.), one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.) and two charred unidentifiable cereal grains (distorted and eroded)	oak (*Quercus*) – dominant, hazel (*Corylus*)	Yes
1731	177	Post-hole 1691	Fill of robbed out post-pipe 1707, within post-hole 1691, one of the main W gable end posts in the Early Neolithic building	1	60	a few modern rootlets and earthworm egg capsules and mostly charcoal (to 20 mm)	oak (*Quercus*)	No
1739	210	Pit with large Early Neolithic rim sherd	Fill of ditch/hollow 1738, which lies nearly 9 m SW of the Early Neolithic building	2	55	modern rootlets, 21 earthworm egg capsules and mostly charcoal (to 20 mm)	hazel (*Corylus*) – dominant, oak (*Quercus*)	No
1740	181	Post-hole 1691	Probably represents one stage in backfilling of post-hole 1691, one of the main W gable end posts	1	16	slightly sandy, modern rootlets, two earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) – modern, and charcoal (to 20 mm)	-	No
1741	178	Post-hole 1691	Construction fill around packing and post in post-hole 1691	1	33	modern rootlets, one modern uncharred budscale, one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) and three seeds of goosefoot *(Chenopodium)* - both uncharred and probably modern, mostly charcoal (to 25 mm), one charred fragment of hazelnut shell and one charred grain of emmer wheat (*Triticum dicoccum* Schübl.)	oak (*Quercus*)	Yes
1758	187	Old ground surface/occupation layer	May be a preserved ground surface	1	9	modern rootlets, two earthworm egg capsules, four uncharred seeds of goosefoot (*Chenopodium*) – modern, and charcoal (to 10 mm)	-	No
1762	209	Slot 1690	Fill of slot 1690, between the two W gable end posts in the Early Neolithic building	1	40	undisaggregated sediment lumps (to 1 mm), modern rootlets, four earthworm egg capsules, three uncharred seeds of goosefoot (*Chenopodium*) - modern, charcoal (to 14 mm) and three tiny charred fragments of hazelnut shell	-	Yes
1769	208	Post-hole 1689	Fill of post-pipe 1771, in post-hole 1689, one of the main W gable end posts in the Early Neolithic building	1	31	undisaggregated sediment lumps (to 1 mm), modern rootlets, five earthworm egg capsules, three uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 12 mm) and one charred fragment of hazelnut shell	-	Yes
1775	193	Post-hole?	Fill of possible post-hole 1774, just inside W gable end of the Early Neolithic building	1	2	mostly charcoal (to 10 mm)	-	No
1776	191	Line of posts	Fill of post-pipe 1777, within post-hole	1	2	a few undisaggregated sediment lumps (to 1mm), modern rootlets and charcoal (to 10	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
			1779, one of three in a line W of the Early Neolithic building			mm)		
1778	192	Line of posts	Packing material within post-hole 1779, one of three in a line W of the Early Neolithic building	1	2	a few undisaggregated sediment lumps (to 1mm), modern rootlets, three earthworm egg capsules, charcoal (to 5 mm) and one charred fragment of hazelnut shell	-	Yes
1782	206	Post-hole 1689	Lower construction fill of post-hole 1689, one of the main W gable end posts in the Early Neolithic building	1	6	modern rootlets, one uncharred culm fragment (to 30 mm) – modern and mostly charcoal (to 8 mm)	-	No
1783	207	Post-hole 1689	Upper construction fill of post-hole 1689, one of the main W gable end posts in the Early Neolithic building	1	5	modern rootlets, four earthworm egg capsules, one uncharred of goosefoot (*Chenopodium*) – modern, and charcoal (to 9 mm)	-	No

Tables XIV.2a to 2h. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Biological remains recovered from samples from features associated with the late Neolithic pit groups in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating.
Key: see Table 1.

XIV.2a) Pit Group I

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1010	52	Pit group I	Fill of 1010	1	15	modern rootlets, earthworm egg capsules, a few uncharred seeds of goosefoot (*Chenopodium*) – modern and mostly charcoal (to 18 mm)	-	No
1026	2	Pit group I	Fill of small pit 1027	2	170	one earthworm egg capsule, one uncharred achene of dock (*Rumex*) - modern, mostly charcoal (to 22 mm) and more than 10 charred fragments of hazelnut shell	-	Yes
1031	3	Pit group I	Fill of small pit 1032	1	22	undisaggregated sediment lumps (to 15 mm), modern rootlets, a few earthworm egg capsules, mostly charcoal (to 19 mm) and more than 20 charred fragments of hazelnut shell	-	Yes
1035	4	Pit group I	Fill of small pit 1036	4	180	modern rootlets, few earthworm egg capsules, few uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm) and more than 100 charred fragments of hazelnut shell	-	Yes
1048	6	Pit group I	Fill of small pit 1049. Near to pits 1036 and 1052	4	166	modern rootlets, slightly sandy, few earthworm egg capsules, one seed of goosefoot (*Chenopodium*) and one achene of knotweed (*Persicaria*) - both uncharred and modern, charcoal (to 10 mm) and more than 100 charred fragments of hazelnut shell	-	Yes
1051	8	Pit group I	Fill of small, shallow pit 1052	2	41	a few earthworm egg capsules, mostly charcoal (to 15 mm) and 13 charred fragments of hazelnut shell	-	Yes
1092	15	Pit group I	Upper fill of pit 1094	1	16	mostly charcoal (to 20 mm)	-	No
1092	24	Pit group I	as above	1	80	a few earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm) and four charred fragments of hazelnut shell	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1095	16	Pit group I	Fill of 1096	1	16	mostly fragments of charcoal (to 10 mm)	-	No
1095	30	Pit group I	as above	1	13	mostly fragments of charcoal (to 18 mm)	-	No
1257	41	Pit group I	Fill of truncated pit 1258	1	25	a few earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm) and 40 charred fragments of hazelnut shell	-	Yes
1303	46	Pit group I	Fill of pit 1321, cut by both pit 1258 and ditch 1034	1	18	one earthworm egg capsule, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm) and 13 charred fragments of hazelnut shell	-	Yes
1375	64	Pit group I	Fill of 1376, a rather irregular linear cut filled with burnt clay	1	20	two earthworm egg capsules, mostly charcoal (to 15 mm) and one charred fragment of hazelnut shell	-	Yes

XIV.2b) Pit Group II

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
4013	304	Pit group II	Upper fill of pit 4012	3	59	one earthworm egg capsule, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly fragments of charcoal (to 10 mm), more than 100 charred fragments of hazelnut shell, one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.) and one charred cereal grain (poorly preserved, unidentifiable)	-	Yes
4014	305	Pit group II	Main fill of pit 4012, very similar to 4022 within 4021 nearby	3	73	mostly fragments of charcoal (to 15 mm) and more than 100 charred fragments of hazelnut shell	-	Yes
4014	711	Pit group II	as above	1	10	charcoal fragments (to 20 mm)	-	No
4015	302	Pit group II	Fill of pit 4016	1	50	undisaggregated sediment lumps, mostly charcoal (to 10 mm) and 12 charred fragments of hazelnut shell	-	Yes
4017	308	Pit group II	Fill of pit 4018	1	3	four earthworm egg capsules, two uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm) and two charred fragments of hazelnut shell	-	Yes
4019	309	Pit group II	Fill of pit 4020	4	325	two seeds of goosefoot (*Chenopodium*) and two florescences of the grass family (Poaceae) - both uncharred and probably modern, mostly charcoal (to 15 mm) and more than 100 charred fragments of hazelnut shell	-	Yes
4022	306	Pit group II	Fill of pit 4021}	4	94	a few earthworm egg capsules, one seed of goosefoot (*Chenopodium*), one nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.) and one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and probably modern, mostly charcoal (to 18 mm) and more than 50 charred fragments of hazelnut shell	-	Yes
4025	309	Pit group II	Fill of small pit 4024	1	7	undisaggregated sediment lumps, one florescence of the grass family (Poaceae) – uncharred and modern and a few small fragments of charcoal	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
4048	310	Pit group II	Fill of pit 4049	2	57	undisaggregated sediment lumps, two earthworm egg capsules, a few small fragments of charcoal and more than 100 charred fragments of hazelnut shell	-	Yes

XIV.2c) Pit Group III

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
4061	323	Pit group III	Main fill of pit 4062, stained grey at the edges by the burnt deposit 4067 below	2	77	six earthworm egg capsules, two seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm) and more than 50 charred fragments of hazelnut shell	-	Yes
4067	324	Pit group III	Lower, charcoal-rich fill of pit 4062	1	34	mostly fragments of charcoal (to 14 mm) and 20 pieces of charred hazelnut shell	-	Yes
4068	311	Pit group III	Fill of 4069	5	130	one earthworm egg capsule, two seeds of goosefoot (*Chenopodium*), black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) and elder (*Sambucus nigra* L.) - all uncharred and modern, mostly charcoal (to 15 mm) and more than 100 charred fragments of hazelnut shell	-	Yes
4093	312	Pit group III	Fill of pit 4092, contained lots of Neolithic impressed/grooved ware	1	40	undisaggregated sediment lumps, mostly modern rootlets, six earthworm egg capsules, twelve seeds of goosefoot (*Chenopodium*) and two achenes of fumitory (*Fumaria*) - all uncharred and modern, charcoal (to 10 mm) and nine charred fragments of hazelnut shell	-	Yes

XIV.2d) Pit Group IV

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
4099	313	Pit group IV	Fill of pit 4100	4	86	mostly modern rootlets, two earthworm egg capsules, four modern seeds of goosefoot (*Chenopodium*), some fragments of charcoal (to 15 mm) and more than 100 charred fragments of hazelnut shell	hazel (*Corylus*)	Yes
4101	314	Pit group IV	Lower fill of 4100	2	14	modern rootlets, four earthworm egg capsules, mostly charcoal (to 15 mm) and more than 100 charred fragments of hazelnut shell	hazel (*Corylus*) – dominant, oak (*Quercus*)	Yes
4102	332	Pit group IV	Lower fill of pit 4103	5	147	mostly charcoal (to 20 mm), more than 50 charred fragments of hazelnut shell	hazel (*Corylus*), oak (*Quercus*)	Yes
4104	331	Pit group IV	Upper fill of 4103	2	96	some undisaggregated sediment lumps, mostly charcoal (15 mm) and more than 10 charred fragments of hazelnut shell	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
4105	327	Pit group IV	May be two phases of slumping as in the section it lies over and under 4102	1	62	some undisaggregated sediment lumps, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm) and four charred fragments of hazelnut shell	-	Yes
4107	325	Pit group IV	Upper fill of pit 4109	7	186	undisaggregated sediment lumps, few modern rootlets, few earthworm egg capsules, two uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm) and more than 100 fragments of charred hazelnut shell	hazel (*Corylus*)	Yes
4108	326	Pit group IV	Lower fill of pit 4109	4	211	few modern rootlets, few earthworm egg capsules, two seeds of goosefoot (*Chenopodium*) and elder (*Sambucus nigra* L.) - all uncharred and probably modern, and more than 100 charred fragments of hazelnut shell	hazel (*Corylus*)	Yes

XIV.2e) Pit Group V

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
4126	328	Pit group V	Fill of 4127	1	32	mostly undisaggregated sediment lumps, modern rootlets, 17 earthworm egg capsules, five seeds of goosefoot (*Chenopodium*), two achenes of fumitory (*Fumaria*) and one seed of elder (*Sambucus nigra* L.) - all uncharred and modern, and fragments of charcoal (to 8 mm)	-	No
4132	329	Pit group V	Upper fill of 4133	1	151	a few modern rootlets, four earthworm egg capsules, one fly puparia, mostly charcoal (to 10 mm) and more than 100 charred fragments of hazelnut shell	-	Yes
4147	330	Pit group V	Lowest fill of isolated pit 4133	4	547	a few modern rootlets, mostly charcoal fragments (to 18 mm) and more than 100 charred fragments of hazelnut shell	hazel (*Corylus*) – dominant, oak (*Quercus*)	Yes
4149	340	Pit group V	Fill of isolated pit 4133	2	187	mostly charcoal (to 15 mm) and more than 100 charred fragments of hazelnut shell	-	Yes
4149	708	Pit group V	Fill of isolated pit 4133, charcoal from prehistoric pot (SF568)	1	12	few charcoal (to 10 mm) and 11 charred fragments of hazelnut shell	-	Yes
4149	712	Pit group V	Fill of isolated pit 4133	1	13	charcoal (to 10 mm) and more than 100 charred fragments of hazelnut shell	-	Yes
4149	715	Pit group V	as above	2	4	21 charred fragments of hazelnut shell	-	Yes
4161	364	Pit group V	Deposit overlying large pot sherd (SF558) in pit 4133	1	6	mostly charcoal (to 10 mm) and more than 50 charred fragments of hazelnut shell	-	Yes

XIV.*2f) Pit Group VI*

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
6005	628	Pit group VI	Fill of pit 6041	1	9	mostly modern rootlets, one earthworm egg capsule, three uncharred seeds of goosefoot (*Chenopodium*) - modern, a few charcoal fragments (to 10 mm) and five charred fragments of hazelnut shell	-	Yes
6006	607	Pit group VI	Fill of pit 6041	1	30	mostly modern rootlets, two earthworm egg capsules, two uncharred seeds of goosefoot (*Chenopodium*), some fragments of charcoal (to 10 mm) and more than 10 charred fragments of hazelnut shell	-	Yes
6006	627	Pit group VI	as above	4	88	undisaggregated sediment lumps, mostly modern rootlets, five earthworm egg capsules, ten uncharred seeds of goosefoot (*Chenopodium*) and one fruit stone of raspberry (*Rubus idaeus* L.) - all uncharred and modern, mostly charcoal (to 20 mm) and more than 20 charred fragments of hazelnut shell	hazel (*Corylus*) – dominant, oak (*Quercus*)	Yes
6042	626	Pit group VI	Fill of pit 6043	3	133	mostly modern rootlets, four earthworm egg capsules, five seeds of goosefoot (*Chenopodium*) and one nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.) - all uncharred and modern, mostly charcoal (to 20 mm) and more than 20 charred fragments of hazelnut shell	hazel (*Corylus*)	Yes
6048	640	Pit group VI	Fill of pit 6047	2	25	undisaggregated sediment lumps, mostly modern rootlets, one earthworm egg capsule and charcoal (to 10 mm)	-	No
6054	641	Pit group VI	Fill of pit 6055	1	20	mostly modern rootlets, three earthworm egg capsules, two uncharred seeds of goosefoot (*Chenopodium*) – modern and charcoal (to 10 mm)	-	No
6060	642	Pit group VI	Fill of pit 6061	1	12	undisaggregated sediment lumps, mostly modern rootlets, three uncharred seeds of goosefoot (*Chenopodium*) – modern, charcoal (to 10 mm) and two charred fragments of hazelnut shell	-	Yes
6063	645	Pit group VI	Upper fill of pit 6044	2	10	mostly modern rootlets, five earthworm egg capsules, three seeds of goosefoot (*Chenopodium*) and seed of cabbage/mustard (*Brassica/Sinapis*) - all uncharred and modern, and a little charcoal (to 5 mm)	-	No
6064	646	Pit group VI	Lower fill of 6044	2	2	modern rootlets, two uncharred seeds of goosefoot (*Chenopodium*) – modern, and a little charcoal (to 5 mm)	-	No
6065	644	Pit group VI	Deposit overlying pit 6044	3	355	undisaggregated sediment lumps, slightly sandy, mostly modern rootlets, four uncharred seeds of goosefoot (*Chenopodium*) – modern, and mostly charcoal (to 20 mm)	hazel (*Corylus*), oak (*Quercus*) – dominant and pine (*Pinus*)	No
6066	651	Pit group VI	Upper fill of pit 6072	4	76	undisaggregated sediment lumps, mostly modern rootlets, six seeds of goosefoot (*Chenopodium*) and one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, charcoal (to 15 mm) and more than 50 charred fragments of hazelnut shell	hazel (*Corylus*)	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
6066	653	Pit group VI	as above	3	146	mostly modern rootlets, nine earthworm egg capsules, fifteen seeds of goosefoot (*Chenopodium*), two nuts of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.), two achenes of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), one seed of the pea family (Fabaceae) - all uncharred and modern, charcoal (to 10 mm), more than 100 charred fragments of hazelnut shell	-	Yes
6073	656	Pit group VI	Fill of pit or possible post-hole 6072	5	92	mostly modern rootlets, eleven earthworm egg capsules, nineteen seeds of goosefoot (*Chenopodium*),one seed of pea family (Fabaceae) and one leaf fragment - all uncharred, modern, mostly charcoal (to 15 mm) and more than 100 charred fragments of hazelnut shell	hazel (*Corylus*)	Yes
6077	658	Pit group VI	Upper fill of 6076	2	40	undisaggregated sediment lumps, mostly modern rootlets, three seeds of goosefoot (*Chenopodium*) and one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, some small fragments of charcoal (to 5 mm) and one charred fragment of hazelnut shell	-	Yes
6078	652	Pit group VI	Lower fill of 6076	1	1	one charred fragment of hazelnut shell	-	Yes
6078	659	Pit group VI	as above	1	12	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), some modern rootlets, one earthworm egg capsule, some small fragments of charcoal (to 10 mm) and five fragments of charred hazelnut shell	-	Yes
6080	654	Pit group VI	Fill of 6079	1	14	undisaggregated sediment lumps, mostly modern rootlets, two uncharred seeds of goosefoot (*Chenopodium*) - modern, a few tiny charcoal fragments (to 5 mm) and one charred fragment of hazelnut shell	-	Yes
6081	655	Pit group VI	Upper fill of 6075	1	5	mostly modern rootlets, one earthworm egg capsule, five uncharred seeds of goosefoot (*Chenopodium*) - modern, a little charcoal (to 10 mm) and three charred fragments of hazelnut shell	-	Yes
6086	657	Pit group VI	Fill of pit 6087	2	397	a few modern rootlets, four earthworm egg capsules, seven seeds of goosefoot (*Chenopodium*) - modern, one seed of the pea family (Fabaceae), one florescence of the grass family (Poaceae) - all uncharred and modern, mostly charcoal (to 30 mm) and more than 100 charred fragments of hazelnut shell	hazel (*Corylus*)	Yes

XIV.*2g) Pit Group VII*

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3112	239	Pit group VII	Upper fill of pit 3111	1	9	undisaggregated sediment lumps, mostly modern rootlets, two earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) – modern and some small fragments of charcoal (to 10 mm)	-	No
3124	243	Pit group VII	Possible hearth, originally recorded as a natural hollow	1	5	mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and charcoal (to 10 mm)	-	Yes
3137	248	Pit group VII	Upper fill of pit 3139	1	23	a few modern rootlets, two earthworm egg capsules, charcoal (to 15 mm), eight fragments of charred hazelnut shell and one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.)	hazel (*Corylus*)	Yes
3142	290	Pit group VII	Lower fill of pit 3143	2	71	mostly charcoal (to 15 mm), many charred fragments of hazelnut shell, one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.) and one charred grain of wheat (*Triticum*)	hazel (*Corylus*)	Yes
3144	291	Pit group VII	Upper fill of pit 3146	1	47	one uncharred seed of goosefoot *(Chenopodium)* - modern, and mostly fragments of charcoal (to 15 mm)	-	No
3145	292	Pit group VII	Lower fill of pit 3146	1	13	undisaggregated sediment lumps, mostly charcoal (to 15 mm)	hazel (*Corylus*)	No
3154	294	Pit group VII	Fill of pit 3155	1	48	one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm) and more than 50 charred fragments of hazelnut shell	-	Yes
3189	298	Pit group VII	Fill of pit 3190	1	25	some modern rootlets, one earthworm egg capsule, mostly charcoal (to 15 mm) and four charred fragments of hazelnut shell	-	Yes

XIV.2h) Pit Group VIII

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1304	48	Pit group VIII	Fill of pit 1305, part of the group of pits to the S of the building including 1553	1	29	modern rootlets, eight earthworm egg capsules, mostly charcoal (to 20 mm) and more than 80 charred fragments of hazelnut shell	-	Yes
1308	49	Pit group VIII	Primary fill of pit 1309, part of the group of pits to the S of the building including 1553	1	91	a few modern rootlets, seven earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 18 mm) and more than 100 charred fragments of hazelnut shell	-	Yes
1554	241	Pit group VIII	Primary fill of pit 1553, one of a group near the SW corner of the building	1	1	13 silted charred fragments of hazelnut shell	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1554	242	Pit group VIII	as above	1	1	mostly charcoal (to 10 mm) and two charred fragments of hazelnut shell	-	Yes
1583	112	Pit group VIII	Fill of pit 1584, part of the group of pits near the SW corner of the Early Neolithic building	2	18	modern rootlets, few earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm) and more than 40 charred fragments of hazelnut shell	-	Yes
1592	117	Pit group VIII	Fill of pit 1579, part of the group of pits to the SW of the Early Neolithic building	1	22	a few modern rootlets, four earthworm egg capsules, mostly charcoal (to 10 mm) and 23 charred fragments of hazelnut shell	-	Yes
1594	109	Pit group VIII	Fill of pit 1579, part of the group of pits to the SW of the Early Neolithic building	1	21	a few modern rootlets, four earthworm egg capsules, mostly charcoal (to 15 mm) and more than 50 charred fragments of hazelnut shell	-	Yes
1597	118	Pit group VIII	Fill of 1596, part of the group of pits to the SW of the Early Neolithic building	1	9	undisaggregated sediment lumps (to 1 mm), many modern rootlets, four earthworm egg capsules, mostly charcoal (to 10 mm) and nine fragments of charred hazelnut shell	-	Yes

Table XIV.3. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Biological remains recovered from samples from burnt mound features in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.
Key: see Table 1.

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1097	17	T1 Burnt mound	Spread of burnt material forming a burnt mound	4	187	undisaggregated sediment lumps, modern rootlets, nine earthworm egg capsules, 17 uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 20 mm), five charred fragments of hazelnut shell, one charred cereal grain (poorly preserved, unidentifiable), four charred grains of barley (*Hordeum distichon* L./*H. vulgare* L.) and one charred grain of emmer wheat (*Triticum dicoccum* Schübl.)	hazel (*Corylus*)	Yes
1097	38	T1 Burnt mound	as above	3	254	undisaggregated sediment lumps, mostly modern rootlets, one earthworm egg capsule, one seed of goosefoot (*Chenopodium*), one budscale and one achene of thistle (*Cirsium*) - all uncharred and modern, mostly charcoal (to 20 mm) and one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L., probably naked variety)	hazel (*Corylus*)	Yes
1158	29	T1 Burnt mound	Primary fill of burnt mound trough 1154	4	233	a few modern rootlets, one earthworm egg capsule, one uncharred seed of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 25 mm) and one charred fragment of hazelnut shell	hazel (*Corylus*)	Yes
1160	28	T1 Burnt mound	Fill of burnt mound trough 1154. 1160 was probably formed by hillwash	2	87	few undisaggregated sediment lumps, few modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and mostly charcoal (to 10 mm)	-	No
1720	165	T1 Burnt mound	?Buried surface, or interface between 1097 and 1184.	4	380	undisaggregated sediment lumps, one seed of goosefoot (*Chenopodium*), one unidentifiable budscale and one nutlet of cleavers (*Galium aparine* L.) - all uncharred and modern, mostly charcoal (to 20 mm), one charred fragment of hazelnut shell and one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.)	hazel (*Corylus*)	Yes
1759	188	T1 Burnt mound	Possible lens of mixed fills within 1097.	2	71	undisaggregated sediment lumps, five uncharred budscales - modern, and mostly charcoal (to 40 mm)	hazel (*Corylus*)	No
1760	189	T1 Burnt mound	?Pre-burnt mound ground surface	1	492	one modern, uncharred budscale and mostly fragments of charcoal (to 20 mm)	hazel (*Corylus*)	No
1765	190	T1 Burnt	Part of pre-burnt mound ground	1	3	undisaggregated sediment lumps, mostly modern rootlets, one twig fragment (to 20 mm) and many	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
		mound	surface modified by water action			budscales - all uncharred and modern, and a few charcoal fragments (to 10 mm)		
2143	498	T2 Burnt mound	Fill of 2149, ?support for a possible wooden lining 2144	1	11	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, one uncharred achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) - modern, and charcoal (to 15 mm)	oak (*Quercus*)	No
2144	499	T2 Burnt mound	Fill of 2149, probably the remains of a wooden lining to the trough.	1	3	undisaggregated sediment lumps, mostly modern rootlets and a few charcoal fragments (to 5 mm)	-	No
2145	497	T2 Burnt mound	Fill of 2149, trough under burnt mound. (2145) forms the main fill within the possible trough lining.	4	614	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), undisaggregated sediment lumps, mostly modern rootlets, ten earthworm egg capsules, eighteen seeds of goosefoot (*Chenopodium*), one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), many budscales, a few culm and leaf fragments (to 15 mm) - all uncharred and modern, and mostly fragments of charcoal (to 15 mm)	hazel (*Corylus*)	No
2151	500	T2 Burnt mound	Remains of the burnt mound 2141, only surviving area due to the deep layer of silt 2150 overlying it	1	193	mostly charcoal (to 15 mm)	probably hazel (cf. *Corylus*)	No
2167	622	T2 Burnt mound	Remains of a burnt mound on a natural sandy mound	1	47	a few modern rootlets and mostly fragments of charcoal (to 20 mm)	hazel (*Corylus*)	No
2168	619	T2 Burnt mound	Brown deposit below 2167, possibly a buried soil horizon	1	38	mostly undisaggregated sediment lumps, a few modern rootlets, one earthworm egg capsule and some fine charcoal (to 5 mm)	-	No
2169	620	T2 Burnt mound	Buried soil?	1	11	a few undisaggregated sediment lumps, modern rootlets, mostly fine charcoal (to 5mm) and one charred fragment of hazelnut shell	-	Yes
2170	621	T2 Burnt mound	Yellow deposit above natural, ?glacial outwash deposit	1	10	mostly undisaggregated sediment lumps and modern rootlets, with a few fine charcoal fragments (to 5 mm)	-	No
2173	618	T2 Burnt mound	Fill of 2175, a shallow pit on edge of burnt mound (2167)	4	227	undisaggregated sediment lumps, a few modern rootlets, one earthworm egg capsule and mostly fragments of charcoal (to 10 mm)	hazel (*Corylus*)	No
2176	617	T2 Burnt mound	Largest burnt mound on site covering roughly circular area c.13 m diameter	4	233	a few modern rootlets, one earthworm egg capsule, one seed of goosefoot (*Chenopodium*) and a leaf fragment (to 20 mm) - all uncharred, and modern, and mostly charcoal (to 15 mm)	hazel (*Corylus*) – dominant, oak (*Quercus*)	No
2178	636	T2 Burnt mound	Fill of 2221	1	4	undisaggregated sediment lumps, mostly modern rootlets and fine charcoal (to 5 mm)	-	No
2181	623	T2 Burnt mound	Fill of 2180	2	147	undisaggregated sediment lumps, one earthworm egg capsule, two uncharred seeds of goosefoot (*Chenopodium*) - modern, and mostly fragments of charcoal (to 15 mm)	hazel (*Corylus*)	No
2185	624	T2 Burnt mound	Fill of 2186	3	283	mostly undisaggregated sediment lumps, a few modern rootlets, and charcoal (to 15 mm)	-	No
2191	631	T2 Burnt mound	Fill of 2186, slumping on the SE edge of the pit	1	31	a few modern rootlets and mostly fragments of charcoal (to 15 mm)	oak (*Quercus*) – dominant, hazel (*Corylus*)	No
2193	625	T2 Burnt mound	Fill of 2186, trough associated with burnt mound (2176)	1	282	mostly charcoal (to 20 mm)	oak (*Quercus*) – dominant, hazel (*Corylus*)	No
2196	632	T2 Burnt mound	Fill of 2186	1	95	mostly charcoal (to 20 mm)	hazel (*Corylus*) – dominant, oak	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
							(*Quercus*)	
2200	638	T2 Burnt mound	Fill of 2197, the trough related to burnt mound (2176)	2	71	mostly undisaggregated sediment lumps, few modern rootlets, some fragments of charcoal (to 10 mm) and one charred unidentifiable cereal grain	-	Yes
2203	661	T2 Burnt mound	Upper fill of 2202	1	87	a few modern rootlets, three uncharred leaf fragments - modern, and mostly charcoal (to 15 mm)	oak (*Quercus*) – dominant, hazel (*Corylus*)	Yes
2208	639	T2 Burnt mound	Fill of 2197, the trough related to burnt mound (2176)	1	66	mostly charcoal (to 15 mm)	hazel (*Corylus*), oak (*Quercus*)	Yes
2209	633	T2 Burnt mound	Fill of 2212, hearth pit related to burnt mound (2197)	2	198	mostly charcoal (to 13 mm) and two charred fragments of hazelnut shell	hazel (*Corylus*)	Yes
2210	634	T2 Burnt mound	Fill of 2197, variation of 2198	1	46	a few modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and mostly charcoal (to 15 mm)	hazel (*Corylus*), oak (*Quercus*)	Yes
2287	668	T2 Burnt mound	Smaller burnt mound approximately 5 m SW of the large burnt mound (2176).	1	274	lumps of fused ash (with a high mineral content, perhaps derived from plant silica) and mostly fragments of charcoal (to 15 mm)	hazel (*Corylus*)	No
2289	667	T2 Burnt mound	Fill of 2287	2	1022	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), one uncharred leaf fragment - modern, mostly charcoal (to 30 mm) and four charred fragments of hazelnut shell	hazel (*Corylus*) – dominant, oak (*Quercus*)	Yes
2198	635	T2 Burnt mounds	Upper fill of 2197	1	35	a few modern rootlets and mostly fragments of charcoal (to 10 mm)	-	No
2201	664	T2 Burnt mounds	Fill of 2197, water borne fill	2	82	mostly charcoal (to 25 mm)	oak (*Quercus*) – dominant, hazel (*Corylus*)	No
2206	662	T2 Burnt mounds	Fill of 2202	1	128	mostly charcoal (to 20 mm)	oak (*Quercus*) – dominant, hazel (*Corylus*)	No
2207	663	T2 Burnt mounds	Fill of 2202, represents erosion or collapse of the sides forming a layer in the base of the pit	1	63	a few modern rootlets and mostly fragments of charcoal (to 15 mm)	oak (*Quercus*) – dominant, hazel (*Corylus*)	No
4199	384	T4 Burnt mound	Main deposit of the remains of a small burnt mound, quite shallow surface deposit	1	61	mostly charcoal (to 15 mm)	hazel (*Corylus*), oak (*Quercus*)	No
4210	391	T4 Burnt mound	Natural hollow on the top of root-hole 4260	1	10	undisaggregated sediment lumps, a few modern rootlets, mostly charcoal fragments (to 15 mm) and one charred fragment of hazelnut shell	hazel (*Corylus*), oak (*Quercus*)	Yes
4222	368	T4 Burnt mound	Fill of 4208, main phase of burning deposited in 4208	1	142	mostly charcoal 'slivers' (to 15 mm)	oak (*Quercus*) – dominant, hazel (*Corylus*)	No
4233	372	T4 Burnt mound	Latest fill of 4208	1	51	a few undisaggregated sediment lumps, modern rootlets, mostly charcoal 'slivers' (to 13 mm) and one charred fragment of hazelnut shell	oak (*Quercus*)	Yes
4234	371	T4 Burnt mound	Fill of 4208, thin lens of charcoal rich material, may have slumped	1	115	a few undisaggregated sediment lumps, modern rootlets and mostly charcoal 'slivers' (to 15 mm)	oak (*Quercus*)	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
			from the W edge of 4222					
4235	369	T4 Burnt mound	Fill of 4208, first fill following the main phase of burning	1	87	a few undisaggregated sediment lumps, modern rootlets and mostly charcoal 'slivers' (to 15 mm)	oak (*Quercus*)	No
4238	370	T4 Burnt mound	Fill of 4208	1	53	a few undisaggregated sediment lumps, modern rootlets and mostly charcoal 'slivers' (to 20 mm)	oak (*Quercus*) – dominant, hazel (*Corylus*)	No
5023	528	T5 burnt mounds	Small burnt mound truncated by a field drain and associated with a small circular trough, 5024	1	380	a few modern rootlets and charcoal (to 20 mm)	hazel (*Corylus*)	No
6014	605	T6 Burnt mound	Fill of 6015, pit associated with burnt mound (6056).	1	151	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), a few modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and mostly 'mineral replaced' charcoal (to 15 mm)	probably hazel (cf. *Corylus*)	No
6014	707	T6 Burnt mound	as above	1	54	lumps of fused ash (with a high mineral content, perhaps derived from plant silica) and mostly 'mineral replaced' charcoal (to 15 mm)	-	No
6016	615	T6 Burnt mound	Small burnt mound with a regular spread of fire cracked stones mixed with areas of charcoal	1	115	mostly modern rootlets, five earthworm egg capsules, two seeds of goosefoot (*Chenopodium*), one nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.) and one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, and one charred fragment of hazelnut shell	-	Yes
6019	609	T6 Burnt mound	Remains of a burnt mound	1	413	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), a few modern rootlets and mostly fragments of charcoal (to 30 mm)	hazel (*Corylus*)	No
6020	610	T6 Burnt mound	Fill of 6023, pit associated with burnt mound (6019).	1	72	a few modern rootlets, two earthworm egg capsules, four uncharred seeds of goosefoot (*Chenopodium*) - modern, and mostly fragments of charcoal (to 15 mm)	hazel (*Corylus*)	No
6026	612	T6 Burnt mound	Fill of 6025	2	267	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), a few modern rootlets, some earthworm egg capsules and mostly 'mineral replaced' charcoal (to 20 mm)	probably hazel (cf. *Corylus*)	No
6030	611	T6 Burnt mound	Fill of 6029	1	29	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), a few modern rootlets, one uncharred fruit stone of blackberry (*Rubus fruticosus* L. agg.) - modern, and mostly charcoal (to 15 mm)	hazel (*Corylus*)	No
6037	616	T6 Burnt mound	Fill of 6018	1	88	undisaggregated sediment lumps, a few modern rootlets, ten earthworm egg capsules, three seeds of goosefoot (*Chenopodium*), one nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.), one uncharred achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) and one achene of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern, and mostly charcoal (to 20 mm)	hazel (*Corylus*)	No
6038	606	T6 Burnt mound	Fill of 6015	1	73	lumps of fused ash (with a high mineral content, perhaps derived from plant silica) and mostly 'mineral replaced' charcoal (to 12 mm)	probably hazel (cf. *Corylus*)	No
6057	643	T6 Burnt mound	Fill of 6058, pit related to burnt mound (6016)	2	61	a few undisaggregated sediment lumps, modern rootlets, seven earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*), mostly charcoal (to 15 mm) and two charred fragments of hazelnut shell	oak (*Quercus)*	Yes
7037	548	T7 Burnt mound	Fill of 7042	1	12	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, one earthworm egg capsule, one seed of goosefoot (*Chenopodium*) and one nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.) - both uncharred and modern, and charcoal (to 15 mm)	oak (*Quercus*)	No
7040	553	T7 Burnt mound	Fill of trough 7043	1	55	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets and 'mineral replaced' charcoal (to 15 mm)	probably hazel (cf. *Corylus*)	No
7044	554	T7 Burnt	Fill of 7043, thin deposit of charcoal	1	443	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), a few modern	hazel (*Corylus*)	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
		mound	in the base			rootlets, four earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, and mostly charcoal (to 30 mm)		
7047	575	T7 Burnt mound	Fill of 7045, dump of charcoal	1	217	a few modern rootlets and mostly 'mineral replaced' charcoal (to 15 mm)	hazel (*Corylus*), oak (*Quercus*)	No
7048	576	T7 Burnt mound	Fill of 7045, dump of fired stone	1	47	a few modern rootlets, one earthworm egg capsule, one uncharred seed of goosefoot (*Chenopodium*) - modern, and mostly 'mineral replaced' charcoal (to 15 mm)	-	No
7049	574	T7 Burnt mound	Fill of 7045	1	34	a few modern rootlets, one earthworm egg capsule, one uncharred seed of goosefoot (*Chenopodium*) - modern, and mostly 'mineral replaced' charcoal (to 15 mm)	-	No

Table XIV.4. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Biological remains recovered from samples from earth oven features in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.
Key: see Table 1.

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1087	13	Ovens, any trench	Burnt stone fill of oven 1072, possibly representing the last use of this feature	3	225	a few modern rootlets, nine earthworm egg capsules, one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.), five achenes of fumitory (*Fumaria*), one seed of chickweed (*Stellaria media* (L.) Vill.), one seed of spurge (*Euphorbia*) - all uncharred and modern, mostly charcoal (to 14 mm), 11 charred fragments of hazelnut shell, one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.) and one charred grain of wheat (*Triticum*)	hazel (*Corylus*) – dominant, oak (*Quercus*)	Yes
1231	36	Ovens, any trench	Fill of 1230	1	8	small stones (to 3 mm), mostly modern rootlets and charcoal (to 10 mm)	probably hazel (cf. *Corylus*)	No
1232	35	Ovens, any trench	Lower fill of 1230	1	37	mostly charcoal (to 14 mm)	hazel (*Corylus*)	No
1260	56	Ovens, any trench	Mixed fill below oven lining in 1259	1	7	mostly charcoal (to 12 mm) and one charred fragment of hazelnut shell	oak (*Quercus*)	No
1261	44	Ovens, any trench	Fill of 1259	1	38	two uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 21 mm) and three charred fragments of hazelnut shell	hazel (*Corylus*)	Yes
1511	114	Ovens, any trench	Main fill of 1510	1	38	two uncharred seeds of goosefoot (*Chenopodium*) - modern, and mostly charcoal (to 15 mm)	hazel (*Corylus*)	No
1578	116	Ovens, any trench	Fill of 1510, possible burnt clay lining for use as an oven	1	5	mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and charcoal (to 12 mm)	oak (*Quercus*)	No
1589	115	Ovens, any trench	Fill of 1510, possibly a combination of degraded clay lining and scorched earth	1	23	mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) and one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, and charcoal (to 13 mm)	hazel (*Corylus*)	No
1590	113	Ovens, any trench	Fill of 1510	1	17	undisaggregated sediment lumps, mostly modern rootlets and charcoal (to 12 mm)	hazel (*Corylus*), oak (*Quercus*)	No
3122	244	Ovens, any trench	Layer of redeposited natural covering around 80% of oven 3133.	1	15	a few modern rootlets, one uncharred achene of fumitory (*Fumaria*) - modern, and mostly charcoal (to 10 mm)	-	No
3130	245	Ovens, any trench	Sandy layer directly over 3131 in oven 3133	2	77	undisaggregated sediment lumps, a few modern rootlets, mostly charcoal (to 10 mm) and one charred fragment of hazelnut shell	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3131	246	Ovens, any trench	Fill of 3133	2	262	mostly charcoal (to 25 mm), and one charred fragment of hazelnut shell	hazel (*Corylus*)	Yes
3132	247	Ovens, any trench	Layer of charred natural under 3131	1	17	undisaggregated sediment lumps, some modern rootlets and charcoal (to 13 mm)	hazel (*Corylus*)	No
3315	348	Ovens, any trench	Fill of 3314	1	144	a few stones (to 25 mm), modern rootlets, two uncharred seeds of goosefoot (*Chenopodium*) - modern, and mostly charcoal (to 25 mm)	hazel (*Corylus*)	No
6051	647	Ovens, any trench	Fill of 6033	1	71	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), a few modern rootlets, two uncharred seeds of goosefoot (*Chenopodium*) - modern, and mostly charcoal (to 20 mm)	hazel (*Corylus*) – dominant, oak (*Quercus*)	No
6052	648	Ovens, any trench	Fill of 6033, possible erosion deposit	1	19	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), few modern rootlets, two uncharred seeds of goosefoot (*Chenopodium*) – modern, and mostly charcoal (to 15 mm)	hazel (*Corylus*) – dominant, oak (*Quercus*)	No
6059	650	Ovens, any trench	Lining of a possible oven	1	8	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, many earthworm egg capsules, five seeds of goosefoot (*Chenopodium*), one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) and one achene of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern, and mostly charcoal (to 10 mm)	hazel (*Corylus*)	No
6062	649	Ovens, any trench	Fill of 6033, possibly to hold lining in place	1	2	mostly modern rootlets and charcoal (to 5 mm)	-	No

Table XIV.5. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Biological remains recovered from samples from the fills of possibly prehistoric feature 7055 (Trench 7) in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.
Key: see Table 1.

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
7050	601	T7 Feature 7055	Charcoal layer in base of 7055	1	557	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), a few modern rootlets, two seeds of goosefoot (*Chenopodium*) and one achene of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern, and mostly charcoal (to 20 mm)	hazel (*Corylus*)	No
7051	602	T7 Feature 7055	Main fill of 7055	1	19	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, one earthworm egg capsule, one uncharred seed of goosefoot (*Chenopodium*) - modern, a few charcoal fragments (to 10 mm) and one charred unidentifiable cereal grain (eroded and distorted)	-	Yes
7059	603	T7 Feature 7055	Fill of stake-hole in base of 7055	1	5	mostly undisaggregated sediment lumps, a few modern rootlets and charcoal (10 mm)	probably hazel (cf. *Corylus*)	No

Tables XIV.6a to 6k. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Biological remains recovered from samples from features associated with Roundhouses(including possible roundhouse Structures F and G) in context number order by group, with notes on the presence of material suitable for submission for radiocarbon dating.
Key: see Table 1.

XIV.6a) Roundhouse A

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3093	237	T3 Roundhouse A	Primary silting of 3047	1	10	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets and a few charcoal fragments (to 8 mm)	-	No
3096	238	T3 Roundhouse A	Primary silting of ditch 3048	1	27	mostly undisaggregated sediment lumps, modern rootlets, a few earthworm egg capsules, several seeds of goosefoot (*Chenopodium*), achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.), one achene of fumitory (*Fumaria*) - all uncharred and modern and a few fragments of charcoal (to 5 mm)	-	No
3156	299	T3 Roundhouse A	Upper fill of 3157, part of enclosure/drainage ditch around Roundhouse A.	1	10	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), undisaggregated sediment lumps, mostly modern rootlets and a few fragments of charcoal (to 10 mm)	-	No
3158	300	T3 Roundhouse A	Upper fill of enclosure ditch 3159	1	26	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, and charcoal (to 20 mm)	oak (*Quercus*)	No
3160	296	T3 Roundhouse A	Fill of small ditch 3161	1	12	mostly undisaggregated sediment lumps, modern rootlets and a few fragments of charcoal (to 5 mm)	-	No
3162	297	T3 Roundhouse A	Fill of enclosure ditch 3163	1	6	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, a few earthworm egg capsules, several uncharred seeds of goosefoot (*Chenopodium*) – modern and a few fragments of charcoal (to 10 mm)	-	No
3176	295	Evaluation trench	Fill of 3177, possible ring ditch of a Roundhouse in the evaluation trench W of Roundhouse A	1	120	a few modern rootlets, two earthworm egg capsules, 21 seeds of goosefoot (*Chenopodium*), three achenes of fumitory (*Fumaria*) and two achenes of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern, mostly charcoal (to 15 mm), one charred achene of knotweed (*Persicaria*), four charred glume bases of spelt (*Triticum spelta* L.), one charred spikelet fork of emmer (*Triticum dicoccum* Schübl.), two charred glume bases and one spikelet fork of emmer/spelt (*Triticum dicoccum* Schübl./*T. spelta* L.), one charred grain of spelt (*Triticum spelta* L.), one charred grain of emmer (*Triticum dicoccum* Schübl.), one charred grain of rye (*Secale cereale* L.), one charred grain of wheat (*Triticum*) and two charred unidentifiable cereal grains (eroded and distorted)	hazel (*Corylus*) – dominant, oak (*Quercus*) and ash (*Fraxinus*)	Yes
3181	334	T3 Roundhouse A	Fill of 3058, earlier outer gully of Roundhouse A.	1	22	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, a few uncharred seeds of goosefoot (*Chenopodium*) – modern and a little charcoal (to 10 mm)	-	No
3188	303	T3 Roundhouse A	Fill of storm gully 3059	1	17	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, two uncharred achenes of fumitory (*Fumaria*) - modern, and a few charcoal fragments (to 15 mm)	hazel (*Corylus*)	No
3231	316	T3 Roundhouse A	Fill of 3230, inner gully of Roundhouse A	2	105	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, eight seeds of goosefoot (*Chenopodium*) and one achene of fumitory (*Fumaria*) - all uncharred and modern, charcoal (to 15 mm), two charred glume bases of spelt (*Triticum spelta* L.) and four charred glume bases of emmer/spelt (*Triticum dicoccum* Schübl./*T. spelta* L.), two charred grains of spelt (*Triticum spelta* L.), one	hazel (*Corylus*)	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
						charred oat grain (*Avena*), one grain of wheat (*Triticum*) and six unidentifiable charred cereal grains (eroded and distorted)		
3231	399	T3 Roundhouse A	as above	1	13	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, several seeds of goosefoot (*Chenopodium*) and one achene of fumitory (*Fumaria*) - all uncharred and modern, mostly charcoal (to 10 mm), one charred glume base of spelt (*Triticum spelta* L.) and one of emmer/spelt (*Triticum dicoccum* Schübl./*T. spelta* L.), one charred grain of oat (*Avena*), one charred grain of rye (*Secale cereale* L.), two grains of naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.) and four charred unidentifiable cereal grains (eroded and distorted)	-	Yes
3267	322	T3 Roundhouse A	Fill of 3266, the inner gully of Roundhouse A	1	32	undisaggregated sediment lumps, modern rootlets, three uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm), one charred nutlet of cleavers (*Galium aparine* L.), one charred glume base of spelt (*Triticum spelta* L.), one charred glume base of emmer/spelt (*Triticum dicoccum* Schübl./*T. spelta* L.), three charred grains of wheat (*Triticum*) and two unidentifiable charred cereal grains (eroded and distorted)	hazel (*Corylus*)	Yes
3267	410	T3 Roundhouse A	as above	1	36	modern rootlets, a few earthworm egg capsules, four seeds of goosefoot (*Chenopodium*), one achene of fumitory (*Fumaria*) - all uncharred and modern, mostly charcoal (to 15 mm), one charred glume base of spelt (*Triticum spelta* L.) and one of emmer/spelt (*Triticum dicoccum* Schübl./*T. spelta* L.), one charred rachis segment of barley (*Hordeum distichon* L./*H. vulgare* L.), one charred grain of oat (*Avena*), one charred grain of rye (*Secale cereale* L.) and two unidentifiable charred cereal grains (eroded and distorted)	hazel (*Corylus*)	Yes
3267	411	T3 Roundhouse A	as above	1	44	mostly charcoal (to 60 mm)	probably hazel (cf. *Corylus*)	No
3270	365	T3 Roundhouse A	Fill of middle ring ditch 3058	2	42	undisaggregated sediment lumps, mostly modern rootlets, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, and charcoal (to 10 mm)	-	No
3272	359	T3 Roundhouse A	Primary fill of outer ring ditch 3059	1	8	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules and charcoal (to 10 mm)\	-	No
3276	349	T3 Roundhouse A	Fill of 3275, end of 3266, the inner gully of Roundhouse A	1	26	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), modern rootlets, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm), one charred glume base of spelt (*Triticum spelta* L.), one charred grain of spelt (*Triticum spelta* L.) and two charred unidentifiable cereal grains (eroded and distorted)	-	Yes
3313	333	T3 Roundhouse A	Layer between clay 3003 and grey deposit with stones 3306	2	16	modern rootlets, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 15 mm) and one charred grain of wheat (*Triticum*)	hazel (*Corylus*)	Yes
3318	335	T3 Roundhouse A	Fill of 3319	1	18	undisaggregated sediment lumps, mostly modern rootlets, a few seeds of goosefoot (*Chenopodium*), one achene of fumitory (*Fumaria*) - all uncharred and modern, and charcoal (to 5 mm)	-	No
3320	336	T3 Roundhouse A	Fill of 3319	1	12	undisaggregated sediment lumps, mostly modern rootlets and a few charcoal fragments (to 5 mm)	-	No
3321	337	T3 Roundhouse A	Fill of 3058, disturbed by animal burrow	1	12	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, several seeds of goosefoot (*Chenopodium*), one achene of fumitory (*Fumaria*) - all uncharred and modern, and a few fragments of charcoal (to 5 mm)	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3334	350	T3 Roundhouse A	Fill of 3335	1	1	undisaggregated sediment lumps, mostly modem rootlets, one uncharred florescence of the grass family (Poaceae) a few fragments of fine charcoal (to 6 mm)	-	No
3336	352	T3 Roundhouse A	Fill of 3337	1	1	undisaggregated sediment lumps, mostly modern rootlets, three uncharred seeds of goosefoot (*Chenopodium*) - modern, and a few fragments of fine charcoal (to 6 mm)	-	No
3344	353	T3 Roundhouse A	Possibly contemporary ground surface of Roundhouse A, possibly the same as 3276	1	6	undisaggregated sediment lumps, mostly modern rootlets, few seeds of goosefoot (*Chenopodium*), one achene of fumitory (*Fumaria*) - all uncharred and modern, a few fragments of charcoal (to 10 mm), one charred glume base of spelt (*Triticum spelta* L.) and one charred grain of wheat (*Triticum*)	-	Yes
3346	354	T3 Roundhouse A	Lower fill of 3347	1	8	undisaggregated sediment lumps, mostly modern rootlets, a few charcoal fragments (to 10 mm), one charred glume base of spelt (*Triticum spelta* L.) and one charred grain of wheat (*Triticum*)	-	Yes
3364	360	T3 Roundhouse A	Fill of 3365	1	9	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, several uncharred seeds of goosefoot (*Chenopodium*) - modern, charcoal (to 10 mm) and one charred grain of oat (*Avena*)	-	Yes
3383	400	T3 Roundhouse A	Deposit to the N of the drainage ditch. Probably the base of the ploughsoil, where it mixes with the natural	1	4	undisaggregated sediment lumps and a few fragments of charcoal (to 5 mm)	-	No
3384	401	T3 Roundhouse A	Fill of 3385	2	26	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, earthworm egg capsules, a few seeds of goosefoot (*Chenopodium*), two achenes of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern, mostly charcoal (to 10 mm), one charred fragment of hazelnut shell and one charred caryopsis of brome (*Bromus*)	-	Yes
3386	408	T3 Roundhouse A	Fill of 3387, hard to distinguish from the natural in places	1	18	mostly modern rootlets, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, and charcoal (to 10 mm)	-	No
3434	379	T3 Roundhouse A	Fill of 3440	1	51	a few modern rootlets, seven uncharred seeds of goosefoot (*Chenopodium*) and charcoal (to 15 mm)	oak (*Quercus*)	No
3435	377	T3 Roundhouse A	Fill of 3441	1	137	a few modern rootlets, four earthworm egg capsules, eight uncharred seeds of goosefoot (*Chenopodium*) - modern, charcoal (to 15 mm) and one charred fragment of hazelnut shell	-	Yes
3438	378	T3 Roundhouse A	Fill of gully 3439	1	8	mostly undisaggregated sediment lumps and modern rootlets, with one seed of goosefoot (*Chenopodium*), one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.), one achene of fumitory (*Fumaria*) - all uncharred and modern, a few charcoal fragments (to 10 mm) and one charred achene of stinking chamomile (*Anthemis cotula* L.)	-	No
3460	380	T3 Roundhouse A	Fill of possible drainage gully 3461	1	14	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, a few seeds of goosefoot (*Chenopodium*), one achene of knotgrass (*Polygonum aviculare* L.), one achene of fumitory (*Fumaria*) - all uncharred and modern, and charcoal (to 10 mm)	-	No
3470	385	T3 Roundhouse A	Fill of 3471	2	62	undisaggregated sediment lumps, mostly modern rootlets, two seeds of goosefoot (*Chenopodium*), one achene of knotgrass (*Polygonum aviculare* L.), one achene of fumitory (*Fumaria*) - all uncharred and modern, and charcoal (to 10 mm)	-	No
3475	387	T3 Roundhouse A	Fill of 3476	1	1	undisaggregated sediment lumps and a few fragments of charcoal (to 10 mm)	-	No
3495	405	T3 Roundhouse A	Fill of 3496, part of the inner drainage	2	38	undisaggregated sediment lumps, modern rootlets, a few earthworm egg capsules, a	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
			gully of Roundhouse A			few uncharred seeds of goosefoot (*Chenopodium*) - modern, one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.), one charred grain of wheat (*Triticum*) and one charred unidentifiable cereal grain (eroded and distorted)		
3517	406	T3 Roundhouse A	Fill of 3518, a central feature in Roundhouse A	2	38	undisaggregated sediment lumps, modern rootlets, a few earthworm egg capsules, seven seeds of goosefoot (*Chenopodium*), one seed of elder (*Sambucus nigra* L.), one achene of knotgrass (*Polygonum aviculare* L.), one fruit stone of bramble (*Rubus*) - all uncharred and modern, mostly charcoal (to 15 mm) and a grain assemblage (listed in Table 6b - see below)	hazel (*Corylus*), oak (*Quercus*)	Yes
3530	409	T3 Roundhouse A	Fill of 3531, contained several large stones placed across the line of the gully	1	8	undisaggregated sediment lumps, mostly modern rootlets, one uncharred fruit stone of blackberry (*Rubus fruticosus* L. agg.) - modern, and charcoal (to 10 mm)	-	No
3532	407	T3 Roundhouse A	Fill of 3533, a post-hole below the end of a late phase of the inner gully in Roundhouse A	1	1	mostly modern rootlets and a few charcoal fragments (to 5 mm)	-	No
3538	412	T3 Roundhouse A	Fill of 3539	1	4	mostly modern rootlets, a few seeds of goosefoot (*Chenopodium*), one achene of fumitory (*Fumaria*) - all uncharred and modern, and charcoal (to 15 mm)	-	No
3540	413	T3 Roundhouse A	Fill of 3541	2	72	a few modern rootlets, six earthworm egg capsules, one uncharred achene of knotgrass (*Polygonum aviculare* L.) - modern, charcoal (to 15 mm) and a grain assemblage (listed in Table 6b - see below)	hazel (*Corylus*)	Yes
3540	453	T3 Roundhouse A	as above	1	178	a few modern rootlets, five earthworm egg capsules, charcoal (to 15 mm) and a grain assemblage (listed in Table 6b - see below)	-	Yes
3548	414	T3 Roundhouse A	Fill of 3549, the earliest inner gully in Roundhouse A	1	20	small stones (to 5 mm), mostly modern rootlets, charcoal (to 15 mm) and one charred grain of wheat (*Triticum*)	-	Yes
3548	428	T3 Roundhouse A	as above	1	14	some stones (to 15 mm), mostly modern rootlets and charcoal (to 13 mm)	-	No
3550	415	T3 Roundhouse A	Fill of 3551	1	8	undisaggregated sediment lumps, mostly modern rootlets, two earthworm egg capsules and a few fragments of charcoal (to 5 mm)	-	No
3558	417	T3 Roundhouse A	Fill of 3559, some flat red mudstone fragments appeared as if they were lining the N face of the cut close to the base	1	14	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, several uncharred seeds of goosefoot (*Chenopodium*) - modern, and a few fragments of charcoal (to 8 mm)	-	No
3561	426	T3 Roundhouse A	Fill of 3491	1	12	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets and charcoal (to 15 mm)	pine (*Pinus*)	No
3562	422	T3 Roundhouse A	Fill of 3563.	1	4	small stones (to 5 mm), mostly modern rootlets and a few fragments of charcoal (to 5 mm)	-	Yes
3565	420	T3 Roundhouse A	Fill of 3566, terminus of straight gully/animal burrow?	1	31	mostly undisaggregated sediment lumps, charcoal (to 15 mm), one charred grain of naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.), one charred grain of oat (*Avena*) and six charred unidentifiable cereal grains (eroded and distorted)	hazel (*Corylus*)	Yes
3569	419	T3 Roundhouse A	Fill of 3570	1	159	few waterlogged seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 20 mm) and a grain assemblage (listed in Table 6b - see below)	hazel (*Corylus*)	Yes
3571	421	T3 Roundhouse A	Fill of 3572	1	6	a few modern rootlets and charcoal (to 8 mm)	-	No
3575	423	T3 Roundhouse A	Fill of 3576	1	9	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, several uncharred seeds of goosefoot (*Chenopodium*) - modern, a few fragments of charcoal (to 5 mm) and one charred silted cereal grain of naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.)	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3604	427	T3 Roundhouse A	Fill of 3602, most likely hillwash material	1	5	undisaggregated sediment lumps, mostly modern rootlets, a few earthworm egg capsules, few charcoal (to 8 mm), one charred grain of emmer wheat (*Triticum dicoccum* Schübl.) and one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.) - probably naked barley	-	Yes
3669	450	T3 Roundhouse A	Upper fill of 3671, heavily burnt with a possible clay lining	1	79	mostly charcoal (to 20 mm) and a grain assemblage (listed in Table 6b - see below)	hazel (*Corylus*) – dominant, oak (*Quercus*)	Yes
3670	451	T3 Roundhouse A	Primary fill of ditch, terminus and 'oven', possibly the remains of a burnt clay lining	2	321	mostly charcoal (to 20 mm) and a grain assemblage (listed in Table 6b - see below)	hazel (*Corylus*) – dominant, oak (*Quercus*)	Yes
3718	454	T3 Roundhouse A	Fill of 3717, a slightly siltier area in the centre may be the remains of a post-pipe	1	37	mostly charcoal (to 17 mm) and a grain assemblage (listed in Table 6b - see below)	hazel (*Corylus*)	Yes

XIV.6b) Roundhouse A larger grain assemblages

			T3 RHA	T3 RHA	T3 RHA	T3 RHA	T3 RHA	T3 RHA	T3 RHA
Feature			?hearth	corn drier	corn drier	gully	corn drier	corn drier	post-hole
Context			3517	3540	3540	3569	3669	3670	3718
Sample			406	413	453	419	450	451	454
Radiocarbon date (where available)			-	-	-	-	AD1040 to 1260	AD1020 to 1210	AD1010 to 1210
sample volume (in litres)			49	25	?	22	32	30	10
flot weight (in g)			37	68	178	159	79	143	37
crops									
grain									
Avena	oat	grain		64	3501		1496	1590	134
Avena sativa L.	oat	grain with lemna			16		53	25	
Hordeum distichon L./*H. vulgare* L.	barley	grain		2	13		4	5	
Secale cereale L.	rye	grain	1		4	4	2		
Triticum aestivum L./*T. durum* Desf./*T. turgidum* L.	naked wheat	grain		2	30	3	8	7	
Triticum dicoccum Schübl.	emmer	grain				13			
Triticum spelta L.	spelt wheat	grain	19			25			
Triticum	wheat	grain	32						2
Cerealia indet.	cereals	grain fragments	143	92	2418	468	934	1385	446

			T3 RHA	T3 RHA	T3 RHA	T3 RHA	T3 RHA	T3 RHA	T3 RHA
Feature			?hearth	corn drier	corn drier	gully	corn drier	corn drier	post-hole
Context			3517	3540	3540	3569	3669	3670	3718
Sample			406	413	453	419	450	451	454
Radiocarbon date (where available)			-	-	-	-	AD1040 to 1260	AD1020 to 1210	AD1010 to 1210
sample volume (in litres)			49	25	?	22	32	30	10
flot weight (in g)			37	68	178	159	79	143	37
chaff									
Avena	oat	awn fragment			1		3	26	
Hordeum distichon L./*H. vulgare* L.	barley	rachis segment		1	1			1	
Triticum spelta L.	spelt wheat	glume base				54			
Triticum spelta L.	spelt wheat	spikelet fork				5			
Triticum dicoccum Schübl./*T. spelta* L.	emmer/spelt wheat	glume base	4			58	1		
Triticum dicoccum Schübl./*T. spelta* L.	emmer/spelt wheat	spikelet fork				6			
gathered plants									
Corylus avellana L.	hazel	nut shell		18	37	1	5	2	2
Rubus fruticosus L. agg.	blackberry	fruit stone			2				
Rubus idaeus L.	raspberry	fruit stone	1	3			5	5	
weeds									
Anthemis cotula L.	stinking chamomile	achene		6			1		
Atriplex/*Chenopodium*	orache/goosefoot	seed						10	
Bromus	brome	caryopsis	49	2	16	96	10	10	
Chrysanthemum segetum L.	corn marigold	achene		8	1510		598	619	33
Euphrasia/Odontites	eyebright/bartsia	seed						1	
Fallopia convolvulus (L.) Á. Löve	black-bindweed	achene			2				
Galium aparine L.	cleavers	nutlet		5	5		15	9	
Lapsana communis L.	nipplewort	achene			8		21	22	
Persicaria	knotweed	achene	2		2	2	7	11	
Plantago lanceolata L.	ribwort plantain	seed		3	4		3	6	
Poaceae	grass family	caryopsis			2				
Polygonum	knotgrass	achene			1		1		

			T3 RHA	T3 RHA	T3 RHA	T3 RHA	T3 RHA	T3 RHA	T3 RHA
Feature			?hearth	corn drier	corn drier	gully	corn drier	corn drier	post-hole
Context			3517	3540	3540	3569	3669	3670	3718
Sample			406	413	453	419	450	451	454
Radiocarbon date (where available)			-	-	-	-	AD1040 to 1260	AD1020 to 1210	AD1010 to 1210
sample volume (in litres)			49	25	?	22	32	30	10
flot weight (in g)			37	68	178	159	79	143	37
Raphanus raphanistrum L.	wild radish	mericarp			5		3	8	2
Rumex	dock	achene			19			2	
Rumex acetosella L.	sheep's sorrel	achene			3		3		
Vicia hirsuta (L.) Gray/*V. tetrasperma* (L.) Schreb	tare	seed			12		10	12	
sum of botanical remains			**251**	**206**	**7612**	**735**	**3183**	**3756**	**619**
other unidentifiable plant remains									
culm fragment					3		3		
charcoal (ash)									
charcoal (hazel)						x			
charcoal (oak)									
modern contaminants (waterlogged)									
Atriplex/*Chenopodium*	orache/goosefoot	seed		11	222	17	24		3
Cirsium	thistle	achene							1
Fallopia convolvulus (L.) Á. Löve	black-bindweed	achene		1					
Fumaria	fumitory	achene		2	7		1		
Polygonum aviculare L.	knotgrass	achene		2	2				
Rubus idaeus L.	raspberry	fruit stone			2		1		

XIV.6c) Roundhouse B

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3023	222	T3 Roundhouse B	Fill of 3024	1	8	undisaggregated sediment lumps, mostly modern rootlets, a few fragments of charcoal (to 10 mm) and one charred fragment of hazelnut shell	-	Yes
3084	236	T3 Roundhouse B	Fill of 3083, possible Roundhouse gully	2	35	undisaggregated sediment lumps, mostly modern rootlets, three seeds of goosefoot (*Chenopodium*) and one achene of buttercup (*Ranunculus* subg. *Ranunculus*) - all uncharred and modern, and a few charcoal fragments (to 10 mm)	-	No
3148	289	T3 Roundhouse B	Fill of 3147, replaces 3019 and 3021	1	3	undisaggregated sediment lumps, mostly modern rootlets, three uncharred seeds of goosefoot (*Chenopodium*) - modern, a few fragments of charcoal (to 10 mm), two charred unidentifiable cereal grains and one charred grain of naked wheat (*Triticum aestivum* L./*T. durum* Desf./*T. turgidum* L.)	-	Yes

XIV.6d) Roundhouse C

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3442	403	T3 Roundhouse C	Upper fill of 3891, internal drain within Roundhouse C. Grouped as part of 9464	1	4	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, few grit, few charcoal (red coloured, to 8 mm)	-	No
3443	402	T3 Roundhouse C	Lower fill of 3891, internal drain within Roundhouse C. Grouped as part of 9463	1	8	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, few grit, few charcoal (to 13 mm)	-	No
3449	438	T3 Roundhouse C	Water laid fill of storm drain enclosing E side of Roundhouse C. Grouped as part of 9466	1	4	mostly modern rootlets, few fine charcoal (to 3 mm)	-	No
3450	439	T3 Roundhouse C	Fill of recut 3444 of original ditch 3432. Grouped as part of 9471	2	7	mostly modern rootlets, few charcoal (to 8 mm), one waterlogged seed of elder (*Sambucus*) - modern	-	No
3452	440	T3 Roundhouse C	?General layer. Grouped as part of 9470	1	35	undisaggregated sediment lumps, mostly modern rootlets, few fine charcoal (to 3 mm)	-	No
3580	487	T3 Roundhouse C	Fill of 3304 internal drain of Roundhouse. Grouped as part of 9464	1	15	undisaggregated sediment lumps, mostly modern rootlets, few fine charcoal (to 5 mm)	-	No
3581	486	T3 Roundhouse C	Main fill of 3304, internal drain of Roundhouse C. Grouped as part of 9463	1	13	undisaggregated sediment lumps, a few stones (to 10 mm), mostly modern rootlets, one earthworm egg capsule, one seed of goosefoot (*Chenopodium*), one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.), one achene of fumitory (*Fumaria*) - all uncharred and modern, and some charcoal (to 13 mm)	-	No
3582	467	T3 Roundhouse C	Fill of 3674, a pit or stone-hole within Roundhouse C	1	13	small stones (to 5 mm), a few fragments of cinder and coal, mostly modern rootlets, twenty seeds of goosefoot (*Chenopodium*), one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), one achene of knotgrass (*Polygonum aviculare* L.) – uncharred and modern and a few charcoal fragments (to 10 mm)	-	No
3583	468	T3 Roundhouse C	Fill of pit 3325	1	7	undisaggregated sediment lumps, small stones (to 5 mm), mostly modern rootlets and a few fragments of fine charcoal (to 5 mm)	-	No
3584	469	T3 Roundhouse C	Earliest fill of pit cut 3325	1	8	few undisaggregated sediment lumps, grit (to 10 mm), mostly modern rootlets and a few fragments of charcoal (to 10 mm)	hazel (*Corylus*), oak (*Quercus*)	No
3585	470	T3 Roundhouse C	Fill of pit 3586	2	11	small stones (to 5 mm), mostly modern rootlets, three earthworm egg capsules, nine uncharred seeds of goosefoot (*Chenopodium*) - modern, and a few fragments of	hazel (*Corylus*)	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
						charcoal (to 15 mm)		
3588	471	T3 Roundhouse C	Main fill of 3589. Very similar to 3585	1	8	mostly small stones (to 5 mm) and modern rootlets, with a few fragments of charcoal (to 8 mm)	-	No
3606	432	T3 Roundhouse C	Fill of storm drain for Roundhouse C. Grouped as part of 9470	1	1	undisaggregated sediment lumps, small stones, mostly modern rootlets and a few fragments of charcoal (to 3 mm)	-	No
3627	433	T3 Roundhouse C	Fill of poorly defined gully	1	5	mostly modern rootlets, one earthworm egg capsule, five uncharred seeds of goosefoot (*Chenopodium*) - modern, a few charcoal fragments (to 5 mm) and one charred fragment of hazelnut shell	-	Yes
3648	472	T3 Roundhouse C	Upper fill of possible posthole	1	24	a few fragments of coal, mostly modern rootlets, two earthworm egg capsules, 17 uncharred seeds of goosefoot (*Chenopodium*) - modern, and charcoal (to 15 mm)	hazel (*Corylus*)	No
3649	473	T3 Roundhouse C	Spread	1	50	mostly modern rootlets, one earthworm egg capsule, a few seeds of goosefoot (*Chenopodium*), a few achenes of knotgrass (*Polygonum aviculare* L.), one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, charcoal (to 15 mm), one charred grain of oat (*Avena*) and two charred unidentifiable cereal grains (eroded and distorted)	-	Yes
3651	474	T3 Roundhouse C	Fill of posthole	1	4	mostly modern rootlets, a few earthworm egg capsules, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, and some fine charcoal fragments (to 5 mm)	-	No
3672	475	T3 Roundhouse C	Layer covering the centre of 3631 'hearth area'	2	24	mostly modern rootlets, a few earthworm egg capsules, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, a few fragments of fine charcoal (to 8 mm), one charred glume base of emmer/spelt (*Triticum dicoccum* Schübl./*T. spelta* L.), one charred grain of emmer/spelt wheat (*Triticum dicoccum* Schübl./*T. spelta* L.) and two charred unidentifiable grains	-	Yes
3681	441	T3 Roundhouse C	Fill of small pit, fill similar to adjacent 'hearth' feature 3762	1	10	mostly modern rootlets, two earthworm egg capsules, three seeds of goosefoot (*Chenopodium*), one nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.), two achenes of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern, mostly charcoal (to 20 mm) and one small charred fragment of hazelnut shell	hazel (*Corylus*)	Yes
3682	488	T3 Roundhouse C	Fill of small pit within post-hole 3678	1	5	a few small stones (to 4 mm), many undisaggregated lumps of ash and charcoal, modern rootlets, a few fragments of coal and a little fine charcoal (to 5 mm)	-	No
3684	502	T3 Roundhouse C	Upper fill of internal drain for Roundhouse C, which may have accumulated after the drain went out of use. Grouped as part of 9464	1	61	lumps of fused ash (with a high mineral content, perhaps derived from plant silica) and mostly modern rootlets	-	No
3684	489	T3 Roundhouse C	as above	1	4	lumps of fused ash (with a high mineral content, perhaps derived from plant silica) and mostly modern rootlets	-	No
3685	458	T3 Roundhouse C	Fill of post-hole 3678	1	4	a few small stones (to 3 mm), mostly modern rootlets, few coal, one earthworm egg capsule, one seed of goosefoot (*Chenopodium*) and one fruit stone of blackberry (*Rubus fruticosus* L. agg.) - all uncharred and modern and a few fragments of fine charcoal (to 5 mm)	-	No
3692	476	T3 Roundhouse C	?Debris from a hearth	1	13	mostly modern rootlets and charcoal (to 10 mm)	-	No
3693	478	T3 Roundhouse C	Fill of 3694, one of a group of pits in the centre of Roundhouse C	1	83	few modern rootlets, mostly charcoal (to 13 mm), one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.) and two charred unidentifiable cereal grains (distorted and eroded)	-	Yes
3695	479	T3 Roundhouse C	?Site of a burning event. Perhaps some	1	8	undisaggregated sediment lumps, modern rootlets and charcoal (to 10 mm)	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
			kind of clay base for a hearth?					
3696	480	T3 Roundhouse C	Mottled burnt layer underneath 3695	1	12	undisaggregated sediment lumps, modern rootlets, one uncharred, modern seed of goosefoot (*Chenopodium*), charcoal (to 10 mm), one charred grain of oat (*Avena*) and six charred unidentifiable cereal grains (distorted and eroded)	-	Yes
3701	452	T3 Roundhouse C	Fill of 3702, terminus of internal drain of Roundhouse C. Grouped as part of 9463	1	11	grit (to 3 mm), mostly modern rootlets, few coal, three earthworm egg capsules, two seeds of goosefoot (*Chenopodium) and* one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, and charcoal (to 10 mm, decayed and deformed)	-	No
3709	503	T3 Roundhouse C	Lower fill of internal drain for Roundhouse C. Grouped as part of 9463	1	7	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, two earthworm egg capsules, two uncharred and modern seeds of goosefoot (*Chenopodium*) and charcoal (to 10 mm)	-	No
3709	490	T3 Roundhouse C	as above	1	6	stones (to 10 mm), mostly modern rootlets and charcoal (to 15 mm)	hazel (*Corylus*)	No
3731	455	T3 Roundhouse C	Fill of ditch 3732	1	5	undisaggregated sediment lumps, mostly modern rootlets, one fruit stone of blackberry (*Rubus fruticosus* L. agg.) and one achene of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern and a few fragments of charcoal (to 3 mm)	-	No
3741	481	T3 Roundhouse C	Fill of possible fire pit	1	10	undisaggregated sediment lumps, mostly modern rootlets, one earthworm egg capsule, charcoal (to 10 mm), one charred grain of spelt wheat (*Triticum spelta* L.) and one unidentifiable cereal grain (distorted and eroded)	-	Yes
3742	482	T3 Roundhouse C	Lower fill of possible fire pit 3673	1	11	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, three earthworm egg capsules, four uncharred, modern seeds of goosefoot (*Chenopodium*) and charcoal (to 10 mm)	-	No
3745	514	T3 Roundhouse C	Fill of linear feature, possibly a beam slot for a fence or a drainage ditch	1	4	small stones (to 4 mm) and modern rootlets	-	No
3759	484	T3 Roundhouse C	Fill of small pit 3760	1	7	undisaggregated sediment lumps, modern rootlets, two earthworm egg capsules, ten uncharred, modern seeds of goosefoot (*Chenopodium*) and a few charcoal fragments (to 5 mm)	-	No
3761	485	T3 Roundhouse C	Fill of shallow hollow	1	22	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), modern rootlets and mostly charcoal (to 10 mm)	-	No
3765	457	T3 Roundhouse C	Fill of posthole	1	3	undisaggregated sediment lumps, modern rootlets and a few fragments of fine charcoal (to 3 mm)	-	No
3781	494	T3 Roundhouse C	Fill of possible structural post-hole for Roundhouse C	1	1	modern rootlets and a few charcoal fragments (to 5 mm)	-	No
3782	493	T3 Roundhouse C	Fill of internal drain for Roundhouse C	1	6	modern rootlets and a few charcoal fragments (to 10 mm)	-	No
3840	506	T3 Roundhouse C	Fill of 3839, with the post either pushed into it, or deposited after the post was in place	1	5	undisaggregated sediment lumps, mostly modern rootlets, two uncharred seeds of goosefoot (*Chenopodium*) – modern, and a few fragments of charcoal (to 10 mm)	-	No
3840	506	T3 Roundhouse C	as above	1	5	undisaggregated sediment lumps, mostly modern rootlets, two uncharred seeds of goosefoot (*Chenopodium*) – modern and a few fragments of charcoal (to 10 mm)	-	No
3841	507	T3 Roundhouse C	Fill of post-pipe 3859 within 3839	1	5	undisaggregated sediment lumps, mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) – modern, and a few fragments of charcoal (to 10 mm)	-	No
3841	507	T3 Roundhouse C	as above	1	5	undisaggregated sediment lumps, mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and a few fragments of charcoal (to 10 mm)	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3844	509	T3 Roundhouse C	Fill of 3845, a possible slot for a fence line. Grouped as part of 9476	1	22	undisaggregated sediment lumps, modern rootlets, one earthworm egg capsule, two seeds of goosefoot (*Chenopodium*), one fruit stone of blackberry (*Rubus fruticosus* L. agg.) and one achene of fumitory (*Fumaria*) - all uncharred and modern, and charcoal (to 10 mm)	-	No
3860	508	T3 Roundhouse C	Fill of irregular shallow channel	1	5	small stones (to 3 mm), mostly modern rootlets, four earthworm egg capsules, five seeds of goosefoot (*Chenopodium*) and three nuts of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.) - all uncharred and modern, and charcoal (to 5 mm)	-	No
3864	512	T3 Roundhouse C	Fill of shallow ditch 3865. Grouped as part of 9478	1	6	small stones (to 3 mm), undisaggregated sediment lumps, modern rootlets, four earthworm egg capsules, two seeds of goosefoot (*Chenopodium*) and one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, and a few fragments of fine charcoal (to 5 mm)	-	No
3866	510	T3 Roundhouse C	Accumulation of silt around the main fill of stones 3882	2	23	undisaggregated sediment lumps, mostly modern rootlets and a few fragments of charcoal (to 10 mm)	-	No
3868	513	T3 Roundhouse C	Fill of 3869, part of linear alignment	1	10	small stones (to 5 mm), undisaggregated sediment lumps, mostly modern rootlets, one earthworm egg capsule, one seed of goosefoot (*Chenopodium*) and one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, and charcoal (to 10 mm)	-	No
3892	515	T3 Roundhouse C	Fill of short gully 3890, part of outer drain complex in Roundhouse C	1	9	small stones (to 3 mm), lumps of fused ash (with a high mineral content, perhaps derived from plant silica), modern rootlets, two earthworm egg capsules, one uncharred, modern seed of goosefoot (*Chenopodium*) and charcoal (to 10 mm)	-	No

XIV.6e) Roundhouse C/D

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3254	320	T3 Roundhouse C/D	Fill of 3256, part of enclosure/drainage ditch around Roundhouses C and D. (3254) is the only fill in this sondage to contain a significant amount of charcoal	1	32	a few modern rootlets, one uncharred achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) - modern, and charcoal (to 35 mm; distorted)	probably hazel (cf. *Corylus*)	No
3348	355	T3 Roundhouse C/D	Fill of 3350	1	6	mostly modern rootlets, two uncharred seeds of goosefoot (*Chenopodium*) - modern, a few fragments of fine charcoal (to 5 mm) and one charred cereal grain (poorly preserved, probably wheat - *Triticum*)	-	No
3349	356	T3 Roundhouse C/D	Primary fill of 3350	1	3	mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) and one nutlet of hemp-nettle (*Galeopsis*) - both uncharred and modern, and a few fragments of charcoal (to 10 mm)	-	No
3370	389	T3 Roundhouse C/D	Fill of 3371	1	14	few modern rootlets, one uncharred fruit stone of raspberry (*Rubus idaeus* L.) - modern, and charcoal (to 15 mm; distorted)	probably hazel (cf. *Corylus*)	No

XIV.*6f) Roundhouse D*

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3907	517	T3 Roundhouse D	Lower fill of 3863	1	13	mostly modern rootlets, with a few fragments of charcoal (to 10 mm)	-	Yes
3928	518	T3 Roundhouse D	Fill of 3929, shallow gully related to Roundhouse D	1	13	mostly modern rootlets and a few fine charcoal fragments (to 5 mm)	-	Yes
3950	526	T3 Roundhouse D	Fill of 3952, on the W edge of small gully 3952	1	3	mostly modern rootlets and a few fragments of fine charcoal (to 5 mm)	-	Yes
3953	526	T3 Roundhouse D	Upper fill of 3954 and 3978, but renumbered as 3976	1	7	undisaggregated sediment lumps, mostly modern rootlets, seven earthworm egg capsules, one fruit stone of blackberry (*Rubus fruticosus* L. agg.), one seed of elder (*Sambucus*), one seed of goosefoot (*Chenopodium*), one achene of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern, and a few fragments of charcoal (to 10 mm)	-	No
3957	527	T3 Roundhouse D	Lower fill of 3954, appeared to be the same as 3977. Possibly the remains of a post-pipe?	1	22	undisaggregated sediment lumps, mostly modern rootlets and charcoal (to 15 mm)	oak (*Quercus*)	No
3959	529	T3 Roundhouse D	Fill of 3960, part of a possible partition across Roundhouse D	1	12	a few fragments of cinder and coal, mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and a little charcoal (to 10 mm)	-	No
3991	530	T3 Roundhouse D	Fill of 3992, a gully extending NW from and partially within Roundhouse D	2	14	mostly modern rootlets, two earthworm egg capsules, one fruit stone of bramble (*Rubus*) and two seeds of goosefoot (*Chenopodium*) - all uncharred and modern and a few fragments of charcoal (to 15 mm)	-	No
9028	531	T3 Roundhouse D	Fill of 9027	1	4	mostly modern rootlets and a few fragments of charcoal (to 10 mm)	-	No
9033	532	T3 Roundhouse D	Fill of post-hole 9034	1	6	small stones (to 10 mm), mostly modern rootlets and a few charcoal fragments (to 10 mm)	-	No
9052	551	T3 Roundhouse D	Cut/fill of animal burrow	1	36	mostly modern rootlets, slag, coal, one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), one fruit stone of blackberry (*Rubus fruticosus* L. agg.) and two seeds of goosefoot (*Chenopodium*) - all uncharred and modern, and a few charcoal fragments (to 15 mm)	-	No

XIV.*6g) Roundhouse E*

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
4179	345	T3 Roundhouse E	Charcoal rich deposit, fills 4383 containing hearth stones 4263	2	328	a few modern rootlets, five earthworm egg capsules, 13 uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 20 mm) and a grain assemblage (listed in Table 6h - see below)	ash (*Fraxinus*), probably oak (cf. *Quercus*)	Yes
4196	533	T3 Roundhouse E	Rubble deposit sealing Roundhouse E.	1	3	undisaggregated sediment lumps and charcoal (to 10 mm)	-	No
4197	346	T3 Roundhouse E	Burnt stoney layer below 4196 and E of 4192. Same as 4196	3	85	undisaggregated sediment lumps, modern rootlets, six earthworm egg capsules, two seeds of goosefoot (*Chenopodium*), one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), one achene of knotgrass (*Polygonum*) and one fruit stone of raspberry (*Rubus idaeus* L.) - all uncharred and modern, mostly charcoal (to 10 mm), one charred caryopsis of brome (*Bromus*), one charred achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), one charred glume base of emmer (*Triticum dicoccum* Schübl.), one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.) and two charred cereal grains (poorly preserved, one probably emmer)	-	Yes
4227	344	T3 Roundhouse E	Fill of 4226, contained packing stones	2	15	modern rootlets, one earthworm egg capsule, two seeds of goosefoot (*Chenopodium*) and one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) - all uncharred and modern and mostly charcoal (to 10 mm)	hazel (*Corylus*)	No
4229	343	T3 Roundhouse E	Contained large packing stones. Some of fill 4230 mixed with 4229 in sample 343, as not seen until some packing stones were removed	1	37	modern rootlets, five earthworm egg capsules, three seeds of goosefoot (*Chenopodium*), one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), one achene of knotgrass (*Polygonum*) and one achene of thistle (*Carduus*/*Cirsium*) - all uncharred and modern, mostly charcoal (to 10 mm) and one charred cereal grain (poorly preserved, probably barley)	-	Yes
4230	717	T4 Roundhouse E	Lower fill of 4228	1	37	a few modern rootlets and charcoal 'slivers' (to 10 mm)	oak (*Quercus*) – dominant, hazel (*Corylus*)	No
4240	376	T3 Roundhouse E	Fill of 4241, possibly cut by 4306, but not clear	2	80	mostly undisaggregated sediment lumps, modern rootlets, three uncharred seeds of goosefoot (*Chenopodium*) - modern, charcoal (to 10 mm) and one charred achene of stinking chamomile (*Anthemis cotula* L.)	-	No
4243	388	T3 Roundhouse E	Fill of 4244	1	4	mostly undisaggregated sediment lumps, three earthworm egg capsules, one uncharred achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) - modern, and a few charcoal fragments (to 5 mm)	-	No
4245	341	T3 Roundhouse E	Fill of 4194, may be part of the same deposition phase as 4197	1	12	undisaggregated sediment lumps, modern rootlets, a few earthworm egg capsules, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, one charred fragment of hazelnut shell, one charred grain of oat (*Avena*), one charred grain of wheat (*Triticum*) and one charred unidentifiable cereal grain	-	Yes
4247	342	T3 Roundhouse E	Fill of post-hole 4246, part of four post structure inside Roundhouse E	1	32	seven earthworm egg capsules, charcoal (to 15 mm) and one charred cereal grain (poorly preserved, probably barley)	-	Yes
4249	381	T3 Roundhouse E	Fill of 4248, possibly part of a postring inside Roundhouse E	1	78	modern rootlets, a few earthworm egg capsules, several uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 10 mm), 147 charred fragments of hazelnut shell and one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.)	hazel (*Corylus*)	Yes
4250	382	T3 Roundhouse E	Dump of material immediately W of the entrance to Roundhouse E	7	435	undisaggregated sediment lumps, a few modern rootlets, several seeds of goosefoot (*Chenopodium*), one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.), one achene of knotweed (*Persicaria*), one fruit stone of blackberry (*Rubus fruticosus* L.	ash (*Fraxinus*), hazel (*Corylus*)	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
						agg.) - all uncharred and modern, mostly charcoal (to 15 mm) and a grain assemblage (listed in Table 6h - see below)		
4253	383	T3 Roundhouse E	Fill of post-hole 4252, one of the group of four large posts inside Roundhouse E	5	127	charcoal (to 15 mm), one charred achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), two charred cereal grains of barley (*Hordeum distichon* L./*H. vulgare* L.)	-	Yes
4264	393	T3 Roundhouse E	Fill of 4265	1	58	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, a few earthworm egg capsules, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, and charcoal (to 8 mm)	-	No
4266	394	T3 Roundhouse E	Fill of 4267	3	69	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, a few seeds of goosefoot (*Chenopodium*) and one fruit stone of blackberry (*Rubus fruticosus* L. agg.) - all uncharred and modern, charcoal (to 15 mm) and two charred unidentifiable cereal grains (poorly preserved)	oak (*Quercus*)	Yes
4272	395	T3 Roundhouse E	Fill of 4273	2	4	undisaggregated sediment lumps, mostly modern rootlets and a few fragments of charcoal (to 10 mm)	-	No
4274	396	T3 Roundhouse E	Fill of 4275, part of the triangular gully feature on the south-eastern side of the ring groove 4267.	1	16	undisaggregated sediment lumps, modern rootlets, seven seeds of goosefoot (*Chenopodium*), one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) - all uncharred and modern, and mostly charcoal (to 15 mm)	-	No
4276	397	T3 Roundhouse E	Fill of post-hole 4277, possibly part of a post ring in Roundhouse E	1	42	mostly modern rootlets, two earthworm egg capsules, 11 uncharred seeds of goosefoot (*Chenopodium*) - modern, one charred achene of sheep's sorrel (*Rumex acetosella* L.), one charred glume base of emmer (*Triticum dicoccum* Schübl.), one charred grain of barley (*Hordeum distichon* L./*H. vulgare* L.), one charred grain of naked wheat (*Triticum aestivum* L./*durum* Desf./*turgidum* L.), one charred grain of spelt wheat (*Triticum spelta* L.) and twelve charred cereal grains (distorted and eroded)	-	Yes
4278	398	T3 Roundhouse E	Fill of 4279, same as 4274 and 4266	1	7	undisaggregated sediment lumps, mostly modern rootlets and a few fragments of charcoal (to 10 mm)	-	No
4282	430	T3 Roundhouse E	Fill of 4284, a rock cut channel which runs through the centre of the four post structure inside Roundhouse E	2	36	undisaggregated sediment lumps, mostly modern rootlets, four seeds of goosefoot (*Chenopodium*), one achene of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern, charcoal (to 10 mm) and two charred grains of wheat (*Triticum*)	-	Yes
4292	431	T3 Roundhouse E	Fill of 4291	1	63	modern rootlets, a few earthworm egg capsules, a few seeds of goosefoot (*Chenopodium*), one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) - all uncharred and modern, and charcoal (to 10 mm)	-	No
4294	434	T3 Roundhouse E	fill of 4293	1	10	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, a few earthworm egg capsules, few uncharred seeds of goosefoot (*Chenopodium*) - modern, and charcoal (to 8 mm)	-	No
4298	436	T3 Roundhouse E	Fill of 4297, similar to 4303	1	62	mostly modern rootlets, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, and charcoal (to 15 mm)	-	No
4300	435	T3 Roundhouse E	Fill of 4299, some of the stones may represent the remains of packing material	1	34	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, a few earthworm egg capsules, few seeds of goosefoot (*Chenopodium*), one floret of the grass family (Poaceae), one achene of dock (*Rumex*) - all uncharred and modern, and charcoal (to 10 mm)	-	No
4301	437	T3 Roundhouse E	Fill of 4302	1	134	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), a few modern rootlets and charcoal (to 35 mm)	oak (*Quercus*)	No
4303	444	T3 Roundhouse E	Fill of 4304	1	46	undisaggregated sediment lumps, mostly modern rootlets and a few fragments of	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
						charcoal (to 5 mm)		
4305	445	T3 Roundhouse E	Fill of 4306	1	27	undisaggregated sediment lumps, mostly modern rootlets, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, and a little charcoal (to 8 mm)	-	No
4307	446	T3 Roundhouse E	Possible hearth layer, not in a true cut but overlies a loosely packed stone base in a very slight dip	2	115	mostly rootlets, two uncharred seeds of goosefoot (*Chenopodium*) - modern, some small fragments of charcoal (to 10 mm), one charred fragment of hazelnut shell and a grain assemblage (listed in Table 6h - see below)	-	Yes
4308	447	T3 Roundhouse E	Fill of 4309	1	8	mostly modern rootlets, a few earthworm egg capsules, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, and a little charcoal (to 8 mm)	-	No
4316	448	T3 Roundhouse E	Fill of 4315, ring gully of ancillary structure to the NE of Roundhouse E	1	22	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, a few earthworm egg capsules, one achene of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), one nutlet of dead-nettle (*Lamium*), one achene of fumitory (*Fumaria*), a few seeds of goosefoot (*Chenopodium*) - all uncharred and modern, and a few fragments of charcoal (to 12 mm)	-	No
4324	460	T3 Roundhouse E	Fill of 4323	1	10	undisaggregated sediment lumps, mostly modern rootlets, few uncharred seeds of goosefoot (*Chenopodium*) - modern, and a few charcoal fragments (to 10 mm)	-	No
4329	461	T3 Roundhouse E	Fill of 4330, the larger stones were not obvious packing but may have slipped into the fill from their original positions	1	5	mostly modern rootlets, one earthworm egg capsule, four seeds of goosefoot (*Chenopodium*) - modern, and a few charcoal fragments (to 10 mm)	-	No
4362	462	T3 Roundhouse E	Fill of 4361	1	6	mostly small stones and a few charcoal (to 5 mm)	-	No
4379	463	T3 Roundhouse E	Fill of 4378, similar to the fill of nearby postholes but with charcoal	1	44	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, and charcoal (to 15 mm)	probably hazel (cf. *Corylus*)	No
4392	465	T3 Roundhouse E	Fill of 4391, the rich charcoal fill may represent the *in situ* burning of the post	1	35	lumps of fused ash (with a high mineral content, perhaps derived from plant silica), a few modern rootlets and charcoal (to 5 mm)	-	No
4403	466	T3 Roundhouse E	Burnt natural beneath the hearth 4263	1	100	a few modern rootlets, a few uncharred seeds of goosefoot (*Chenopodium*) - modern, mostly charcoal (to 20 mm) and a grain assemblage (listed in Table 6h - see below)	ash (*Fraxinus*) – dominant, hazel (*Corylus*)	Yes

XIV.6h) Roundhouse E larger grain assemblages

			T4 RHE	T4 RHE	T4 RHE	T4 RHE
Feature			hearth	?hearth	hearth	hearth
Context			4179	4250	4307	4403
Sample			345	382	446	466
Radiocarbon date (where available)			AD570 to 670	AD450 to 665	-	-
sample volume (in litres)			40	104	26	16
flot weight (in g)			592	432	114	100
crops						
grain						

			T4 RHE	T4 RHE	T4 RHE	T4 RHE
Feature			hearth	?hearth	hearth	hearth
Context			4179	4250	4307	4403
Sample			345	382	446	466
Radiocarbon date (where available)			AD570 to 670	AD450 to 665	-	-
sample volume (in litres)			40	104	26	16
flot weight (in g)			592	432	114	100
Avena	oat	grain	322	55	69	87
Hordeum distichon L./*H. vulgare* L.	barley	grain	259	44	3	49
Hordeum vulgare L.	hulled barley	grain	9	2		
Hordeum vulgare L.	naked barley	grain	55	9		
Secale cereale L.	rye	grain			7	
Triticum aestivum L./*T. durum* Desf./*T. turgidum* L.	naked wheat	grain	286	37	62	72
Triticum spelta L.	spelt wheat	grain	4	1	6	1
Cerealia indet.	cereals	grain fragments	1221	202	236	176
gathered plants						
Corylus avellana L.	hazel	nut shell			46	
weeds						
Anthemis cotula L.	stinking chamomile	achene			1	
Bromus	brome	caryopsis	2			
Chenopodium album L.	fat-hen	seed	27			
Fallopia convolvulus (L.) Á. Löve	black-bindweed	achene	59	2		
Lapsana communis L.	nipplewort	achene	9			
Persicaria	knotweed	achene	34	2	2	2
Poaceae	grass family	caryopsis	1			
Polygonum aviculare L.	knotgrass	achene	7			
Raphanus raphanistrum L.	wild radish	mericarp	4			1
Rumex	dock	achene	6			
Vicia hirsuta (L.) Gray/*V. tetrasperma* (L.) Schreb	tare	seed	3			
sum of botanical remains			**2308**	**354**	**432**	**388**

			T4 RHE	T4 RHE	T4 RHE	T4 RHE
Feature			hearth	?hearth	hearth	hearth
Context			4179	4250	4307	4403
Sample			345	382	446	466
Radiocarbon date (where available)			AD570 to 670	AD450 to 665	-	-
sample volume (in litres)			40	104	26	16
flot weight (in g)			592	432	114	100
other unidentifiable plant remains						
charcoal (ash)						x
charcoal (hazel)						x
modern contaminants (waterlogged)						
Atriplex/*Chenopodium*	orache/goosefoot	seed	68	7	15	
Fumaria	fumitory	achene	1	4	1	1
Polygonum aviculare L.	knotgrass	achene			1	
Rubus idaeus L.	raspberry	fruit stone		2		

XIV.6i) Structure F – possible Roundhouse

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
3921	571	T3 Structure F	Fill of presumed drainage gully 3922	1	6	small stones (to 5 mm), mostly modern rootlets and fragments of fine charcoal (to 5 mm)	-	No
9018	572	T3 Structure F	Main fill of post-hole 9020	2	7	small stones (to 5 mm), lumps of fused ash (with a high mineral content, perhaps derived from plant silica), mostly modern rootlets, one seed of goosefoot (*Chenopodium*) and two achenes of knotweed (*Persicaria*) - all uncharred and modern, and a few fragments of fine charcoal (to 5 mm)	-	No
9021	534	T3 Structure F	Fill of natural feature 9023	1	24	undisaggregated sediment lumps, mostly modern rootlets and charcoal (to 15 mm)	hazel (*Corylus*)	No
9035	537	T3 Structure F	Fill of probable stone-hole 9036	1	31	mostly modern rootlets, two earthworm egg capsules, one uncharred seed of goosefoot (*Chenopodium*) - modern, and charcoal (to 10 mm)	-	No
9053	545	T3 Structure F	Fill of possible ditch 9054	1	14	mostly modern rootlets and charcoal (to 20 mm)	hazel (*Corylus*)	No
9075	561	T3 Structure F	Fill of pit 9066	1	13	mostly modern rootlets, coal (to 10 mm), slag (to 10 mm), two uncharred achenes of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - modern, a few fragments of charcoal (to 10 mm) and one charred fragment of hazelnut shell	-	Yes
9095	543	T3 Structure F	Fill of post-hole 9096	1	13	mostly modern rootlets and charcoal (to 10 mm)	-	No
9097	695	T3 Structure F	Fill of possible stone-hole or hollow 9098	1	8	small stones (to 6 mm), mostly modern rootlets and a little charcoal (to 10 mm)	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
9100	544	T3 Structure F	Large post-hole	1	9	mostly modern rootlets and charcoal (to 15 mm)	hazel (*Corylus*)	Yes
9107	550	T3 Structure F	Fill of post-hole 9108, contained a piece of possible slag	1	2	mostly modern rootlets and a few fragments of fine charcoal (to 5 mm)	-	No
9111	578	T3 Structure F	Fill of pit 9112	4	17	a few fragments of coal, mostly modern rootlets, and a little fine charcoal (to 5 mm)	-	No
9113	583	T3 Structure F	Stoney fill of irregular gully 9397, on edge of Structure F	1	29	undisaggregated sediment lumps (to 10 mm), mostly modern rootlets, some slag and coal, four seeds of goosefoot *(Chenopodium)* and three achenes of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, and charcoal (to 10 mm)	-	No
9113	689	T3 Structure F	as above	1	9	a few small stones (to 4 mm), mostly modern rootlets, two earthworm egg capsules, one uncharred achene of knotgrass (*Polygonum aviculare* L.) - modern, and few fragments of charcoal (to 10 mm)	-	No
9118	547	T3 Structure F	Fill of post-hole 9119	1	5	a few fragments of cinder and coal, mostly modern rootlets, one earthworm egg capsule, and a little fine charcoal (to 5 mm)	-	No
9120	549	T3 Structure F	Fill of post-hole 9121	2	41	a few small stones (to 10 mm), mostly modern rootlets and charcoal (to 15 mm), one charred grain of wheat (*Triticum*) - poorly preserved, and one charred glume base - probably emmer wheat (*Triticum dicoccum* Schübl.)	oak (*Quercus*)	Yes
9123	552	T3 Structure F	Fill of post impression in base of post-hole 9100	1	4	small stones (to 4 mm), mostly modern rootlets and a few charcoal fragments (to 5 mm)	-	No
9137	556	T3 Structure F	Fill of post-hole 9138	1	111	undisaggregated sediment lumps (to 10 mm), mostly modern rootlets, charcoal (to 20 mm; deformed and orange-brown in colour)	-	No
9141	558	T3 Structure F	Fill of post-hole 9142	1	4	small stones (to 15 mm), mostly modern rootlets and a few charcoal fragments (to 5 mm)	-	No
9145	546	T3 Structure F	?Fill of post-hole or pit	1	8	mostly modern rootlets and charcoal (to 10 mm)	-	No
9147	565	T3 Structure F	Fill of pit 9148	1	10	a few fragments of cinder and coal, mostly modern rootlets and a little charcoal (to 10 mm)	-	No
9149	562	T3 Structure F	Upper fill of ditch 9007, one of the main enclosure/drainage ditches to the S and E of Structure F	2	19	lumps of ash and charcoal (to 10 mm), mostly modern rootlets, two seeds of goosefoot (*Chenopodium*) and one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, and a few charcoal fragments (to 15 mm)	-	No
9150	563	T3 Structure F	Lower fill of ditch 9007, one of the main enclosure/drainage ditches to the S and E of Structure F	1	20	lumps of ash and charcoal (to 10 mm), mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and charcoal (to 15 mm)	hazel (*Corylus*)	No
9152	582	T3 Structure F	Large stone packed post-hole with smaller adjacent post-hole 9202, both assumed to be contemporary	1	6	a few small stones (to 8 mm), mostly modern rootlets, one uncharred achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - modern, and a little charcoal (to 5 mm)	-	No
9155	579	T3 Structure F	Upper fill of post-hole 9156 to the E of Structure F	1	15	mostly modern rootlets, one uncharred achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - modern, and some charcoal (to 15 mm; orange-brown in colour)	-	No
9203	581	T3 Structure F	Fill of post-hole 9202, part of entrance feature to Structure F	1	3	a few fragments of cinder and coal, mostly modern rootlets, and a little fine charcoal (to 5 mm)	-	No
9204	584	T3 Structure F	Lower fill of possible double post-hole 9152, part of entrance feature to Structure F	1	6	small stones (to 5 mm), mostly modern rootlets, and a few fragments of fine charcoal (to 5 mm)	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
9206	590	T3 Structure F	Secondary fill of shallow pit 9205	2	12	Small stones (to 5 mm), two modern fly puparia, one modern insect fragment (elytron), mostly modern rootlets, one fruit stone of blackberry (*Rubus fruticosus* L. agg.), one nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.), one achene of knotgrass (*Polygonum aviculare* L.) - all uncharred and modern, and a few fragments of charcoal (to 13 mm)	oak (*Quercus*)	No
9207	585	T3 Structure F	Fill of stake-hole 9208	1	1	small stones (to 3 mm), a few modern rootlets and fine charcoal (to 5 mm)	-	No
9209	587	T3 Structure F	Fill of stake-hole 9210, just W of entrance feature into Structure F	1	1	small stones (to 3 mm), a few modern rootlets and fine charcoal (to 5 mm)	-	No
9213	586	T3 Structure F	Fill of stake-hole 9214 near pit 9148 in Structure F	1	1	mostly small stones (to 6 mm), a few modern rootlets, and a little fine charcoal (to 3 mm)	-	No
9215	591	T3 Structure F	Lower fill of shallow pit 9205	2	19	small stones (to 5 mm), mostly modern rootlets, and a few fragments of fine charcoal (to 5 mm)	-	No
9295	596	T3 Structure F	Fill of post-hole 9296 at the W end of Structure F	1	8	mostly modern rootlets, a few charcoal fragments (to 10 mm)	-	No
9301	598	T3 Structure F	Fill of possible post-hole 9300 in ditch 3920	1	10	small stones (to 10 mm), undisaggregated sediment lumps (to 5 mm), mostly modern rootlets and charcoal (to 10 mm)	-	No
9302	671	T3 Structure F	Base of ploughsoil left in shallow depression	1	21	undisaggregated sediment lumps, mostly modern rootlets and a few charcoal fragments (to 5 mm)	-	No
9313	676	T3 Structure F	Upper fill of pit 9315	1	9	small stones (to 5 mm), mostly modern rootlets and charcoal (to 13 mm)	probably hazel (cf. *Corylus*)	No
9319	675	T3 Structure F	Fill of pit 9320	1	6	small stones (to 3 mm), mostly modern rootlets, two earthworm egg capsules and a few fragments of charcoal (to 5 mm)	-	No
9322	674	T3 Structure F	Spread of clay, seems to be deliberately deposited to fill a hollow	1	11	mostly modern rootlets and a few charcoal fragments (to 5 mm)	-	No
9332	679	T3 Structure F	Fill of post-hole 9333, immediately W of triple post-hole on the E side of Structure F	2	10	small stones (to 7 mm), mostly modern rootlets and charcoal (to 10 mm)	hazel (*Corylus*)	No
9398	690	T3 Structure F	Fill of 9399, shallow, rather irregular pit to the N of Structure F	1	4	mostly modern rootlets, one earthworm egg capsule and a few fragments of fine charcoal (to 2 mm)	-	No
9401	694	T3 Structure F	Fill of probable post-pipe 9400 within post-hole 9404	1	8	small stones (to 5 mm), mostly modern rootlets and a few fragments of charcoal (to 10 mm)	-	No
9402	691	T3 Structure F	Fill of possible post-hole 9403 within Structure F	1	14	mostly modern rootlets and a few fragments of charcoal (to 13 mm)	-	No
9435	701	T3 Structure F	Fill of 9434, a large shallow pit to the N of Structure F	2	19	undisaggregated sediment lumps, mostly modern rootlets, one achene of dock (*Rumex*) and one achene of knotweed (*Persicaria*) - both uncharred and modern, and a few fragments of charcoal (to 10 mm)	-	No
9199	580	T3 Structure F/G	Fill of post-hole 9200	1	10	small stones (to 3 mm), mostly modern rootlets, one earthworm egg capsule, one uncharred achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - modern, and a few charcoal fragments (to 10 mm)	-	No

XIV.6j) Structure G – possible Roundhouse

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
9061	594	T3 Structure G	Upper fill of pit 9246	1	9	mostly modern rootlets and a few charcoal fragments (to 15 mm)	hazel (*Corylus*)	No
9079	560	T3 Structure G	Fill of post-hole 9070, part of a line that crosses W part of Structure G	1	6	a few small stones (to 5 mm), a little coal, mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and a few fragments of fine charcoal (to 5 mm)	-	No
9286	593	T3 Structure G	Fill of post-hole 9287, part of a group in the annexe to Structure G	1	9	small stones (to 2 mm), mostly modern rootlets and a few fragments of fine charcoal (to 5 mm)	-	No
9308	599	T3 Structure G	Fill of post-hole 9309, cutting pit 9307	1	6	mostly modern rootlets and a few fragments of fine charcoal (to 5 mm)	-	No
9311	672	T3 Structure G	Fill of post-hole 9312	1	5	a few small stones (to 3 mm), mostly modern rootlets and a little charcoal (to 10 mm)	-	No
9314	677	T3 Structure G	Lower fill of pit 9315	1	5	a few small stones (to 5 mm), mostly modern rootlets and a little fine charcoal (to 5 mm)	-	No
9328	684	T3 Structure G	Fill of pit 9329 in centre of Structure G	1	29	undisaggregated sediment lumps, a few small stones (to 3 mm), mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) – modern and some charcoal (to 15 mm)	hazel (*Corylus*)	No
9330	682	T3 Structure G	Fill of irregular feature 9331 in middle of Structure G	1	5	undisaggregated sediment lumps (to 10 mm), mostly modern rootlets and a few fragments of charcoal (to 15 mm)	-	No
9330	685	T3 Structure G	as above	1	11	a few small stones (to 5 mm), mostly modern rootlets, two uncharred seeds of goosefoot (*Chenopodium*) - modern, and a few charcoal fragments (to 10 mm)	-	No
9334	681	T3 Structure G	Fill of 9335, stake-hole near the central features in Structure G	1	2	small stones (to 4 mm), mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and a little fine charcoal (5 mm)	-	No
9343	683	T3 Structure G	Clayey packing material in post-hole 9327 in centre of Structure G	1	5	mostly modern rootlets and a few charcoal fragments (to 10 mm)	-	No
9353	686	T3 Structure G	Fill of penannular ditch 9352	1	11	a few small stones (to 5 mm), mostly modern rootlets and a few charcoal fragments (to 10 mm)	-	No
9370	688	T3 Structure G	Stake-hole adjacent to penannular ditch 9352	1	6	a few small stones (to 5 mm), mostly modern rootlets and charcoal (to 10 mm)	-	No
9406	692	T3 Structure G	Fill of 9391, shallow circular pit to the S of Structure G	1	5	small stones (to 8 mm), mostly modern rootlets and a few fragments of charcoal (to 10 mm)	-	No
9407	693	T3 Structure G	Fill of stone-filled land drain 9408	1	3	mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and a little fine charcoal (to 5 mm)	-	No
9420	698	T3 Structure G	Fill of stake-hole 9421 to the S of Structure G	1	2	small stones (to 3 mm) and mostly modern rootlets	-	No
9428	699	T3 Structure G	Fill of 9429, small post-hole in annexe to Structure G	1	3	small stones (to 5 mm), mostly modern rootlets and a few fine charcoal fragments (to 5 mm)	-	No
9436	700	T3 Structure G	Fill of 9437, post-hole in annexe of Structure G	1	5	small stones (to 2 mm), mostly modern rootlets and a few fragments of fine charcoal (to 2 mm)	-	No

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
9317	718	T3 Structure GN	Fill of pit 9318	1	11	small stones (to 4 mm), mostly modern rootlets, two earthworm egg capsules, one uncharred achene of fumitory (*Fumaria*) - modern, and a few fragments of charcoal (to 10 mm)	-	No
9338	687	T3 Structure GN	Fill of post-hole 9339 to the N of Structure G	1	3	small stones (to 4 mm), mostly modern rootlets and a few fragments of charcoal (to 5 mm)	-	No
9390	673	T3 Structure GN	Fill of groove or gully 9316 to the N of Structure G	1	5	undisaggregated sediment lumps, mostly modern rootlets, five earthworm egg capsules and a few fragments of charcoal (to 5 mm)	-	No

XIV.6k) Roundhouse H

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
9161	569	T3 Roundhouse H	Fill of 9162, a curving gully to the SW of Roundhouse H	1	3	a few small stones (to 3 mm), mostly modern rootlets and a little charcoal (to 10 mm)	-	No
9164	555	T3 Roundhouse H	Probably an occupation layer over the interior of Roundhouse H, but truncated in places	3	17	small stones (to 8 mm), mostly modern rootlets, one earthworm egg capsule, 23 seeds of goosefoot (*Chenopodium*), one achene of knotgrass (*Polygonum aviculare* L.), one achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) and one nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.) - all uncharred and modern, a few fragments of petrified charcoal (to 10 mm), charcoal (to 15 mm) and two charred cereal grains (poorly preserved, probably wheat - *Triticum*)	probably hazel (cf. *Corylus*)	Yes
9165	559	T3 Roundhouse H	Hearth	1	3	small stones (to 3 mm), mostly modern rootlets and charcoal (to 5 mm)	-	No
9167	697	T3 Roundhouse H	Continuation of the 19th century ditch 3700 running through Roundhouse H	1	15	undisaggregated sediment lumps (to 10 mm), mostly modern rootlets, six earthworm egg capsules, one uncharred nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.) - modern, and charcoal (to 10 mm)	-	No
9174	589	T3 Roundhouse H	Fill of 9175	1	4	small stones (to 5 mm), coal, three earthworm egg capsules, mostly modern rootlets, one uncharred achene of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - modern, and a few charcoal fragments (to 5 mm)	-	No
9177	570	T3 Roundhouse H	Lower fill of linear to the W of Roundhouse H	1	4	small stones (to 10 mm), two earthworm egg capsules and mostly modern rootlets	-	No
9178	588	T3 Roundhouse H	Fill of 9170	1	13	undisaggregated sediment lumps, mostly modern rootlets and a few fragments of charcoal (to 5 mm)	-	No
9182	696	T3 Roundhouse H	Fill of 9163, inner drain of Roundhouse H	4	44	undisaggregated lumps of ash and charcoal, undisaggregated sediment lumps, mostly modern rootlets and a few charcoal fragments (to 25 mm)	hazel (*Corylus*)	No
9183	566	T3 Roundhouse H	Upper fill of 9184, a small pit within Roundhouse H	1	10	a few small stones (to 8 mm), undisaggregated lumps of ash and charcoal, mostly modern rootlets, mostly charcoal (to 10 mm) and one charred cereal grain (poorly preserved, unidentifiable)	-	Yes

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
9185	568	T3 Roundhouse H	Fill of 9186, narrow gully within Roundhouse H	1	3	a few small stones (to 10 mm), mostly modern rootlets and charcoal (to 15 mm)	hazel (*Corylus*)	No
9259	600	T3 Roundhouse H	Fill of shallow gully 9260	1	8	undisaggregated sediment lumps, mostly modern rootlets, one achene of knotweed family (Polygonaceae) and one seed of the pea family (Fabaceae) - both uncharred and modern	-	No
9276	608	T3 Roundhouse H	Fill of 9277, a large pit W of Roundhouse H and inside curving gully 9162/9260	1	14	undisaggregated lumps of ash and charcoal, mostly modern rootlets, five uncharred seeds of goosefoot (*Chenopodium*) - modern, charcoal (to 15 mm), one charred seed of dock (*Rumex*), one charred glume base (probably emmer wheat - *Triticum dicoccum* Schübl.)and three charred cereal grains (very poorly preserved, unidentifiable)	oak (*Quercus*)	Yes
9280	613	T3 Roundhouse H	Fill of 9281, possibly the outer gully 9281 for Roundhouse H	1	6	small stones (to 3 mm), mostly modern rootlets, one seed of goosefoot (*Chenopodium*) and one one nut of silver/downy birch (*Betula pendula* Roth/*B. pubescens* Ehrh.) - both uncharred and modern, and a few charcoal fragments (to 5 mm)	-	No
9282	614	T3 Roundhouse H	Stone spread to the S of Roundhouse H, same as 9279, appeared deliberately deposited	1	6	mostly modern rootlets, one seed of goosefoot (*Chenopodium*) and one achene of knotgrass (*Polygonum aviculare* L.) - both uncharred and modern	-	No

Table XIV.7. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Biological remains recovered from samples from deposits associated with the bead cache from Pit 2104, with notes on the presence of material suitable for submission for radiocarbon dating.
Key: see Table 1.

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
2090	172	Bead cache	Fill of 2091, a well defined flat bottomed pit adjacent to the glass bead collection	1	15	undisaggregated sediment lumps, mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and charcoal (to 10 mm)	-	No
2098	232	Bead cache	Only fill of 2104, a small hole disturbed by animal burrowing. Contained large numbers of Roman glass beads	2	20	undisaggregated sediment lumps, mostly modern rootlets, one earthworm egg capsule, three seeds of goosefoot (*Chenopodium*) and two fruit stones of blackberry (*Rubus fruticosus* L. agg.) - all uncharred, modern, charcoal (to 10 mm), one charred fragment of hazelnut shell and one charred unidentifiable cereal grain (eroded and distorted)	-	Yes
2125	226	Bead cache	Fill of 2124, a shallow pit located near to the collection of glass beads	1	15	few modern rootlets and mostly charcoal (to 10 mm)	-	No
2126	234	Bead cache	Series of three animal burrows in the base of 2104	1	1	undisaggregated sediment lumps and a few fragments of fine charcoal (to 3 mm)	-	No

Table XIV.8. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Biological remains recovered from samples from Bronze Age features in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.
Key: see Table 1.

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1263	39	T1 prehistoric? Pit 1390	Patch of burnt natural	1	43	charcoal (to 10 mm) and two charred fragments of hazelnut shell	hazel (*Corylus*)	Yes
1391	70	T1 prehistoric? Pit 1390	Primary fill of deep pit 1390	1	22	charcoal (to 13 mm)	hazel (*Corylus*), oak (*Quercus*)	No

Table XIV.9. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Biological remains recovered from samples from all other features in context number order, with notes on the presence of material suitable for submission for radiocarbon dating.
Key: see Table 1.

Cont	Sam	Subgroup	Context description	Bags	Wt	Notes of biological remains	Charcoal Ids	AMS
1524	103	T1 prehistoric?	Very unusual material which varies from almost white to vivid pink. Mottled throughout 2098, but mostly concentrated slightly E of the centre of the fill.	1	5	small stones (to 5 mm), mostly modern rootlets, three uncharred seeds of goosefoot (*Chenopodium*) - modern, and charcoal (to 10 mm)	-	No
1557	104	T1 prehistoric?	Fill of 1523	1	4	small stones (to 5 mm), mostly modern rootlets, one uncharred seed of goosefoot (*Chenopodium*) - modern, and charcoal (to 15 mm)	-	No
1568	105	T1 prehistoric?	Fill of 1567, with the possible remains of packing stones	1	5	a few modern rootlets, one earthworm egg capsule, two uncharred seeds of goosefoot (*Chenopodium*) - modern, and mostly charcoal (to 10 mm)	-	No
1821	214	T1 animal/tree hole	Fill of burnt tree hollow 1822	1	360	mostly charcoal 'slivers' (to 15 mm)	oak (*Quercus*)	No
2023	140	T2 animal/tree hole	Fill of 2024	1	104	a few modern rootlets, one seeds of goosefoot (*Chenopodium*) and one achene of fumitory (*Fumaria*) - all uncharred and modern, and charcoal 'slivers'	oak (*Quercus*) – dominant, hazel (*Corylus*)	No
2038	144	T2 animal/tree hole	Fill of animal burrow 2040	1	2	undisaggregated sediment lumps and a few fragments of charcoal (to 5 mm)	-	No
2038	144	T2 animal/tree hole	as above	1	19	undisaggregated sediment lumps, mostly modern rootlets and charcoal (to 15 mm)	-	No
3117	240	T3 animal/tree hole	Fill of 3118	1	48	mostly charcoal 'slivers' (to 20 mm)	oak (*Quercus*)	No
3545	418	T3 ditches	Fill of 3544	1	8	undisaggregated sediment lumps, mostly modern rootlets, one earthworm egg capsule, one uncharred achene of knotgrass (*Polygonum aviculare* L.) - modern, and charcoal (to 10 mm)	-	No
3676	449	T3 ditches	Fill of 3677, a shallow gully possibly related to the Roundhouse settlement	1	67	mostly modern rootlets, four earthworm egg capsules, 16 seeds of goosefoot (*Chenopodium*) and one achene of fumitory (*Fumaria*) - all uncharred and modern, and charcoal (to 10 mm)	-	No

4108	554		?context 6020	1	18	charcoal (to 25 mm)	hazel (*Corylus*)	No
4223	366	T4 prehistoric?	Lower fill of 4182, probably natural erosion deposit	1	8	undisaggregated sediment lumps, mostly modern rootlets, charcoal (to 5 mm), one charred achene of stinking chamomile (*Anthemis cotula* L.), one charred grain of oat (*Avena*) and four charred unidentifiable cereal grains (eroded and distorted)	-	Yes
9447	702	T3 prehistoric?	Fill of 9448, a shallow circular pit	1	12	mostly undisaggregated sediment lumps, modern rootlets, four earthworm egg capsules, one fruit stone of blackberry (*Rubus fruticosus* L. agg.) and two achenes of meadow/creeping buttercup (*Ranunculus acris* L./*R. repens* L.) - all uncharred and modern, and one charred fragment of hazelnut shell	-	Yes
9450	703	T3 prehistoric?	Charcoal rich fill of 9449	1	3	mostly undisaggregated sediment lumps and charcoal (to 5 mm)	-	No
9452	704	T3 prehistoric?	Fill of 9451, a root-hole in area of pit 9448	1	3	undisaggregated sediment lumps, a few modern rootlets, fine charcoal (to 3 mm) and five charred fragments of hazelnut shell	-	Yes
9454	705	T3 prehistoric?	Fill of 9453, a root-hole in area of pit 9448	1	4	undisaggregated sediment lumps, modern rootlets, one uncharred achene of fumitory (*Fumaria*) - modern, a few fragments of fine charcoal (to 3 mm) and two charred fragments of hazelnut shell	-	Yes
9456	706	T3 prehistoric?	Fill of 9455, a root-hole in area of pit 9448	1	6	undisaggregated sediment lumps, a few modern rootlets and fine charcoal (to 3 mm)	-	No

Table XIV.10. Parc Bryn Cegin, Llandygai, Bangor, North Wales: Vertebrate remains from all periods in context number order.
Key: U/S = unstratified; SF no. = small find number; Frags = total number of fragments.

Context	Sample	SF no.	Subgroup	Context description	Frags	Wt (g)	Notes
1051	726	1053	Pit Group I	Fill of small shallow pit 1052	7	<1g	bones have rounded edges, fresh breakage, chalky burnt bone fragments (to 11 mm)
1327	737	-	Early Neolithic building	Fill of pit 1328 close to line of east gable end of the Early Neolithic building	55	1g	very tiny fragments (to 7 mm), unidentifiable
1327	743	-	Early Neolithic building	as above	44	3	small burnt fragments (to 15 mm), most very small, all unidentified, rather battered, some rounded
1327	746	59	Early Neolithic building	as above	7	<1g	7 fragments (4 mm or less) and a quantity of tiny tiny traces of burnt bone
1327	746	-	Early Neolithic building	as above	~250	52g	a collection of burnt bone, many small fragments (less than 10 mm), few larger ones (to 32 mm). Material difficult to identify but does not have the appearance of human bone. There are also a number of fragments that resemble horncore but this could be caprovid or cattle. The rest of the assemblage cannot be identified.
1340	734	1054	Early Neolithic building	Fill of pit 1339 inside the eastern end of the Neolithic building	1	<1g	1 fragment of burnt bone, unidentifiable

Context	Sample	SF no.	Subgroup	Context description	Frags	Wt (g)	Notes
1389	751	-	Early Neolithic building	fill of posthole 1406	18	1g	small (to 8 mm), unidentified burnt fragments, rounded edges. NB. also labelled as Context 2098, Sample 720, Small find no. 246
1392	752	1315	Early Neolithic building	Fill of pit 1393 on inner gable end of building	1	<1g	1 tiny fragment of burnt bone, approximately 5 mm in maximum dimension, not identifiable
1392	753	1327	Early Neolithic building	as above	3	<1g	3 tiny fragments of burnt bone, all less than 5 mm, not identifiable
1513	733	112	Early Neolithic building	Within post-hole 1532	1	1g	1 distal humerus fragment of medium-sized mammal, sheep/goat/roe deer
2098	232	-	Bead cache	Fill of pit 2104	2	1	fragile fragments of burnt bone, including ?medium-sized mammal rib fragment
3112	730	302	Pit Group VII	Fill of pit 3111	1	<1g	1 fragile fragment of burnt bone, approximately 8 mm in maximum dimension. Not identifiable, chalky, with rounded edges
3137	729	1055	Pit Group VII	Upper fill of pit 3139	1	<1g	1 fragment of burnt bone
3142	742	-	Pit Group VII	Lower fill of pit 3139	22	<1g	22 small fragments of burnt bone (2 to 8 mm in size), not identifiable, fresh breakage damage and rounded edges
3154	728	1056	Pit Group VII	Fill of pit 3155	7	<1g	tiny fragments of burnt bone (to 10 mm), quite soft with rather rounded edges. Possible medium-sized mammal mandible and shaft fragments
3192	749	-	Pit Group VII	Fill of burnt patch	5	<1g	5 tiny (less than 3 mm) fragments of burnt bone
3270	750	-	T3 Roundhouse A	Fill of middle ring ditch 3058	1	<1g	1 medium-sized mammal shaft fragment
3490	727	612	T3 Roundhouse A	Fill of 3491, the large pit to the east of Roundhouse A	1	2	1 mm shaft fragment, 40 mm
3495	725	605	T3 Roundhouse A	Fill of 3496, part of the inner drainage gully of Roundhouse A	3	<1g	3 fragments of burnt bone, to 10 mm, fresh breakage damage, eroded surfaces, soft and chalky
3495	741	-	T3 Roundhouse A	Fill of 3496, part of the inner drainage gully of Roundhouse A	1	<1g	1 small fragment (~5 mm) of burnt bone, unidentifiable, rather eroded fragment
4025	724	1057	Pit Group II	Fill of pit 4024	3	<1g	3 small (less than 5 mm) fragments of burnt bone, fresh breakage, unidentifiable
4108	722	553	Pit Group IV	Lower fill of pit 4109	37	<1g	bluish tinge on a couple of frags, quite angular edges and fresh breakage damage
4120	732	1058	T4 animal/tree hole fill ?	Animal/tree hole fill	1	<1g	1 fragment of burnt bone, rounded, unidentifiable, c. 5 mm
4147	740	-	Pit Group V	Fill of pit with late Neolithic pottery	2	<1g	2 very tiny burnt fragments (<5 mm)
4147	747	-	Pit Group V	as above	6	1g	6 small (to 8 mm) fragments of burnt bone, rounded edges, unidentifiable

Context	Sample	SF no.	Subgroup	Context description	Frags	Wt (g)	Notes
4149	723	1059	Pit Group V	Fill of pit with late Neolithic pottery, same pit as 4147	4	<1g	4 very small fragments of burnt bone, unidentifiable, rounded edges
4149	748	-	Pit Group V	as above	2	<1g	2 crumbles of burnt bone
4282	739	-	T4 Roundhouse E	Fill of gully	2	<1g	2 small (to 7 mm) fragments of burnt bone, unidentifiable and rounded edges
4307	738	-	T4 Roundhouse E	Hearth layer	14	<1g	tiny fragments of burnt bone (5 mm or less in maximum size), rather rounded edges
9446	721	1060	T3 prehistoric?	Fill of pit 9445	7	1	7 rather poorly preserved fragments (to 15 mm), damaged by fresh breakage, with some edges rounded, bones rather chalky. 1 medium-sized mammal shaft fragment
9447	719	1061	T3 prehistoric?	Fill of shallow circular pit 9448	9	1g	burnt bone fragments, with sharp edges and fresh breakage damage, not identifiable
9447	744	-	T3 prehistoric?	as above	5	<1g	small (to 6 mm), unidentified burnt fragments
9447	754	1326	T3 prehistoric?	as above	5	<1g	very tiny fragments of burnt bone, all less than 5 mm, not identifiable
U/S	731	681	T2 burnt mounds	Tooth found near burnt mound 2031	1	12	upper horse tooth, rather battered and slightly damaged by fresh breakage

Figure XIV.1. Parc Bryn Cegin, Llandygai, Bangor, Gwynedd, North Wales: relative proportions of charred cereals in the larger grain assemblages recovered from deposits associated with Roundhouse A (including those from the Corn Drier 3671).

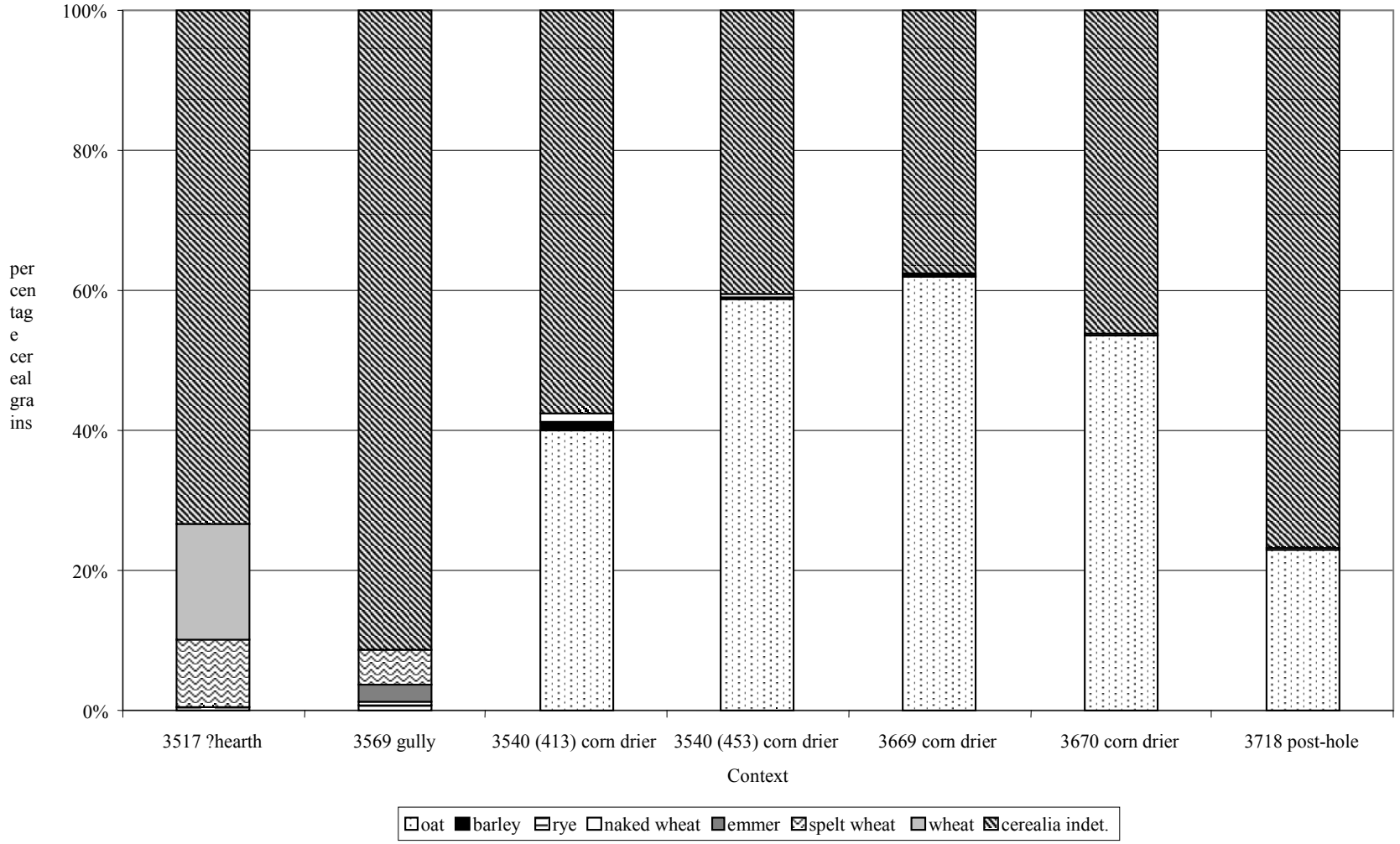
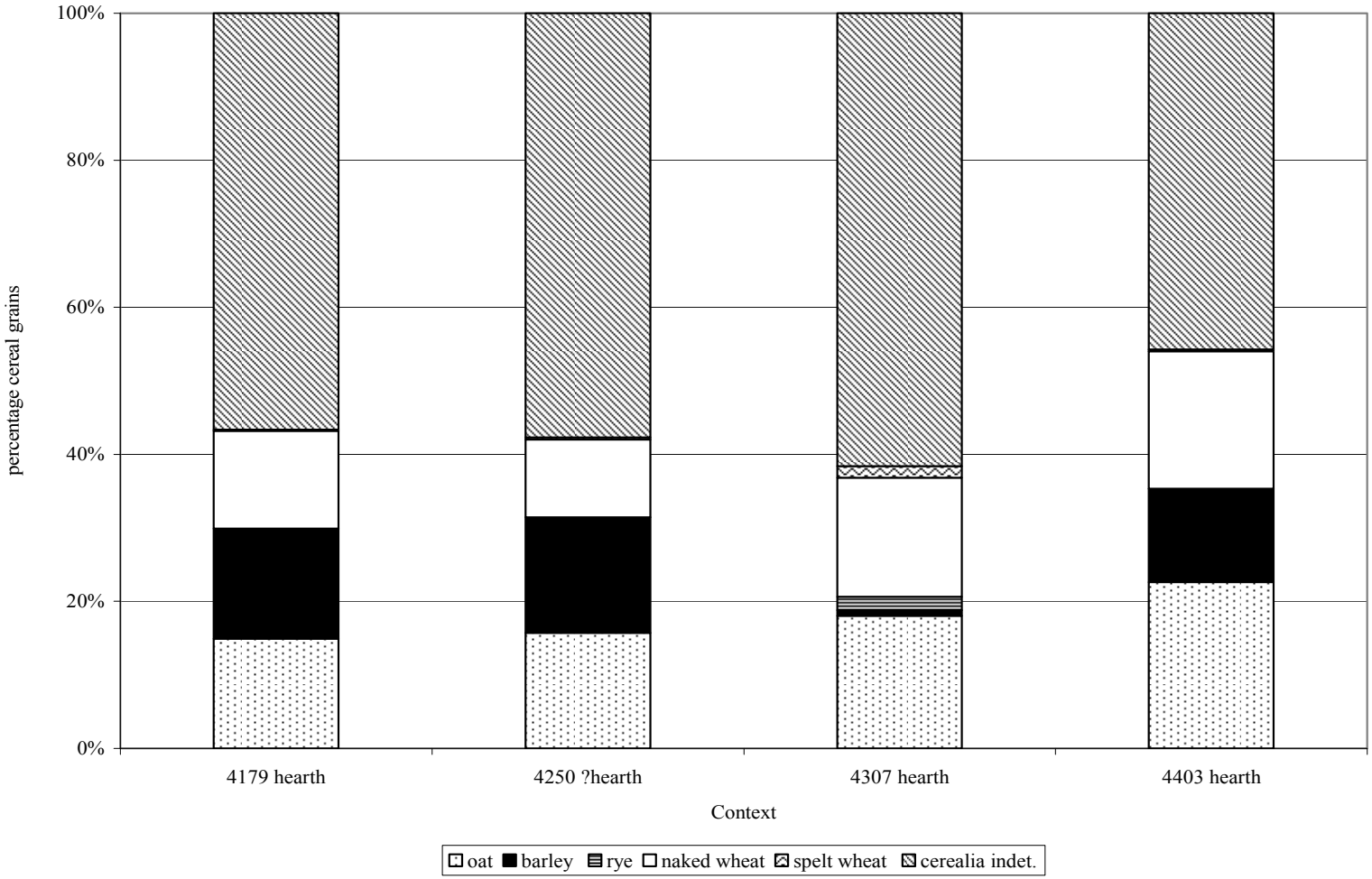


Figure XIV.2. Parc Bryn Cegin, Llandygai, Bangor, Gwynedd, North Wales: relative proportions of charred cereals in the larger grain assemblages recovered from deposits associated with Roundhouse E.



APPENDIX XV: PEDOLOGY

David Jenkins

Six monoliths were collected during excavation with the aim of answering specific questions over the mode of origin of particular horizons. Further to relevant field observations, it is possible that features within the sample microfabric could provide this information through micromorphological analysis.

The microfabric will have born an imprint of all events since deposition of the original material, through the period of archaeological interest and finally of subsequent pedogenic processes up to the development of the present day soil profile. Whether those microfabrics that are of archaeological interest survive depends on their nature and on the intensity of the pedogenic processes subsequently involved. Some of the latter can be destructive so that the information of archaeological interest is obliterated from the micromorphological record. In this instance information is sought about the nature of the original material and its mode of deposition, such as sedimentation, colluviation, random infill by man? However, relic stratification and evidence of random deposition could have been obliterated by processes such as bioturbation (earthworms), structural development (granulation) and agricultural practices (ploughing).

The six monoliths have been cleaned and photographed, and their colour (air-dry - Munsell), structure, horizonation, texture, *etc*. recorded (Hodgson 1976) and interpreted in terms of the soil classification used by Ball (1963). These observations correspond closely to the field records although terminology may differ, and the term "clayey silt" is used descriptively here rather than the official designation of "silt loam" (Hodgson 1976). Brief notes on the monoliths are given below together with the photographic record (Figure XV.1), and recommendations made as to further possible studies

185: Brown/dark brown (10YR4/3) loamy silt with fine angular and rounded small siltstones; strongly developed small sub-rounded granular structure
merging boundary
Greyish brown (10YR5/2) loamy silt + charcoal and darker stained surfaces
merging boundary
Brown (10YR5/3) loamy silt with small siltstone and silicic igneous stones; moderately developed fine granular structure

This corresponds to Bw horizons of a Brown Earth of the *Arfon Series.* It has a strong granular structural development, which is likely to have obliterated any original structure.

186: Grey brown (10YR) loamy silt with weak fine sub-rounded granular structure
strong structural break
Pale grey (10YR6/1-2) with occasional fine orange brown (5YR5/8-4/6) mottles; weakly developed fine angular granular structure and fine pinhole voids
merging boundary
pale grey (10YR6/1) silty clay with rare mottles, massive with a weak prismatic structure and fine pinhole voids with clay linings

This section comprises a strongly gleyed profile (Bw/Bg1/Bg2) which, combined with 185 above would then fit into the "Brown Earth with gleying" *Sannan Series*. It is possible that any original sedimentation structure might be preserved within the basal Bg2 horizon. No "burnt stone" was seen, but strongly Fe-stained orange stones are present. Both 185 and 186 were taken through the fills of pit 1619. The column was taken in two parts to avoid stones in the fill. Pit 1619 was dated to the Early Neolithic, contemporary with the rectangular timber structure, and contained a broken stone axe and other artefacts within a charcoal-rich layer within its fill.

339: Yellowish brown (10YR5/4) clayey silt with small angular siltstones; strongly developed sub-rounded granular structure
major structural break ("plough layer"?)
Thin slightly darker layer – earlier ploughed-in Ah (organic surface) layer?
Paler brown (10YR6/4) clayey silt with moderately developed fine granular structure with weak development of large subangular peds.

Light brownish grey (10YR6/2) clayey silt; weak granular tending to massive structure

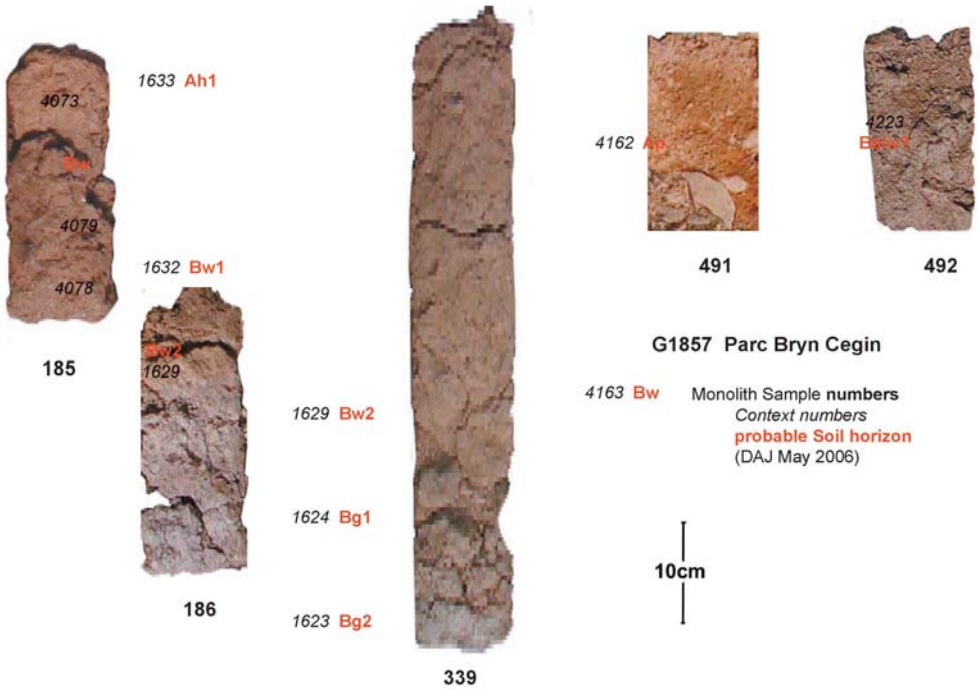
This corresponds to a "Brown Earth with gleying at depth" (*Sannan Series*) with the development of a plough layer (Ap) due to agricultural management. It is unlikely that original structures will have survived except in the basal Bg. This column was taken through the fill of a glacial hollow (4167) to investigate the colluvial deposits.

491: Light brown to reddish yellow (7.5YR6/4-5) sandy clay with occasional angular and rounded fine gravel and small charcoal fragments. A distinctive fine pellety structure is weakly developed. A lens of coarser angular siltstone gravel occurs at the base.

The colour and fabric suggest that this material could be the result of weak podzolisation and derive from a profile tending to a "brown podzolic soil" (*Manod Series* – Bs horizon): this could be confirmed by chemical tests. It is unlikely that any depositional fabric would survive this process, although it might persist if deposition post-dated podzolisation. This column was taken through a layer (4223) identified as a possible soil horizon in the base of what appeared to be a deep glacial hollow (4182).

492: Brown to pale brown (10YR5/3-6/3), verging to light yellowish brown (10YR6/4) in the upper part, clayey silt with common rounded and angular fine siltstone gravel, increasing in size with depth. Medium-strong loose subangular granular structure with weak sub-vertical peds.

No distinct horizonation, as in the field description, is evident and, since the upper half of the monolith was lost in collecting, the sample would probably correspond to the Bw horizon of a "brown earth" (*Arfon Series*). No relict stratification is evident to suggest it is part of a "deep colluvial layer", nor would this be likely to be preserved in the microfabric. This column was taken through deposits 4073 and 7079 in a natural hollow to study the colluvial processes.



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Conclusions

Jane Kenney

The two columns collected to study the colluvial processes on site (339 and 492) proved to have insufficient stratification surviving and micromorphological analysis would not have been productive. Layer 4223 did appear to be a soil horizon and further work could clarify is origin. However, the feature in which it was deposited appeared to be formed naturally, probably by peri-glacial action and it was considered that further study of this deposit was more likely to be of geological rather than directly archaeological interest and could not be justified within the present project. Column 185/186 was taken determine how pit 1619 had been infilled and whether this gave any indication of its use. The fill had been considerably altered by subsequent soil formation processes and little of the original structure was likely to have survived. No evidence of the pit's function was identified and it was considered that micromorphological study would be unlikely to reveal more significant information. Monoliths 339 and 492 have been discarded as having no significant information value, but monoliths 185/186 and 491 will be stored with the other artefacts to allow the possibility of future analysis.

APPENDIX XVI: RADIOCARBON DATES

P Marshall[1], J Kenney[2], P M Grootes[3], A Hogg[4] and C Prior[5]

Introduction

One hundred and 16 radiocarbon age determinations have been obtained on samples of carbonised wood, charred plant remains and a single charred residue on the interior of a pottery sherd from Parc Bryn Cegin.

Methods

The 33 samples submitted to the Leibiniz Labor für Altersbestimmung und Isopenforschung, Christian-Albrechts-Universität, Kiel, Germany (producing 35 results) were processed according to the methods outlined in Grootes *et al* (2004) and measured by AMS according to Nadeau *et al* (1997)

The 53 samples submitted to the Rafter Radiocarbon Laboratory (Institute of Geological and Nuclear Sciences), New Zealand were processed according to the methods outlined in Bevan-Athfield and Sparks (2001) and measured by AMS according to Zondervan and Sparks (1997)

Twenty eight samples were submitted to The University of Wakiato Radiocarbon Dating Laboratory, New Zealand. The samples were converted to CO_2 by oxidation at 800^{o}C using CuO. The CO_2 was then purified in the presence of silver wire to absorb any SOx and NOx that is produced. The CO_2 was reduced to graphite with Zn at 600^{o}C using an iron catalyst. Target preparation and analysis of the graphite was undertaken at the Rafter Radiocarbon Dating Laboratory according to Zondervan and Sparks (1997).

All three laboratories maintain continual programmes of quality assurance procedures, in addition to participation in international inter-comparisons (Scott 2003) which indicate no laboratory offsets and demonstrate the validity of the precision quoted. Two samples (KIA-30446 and KIA-30451) were particularly small and the humic acid fractions were dated as well as the alkali residues to provide additional information. The humic acid fractions of two other samples (KIA-30436 and KIA-30453) were also dated to compare to the dates on the alkali residues. This enabled the reliability of using the humic acid fraction to be tested. Sample KIA-30453 showed slight indications of contamination in the humic acid fraction so the dates relying on these measurements may be slightly too young, but generally agreement was good.

Results

The radiocarbon results are given in **Table XVI.1**, and are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986). They are conventional radiocarbon ages (Stuiver and Polach 1977).

Calibration

The calibrations of the results, relating the radiocarbon measurements directly to calendar dates, are given in **Table XVI.1** and in **Figures XVI.3, 8, 13, 15-16, 19-20 and 23**. All have been calculated using the calibration curve of Reimer *et al* (2004) and the computer program OxCal (v3.10) (Bronk Ramsey 1995; 1998, 2001). The calibrated date ranges cited in the text are those for 95% confidence. They are quoted in the form recommended by Mook (1986), with the end points rounded outwards to 10 years if the error term is greater than or equal to 25 radiocarbon years, or to 5 years if it is less. The ranges quoted in italics are *posterior density estimates* derived from mathematical modelling of archaeological problems (see below). The ranges in plain type in Table 1 have been calculated according to the maximum intercept method (Stuiver and Reimer 1986). All other ranges are derived from the probability method (Stuiver and Reimer 1993).

Methodological Approach

A Bayesian approach has been adopted for the interpretation of the chronology from this site (Buck *et al* 1996). Although the simple calibrated dates are accurate estimates of the dates of the samples, this is usually not what archaeologists really wish to know. It is the dates of the archaeological events, which are represented by those samples, which are of interest. In the case of Parc Bryn Cegin, it is the chronology of the use of the early Neolithic building, burnt mounds, etc that is under consideration, not the calibrated dates of the individual samples (Bayliss *et al*, 2007). The dates of this activity can be

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[4] The University of Waikato Radiocarbon Dating Laboratory, Private Bag 3105, Hamilton, New Zealand
[5] Rafter Radiocarbon Laboratory, Institute of Geological and Nuclear Sciences, Box 31 312, Lower Hutt, New Zealand.

estimated not only using the absolute dating information from the radiocarbon measurements on the samples, but also by using the stratigraphic relationships between samples.

Fortunately, 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 v3.10 (http://www.rlaha.ox.ac.uk/), which uses a mixture of the Metropolis-Hastings algorithm and the more specific Gibbs sampler (Gilks *et al* 1996; Gelfand and Smith 1990). Details of the algorithms employed by this program are available from the on-line manual or in Bronk Ramsey (1995; 1998; 2001) and fully worked examples are given in the series of papers by Buck *et al* (1991; 1992; 1994a; 1994b).

The algorithm used in the models described below can be derived from the structures shown in **Figures XVI.4, 14, 22, 24 and 26**.

Objectives and sampling strategy

The radiocarbon programme was designed to achieve the following objectives:

1. To provide a precise date for the early Neolithic building.
2. To provide a precise date for the nationally important assemblage of ceramics contained within the later Neolithic pit groups.
3. To investigate chronological differences between the groups of burnt mounds.
4. To provide a precise date for the earth ovens.
5. To provide a precise date for the use of the ring grooved roundhouse (roundhouse E) and the associated metalworking activity.
6. To understand the chronological relationship of structures F and G and the clay-walled roundhouse settlement.
7. To date and therefore phase isolated features.

In order to implement a Bayesian approach a rigorous procedure for extracting the necessary information to build chronological models from archaeological sites has been developed (Bayliss and Ramsey, 2004; **Fig XVI.1**). This procedure was used to underpin all stages of the radiocarbon dating programme for Parc Bryn Cegin.

The first stage in sample selection was to identify short-lived material, which was demonstrably not residual in the context from which it was recovered. The taphonomic relationship between a sample and its context is the most hazardous link in this process, since the mechanisms by which a sample came to be in its context are a matter of interpretative decision rather than certain knowledge. All samples consisted of single entities (Ashmore 1999). Material was selected only where there was evidence that a sample had been put fresh into its context. The main category of material, which met these taphonomic criteria was;

- Charcoal from short-lived taxa, or of charred, short-lived plant macrofossils (seeds or nutshell) - from contexts in which it seemed to have been freshly deposited, eg hearths, ovens, industrial features.

Other samples with a less certain taphonomic origin submitted included:

- Charcoal from the fill of post-holes; interpreted as relating to the use of structures rather than its construction, as suggested by experimental archaeology (Reynolds 1995), and from the primary fill of pits. Where possible duplicate samples from these contexts were submitted to test the assumption that the material was of the same actual age.
- A single charred residue adhering to the inside of ceramic sherd. The sherd selected was large and unabraded suggesting that the residue/sherd had not been exposed to weathering for a long period of time.

Once suitable samples had been identified a models were devised to try and answer the objectives outlined above, which incorporated the archaeological information along with simulated radiocarbon results. The radiocarbon results were simulated using the R_Simulate function in OxCal, with errors based on the material to be analysed and the type of measurement required (eg single run AMS). This was used to determine the number of samples that should be submitted in the dating programme (for example see **Fig XVI.2**).

The samples, sequences and results

The following section concentrates on describing the archaeological evidence, which has been incorporated into the chronological models, explaining the reasoning behind the interpretative choices made in producing the models presented. These archaeological decisions fundamentally underpin the choice of statistical model.

Early Neolithic Building and pit 1619

Fourteen samples were submitted from the postholes and post-trench that made up the early Neolithic building and a small internal pit (Cut 1339). Where possible duplicate samples were submitted from postholes to test the assumption that the material was of the same actual age. A number of simulations for the early Neolithic house were undertaken (eg **Fig XVI.2**) based on different assumed dates for the house ie 3700, 3600 and 3500 cal BC. These dates were chosen by comparison to other structures of this type especially Llandygai I (Lynch and Musson 2001)

The simulations were also used to determine the optimal number of samples that were needed to achieve estimates of <50 years for the start and end of use of the building, and to compare the effects of different parts of the calibration curve on the likely results given the uncertainty about the actual calendar date of the samples. Following receipt of the first round of six measurements from the building in September 2006, simulations showed that the optimal number of additional samples to be submitted would be eight.

The following duplicate measurements are statistically consistent and could therefore be of the same actual age.

- Cut 1339 (KIA-31081 & KIA-31082; T'=3.8; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Cut 1532 (KIA-30433 & KIA-30434; T'=0.4; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Cut 1691 (KIA-30437 & KIA31087; T'=0.0; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Cut 1406 (KIA-31084 & KIA-31085; T'=5.3; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

The replicate measurements (alkali and humic fractions) on a single piece of oak charcoal from Cut 1613 (KIA-30436a & KIA-30436b) are statistically consistent (T'=0.3; ν=1; T'(5%)=3.8; Ward and Wilson 1978) and thus allow a weighted mean to be calculated (5060 ± 22BP). Given that this sample has only been identified as oak, and could thus suffer from an unknown age at depth offset (Bowman 1990), we have treated it as only providing a *tpq* for its context.

All the measurements from the early Neolithic building, apart from Cut 1613 because of the potential age at depth offset are statistically consistent (T'=28.0; ν=12; T'(5%)=28.0; Ward and Wilson 1978) which might mean that all the dated samples are exactly the same age. However, it is possible that if all the activity that resulted in them took place over a relatively short period of time such a group of results could be produced.

The simple calibrated results are shown in **Figure XVI.3**.

The model shown in **Figure XVI.4**, based on the assumption that the house was in continuous use for a period of time (Buck *et al* 1996), shows good agreement ($A_{overall}$=94.8%) between the radiocarbon results and stratigraphy (in this case the hypothesis that all the measurements come from a single phase of activity).

The model provides estimates for the start of the use of the building of *3800-3670 cal BC (95% probability; Boundary start;* **Fig XVI.4**) and probably *3760-3700 cal BC (68% probability*) and the end of use of *3690-3610 cal BC (95% probability; end)* and probably *3670-3620 cal BC (68% probability; Boundary end;* **Fig XVI.4***)*. The span of use of the building is estimated at *10-140 years (95% probability)* and probably *40-110 years (68% probability)* (**Figure XVI.5**). Given the shape of the probability distributions for the start, end and use of the building (see **Figs XVI.5- 6**), they all have pronounced tails, we as stated above believe the 68% probabilities given are probably the best estimates for the dates/duration of these events.

Two samples (KIA-31088 & KIA-31089), from a large external pit (containing a broken stone axe; Cut 1619) east of the building are not statistically consistent (T'=47.3; ν=1; T'(5%)=3.8; Ward and Wilson 1978). These results have not been included in the model described above as the objective was to determine whether Pit 1619 was contemporary with the building or not. Thus although on the basis of the two measurements the pit would not seem to be contemporary with the building, it does contain material (ie KIA-31089) that could be the same date and thus originate from the use of the building. Given the statistically inconsistent results KIA-31088 (3520-3350 cal BC) at present provides the best estimate as a *tpq* for the date of the pit. However, the possibility does exist that the pit is actually contemporary with the building and that KIA-31088 represents intrusive material. The only way to clarify this question would be to submit more material from the feature for dating.

The Llandegai early Neolithic buildings

The radiocarbon results from House B1 excavated at Llandygai (Lynch and Musson 2001) are given in **Table XVI.2**. As three of the measurements were made on bulked oak charcoal, that may have an unknown age at death, they only provide a tpq's for their contexts (postholes). The single AMS measurement (GrA-20012; 4860±50 BP) thus probably provides the best estimate for the date of the building. **Figure XVI.7** shows the dates of House B1 together with the estimated start and end dates for the building from Parc Bryn Cegin. Given the lack of secure dating for House B1 it is at present impossible to say whether they are contemporary or not.

Late Neolithic pit groups

Seventeen samples were submitted from the several groups of pits that made up the various late Neolithic pit groups. The simple calibrated results are shown in **Figure XVI.8**.

Two measurements (NZA-26671 & NZA-26672) on charred hazelnut fragments from Cut 1052 (Pit group I), associated with a large quantity of Mortlake Ware pottery (belonging to a single bowl), are statistically consistent (T'=2.5; ν=1; T'(5%)=3.8; Ward and Wilson 1978) and could therefore be of the same age.

The charred organic residue adhering to the interior of a sherd of Peterborough (Fengate) Ware (NZA-26679), from Pit Group V provides a direct date for the last use of the vessel. It does not therefore suffer from the problems often inherent in dating ceramics when associated material, most commonly charcoal is used (Nakamura *et al* 2001)

The two measurements (NZA-26680 & NZA-26681) on hazelnut shells from Cut 6041 (Pit group VI), containing three different (?Grooved Ware) pots are not statistically consistent (T'=193.6; ν=1; T'(5%)=3.8; Ward and Wilson 1978) and the pit clearly contains material of different ages. Therefore the best estimate for the date of the pit is provided by the youngest date (NZA-26681) which gives a *tpq* of 2580-2460 cal BC.

The two measurements (NZA-26687 & NZA-26688) on hazelnut shells from Cut 6072 (Pit group VI), associated with pieces of a single Peterborough (Fengate) Ware vessel, are statistically consistent (T'=1.4; ν=1; T'(5%)=3.8; Ward and Wilson 1978) and could be of the same age.

The two measurements (NZA-26693 & NZA-26694) on hazelnut shells from Cut 1553 (Pit group VII), associated with, perhaps 6 different Grooved Ware pots, none of which are complete but present in quite large pieces are statistically consistent (T'=0.0; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

The two measurements (NZA-26689 & KIA-30440) on material from Cut 3146 (Pit group VII), associated with early Neolithic ceramics are statistically consistent (T'=1.9; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

Duplicate samples were also submitted from a number of pits without diagnostic material culture. The measurements from Cut 3155 (Pit group VII) are not statistically consistent (T'=4.8; ν=1; T'(5%)=3.8; Ward and Wilson 1978) and the pit clearly contains material of different ages. Therefore the best estimate for the date of the pit is provided by the youngest date (KIA-30442) which gives a *tpq* of 1750-1610 cal BC.

The two measurements (NZA-26682 & NZA-26690) on material from Cut 3139 (Pit group VII) are statistically consistent (T'=3.4; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

The two measurements (NZA-26691 & NZA-26692) on material from Cut 1309 (Pit group VIII) are statistically consistent.(T'=0.8; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

All four measurements from Cut's 1309 and 1553 (Pit group VIII) are statistically consistent (T'=2.5; ν=3; T'(5%)=7.8; Ward and Wilson 1978) and could therefore be of the same actual age. This suggests that infilling of pits both with and without ceramics was taking place at the same time.

All five measurements associated with Peterborough Ware, both Mortlake and Fengate Ware (**Fig XVI.9**) are statistically consistent (T'=4.4; ν=4; T'(5%)=9.5; Ward and Wilson 1978) and could therefore be of the same actual age. This might suggest that a typological succession as postulated by Smith (1956; 1974), for Peterborough Ware from Ebbsfleet through Mortlake to Fengate is not apparent. However, as these results, and more generally those obtained for Peterborough Ware all fall on a plateau in the calibration curve from *c* 3300-2900 cal BC (see **Fig XVI.10**), they might suggest a degree of contemporaneity that is not actually real.

Modelling these results as part of a simple continuous phase of activity, together with other radiocarbon dates associated with Peterborough Ware from Wales and The Marches (Gibson and Kinnes 1997, Healey pers comm.) suggests that Peterborough Ware began to be used in this region in *3400–3100 cal BC (95% probability*; **Fig. XVI.11**: *Boundary start*), and probably in *3370–3240 cal BC (68% probability).* The latest deposits of this style occurred in *3110-2890 cal BC (73% probability*; **Fig. XVI.11** boundary *end)*, and probably in *3090–2950 cal BC (60% probability).* It should be noted

that the results from Cefn Bryn (Ward 1987; Gibson 1995) have not been included in this model. Some at least of these appear to be anomalously late (Birm-1238 and Birm-1236, with probabilities of 0.3% and 0.1% respectively of lying within this phase of deposition). The samples in question came from beneath a Bronze Age cairn, and it is possible that later material was incorporated into these bulk samples.

Further analysis (see **Fig XVI.12**) shows that there is only a 5% probability that the early Neolithic building was in use when Cut 3146 (pit group VII) was infilled.

Burnt Mounds

Thirty samples were submitted from 11 of the 16 burnt mounds found scattered across the site. The simple calibrated results are shown in **Figure XVI.13**.

The three measurements (KIA-30443, KIA-30444 & NZA-26765) from Mound 1097 (Cut 1154) are not statistically consistent (T'=474.0; ν=2; T'(5%)=6.0; Ward and Wilson 1978). However, if KIA-30443 is excluded, the other two measurements are statistically consistent (T'=1.5; ν=1; T'(5%)=3.8; Ward and Wilson 1978). This suggests that the charred hazelnut (KIA-30443) is residual.

The two measurements (NZA-26766 & NZA-26767) from Mound 2031 (Cut 2149) are not statistically consistent (T'=6.2; ν=1; T'(5%)=3.8; Ward and Wilson 1978). Given that the samples came from the fill of the trough and could therefore be expected to relate to the use of the burnt mound, the fact that the samples are of different ages is not completely unexpected.

The two measurements (NZA-26768 & NZA-26769) from Mound 2167 (Cut 2175) are also not statistically consistent (T'=6.2; ν=1; T'(5%)=3.8; Ward and Wilson 1978). However, given how material is likely to be incorporated into burnt mound features (see above) this is not surprising.

Nine samples were submitted from four of the features making up Mound 2176. The following duplicate measurements are statistically consistent and could therefore be of the same actual age.

- Cut 2202 (NZA-26773 & NZA-26774; T'=3.2; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Cut 2186 (NZA-26770 & NZA-26771; T'=0.5; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Hearth 2212 (NZA-26775 & NZA-26776; T'=0.0; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

The three measurements from Cut 2197 (KIA-30447, KIA-30448 & NZA-26772) are not statistically consistent (T'=45.3; ν=2; T'(5%)=6.0; Ward and Wilson 1978), and the context clearly contains material of different ages. However, excluding KIA-30448 the remaining two measurements are statistically consistent (T'=0.3; ν=1; T'(5%)=3.8; Ward and Wilson 1978). This suggests that the charred grain (KIA-30448) is intrusive.

Excluding KIA-30448 the remaining eight measurements from Mound 2176 are statistically consistent (T'=13.5; ν=7; T'(5%)=14.1; Ward and Wilson 1978). This might mean that all the dated samples from the burnt mound are exactly the same age. However, it is possible that if all the activity that resulted in them took place over a relatively short period of time such a group of results could be produced.

The model, shown in **Figure XVI.14**, based on the assumption that the burnt mound was in continuous use for a period of time (Buck et al 1996), shows good agreement ($A_{overall}$=82.5%) between the radiocarbon results and stratigraphy (in this case the hypothesis that all the measurements come from a single phase of activity).

The model provides estimates for the start of the use of Mound 2176 of *2570-2370 cal BC (95% probability; Boundary start*; **Fig XVI.14**) and probably *2500-2370* cal BC *(68% probability)* and the end of use of *2390-2010 cal BC (95% probability; Boundary end*; **Fig XVI.14**) and probably *2300-2150 cal BC (68% probability).*

The following duplicate measurements are statistically consistent and could therefore be of the same actual age.

- Mound 2287, (NZA-26777 & NZA-26818; T'=0.8; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Mound 4199, (NZA-26819 & NZA-26820; T'=0.0; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Mound 6016, (NZA-26821 & NZA-26823; T'=0.5; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

The following duplicate measurements are not statistically consistent and these mounds therefore contain material of different ages.

- Mound 6019, (NZA-26824 & NZA-26825; T'=439.2; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Mound 6094, (KIA-30449 & KIA-30450; T'=5.9; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Mound 7039, (NZA-26822 & NZA-26828; T'=408.7; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Mound 7035, (KIA-30445 & KIA-30446 T'=7.2; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

Burnt Stone feature 7055

The three measurements (NZA-26762-26764) from another feature full of burnt stones (7055) are not statistically consistent (T'=658.9; ν=2; T'(5%)=6.0; Ward and Wilson 1978). However, excluding NZA-26763 the two remaining measurements are statistically consistent (T'=0.8; ν=1; T'(5%)=3.8; Ward and Wilson 1978). This therefore suggests that the unidentified cereal grain (NZA-26763) is intrusive.

Figure XVI.15 shows the dates for all the "burnt stone" features.

Earth Ovens

Fourteen samples were submitted from the seven earth ovens found across the site. The simple calibrated results are shown in **Figure XVI.16**.

The following duplicate measurements are statistically consistent and could therefore be of the same actual age.

- Cut 1072 (NZA-26829 & NZA-26988; T'=0.0; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Cut 1230 (NZA-26830 & NZA-26831; T'=1.7; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Cut 1510 (NZA-26833 & NZA-26834; T'=0.3; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Cut 3133 (NZA-26835 & NZA-26989; T'=3.0; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Cut 6033 (NZA-26837 & NZA-26838; T'=0.4; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

The following duplicate measurements are not statistically consistent and these earth ovens therefore contain material of different ages.

- Cut 1259 (NZA-26839 & NZA-26832; T'=255.7; ν=1; T'(5%)=3.8; Ward and Wilson 1978).
- Cut 3314 (NZA-26836 & NZA-26840; T'=11.2; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

Figure XVI.17 shows that three of the earth ovens (cuts 1259, 3133 and 6035) could be contemporary with the early Neolithic building.

Figure XVI.18 shows that earth ovens (cuts 1072, 1230, 1510 and 3314) are contemporary with burnt mound activity, however, given the duration of burnt mound activity this is not unexpected.

Pit 1390, etc (Fig 19)

The two measurements (Wk-20061 & Wk-20062) from Pit 1390 are statistically consistent (T'=0.2; ν=1; T'(5%)=3.8; Ward and Wilson 1978), as are those (NZA-26830 & NZA-26831) from Cut 1230 (T'=1.7; ν=1; T'(5%)=3.8; Ward and Wilson 1978). All four measurements from these two contexts are statistically consistent (T'=2.3; ν=4; T'(5%)=9.5; Ward and Wilson 1978) and could therefore be of the same actual age. These features are close to pit oven 1230 and the similarity in the dates suggests they may be functionally related.

Roundhouse E

Eight samples were submitted from five features in the area of Roundhouse E (**Fig XVI.20**). The two measurements (Wk-20048 & Wk-20049) from Posthole 4277 are statistically consistent (T'=0.2; ν=1; T'(5%)=3.8; Ward and Wilson 1978) and could be of the same actual age. These measurements and that (KIA-30438) from the stony charcoal-rich deposit sealing the four postholes in the middle are also statistically consistent (T'=5.0; ν=2; T'(5%)=6.0; Ward and Wilson 1978). Although a single charred twig fragment from the fill of one of the four large postholes has given an earlier date (KIA-30439), plotting the four results on the calibration curve (**Fig XVI.21**) shows that it is possible that KIA-30439 might only be slightly earlier. It is probably therefore that Roundhouse E dates to the fifth to sixth centuries cal BC

The two deposits (4250 & 4283) with metalworking debris associated with roundhouse E are clearly later in date (see **Fig XVI.20**). The two measurements (Wk-20044 & Wk-20045) from Deposit 4250 are statistically consistent (T'=0.9; ν=1; T'(5%)=3.8; Ward and Wilson 1978), as are those from

Deposit 4283 (Wk-20046 & Wk-20047; T'=0.0; ν=1; T'(5%)=3.8; Ward and Wilson 1978). All four measurements from these two deposits are statistically consistent (T'=1.5; ν=3; T'(5%)=7.8; Ward and Wilson 1978) and could therefore be of the same actual age.

The model, shown in **Figure XVI.22**, based on the assumption that metalworking activity took place for continuous period of time (Buck *et al* 1996), shows good agreement ($A_{overall}$=117.5%) between the radiocarbon results and stratigraphy (in this case the hypothesis that all the measurements come from a single phase of activity). The model provides estimates for the start of metalworking activity of *cal AD 480-650 (95% probability; Boundary start*; **Fig XVI.22**) and probably *cal AD 570-640 (68% probability)* and the end of activity of *cal AD 600-760 (95% probability; Boundary end*; **Fig XVI.22**) and probably *cal AD 620-680 (68% probability).* The span of use of the dated metalworking activity is estimated at *10-80 years (95% probability)* and probably *10-40 years (68% probability).* However, the small number of dates available is likely to mean that the estimate tends to suggest that activity continues for longer than it really did.

Roundhouse settlement (Fig 23)

The choice of samples for dating from the Roundhouse settlement was severely limited by a shortage of suitable material and secure contexts. Twenty three samples were dated from the area of the settlement but four of these proved to be from later features and did not contribute to dating the settlement itself.

Roundhouse C

The five measurements from Roundhouse C (Wk-20039-20043) are not statistically consistent (T'=78.7; ν=4; T'(5%)=9.5; Ward and Wilson 1978), however, given the external gully was repeatedly re-cut, implying the structure was in use for a considerable period of time, this is not surprising. The two measurements (Wk-20041 & Wk-20042) from Deposit 3672 are though statistically consistent (T'=0.8; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

Although only a small number of measurements are available from Roundhouse C (this is also the case for Structures F and G and Roundhouse H - see below), this is combination of two factors, firstly the paucity of suitable material for radiocarbon dating, and secondly the relative flat nature of the calibration curve, it was felt worthwhile to attempt modelling of the results. It must though be acknowledged that the number of samples is extremely small and from a limited number of contexts, and therefore does not probably represent material dating from the full use of the structures. The results could therefore be biasied u However, given, the need to try and understand whether any chronological or spatial variation in these structures existed we think that this attempt is in the circumstances justifiable.

Deposits 3672 and 3648 are stratigraphically later than pit 3325.

The model, for Roundhouse C shown in **Figure XVI.24**, shows good agreement ($A_{overall}$=89.3%) between the radiocarbon results and stratigraphy. It provides estimates for the start of activity of *280 cal BC-cal AD 210 (95% probability; Boundary start C)* and probably *40 cal BC-cal AD 140 (68% probability)* and end of *cal AD 130-540 (95% probability; Boundary end C)* and probably *cal AD 160-360 (68% probability*).

Structure F

Five samples were submitted for dating from Structure F, all from the fills of postholes. The two measurements (Wk-20052 & Wk-20053) from Posthole 9121 are statistically consistent (T'=0.5; ν=1; T'(5%)=3.8; Ward and Wilson 1978), however, those (Wk-20050 & Wk-20051) from Posthole 9092 are not (T'=8.5; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

The model, for Structure F shown in **Figure XVI.24**, shows good agreement ($A_{overall}$=94.6%) between the radiocarbon results and assumption that all the samples come from a single phase of activity. It provides estimates for the start of activity of *470-110 cal BC (95% probability; Boundary start F)* and probably *360-120 cal BC (68% probability)* and end of *10 cal BC-cal AD 380 (95% probability; Boundary end F)* and probably *cal AD 30-200 (68% probability*).

Structure G

The two measurements (Wk-20054 & Wk-20055) from Cut 9246 are statistically consistent (T'=1.8; ν=1; T'(5%)=3.8; Ward and Wilson 1978). Although the replicate measurements (KIA-30453a & KIA-30453b) on an unidentified short lived charred twig from Posthole 9327 are not statistically consistent (T'=4.0; ν=1; T'(5%)=3.8; Ward and Wilson 1978), we have taken a weighted mean of the two results (1975 ± 20 BP).

The model, for Structure G shown in **Figure XVI.24**, shows good agreement ($A_{overall}$=89.9%) between the radiocarbon results and stratigraphy. It provides estimates for the start of activity of *450-*

100 cal BC (95% probability; Boundary start G) and probably *330-150 cal BC (68% probability)* and end of *10 cal BC-cal AD 310 (95% probability; Boundary end G)* and probably *cal AD 30-160 (68% probability*).

Roundhouse H

The two measurements (Wk-20058 & Wk-20059) from Cut 9277 are statistically consistent (T'=3.0; ν=1; T'(5%)=3.8; Ward and Wilson 1978), while those (Wk-20056 & Wk-20057) from Cut 9184 are not statistically consistent (T'=5.4; ν=1; T'(5%)=3.8; Ward and Wilson 1978).

The model, for Roundhouse H shown in **Figure XVI.24**, shows good agreement ($A_{overall}$=95.3%) between the radiocarbon results and stratigraphy. It provides estimates for the start of activity of *150 cal BC-cal AD 210 (95% probability; Boundary start H)* and probably *10 cal BC-cal AD 130 (68% probability)* and end of *cal AD 130-450 (95% probability; Boundary end H)* and probably *cal AD 140-300 (68% probability*).

Figure XVI.25 and **Table XVI.3** attempt to estimate the relative order of the start of use of structures within the roundhouse settlement based on the estimated start dates calculated in **Figure XVI.24**. As explained above these estimates are only based on a small number of measurements from each structure and only reflect those samples, dated. Further analysis shows a 25%.probability that the order is *start_G start_F start_C start_H* .

Corn drier

Four samples were dated from a group of features one of which (Cut 3671) cut the enclosure ditch to roundhouse A. Feature 3671 was interpreted as a corn drier. The two measurements (Wk-20035 & Wk-20036) from Cut 3671 are statistically consistent (T'=0.9; ν=1; T'(5%)=3.8; Ward and Wilson 1978) as are those from Posthole 3717 (Wk-20037 & Wk-20038; T'=1.1; ν=1; T'(5%)=3.8; Ward and Wilson 1978). All four measurements are statistically consistent (T'=3.5; ν=3; T'(5%)=7.8; Ward and Wilson 1978) and could therefore be of the same age.

The model, shown in **Figure XVI.26**, based on the assumption that the corn drier was in continuous use period of time (Buck *et al* 1996), shows good agreement ($A_{overall}$=94.6%) between the radiocarbon results and stratigraphy (in this case the hypothesis that all the measurements come from a single phase of activity). The model provides estimates for the start of activity of *cal AD 880-1160 (95% probability; Boundary start*; **Fig XVI.26**) and probably *cal AD 1000-1130 (68% probability)* and the end of activity of *cal AD 1040-1350 (95% probability; Boundary end*; **Fig XVI.26**) and probably *cal AD 1080-1240 (68% probability).* The span of use of the dated corn drier activity is estimated at *0-160 years (95% probability) and probably 0-90 years (68% probability).* However, the small number of dates available is likely to mean that the estimate tends to suggest that activity continues for longer than it really did.

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Figure XVI.1: Flow Diagram showing stages in routine chronology building (after Bayliss and Bronk Ramsey 2004)

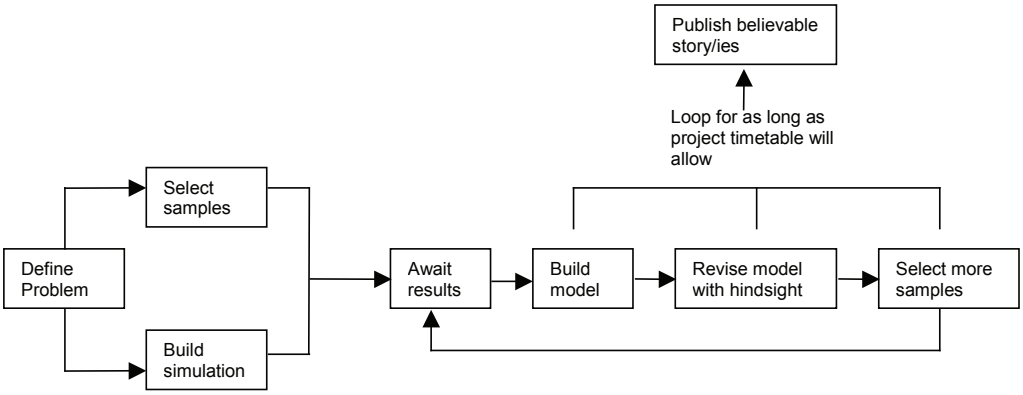

Figure XVI.2: Probability distributions of simulated dates from Parc Bryn Cegin – early Neolithic hou each distribution represents the relative probability that an event occurred at some particular time. For each of the simulated radiocarbon measurements two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model used. The other distributions correspond to aspects of the model. For example, the distribution '*Boundary start*' is the estimated date for the start of use of the building at Parc Bryn Cegin. The large square brackets down the left hand side along with the OxCal keywords define the overall model exactly.

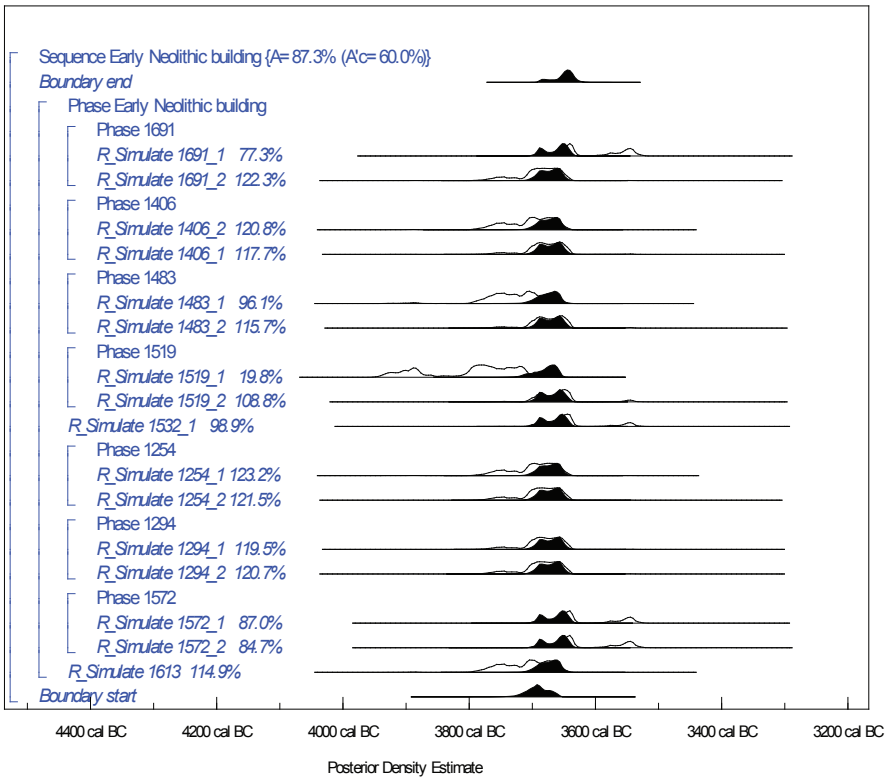

Figure XVI.3: Probability distributions of dates from Parc Bryn Cegin – early Neolithic building. Each distribution represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993).

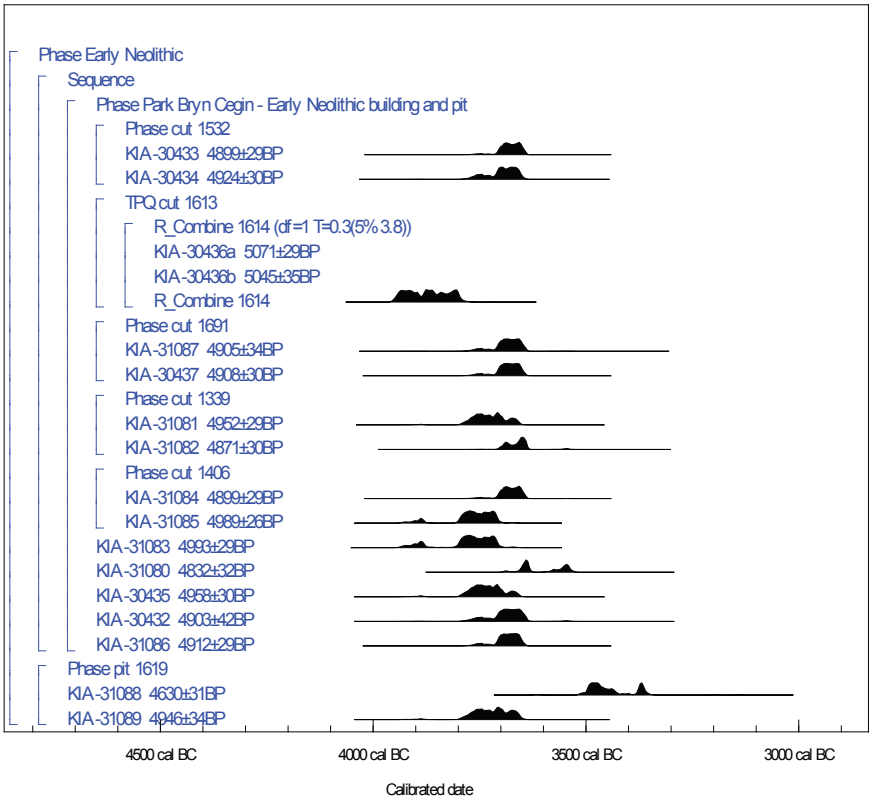

Figure XVI.4: Probability distributions of dates from Parc Bryn Cegin – early Neolithic building: each distribution represents the relative probability that an event occurred at some particular time. For each of the radiocarbon measurements two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model used. The other distributions correspond to aspects of the model. For example, the distribution '*Boundary start*' is the estimated date for the start of use of the building. The large square brackets down the left hand side along with the OxCal keywords define the overall model exactly.

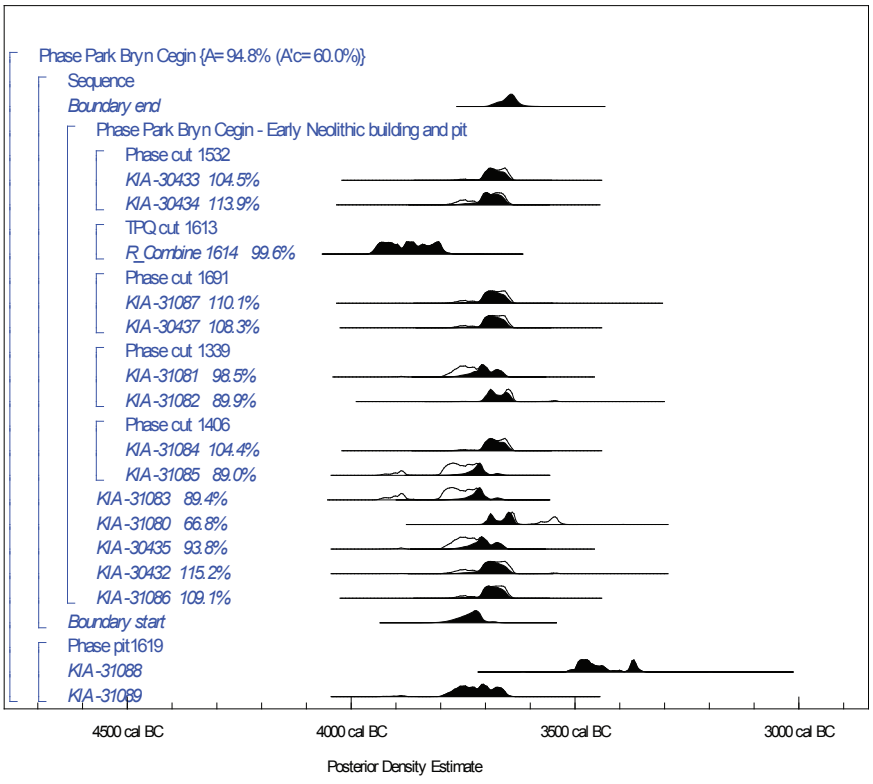

Figure XVI.5: Probability distribution of the number of years during which the building was in use. Th distribution is derived from the model defined in **Figure 4**.

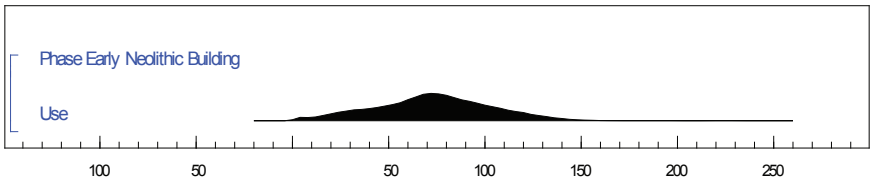

Figure XVI.6: Probability distributions of the estimates for the star and end of use of the early Neolithic building. The distributions are derived from the model defined in **Figure 4**.

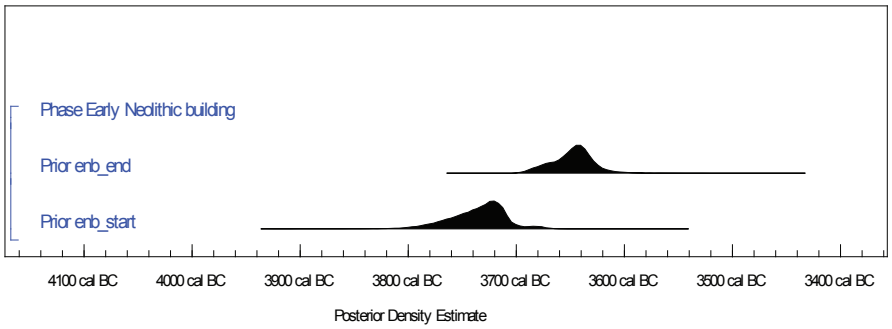

Figure XVI.7: Probability distributions of dates from Parc Bryn Cegin and Llandygai House B1 Each distribution represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993) apart from Parc Bryn Cegin derived from model shown in **Figure 4**.

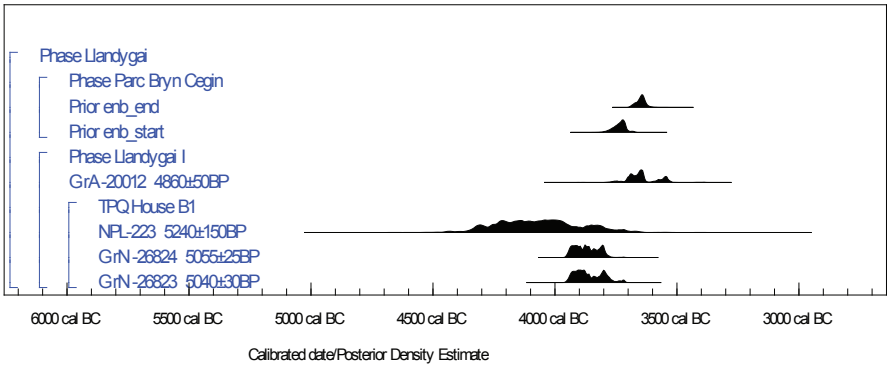

Figure XVI.8: Probability distributions of dates from Parc Bryn Cegin –Neolithic pits. Each distributio represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993).

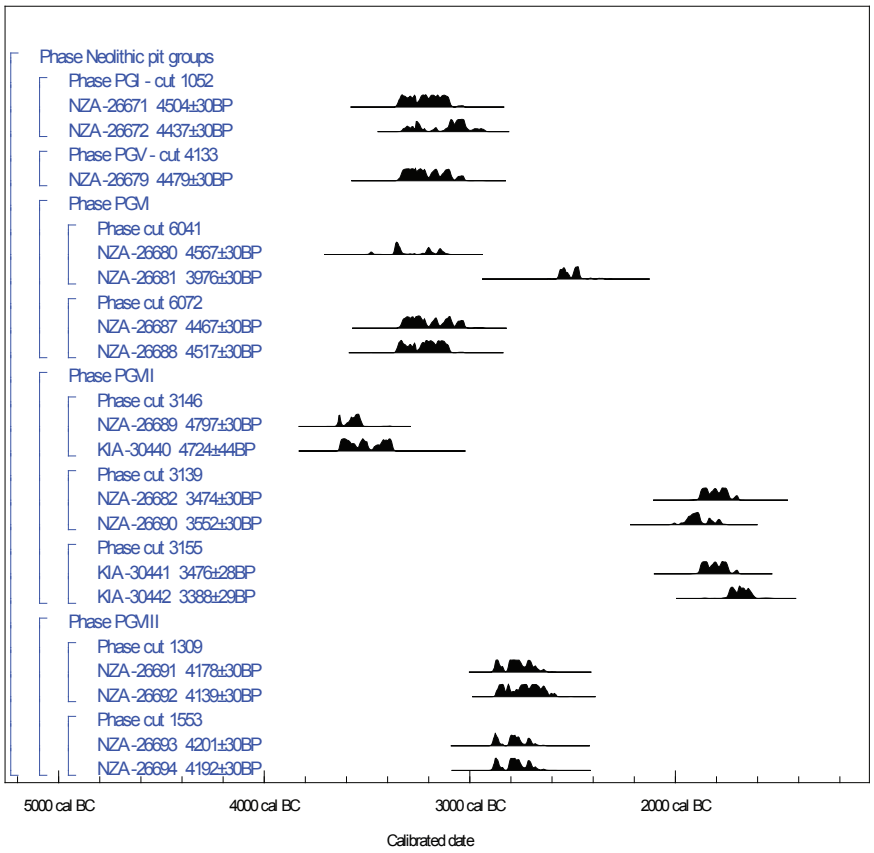

Figure XVI.9: Probability distributions of dates from Parc Bryn Cegin –Neolithic pits (Peterborough W and Grooved Ware). Each distribution represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993).

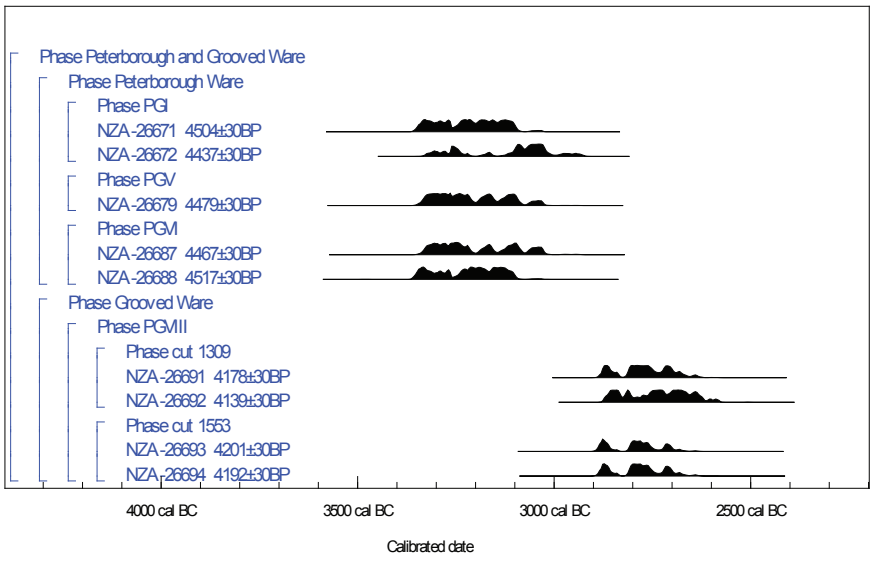

Figure XVI.10: Radiocarbon calibration curve (3450-2800 cal BC)

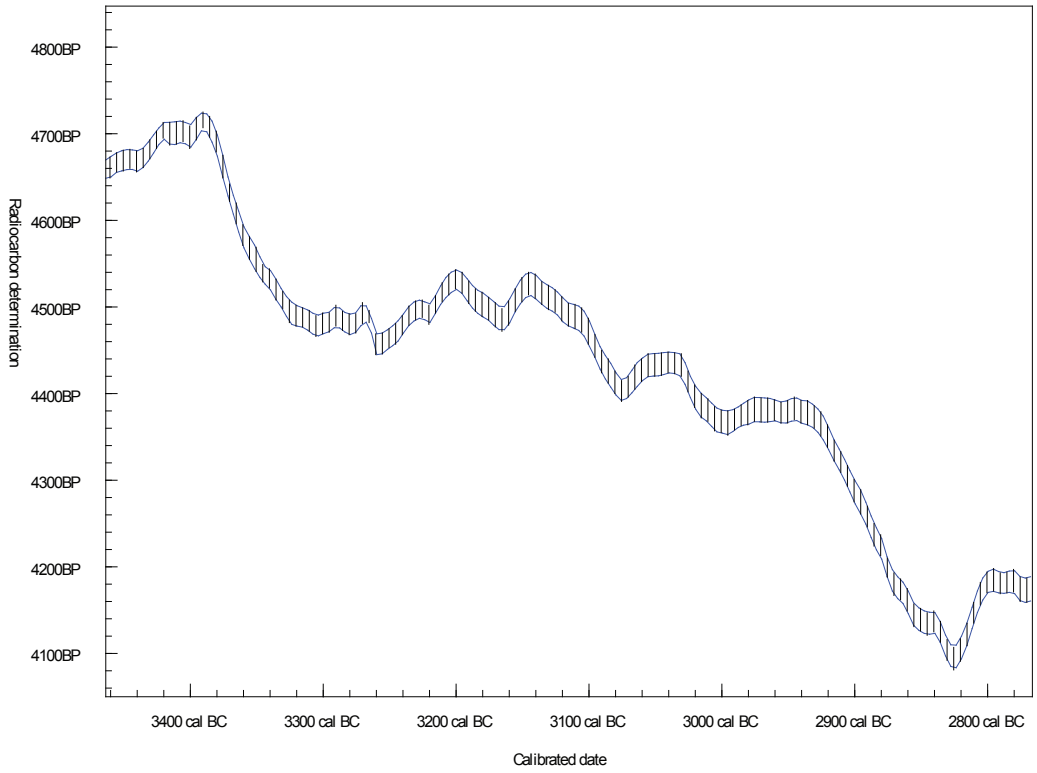

Figure XVI.11: Probability distributions of dates associated with Peterborough Ware from Wales and t Marches. A question mark (*?*) indicates that the result has been excluded from the model. The model is defined exactly by the brackets down the left hand side of the diagram

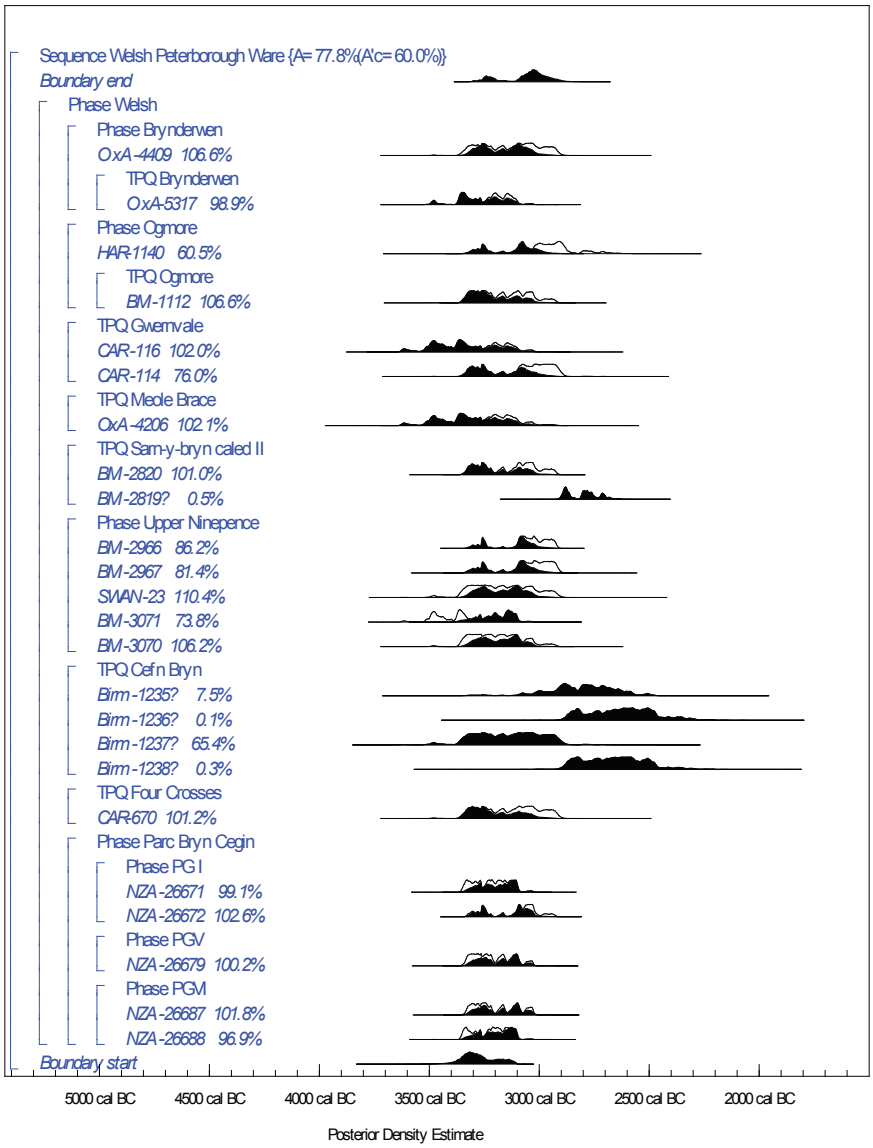

Figure XVI.12: Probability distributions of dates from the early Neolithic building and Cut 3146 Each distribution represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993) apart from the early Neolithic building derived from model shown in **Figure 4**.

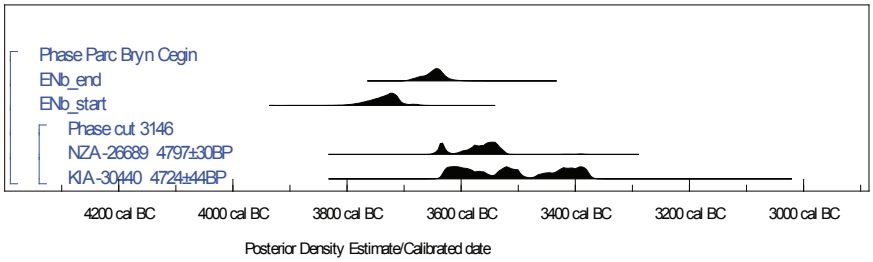

Figure XVI.13: Probability distributions of dates from Parc Bryn Cegin – Burnt Mounds. Each distribu represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993).

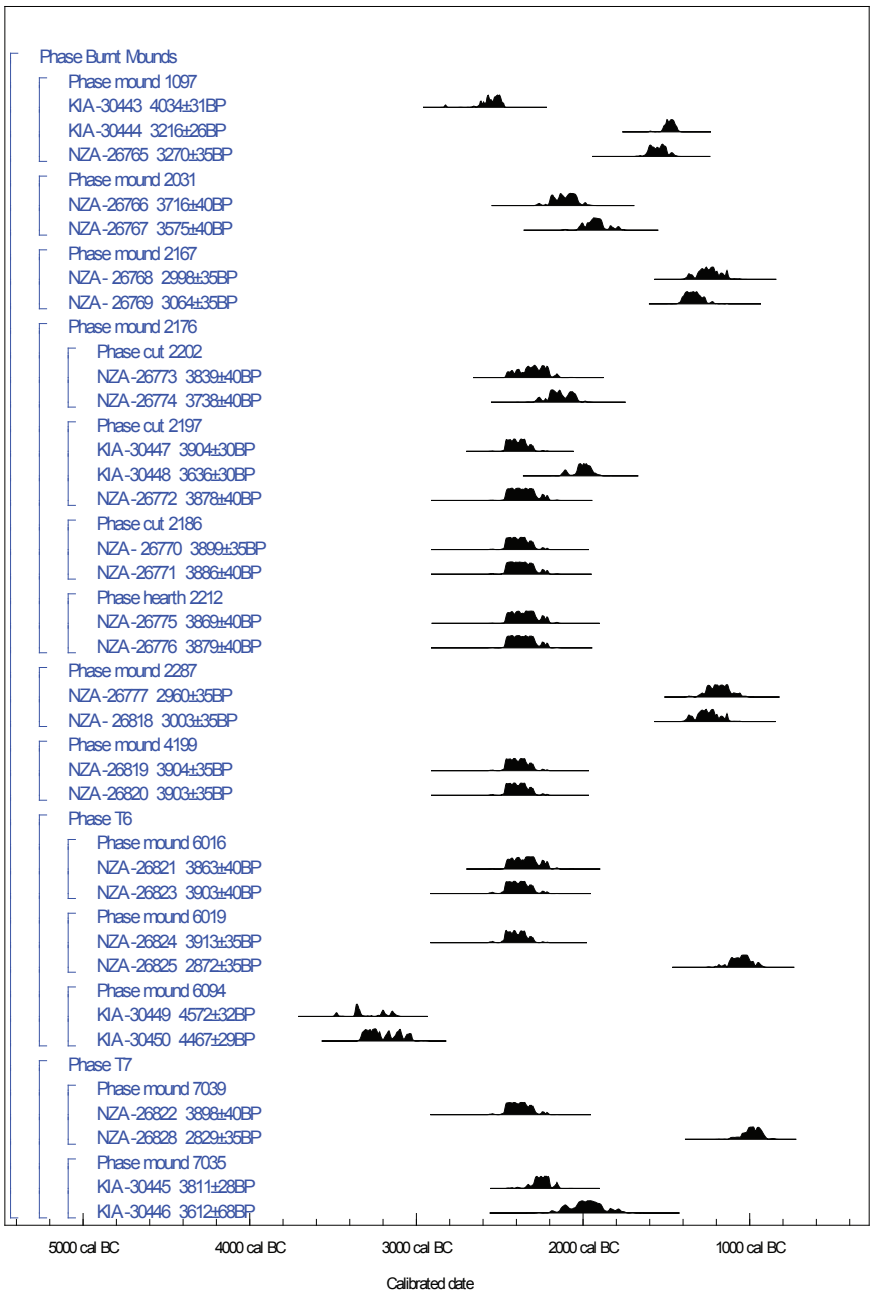

Figure XVI.14: Probability distributions of dates from Parc Bryn Cegin – Burnt mound 2176: each distribution represents the relative probability that an event occurred at some particular time. For each of the radiocarbon measurements two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model used. The other distributions correspond to aspects of the model. For example, the distribution '*Boundary start*' is the estimated date for the start of use of the building. A question mark (*?*) indicates that the result has been excluded from the model.The large square brackets down the left hand side along with the OxCal keywords define the overall model exactly.

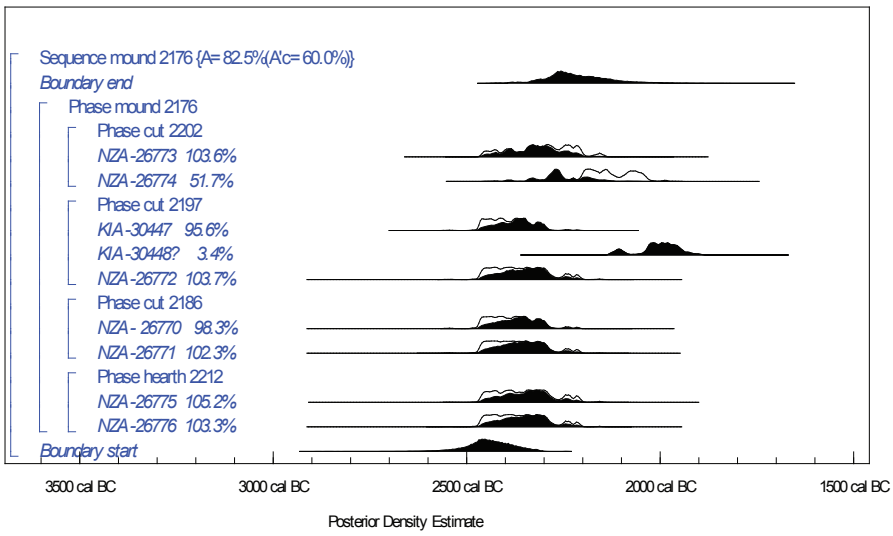

Figure XVI.15: Probability distributions of dates from Parc Bryn Cegin – Burnt stone features. Each distribution represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993) apart from Mound 2176 that are derived from model shown in **Figure 14**.

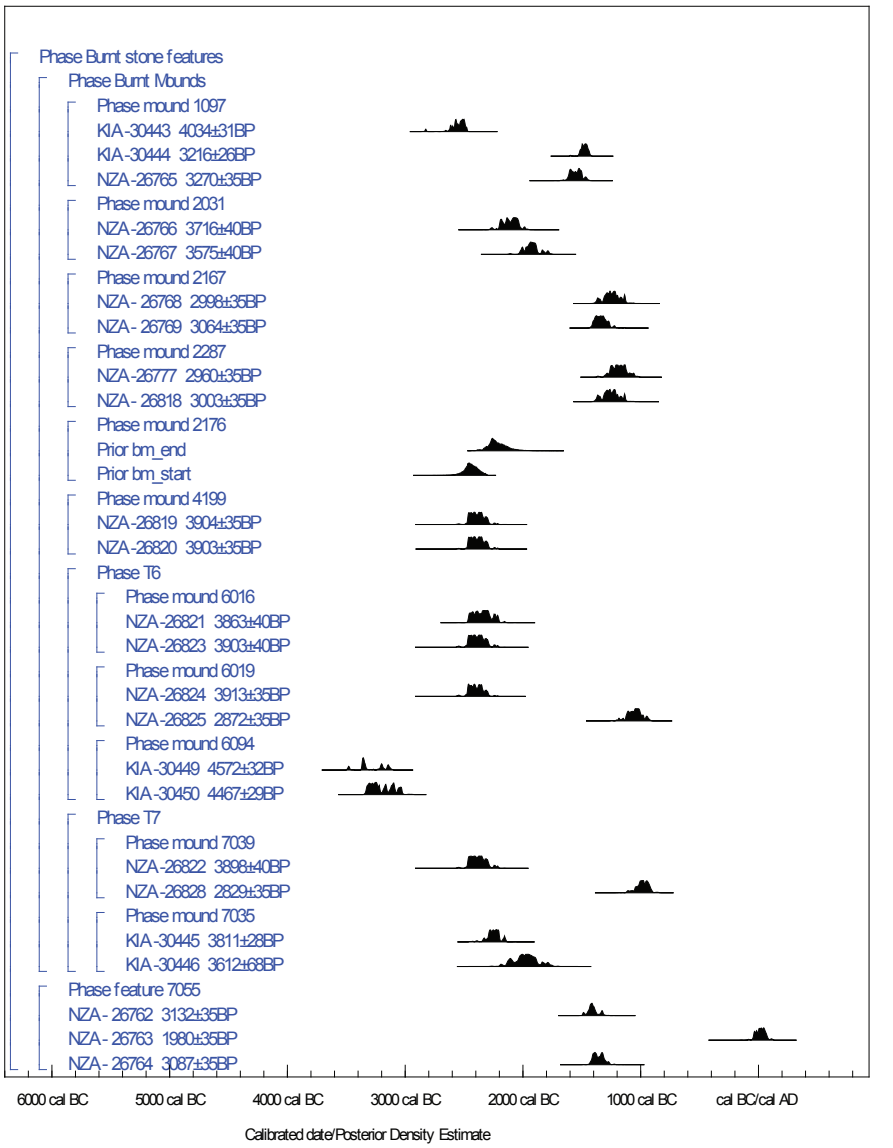

Figure XVI.16: Probability distributions of dates from Parc Bryn Cegin – earth ovens. Each distributic represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993).

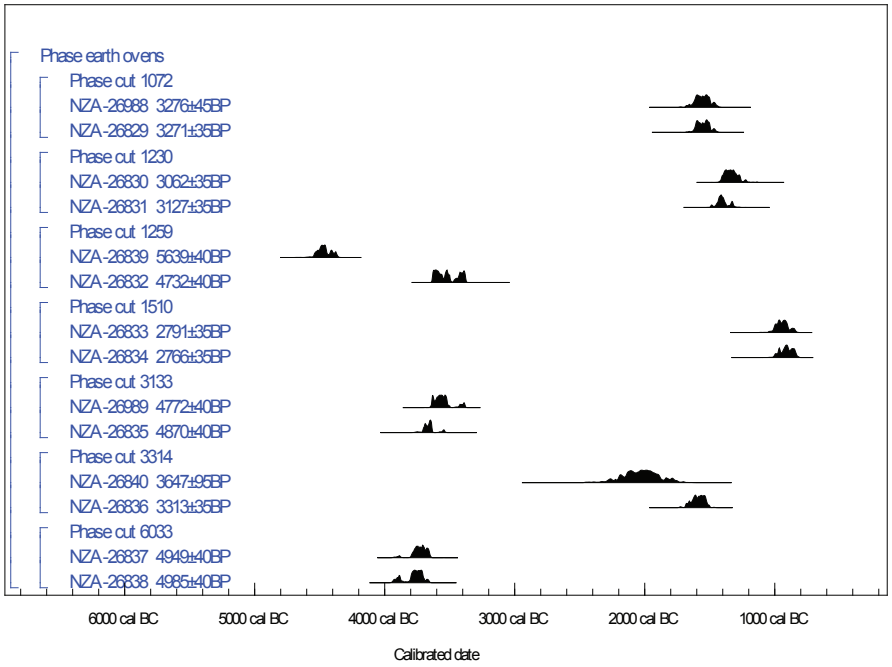

Figure XVI.17: Probability distributions of dates from Parc Bryn Cegin – Neolithic earth ovens and the early Neolithic building. Each distribution represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993) apart for those from the early Neolithic building derived from model shown in **Figure 4**.

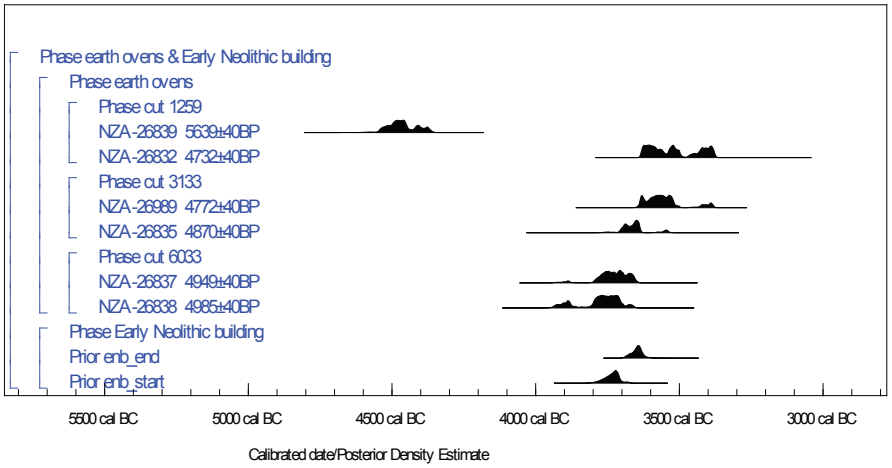

Figure XVI.18: Probability distributions of dates from Parc Bryn Cegin –earth ovens and burnt mound
Each distribution represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993) apart from Mound 2176 derived from model shown in **Figure 14**.

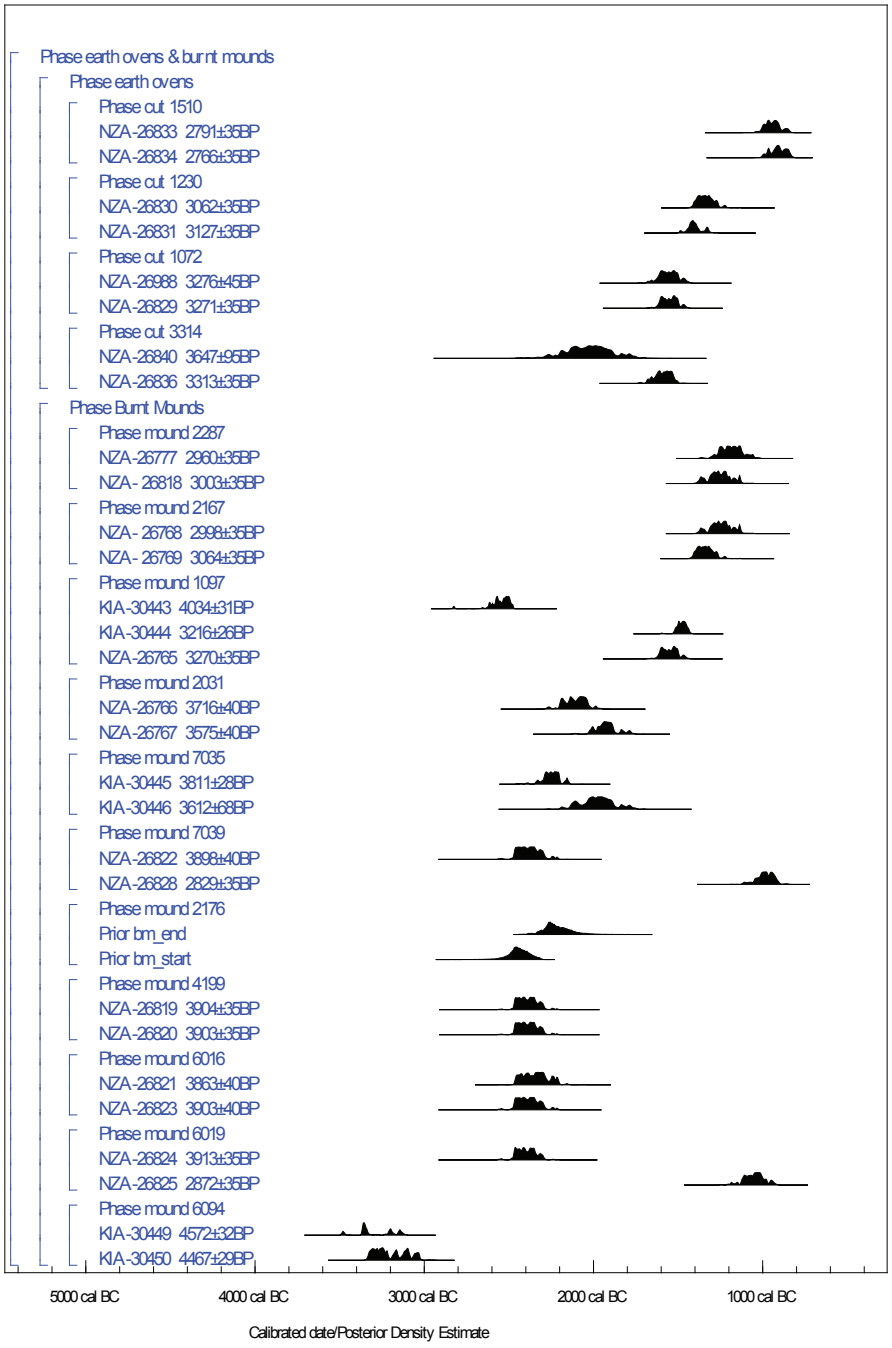

Figure XVI.19: Probability distributions of dates from Parc Bryn Cegin –pit 1390, etc. Each distributi
represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993).

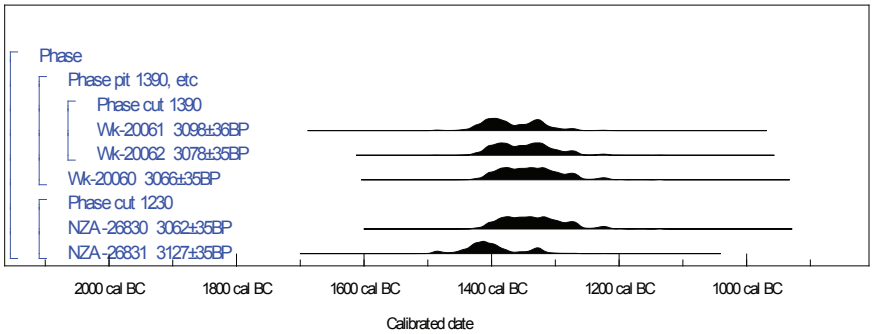

Figure XVI.20: Probability distributions of dates from Parc Bryn Cegin –Roundhouse E. Each distribu represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993).

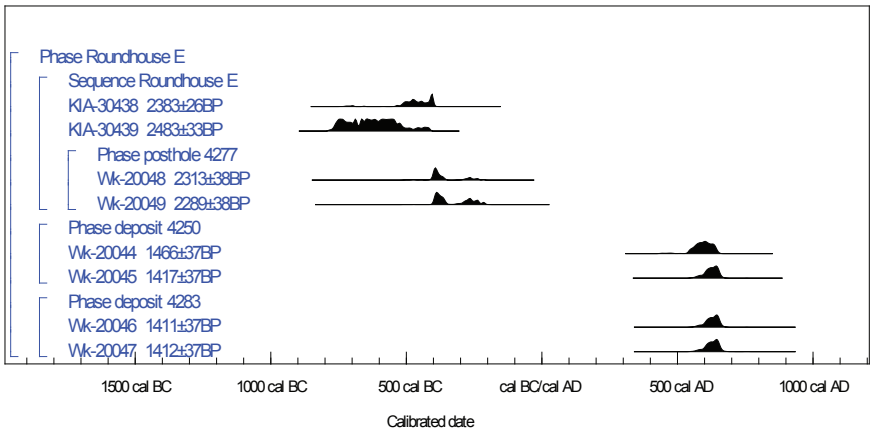

Figure XVI.21: Roundhouse E posthole radiocarbon results plotted on the calibration curve of Reimer *et al* (2004)

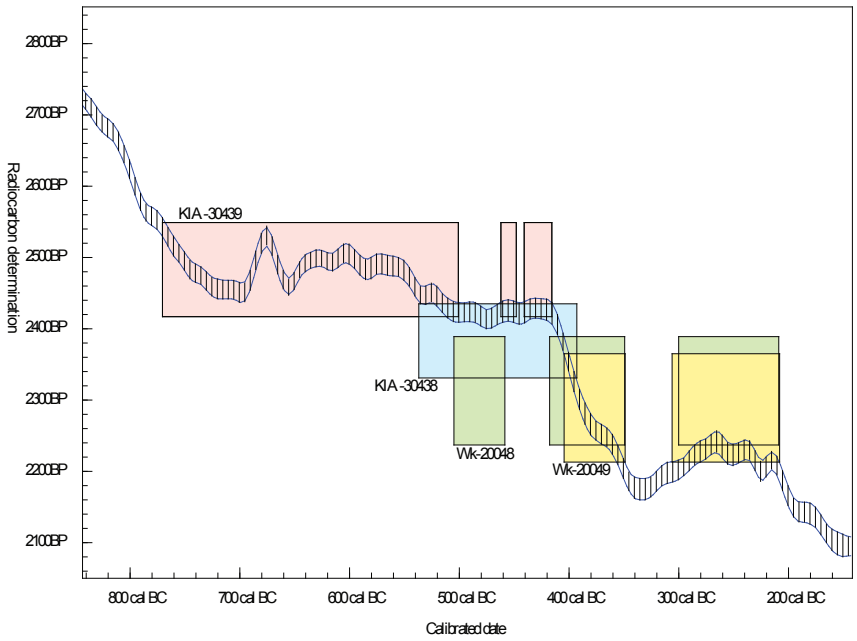

Figure XVI.22: Probability distributions of dates from Parc Bryn Cegin – metalworking (Roundhouse each distribution represents the relative probability that an event occurred at some particular time. For each of the radiocarbon measurements two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model used. The other distributions correspond to aspects of the model. For example, the distribution 'B*oundary start*' is the estimated date for the start of use of the building. The large square brackets down the left hand side along with the OxCal keywords define the overall model exactly.

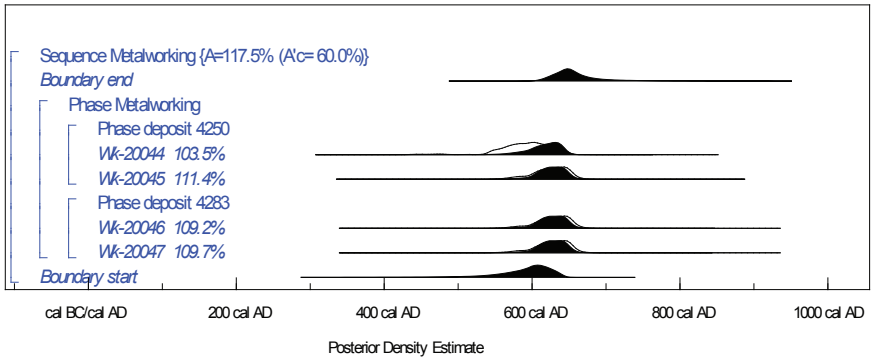

Figure XVI.23: Probability distributions of dates from Parc Bryn Cegin –earth roundhouse settlement. Each distribution represents the relative probability that an event occurred at a particular time. These distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993).

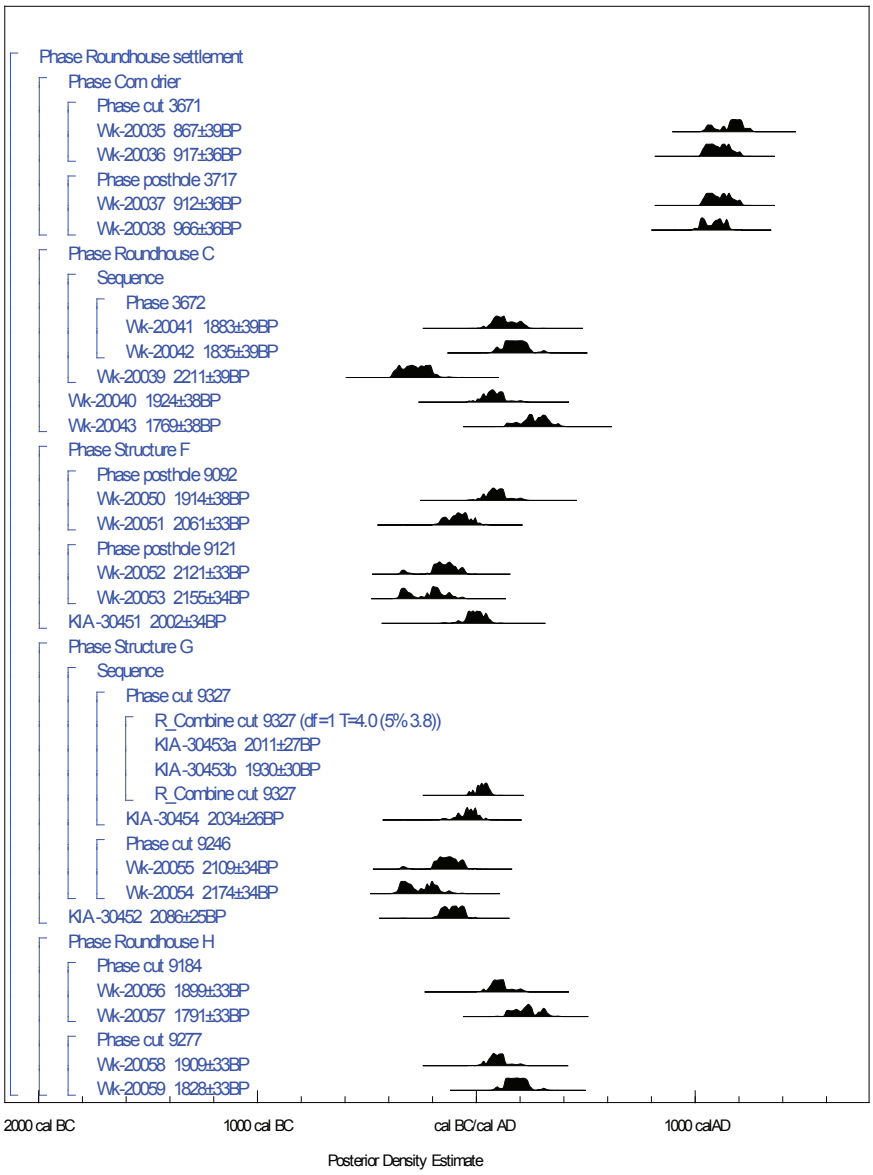

Figure XVI.24: Probability distributions of dates from Parc Bryn Cegin – roundhouse settlement: each distribution represents the relative probability that an event occurred at some particular time. For each of the radiocarbon measurements two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model used. The other distributions correspond to aspects of the model. For example, the distribution '*Boundary start_H*' is the estimated date for the start of use of the Roundhouse H. The large square brackets down the left hand side along with the OxCal keywords define the overall model exactly.

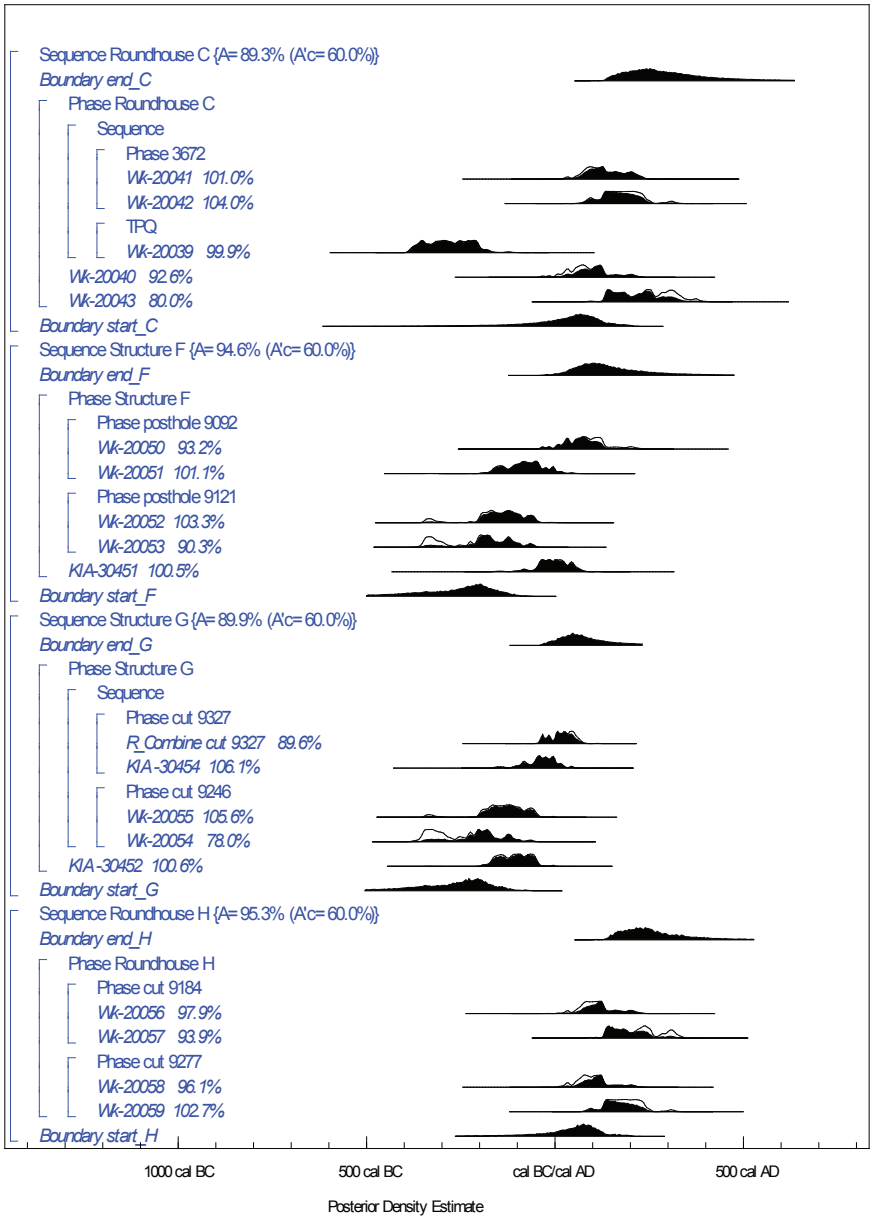

Figure XVI.25: Probability distributions of estimated start dates from Parc Bryn Cegin roundhouse settlement: each distrbution represents the relative probability that an event occurred at some particular time. The distrbutions are derived from the model defined in figure XVI.24

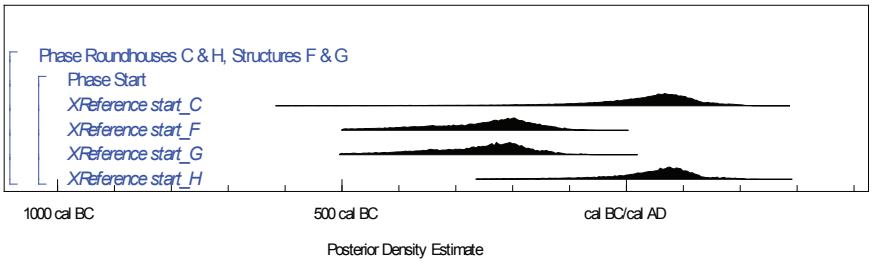

Figure XVI.26: Probability distributions of dates from Parc Bryn Cegin – corn drier (near Roundhouse each distribution represents the relative probability that an event occurred at some particular time. For each of the radiocarbon measurements two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model used. The other distributions correspond to aspects of the model. For example, the distribution '*Boundary start*' is the estimated date for the start of use of the corn drier. The large square brackets down the left hand side along with the OxCal keywords define the overall model exactly.

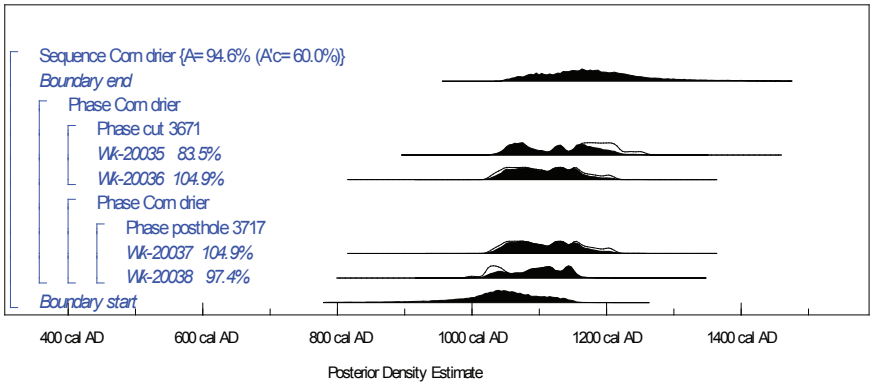

Table XVI.1. Parc Bryn Cegin radiocarbon results
(All single entity samples weighing 1g or less)

Early Neolithic building and pit

Cut No.	Context	Lab number	Local sample number	Material	Radiocarbon age (BP)	Weighted mean	Calibrated date (95% confidence)	*Posterior Density Estimate (95% probability)*
1291	1290: fill of small internal posthole	KIA-31080	G1857/45/1290	Charred hazelnut shell	4832 ± 32		3660-3530 cal BC	*3700-3630 cal BC*
1339	1340: fill of small internal pit	KIA-31081	G1857/61/1340/1	Charred hazelnut shell	4952 ± 29		3800-3650 cal BC	*3760-3650 cal BC*
1339	1340: fill of small internal pit	KIA-31082	G1857/61/1340/2	Charred hazelnut shell	4871 ± 30		3710-3630 cal BC	*3710-3640 cal BC*
1370	1369: upper fill of small internal posthole	KIA-31083	G1857/62/1369	Charred hazelnut shell	4993 ± 29		3940-3700 cal BC	*3770-3660 cal BC*
1404	1445: charcoal-rich fill in post trench	KIA-31086	G1857/86/1445	Charred wheat grain	4912 ± 29		3760-3640 cal BC	*3720-3640 cal BC*
1406	1389: post-packing deposit in one of the central postholes	KIA-31084	G1857/73/1389	Charred hazelnut shell	4899 ± 29		3710-3640 cal BC	3710-3640 *cal BC*
1406	1405: fill of postpipe in one of the central postholes	KIA-31085	G1857/79/1405	Charred hazelnut shell	4989 ± 26		3910-3700 cal BC	*3770-3660 cal BC*
1483	1486: upper fill of E gable end posthole. Possibly deposited after the post was removed	KIA-30432	G1857/88/1486	Charred hazelnut shell	4903 ± 42		3780-3630 cal BC	*3740-3640 cal BC*
1532	1522: fill of postpipe in one of the central postholes	KIA-30433	G1857/96/1522/1	Charred hazelnut shell	4899 ± 29		3710-3640 cal BC	3710-3640 *cal BC*
1532	1522: fill of postpipe in one of the central postholes	KIA-30434	G1857/96/1522/2	Charred emmer wheat grain	4924 ± 30		3780-3640 cal BC	*3740-3640 cal BC*
1572	1571: secondary fill of posthole on S wall	KIA-30435	G1857/108/1571	Charred hazelnut shell	4958 ± 30		3800-3650 cal BC	*3760-3650 cal BC*
1613	1614: fill of postpipe in posthole on S wall	KIA-30436a	G1857/124/1614	Oak charcoal (alkali residue)	5071 ± 29	5060± 22 BP (T'=0.3; T' (5%)=3.8; ν=1; Ward & Wilson 1978)	3955-3785 cal BC	*3950-3795 cal BC*
1613	1614: fill of postpipe in posthole on S wall	KIA-30436b	G1857/124/1614	Oak charcoal (humic acids)	5045 ± 35			
1619	1631: charcoal-rich fill within large pit,	KIA-31088	G1857/126/1631	Charred hazelnut	4630 ± 31		3520-3350 cal BC	-

Cut No.	Context	Lab number	Local sample number	Material	Radiocarbon age (BP)	Weighted mean	Calibrated date (95% confidence)	*Posterior Density Estimate (95% probability)*
	contained broken stone axe			shell				
1619	1631: charcoal-rich fill within large pit, contained broken stone axe	KIA-31089	G1857/204/1631	Charred hazelnut shell	4946 ± 34		3800-3650 cal BC	-
1691	1709: material deposited into top of W end gable posthole after post removed	KIA-30437	G1857/176/1709	Oak charcoal	4908 ± 30		3760-3640 cal BC	*3720-3640 cal BC*
1691	1723: post-packing deposit in W gable end posthole	KIA-31087	G1857/179/1723	Charred cereal grain	4905 ± 34		3780-3630 cal BC	*3720-3640 cal BC*

Neolithic pit groups

Pit Group	Cut No.	Context	Lab number	Local sample number	Material	Radiocarbon age (BP)	Calibrated date (95% confidence)
I	1052	1051: fill of small pit with Mortlake Ware	NZA-26671	G1857/8/1051/1	Charred hazelnut shell	4504 ± 30	3360-3090 cal BC
I	1052	1051: fill of small pit with Mortlake Ware	NZA-26672	G1857/8/1051/2	Charred hazelnut shell	4437 ± 30	3330-2920 cal BC
V	4133	4149: charcoal-rich fill towards base of pit with Fengate Ware	NZA-26679	G1857/569/4149	Residue from pot sherd in SF 569 (vessel V.A)	4479 ± 30	3350-3020 cal BC
VI	6041	6005: fill of pit with Grooved Ware	NZA-26680	G1857/607/6005	Charred hazelnut shell	4567 ± 30	3490-3120 cal BC
VI	6041	6005: fill of pit with Grooved Ware	NZA-26681	G1857/627/6005	Charred hazelnut shell	3976 ± 30	2580-2460 cal BC
VI	6072	6066: upper fill of pit with Fengate Ware	NZA-26687	G1857/653/6066	Charred hazelnut shell	4467 ± 30	3340-3020 cal BC
VI	6072	6073: lower fill of pit with Fengate Ware	NZA-26688	G1857/656/6073	Charred hazelnut shell	4517 ± 30	3360-3090 cal BC
VII	3139	3137: upper fill of pit	NZA-26682	G1857/248/3137/1	Charred barley grain	3474 ± 30	1890-1690 cal BC
VII	3139	3137: upper fill of pit	NZA-26690	G1857/248/3137/2	Charred hazelnut shell	3552 ± 30	1980-1770 cal BC
VII	3146	3145: lower fill of pit with Early Neolithic pot	NZA-26689	G1857/292/3145	Hazelnut charcoal	4797 ± 30	3650-3520 cal BC
VII	3146	3144: upper fill of pit	KIA-30440	G1857/291/3144	Wood charcoal, <10 years, species not identifiable	4724 ± 44	3640-3370 cal BC
VII	3155	3154: fill of pit	KIA-30441	G1857/294/3154/1	Charred hazelnut shell	3476 ± 28	1890-1690 cal BC
VII	3155	3154: fill of pit	KIA-30442	G1857/294/3154/2	Charred hazelnut shell	3388 ± 29	1750-1610 cal BC

VIII	1309	1308: primary fill of pit	NZA-26691	G1857/49/1308/1	Charred hazelnut shell	4178 ± 30	2890-2630 cal BC
VIII	1309	1308: primary fill of pit	NZA-26692	G1857/49/1308/2	Charred hazelnut shell	4139 ± 30	2880-2580 cal BC
VIII	1553	1554: main fill of pit with Grooved Ware	NZA-26693	G1857/241/1554	Charred hazelnut shell	4201 ± 30	2900-2670 cal BC
VIII	1553	1554: main fill of pit with Grooved Ware	NZA-26694	G1857/242/1554	Charred hazelnut shell	4192 ± 30	2890-2670 cal BC

Burnt mounds

Burnt Mound No.	Cut No.	Context	Lab number	Local sample number	Material	Radiocarbon age (BP)	Calibrated date (95% confidence)	*Posterior Density Estimate (95% probability)*
1097	1154	1158: primary fill of trough	KIA-30443	G1857/29/1158/1	Charred hazelnut shell	4034 ± 31	2830-2470 cal BC	
1097	1154	1158: primary fill of trough	KIA-30444	G1857/29/1158/2	Charred hazelnut wood	3216 ± 26	1530-1420 cal BC	
1097	1154	1158: fill of trough.	NZA-26765	G1857/29/1158	Hazel charcoal	3270 ± 35	1630-1450 cal BC	
2031	2149	2145: fill of trough.	NZA-26766	G1857/497/2145/1	Hazel charcoal	3716 ± 40	2280-1970 cal BC	
2031	2149	2145: fill of trough.	NZA-26767	G1857/497/2145/2	Hazel charcoal	3575 ± 40	2030-1770 cal BC	
2167	2175	2173: fill of pit	NZA-26768	G1857/618/2173/1	Hazel charcoal	2998 ± 35	1390-1120 cal BC	
2167	2175	2173: fill of pit	NZA-26769	G1857/618/2173/2	Hazel charcoal	3064 ± 35	1420-1210 cal BC	
2176	2186	2193: fill of trough	NZA-26770	G1857/625/2193	Hazel charcoal	3899 ± 35	2480-2230 cal BC	*2470-2230 cal BC*
2176	2186	2196: fill of trough	NZA-26771	G1857/632/2196	Hazel charcoal	3886 ± 40	2480-2200 cal BC	*2470-2230 cal BC*
2176	2197	2200: main fill of trough	KIA-30447	G1857/638/2200/1	Possibly hazel charcoal, indeterminate age	3904 ± 30	2480-2290 cal BC	*2460-2290 cal BC*
2176	2197	2200: main fill of trough	KIA-30448	G1857/638/2200/2	Charred grain, species unidentified	3636 ± 30	2130-1910 cal BC	
2176	2197	2208: fill of trough	NZA-26772	G1857/639/2208	Hazel charcoal	3878 ± 40	2480-2200 cal BC	*2470-2230 cal BC*
2176	2202	2203: fill of trough	NZA-26773	G1857/661/2203/1	Hazel charcoal	3839 ± 40	2470-2140 cal BC	*2450-2200 cal BC*
2176	2202	2203: fill of trough	NZA-26774	G1857/661/2203/2	Hazel charcoal	3738 ± 40	2290-2020 cal BC	*2430-2110 cal BC*
2176		2209: fill of hearth 2212	NZA-26775	G1857/633/2209/1	Hazel charcoal	3869 ± 40	2470-2200 cal BC	*2460-2210 cal BC*
2176		2209: fill of hearth 2212	NZA-26776	G1857/633/2209/2	Hazel charcoal	3879 ± 40	2470-2200 cal BC	*2470-2210 cal BC*

2287	2288	2289: fill of trough	NZA-26777	G1857/667/2289/1	Hazel charcoal	2960 ± 35	1310-1040 cal BC	
2287	2288	2289: fill of trough	NZA-26818	G1857/667/2289/2	Hazel charcoal	3003 ± 35	1390-1120 cal BC	
4199	4208	4222: fill of trough	NZA-26819	G1857/368/4222/1	Hazel charcoal	3904 ± 35	2480-2280 cal BC	
4199	4208	4222: fill of trough	NZA-26820	G1857/368/4222/2	Hazel charcoal	3903 ± 35	2480-2280 cal BC	
6016	6018	6037: fill of pit	NZA-26821	G1857/616/6037/1	Hazel charcoal	3863 ± 40	2470-2200 cal BC	
6016	6018	6037: fill of pit	NZA-26823	G1857/616/6037/2	Hazel charcoal	3903 ± 40	2480-2210 cal BC	
6019	6023	6020: fill of pit	NZA-26824	G1857/610/6020/1	Hazel charcoal	3913 ± 35	2490-2290 cal BC	
6019	6023	6020: fill of pit	NZA-26825	G1857/610/6020/2	Hazel charcoal	2872 ± 35	1190-920 cal BC	
6094	6058	6057: fill of trough	KIA-30449	G1857/643/6057/1	Charred hazelnut shell	4572 ± 32	3490-3120 cal BC	
6094	6058	6057: fill of trough	KIA-30450	G1857/643/6057/2	Charred hazelnut shell	4467 ± 29	3340-3020 cal BC	
7039	7043	7044: fill of pit	NZA-26822	G1857/554/7044/1	Hazel charcoal	3898 ± 40	2480-2210 cal BC	
7039	7043	7044: fill of pit	NZA-26828	G1857/554/7044/2	Hazel charcoal	2829 ± 35	1120-900 cal BC	
7035	7045	7048: middle fill of pit	KIA-30446	G1857/576/7048	Possibly oak charcoal, indeterminate age	3612 ± 68	2200-1760 cal BC	
7035	7045	7049: upper fill of pit	KIA-30445	G1857/574/7049	Possibly oak charcoal, indeterminate age	3811 ± 28	2350-2140 cal BC	

Feature 7055

Cut No.	Context	Lab number	Local sample number	Material	Radiocarbon age (BP)	Calibrated date (95% confidence)
7055	7050: Charcoal layer in base of [7055]	NZA-26762	G1857/601/7050	Hazel charcoal	3132 ± 35	1500-1310 cal BC
7055	7051: Main fill of [7055]	NZA-26763	G1857/602/7051	Unidentifiable cereal grain	1980 ± 35	50 cal BC-cal AD 90
7055	7059: Fill of stakehole in base of [7055]	NZA-26764	G1857/603/7059	Charcoal, probably hazel	3087 ± 35	1440-1260 cal BC

Earth ovens

Cut No.	Context	Lab number	Local sample number	Material	Radiocarbon age (BP)	Calibrated date (95% confidence)
1072	1087: main burnt stone fill	NZA-26988	G1857/13/1087/1	Barley grain	3276 ± 45	1680-1440 cal BC
1072	1087: main burnt stone fill	NZA-26829	G1857/13/1087/2	Hazelnut shell	3271 ± 35	1630-1450 cal BC
1230	1231: main burnt stone fill	NZA-26830	G1857/36/1231	Charcoal, probably hazel	3062 ± 35	1420-1210 cal BC
1230	1232: main burnt stone fill	NZA-26831	G1857/35/1232	Hazel charcoal	3127 ± 35	1490-1310 cal BC
1259	1260: main burnt stone fill	NZA-26839	G1857/56/1260	Hazelnut shell	5639 ± 40	4550-4360 cal BC
1259	1261: main burnt stone fill	NZA-26832	G1857/44/1261	Hazelnut shell	4732 ± 40	3640-3370 cal BC
	1263: charcoal spread over postholes	Wk-20060	G1857/39/1263	Hazelnut shell	3066 ± 35	1420-1210 cal BC
1390	1391: primary fill of deep pit	Wk-20061	G1857/70/1391/1	Probably hazel charcoal	3098 ± 36	1440-1260 cal BC
1390	1391: primary fill of deep pit	Wk-20062	G1857/70/1391/2	Probably hazel charcoal	3078 ± 35	1430-1260 cal BC
1510	1511: main burnt stone fill	NZA-26833	G1857/114/1511	Hazel charcoal	2791 ± 35	1020-830 cal BC
1510	1589: part of pit lining	NZA-26834	G1857/115/1589	Hazel charcoal	2766 ± 35	1010-820 cal BC
3133	3131: main burnt stone fill	NZA-26989	G1857/246/3131	Hazelnut shell	**4772 ± 40**	3650-3380 cal BC
3133	3132: primary fill	NZA-26835	G1857/247/3132	Hazel charcoal	4870 ± 40	3710-3530 cal BC
3314	3315: main burnt stone fill	NZA-26836	G1857/348/3315/2	Hazel charcoal	3313 ± 35	1690-1500 cal BC
3314	3315: main burnt stone fill	NZA-26840	G1857/348/3315/1	Hazel charcoal	3647 ± 95 (The large error reflects a high degree of variability in the 14/13 ratio)	2290-1740 cal BC
6033	6051: main burnt stone fill	NZA-26837	G1857/647/6051	Hazel charcoal	4949 ± 40	3900-3640 cal BC
6033	6052: lower fill, possible erosion deposit	NZA-26838	G1857/648/6052	Hazel charcoal	4985 ± 40	3940-3650 cal BC

Roundhouse E

Cut No.	Context	Lab number	Local sample number	Material	Radiocarbon age	Calibrated date (95% confidence)	*Posterior Density Estimate (95%*

							probability)
	4197: stony, charcoal-rich deposit sealing the 4 postholes in the middle of RHE	KIA-30438	G1857/346/4197	Charred barley grain	2383 ± 26	520-390 cal BC	
4252	4253: fill of one of the 4 large postholes in the middle of RHE	KIA-30439	G1857/383/4253	Charred twig fragment, species unidentified	2483 ± 33	780-410 cal BC	
4277	4276: fill of posthole	Wk-20048	G1857/397/4276/1	Barley grain	2313 ± 38	410-250 cal BC	
4277	4276: fill of posthole	Wk-20049	G1857/397/4276/2	Probably naked wheat grain	2289 ± 38	410-220 cal BC	
4250	Deposit with metal working debris	Wk-20044	G1857/382/4250/1	Barley grain	1466 ± 37	cal AD 530-660	*cal AD 570-660*
4250	Deposit with metal working debris	Wk-20045	G1857/382/4250/2	Naked wheat grain	1417 ± 37	cal AD 570-670	*cal AD 580-660*
4283	4179: fill of hearth with metal working debris	Wk-20046	G1857/345/4179/1	Barley grain	1411 ± 37	cal AD 580-670	*cal AD 590-670*
4283	4179: fill of hearth with metal working debris	Wk-20047	G1857/345/4179/2	Naked wheat grain	1412 ± 37	cal AD 570-670	*cal AD 590-670*

Roundhouse settlement

Feature group	**Cut No.**	**Context**	**Lab number**	**Local sample number**	**Material**	**Radiocarbon age (BP)**	**Weighted mean**	**Calibrated date (95% confidence)**	***Posterior Density Estimate (95% probability)***
Corn drier near RHA	3671	3669: fill of corn drier	Wk-20035	G1857/450/3669	Oat grain	867 ± 39		cal AD 1040-1260	*cal AD 1040-1220*
Corn drier near RHA	3671	3670: fill of corn drier	Wk-20036	G1857/451/3670	Oat grain	917 ± 36		cal AD 1020-1220	*cal AD 1030-1190*
Corn drier near RHA	3717	3718: fill of posthole	Wk-20037	G1857/454/3718 /1	Oat grain	912 ± 36		cal AD 1020-1220	*cal AD 1030-1190*
Corn drier near RHA	3717	3718: fill of posthole	Wk-20038	G1857/454/3718 /2	Hazelnut shell	966 ± 36		cal AD 990-1160	*cal AD 1020-1160*
Roundhouse C	3325	3584: fill of pit	Wk-20039	G1857/469/3584	Hazel charcoal	2211 ± 39		390-170 cal BC	
Roundhouse C		3648: deposit overlying pit complex	Wk-20040	G1857/472/3648	Hazel charcoal	1924 ± 38		cal AD 1-140	
Roundhouse C		3672: deposit overlying pit complex	Wk-20041	G1857/475/3672 /1	Emmer/spelt grain	1883 ± 39		cal AD 20-240	

Roundhouse C		3672: deposit overlying pit complex	Wk-20042	G1857/475/3672 /2	unidentifiable cereal grain	1835 ± 39		cal AD 70-320	
Roundhouse C	3724	3681: fill of pit	Wk-20043	G1857/441/3681	Hazelnut shell	1769 ± 38		cal AD 130-390	
Structure F	9006	9004: main fill of posthole	KIA-30451	G1857/536/9004	Charred grain, species unidentified (humic acids)	2002 ± 34		90 cal BC-cal AD 80	
Structure F	9092	9091: fill of posthole	Wk-20050	G1857/541/9091 /1	Roundwood twig	1914 ± 38		cal AD 1-210	
Structure F	9092	9091: fill of posthole	Wk-20051	G1857/541/9091 /2	Roundwood twig	2061 ± 33		180 cal BC-cal AD 20	
Structure F	9121	9120: fill of posthole	Wk-20052	G1857/549/9120 /1	Wheat grain	2121 ± 33		350-40 cal BC	
Structure F	9121	9120: fill of posthole	Wk-20053	G1857/549/9120 /2	Roundwood twig	2155 ± 34		360-90 cal BC	
Structure G	9324	9323: fill of pit cut into fill of penannular gully	KIA-30452	G1857/678/9323	Charred twig, species unidentified, <20 years	2086 ± 25		190-40 cal BC	
Structure G	9327	9326: fill of posthole in centre of structure	KIA-30453a	G1857/680/9326 /1	Charred twig, species unidentified, 8-10 years (alkali residue)	2011 ± 27	1975± 20 BP (T'=4.0; T' (5%)=3.8; ν=1; Ward & Wilson 1978)	40 cal BC-cal AD 75	
Structure G	9327	9326: fill of posthole in centre of structure	KIA-30453b	G1857/680/9326 /1	Charred twig, species unidentified, 8-10 years (humic acids)	1930 ± 30			
Structure G	9327	9326: fill of posthole in centre of structure	KIA-30454	G1857/680/9326 /2	Charred hazelnut shell	2034 ± 26		110 cal BC-cal AD 30	
Structure G	9246	9061: fill of pit	Wk-20054	G1857/594/9061 /1	Hazel charcoal	2174 ± 34		370-110 cal BC	
Structure G	9246	9061: fill of pit	Wk-20055	G1857/594/9061 /2	Hazel charcoal	2109 ± 34		350-40 cal BC	
Roundhouse H	9184	9185: fill of pit	Wk-20056	G1857/568/9185 /1	Hazel charcoal	1899 ± 33		cal AD 20-220	
Roundhouse H	9184	9185: fill of pit	Wk-20057	G1857/568/9185 /2	Hazel charcoal	1791 ± 33		cal AD 130-340	
Roundhouse H	9277	9276: fill of pit	Wk-20058	G1857/608/9276 /1	Unidentifiable cereal grain	1909 ± 33		cal AD 20-210	

Roundhouse H	9277	9276: fill of pit	Wk-20059	G1857/608/9276 /2	Unidentifiable cereal grain	1828 ± 33		cal AD 80-320	

Table XVI.2. Llandegai -House B1 radiocarbon results Lynch and Musson 2001)

Posthole No	Lab number	Local sample number	Material	Radiocarbon age (BP)	Calibrated date (95% confidence)
9	NPL-223	B73	Fragments of mature charcoal	5240 ± 150	4360-3700 cal BC
12	GrN-26824	B98	Charcoal (45g) large pieces which were part of the core of the oak post	5055 ± 25	3960-3770 cal BC
2	GrN-26823	B77	Charcoal (60g), 38 pieces of oak, 3 pieces too incinerated but probably oak	5040 ± 30	3950-3710 cal BC
5	GrA-20012	B72	Charred hazel nut shell	4860 ± 50	3710-3520 cal BC

Table XVI.3. Probabilities of the relative chronology of the estimated start date for structures within the roundhouse settlement: the cells show the probability that the structure listed at the left of the table is earlier than the listed at the head of the table, eg the probability that *start_G* is earlier than s*tart_F* is 53.9%.

	start_G	*start_F*	*start_C*	*start_H*
start_G	-	53.9%	95.3%	96.5%
start_F	46.1%	-	94.8%	96.2%
start_C	4.7%	5.2%	-	53.3%
start_H	3.5%	3.8%	46.7%	-

APPENDIX XVII: PETROGRAPHIC ANALYSES OF SHERDS FROM PARC BRYN CEGIN

John Ll. W. Williams and David A Jenkins

1. Introduction

Petrographic analysis was undertaken on 19 sherds which were selected from the Early Nelithic building and Pit Groups identified at Parc Bryn Cegin. This sample included all the typological groups represented at the site. The analysis aimed to classify the pottery by fabric, to provide information on the provenance of the ceramic raw materials, and to establish the typological association of the fabrics. The thin-section preparation techniques have been described elsewhere (Williams & Jenkins 1999, 2004a) and the site archive contains the full detailed report of these techniques and descriptions of the individual sherd fabric types identified. The quantitative analysis of the fabrics was based on a count analysis of 400 points *per* thin section in which the following components were identified according to general grain size: matrix (<0.06mm); grains (0.06-0.2mm); grog (>0.2mm), clasts (0.2-6.0mm) and voids (>0.002mm). The results are presented in tables and as triangular diagrams (Tables XVII.1 & 2; Figs. XVII.1 & 2) to relate to the fabric classification outlined in an extended study of prehistoric pottery from northern Wales (Williams & Jenkins 2004a)

2. Summary of Results

A summary of the analytical data is presented in Table XVII.1. Full data are given in the archival report.

3. Discussion

The analytical data can be considered in terms of: (1) general characterisation and grouping of the sherds, (2) the provenance of the materials used in production of the vessels, whether local or imported pottery, and (3) the typology of the pots.

3.1 Characterisation and grouping of sherds

The general character of the fabrics can be described in terms of the proportions of filler, matrix and voids (Williams & Jenkins 2004a). From the resulting triangular diagram (Figure XVII.1) it can be seen that the 19 sherds analysed show similar proportions of these components to other Neolithic-Bronze Age pottery examined from northern Wales (Williams & Jenkins 2004a). Thus most are "moderately" tempered (15-30% filler), though 572, 568 & 776 are "sparsely" tempered (10-12%) whilst 768 stands apart in being "heavily" tempered (50% filler). Except for the three "corky" (vesicular) sherds (Group 1), samples are "dense" (voids <10%); indeed, the three corky sherds are also dense when their clast-voids are re-expressed in their presumed original calcareous form (Figure XVII.1).

Table XVII.1: Summary of the analytical data for 19 sherds from Parc Bryn Cegin

Sherd small find No.	Lab. Thin section No.	**Voids:** construction.	**Voids:** clast-voids	**Matrix**	**Grains**	Triassic quartz	**Grog**	**Clasts**	Mafic igneous	Silicic igneous	Sandstones	Metaquartzites	Vein quartz	**Fabric group**
		Vol.% (400 counts *per* TS)												
82	2241	**2.0**	**17.2**	**78.9**	**1.7**	p	**-**	**1.2**	-	0.5	0.5	-	0.2	**1**
167	2242	**2.2**	**15.7**	**75.4**	**0.7**	-	**5.7**	**-**	-	-	-	-	-	**1**
143	2235	**2.5**	**20.2**	**62.5**	**5.0**	p	**>5.7**	**3.9**			3.2	-	0.7	**1**
776	2238	**6.5**	**1.5**	**80.5**	**1.0**	p	**>9.0**	**1.4**	-	-	1.4	-	p	**2**
628	2248	**6.5**	**5.7**	**80.9**	**2.5**	-	**13.5**	**1.0**	-	p	1.0	-	p	**2**
103	2233	**5.5**	**12.5**	**53.5**	**7.5**	p	**17.0**	**3.7**	-	0.5	2.7	-	0.5	**2**
541	2244	**5.2**	**4.5**	**64.2**	**6.0**	p	**9.2**	**10.4**	-	9.2	p	-	1.2	**2/3b**
532	2236	**4.2**	**0.2**	**61.2**	**9.0**	p	**15.5**	**9.7**	p	-	7.5	-	2.2	**2/3d**
580b	2247	**5.7**	**6.5**	**69.7**	**6.2**	-	**4.5**	**7.2**	-	1.5	5.7	-	-	**2/3d**
106	2234	**2.5**	**9.2**	**71.0**	**5.7**	p	**2.0**	**9.3**	0.7	1.7	1.4	-	5.5	**"3e/2"**
572	2246	**3.7**	**-**	**79.4**	**5.5**	0.2	**-**	**10.6**	-	0.2	10.2	-	-	**3c**
768	2249	**6.0**	**-**	**48.5**	**1.2**	-	**-**	**44.2**	-	-	-	44.2	-	**3d**
568	2245	**5.7**	**-**	**78.5**	**3.2**	0.2	**-**	**12.4**	-	2.0	9.5	-	0.7	**3d**
580a	2237	**4.7**	**-**	**56.0**	**13.0**	p	**6.4**	**19.6**	-		15.1	-	4.5	**3d**
1	2240	**9.2**	**-**	**65.2**	**2.2**	0.5	**-**	**23.2**	-	-	1.2	-	22.7	**3e**
45	2232	**3.2**	**-**	**70.5**	**5.2**	0.2	**-**	**20.2**	-	-	1.2	-	19.0	**3e**
907	2250	**3.7**	**-**	**52.4**	**7.5**	p	**8.0**	**28.3**	-	0.2	7.4	-	20.5	**3e**
859	2239	**5.2**	**-**	**63.5**	**10.0**	p	**0.5**	**20.7**	-	14.0	p	-	6.7	**3b/e**
529	2243	**7.7**	**-**	**64.9**	**4.7**	0.2	**-**	**22.4**	-	1.0	2.0	7.9	11.5	**3d/e**

The grouping of sherds has been made according to the nature of the filler employed, that is the proportions of (1) clast-voids, (2) grog, and (3) lithic clasts, with intermediate mixed groups, such as 2/3. (Table XVII.1; Figure XVII.2). Group (3) is further sub-divided according to the general dominant/major lithology of the clasts, reflecting their provenance, perhaps modified by selection. Almost all groups are represented in this Parc Bryn Cegin sample, *i.e.*

Group 1 - Clast-void rich fabrics
Group 2 - Grog-rich Fabrics +/- minor clast-voids
- **Sub-group 2/3** Fabrics combining rock clasts and grog
Group 3 - Fabrics rich in rock clasts
Sub-group 3b silicic igneous rocks
Sub-group 3c metamorphic rocks
Sub-group 3d sedimentary rocks
Sub-group 3e vein quartz

Sub-group 3a **(**mafic igneous rocks) is not represented in the Parc Bryn Cegin sample and the groupings of some fabrics (*e.g.* **SF 103, 106, 167**) need to be considered individually as will be discussed in 3.3 below.

3.2 Provenance

Parc Bryn Cegin is located on the interfluvial ridge between the valleys of the north-flowing river Ogwen and the east-flowing Cegin. The former has its source in the Ordovician igneous and low-grade metamorphic rock outcrops of central Snowdonia, and the latter drains an area of the Arfon platform dominated by intermixed glacial and glacifluvial deposits again of Snowdonian extraction. Parc Bryn Cegin also lies near the confluence of Snowdonian Ice with the Irish Sea Ice whose deposits were derived from geological terrains remote from northern Wales.

In all fabric groups, and particularly Group 3, the overall rock assemblages are dominated by distinctive silicic igneous material (including ignimbrites), sedimentary rocks ranging from coarse lithic sandstone to fine grained foliated sandstone to mudstone; mafic igneous rocks and slates are only rarely represented. Other than for a metaquartzite dominant in one sherd (**SF 572**), this type of rock assemblage is typical of a Snowdonian source and suggests the local origin of the fabrics, although with a qualification. The only likely extraneous element in the assemblage is the presence of rounded Triassic sand grains (occasionally with pellicles and overgrowths) which are represented in fabrics belonging to all three of the principal fabric groups. Their presence may indicate a contribution from the Irish Sea deposits, a possibility that is consistent with the location of the Parc Bryn Cegin where exposures of both Snowdonian and Irish Sea tills occur nearby. Rock clasts, particularly of metamorphic, igneous and arenaceous rock types, are characterised by their angularity and sharp fractures; they contrast with the more rounded outlines of the argillaceous rocks, particularly the softer mudstones and clay nodules.

Provenancing material in sherds in Groups 1 and 2 is difficult since their clast content is small (<4%). Even where clasts are more common in Group 3 (7-44%) sourcing these rock types to specific outcrops is not possible since all occur in the derived context of the drift deposits of Snowdonia and the Arfon platform. Some of the Group 3 fabrics are characterised by an assortment of rock types rather than by single dominant forms, which may suggest that selection of specific rock fillers may not have been an overriding issue. In such examples it is possible that a coarse textured sandy sediment was added to the clay to produce a granular fabric. Those fabrics containing single rock types, such as the angular metaquartzite clasts in Fabric 3c, may require a different explanation since they suggest a degree of selectivity in the preparation of the potting mixture, a proposal discussed further when the typology of the pottery is presented in 3.3 below.

3.3 Typological correlations

The typology of the pottery and its relationship to the fabric classification is presented in Table 2.

Table XVII.2: Correlation of fabric classification with pottery typology

	Typology:	Early Neolithic	Mortlake	Fengate	Grooved Ware	Beaker?
Group: (filler type)	***Sub-group (Filler composition):***					
		82				

1 Clast voids		167 143				
2 Grog					776 103 628	
	2/3b grog/silic. ign.			541?		
2/3 mixed	2/3d grog/sedim.			532 580b		
	"3e/2" v.q./grog				106	
3 Clasts	3c metamorphic			572		
	3d sedimentary			580a 768 568		
	3e vein quartz (v.q.)		1 45			907
	3e/b v.q./silicic ig.			859		
	3e/d v.q./sedim.			529		

The study indicates that Group 1 (clast-void rich – "corky") fabrics have been identified associated with the Early Neolithic pottery from the "house structure" at Parc Bryn Cegin. The same types of fabrics have been noted in similar Neolithic pottery from the house structure at the adjoining site of Llandygai (Williams and Jenkins 2004b, 135). However, more than one type of clast-void (rhombic and cylindrical) is represented which might justify future sub-groups within Group 1, and this is best exemplified by fabric **SF 167** which is also unusual in being the one fabric devoid of lithic clasts.

Mortlake and Fengate pottery are principally associated with Group 2/3 and Group 3 fabrics where the granularity of the composition appears to be of prime importance. Angular rock clasts form the most important element in these fabrics, and in association with grog in Group 2/3 fabrics, they represent some of the most heavily tempered compositions in the whole assemblage. Although some of these fabrics contain an assortment of rock clasts the emphasis appears to be on the selection of light coloured lithic material. Vein quartz, orthoquartzites and metaquartzites are prominent in the clast-rich Group 3 sherds and these rocks may have been sought specifically and crushed deliberately. This preference for vein quartz in particular has been noted elsewhere (Gibson 1995) but so far this is the best example recorded in northern Wales. It contrasts with the marked preference for dark mafic igneous rock types observed in Bronze Age pottery (Williams & Jenkins 1999)

The Grooved Ware fabrics are of interest since they span Groups 2 and 2/3 in which grog appears as a particularly important component whether in combination with lithic clasts (2/3) or with minor void clasts (2). It is noted that Group 2 fabric with grog forming the principal filler constituent is represented in a single Grooved Ware sherd (**SF 776**) at Parc Bryn Cegin. This fabric is characterised by the coarse texture of the grog fragments and it replicates a similar 'unrefined' Grooved Ware fabric at Llandygai (Sample B118). Classic Beaker pottery, however, is not represented in the Parc Bryn Cegin sample. Another problem is posed by fabric **SF 106** whose combination of lithic clast and grog as filler is not recognised as a sub-group in the current classification (hence "3e/2" in the Tables and its position in Figure 2). However, the presence of the grog does align it with the other three Grooved ware sherds. Finally, it has not been possible to identify the typological status of an undiagnostic sherd from Parc Bryn Cegin (**SF 907**) petrographically. It is classified as Group 2/3, which might align it with the other Grooved Ware examples, and it is unlikely to be Beaker since the fabric does not correspond to the Group 2 fabrics identified in the Llandygai Beaker pottery (Williams & Jenkins 2004b, 133).

4. Conclusion

The lithological assemblages associated with the fabrics identified in this analysis suggest that the greater proportion of the pottery is of local manufacture but, in the wider context, they also correspond to compositions that occur elsewhere in Wales and Britain. Yet, within this predominantly local repertoire, there are some compositions which stand out because of certain facets in their lithology or fabric, as in **SF 572** (Group 3) because of its un-provenanced metaquartzite, and in **SF 167** (Group 1) because of the absence of lithic clasts and the sophistication of its fabric. This might suggest that, in spite of a generally unspecific lithology, these two originate from a more distant provenance than the Parc Bryn Cegin area.

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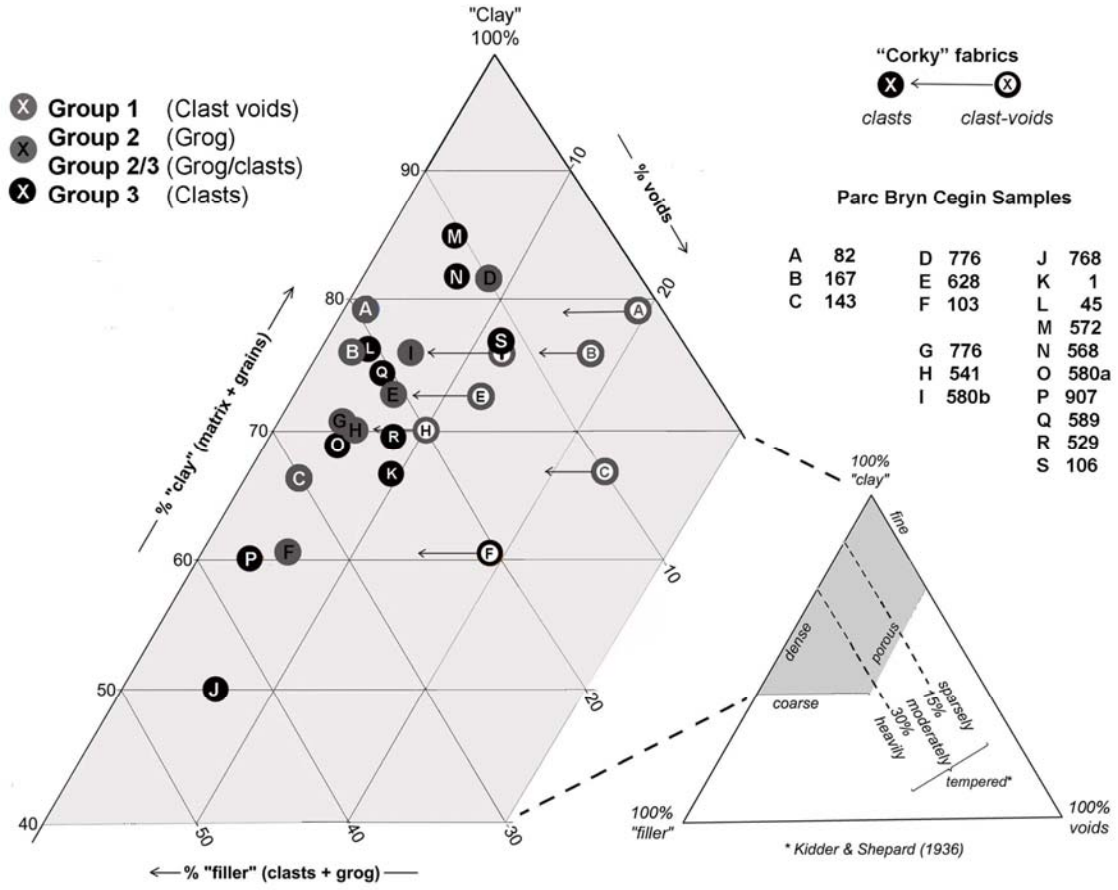

Figure 1: samples plotted according to fabric characteristics

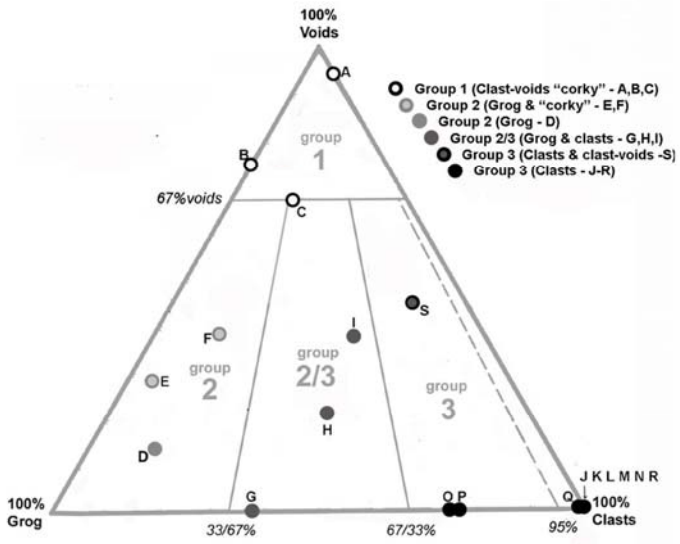

Figure 2: samples plotted according to filler type

YMDDIRIEDOLAETH
ARCHAEOLEGOL
GWYNEDD

GWYNEDD
ARCHAEOLOGICAL
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