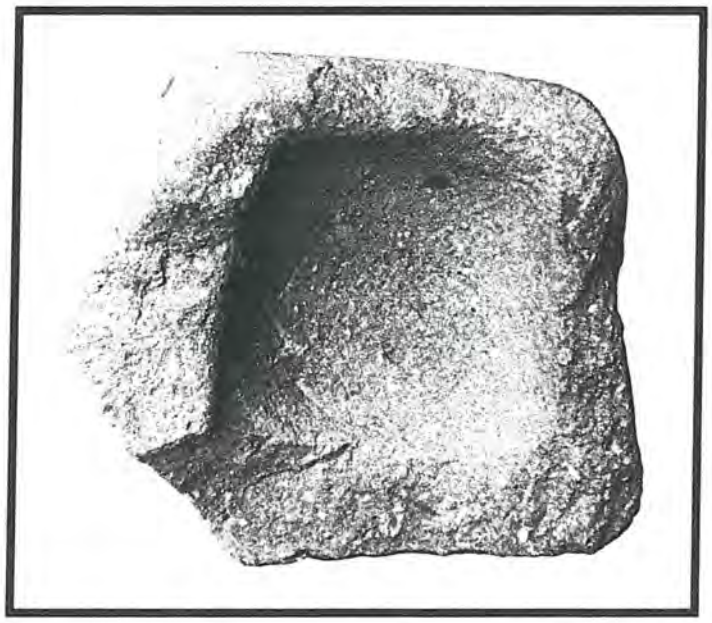
A55 Anglesey DBFO Scheme

Specialist Reports for Ty Mawr, Melin y Plas and Penmynydd

Report No. 411



Prepared for
Richards, Moorehead and Laing

May 2001

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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Jane Kenney

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A55 Anglesey DBFO Scheme
Archaeological Investigations
Specialist reports for Melin y Plas, Ty Mawr and Penmynydd

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A55 Anglesey DBFO Scheme
Archaeological Investigations

Specialist reports for Melin y Plas, Ty Mawr and Penmynydd

Edited by Jane Kenney

1. INTRODUCTION

A series of excavations were undertaken by Gwynedd Archaeological Trust in advance of the construction of the A55 extension across Anglesey. A post excavation assessment and research design (Davidson and Kucharski 1999) was submitted, and the contextual analysis phase of the work (Smith and Kenney 2001) has been completed. This document presents the specialist reports for the sites of Melin y Plas, Ty Mawr and Penmynydd. These reports were commissioned as proposed in the assessment report, and incorporate stratigraphic information from the contextual analysis report.

The radiocarbon dates that have been received so far are presented and discussed, and proposals for further dates, to clarify specific problems, have been put forward. The analysis of the charred plant remains from Melin y Plas has been completed, and is presented here. All the artefacts have been inspected by the relevant specialists, but some of the illustrations of the artefacts are not quite complete, and are presented here in a draft form. X-ray photographs have been taken of iron objects from Ty Mawr, and one from Melin y Plas. These are not included here, because of the difficulty in reproducing them. The final report on the petrology is still awaited. All the included reports are as received from the specialists with minimal editing. Revision and final editing of these reports will be undertaken in the next phase of work.

The project will now move onto the preparation of the first draft of the report, when text and illustrations will be completed to publication standard. This will also include the submission of some additional radiocarbon dates. The completion of the first draft is due at the end of July.

2. MELIN Y PLAS, BRYNGWRAN, SITE C17

2.1 RADIOCARBON DATES

2.1.1 Comments on radiocarbon dating results and proposal for follow-up dating

by George Smith

2.1.1.1 Introduction

Six samples were sent to Beta Analytic Inc, Florida for radiocarbon dating. Those samples large enough for standard radiometric dating were analysed by synthesising benzene from the carbon sample, and measuring for C^{14} content in a scintillation spectrometer. Some samples required extended counting, during which the C^{14} content is measured for a greatly extended period. Particularly small samples were dated by accelerator mass spectrometry. In this case the sample is reduced to graphite for measurement. C^{13}/C^{12} corrections were applied to the measured age to give the age BP presented here. The dates were calibrated by the laboratory using INTCAL98 Radiocarbon Age Calibration, and are presented here at 2 standard deviations.

The table below lists the resulting dates:

Table 1 Melin y Plas: Summary of radiocarbon samples dated

Sample no.	*Context*	*Phase*	*Structural group*	*Description*	*Calibrated date 2 sigma*	*Lab ID*
130	79	3b/c	G5	Fill of gully 78 around building G5	AD 640-990	Beta-152571
161	465	3b/c	G6	Fill of pit F464 in pit group G6	BC 350-300 or BC 220-AD 40	Beta-152572
189	351	3b/c	G2.3/2.4	External cobbled surface	AD 890-1020	Beta-152573
196	535	3c	G2.4	Fill of drain F298, main drain in Building G2	AD 660-1030	Beta-152574
291	844	4	G4	Fill of gully F636	BC 920-800	Beta-152575
357	10	2	G3	Fill of 'tank' pit 9	BC 1410-1200	Beta-152576

These samples were chosen from a range of contexts that represented the main observed stratigraphic phases of the site and were carefully selected as containing suitable material of which the main pieces were identified to species before dating.

2.1.1.2 Discussion

1. From one of a small number of distinctive pits two of which stratigraphically predate roundhouses G2 and G5. 1410-1200 BC (Beta-152576).

It was expected that these pits might belong to the earliest phase of the settlement, which was expected to be late in the first millennium BC, by analogy with similar settlements excavated elsewhere and because the main phase was shown to be of the 2nd to possibly early 3rd century AD. The date is therefore significantly outside the expected period. There were difficulties in dating this sample because it was found that some mineragenic carbon (coal) had probably found its way into the sample producing an erroneous date (coal was available as a surface outcrop on the east side of the Malltreath estuary about 7km to the south-east). The final date was only achieved after careful selection from the sample only of those pieces with wood grain. The pit was isolated and therefore not stratigraphically related to other features, structures or phases on the site. Unfortunately, neither of the two similar pits that were stratigraphically related had any charcoal for dating. The date cannot be fitted into any interpretative framework either of the presence of activity of that period or as a result of incorporation of long-lived species of wood in the sample. There seem to be two possibilities. other the measurement is still distorted through inclusion of some mineragenic carbon or the inhabitants were exploiting peat as a fuel, which might include some ancient (post-glacial) bogwood.

2. From three contexts associated with the roundhouse of the main phase of occupation, which has pottery of the early 2nd century AD. BC 350-300 or BC 220-AD 40 (Beta-152572), AD 660-1030 (Beta-152574), AD 890-1020 (Beta-152573).

BC 350-300 or BC 220-AD 40 (Beta-152572).
From a pit, one of a group that clearly post-dated the earliest round-house and associated with the house of the main phase although there was no pottery associated with these pits to prove their exact contemporaneity. The date is earlier than that expected. The charcoal was in a distinct layer on the base of the pit and therefore was not just part of a secondary fill although that does not exclude the possibility that some earlier residual charcoal may have been included. It is possible that these pits are earlier than expected.

AD 660-1030 (Beta-152574).
From the silted-in fill of the main internal drain of the main phase of occupation, associated with pottery of the 2nd century AD. It was expected that the date would confirm the occupation period shown by the pottery so it was well outside the expected range. The charcoal in the fill of the drain could have arrived during the last occupation of the house, but it could have silted in at some later period after the abandonment or demolition of the house. Nevertheless, it would be expected that even if that were the case, the charcoal itself would have derived from the overlying occupation remains. To arrive at a date some 600 years after that expected would necessitate the presence of a complete phase of activity of that date of which there was no evidence in the structural record.

AD 890-1020 (Beta-152573).
From a layer of 'paving' stones. part of a cobbled 'path' at the west side of and apparently associated with the main phase of occupation of house G2. The date is therefore well outside the expected range. The sample was not itself closely stratified and it could have been associated with later occupation on the site of which there were gullies and postholes nearby. However, even this 'latest' phase was expected to at least follow on closely from the AD 2nd century phase. If the date is accepted there must be a complete phase of much later activity on the site, which has not been recognised, in the structural and stratigraphic record.

3. From a context belonging to another roundhouse which is associated with some pottery of the 2nd century AD. AD 640-990 (Beta-152571).

From the fill of a curvilinear gully, the main extant evidence of a roundhouse G5. The only other datable find was one piece of pot of the 2nd century AD and this was expected to date the house. However, the pot was in a thin soil spread and could be residual or even be quite unassociated. However, the general layout of the buildings on the site suggested that building G5 was at least partly contemporary with G2 and that the main period of occupation was in the 2nd century AD. The gully could have silted in after the building's abandonment but the radiocarbon date is still well outside any expected period of occupation. To be accepted there must be some complete phase of later activity not yet recognised in the structural and stratigraphic record and either building G5 is much later than expected or charcoal from the later activity must have found its way into the gully.

4. From the fill of a gully cut into a cobbled surface that was in turn associated with the main phase of occupation of house G2. The gully was therefore clearly part of a later structure, although only surviving in part because of plough erosion. The structure was expected to follow fairly closely on from house G2 with its pottery evidence of the 2nd century AD, but still probably no later than the early 3rd century. BC 920-800 (Beta-152575).

The date is a long way outside that expected and in opposition to the stratigraphic evidence. To be accepted there would have to have been a much earlier period of activity on the site and some old charcoal would have to have been residual in the gully. The gully was quite narrow and well-defined. Its fill may have silted in after it was abandoned but it seems unlikely that this would contain remnant charcoal from a millennium earlier. Possibly modified by inclusion of mineragenic carbon or bog wood.

2.1.1.3 Assessment

None of these radiocarbon dates have fallen within the expected range. The samples have all been selected with care and the laboratory diagnosis is that they were all 'good' samples, so the dates must somehow be explained. Similar settlements with Romano-British pottery have generally produced dates that fall within the date of the pottery or show probable origins in the later 1st millennium BC.

The earlier dates here seem more likely to be the result of mineragenic or bog wood inclusions than evidence of very early occupation. There are extensive areas of lowland bog close by to the south-west (Twyn Trewan) and the peat would have been exploited for fuel if the landscape was as bare of tree cover as it is at present.

The early medieval dates however provide some consistent evidence for a phase of activity that had not previously been recognised. Unfortunately, as this is an aceramic period no other artefactual evidence

can be expected, even if there was actual settlement here in the period between the 8th-10th century AD (taking the intersect points of the radiocarbon ranges). If there were it would clearly be a quite unconnected phase, not simply a continuation of the roundhouse settlement, as has been suggested by occasional finds and dates from other mainly Romano-British settlements in the region. Such a widespread contamination of earlier deposits seems more likely to have happened if the area had become overgrown and was cleared for agriculture by burning. This indeed could have happened as there is the evidence of a probable medieval strip field at the north-west side of the excavated area.

The botanical identifications show that most charcoal from all samples is from scrub or underwood species. Only that from sample 161 (Beta-152572) is somewhat different mainly of oak and willow/poplar. This was the only charcoal sample that was clearly a deliberate deposition and sealed in a pit and id probably the most reliable and useful date. Although earlier than expected the sample included oak heartwood and so the date could be up to several centuries earlier than the date of burning.

The samples with much earlier than expected dates have nothing unusual about their species that might confirm or deny the suggestion that their apparent dates derive from incorporation of bog wood.

If the early medieval dates do derive from a phase of clearance and burning then we should expect to find a range of scrub species and this is the case. Two of the samples also include blackthorn and two include gorse/broom.

2.1.1.4 Recommendations

The possibility of distortion of the dates through inclusion of mineragenic or bog wood should be minimised by AMS dating of single identified pieces.

1. As yet there is no artefactual or radiocarbon date from any feature belonging to the earliest actual occupation identified, that of roundhouse G1. There is one suitable sample that could be dated from this structural phase - Pit 162, Sample 67, 13g.

2. There is one suitable sample that could be dated from a more directly structural context of building G5 - Sample 132, posthole 183, 42g.

3. There is a sample of hazelnut shell from identified macrobotanical sample 261 from a drain in house G2. The identification of cereal grains indicates that the sample derives from actual occupation and date would test the supposition that the previous drain date from this house was intrusive.

4. There is one suitable sample that could be dated from a more directly structural phase of building G2 - Sample 276, hearth 69, 17g.

Table 2 Melin y Plas: Summary of proposed new radiocarbon samples

Sample no.	*Context*	*Structural group*	*Context Description*	*Sample description*	*Wt gms*
67	163	G1	Fill of pit 162 house G1	Not ID	12.92
132	184	G5	Fill of posthole F183 in house G5	Not ID	42.34
261	654	G2.3	Fill of posthole 653 in house G2	Macrobotanical sample: cereal and hazelnut	
276	69	G2.3	Fill of hearth? 69 in house G2	Not ID	17.52

2.1.2 Identification of charcoal samples

by Rowena Gale

2.1.2.1 Introduction

Six samples of charcoal from Romano-British round huts were examined and identified to select suitable material for radiocarbon dating.

2.1.2.2 Materials and methods

Samples were prepared for examination using standard methods. Fragments from each sample were fractured to expose fresh transverse surfaces (TS) and sorted into groups based on the anatomical features observed using a x20 hand lens.

Representative fragments from each sample were selected for detailed study at high magnification. Additional surfaces to show the wood structure in tangential (TLS) and radial planes (RLS) were also prepared. The fragments were supported in washed sand and examined using a Nikon Labophot microscope at magnifications of up to x400. The anatomical structures were matched to prepared reference slides.

When possible the maturity (ie heartwood/sapwood) of the wood was assessed and the number of growth rings recorded. The taxa identified were bagged separately and weighed accordingly.

2.1.2.3 Results

The results of the charcoal analysis are summarised in table 1.

Table 1. Melin y Plas, G1572 (C17): radiocarbon charcoal samples
The weight of identified charcoal is given for each taxon (includes bag weight).
Charcoal suitable for radiocarbon dating is indicated in bold.
Key: h=heartwood, r=roundwood (diameter 10mm, 3 growth rings)

Find No.	Context	*Alnus* alder	*Betula* birch	*Corylus* hazel	*Ilex* holly	cf. *Pomoideae* hawthorn/ *Sorbus*	*Prunus spinosa* black-thorn	*Quercus* oak	*Salicaceae* willow/ poplar	*Ulex*/ *Cytisus* gorse/ broom
130	79	**<1g**	**2g**	**3g**	-	-	-	h, 1g	**1g**	**1g**
161	465	-	-	**<1g**	-	-	-	h, 6g	**8g**	-
189	351	-	-	**<1g**	-	-	**<1g**	-	-	-
196	535	-	**<1g**	**1g**	**<1g**	-	**<1g**	**r, 1g**	**8g**	**3g**
291	844	-	**<1g**	**<1g**	-	**<1g**	-	h,<1g	**<1g**	**<1g**
357	10	-	-	-	-	-	-	-	**1g**	-

2.2 THE PLANT REMAINS

2.2.1 The charred plant remains from the Romano-British settlement of Melin y Plas, Bryngwran (C17)

by Marina Ciaraldi (10/05/2001)

2.2.1.1 Introduction

Archaeological excavation at Melin y Plas was carried out by the Gwynedd Archaeological Trust during 1999, as part of the construction of the A55 Llandegai to Holyhead DBFO scheme. The excavation uncovered a Late Prehistoric/Romano-British settlement that included some circular buildings with associated pits, hearths, postholes and drains.

A program of soil sampling was put in place during the excavation with the intent of recovering biological and non-biological remains from various areas of the excavation. It was hoped that, through the study of the organic remains, it would have been possible to recover the evidence of past human activities on the site. This study, in particular, concern the analysis of the plant macro-remains and aims at:

1) reconstructing the evidence of agricultural activities that took place in the different parts of the site
2) understanding the type of environment that surrounded the site
3) understanding the influence of the human occupation on such environment

It also represents a unique opportunity to look at the agricultural regimes adopted on Anglesey during the Roman period.

2.2.1.2 Soil sampling and identification

A total of 84 soil samples were collected during the excavation from different features, including pits, hearths, drains and postholes. Sixty of these samples were processed and later assessed to understand the quality and the potential of the preservation of botanical remains. A group of 46 samples was initially assessed by Smith (Smith unpublished) while further 14 samples were assessed by the author. All the samples examined contained exclusively charred remains and only five samples proved to contain a significant number of charred seeds to deserve further analysis. The plant remains from these five samples are here analyzed and discussed.

The samples collected during the excavation were of variable dimensions. This meant that, in order for the processing to be effective, different techniques had to be used. It was decided that small samples (less than 6 litres) were more appropriately processed by bucket flotation, while larger samples could be more effectively processed by using the York flotation machine. The use of two different types of processing technique should not, however, have affected the recovery of the charred remains.

The light fraction of the soil (flot) was recovered on a 0.5 mm mesh. It was then dried and examined under a low power microscope. The heavy residue was retained on a 1mm mesh and let to dry. The general scarcity of charred remains in the residue allowed the sorting of the residue only by eye, rather than under the microscope.

Identifications were made by using the modern reference material from the author' personal collection. The cereals were identified on the basis of the criteria highlighted in Jacomet 1987 and Hillman (pers. comm.). The Latin nomenclature for the cultivated species follows Zohary and Hopf (1993), that for the wild species Stace (1991).

2.2.1.3 Samples description

All the five samples discussed in this report come from structure G2 and are associated with three different building events: G2.2, G2.3 and G2.3/G2.4. These have been grouped into three phases, respectively phase 3a, phase 3b and phase 3/c, all dated to the 2nd century AD on the basis of the pottery.

The sample from context 321/593 derives from a charcoal-rich layer containing burnt clay and stones. The soil matrix and the range of artifacts were similar to that of sample 250/639, taken from a nearby capped drain (fig. 1) (George Smith pers.comm.). It is likely that the fill of the drain might have been formed by material washed down the drain from the surfaces associated with the drain, particularly layer 593. Both samples are associated with building G2.2 and belong to phase 3a

Sample 336/885 belongs to building G2.3, phase 3b and was taken from a shallow pit, filled with a dark, charcoal-rich deposit and interpreted as a stone-capped hearth.

Sample 254/334 represents the fill of a stone-capped drain (F33) (fig REF. TO PLAN) and is associated with the building phase G2.3 too. It is, however, possible that this fill was deposited after the abandonment of the drain and for this reason it has been associated with building G2.3/G2.4, phase 3b/c.

The last sample, 261/654, was collected from the fill of a large posthole capped by a slab and associated with building G2.3. The slab was cracked, probably as a consequence of its exposure to high temperatures. It is probable that the fill of the posthole represents material associated with this later activity of burning and it is safer to assign it to G2.3/G2.4, phase 3b/c.

2.2.1.4 Discussion

The study of the plant assemblage from Melin y Plas is here examined in detail in the light of its contribution in the reconstruction of the site economy as well as that of the island during the 2nd century AD.

The five samples are here discussed according to their phase. The results of the analysis (table 1, appendix 6.3.1), however, suggest that the plant assemblages from Melin y Plas represent an homogeneous group whose potential of information goes beyond that of the site.

Phase 3a (2nd century AD)

This first group includes samples 321/593 and 250/639, both belonging to building G2.2. It has already been pointed out how these two samples probably represent the same deposit as the material recovered from the drain was probably re-deposited in the drain and was associated with the activity that took place in the areas around the drain. This hypothesis is supported by the composition of the two samples (fig.1), which will, therefore, be discussed as a single assemblage.

The two samples are dominated by chaff and contain only two grains of spelt or bread wheat (*Triticum spelta/aestivum)* and a single barley grain (*Hordeum vulgare* L.). The chaff includes almost exclusively glume bases and forklets of spelt. Some rachis internodes of hexaploid wheat and some barley rachis internodes are also present. Culm bases are quite abundant, as they constitute around 30% of the chaff present in the assemblage (table 1, appendix 6.3.1, and fig.4), an unusual high number for this part of the cereal plant.
The weeds include species typical of wetland habitats and of grassland/heath (table 1, appendix 6.3.1).

The plant assemblage from the two layers clearly indicates that, during phase 3a, crop processing was undertaken on-site and that the plant remains represent the burnt waste of such processing. The assemblage includes a mixture of the sub-products of different stages of the crop processing (1981).
The presence of numerous culm bases also suggests that the cereals, most likely spelt, arrived on site as sheaves and that the cereals where probably uprooted rather than cut with a sickle.

The abundance of the culm bases contrast with the absence of culm internodes, which one might have expected to find too, if straw was burnt. However their absence might be due to taphonomical factors. The culm bases are, in fact, tougher than the culm bases and they might have survived better the charring (Hillman/ Mason and Fasham 1998).

It is possible to interpret the composition of this plant assemblage in different ways. It can, for instance, represent the burning of crop waste in the area where cereals were processed; an hypothesis that would justified the presence of a mixture of waste from the different cleaning processes.

An alternative interpretation comes from the comparison with plant assemblages from other Welsh sites. At Cefn Graeanog II, North Wales, building E produced an assemblage with a very similar composition, included the presence of numerous culm bases and nodes. In that case the assemblage has been interpreted as the residue of burnt fodder or bedding material and, on that basis, the building has been interpreted as a stable or a barn (Hillman/ Mason and Fasham 1998). This hypothesis seems to be also supported by the fact that, the plan of building E at Cefn Graeanog II is very similar (though larger) to the "tank pit" found at Melin y Plas (fig REF.TO PLAN) and associated with the two samples.

The plant assemblage from the two samples also includes numerous wild plants typical of grassland/heath habitats, as for instance perforate St. John's wort (*Hypericum perforatum* L.) and heath grass (*Danthonia decumbens* DC.), a perennial found in wet, acid heaths (table 2, appendix 6.3.2). Their presence would support the idea that the assemblage represents charred fodder or material used for bedding.

It is also possible that the assemblage might represent part of the charred remains of material used for thatching, as this too would have included cereal straws, heather and a mixture of plants of wetland environment (Letts 1999).

The presence of heath grass in the sample deserves some further attention. Hillman (1981) noted that this species was particularly common in Iron Age/ Romano British plant assemblages from Wales. He suggested that, even though this plant is today rarely found as cereal weed, it might have been an important weed in the past (Hillman 1981:124 and 146). He related the presence of heath grass in cornfields to the use of ards, rather than mouldboards for ploughing. Ards are ploughing tools that do not cut the soil as deep as mouldboards, allowing the permanence of perennial plants in cultivated fields (Hillman 1981).

Statistical analysis of plant assemblages from the northeast of England has shown that heath grass is always associated with spelt crop (van der Veen 1992). Van der Veen (1992) has even hypothesized that the common occurrence of heath grass and spelt in northeast Wales could indicate that spelt produced in this region was imported to the northeast of England during the Roman period. However, this hypothesis has been regarded as very unlikely by the same author (Van der Veen 1992: 154).

Some of the wild species found in the two deposits, such as the sedges (*Carex* sp.), pale persicaria (*Persicaria laphatifolium* Gray) and ragged robin (*Lychnis flos-osculi* L.) are typical plants of wet places. They generally thrive in the proximity of ditches or in scarcely drained fields.

The presence of numerous species of grassland and heath represents good evidence that such habitats must have been present close to the site. Pollen data from other Welsh sites and particularly from Anglesey shows evidence of extensive episodes of clearance and expansion of heath starting in the Late Iron Age and increase during the Roman British period (Caseldine 1990 and 1998).

Phase 3b

A single sample (336/885) from this phase has been analysed. The sample was collected from the charcoal-rich fill of a shallow depression interpreted as a stone-capped hearth.

The sample has a high density of seeds (table 1, appendix 6.3.1, and fig.1) and is dominated by hulled barley and oats grains. The barley grains were too damaged to allow the detection of twisted or straight grains and therefore it is not possible to establish whether they belong to the hexastic variety. Nine barley grains were slightly germinated.

The sample contains a small percentage of chaff that, as for the grains, is dominated by rachis internodes of barley (fig.4). A single grain and three rachis internodes of spelt/bread wheat were also present.

No spikelets of oats were recovered and therefore, it was impossible to determine whether the grains belonged to the cultivated or wild oats. The grains were all of small dimension suggesting that they belong to a wild species, either *A. strigosa* or *A. ludoviciana*. Interestingly bristle oat (*Avena strigosa* Schreber) is still cultivated as a minor crop in Wales, particularly on poor upland soils (Baum 1977,

Stace 1988). The association of oats grains with barely is of some interest and is recurrent in other samples too (fig.2).

Some of the wild species present in the assemblage include, apart from oats (*Avena* sp.), other weeds such as pale persicaria (*Persicaria laphatifolium* Gray). Other species are typical of grassland, as for instance the Poaceae and ribwort plantain (*Plantago lanceolata* L.).

The sample clearly represents charred "waste" from processing of barley. The crop waste might have either been used as kindle or fuel, or through occasional burning of material processed in areas close to the hearth. This can easily happen, for instance, when cereals are stored as only partly processed and require a daily cleaning before consumption.

The *status* of barley as a main crop in Wales is very unclear as it appears only occasionally in charred plant assemblages of this period (Caseldine 1990, Nye 1993). At Melin y Plas, on the contrary, is present in relevant quantities and it appears also in other samples (see below). By comparison, barley grains are more abundant than wheat grains in three of the samples examined (fig.2 and table 1, appendix 6.3.1). The relative proportion of chaff, on the contrary, does not reflect this predominance. This could be due, either to the different type of crop processing required for the two cereals, or to the fact that barley chaff is constituted principally by rachis internodes which are more fragile than glume basis and forklets.

Barley has been found as predominant also at Bryn Eryr (Caseldine 1998) and Ty Mawr (Williams 1986). In this cases too it was associated with oats.

Hillman (Hillman/ Mason and Fasham 1998) has suggested that, the cultivation of two cereals in the same field (maslin) might be a strategy adopted by farmers to protect the crop from the wind, a problem particularly serious in deforested areas as it must have been the case for Anglesey. Barley and oats might therefore been cultivated as a maslin at Anglesey. Jones and Halstead (1995) suggested that maslin crops are often adopted as buffer crops in difficult periods, in order to guarantee a good yield in the case one of the crops should fail.

Maslin of two cereals could also have been used as fodder although the use of both cereals in human diet is not unusual.

The association between barley and oats appears to be characteristic of various sites of the Roman period on Anglesey and it contrasts with those from the mainland.

Another interesting find associated with the deposit from sample 336/885 is the presence of a fragment of algae ball (formed by entangled fibres of the sea grass (*Poseidonia maritima*)). This might have arrived on site either occasionally, brought together with other material from the coast (e.g. fish, seashells), or it might have intentionally been collected as fuel. The use of bushes and heath as fuel is recorded at the nearby site of Cefn Cwmwd (Gale forthcoming) suggests that the landscape on the island must have been open and only lightly forested and, therefore with limited availability of fuel resources. This could also explain the occasional use as fuel of chaff or sea balls.

Phase 3b/c

Two of the samples analyzed, 254/334 and 261/654, belong to phase 3b/c and were taken, respectively, from the fill of a drain and a large posthole (fig. REF. TO PLAN). The contiguity of the two stratigraphic units and the similarity of the plant composition suggest that the two samples might, in fact, be the same assemblage and, for this reason, they will be discussed together.

The plant assemblage includes different cultivated species such as spelt, bread wheat and barley. Although the great majority of the chaff belongs to spelt, there was a single glume base tentatively identified as emmer.

The weed list includes, apart from the species present in other samples, also stinging chamomile (*Anthemis cotula* L.). Wild fruits, probably collected as food, include raspberry (*Rubus idaeus* L.).

The plant assemblage if formed by charred waste derived from the processing of different crops. In this respect, it represents a "secondary refuse" type of assemblage as it represents material re-deposited away from the location in which the activities took place.

Bread wheat and, possibly, emmer are two cereals that appear for the first time on site. Emmer, considered to have been a common crop in prehistoric times, was replaced as main crop by spelt in Roman times (for instance Hillman 1981). Its sporadic presence in many samples of this period from Wales is generally interpreted as evidence of minor contamination of spelt (Caseldine 1990).

The high number of oats seeds raises, again, the question as to whether this crop was in fact cultivated. The few studies available from this area of Wales do not allow this question to be answered in a definitive way. It is, however, remarkable that oats appear in high concentration in the three latest samples and as a "replacement" of heath-grass. This apparent "substitution" of heath-grass with oats could also indicate the adoption of a different type of agricultural technique, with the expansion of fields in different types of environment. Plants such as stinking chamomile and oats, for instance, are more often associated to heavier, damp soils (Stace 1991). Their presence, particularly in the later assemblages might indicate that wetter and heavier soils had become arable lands. This could have either been the result of environmental changes or the evidence of an increase in the human population, which brought the need to exploit new and more marginal environments. Finally it could also represent an improvement in the technology of the agricultural equipment used which would have allowed the cultivation of heavier and wetter fields.

2.2.1.5 Conclusions

The plant assemblages recovered from the Romano-British occupation (2nd century AD) at Melin y Plas, have provided important information, not only for the reconstruction of the site activities, but more in general on the type of agricultural practices in place at Anglesey during the Roman period.

The species composition of the assemblages from the various phases of occupation of the site suggest that crop processing were undertaken on site. This data contrasts with that shown by the pollen sequence from Bryn Eryr, which suggests, instead, an economy predominantly pastoral of this region (Caseldine 1998).

The cultivated species present in the assemblage include spelt, barley, bread wheat and possibly emmer.

In the assemblage from phase 3a, spelt is clearly the main crop and, interestingly, is associated with heath grass (*Dantonia decumbens* DC). The composition of the sample of phase 3a suggests that this might represent charred fodder of bedding material. In such case this area of the site was probably a stable or a barn. The presence of several species typical of grassland and heath suggest that this type of environment must have been close to the site. Their presence in the vicinity of the site corresponds with the pollen sequence of this period, which indicates the presence of an open landscape, with episodes of clearances and a relative expansion of heath and peat formation (Caseldine 1990).

The single sample from phase 3b consists of remains of barley and weeds. The weeds include mainly oats grains, suggesting that this might have been a cultivated with barley. The contemporary presence of barley and oats, common to other Welsh sites of this period, suggests that they might have been cultivated together as a maslin. Their contemporary cultivation in a same field meant that they would provide a good yield in case of the failure of one of the crops and made them more resistant to adverse atmospheric phenomena, for instance wind (Hillman/ Mason and Fasham 1998).

The contemporary presence of barley and oats also in the samples of phase 3b/c confirms the fact that, barley must have been a major crop or of an equivalent importance of other cereals. Remains of other cereals were also found in the assemblage of this phase, including bread wheat and possibly emmer.

The reduction in the number of heath grass seeds and the contemporary increase of seeds such as oats and brome (*Bromus hordeaceus/ secalinus*) in the assemblage of this phase might indicate a change in the type of environments exploited for cereal cultivation. Species like oats and stinking camomile are often associated with heavy, wet soils and their presence suggests an expansion of the arable lands in

areas with similar types of soils. A change in the technology might also explain the shift towards this type of lands.

The plant assemblage from Melin y Plas, despite its small size, raises a number of interesting aspects of the plant economy at Anglesey during the Roman period.
The plant remains have provided a good indication that the occupiers of the site were actively involved in agricultural production and that probably animals were also kept on site during phase 3a. This indication is quite important given the lack of good preservation of animal bones from northern Welsh sites (Caseldine 1990).

This study assemblage has also highlighted the importance of crops such as barley and probably oats in the economy of the isle. The evidence of a possible cultivation of oats is quite remarkable and represents an element of great interest.

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Fig.1 Melin y Plas, Anglesey (C17) - Percentages of grains, chaff and weeds

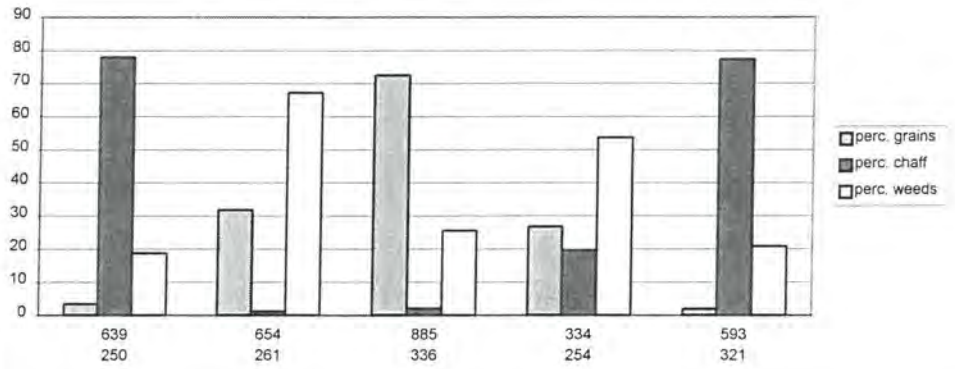


Fig.2 Melin y Plas, Anglesey (C17) - Percentages of wheat, barley and oats grains

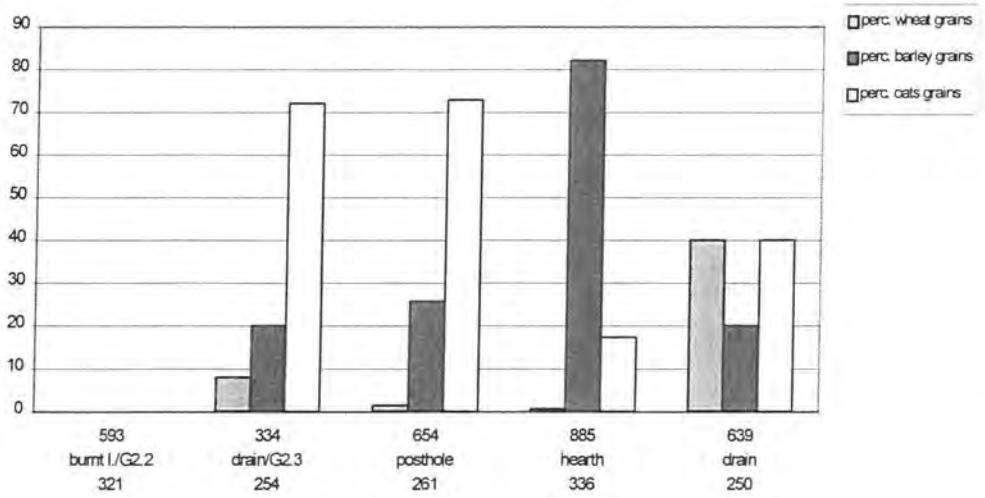


Fig.3 Melin y Plas, Anglesey (C17) - Percentages of heath-grass and oats

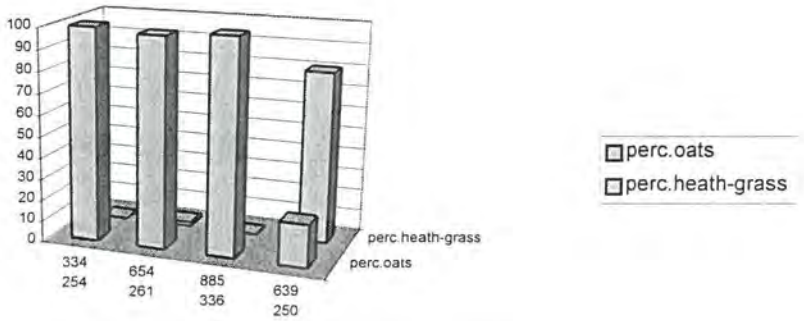
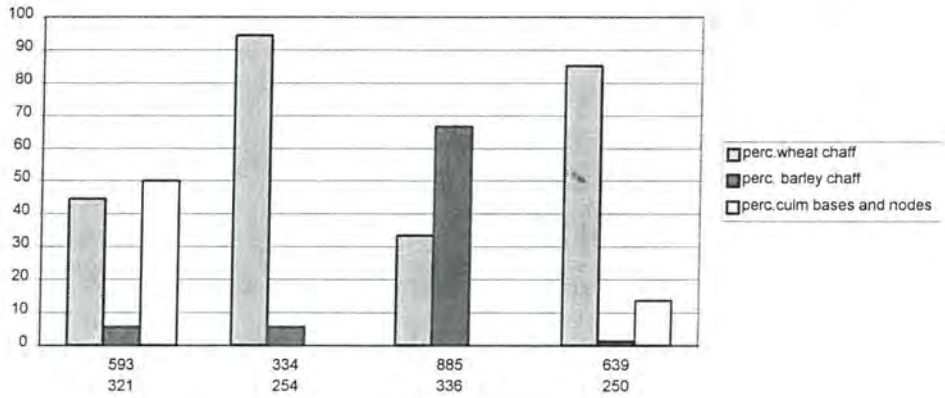


Fig.4 Melin y Plas, Anglesey (C17) - Percentages of different types of chaff



2.3 THE FINDS REPORTS

2.3.1 The pottery from Cefn Cwmwd, Melin Y Plas and Cefn Du

by Jeremy Evans (10/11/99)

2.3.1.1 Introduction

Some 194 sherds of Roman pottery were recovered from Cefn Cwmwd, 88 from Melin Y Plas and 22 from Cefn Du. The three sites offer a useful addition to our knowledge of ceramics on Roman period sites in the region. The assemblages have interesting contrasts, both between each other, in comparison with other rural sites such as Bush Farm, Bryn Eryr, Graeanog and Cefn Graeanog (Longley et al 1998; Going and Marsh forthcoming; Evans forthcoming a), and with local military sites such as Segontium (Webster 1993) and Brithdir (Evans 1997).

3.1.1.1 Fabric descriptions

The fabric descriptions for all the sites are listed below, and the individual site catalogues are presented after each structural report, followed by an overall discussion of all the assemblages.

A01 - Dressel 20 amphora, 1st-3rd century, Baetica.

BB1 - Dorset BB1 (Williams 1977).

F01 - A hard oxidised colour-coated fabric with brown slip. The fabric has an orange core, margins and surfaces with some sand c0.4mm and common sand c0.05-0.1mm. Possibly Nene Valley.

G01 - A handmade reduced fabric with a dark grey core, margins and surfaces, with some angular quartz and occasional feldspar (?) c0.5-1.5mm.

M01 - Mancetter-Hartshill mortaria; a white pipeclay fabric with red and black angular grog trituration grits.

M02 - Sandy oxidised mortaria, probably Wilderspool, with an orange core, margins and surfaces with common-abundant sand c0.2-0.3mm and very occasional large quartz up to 2.5mm. Trituration grits; white quartz and sub-angular red and sub-rounded brown stone inclusions.

M03 - 'Soapy', oxidised, Holt mortaria, with a thick white slip, with an orange core, margins and surfaces with some rounded red ironstone c0.3-0.6mm and very occasional moderate sand c0.3mm. Trituration grits; large angular white quartz.

M04 - A sandy oxidised, probably Wilderspool, Rhaetian-type mortarium, with an orange core, margins and surfaces, with common sand c0.2-0.3mm, faint traces of a red slip on the rim. Trituration grits eroded away.

M05 - An oxidised mortarium with orange core, margins and orange-buff surfaces with some coarse sand c0.5-1mm and some rounded brown ironstone c0.5mm, and very occasional stone white with red veins c2mm. Perhaps fairly local.

M06 - A laminar, 'soapy', whiteware mortarium, perhaps from a Coal Measures clay, 'clean'. Trituration grits; sun angular, soft, grey-brown stone, perhaps shale. Probably Welsh, perhaps south/central Wales.

O01 - An oxidised ware with an orange core, margins and surfaces, with common very fine sand temper >0.05mm and common fine silver mica >0.05mm, and some rounded red ironstone c0.1-0.2mm and very occasional ironstone c2-3mm. Perhaps Segontium.

O02 - A soft oxidised fabric with purplish-orange core, margins and surfaces with occasional-some sand c0.2-0.3mm, not micaceous. Possibly Holt?

O03 - A 'clean' oxidised fabric with orange-brown core, margins and surfaces, with occasional sand c0.3-0.5mm and some rounded red ironstone c0.3-1mm and some organics up to 2mm.
Not Severn Valley ware nor Holt.

O04 - A sandy oxidised fabric, perhaps Wilderspool, with an orange core, margins and surfaces with some-common moderate sand c0.2-0.3mm.

O05 - An oxidised fabric with an orange core, margins and surfaces with common coarse sand c0.3-0.5mm and some rounded red ironstone c0.3-1mm and some organics up to 2mm. Perhaps Segontium.

O06 - An oxidised fabric with black core and orange margins and surfaces, with common fine sand c0.2mm and some c0.3-0.4mm. Perhaps local.

Q01 - An oxidised white-slipped fabric with orange core, margins and surfaces, with some-common fairly fine sand c0.1-0.2mm.

Q02 - An oxidised white-slipped fabric with a grey core, and orange margins and surfaces, fairly 'clean' and 'soapy', with occasional rounded brown ironstone c0.1-0.5mm and very occasional rounded black stone c2mm, and very occasional grey-brown shale (?) up to 3mm.

R01 - A fine blackware with black core, margins and surfaces with common very fine sand c0.025-0.05mm.

R02 - A greyware with grey-brown core, margins and black surfaces, with common-abundant sand c0.3mm.

SG - South Gaulish samian.

CGS - Central Gaulish samian.

MdV - Les Martres-de-Veyre samian.

EG - East Gaulish samian.

2.3.1.2 The Melin Y Plas pottery

3.1.2.1 Catalogue
Context 004, **Phase 7, modern**

SF 021 A post-mediaeval oxidised fragment. Wt 3g

Context 110, **Phase 3b**

SF 087 Twelve fragments of friable brown ?daub with occasional coarse quartz. Wt 5g
Context 159

SF 061 A BB1 dish/bowl bodysherd, interior burnished, exterior decorated with burnished intersecting pointed (?) arcs, perhaps mid 2nd century. Wt 8g

SF 074 Four BB1 rimsherds and three bodysherds from a flange rimmed dish or bowl. Three rimsherds are sooted. Two rimsherds and two bodysherds show pointed burnished intersecting arc decoration, perhaps mid 2nd century. Wt 34g, D. c23cms, RE 7% DRAW 003

SF 136 A BB1 dish or bowl base fragment, interior and base burnished. Hadrianic or later. Wt 3g, D. ?, BE 1%

Context 637, **Phase 3b**

SF 246 A dish or bowl base sherd, interior burnished, exterior burnished and with burnished line decoration, interior and exterior sooted. Hadrianic or later. Wt 2g

Context 292, **Phase 3b/c**

SF 114 A BB1 dish or bowl bodysherd from a basal chamfer, Hadrianic-Antonine. Wt 2g

Context 378, **Phase 3b/c**

SF 150 A BB1 jar rim with burnished wavy line on rim, Hadrianic-early Antonine. Wt 14g, D. 16cms, RE 9% DRAW 005

Context 789, **Phase 3b/c**

SF 310 Nine pieces of fired clay in a soft brown fabric with some angular quartz c0.3-0.5mm. There is only one surface on the pieces which is burnt black. Possibly furnace lining?

Context 227, **Phase 3a-c**

SF 142 A minute eroded samian chip, CGS?, Hadrianic-Antonine? Wt >1g

Context 277, **Phase 4**

SF 086 A BB1 dish or bowl bodysherd, interior and exterior burnished. Hadrianic or later. Wt 9g
SF 089 A handmade chip. Fabric G01. Wt>1g

SF 102 Two handmade bodysherds. Fabric G01 Wt 2g

SF 116 A BB1 incipient beaded and flanged bowl rim fragment, sooted. Early 3rd century. Wt 5g, D. ?, RE>2% DRAW 004

Context 100, **Phase 4a**

SF047 A very small daub scrap. Wt >1g

Context 159/166 Interface, **Phase 4a**

SF066 A BB1 jar bodysherd with acute lattice decoration, exterior sooted. Hadrianic-Antonine. Wt 7g

Context 560, **Phase 4a**

SF 258 Two BB1 dish or bowl wall sherds with burnished interior and exterior with pointed (?) intersecting arc decoration. The base is probably chamfered. Perhaps mid Antonine. Wt 16g

Context 104, **Phase 4b**

SF 168 Thirty-two BB1 sherds, all from one vessel, comprising;
17 jar bodysherd with acute lattice decoration, exterior sooted, Wt 75g
A BB1 jar bodysherd with acute lattice, exterior slightly burnt, Wt 8g
Seven BB1 jar bodysherds with acute lattice, Wt 45g
Two jar shoulder sherds, exterior burnished, sooted, Wt 12g
A jar shoulder sherd, exterior burnished, Wt 4g
Two jar rimsherds, sooted, with fairly vertical rim decorated with burnished wavy line, Hadrianic-mid Antonine. Wt 27g, D. 15cms, RE 15% DRAW 006
Together with seventeen BB1 bodysherds from another jar, comprising;
Six BB1 jar bodysherds, burnt grey and very eroded through burning, Wt 12g
Six BB1 jar bodysherds, burnt grey and very eroded through burning, with heavy sooting over this, Wt 27g
A BB1 bodysherd with acute lattice decoration, Wt 5g
A BB1 bodysherd with acute lattice decoration, sooted, Wt 6g
Three BB1 joining jar rimsherds, burnt grey and heavily sooted over this, with a fairly vertical rim, probably Hadrianic-early Antonine. Wt 16g, D. c15cms, RE 19%, DRAW 007

Also one BB1 dish or bowl bodysherd, interior and exterior burnished, Hadrianic or later. Wt 3g

Context 033, **Phase 5**

SF 055 An eroded BB1 flange rimmed dish or bowl rim. Hadrianic-Antonine. Wt 8g, D. c19cms. RE 1% DRAW 001

SF 059 A BB1 flanged rim dish or bowl rim (a different vessel from SF 055) with pointed burnished arc decoration on the exterior, perhaps mid 2nd century. Wt 30g, D. 19cms, RE 8% DRAW 002

SF 098 A BB1 jar bodysherd with acute lattice decoration, Hadrianic-Antonine. Wt 2g

Context 488, **Phase 5**

SF 174 Six BB1 jar bodysherds, exterior burnished, sooted. Wt 33g
A BB1 jar bodysherd, exterior burnished. Wt 3g
Three BB1 jar bodysherds with acute lattice decoration, exterior sooted, Hadrianic-Antonine. Wt 17g
Two BB1 jar bodysherds, burnt grey and heavily sooted over, possibly from the same vessel as (104) SF168. Wt 4g
A BB1 jar bodysherd, burnt grey and over-sooted, with two non-penetrating drilled circular rivet (?) holes on the interior. Wt 4g
A BB1 jar bodysherd, burnt grey and oversooted, from the same vessel as above, with a non-penetrating drilled circular rivet (?) hole on the exterior. Wt 3g

2.3.1.2.2 Chronology

The vast majority of the sherds from Melin Y Plas are BB1. These all date to the Hadrianic period or later, as does the CGS samian sherd from this site. The only scraps which might be earlier are the handmade sherds in fabric G01. Some 32 BB1 sherds with acute lattice decoration of Hadrianic-Antonine date are found on the site, but none with obtuse lattice of 3rd-4th century date. There are seven sherds with pointed intersecting arc decoration of mid 2nd century date, and there are none with rounded intersecting arcs of later 2nd century or later date. The only samian sherd from the site has a general Hadrianic-Antonine date. The latest BB1 piece from the site is an incipient beaded and flanged bowl, probably of early 3rd century date.

The BB1 rimsherds suggest an emphasis on pottery deposition in the Hadrianic-early/mid Antonine period with 5 vessels of this date compared with none of late 2nd century date and one of early 3rd century date, whilst one vessel has a broad Hadrianic-early 3rd century date.

Phase dating

Phase 2
There is no ceramic or material dating evidence from this phase.

Phase 3a
There is no ceramic dating evidence from this phase.

Phase 3b
This phase contains a number of sherds of BB1 including a flange rimmed dish/bowl rim with pointed intersecting arcs, SF074, of perhaps mid 2nd century date.

Phase 3b/c
This phase contains further sherds of BB1 including a BB1 jar rim with burnished wavy line, SF 150, of perhaps Hadrianic-early Antonine date. As such this material is no later than that from phase 3b alone.

Phase 4
This phase contains a relatively large collection of Hadrianic-Antonine BB1, which might suggest it also spanned part of this period. There is, however, a single BB1 incipient beaded and flanged bowl rim fragment of early-mid 3rd century date (SF116) from context 277, which suggests the phase continued into the early 3rd century.

Phase 5
This phase contained some BB1 of Hadrianic-Antonine date. As it succeeds phase 4 it was presumably of early-mid 3rd century date.

2.3.1.3 Fabric supply

Tables 2.3.1.1-3 show the fabric proportions at Cefn Cwmwd, Melin Y Plas and Cefn Du.

Table 2.3.1.1 Fabric proportions at Cefn Cwmwd

Fabric	% count	% Wt	% MNR	% RE	Average sherd wt (g)
BB1	45.4	32.4	46	43	9.2
F01	0.5	0.2	0	0	5
M01	7.3	19.1	15	18	33.8
M02	5.2	10.2	4	7	25.2
M04	0.5	1.3	2	3	32
M05	0.5	0.6	2	1	15
M06	1.6	6.7	0	0	55
O01	1.6	1.1	2	2	8.7
O02	5.7	2.5	0	0	5.7
O03	4.7	2.7	4	7	7.4
O04	2.1	1.9	0	0	11.8
O05	0.5	0.7	2	1	16
Q01	0.5	0.2	0	0	4
Q02	0.5	1.1	0	0	26
R01	0.5	0.9	0	0	21
SGS	1.0	0.3	0	0	4.0
MDV	0.5	0.2	0	0	6
CGS	18.6	6.8	22	15	4.7
EG	1.6	4.2	0	0	34.3
N	194	2475	46	341	

Table 2.3.1.2 Fabric proportions at Melin Y Plas

Fabric	% count	% Wt	Average sherd wt
BB1	96	99	5.3
G01	3	0.2	1.0
CGS	1	0.2	1.0
N	88	448	5.1

Table 2.3.1.3 Fabric proportions at Cefn Du

Fabric	% count	% Wt	Average sherd wt	
A01	9		48	102.5
BB1	36		15	7.7
IA?	5		0.2	1.0
O01	5		2	10.0
O06	5		2	10.0
Q01	9		3	6.0
R02	23		26	22.2
CGS	5		2	10.0
	22		429	19.5

It is of note, that as on other rural sites in the region, the pottery from Cefn Cwmwd, Melin Y Plas and Cefn Du is almost entirely composed of Romanised material. Nearly all of the pottery seems to have come to the site via the Romanized distribution system, unlike the situation in north-western England (Dore 1983), and the sources of supply are similar to those at Segontium, with supplies presumably coming via the Segontium vicus.

Amphorae are only present amongst the current three assemblages at Cefn Du where Dressel 20 oil amphora occurs. Amongst the previously examined sites this also occurs at Bryn Eryr, whilst a fragment of Gallic wine amphora is found at Bush Farm. 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 major component of the assemblage at Cefn Cwmwd is provided by BB1 as might be expected from any site in north Wales spanning the second to the early fourth centuries. However, the proportion of BB1 at Cefn Cwmwd, 45% by count, 32% by weight, is lower than that at Bush Farm, 76% by count and 62% by weight, Graeanog (Evans forthcoming a) where it is 93% and 90%, Melin Y Plas 96% and 99%, and even than Bryn Eryr (Longley et al 1998), with 64% and 46%, although higher than the 36% and 15% from the very small assemblage at Cefn Du. The low level of BB1 at Cefn Cwmwd and Bryn Eryr reflects the much lower level of BB1 cooking vessels used at these sites and this may also be the case at Cefn Du although the assemblage is too small for confidence in this.

Nene Valley products are present, as at Bryn Eryr, but absent from the other, lower status sites. Rhenish ware is absent, although it did occur at Bush Farm.

Mortaria are absent from the small assemblages at Melin Y Plas and Cefn Du, but are present, in surprisingly large quantity, at Cefn Cwmwd. There Mancetter material is dominant, but material from Holt, Wilderspool and other fairly local sources occurs. The presence of a Mancetter-Hartshill mortarium is not unusual on these north Welsh rural sites, the kiln centre being of major importance in supplying the fort at Segontium, and the Segontium markets perhaps being the source of the mortaria. If that is the case then comparison of the mortaria assemblage from the six north Welsh rural sites examined by the author with the Segontium material ought to show a reasonable correlation (Table 2.3.1.4).

Table 2.3.1.4 Mortaria sources at Segontium and on rural sites

Mortaria source	Segontium % rims	% Min vessels	Rural sites % count	% Wt
Oxford	34%	31%	0	0
Mancetter	42%	35%	63%	58%
Wroxeter	5%	3%	0	0
Verulamium	4%	6%	0	0
Nene Valley	2%	2%	0	0
Cantley 1%	1%		3%	2%
Crambeck	-	2%	0	0
Central Gaul	1%	1%	0	0
Noyon, Oise	3%	2%	0	0
Holt	6%	6%	4%	9%
N Wales 8%	10%		9%	12%
Midlands	1%	1%	0	0
Wilderspool	0	0	22%	20%

In fact the differences are marked, although the chronological emphasis of the Segontium assemblage may explain this (Hartley 1993), at least in part, with most material coming from mid-later 4th century deposits, and much of the remainder from those of Flavian to early Hadrianic date. The absence of Oxfordshire material from the rural sites may suggest that the vast majority of this arrived at Segontium in the later 4th century, after pottery deposition had ceased on nearly all the rural sites (the obvious exception being Din Lligwy), most of the forms present at Segontium would not be inconsistent with this, although the Oxford type M18s (Hartley 1993, nos 45-47) must have reached Segontium before that. The high proportion of Wilderspool material on the rural sites may suggest that this was an important source of mortarium supply in the region in the Antonine period, which is barely present in the recent Segontium data. A Wilderspool herringbone stamp from Bush Farm (Longley et al 1998, no 27) confirms the source of this material and previous examples of Wilderspool stamps are known from Segontium (Hartley and Webster 1973). The rural site finds also indicate that local mortaria makers did have at least a small rural market, as well as the forts, to support them. Holt was probably the source of mortaria from the end of the 1st century on these sites, with north Welsh products perhaps being mainly Hadrianic, as they are found in a similar proportion at Segontium. The Wilderspool products would appear to represent particularly Antonine supply, given their absence from the Segontium assemblage (Hartley 1993), whilst the reeded hammerhead forms of all the Mancetter products suggest they are all of 3rd-earlier 4th century date.

Oxidised wares form a consistent if small, component of the assemblages on most of the rural sites. 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, as for example the 3rd-4th century constricted-necked jar with bifid rim from Cefn Cwmwd (No xxx). The highest level of oxidised wares appears at Cefn Cwmwd. The source of these fabrics is probably either Segontium or Holt.

Reduced wares are generally uncommon on these rural sites. At Cefn Cwmwd there is but a single piece, and that might be better classed as a reduced fineware. Only at Cefn Du amongst the three sites reported here were reduced wares common, and all these pieces came from a single vessel, a BB copy dish. Bryn Eryr remains the only site where reduced wares appear at all commonly. 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).

Some chronological change can be detected in the Cefn Cwmwd assemblage, which is the only one large enough of the three and with a long enough span to examine this. In the 2nd century this had a relatively considerable quantity of samian ware and mortaria, but comparatively even less BB1 than in the assemblage as a whole, one BB1 dish and three jars dating to the 2nd-early 3rd centuries, compared with two bowls and nine jars dating to the later 3rd-4th centuries. Thus the proportion of finewares on the site in the 3rd century falls, depending on how long the Central Gaulish samian was conserved, and the proportion of cooking vessels rises, although mortaria still remained a major part of the later Roman assemblage here, as witnessed by the many Mancetter reeded hammerhead mortaria.

Table 2.3.1.5 Major fabric classes at north Welsh rural sites (by % count, Segontium by min vessels)

Fabric Class	Graeanog	Bush Farm	Melin Y Plas	Bryn Eryn	Cefn Cwmwd	Du	Cefn	Segontium
Dressel 20 amph	0	0	0.2	0		9	2.9	
Other amph	0	0.2	0	0	0		0	1.3
BB1	92.5	76.6	96	63.0	45.4		36	20.2
Shell -tempered	0	0	0	0	0		0	5.8
E Yks calcite grit	0	0	0	0	0		0	0.8%
Nene Valley	0	0	0	2.8	0.5		0	3.0
Rhenish	0	3.6	0	0	0		0	0.2
Oxidised	5.2	6.9	0	7.6	14.6		9	18.4
White-slip flagon	0	1.2	0	0	1.0		9	-
Reduced	0	1.1	0	11.0	0.5		23	17.8
SG samian	0.9	0	0	4.3	1.0		0	13.1
MdV samian	0	0	0	0	0.5		0	0.5
CG samian	0.3	2.7	1	7.1	18.6		5	5.0
EG samian	0	0	0	0	1.6		0	0.5

- Not determinable

Table 2.3.1.5 shows the fabrics proportions (excluding mortaria) from rural sites and Segontium (after Casey et al 1993, Tables 16.1 and 17.2). Although the large Flavian-Trajanic element in the Segontium assemblage distorts matters somewhat major contrasts in the assemblages are still visible. As is usual amphorae are almost absent from the rural sites. In contrast BB1 is disproportionately acquired by them, on the basic level sites this is often almost the only Roman pottery obtained. Colour-coated wares are rare, but they are also infrequent at Segontium. Oxidised wares generally run at a low level, but as most of these at Segontium are from early deposits they are reasonably represented on the rural sites. Greywares seem to have been generally avoided, with the exceptions of Bryn Eryr and Cefn Du, and are much rarer than at Segontium, their place presumably being taken by BB1. This 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 (see below Finewares).

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

2.3.1.4 Finewares

Fineware levels varied considerably amongst these three sites. At Cefn Cwmwd there were a remarkable 22.2% (11.7% by weight), compared with 5% (2% by weight) at Cefn Du and 1% (0.2% by weight) at Melin Y Plas. In comparison at Bush Farm the level was 6.3% by count (5.7% by weight), at Graeanog 1.2% (2.8% by weight) and at Bryn Eryr 14.2% (11.6% by weight). 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, 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.

In examining the Bryn Eryr samian Dr King noted 'Military and high status sites in Britain and elsewhere tend to have a higher proportion of decorated to non-decorated ware than rural and low-status sites, but Bryn Eryr stands out as being exceptionally dominated by decorated bowls.' A

similar picture can be observed at Cefn Cwmwd. Here both South Gaulish vessels were decorated, as was the only Les Martres vessel, whilst amongst the Central Gaulish material there are six decorated vessels to eight plain ones, and the single East Gaulish vessel is decorated, giving in total eleven decorated vessels to eight identified plainware ones. This assemblage is a close parallel of that at Bryn Eryr and again suggests an assemblage acquired for high-status display. Dr King also suggested for the Bryn Eryr assemblage that 'the traditional use of the relatively expensive form 37 was as a communal drinking bowl, which may have a bearing on its selection for use at Bryn Eryr, if it was used in the same way on this site' which might equally apply to Cefn Cwmwd.

2.3.1.5 Function

Table 2.3.1.6 shows the functional analysis of the Cefn Cwmwd assemblage by minimum numbers of rims in comparison with data from other local sites. (There are too few rimsherds from Cefn Du and Melin Y Plas for the functional composition of these assemblages to be tabulated.)

Table 2.3.1.6 North Welsh sites functional analysis (by minimum numbers of rims)

Jars	Dishes	Bowls	Mortaria	Beakers	Constricted necked jars	
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 (minimum number of vessels)
Bryn Eryr						
33%	24%	31%	2%	7%	2%	n=45 rims
Cefn Cwmwd						
23%	31%	12%	29%	2%	2%	n=42 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 (ie 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. At Cefn Du the four vessels represented by rimsherds on the site are two dishes and two bowls. Turning to the assemblage represented by bodysherds, the 22 of these consist of 64% dishes and bowls, 9% amphorae, 14% flagons, and 14% jars. These data tend to suggest a more diverse assemblage represented at Cefn Du than on the average rural site although the data are so few that too much emphasis should not be placed on this. Similarly at Melin Y Plas three dishes a bowl and three jar rims are represented. The larger assemblage represented by sherd count (n=88) shows 77% jars and 23% dishes and bowls. The latter figures would seem to be a reasonable representation of this assemblage which would seem to group comfortably with the other basic rural sites, Cefn Graeanog, Graeanog and Bush Farm.

Table 2.3.1.7 shows the functional composition of the Cefn Cwmwd assemblage recalculated by RE. The data are very similar to those in Table 000, although as usual the more delicate vessels of larger diameter (dishes and bowls. but not mortaria) are more weakly represented by this method (cf Evans 1991).

Table 2.3.1.7 Cefn Cwmwd functional analysis by Rim Equivalent

Jars	Dishes	Bowls	Mortaria	Beakers	Constricted necked jars
27.9%	21.1%	10.8%	33.4%	2.4%	4.4%

Both Table 2.3.1.6 and Table 000 show a very high proportion of mortaria from Cefn Cwmwd (29% and 33%). 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.

Table 2.3.1.8 shows a functional analysis of the Cefn Cwmwd assemblage (by minimum number of rims) divided into a later 1st-2nd century group and a 3rd-early 4th century one (this is done from the vessel typology not stratification). As noted earlier this shows there is quite a marked change from a later 1st-2nd century assemblage dominated by tablewares and mortaria, with very few jars (and all of them not in cooking wares) to a later Roman assemblage with fewer tablewares and more jars, although still with a high level of mortaria. However, even the later Roman assemblage still has a much lower proportion of jars than a typical rural site in the region.

Table 2.3.1.8 Cefn Cwmwd functional analysis by vessel period

Period	Jars	Dishes	Bowls	Mortaria	Beakers	Constricted necked jars	n
LC1-C2nd	13%	38%	19%	31%	0	0	16
C3-mC4th	39%	23%	12%	23%	0	4%	26

2.3.1.6 Sherd size

Average sherd size at Cefn Cwmwd is 12.8g and at Cefn Du 19.5g, both surprisingly high figures in comparison with most of the other rural sites in the region, 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 high figure at Cefn Cwmwd might be explained by the large number of heavy mortarium fragments, but this does not account for the phenomenon anywhere near completely. The average weight of BB1 sherds at Cefn Cwmwd is 9.2g, compared with 5.7g at Bush Farm, 5.1g at Bryn Eryr, 4.2g at Graeanog, 4.5g at Cefn Du and 5.3g at Melin Y Plas, ie the exceptional pattern at Cefn Cwmwd still holds up within the BB1, whereas it does not in the small Cefn Du assemblage. The high levels at Cefn Du seem likely to be accounted for by the presence of two large amphora sherds and a small assemblage size. 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 sites.

2.3.1.7 Deposits

Evidence of deposits surviving on sherds is clearly prone to variation due to post-excavation treatment, but data from elsewhere do seem to show some consistency, and the variations between these three sites can hardly be accounted for in this manner.

At Cefn Cwmwd 14.0% of all the pottery (by count) had sooting, all but one sherd exhibiting this being BB1 (and that sherd in O02 clearly being burnt after breakage), with a rate of sooting on the BB1 being 29.9% of all BB1. At Melin Y Plas 57% of all sherds were sooted, all BB1, with 60% of BB1 sherds sooted. At Cefn Du 18% of all sherds were sooted, three being BB1 and one in fabric R02. In comparison at Bryn Eryr 5% of all sherds were sooted, but 40% at Graeanog, 43% at Bush Farm.

A pattern does emerge from these data, as the levels of finewares and the functional analyses show two of these sites are clearly of high-status, Bryn Eryr and Cefn Cwmwd, and these both have low sooting rates, whilst the functional analysis and range of fabrics at Cefn Du also hints at a similar position. Perhaps ceramics were rarely being used for cooking and heating water on these higher-status sites which may have had more readily available metal vessels or a higher-status diet which involved more direct heating of meat.

The general level of sooting on Roman material from urban and military 3rd-4th century sites in northern England seems to be in the order of 15-25% (with much higher figures from late 4th century groups (Evans 1985, chapter 6)).

2.3.1.8 Rivets

The occurrence of riveting has been recorded on all three sites. The data from these can be usefully compared with those from other sites. The concentration of rivets on samian is the usual pattern on lowland zone sites (Evans and Ratkai forthcoming; Bell and Evans forthcoming), 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 wherever there is evidence the riveting on these sites 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 rivet holes occurred four times on samian, six times on BB1 and three times on Mancetter mortaria. Giving an overall riveting rate (no of rivet holes/total sherd no/100) of a massive 6.7%, with 9.5% of the samian being riveted, 6.9% of the BB1 and 21% of the Mancetter mortarium sherds. All but one of the rivet holes was of the circular type, and several had surviving, in situ, remnants of the iron staples. Riveted sherds are absent at Cefn Du, although in a total collection of only 22 sherds they could hardly be expected. At Melin Y Plas three rivet holes were present, all in BB1, amounting to 3.6% of all the BB1 and 3.4% of the total assemblage.

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.

2.3.1.9 Spatial distribution

Figs 000-000 show the plots of Roman pottery by area at Cefn Cwmwd and Figs 000-000 show the distribution of datable Roman pottery by date there. The general distribution of pottery on the site (Fig

000) shows that most is associated with structures 4, 5 and 6, with small amounts associated with structures 2 and 7. Turning to the types of pottery there is a notable association between the distribution of samian ware and structure 4. This would seem to suggest that this was a high-status structure.

Fig 000 shows the distribution of pottery, which can be fairly closely dated. This indicates that structure 4, as might be expected given its strong association with samian ware, is largely associated with 1st-2nd century material, with only a small scatter of later Roman material. The latter pottery looks like it is more associated with the enclosure ditch around structure 4 than the structure itself. In contrast, structure 5, to the north, is closely associated with 3rd-4th century pottery, with very few 2nd century sherds, which look like they might be associated with earlier features. It seems fairly clear that structure 5 was a successor to structure 4, and the scatter of later Roman sherds over structure 4 might suggest that the compound associated with it remained in use by structure 5.

Structure 2 is associated with two sherds of later 1st-2nd century date (SFs 151 and 248). Structure 6 is fairly evenly associated with 2nd and 3rd-4h century pottery, suggesting continuous occupation, as does the dating evidence from its phases. There is also a line of later Roman pottery running from structure 7 to the south-east, perhaps associated with structure 7, in which case it would suggest a predominantly later roman date for this.

Fig 000 shows the distribution of Roman pottery at Cefn Du. Roman pottery is clearly associated with structures 1, 2 and 4, but not with structure 3.

Figure 000 shows the distribution of Roman pottery at Melin Y Plas. Here Roman pottery is strongly associated with structure G2, but does not seem to be for structures G1, G4 and G5.

2.3.2 The Small Finds

by Lynne Bevan

2.3.2.1 Introduction

For purposes of this report any small finds numbers allocated for objects (other than iron nails and corroded unidentifiable fragments) appear in brackets, followed by context numbers where relevant. A number of the metal detector finds do not have individual numbers.

2.3.2.2 C17 Settlement East of Melin Y Plas

The small finds from the settlement, listed below, are generally unidentifiable and un-datable. Although it is possible that certain of the objects date to the Roman occupation of the site, for example the glass fragment, the copper alloy fragments, and some of the iron, none of the material is chronologically-diagnostic and a low level of material culture is suggested by these sparse finds.

2.3.2.2.1 Glass

One fragment of light green glass with a curved 'molten' edge resulting from burning was recovered (SF 37, 004). It is uncertain whether this partially-burnt fragment is Roman in date or whether it is debris from glass manufacture or was burnt for some other reason.

2.3.2.2.2 Copper Alloy

The six fragments of copper alloy recovered were in a poor, powdery condition and no recognisable objects were identified among them. The collection comprised: a curved object (SF 29, 004), three heavily-leaded fragments of possible metalworking debris - a rectangular cast piece (SF 33, 059), two small amorphous fragments (SF 71, 055 and SF 97, 209) - and two small unidentifiable lumps (SF 95, 058).

2.3.2.2.3 Iron

The iron objects were also in a poor condition. The collection comprised: a broken piece of chain-link (SF 140, 385), a fragment of strip (SF 241, 617), seven nails (004 x 2, 033, 056, 078, 287/292, 577), and three unidentified lumps (004 x 2, 512 x 1).

2.3.2.2.4 Lead

One fragment of window leading was recovered (SF 28, 056).

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2.3.3 Cheshire Briquetage ('Stony VCP')

by Elaine L. Morris (University of Southampton)

2.3.3.1 Introduction

A large collection of ceramic material (5.5 kg.) was submitted for inspection to determine whether any or all of it might be Cheshire briquetage (Morris 1985), formerly known as 'Stony VCP' (Gelling and Stanford 1965). Table/Briq1 presents the frequency of Cheshire briquetage from three sites along the route of the A55 DBFO Scheme project: Cefn Cwmwd, Cefn Du and Melin-y-Plas.

2.3.3.2 Characterisation

Cheshire briquetage has been defined as small, flared-profile ceramic vessels used to dry salt originating from one or more of the brine springs in the Cheshire Plain area. The fabric of these evaporation containers, which is oxidised from a light orange to pink orange colour, is characterised by the presence of three distinctive types of large rock fragments in the fabric: (1) devitrified, porphyritic rhyolite, (2) microgranite often displaying graphic texture, and (3) micaceous siltstone in a moderately sandy clay matrix (Morris 1985, 355-366). Even in quite small sherds it is possible to identify the angular fragments of rhyolite and microgranite, and which are readily apparent in the Cefn Cwmwd, Cefn Du and Melin-y-Plas fragments. The rounded, micaceous siltstone is a less frequently observed rock type in the fabric and therefore smaller fragments of Cheshire briquetage often do not have a piece of this rock type visible. The identification that this material is not of local, Anglesey origin has been confirmed (Jenkins 1998).

Upon close inspection with a binocular microscope at 10x power, the majority of the submitted material proved to be simply fired or burnt clay with no more than one smoothed surface. This material is quite different from Cheshire briquetage due to the presence of different types and shapes of rock inclusions in the fabric, the abundance of quartz sand in the clay matrix of the fabric, the presence of only one surface on only some of the pieces, the absence of any rims or bases in such a large collection which would have indicated the presence of vessels, the absence of any curved pieces representing the walls or flared neck zones of vessels and the occasional charcoal grey to black, unoxidised interior, irregular zone to a number of the pieces which indicates that the ceramic material had been fired/burnt in situ against a surface - such as the walls of a large pit or the ground surface beneath a hearth.

Each of the sites, however, did have at least one piece of Cheshire briquetage identified (Table/Briq1). The mean sherd weight for these indicates that none of the fragments is particularly large, and all of them are body sherds. Two of the fragments, one each from Cefn Cwmwd and Cefn Du, display the characteristic profile of the vessels with the flared upper zone above cylindrical lower zones (Morris 1985, figs. 7-8; Britnell 1989, fig. 26).

2.3.3.3 Dating

Cheshire briquetage was used to dry and transport salt from brine springs located in Cheshire throughout the Iron Age and possibly into the early Roman period (Morris 1985, 367-370; Britnell 1989, 124, fiche 2.4). The presence of fragments of Cheshire briquetage vessels on Anglesey in Iron Age deposits has been re-emphasised recently by the publication of the excavations at the enclosed Iron Age settlement at Bryn Eryr (Longley 1998) where a sizeable assemblage has been recovered but no other Iron Age pottery. Radiocarbon dating of one deposit from this site containing 'VCP' (CAR-1222; 2052+70, 350 cal BC-70 cal AD) has indicated that the Iron Age of Anglesey was apparently aceramic, with the exception of the very specialised briquetage vessels used to transport the salt from Cheshire

(ibid, table 1). In Cheshire itself, the same aceramic scenario occurred during the Iron Age. At Beeston Castle, deposits containing no pottery except Cheshire briquetage or 'stony VCP' were confirmed stratigraphically and by radiocarbon dating to belong to the period from 400 bc onwards (Royle and Woodward 1993, 74).

The contexts where Cheshire briquetage was recovered on the A55 DBFO project indicate that this ceramic material is likely to have been redeposited in contexts representing later Roman and modern activity.

2.3.3.4 Discussion

The presence of a small number of fragments of Cheshire briquetage from deposits at Cefn Cwmwd, Cefn Du and Melin-y-Plas indicates that these sites were occupied at some time during the Iron Age and/or the early Roman period - prior to the major phases of later Roman activity and after the use of Cefn Cwmwd as a site of Bronze Age cremations. The extensive distribution of Cheshire salt in distinctive ceramic containers has been a feature of Iron Age studies for over 20 years (Morris 1983), and this distribution is continuously being expanded with recognition of fragments in assemblages on sites further eastwards into the Midlands (Morris 1994, 385, 1999, 183-184; Knight 1992, 65, 1999, 137; Elsdon 1991, 11, 1992, 41, 1994, 37-8). This distribution appears to be an extensive rather than intensive one with often only single sherds recovered from sites bearing quantities of other well-preserved pottery. The eastwards distribution is likely to be limited by the trade of salt westwards from the Fenlands (Morris 2000, figs. 6/1/1-6/1/2).

2.3.3.5 Catalogue

Context	SF No.	Feature	Description	No. of pieces	Weight (g)	Thickness (mm)	Comment	Phasing
Melin-y-Plas (C17)								
033	175	-	stone spread	1	4	8	two good surfaces	below topsoil
Cefn Cwmwd (C15)								
1092	149	-		1	4	7	two good surfaces	
				1	1	-	flake	
1001	108	-		1	4	10 –11	two good surfaces	
1767	413	-		1	2	-	flake	
1907	428	F735		1	1	-	soft, abraded/well-rounded	
1248	191	-		1	5	11-13	good surfaces	
3059	290	F1054		1	25	9 –10	from neck zone/flaring	
1058	171	-		1	4	-	abraded, rounded, soft	structure 1?
1907	444	F735		2	3	-	very soft, abraded edges	
1530	327	-		2	2	-	soft, rounded edges	
1529	331	-		1	1	-	just a lump/fragment	
1530	326	-		1	1	-	just a lump/fragment	
1907	431	F735		1	1	-	no inner surface	
			TOTAL	15	54			
Cefn Du (A30)								
4000	25	-	topsoil	1	11	10 –12	curved sherd/flared neck; classic piece	U/S

2.3.3.5 References

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2.3.4 Flint and chert objects

by George Smith

2.3.4.1 Introduction

This assemblage all derives from residual contexts in and around the excavated later prehistoric and Romano-British roundhouse settlement. While a certain amount of material may be expected to be spread widely in the landscape, the number of pieces here compared to the very small amounts of material usually encountered in Anglesey, suggests that there was some focus of activity in or near the excavated area. It also includes a small number of pieces collected during the evaluation excavations in 1999.

2.3.4.2 Raw material

The flint here is of varying quality and colour, suggesting that it all derived from a variety of glacial till or beach deposits, themselves derived from various, distant sources. The raw material includes partly rolled, anciently broken lumps as well as sub-rounded pebbles, some with black staining of the cortex. The presence of some small natural pieces of flint and less commonly of black chert amongst the finds shows that some of these materials occur naturally in the local till subsoil since they were too small to have been imported as raw material.

2.3.4.3 Technology

The assemblage includes a number of waste pieces showing that some material was actually worked on site. However, the high ratio of retouched to waste pieces is still quite high at 1:4 so not all these pieces were made on site. Where identifiable all were made by hard hammer technique although no typical hammerstones were found.

2.3.4.4 Description

Appendices 6.4.1-3 provide a catalogue of the recorded information. The assemblage is summarised in Tables 1 and 2 and the examples of the retouched pieces are illustrated in Fig. 1.

Table 1 Melin y Plas Flint and Chert: General summary of the assemblage

Category	Flint	Chert
Flake/flake fragment	15	4
Irregular fragment	11	1
Core/core fragment	2	-
Retouched piece	7	1
Casually retouched piece	1	-
Utilised piece	1	-
Scalar piece	1	-
Burnt fragment	3	-
Natural fragment	8	2

Table 2 Melin y Plas Flint and Chert: The retouched and utilised assemblage

Description	*Quantity*
Thumbnail scraper	2
Awl	1
Convex scraper frag	3
Denticulate	1
Backed blade frag	1
Casually retouched piece	1
Utilised flake	1
Total	***10***

The total shown, includes four objects from the evaluation excavation (Trench 254): two fragments of convex scrapers, neither complete, a black chert denticulate and an utilised flake with micro-chipping and polish on one thin straight edge.

Seven retouched pieces came from the main excavation, as follows. The snapped-off tip of the triangular awl (SF17) is made by steep retouch on both sides of a flake. Two thumb scrapers, both flint, one made on a short flake (SF31) and one made on the side of a thick, pebble-backed flake (SF70). A fragment snapped off the edge of a scraper (not illus.) and a broken flake, steeply retouched on the side, possibly part of a small backed blade (SF38). The scalar piece (SF207) is a thick flake that has flat, bipolar fractures on both faces produced by the anvil technique. The casually retouched piece (not illus.) is a large thick flake, the largest piece in the assemblage at 50mm long by 36mm wide. It has abrupt retouch on one sharp, straight side edge.

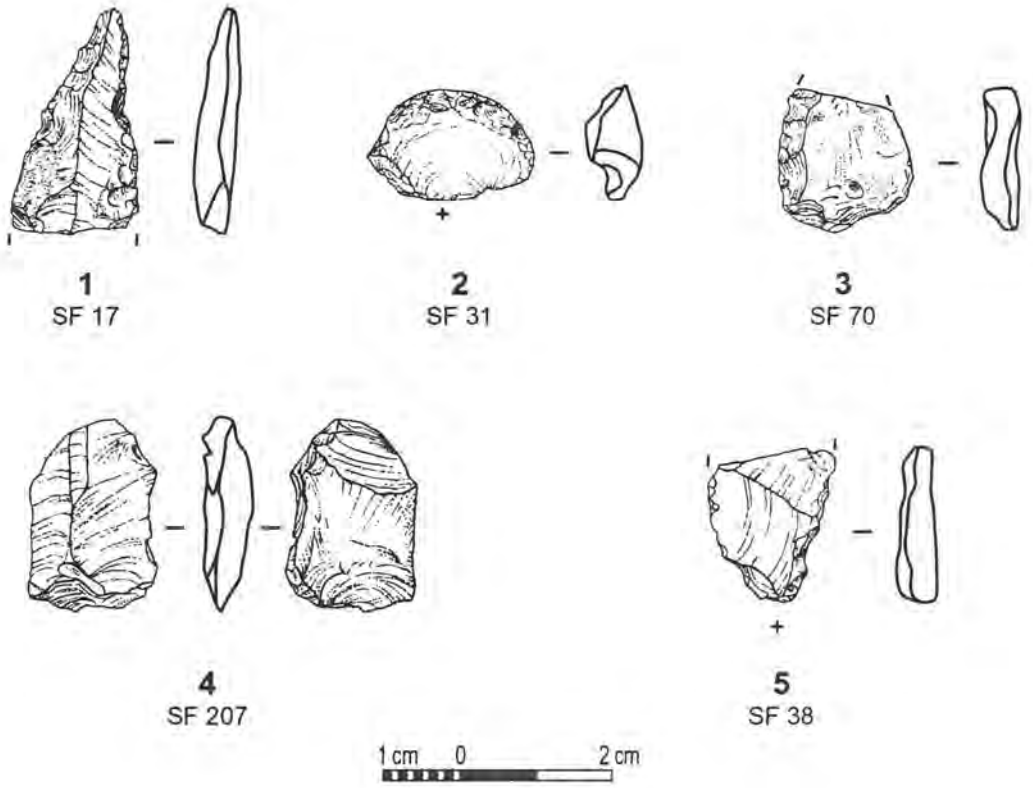
2.3.1.5 Interpretation and dating

The retouched pieces represent a variety of domestic activities, cutting, scraping and boring so this is an unspecialised assemblage and one that would suggest longer term settlement, not just a temporary camp site.

None of the pieces are closely datable by type although one scraper, from the evaluation trench is quite large, thin and finely worked and this would be typical of a Later Neolithic date (Wainwright and Longworth, 168). Thumb scrapers, however, occur most frequently in Beaker period assemblages (Healey 1980). Their occurrence here though might be dependent on the small size of available raw material, demonstrated by the small size of all the pieces generally, most being between 10-30mm long. The other scraper is small and relatively thick, as is the denticulate and a Bronze Age date seems more likely. The single scalar waste piece (SF207) may be a chance fracture as there is no other evidence of use of the bipolar technique, which might have indicated the presence of another phase of activity.

The flint and chert was found quite widely scattered. The largest number, 24, came from the lower topsoil, found during initial cleaning over the site. These included all of the retouched pieces. There were none in any kind of primary context although one piece was found in an isolated posthole, nevertheless probably part of the later settlement. All the rest were in clearly secondary positions, in the general rubble spread, F33 or in various silts and floor levels associated with the later settlement. The only identifiable horizontal concentration was on the west side of the area in the vicinity of pit group G7 (Fig. XX), where there were 16 waste pieces, including the scalar piece. There were no typical hammerstones from this area or indeed from anywhere on the site that could have been residual from this earlier period of flint-working activity.

The waste pieces are similar in size, variety of material and technique and so seem likely to derive from one episode of activity. The retouched pieces are characterised by the rather limited use of steep edge retouch on quite small flakes. The lack of better quality imported material, the use of small beach



A55 Anglesey - Fig xx: **Melin y Plas.** Objects of flint and chert . Scale 1:1.

material and the restricted technique suggests a comparison with the Early Neolithic assemblage from the Trefignath chambered tomb, Holyhead (Healey 1987).

2.3.1.6 References

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Healy, F., 1980. *The Neolithic in Norfolk*. Unpub. PhD thesis, University of London.

2.3.5 Stone objects

by George Smith

2.3.5.1 Introduction

There were 21 stone objects of which 13 are small portable objects. Two of these were rejected - a piece of modern furnace lining, probably resulting from mineral fertilising of the field and a natural rock fragment.

There are 13 categories of object and these can be divided into manufactured objects, utilized objects of otherwise natural form and other objects, possibly imported.

2.3.5.2 Raw material

The rock types have been identified by Dr David Jenkins whose comments are incorporated here and who has also provided a separate general discussion of the usage of rock types and their implication for selection and sourcing for all the sites in the project (this vol.).

2.3.5.3 Description

Appendix 6.5.1 provides a catalogue of all the recorded evidence. The objects are summarised in Table 1.

Table 1 Melin y Plas: Stone objects, summary

Manufactured objects	Total	Illustration no.
Saddle quern	1	
Mortar, large	2	1-2
Mortar, small	1	
Burnisher	1	3
Waisted stone	1	4
Whetstone, pendant	1	5
Knife pendant/ needle hone?	1	6
Bead	1	7
Utilised objects		
Rubber	2	
Pebble burnisher	4	
Working slab	1	
Other objects		
Slingstone? Pebble	2	
Pot boiler	1	

2.3.5.4 Manufactured objects

1. Saddle quern (not illus.). A fragment of a large slab of coarse sandstone, 100mm thick with a concave upper surface. An unstratified find from topsoil stripping.

2. Large mortars. Both made by pecking of bowls into suitably shaped natural boulders with only minimal trimming of the outside surface. The largest (No. 1), is rather irregular in outline of lithic sandstone with an oval bowl, 240 by 180mm by 170mm deep. This was found upright, possibly *in situ* in its functioning position in the top fill of hollow F276 in pit group G10, just west of the area of building G2. The other (No. 2), is sub-rectangular in outline with a deep sub-rectangular bowl *c.* 240mm square and 140mm deep. This was found upright at the side of a culvert through the wall of building G2 where it was interpreted as being re-used to construct the culvert.

3. Small mortar (not illus.) A fairly small fragment of a rather smaller and more portable mortar than the previous two. It was made by pecking a bowl into in a naturally shaped, sub-rounded cobble of coarse sandstone. It would have been about 250mm dia. originally with a circular bowl *c.* 140mm dia. and 120-140mm deep. This was found in a silt layer over drain F298 in the centre of building G2.

4. Burnisher (No. 3). A lozenge-shaped block of finely abrasive micaceous sandstone, manufactured to shape and facetted from use. Both main faces have lateral wear with some localised polish. This came from the general rubble spread over occupation deposits in the area of the north-east interior of building G2.

5. Waisted stone (No. 4). A fragment of an elongated pebble of fine sandstone with a slightly constricted 'waist' created by pecking, probably done to facilitate hafting. There is also some light pecking around the tip. It is quite likely that the missing part was the main working end and if fractured in use may well have been a hammer. This is quite small compared to the waisted stones used as hammerstones, probably in metalworking, and is unlikely to have been a net sinker at this inland site. From an occupation deposit in the north-east interior of building G2.

6. Whetstone, pendant (No. 5). A small, slim, rectangular-sectioned piece of fine-grained abrasive quartz schist. Complete but broken into three pieces. It tapers towards the tip and appears only lightly used on the sides, not the face. Perforated for suspension. The perforation is hour-glass shaped and slightly oval so probably made with a flint awl, not a metal drill. This is a small and delicate piece and was little used. It would have been of use only for sharpening small items such as a razor or pocket knife so was possibly part of a sewing kit. From the top fill of the gully/terrace around the north side of building G2.

7. Knife pendant/needle hone? (No. 6). A thin, lozenge-shaped plaque of slate or phyllite trimmed and abraded to shape. It has an hour-glass shaped perforation, possibly made with a flint awl and cut mainly from one side, which is clearly the front face because it is smooth while the reverse is rougher. Its shape is reminiscent of some bronze razors and its edge could have been used for cutting soft material. The front face has light irregular scratched hatch marks, possibly from sharpening a bone needle rather than decorative. If so this is probably part of a sewing kit. It came from pit 17, just outside house G1, part of a pit group interpreted as probably of medieval date.

8. Bead (No. 7). A hard, dark grey chert or rhyolite with bands of quartz inclusions, making it slightly decorative, but not colourful. It is slightly biconical and not perfectly symmetrical so ground by hand, rather than on a lathe. The perforation is 5mm diameter and parallel-sided so was drilled, probably with a metal tip. From the silted-in fill of the Y-shaped drain F65 of house G2.

2.3.5.5 Utilised objects

1. Rubbers. Two natural, sub-angular cobbles of tuff/sandstone and felspathic sandstone. Each has one face flattened from wear, 180 and 250mmm long. Both were in secondary contexts in the general rubble spread over the occupation remains.

2. Pebble burnishers. Four small sub-rounded oval pebbles with all over polish, three of rhyolite and one vein quartz. They are of a similar size, between 38-50mm in length. This size falls within the

accepted range for slingstones (Brown 1984, 425-6) but the polish on these suggests some other function. The lack of locally made pottery shows they could not have been pottery burnishers, but could have been used in leather burnishing or simply acquired a polish from repeated handling. One came from a post-medieval field ditch, one from the lower topsoil, one from occupation deposits in the north-east interior of building G2 and one in 'tank' pit F882.

3. Working slab. A naturally sub-rectangular slab of lithic sandstone, 260 x 170 x 80mm, of which one face has been slightly smoothed, but not facetted, from generalised repeated use, probably just as a working surface. The same face also has a small cup-mark worn in it, about 20mm diameter and 7mm deep. From the top fill of the gully/terrace around the north side of building G2.

2.3.5.6 Other objects

1. Slingstones? Two sub-rounded oval beach pebbles similar in size to the burnishers but lacking the overall polish. One of chert, the other of rhyolite. One from the lower topsoil and one from the general rubble spread over the settlement.

2. Pot boiler. A fragment of a pebble fractured by heat, probably dolerite. From the lower topsoil.

2.3.5.7 Discussion

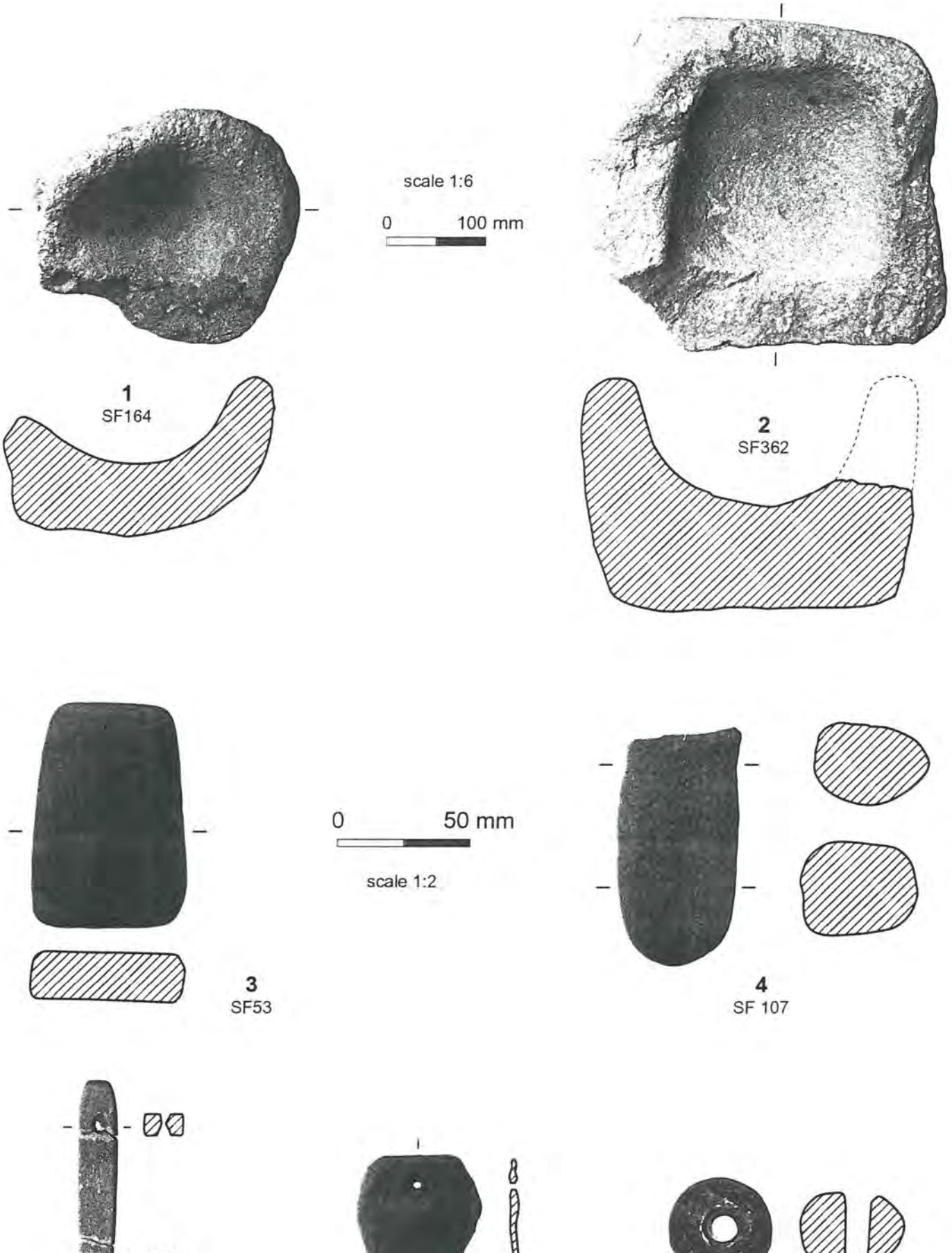
The majority of finds are associated in some way with house G2. This is partly because this area comprised the largest volume of surviving *in situ* levels. However, the complete absence of finds from other features is surprising, particularly with regard to the numerous pits. Even if they were dug as quarries rather than rubbish pits it might be expected that occupation deposits might accumulation or slump into the top of the pits. This suggests that the pits were backfilled with sterile material soon after their excavation.

The rock types used for the objects are fairly straightforward, with coarse sandstones for the quern/mortars, finer sandstones for the rubbers and even finer schist for the whetstone and micaceous sandstone for the burnisher. The pebble burnishers and possible slingstones are of harder rocks. All these rock types come from outcrops in Anglesey or can be found as exotic materials in the glacial till.

The objects represent a full range of domestic functions from food processing to tool sharpening closely associated with the house rather than with any specialised agricultural or industrial activity. However, the rubbers and burnishers represent some craft work, probably leather working. However, rather similar rectangular burnishers to No. 3 have been found on Anglesey at Rhos y gad, Llanfairpwllgwyn (Lynch 1991, Fig. 17a) and Capel Eithin, Gaerwen (White and Smith 1999, Fig. 20) interpreted as metal burnishers when compared to examples with clear metalworking associations from the Netherlands (Lynch 1991, 365).

The assemblage is notable for the absence of rotary querns although such items occur in such small numbers that absence is not necessarily meaningful and may just show that they were unlikely to be discarded. Certainly, during the period of the settlement demonstrated by the pottery rotary querns would have been in widespread use although saddle querns seem to have carried on in use so rotary querns may not have been present. Both the large mortars were broken, one probably just re-used in a wall while the other may have been in its original position and broken by recent ploughing. However, such mortars seem to have been a normal domestic accessory, and have been found *in situ* inside a number of excavated roundhouses on Anglesey and the nearby mainland, for instance at Pant y Saer (Phillips 1934). This may mean that the latter was also inside a building of which all obvious evidence had been destroyed by ploughing.

Two of the small objects, the miniature whetstone and the knife/needle hone probably represent personal female sewing accessories. The former seems to have been lost as it was complete but the latter may have been broken and then discarded. Both came from contexts outside the buildings. Another miniature perforated pendant whetstone was also found the Romano British settlement at Cefn Du, Gaerwen (this vol., No. 7) and a slightly larger example, 120mm long, from the settlement at Graeanog, south of Caernarfon (Kelly *et al* 1998, 148 and Fig. 53). The absence of spindle whorls is



A55 Anglesey - Fig 2: **Melin y Plas.** Stone objects. Scales as indicated

again surprising since although not numerous they do occur in most assemblages of this period. The bead, from the fill of a drain inside house G2 was probably just an accidental loss. It is a rather crude example and not of an unusual or imported material so is probably of fairly local manufacture, its shape paralleled in glass at Cefn Graeanog II (Kelly *et al* 1998, 38-40 and Fig. 20). It is a simple form found from the early second millennium BC and common in glass in the later Iron Age, for instance at Meare, Somerset (Coles 1987, 81-8), later superseded by smaller or more ornate forms in glass and jet in the Roman period.

Altogether the assemblage represents the equipment of a simple farmstead with only the basic implements of local materials and with no imports of decorative or other specialist manufactured objects.

2.3.5.8 References

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3. TY MAWR, HOLYHEAD, SITE E14

3.1 RADIOCARBON DATES

3.1.1 Interim Report on the Radiocarbon Dates

by Jane Kenney

3.1.1.1 The dates

Six samples were sent to Beta Analytic Inc, Florida for radiocarbon dating. Those samples large enough for standard radiometric dating were analysed by synthesising benzene from the carbon sample, and measuring for C^{14} content in a scintillation spectrometer. Some samples required extended counting, during which the C^{14} content is measured for a greatly extended period. Particularly small samples were dated by accelerator mass spectrometry. In this case the sample is reduced to graphite for measurement. C^{13}/C^{12} corrections were applied to the measured age to give the age BP presented here. The dates were calibrated by the laboratory using INTCAL98 Radiocarbon Age Calibration, and are presented here at 2 standard deviations.

The radiocarbon dates received so far:

E14/119/247	Beta-152580	4980+/-210 BP	Cal BC 4250-3350
E14/140/038	Beta-152581	2840+/-50BP	Cal BC 1110-840
E14/150/345	Beta-152582	4620+/-110BP	Cal BC 3640-3020
E14/179/054	Beta-152584	5880+/-40 BP	Cal BC 4840-4700
E14/194/222	Beta-152585	5910+/-60BP	Cal BC 4920-4680

Of the six samples submitted for analysis one (E14/173/315) was discarded. It was a fragment of material from a coffin, but it proved to be charcoal rather than wood, and as such its provenance could not be established. The five dated samples confuse, rather than clarify, the interpretation of the site.

3.1.1.2 Interpretation

3.1.1.2.1 The old ground surface, context 222

E14/194/222 Beta-152585 5910+/-60BP Cal BC 4920-4680

Sample E14/194/222 came from charcoal deposited within the old ground surface under the barrow. Although this could have been deposited at any time before the construction of the barrow, it was expected to be associated with the Peterborough Ware sherds. However, a late Mesolithic date discounted this. It seems a little unlikely that charcoal from Mesolithic activity would survive considering the quantity of later activity in the area, but incorporated into the turf it may have protected it. The possibility of some late Mesolithic activity on the site must be considered, though none of the lithic artefacts are diagnostic of the Mesolithic period. All the identifiable charcoal from the sample was Quercus, so this may indicate the first clearance of the oak forest in the area.

3.1.1.2.2 The barrow

E14/140/038 Beta-152581 2840+/-50BP Cal BC 1110-840
E14/179/054 Beta-152584 5880+/-40 BP Cal BC 4840-4700

The dating of the barrow itself proved unsuccessful. A sample recovered from the primary fill of the outer ditch contained no charcoal, and so could not be dated. Sample E14/140/038 from the upper stony fill (context 038) of the outer ditch was dated and produced a late Bronze Age/ Early Iron Age date. This context is interpreted as representing the collapse into the ditch of a stone revetment to the barrow mound. As this would indicate the abandonment and deterioration of the monument, the radiocarbon date would fit reasonably well with expectations.

Very little of the charcoal from this sample could be identified, but 1g was Ulex/Cytisus (gorse/broom) implying an open landscape over the abandoned barrow.

It was hoping that sample E14/179/054 from the fill (context 054) of the inner ring would demonstrate whether this feature was part of the barrow or associated with the cemetery; if the former it may have provided the best date for the use of the barrow. Unfortunately the resulting date is identical to that from the old ground surface, they overlap significantly at 1 standard deviation, and are therefore statistically indistinguishable. The charcoal in the sample must have been residual to context 054, and presumably originated from the old ground surface. Like sample E14/194/222 all the identifiable charcoal was Quercus.

Further dating evidence for the barrow would be desirable, but the samples dated were the only ones recovered from this monument, so the date of its construction must remain uncertain.

3.1.1.2.3 The early Christian cemetery

Few long cist graves have been dated in Wales, so a date from the cemetery would have been particularly beneficial. However, dating material was very scarce from the graves. Charcoal was recovered from behind the cist in grave cut 042, but this was almost certainly residual, and could not be proved to have a direct relationship to the burial. The identification of some of this sample as gorse or broom further suggested that it was the result of general burning in the area at an unknown period.

Considerable quantities of 'coffin stain' was sampled from grave cut 304. This was sieved to removed the larger particles, and sent for dating (sample E14/173/315), but did not contain enough organic material to be dated. Within the sample a single lump of material was found, which was initially thought to be mineralised wood. This was also sent off to the laboratory, but on close inspection it proved to be charcoal. There is no reason for the coffin to have been charred, and if it had been much more charcoal would have been present. The single sample found must have been residual, and so was discarded.

There are fragmentary remains of bones, and soil samples of deposits stained by the decaying bodies from some graves. Considering that the analysed coffin stain contained insufficient organic material for dating, it is unlikely that these other samples would prove productive. The bone is probably so intensively leached that little survives to date. Certainly amino acid dating would not be possible, and there would be no way to avoid dating contaminants within the sample. Further dating is, therefore, unlikely to be successful.

3.1.1.2.4 The postholes

E14/119/247	Beta-152580	4980+/-210 BP	Cal BC 4250-3350
E14/150/345	Beta-152582	4620+/-110BP	Cal BC 3640-3020

The postholes running through the cemetery and over the area of the barrow could not be securely phased by the stratigraphic evidence alone. They seem to form lines orientated parallel to the lines of graves. However, it was always possible that they were related to the flint scatter recovered from the same area. Two samples E14/119/247 and E14/150/345 were selected from postholes just outside and just inside the outer ditch of the barrow, respectively. The depth of deposits within the area of the barrow was insufficient to demonstrate the stratigraphic relationship of the latter to the barrow. Both samples produced early Neolithic dates. These dates overlap at 2 sigma, but the errors are so large that this cannot be used to suggest their contemporanety. The dates support an early date for the postholes, but the size of their errors makes them questionable. Further dates need to be carried out on the postholes and related features to securely establish the date of this phase, and to demonstrate whether all the postholes are contemporary.

The only identifiable charcoal from E14/119/247 was willow or poplar, which implies that the charcoal was not from a post burnt in situ. E14/150/345 had some fragments of Quercus, which might possibly have originated from a burnt post. However, there were also traces of alder, birch and hazel, suggesting more general burning. It is probable that the charcoal was deposited in the postholes with the backfill around the post.

3.1.1.3 Recommendations

There are no further suitable samples from the barrow to clarify its date, and it is unlikely that any samples from the cemetery will be able to produce radiocarbon dates. However, there are several

samples remaining that could be used to solve the problems relating to the postholes. The large error on the two dates received so far makes them unreliable, and more dates are necessary to indicate whether most of the postholes are contemporary. There are four remaining, suitable samples that could be dated to help clarify the problem. One sample is from a layer within feature 079, which is interpreted as a hearth, and may be related to either to the postholes or to the flint scatter. Three samples come from postholes. Posthole cut 400 lies within the area of the barrow, and aligns with four other posts. Cut 121 is just outside the barrow, aligns with two other posts, including one of those already dated, and is in close proximity to two graves. Cut 398 is not aligned with other postholes, but is within a particularly well-structured part of the cemetery, with close proximity to three graves. It is also only c.3.5m from the possible hearth.

It would be recommended that only fragments of charcoal identifiable to species are dated, and that no unidentifiable, structureless fragments are included. These could include contamination from oil shale or other ancient carbon sources.

Suggested samples for further radiocarbon dating

Sample no.	Context	Weight	Description
95	122	6.92g	From fill of posthole 121.
175	381	2.95g	charcoal from posthole, cut 398
176	381	5.08g	charcoal from posthole, cut 398
182	401	35.72g	fill of post hole 400
191	404	9.22g	sample from burnt layer in possible hearth

3.1.2 Identification of charcoal samples

by Rowena Gale

3.1.2.1 Introduction

Nine samples of charcoal associated with a Bronze Age barrow and an early Christian cemetery were examined and identified to select suitable material for radiocarbon dating.

3.1.2.2 Materials and methods

Samples were prepared for examination using standard methods. Fragments from each sample were fractured to expose fresh transverse surfaces (TS) and sorted into groups based on the anatomical features observed using a x20 hand lens.

Representative fragments from each sample were selected for detailed study at high magnification. Additional surfaces to show the wood structure in tangential (TLS) and radial planes (RLS) were also prepared. The fragments were supported in washed sand and examined using a Nikon Labphot microscope at magnifications of up to x400. The anatomical structures were matched to prepared reference slides.

When possible the maturity (ie heartwood/sapwood) of the wood was assessed and the number of growth rings recorded. The taxa identified were bagged separately and weighed accordingly.

3.1.2.3 Results

The results of the charcoal analysis are summarised in table 1.

NB. Sample 173: Charcoal fragments were extremely small and sparse. A single fragment was identified as oak, possibly sapwood, although it was difficult to assess its maturity and consequently its suitability for dating.

Table 1. Ty Mawr, G1572 (E14): radiocarbon charcoal samples
The weight of identified charcoal is given for each taxon (includes bag weight).
Charcoal suitable for radiocarbon dating is indicated in bold.
Key: h=heartwood, s=sapwood

Find No.	Context	*Alnus* alder	*Betula* birch	*Corylus* hazel	*Quercus* oak	*Salicaceae* willow/ poplar	*Ulex/ Cytisus* gorse/ broom
119	247	-	-	-	-	**5g**	-
133	74	-	-	-	-	-	**1g**
140	38	-	-	-	-	-	**1g**
150	345	**<1g**	**<1g**	**1g**	h, 1g **s, 1g**	-	-
153	352	-	-	-	-	-	-
173	-	-	-	-	h,<1g **?s,<1g**	-	-
179	54	-	-	-	h, 2g	-	-
180	54	-	-	-	h, 1g	-	-
194	222	-	-	-	h,16g **s, 2g**	-	-

3.2 FINDS REPORTS

3.2.1 The Small Finds
by Lynne Bevan

3.2.1.1 Introduction

For purposes of this report any small finds numbers allocated for objects (other than iron nails and corroded unidentifiable fragments) appear in brackets, followed by context numbers where relevant. A number of the metal detector finds do not have individual numbers.

3.2.1.2 Ty-Mawr

None of the material listed below is believed to be earlier than the 18th century.

3.2.1.2.1 Bone
A fragile fragment from a single-piece bone comb was recovered (004, not illustrated). The poor condition and degree of fragmentation preclude close chronological identification beyond a late Post-Medieval date.

Catalogue
1. Fragment from a bone comb. Length: 22mm, length of broken teeth: 29mm, thickness: 1mm. Context 004. Not illustrated.

3.2.1.2.2 Glass
Six fragments of Post-Medieval glass were recovered; two fragments of window glass (SF 92, SF 55), a small fragment from a cobalt blue vessel (SF 94), a fragment of ?19th/20th date from a vessel with an applied leaf motif (SF 16), and fragments from a brown beer bottle (SF 12), and a green wine bottle (SF 88).

3.2.1.2.3 Copper Alloy
With four exceptions, a decorative buckle (SF 2, 004), a George III shilling dated to 1816 (SF 11, 004), a nail (SF 10, 004) and a fragment of strip (SF 4, 004), copper alloy finds were recovered with a metal detector. Identifiable objects included two thimbles, seven studs, two of which were decorated, a small ring handle, possibly from a casket or drawer, three nails, a knob handle and three fragments of plate, one of which is perforated. Another coin, possibly Spanish and dated 1892, and two other possible coins or tokens, both with completely worn surfaces, were recovered, one of which was fragmentary. The general appearance of the copper alloy finds suggests an 18^{th} –19^{th} century date.

3.2.1.2.4 Lead
Lead finds, again recovered with a metal detector, comprise four fragments of strip and two 'molten' amorphous lumps from the manufacturing process.

3.2.1.1.5 Iron
A total of 27 iron objects were recovered, the identification of which was impeded by a high incidence of corrosion. Potential Roman finds consisted of a possible stylus (SF 88, 016, not illustrated) and a possible blade (SF 53, 004, not illustrated). The rest of the material was of a modern appearance although some of the nails and unidentifiable corroded objects might have been Roman. A total of 15 nails was identified (003 x 1, 004 x 10, 016 x 1, 017 x 1, 020 x 2), as well as two collar-shaped objects, possibly fittings (004, 016, not illustrated), a bar-shaped object (016) and eight unidentifiable lumps (007 x 1, 004 x 4, SF 53 x 2, 016 x 1).

Catalogue

Possible stylus with one pointed and one flat end, very corroded. Length: 100mm, thickness: 1-5mm. SF 88, 016. Not illustrated.

Possible blade fragment with curved end. Length: 50mm, width: 45mm, thickness: 12mm. SF 5, 004. Not illustrated.

3.2.2 The Neolithic pottery from Ty Mawr, Holyhead, Anglesey (report no. 63)

by Alex Gibson (05/12/00)

3.2.2.1 Introduction

Fifteen bags of presumed Bronze Age pottery were sent to the writer on 27th November 2000 for identification and comment. The stratigraphic information, which accompanied the sherds, indicated that the pottery came from unstratified contexts (FN 106, 110), was residual in later contexts (FN 96), or came from contexts that predated a ring barrow. The sherds were laid out and examined macroscopically in daylight. No microscopic analysis has been undertaken.

3.2.2.2 Identification

Identifiable sherds can be dated to the Neolithic but most of the sherds were too small for positive identification. The earliest, vessel 2, is a tentative identification based on the fabric and rim profile. The rounded, externally lipped rim and the fine, polished fabric, suggest a vessel from the carinated bowl tradition of the earlier Neolithic. Precise dating of this vessel is difficult given the small amount of the pot that survives and the absence of a reconstructable profile. However, carinated bowls generally may date to somewhere between 4000 and 3500 Cal BC. The sherd is almost certainly residual in this context.

Vessel 1 is the most readily identifiable and represents sherds from a decorated bowl of the Peterborough tradition datable to the few centuries around 3000 Cal BC (Gibson and Kinnes 1997). Once again the sherds are badly abraded suggesting that the pot is residual. Nevertheless, enough survives of the everted and decorated rim, the shoulder carination and the neck to positively identify the vessel as being in the Mortlake style of Peterborough ware. The decoration on the expanded rim is of closely set lines in twisted cord impressions. This technique and motif is typical of those types of impressed ware, as is the deep circular stab visible on the neck sherd. There are traces of very abraded decoration on the shoulder sherd and inside the rim.

3.2.2.3 Discussion

Earlier Neolithic carinated bowls have been found at several findspots on Anglesey and North Wales, principally in association with chambered tombs, such as Bryn yr Hen Bobl, where lugged bowls with elaborate rims resemble the Lyles Hill pottery from Northern Ireland. The present rim sherd is not so developed as the Bryn yr Hen Bobl material, but given the variability of rim profiles within a single vessel, too much emphasis cannot be given to direct parallels when dealing with small sherd material. Simpler, more everted rims have been found at Pant y Saer, however, also in association with a chambered tomb.

Peterborough ware has been recorded from over 30 sites in Wales, and 4 from Anglesey (Gibson 1995). The Mortlake style of Peterborough Ware tends to be dominated by bird bone impressions, but the use of twisted cord here is not unparalleled. The body decoration of the present vessel id too abraded to identify the technique but may be similar to those found on a Mortlake style sherd from Mount Pleasant (Savory 1953) or to the diagonal whipped cord impressions found on a rim sherd from Bryn yr Hen Bobl (Lynch 1991). The sloping T-profile of the rim can be paralleled on a sherd from Sarn-y-bryn-caled II in Powys (Gibson 1994) where the decoration also seems to have consisted of multiple parallel diagonal lines though the impressions are too abraded for identification. The rim form is also paralleled amongst the material from the presumed settlement site at Ogmore (Gibson 1995).

3.2.2.4 Catalogue

Pot	Find No	Context No	Identification	Description
1	70 73 74 76 77 107 113 159	077 107 223	Peterborough Ware	Ten sherds in a hard, well-fired fabric with abundant large (>5mm) stone inclusions. The outer surfaces of the sherds are brown/grey and the inner surfaces dark grey. All sherds are very abraded. Three are decorated. FN 113 comprises a rim sherd with a flat, sloping external rim moulding giving to a slightly concave neck which is largely filled with concretions. Internally, two very abraded oblique grooves may be the result of decoration. The top of the rim is decorated with multiple oblique lines of twisted cord impressions. FN 77 comes from the neck of the vessel and the remains of a neck perforation can be seen. Such perforations and deep stabs are typical of Peterborough ware. FN107 is from the shoulder of the pot. It is badly abraded but traces of diagonal lines may be seen. It is uncertain as to whether these are above or below the shoulder.
2	71	77	Carinated bowl	Two conjoining sherds in a dark grey-brown fabric with finely crushed ?grog? inclusions and some voids. The surfaces are smooth and well finished. The rim is slightly everted and rolled outwards suggesting the upper portion of an earlier Neolithic carinated bowl.
3	96	161	?	Fragment of fired clay
4	112	77	?	Crumb. May be from vessel 1 above
5	75	77	?	Ditto
6	110	U/S	stone	
7	106	U/S	?	Fragment of fired clay
8	108	208	Peterborough Ware	Two fragments plus crumbs in a thick, brown grog-filled fabric. The 'soapy' feel of the fabric and its broad association with vessel 1 above may suggest that it is Fengate Ware

3.2.2.5 Bibliography

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Lynch, F, 1991 *Prehistoric Anglesey*, Llangefni: Anglesey Antiquarian Society

Savory, H N, 1953 The excavation of a Neolithic dwelling and Bronze Age cairn at Mount Pleasant farm, Nottage (Glam.), *Transactions of the Cardiff Naturalists' Society*, **81**, 75-92

3.2.3 Flint and chert objects

by George Smith

3.2.3.1 Introduction

This is a large enough collection to make it clear that the objects were part of some specific activity on site, not just chance association. This is also a relatively 'normal' assemblage in terms of the presence of waste as well as retouched pieces and of the ratio of retouched to waste pieces.

3.2.3.2 Raw material

The raw material is all of local origin with flint and black chert in about equal proportions. The chert occurs in larger pieces than the flint but is evidently of poorer flaking quality than the flint.

The use of a high proportion of chert here is distinctive and probably reflects the greater availability of chert on the nearby coast compared to elsewhere on Anglesey.

3.2.3.3 Technology

The majority of pieces were struck and retouched by hard hammer. The presence of one scalar piece (reduced using an anvil) shows that small pebbles were sometimes used but a single example does not make it a diagnostic feature of the assemblage. Nearly all of those pieces where cortex was present were produced from pebbles. Only two were from nodules but these were partly rolled and so probably also derived from the glacial till. The distribution of flakes and fragments according to reduction class was: primary flakes 10, secondary flakes 15 and tertiary flakes 35 (not all fragments could be assigned to a class). Most pieces were therefore worked on site, but some were probably imported ready reduced since we should expect a rather greater proportion of primary flakes.

3.2.3.4 Description

Appendices 6.6.1-3 provide a catalogue of the recorded information. The assemblage is summarized in Tables 1 and 2 and examples illustrated in Fig. 1.

Table 1 Ty Mawr: Flint and chert assemblage summary

Category	Flint	Chert	Total
Flake/flake fragment	23	15	38
Irregular fragment	2	10	12
Core/core fragment	1	1	2
Retouched piece	2	4	6
Casually retouched piece	1	4	5
Scalar piece	1	-	1
Split pebble	2	1	3
Burnt fragment	1	-	1
Natural fragment	-	2	2

Table 2 Ty Mawr: Flint and chert retouched assemblage summary

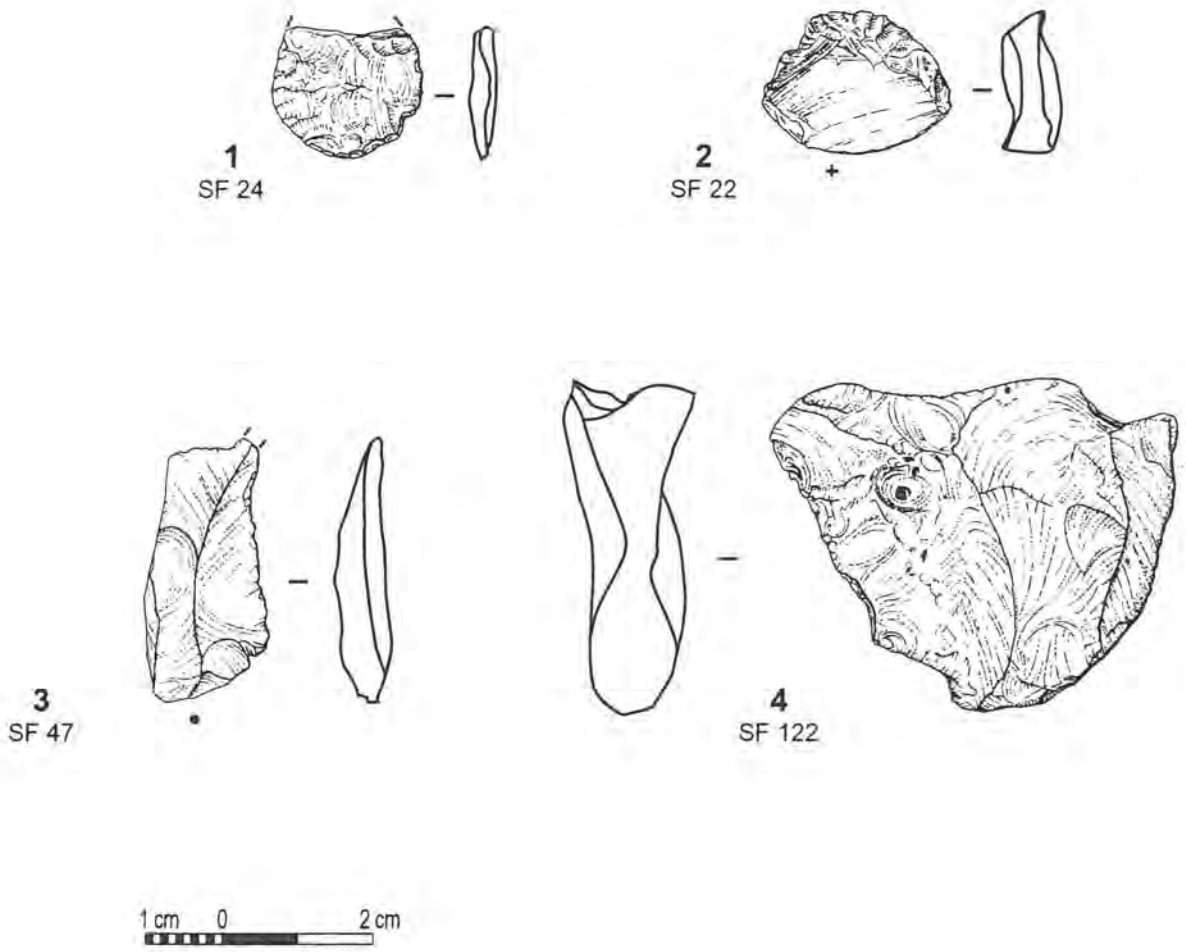
Category	Flint	Chert
Convex scraper	-	1
Thumb scraper	-	1
Spurred piece	-	1
Edge retouched knife	-	1
Denticulate	1	1
Arrowhead, leaf-shaped	1	-
Casually retouched, edge knife	-	2
Casually retouched, serrated	1	-
Casually retouched, unclassified	-	2

The retouched pieces are characterized by a simple technique of steep retouch of flakes from unprepared cores. The resulting informal and irregular forms are not diagnostic for dating. The only exception is the fragment of leaf-shaped arrowhead (No. 1) which is neatly made and carefully pressure-flaked. It is, however, a small and squat example, Green's type 4a or b (Green 1980, 75-97). An earlier Neolithic date is most likely although this type could have been in use at any time from the Early to Later Neolithic (Green 1984). There is a possibility that this and other pieces could be remnants of earlier activity but it seems likely that the majority of them are associated with the Peterborough Ware phase of pre-barrow activity, possibly associated with a radiocarbon date of 3640-3020 Cal BC (Beta-152582). None of these pieces can be confidently assigned to a separate later phase of activity associated with the barrow construction although the thumb nail scraper (No. 2) and the spurred piece (No, 3) could be of Later Neolithic or Early Bronze Age date. However, these forms could be just a result of the limitations of the raw material and similar pieces occurred in the assemblage of probably Early Neolithic date at Trefignath chambered tomb Holyhead (Healey 1987, 54-6). At Ty Mawr there are none of the items of better quality manufacture, size or material that occurred at Capel Eithin, where there was significant Late Neolithic and Early Bronze Age activity (Green 1999). It is most likely that all the Ty Mawr objects are of Early to Middle Neolithic date.

In terms of horizontal distribution (Fig. X) the lithic finds are scattered across the area of the barrow with one additional grouping beyond it to the north-east. However, considering the small number of pieces this could represent just an area of better survival in an area of deeper topsoil or in a variation in depths of hand-removed deposits after topsoil stripping.

Table 3 Ty Mawr Stratigraphic occurrence of main flint and chert worked pieces

Context	Phase	Flakes and frags	Cores and frags	Retouched and other diagnostic pieces
Topsoil and lower topsoil	-	15	-	Convex scraper (2); Spurred piece; Denticulate; Casually retouched, edge knife; Casually retouched, unclassified.
Post medieval ditches	5	1	-	Casually retouched, unclassified.
Early medieval cemetery	4	-	1	-
Barrow abandonment	3	7	-	Edge retouched knife; Scalar piece.
Barrow construction	2	4	-	Casually retouched, edge knife.
Pre-barrow old land surface	1	10	-	-
Cleaning top of subsoil and subsoil	-	10	1	Arrowhead, leaf-shaped. Thumb scraper; Casually retouched, serrated.
Unassigned post-holes	-	3	-	-



A55 Anglesey - Fig 2: **Ty Mawr.** Objects of flint and chert. Scale 1:1.

In terms of the stratigraphic occurrence of the lithic finds (Table 2) it is impossible to demonstrate their relative quantitative occurrence because of the difficulty of estimating the volume of excavated material removed for each phase. The largest number of pieces came from the topsoil and considering that the majority of this was removed by machine and only a small part by hand then by far the largest proportion of lithic material must have been in the topsoil horizon. Originally most of these objects must have been deposited as a surface scatter which was later disturbed and mixed into the modern ploughsoil. If we assume, just for example, that 5% of the removed topsoil and was excavated by hand then about 800 lithic items, which was not recovered, would have been contained in the rest of the machine-removed soil. Of the remainder, those from the top of the subsoil, including the leaf-shaped arrowhead and the thumbnail scraper must also represent only a small proportion of those that were present in the soil generally. The 18 pieces in the contexts of phases 2-4 are also residual. Only 15 pieces come from contexts of phases 1 and 2. Of these only one is a retouched piece, the edge-retouched knife and this is not a datable type.

3.2.3.5 References

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3.2.4 Stone objects

by George Smith

3.2.4.1 Introduction

A small assemblage of 14 objects of which only 6 are manufactured, although the rest were imported for use.

3.2.4.2 Raw material

The rock types have been identified by Dr David Jenkins whose comments are incorporated here and who has also provided a separate general discussion of the usage of rock types and their implication for selection and sourcing for all the sites in the project (this vol.).

3.2.4.3 Description

Appendix 6.7.1 provides a catalogue of all the recorded evidence. The objects and their stratigraphic location are summarized in Table 1.

Table 1 Ty Mawr, Stone objects summary and context

Description	*Spindle whorl*	*Hammer stone*	*Unused pebbles*	*Rock fragment*	*Burnt stone*
Post medieval ditches (Phase group 5)			1	1	1
Early medieval grave fill (Phase group 4)	1		2	1	
Stakehole fill			1		
Barrow outer ditch fill (Phase group 3)	1	5		2	

3.2.4.4 Spindle whorls.

No. 1 is a thin piece of phyllite or chlorite schist, *c.* 48mm diameter. It has been roughly snapped to shape with a perforation 9mm diameter, bored or punched from one side only and slightly worn. No.2 is a thin oval beach pebble of shale/siltstone, 66 by 52mm, which has been slightly modified to shape by snapping of the edge. It has a broad hour-glass shaped perforation, bored from both sides and diminishing from 17 to 7mm diameter.

3.2.4.5 Hammerstones.

These are five heavy sub-oval beach pebbles, of tough, heavy, dense rock, two of rhyolite, two of microdiorite and one of tuff. They vary from 81 to 146mm long and all have use marks. No. 3, from the outer barrow ditch, is the most heavily used with heavy pecked facets on both ends as well as some flake removals and light pecking around the remainder of the perimeter. The others, for example Nos 4 and 5, have rather lighter pecked facets confined to one narrow tip although No. 5 also has light pecking around much of the perimeter.

3.2.4.6 Unworked pebbles.

These include two beach pebbles, probably unused hammer stones, one elongated, of chert/silicified shale (?) from a stakehole, the other is flat and oval, of vein quartz, from an early medieval grave. There is also one thinner pebble of fine sandstone, possibly a fragment of whetstone, from a post medieval ditch and a broken siltstone pebble from an early medieval grave fill.

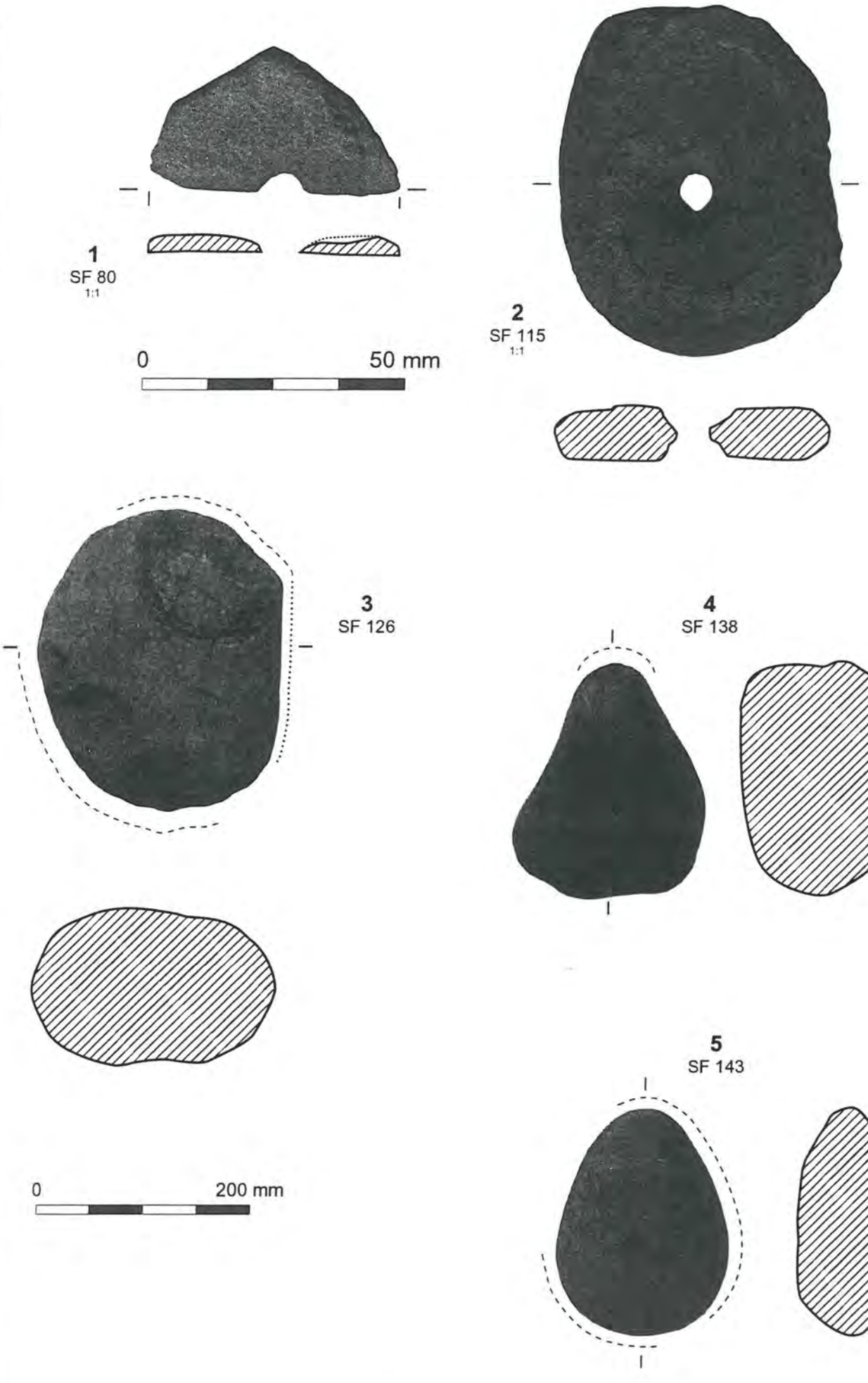
3.2.4.7 Other objects

The rock fragments are natural products although two in the outer barrow ditch may have been introduced as construction material. One of these is altered igneous, the other siltstone.

3.2.4.8 Discussion

Most of the finds relate to the barrow. Only one other is notable, that is the spindle whorl, No. 1, which came from an early medieval grave. This was thought, on excavation, to have been deliberately introduced to the grave as a 'holed stone' rather than a spindle whorl and this must remain a possibility because it has been so crudely shaped.

Surprisingly, no objects came from the old land surface within the barrow or from the barrow mound or bank. The majority of finds came from the barrow ditch, comprising all the hammerstones and the spindle whorl, No. 2. The contexts of the stone finds therefore contrast with the flint distribution of which over half came from the old land surface or barrow construction contexts. The hammerstones, nevertheless most probably derived from flint working, demonstrated by the localised pecking and facetting, for example as seen on Nos 3-6. The presence of a spindle whorl shows a more domestic aspect and suggests that this was not just a short-lived flint working site and this is supported by the number of flint pieces and the range of flint tool types present.



A55 Anglesey - Fig 1: **Ty Mawr**. Stone objects. Scales 1:1 and 1:2 as indicated

If the activity represented by the flint working is associated with the Peterborough Ware pottery and does predate the barrow then it is most likely that the hammerstones also belong with that activity. If so it is difficult to see how they could have arrived in the barrow ditch, rather separate from the flint pieces purely by chance as the ditch has been interpreted as deliberately backfilled. These kinds of hammerstones are typically found in various periods of flint working and so do not provide any evidence of date. Their use wear patterns, however, are typical of flint working, and can be closely compared to similar examples from the Middle Bronze Age settlement of Meyllteyrn Uchaf, Gwynedd (Ward and Smith forthcoming). They are to be distinguished from rather similar stones with more marked facetting, which were used as pestles in mortars in Iron Age and Romano-British settlements, for example at the Holyhead Mountain settlement (Smith 1986). The presence of several close together here is indicative of a fair amount of flint working, more than is immediately apparent from the number of pieces of flint actually recovered. It should be borne in mind therefore that the largest part of the flint assemblage, probably along with other stone objects, lay in the topsoil as a result of ploughing and this part was not recovered.

3.2.4.9 References

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3.3 HUMAN BONE

3.3.1 Human bone, Anglesey

by Megan Brickley

3.3.1.1 Grave cut 304

Careful excavation revealed the body of an adult. At the time of the excavation it was possible to observe that parts of both femora were present, along with the distal end of the left tibia. Bones from the lower left arm and hand may also have been present. However, bone preservation was very poor (bone weathering stage 5, Behrensmeyer 1978). As a result of the poor preservation these bones did not survive excavation and packing intact and it was not possible to obtain any metric data or study the bones for pathological changes.

Very unusual preservation was observed in the maxilla and mandible. There was almost no bone, dentine or enamel present. However, the shape of the teeth present had been preserved in 'soil'. The teeth recovered are indicated in the dental diagram below.

* 7 6 5 4 3 2 *	* * 3 4 5 6 7 *
8 7 6 5 4 3 * *	* * * 4 5 6 7 8

* =missing tooth
? = tooth present that may belong to place indicated

3.3.1.2 Grave cut 216

Only the mandible and parts of the skull were preserved present in the grave of this individual. As in the previous skeleton, preservation of bone, dentine and enamel was very poor. The teeth recovered are indicated in the dental diagram below.

* 7 6 5 4 * * *	* * * 4 5 6 7 ?
* * ? * * * * ?	? * * * * ? * *

* =missing tooth
? = tooth present that may belong to place indicated

There were also four molars present that may have come from the mandible, but it was not possible to be certain which molars they were. In addition to the teeth present there was also some skull fragments (many less than 2mm in diameter), that may have come from the facial region of the skull.

In both cases the teeth recovered could not be examined for dental caries or wear as the original surfaces of the teeth were not present. However, if the surface of the 'soil' teeth was an accurate representation of the original enamel surface then it appears that there was very little wear to the surface of the teeth. From the areas of jaw examined it would also appear that there had been no tooth loss during the lifetime of the individuals.

3.3.1.3 References

Behrensmeyer, A K, 1978 Taphonomic and ecologic information from bone weathering, *Paleobiology*, **4**, 150-162

4. PENMYNYDD, CAERGEILIOG, SITE D30

4.1 RADIOCARBON DATES

4.1.1 Interim Report on the Radiocarbon Dates

by Jane Kenney

4.1.1.1 The dates

Four samples were sent to Beta Analytic Inc, Florida for radiocarbon dating. All were measured using standard radiometric dating, involving the synthesization of benzene from the carbon sample, and measuring for C^{14} content in a scintillation spectrometer. C^{13}/C^{12} corrections were applied to the measured age to give the age BP presented here. The dates were calibrated by the laboratory using INTCAL98 Radiocarbon Age Calibration, and are presented here at 2 standard deviations.

The results were as below:

D30/08/111	Beta-152577	1580+/-70BP	Cal AD 340-630
D30/09/103	Beta-152578	3460+/-70BP	Cal BC 1940-1610
D30/36/162	Beta-152579	4950+/-70 BP	Cal BC 3940-3640
D30/04/109	Beta-153885	1710+/-80BP	Cal AD 130-530

4.1.1.2 Discussion

D30/08/111 Beta-152577 1580+/-70BP Cal AD 340-630
Sample D30/08/111 came from the fill of a shallow pit with evidence of *in situ* burning. This may have been a hearth, although there were no other structures closely related to it. The date falls within the post-Roman period. Most of the identifiable charcoal in this sample was Quercus, much of it heartwood (Gale). This is presumably due to oak being used as fuel for the fire.

D30/09/103 Beta-152578 3460+/-70BP Cal BC 1940-1610
Sample D30/09/103 came from the fill of one of a pair of well-defined postholes. The sample was composed of large pieces of charcoal, which possibly came from a post burnt *in situ*. The posthole is c.12m north-west of the previous feature, but is clearly unrelated to it as the date is late Neolithic or early Bronze Age. Again most of the identifiable charcoal is Quercus heartwood. Presumably the post itself.

D30/36/162 Beta-152579 4950+/-70 BP Cal BC 3940-3640
Sample D30/36/162 produced an early Neolithic date, considerably earlier than the previous sample. This sample came from the charred timber lining an odd feature (cut 129), resembling a wooden trough, but much too small. Although there are other features in the vicinity none of them appear to relate together in a coherent way. Most of the sample was unidentifiable, but 10g was identified as Corylus. If this does represent the lining of the feature, the Corylus implies a basket-type lining, not planks.

D30/04/109 Beta-153885 1710+/-80BP Cal AD 130-530
There were several burnt treeholes scattered across the site. The charcoal and traces of in situ burning within these suggests that the trees were cleared by some form of slash and burn technique. This style of clearance is frequently attributed to the Neolithic period, and a sample (D30/04/109) was submitted for dating to test this. The date proved to be Roman or post-Roman, so no Neolithic clearance can demonstrated, but it may relate to an expansion in agricultural land during the Roman period. All identifiable charcoal from this sample was of Quercus, both heartwood and sapwood, suggesting that the tree felled was an oak.

4.1.1.3 Recommendations

The dates so far have demonstrated that the Penmynydd site is a palimpsest of activity from several periods. There are further dates that could be carried out for this site, but they are unlikely to contribute much to the understanding of such a fragmentary site. There are two fairly large charcoal samples from the group of postholes west of ditch 008. However, the function of the postholes cannot be interpreted, so it is likely to be of minimal benefit to know their date.

One of the shallow pits or treeholes containing sherds of Peterborough Ware produced a sample of charcoal. This may be worth dating to contribute to the wider research into the date of Peterborough Ware. However, the context ids far from secure, so it cannot be proved that the potsherds and the charcoal are related.

Sample proposed for further dating.

Sample No.	Context	Weight	Description
??	059	5.52g	From cut 058 containing 2 sherds of Mortlake style Peterborough Ware

4.1.2 Identification of charcoal samples

by Rowena Gale

4.1.2.1 Introduction

Four samples of charcoal from features possibly dated to the Neolithic were examined and identified to select suitable material for radiocarbon dating.

4.1.2.2 Materials and methods

The charcoal samples were large (up to 10+mm in the longest axis), well preserved and abundant. Samples were prepared for examination using standard methods. Fragments from each sample were fractured to expose fresh transverse surfaces (TS) and sorted into groups based on the anatomical features observed using a x20 hand lens.

Representative fragments from each sample were selected for detailed study at high magnification. Additional surfaces to show the wood structure in tangential (TLS) and radial planes (RLS) were also prepared. The fragments were supported in washed sand and examined using a Nikon Labophot microscope at magnifications of up to x400. The anatomical structures were matched to prepared reference slides.

When possible the maturity (ie heartwood/sapwood) of the wood was assessed and the number of growth rings recorded. The taxa identified were bagged separately and weighed accordingly. Charcoal suitable for radiocarbon dating was noted and marked.

4.1.2.3 Results

Table 1 shows the taxa identified and charcoal suitable for radiocarbon dating (the latter is indicated in bold type). Sample 36 included 10g of hazel (Corylus avellana) roundwood and should provide ample material for dating purposes. Samples 8 and 9, however, were predominantly oak heartwood (Quercus sp.), and included only small amounts of juvenile growth/short-lived species suitable for dating (ie in sample 8: sapwood birch (Betula sp.), and oak sapwood (Quercus sp.); sample 9: alder (Alnus glutinosa) and hazel (Corylus avellana)). These may prove sufficient for conventional dating.

For sample 4 it was not possible to gage the dimensions of the stem or branch from which the sapwood was derived, but very narrow roundwood can be ruled out.

Table 1. Penmynydd, G1572 (D30): radiocarbon charcoal samples
The weight of identified charcoal is given for each taxon (includes bag weight).
Charcoal suitable for radiocarbon dating is indicated in bold.
Key: h=heartwood, s=sapwood

Find No.	Context	*Alnus* alder	*Betula* birch	*Corylus* hazel	*Quercus* oak
4	109	-			h, 10 frags s, 1g
8	111	-	<1g	-	h, 175g s, 3g
9	103	<1g	-	<1g	h, 19g
36	162	-	-	10g	-

4.2 FINDS REPORTS

4.2.1 The Neolithic and Bronze Age pottery from Penmynydd, Anglesey (report no. 64)

by Alex Gibson (11/12/00)

4.2.1.1 Introduction

Ten bags of presumed Neolithic and Bronze Age pottery were sent to the writer on 28th November 2000 for identification and comment. The stratigraphic information, which accompanied the sherds, indicated that the pottery came from various contexts. Pot 1 (FN 17 and 20) came from a hearth, pot 2 (FN 11) from the fill of a possible treehole, pots 3 and 5 (FN 35 and 50) from fill of a small pit, pot 4 (FN 9 and 10) from the fill of a ploughmark, pot 6 (FN 6) from the fill of a probable treehole, pot 7 (FN 23) from a clay spread, and finally pot 8 (FN 36) from a possible hearth. The sherds were laid out and examined macroscopically in daylight. No microscopic analysis has been undertaken.

4.2.1.2 Identification

Identifiable sherds can be dated to the Neolithic or early Bronze Age. However, vessels 6-8 inclusive were too small for positive identification. Vessels 1, 2 and possibly 3 are identifiable as sherds from Peterborough Ware vessels of the middle Neolithic, around 3000 BC (Gibson and Kinnes 1997). Vessel 1 has a distinctive angled and heavy rim form, which assigns the vessel to the Mortlake substyle. The rim decoration is abraded but appears to comprise filled chevrons of whipped cord technique. The style of vessel 2 cannot be determined with certainty but the birdbone impressions on the body might also suggest the Mortlake substyle, as this is the predominant decorative technique used on ceramics of this substyle in Wales (Gibson 1995). The identification of vessel 3 as Peterborough Ware is by fabric only.

Vessels 4 and 5 may tentatively be identified as earlier Bronze Age ceramic, possibly from collared, cordoned or even food vessel urns. In the absence of any features diagnostic as to the form of the pots, further refinement of this identification is not possible. That the sherds represent the upper portion of a Peterborough Ware vessel in the Fengate substyle remains a possibility though the fabric of the sherds is more in keeping with pottery of a later date. The decoration on vessel 4 comprises a triangular motif of twisted cord impressions which technique certainly dates the sherds to before 1200BC.

4.2.2.3 Discussion

Peterborough ware has been recorded from over 30 sites in Wales, and 5 from Anglesey (Gibson 1995). The Mortlake style of Welsh Peterborough Ware tends to be dominated by birdbone impressions, and in this respect the present assemblage conforms to the pattern. Whipped cord, however, is the second most common technique to be used (Gibson 1995, fig 3.4), which may support the tentative identification of the abraded impressions on the rim moulding of vessel 1. Such fine whipped cord impressions are found on the rim of a Mortlake vessel from Ogmore (Gibson 1995, fig 3.7.10).

If the sherds comprising vessel 5 represent a Fengate style vessel, then a sherd from Brynderwyn may be cited as a parallel (Gibson 1995, fig 3.7.14). This vessel has been dated by two radiocarbon dates to c.3300-3100BC.

As mentioned above, it is more likely on fabric grounds, that vessels 4 and 5 belong to the urn forms of the earlier Bronze Age. Converging twisted cord lines are common on the collared urns of Anglesey (and elsewhere) as a glance at Lynch's corpus will demonstrate (Lynch 1991). A motif similar to that ion a tripartite collared urn from Menai Bridge (Lynch 1991, fig 54.4) may well be envisaged for the present sherd.

4.2.2.4 Catalogue

Pot	Find No	Context No	Identification	Description
1	17 20	59	Peterborough Ware	One rim sherd (FN 20) and two body sherds from a Mortlake style vessel. The fabric is quite hard and well-fired, and contains large quartz inclusions up to 5mm across. Some break surfaces, particularly the inner. The fabric is brown externally and grey internally. The rim ahas a heavy angled external moulding and a vertical internal bevel. The moulding is decorated with a filled chevron motif. This is abraded, but the technique appears to be whipped cord. Join voids in the fracture of the sherd indicate that the rim moulding has been applied.
2	11	57	Peterborough Ware	Very abraded sherd with large protruding quartz inclusions measuring up to 5mm across. The fabric is quite soft and the sherd has broken in transit. The surfaces are grey-brown and the surfaces slightly laminated in texture. Small, very abraded, sub-triangular impressions occur on the outer surface and probably represent birdbone impressions.
3	35	134	Peterborough Ware?	Undecorated wall sherd exhibiting a coil break and with abundant white rock inclusions measuring up to 7mm across.
4	9 10	171	Urn?	Two undecorated sherds in a hard, well-fired and slightly laminated fabric. Brown outer surface and black inner. Traces of coil joins.
5	35 50	134	Urn	Two sherds (FN 35) and 1 sherd plus crumbs (FN 50). Traces of a triangular twisted cord arrangement on one sherd (FN 35) suggest the upper portion of a collared or cordoned urn. The decoration comprises 3 lines of twisted cord impressions. The fabric is hard and well-fired, pinkish brown on the outside and black on the inside. It contains abundant black crystalline inclusions. Traces of join voids from the ring building can be identified.
6	6	13		Unidentifiable crumbs
7	23	127		Unidentifiable crumbs
8	36	138		Unidentifiable crumbs

4.2.2.5 Bibliography

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G (eds) *Unbaked Urns of Rudely Shape. Essays on British and Irish pottery for Ian Longworth*,

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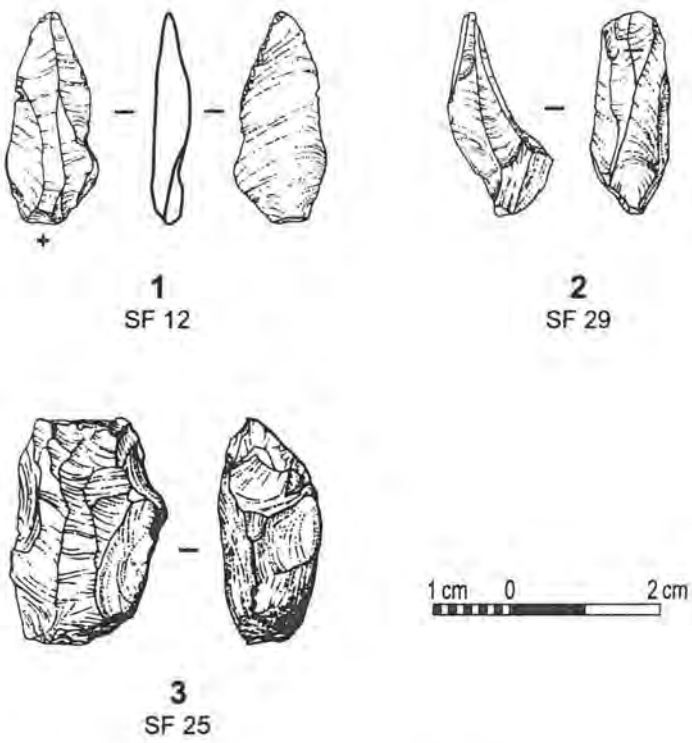
Journal of Archaeology, **16** (1), 65-72

Lynch, F, 1991 *Prehistoric Anglesey*, Llangefni: Anglesey Antiquarian Society



A55 Anglesey - Fig xx: **Penymynyddd**. Objects of flint and chert. Scales 1:1.

4.2.2 Flint and chert objects

by George Smith

4.2.2.1 Introduction

This assemblage consists of 8 pieces from the two trenches cut for the evaluation excavations and 24 pieces from the larger scale excavations in 2000. This is a small assemblage but is useful because it is associated with other excavation evidence.

4.2.2.2 Raw material

All but one piece is of poor quality flint of a variety of colours, buff, yellow-brown, re-purple and light to dark grey. The remaining piece is of coarse, grey, greensand type chert, rather different to the usual smooth black chert found in Anglesey but nevertheless still probably derived from the glacial drift. Where cortex remains it all derives from pebbles and all the pieces are small, the largest 40mm long.

4.2.2.3 Technology

Although the material used must have been transported from elsewhere the flint was being worked on site because of the presence of a proportion of waste pieces and of cores. The tool to waste ratio is 1:5. Despite the use of pebble raw material the technology was a normal one of core preparation and reduction with no use of split pebbles or bipolar reduction. The platforms are plain or cortical.

4.2.2.4 Description

Appendices 6.8.1-3 provide a catalogue of the recorded information. The nature of the assemblage is summarised in Tables 1 and 2 and examples illustrated in Fig. 1.

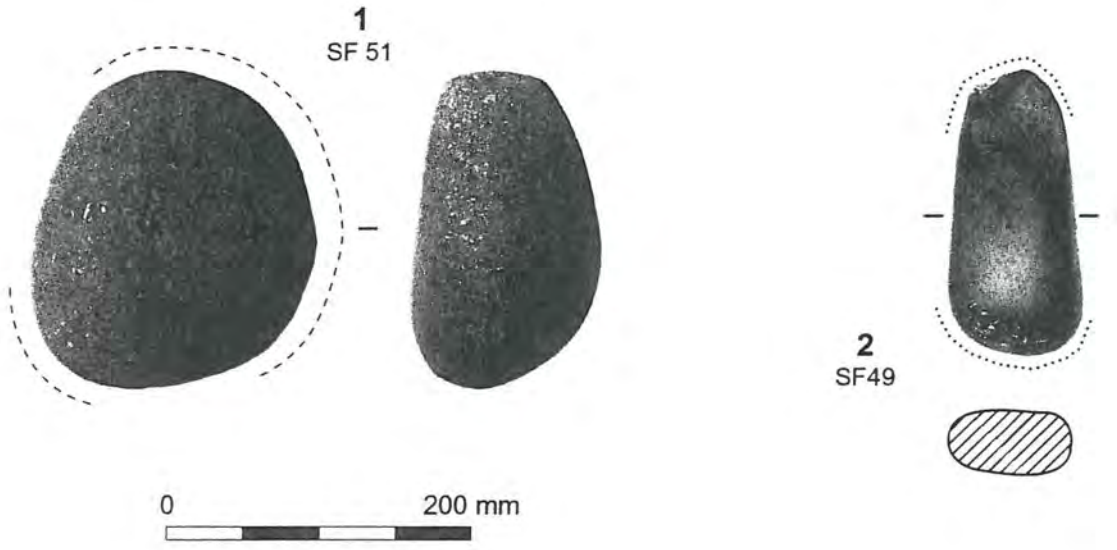
Table 1 Penymynydd: Flint and chert assemblage summary

Category	Total
Flake/flake fragment	18
Irregular fragment	2
Core/core fragment	2
Core trimming flake	1
Retouched piece	2
Casually retouched piece	1
Utilised piece	1
Pebble	1
Split pebble	1
Burnt fragment	2
Natural fragment	1

Table 2 Penymynydd: Flint retouched assemblage summary

Category	Total
Obliquely truncated piece	1
Unclassified fragment	1

The majority of pieces derived from cleaning the subsoil surface and about half of these are of a distinctive red-purple colour, a secondary colour resulting from burning or soil staining.



A55 Anglesey - Fig1: **Penymynydd**. Stone objects. Scale 1:2.

Evaluation trench 147 produced a burnt flint fragment and a flint split pebble fragment. Evaluation trench 148 produced four flint waste flakes, one chert waste flake and an irregular flint fragment.

The three cores comprise a small flat core with pebble back and two opposed platforms (1), a fragment of a small single platform core (2) and a fragment of a core with two perpendicular platforms.

The secondarily worked pieces comprise a flake with fine abrupt retouch creating an oblique end truncation (3) and a small unclassified fragment of retouched edge, possibly the tip from a backed blade. There is also a utilised piece, with microchipping on one side and a casually retouched piece with abrupt retouch on the distal end.

The majority of the pieces were found during cleaning of the subsoil surface after topsoil stripping and their distribution is not recorded. They probably derive from what would originally have been a surface scatter that after possibly millennia, became incorporated in a worm-sorted horizon on the top of the subsoil of which some survived ploughing. There is no evidence of plough damage to suggest that they had already been incorporated in the ploughsoil although there probably were more objects in the plough horizon removed during the topsoil stripping.

It is difficult to ascribe a date to these pieces because of the lack of diagnostic pieces. The truncated flake would fit in well with an Early Mesolithic assemblage such as that from Trwyn Du, Newborough, Anglesey but is insufficiently diagnostic as a single piece (White 1978). It could be an obliquely retouched microlith but the retouch is unusual in being inverse. The three small cores would fit best with a Later Mesolithic assemblage but their small size may simply reflect the size off the available material. Flint had clearly been worked on site but the absence of diagnostic pieces and of the more common domestic tools such as scrapers and knives is problematic. Some kind of transitory activity here during the Mesolithic seems likely but some of the pieces must belong with the activity associated with Peterborough Ware.

Only four pieces came from stratified contexts. One flake came from a probable tree-hollow, F22. Two flakes came from a 'kidney-shaped' hollow, F28. The obliquely truncated piece (3) came from a large pit, F60. These latter two features were amongst a group which also produced a hammerstone, a chert retouching tool, a possible polished axe fragment and sherds of the Middle Neolithic Peterborough Ware as well as a radiocarbon date of 3940-3640 cal BC (Beta-152579). This group thus provides fairly coherent evidence of one period of activity although there other features also produced some Early Bronze Age pottery and a radiocarbon in the first half of the second millennium cal BC.

4.2.2.5 References

White, R.B. 1978. Excavations at Trwyn Du, Anglesey 1974, *Archaeologia Cambrensis* 127, 16-39.

4.2.3 Stone objects

by George Smith

4.2.3.1 Introduction

This is a small assemblage of only five objects but nevertheless of interest because they came from stratified contexts and were associated with other artefacts so add to the overall interpretation. Appendix 6.9.1 contains the catalogue of these finds.

4.2.3.2 Raw Material

The rock types have been identified by Dr David Jenkins whose comments are incorporated here and who has also provided a separate general discussion of the usage of rock types and their implication for selection and sourcing for all the sites in the project (this vol.).

4.2.3.3 Description

These comprise five objects. One is just a burnt cobble fragment of fine sandstone (SF52) typical of 'burnt mound' type stone. This came from a possible hearth F58, which also produced Peterborough Ware pottery and charred hazelnut shells. Two pieces came from probable posthole F64. One is a thin flat oval pebble of flaggy siltstone (SF42) with no visible signs of use. The other is a large pebble hammerstone of tuff, No. 1 (SF51). This is facetted from use on two tips. It also has lighter pecking around much of its perimeter and a small pecked cup mark in the centre of one face. It was probably a flint knapping tool used in primary reduction and the presence of the cup-mark suggests that some of this reduction involved splitting of pebbles by the anvil technique. Another piece is a small elongated pebble of black chert, No. 2 (SF49), which came from probable posthole 152, close to the posthole that contained SF42 and SF51. This has light pecking on both ends and one end also has two flakes removed as a by-product of its use as a light hammer, probably a flint retouching tool. The final object (SF21) is a flake of a rhyolite a fine igneous stone, from a ground stone object with a shallow convex surface. This was almost certainly part of a fully ground stone axe. This came from hollow F56, which also contained Peterborough Ware and lay next to hearth F58 (see above).

These pieces all came from a closely associated group of features associated with a few flint pieces and Peterborough Ware pottery. In themselves hammerstones are not diagnostic of date since similar products can be expected wherever and whenever there was flint working using the hard hammer technique and very similar examples to No. 1 were found at Ty Mawr (Kenny, this vol.) and at the Middle Bronze Age settlement of Meyllteyrn Uchaf, Gwynedd, for instance (Ward and Smith forthcoming). However, they agree with the observation that flint working was taking place on site and the presence of a probable axe fragment is useful since axes are rarely found in any kind of datable context. The burial of the objects is itself of interest. The hammerstones were not damaged and so were discarded with no obvious reason. They were not just casually used since such pebbles would not be easily found locally and so were probably carried here from some distance. No. 1 was also used over a considerable period. Suitable pebbles would not be difficult to find on some beaches so perhaps they may have been discarded prior to moving to a new coastal location, to save having to carry them and knowing that they could be replaced.

4.2.3.4 References

Ward, M. and Smith G.H. forthcoming. The Llyn Cropmarks Project. *Studia Celtica*.

5. HOLY ROOD WELL, SITE B8

5.1 FINDS REPORTS

5.1.1 Small finds

by Lynne Bevan

Small finds comprised a small blue glass bead of indeterminate, but probable Post-Medieval, date (SF 24), two lumps of lead, one of which was tapered (SF 8), and the other, perforated (SF 7). Neither of the lead objects is datable or identifiable, although they might have been used as weights. In addition, two sherds of Medieval green-glazed coarse pottery (SF 15) and two sherds of un-glazed pottery of indeterminate, but probable Post-Medieval date were recovered (SF 15).

Catalogue

1. Small blue glass bead. Diameter: 4mm, thickness: 2mm. SF 24. Not illustrated.

6. APPENDICES

6.1 Calibration curves

The calibration curves for all the dates so far received from all three sites. These are listed in order of their laboratory number.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

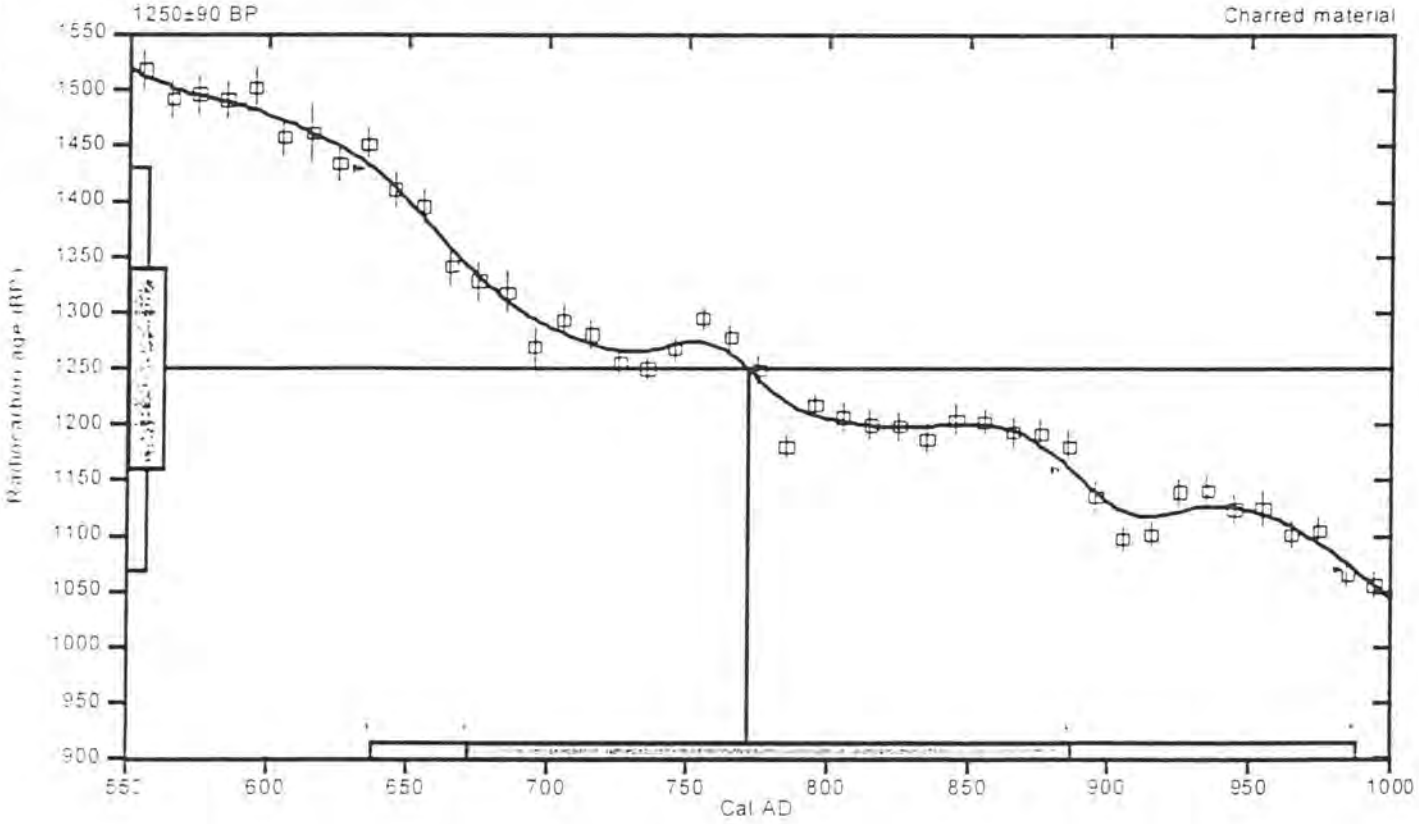
(Variables: est. C13/C12=-25:lab. mult=1)

Laboratory number:	**Beta-152571**
Conventional radiocarbon age[1]:	**1250±90 BP**
2 Sigma calibrated result: (95% probability)	**Cal AD 640 to 990 (Cal BP 1310 to 960)**

[1] C13/C12 ratio estimated

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal AD 770 (Cal BP 1180)
1 Sigma calibrated result: (68% probability)	Cal AD 670 to 890 (Cal BP 1280 to 1060)



References:

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INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: est. C13/C12=-25:lab. mult=1)

Laboratory number: Beta-152572

Conventional radiocarbon age[1]: 2090±60 BP

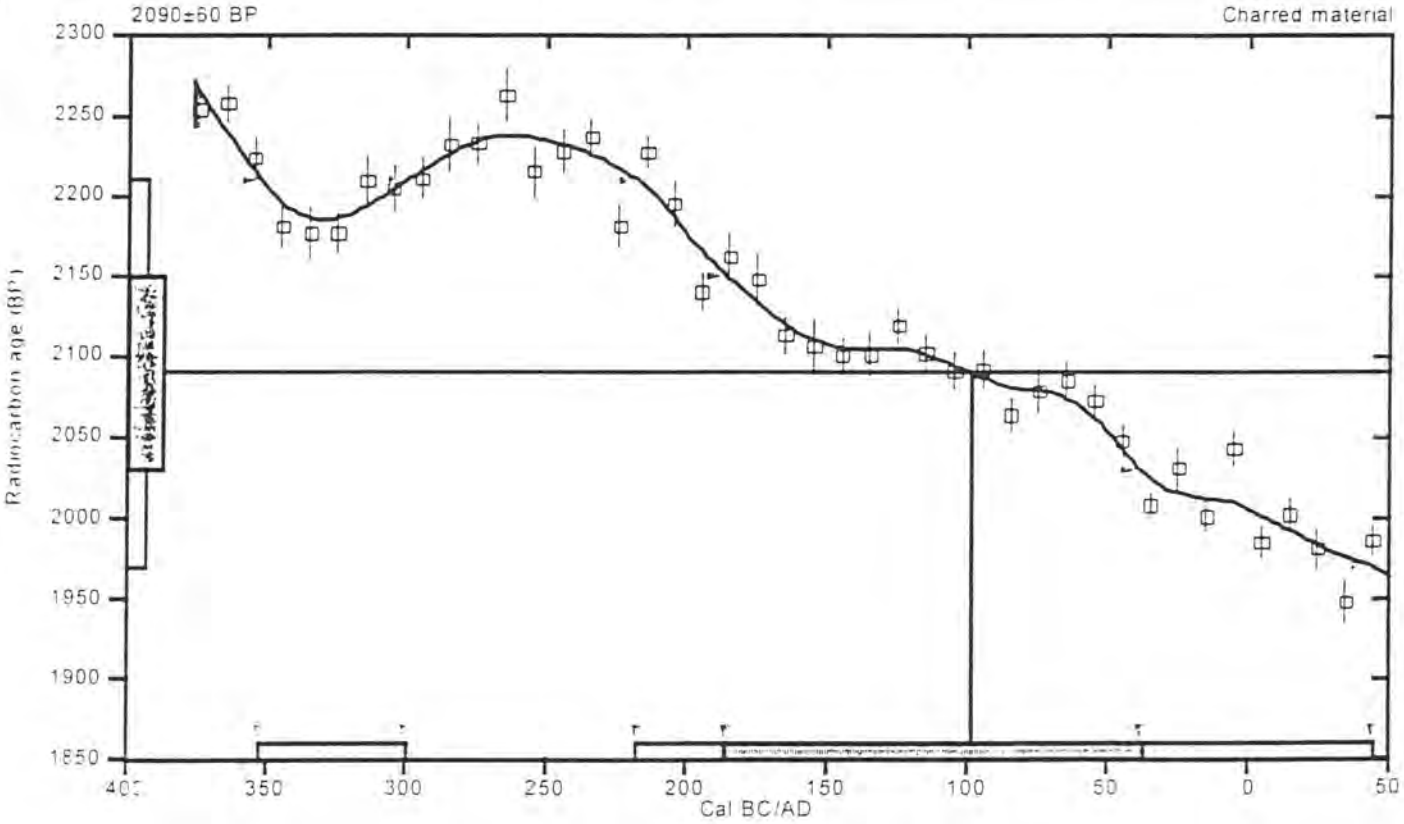
2 Sigma calibrated results: Cal BC 350 to 300 (Cal BP 2300 to 2250) and
(95% probability) Cal BC 220 to Cal AD 40 (Cal BP 2170 to 1900)

[1] C13/C12 ratio estimated

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 100 (Cal BP 2050)

1 Sigma calibrated result: Cal BC 190 to 40 (Cal BP 2140 to 1990)
(68% probability)



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.3:lab. mult=1)

Laboratory number: **Beta-152573**

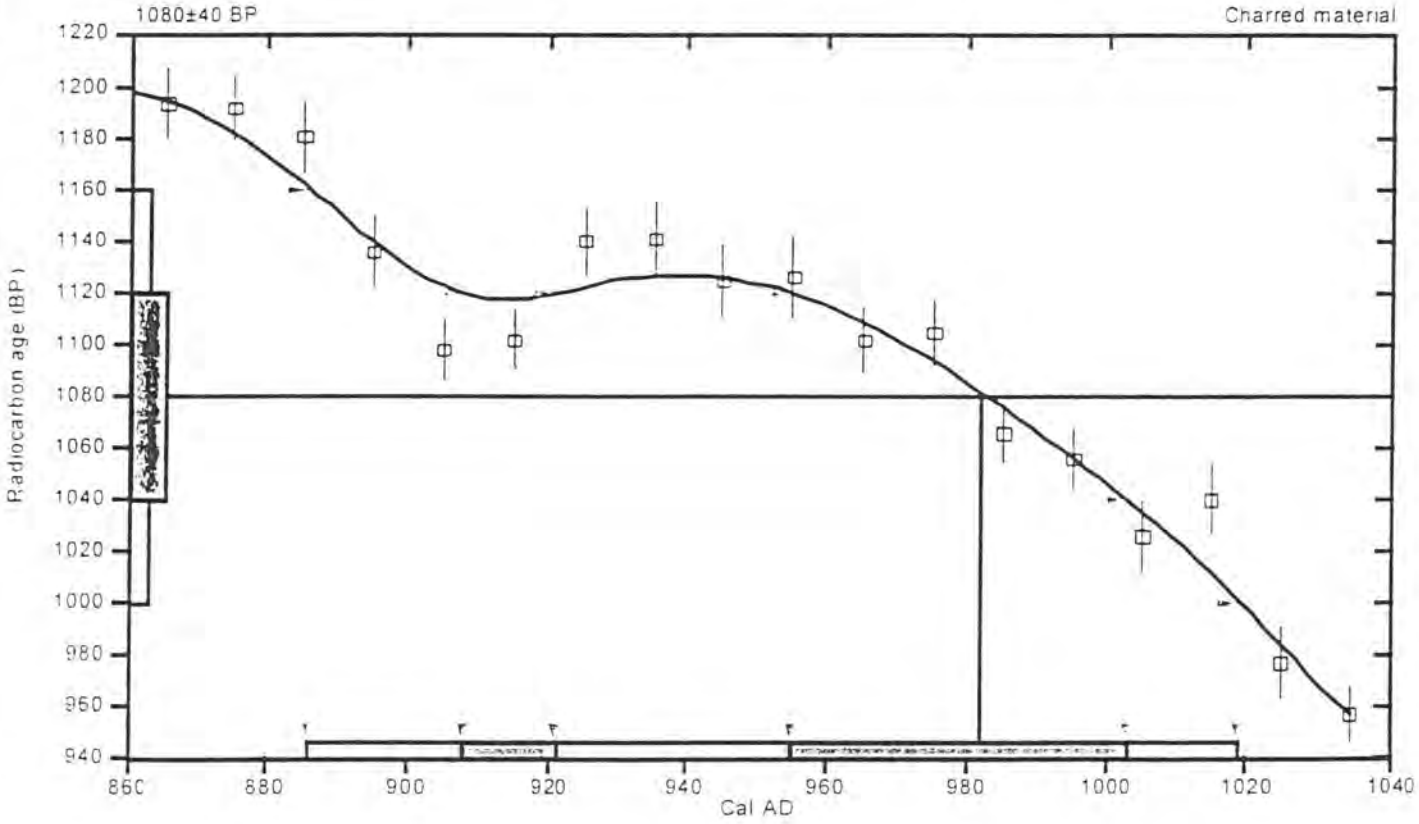
Conventional radiocarbon age: **1080±40 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 890 to 1020 (Cal BP 1060 to 930)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 980 (Cal BP 970)

1 Sigma calibrated results: (68% probability) Cal AD 910 to 920 (Cal BP 1040 to 1030) and Cal AD 960 to 1000 (Cal BP 1000 to 950)



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: est. C13/C12=-25:lab. mult=1)

Laboratory number: Beta-152574

Conventional radiocarbon age[1]: 1170±100 BP

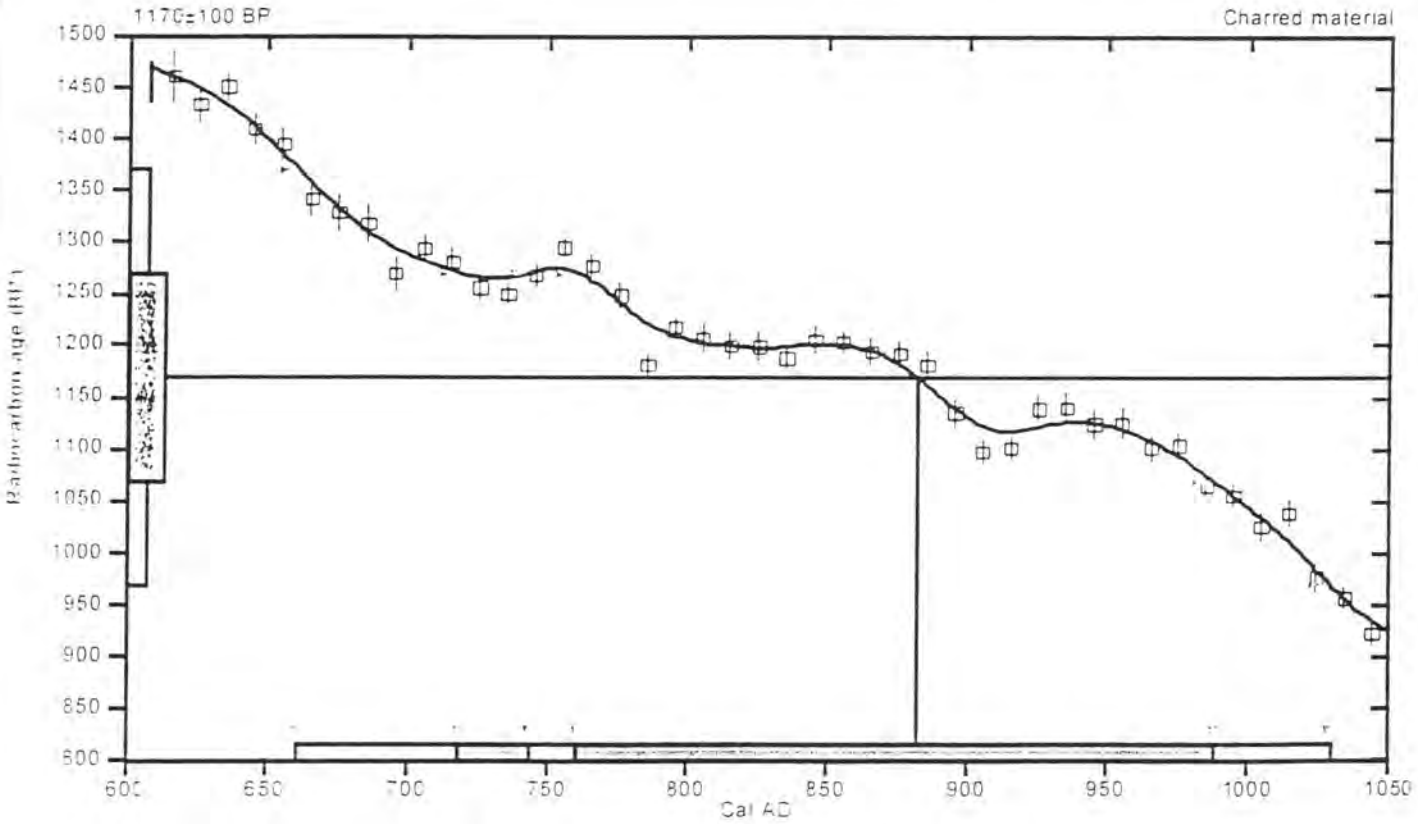
2 Sigma calibrated result: (95% probability) Cal AD 660 to 1030 (Cal BP 1290 to 920)

[1] δ13C/12C ratio estimated

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 880 (Cal BP 1070)

1 Sigma calibrated results: (68% probability) Cal AD 720 to 740 (Cal BP 1230 to 1210) and Cal AD 760 to 990 (Cal BP 1190 to 960)



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Mathematics
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Talma, A.S., Vogel, J.C., 1993, Radiocarbon 35(2), p317-322

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.9:lab. mult=1)

Laboratory number: Beta-152575

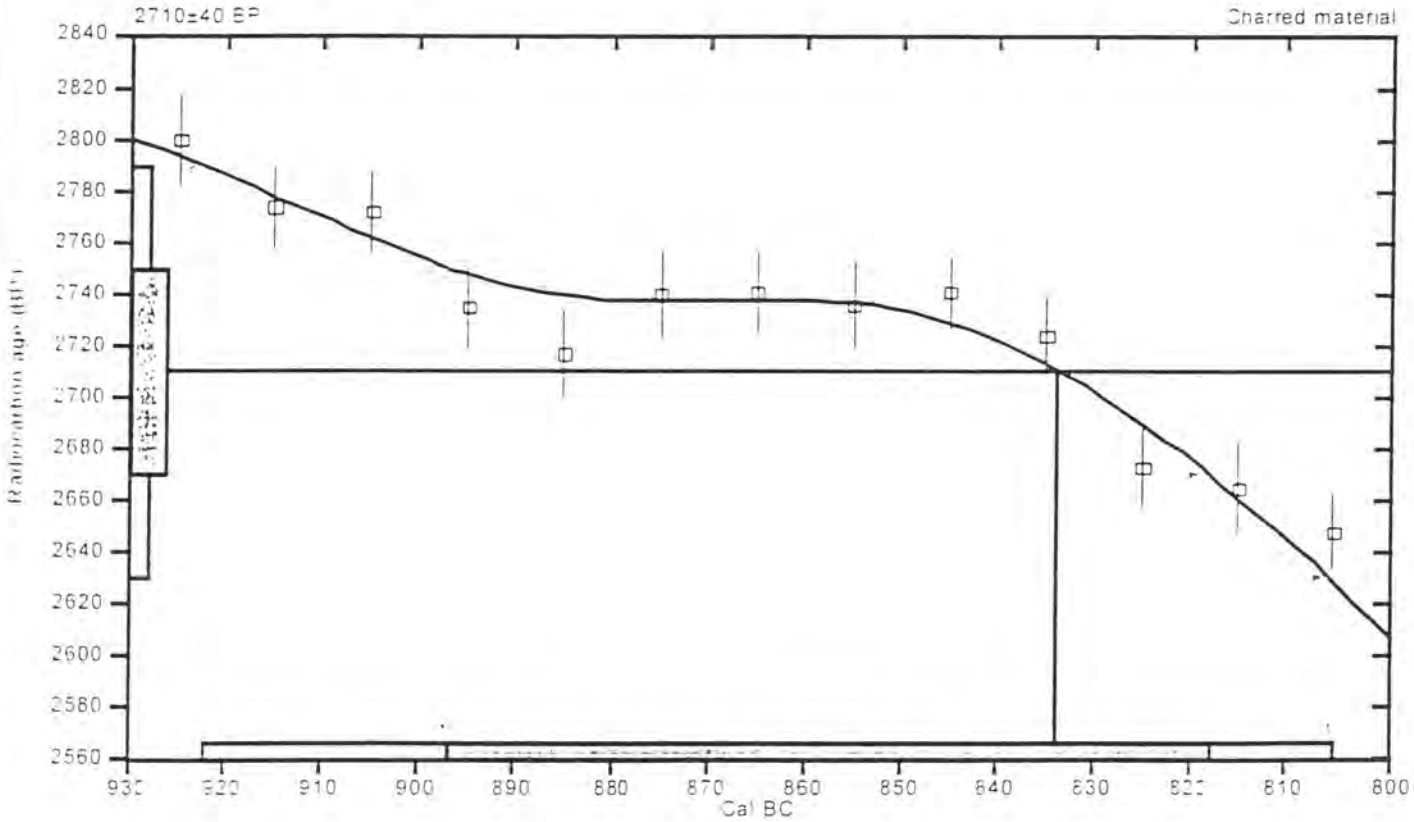
Conventional radiocarbon age: 2710±40 BP

2 Sigma calibrated result: (95% probability) Cal BC 920 to 800 (Cal BP 2870 to 2760)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 830 (Cal BP 2780)

1 Sigma calibrated result: (68% probability) Cal BC 900 to 820 (Cal BP 2850 to 2770)



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.7:lab. mult=1)

Laboratory number: **Beta-152576 QA474-B**

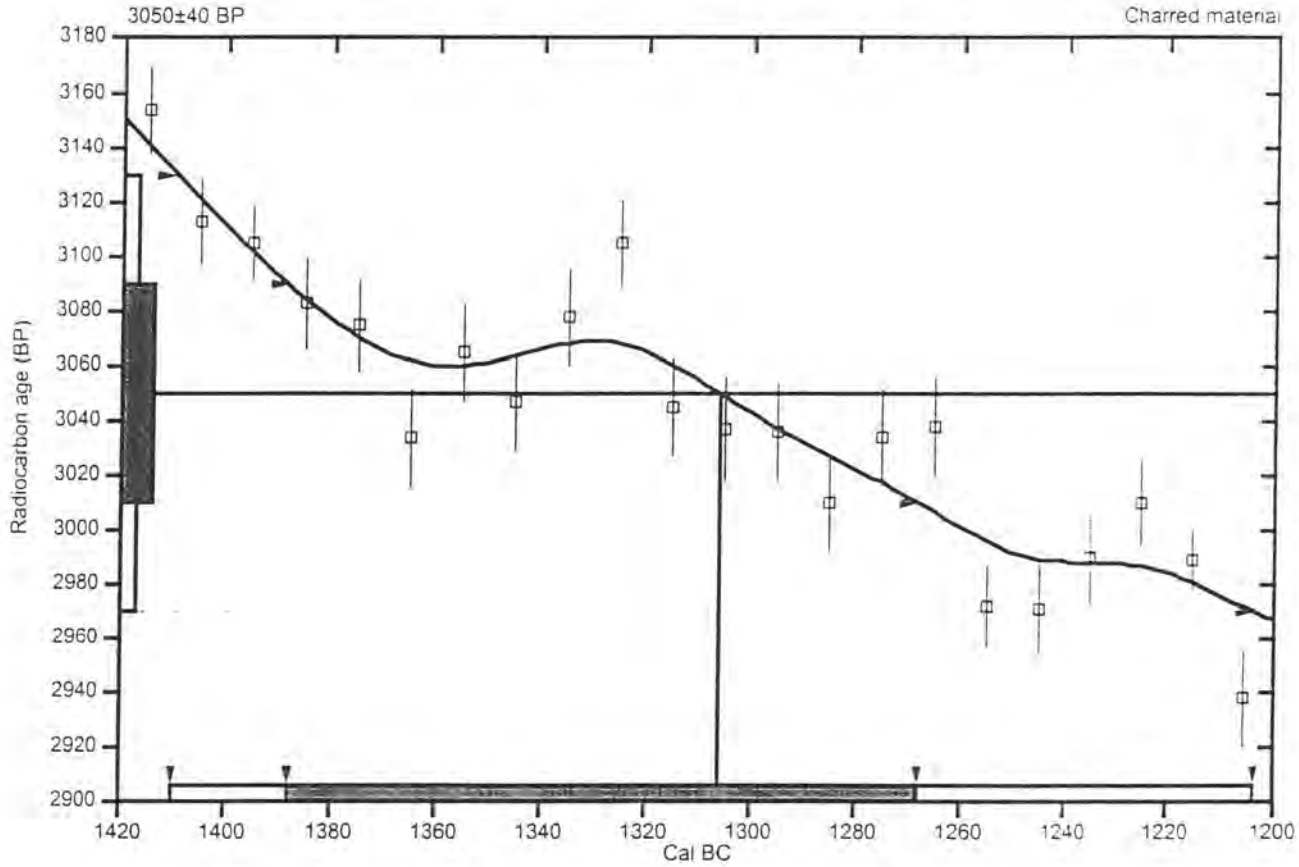
Conventional radiocarbon age: **3050±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1410 to 1200 (Cal BP 3360 to 3150)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1310 (Cal BP 3260)

1 Sigma calibrated result: (68% probability) Cal BC 1390 to 1270 (Cal BP 3340 to 3220)



References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: est. C13/C12=-25:lab. mult=1)

Laboratory number: Beta-152577

Conventional radiocarbon age[1]: 1580±70 BP

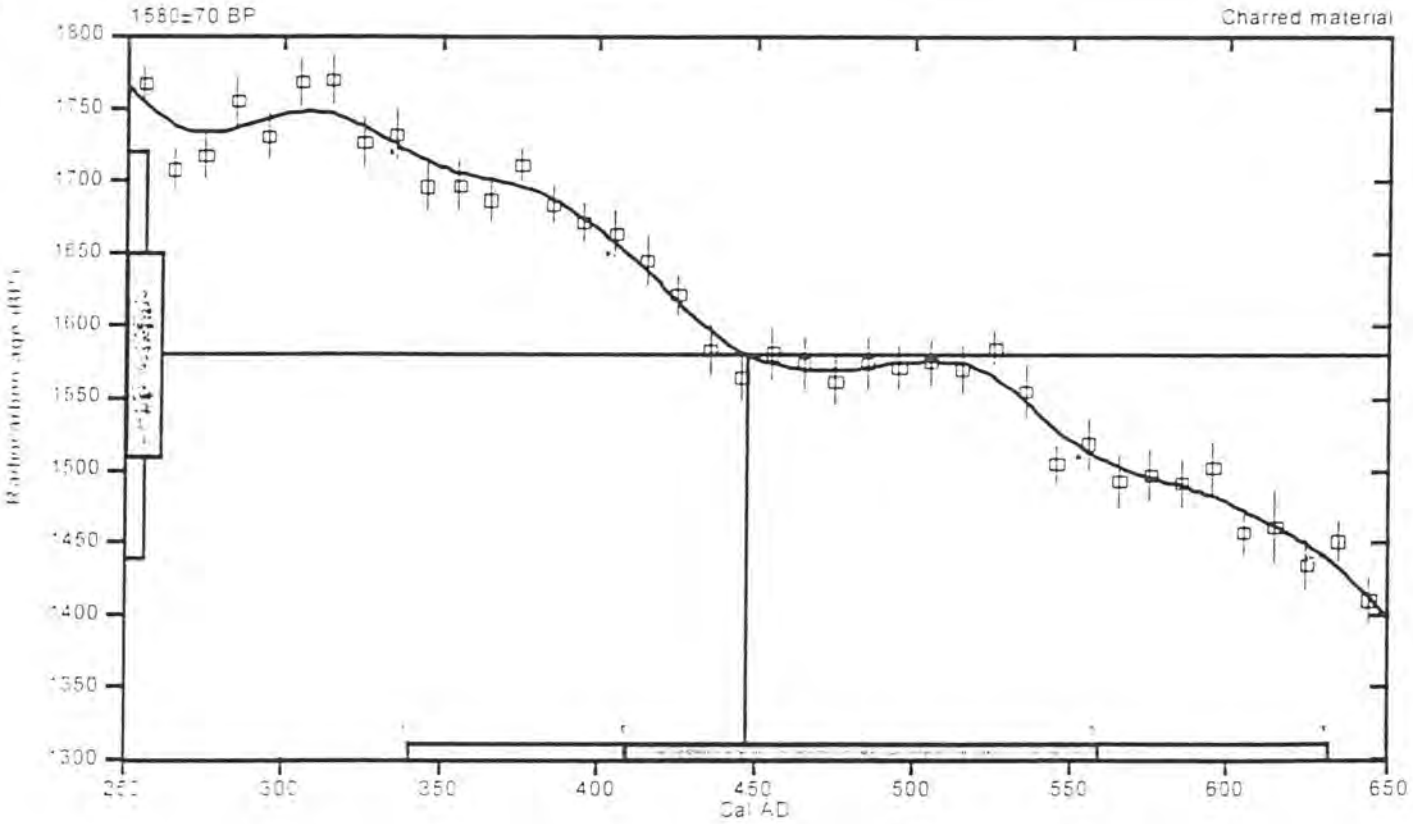
2 Sigma calibrated result: (95% probability) Cal AD 340 to 630 (Cal BP 1610 to 1320)

[1] C13/C12 ratio estimated

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 450 (Cal BP 1500)

1 Sigma calibrated result: (68% probability) Cal AD 410 to 560 (Cal BP 1540 to 1390)



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: est. C13/C12=-25:lab. mult=1)

Laboratory number: Beta-152578

Conventional radiocarbon age[1]: 3460±70 BP

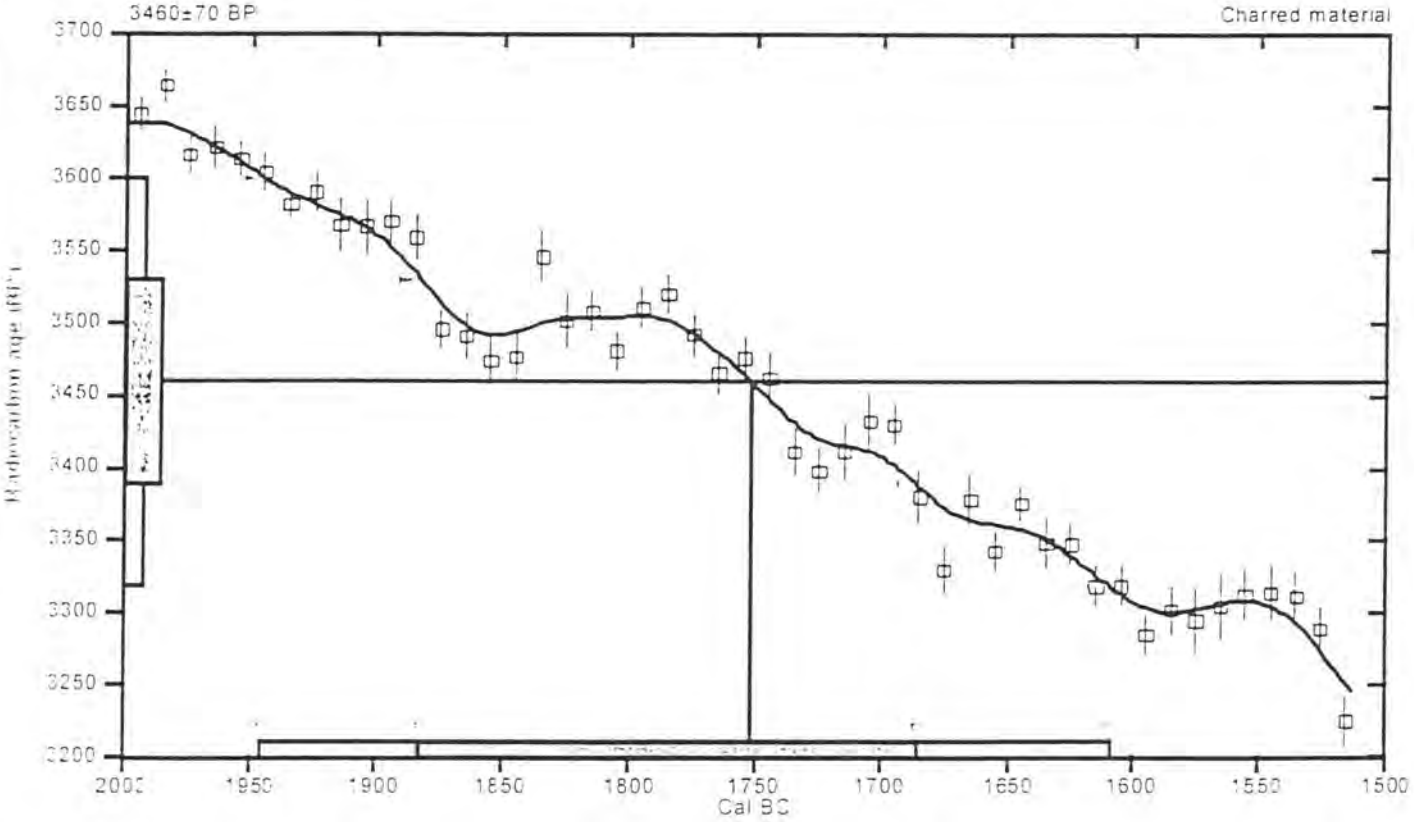
2 Sigma calibrated result: (95% probability) Cal BC 1940 to 1610 (Cal BP 3900 to 3560)

[1] C13/C12 ratio estimated

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1750 (Cal BP 3700)

1 Sigma calibrated result: (68% probability) Cal BC 1880 to 1690 (Cal BP 3830 to 3640)



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Talma, A. S., Vogel, J. C., 1993. Radiocarbon 35(2), p317-322

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: est. C13/C12=-25:lab. mult=1)

Laboratory number: Beta-152579

Conventional radiocarbon age[1]: 4950±70 BP

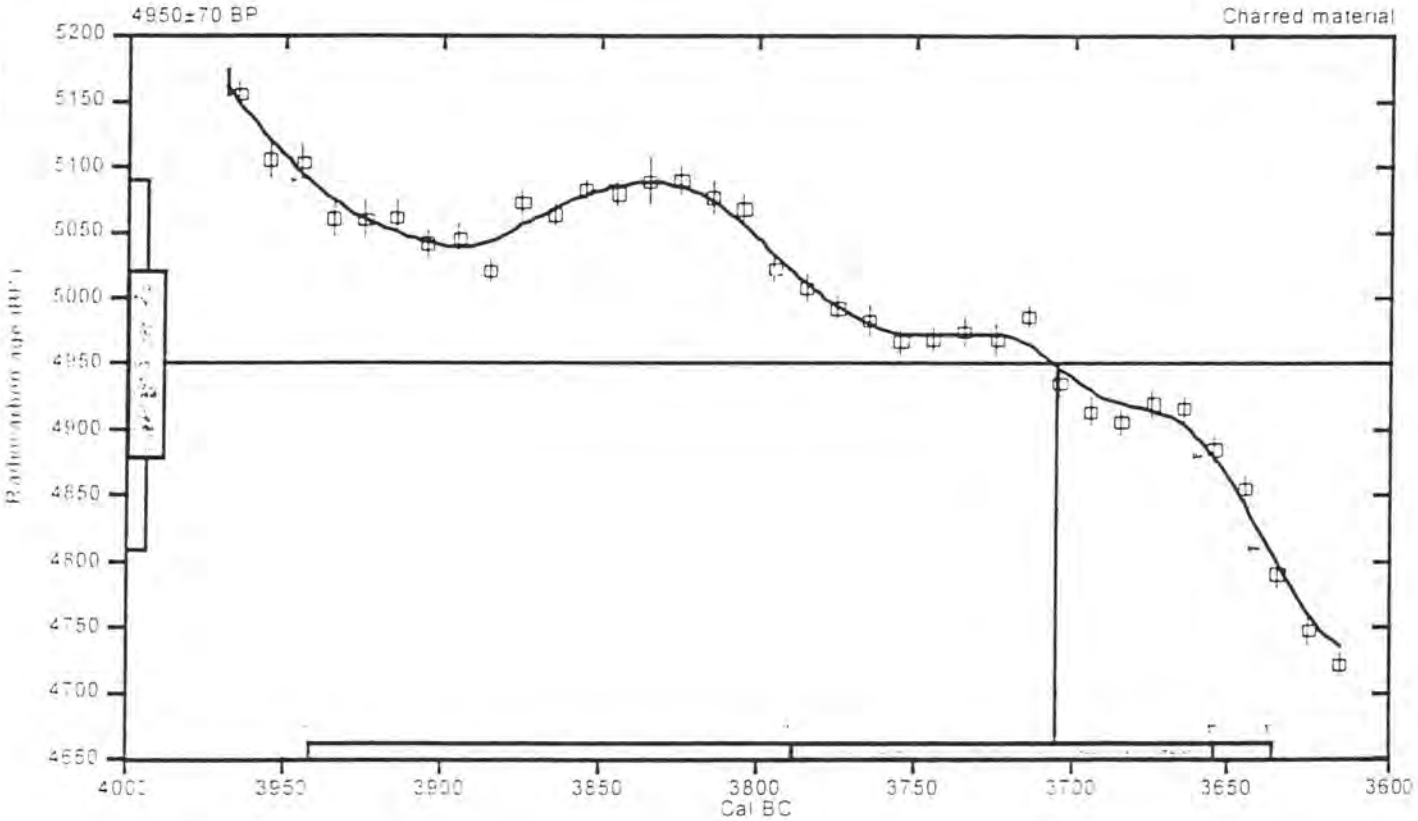
2 Sigma calibrated result: (95% probability) Cal BC 3940 to 3640 (Cal BP 5890 to 5590)

[1] C13/C12 ratio estimated

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3710 (Cal BP 5660)

1 Sigma calibrated result: (68% probability) Cal BC 3790 to 3660 (Cal BP 5740 to 5600)



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: est. C13/C12=-25:lab. mult=1)

Laboratory number: Beta-152580

Conventional radiocarbon age[1]: 4980±210 BP

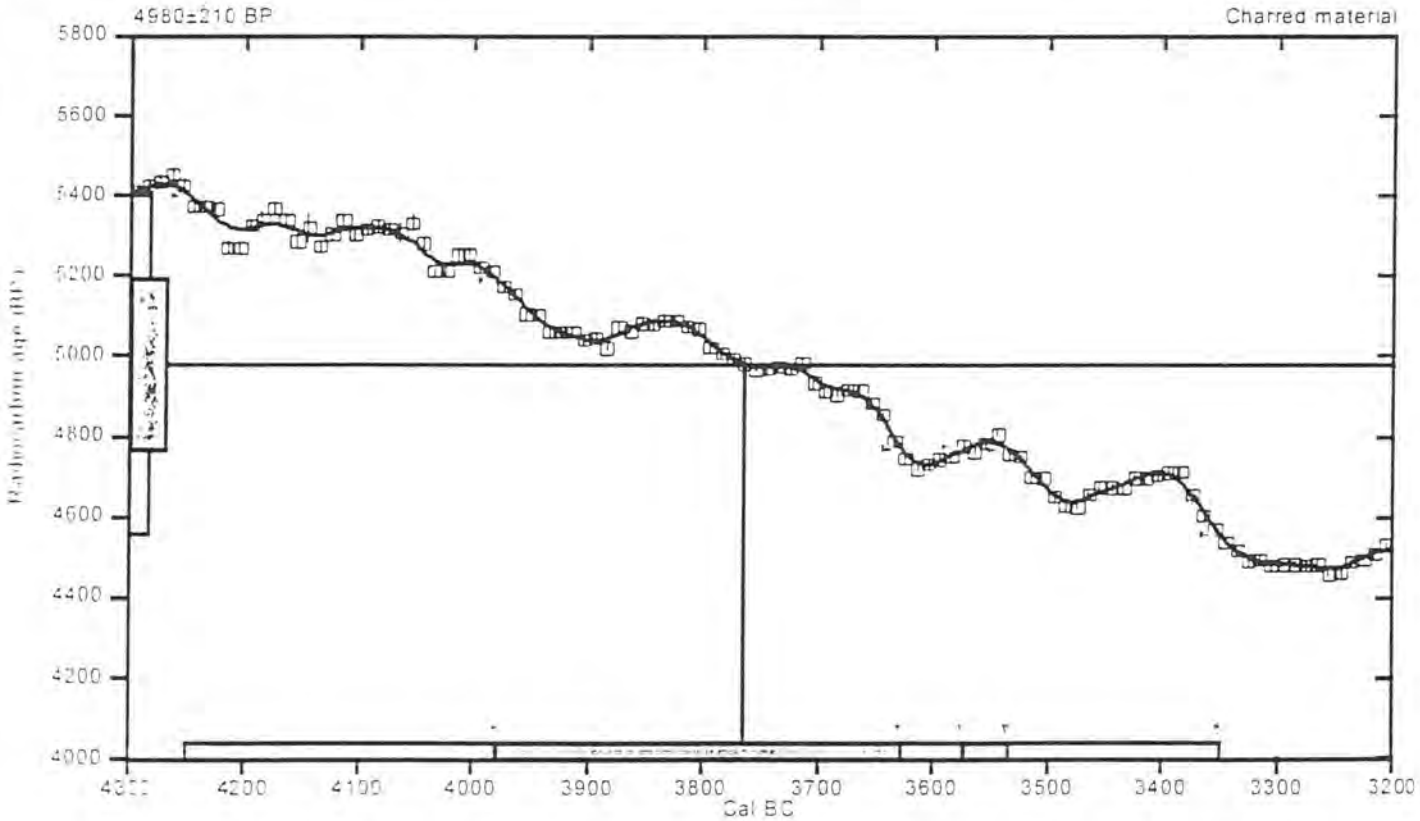
2 Sigma calibrated result: (95% probability) Cal BC 4250 to 3350 (Cal BP 6200 to 5300)

[1] δ13C/12 ratio estimated

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3760 (Cal BP 5710)

1 Sigma calibrated results: (68% probability) Cal BC 3980 to 3630 (Cal BP 5930 to 5580) and Cal BC 3570 to 3540 (Cal BP 5520 to 5480)



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Mathematics
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Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.4:lab. mult=1)

Laboratory number: Beta-152581

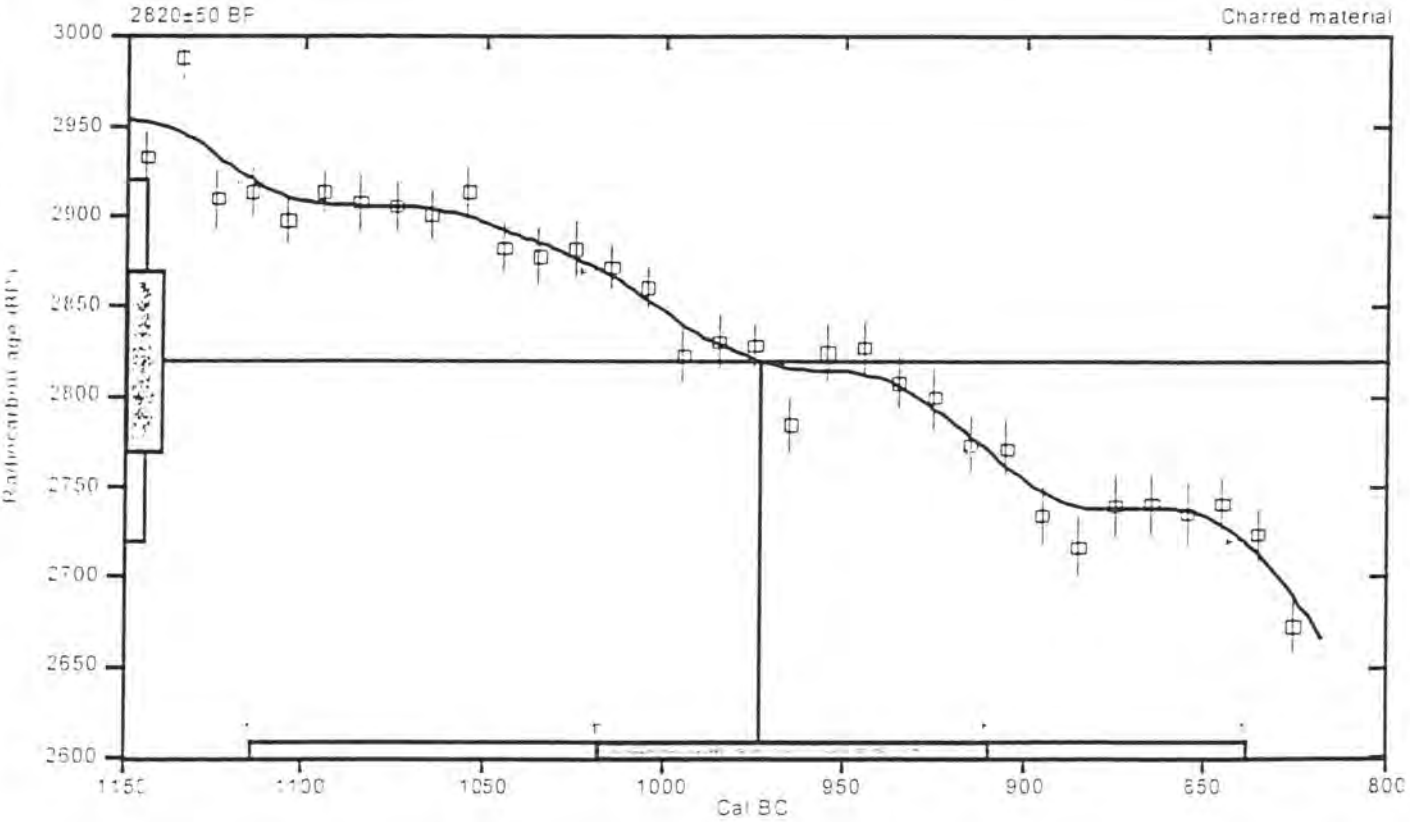
Conventional radiocarbon age: 2820±50 BP

2 Sigma calibrated result: (95% probability) Cal BC 1110 to 840 (Cal BP 3060 to 2790)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 970 (Cal BP 2920)

1 Sigma calibrated result: (68% probability) Cal BC 1020 to 910 (Cal BP 2970 to 2860)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et al., 1998, Radiocarbon 40(3), p1041-1083

Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: est. C13/C12=-25:lab. mult=1)

Laboratory number: Beta-152582

Conventional radiocarbon age[1]: 4620±110 BP

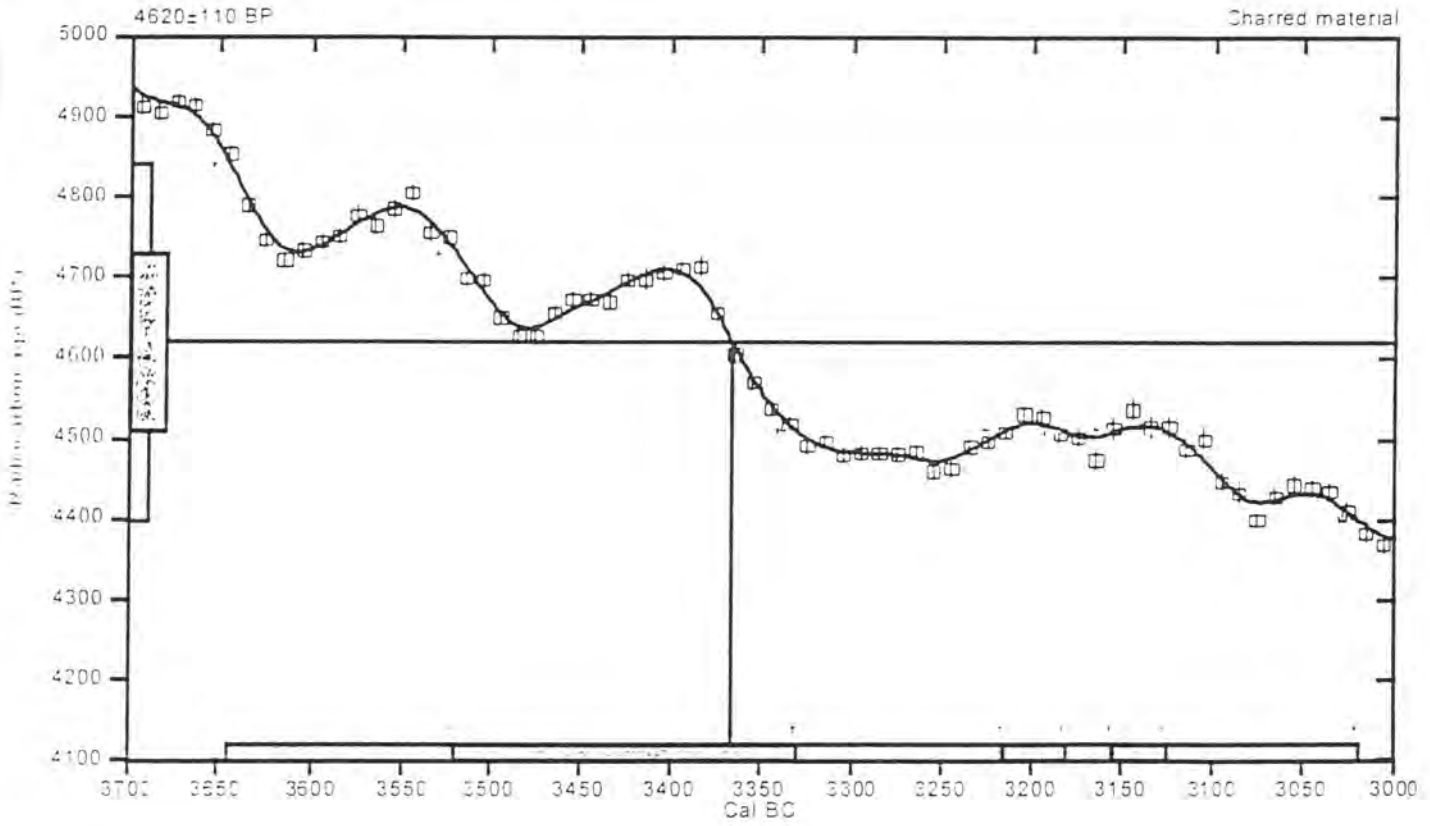
2 Sigma calibrated result: (95% probability) Cal BC 3640 to 3020 (Cal BP 5590 to 4970)

[1]C13/C12 ratio estimated

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3370 (Cal BP 5320)

1 Sigma calibrated results: (68% probability) Cal BC 3520 to 3330 (Cal BP 5470 to 5280) and Cal BC 3220 to 3180 (Cal BP 5170 to 5130) and Cal BC 3160 to 3130 (Cal BP 5100 to 5080)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii.
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et al., 1998, Radiocarbon 40(3), p1041-1083.
Mathematics
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.4:lab. mult=1)

Laboratory number: **Beta-152584**

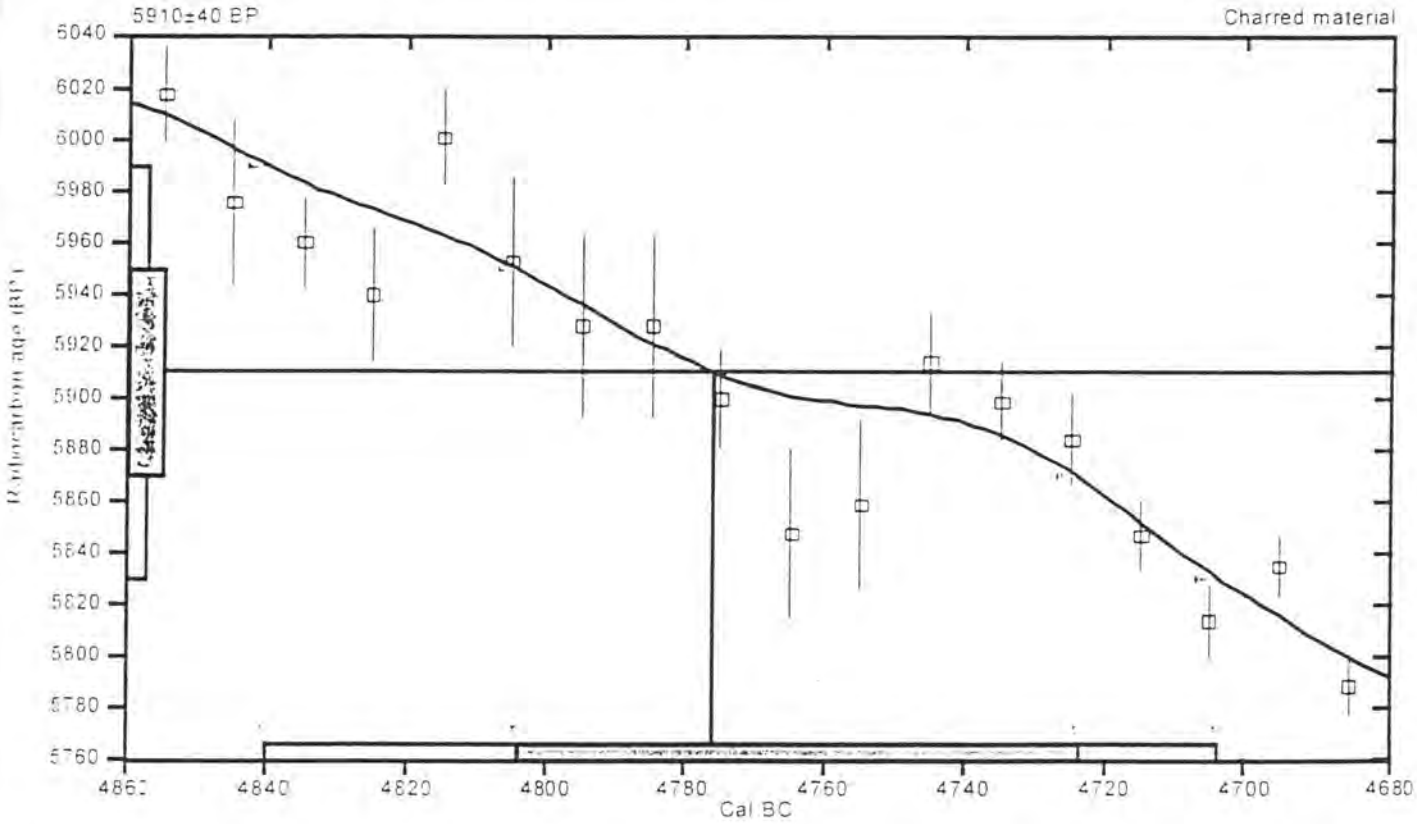
Conventional radiocarbon age: **5910±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 4840 to 4700 (Cal BP 6790 to 6650)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4780 (Cal BP 6730)

1 Sigma calibrated result: (68% probability) Cal BC 4800 to 4720 (Cal BP 6750 to 6670)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et al., 1998, Radiocarbon 40(3), p1041-1083

Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: est. C13/C12=-25:lab. mult=1)

Laboratory number: Beta-152585

Conventional radiocarbon age[1]: 5910±60 BP

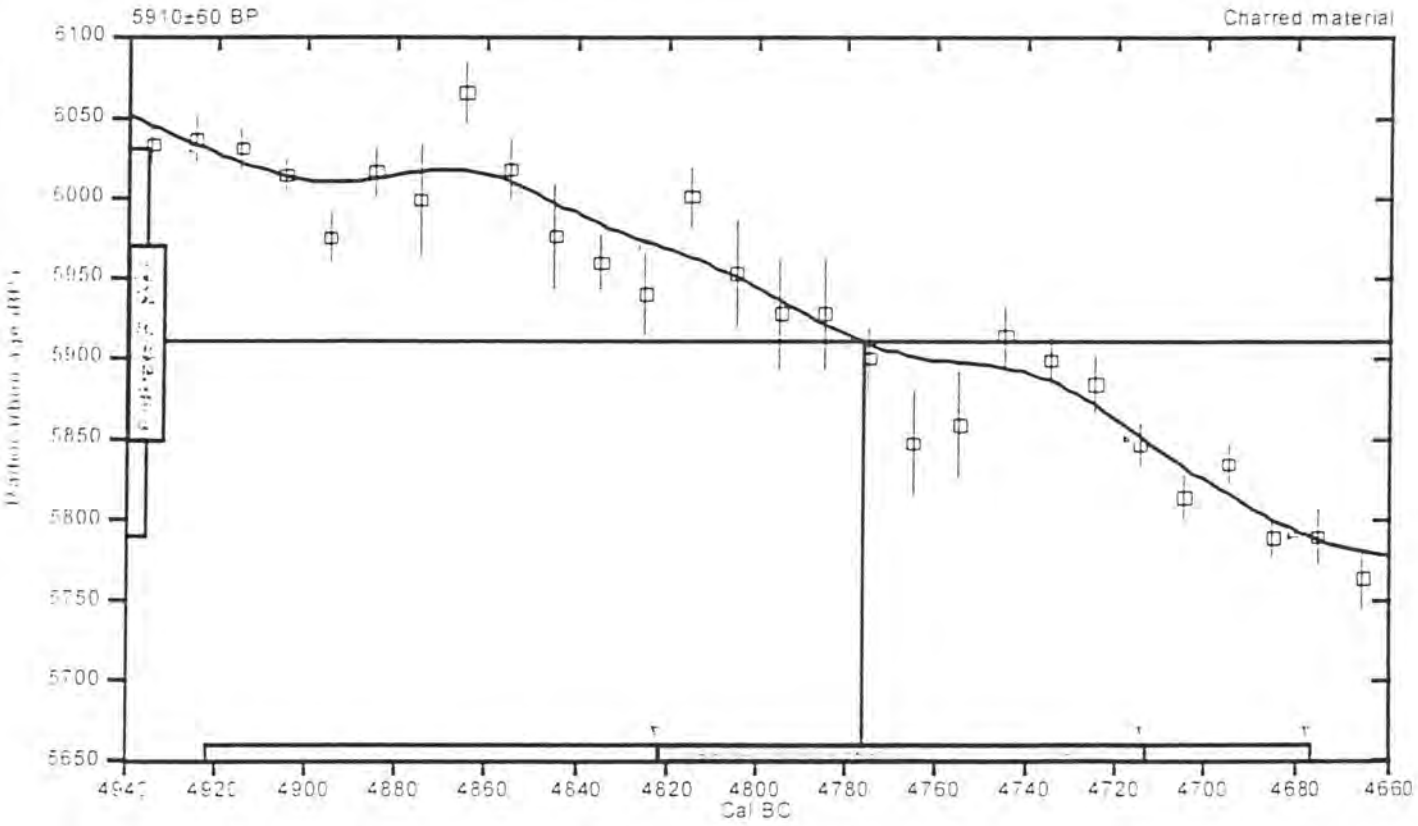
2 Sigma calibrated result: (95% probability) Cal BC 4920 to 4680 (Cal BP 6870 to 6630)

[1] C13/C12 ratio estimated

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4780 (Cal BP 6730)

1 Sigma calibrated result: (68% probability) Cal BC 4820 to 4710 (Cal BP 6770 to 6660)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xix

INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et al., 1998, Radiocarbon 40(3), p1041-1083

Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.4:lab. mult=1)

Laboratory number: **Beta-153885**

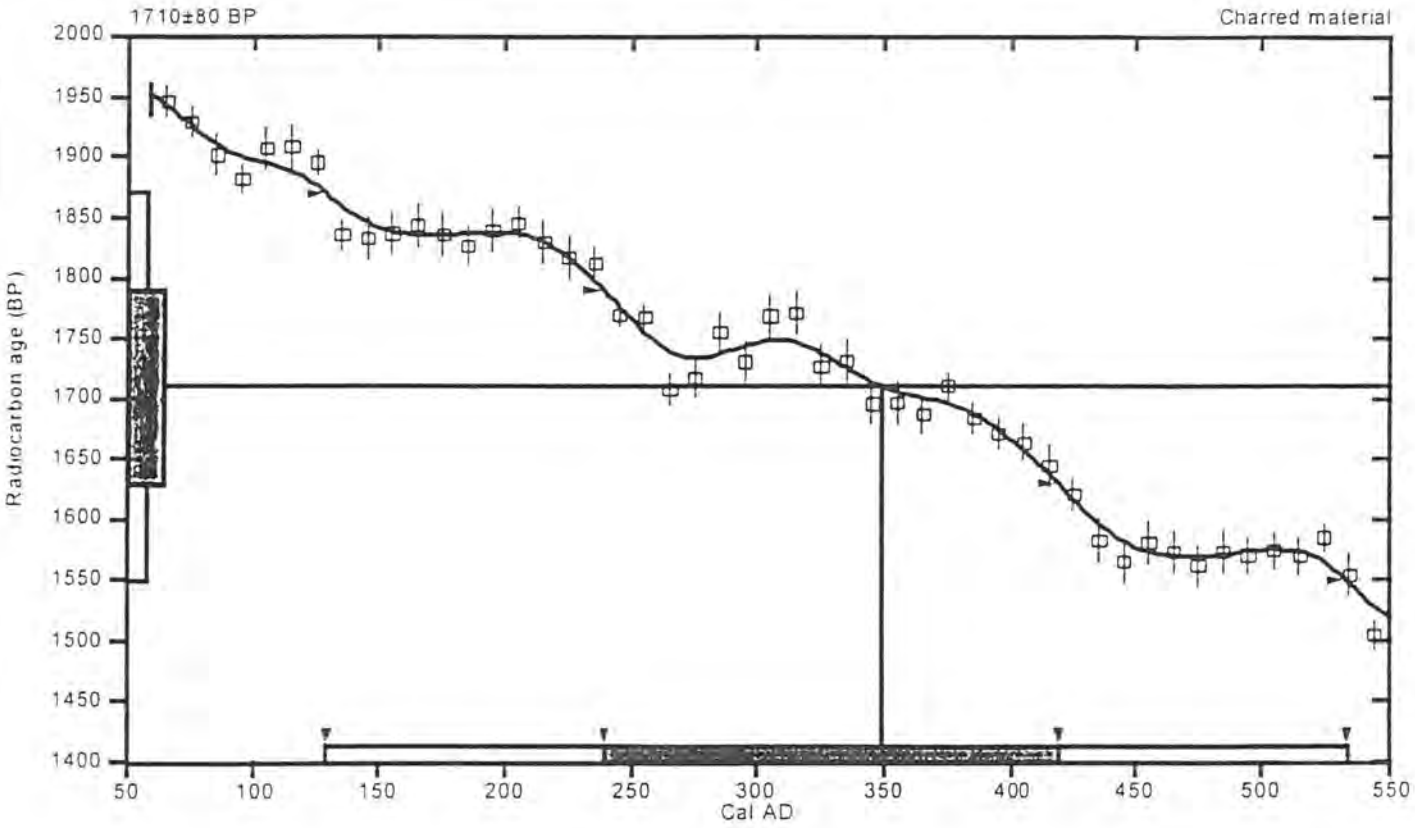
Conventional radiocarbon age: **1710±80 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 130 to 530 (Cal BP 1820 to 1420)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 350 (Cal BP 1600)

1 Sigma calibrated result: (68% probability) Cal AD 240 to 420 (Cal BP 1710 to 1530)



References:

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INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
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6.2 Correspondence on the radiocarbon dates

6.2.1 Correspondence on sample C17/357/010

between Jane Kenney (GAT) and Ron Hatfield, Deputy Director, Beta Analytic Inc.

Sample C17/357/010 produced an unexpected date so the laboratory carried out further assays to establish the nature of the problem. This resulted in the conclusion that some for of old carbon was contaminating the sample, as when only charcoal with a recognisable wood grain was dated a more acceptable date of 3050 +/-40BP was produced.

From: Lethia Cerda <lcerda@radiocarbon.com>
To: 'jkenney@heneb.co.uk' <jkenney@heneb.co.uk>
Date: Tuesday, March 20, 2001 10:02 AM
Subject: Kenney32001

RE: Radiocarbon Dating Results for Samples C17/189/351, C17/357/010

Dear Ms. Kenney:

Enclosed are the radiocarbon dating results for two samples recently sent to us. They each provided plenty of carbon for accurate measurements and all the analyses went normally. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable.

As always, no students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analyses. We analyzed them with the combined attention of our entire professional staff.

If you have specific questions about the analyses, please contact us. We are always available to answer your questions.

The cost of analysis was previously invoiced. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Beta – 152576 23430 +/- 200 BP –23.7 o/oo 23450 +/- 200 BP
SAMPLE : C17/357/010
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid

From: Jane Kenney [mailto:jkenney@heneb.co.uk]
Sent: Wednesday, March 21, 2001 6:36 PM
To: Lethia Cerda
Subject: Re: Kenney32001

Dear Ms Cerda,

Sorry to bother you again, but having looked at the dates again, I realised that we've got a bigger problem with Beta-152576 than I thought. The date is so much earlier than expected that I initially read it wrongly. We were expecting anything between c.BC100 and AD300, but the date is 23450+/-200BP. Did you notice any contamination that may explain this, or can you think of any other explanation? Many of the other the dates from the same site have also proved to be unexpected, though in this case they are later than expected (from c. AD600-1100).

Only 6 dates were submitted from this complex site, as an initial assessment of the dating potential, so it is perhaps unsurprising that there are some anomalies. However, if there is some potential problem we need to consider it when choosing the next samples to be dated. So any suggestions would be gratefully received.

Thank you,
Jane Kenney

From: Ron Hatfield
Sent: Thursday, March 29, 2001 8:48 PM
To: 'jKenney@heneb.co.uk'
Subject: Result Query
Importance: High

Hello Jane;
Lethia passed on your query regarding the dating for 152576. I have reviewed all the data, pretreatments and do not find any problems in the measurement or calculation of the reported age. I also contacted the AMS to inquire about the beam current during the run on this particular target and it produced an optimal value indicating that the graphite was well packed and showed good thermal conductivity during the cesium sputtering.

With each wheel that we measure, roughly 36% of all targets are an international standard (known age sample), blank background sample (coal or calcite) and finally a QA that has been measured by our Radiometric lab and at least 2-3 of our AMS labs. This helps to insure that the unknown measurements are bracketed all around by sufficient standards to detect any drift in the AMS during measurement.

For your samples, the wheel standards produced the following results;

Oxalic Acid 105.3% +/-0.8% Modern (non normalized for C13/12).....Expected International Consensus value 105.3% Mod
Blank values of 46700 +/-800 (coal) and 47100 +/-1000 (calcite).....Expected blank value > 46,000 BP
TIRI Wood of 4490 +/- 40 BP.....Expected International Consensus value 4503 +/-6 yr
QA-459 yielded values of 18390 +/- 110 Radiometrically and
18250 +/- 80 by AMS in your wheel and
18300 +/- 90 as a split of the graphite measured in one of our other AMSs.

All showed excellent agreement to the expected values and internally on the QA samples.

In looking at the sample under the microscope there is some noticeable difference between several of the pieces of charcoal. Most appear to have good wood grain and are easily identifiable as wood charcoal, a few however do not show typical wood grain and appear to be somewhat duller in coloration. This can be due to different heating during the original use, or due to the incorporation of different materials into the fire (possibly also of different age). If this is the case then it is possible that some of the material combusted may have contained a mixture of the materials (since the charcoal is broken down into very small chunks during the pretreatment, this is many times impossible to detect prior to dating).

To help resolve the issue, I can offer to reanalyze the sample as an internal QA sample (free of charge) to see if the ages agree. If so, then the sample really is that old and the material must have been reused or come from an older time than the site indicates. If the age varies, it would point to a mixture of materials with varying ages being used at the site by the occupants.

If the result came out statistically different, we would run several more samples (again as QA's) to try and help show that the sample was indeed a mixture and that the resultant ages were indeed quoted correctly, but unfortunately on materials of varying ages.

We are re-graphitize a bit more of the sample today and will have it in measurement some time the end of next week. I would anticipate that we would have a second result by sometime the end of the week of April 13th at the latest.

I hope that this meets with your approval, if it does not, or if you would like to proceed differently, please let me know at once so we can discuss how to best proceed.

Cheers,
Ron

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http://www.radiocarbon.com

From: Ron Hatfield <rhatfield@radiocarbon.com>
To: 'jkenney@heneb.co.uk' <jkenney@heneb.co.uk>
Date: Wednesday, May 02, 2001 8:59 AM
Subject: QA results

Hi Jane;

Sorry this took a bit longer than expected but we ended up running an additional QA because of the results in an attempt to be able to help you resolve what is going on at the site.

As I had said we would, we retrieved the excess sample material and re-graphitized it for measured by AMS. This time the result was quite different, but still significantly older than your expected date range. Because of this we took a remaining split of the original graphite to verify the AMS measurement and found it to be statistically identical with the first measurement ruling out any measurement error.

The result of the duplicate measurements on the same graphite is as follows. As you will note they are in excellent statistical agreement at 0.5 sigma.

Beta-152576 23450 +/-200 BP
QA-474A 23600 +/- 120 BP

For the regraphitization, sample material was taken from the archival excess and the following date was attained. As I had mentioned in my E-mail (see below), the sample appeared to contain a possible mixture of carbonized materials based on the visible wood grain or absence thereof and slight coloration differences. For this run to the best of our ability, we choose only pieces that appeared to have some wood grain or striated nature to the pieces. This was very difficult as the pieces are very small and we had to use a 20X microscope to try to identify usable pieces. This process was also hampered by the fact that the quantity of material remaining was very small allowing only for a single graphitization. Ideally I would have liked to run several QA's for this sample to see if the dates obtained were spread all over between something that makes sense and the 23-24 Ky date.

QA-474B 3050 +/- 40BP

This date as you can see is quite a bit more recent, but based on looking at the other dates from your C17 group which seemed to run from 1080 to 2710 BP it too appears too old.

Given the reproducibility of the graphite split and the older (?) than expected second result I'd have to think we need to consider the possibility of there being some older material present in the mix.
Does the QA-474B date also appear to be too old based on the other dates and your expectations? Obviously I'd like to help any way I can to help you resolve the anomalously old dates and this date in particular. Let me know what you think and perhaps we can discuss some strategy to help with your sampling in the future from the same areas. I think it best for the time being to only consider material that can be visually identified as wood charcoal, leaving smaller pieces that visually don't exhibit wood grain or that are too small to identify as potential problematic material. This may in rare instances limit what can be dated, but should if nothing else help to eliminate or greatly reduce apparently too old ages.

Please let me know what you think, and any questions you may have, we can discuss these in detail. This is a rare occurrence, but not totally unheard of. We run thousands of QA's every year through our 63 LSC and 9 AMSs and we only find a hand full of mixtures that yield totally unreliable dates

regardless of how many times you analyze them. In these instances we have tried SEM first or have recommended species identification prior to submission to help rule out materials that are not of the same context or time.

As a further comparison I've attached a table of 240 recent QA runs spanning the range of C14 dating. As you can see the reproducibility is excellent within statistical limits and this is what provides us with such a high degree of confidence for each individual run.

Best Regards,
Ron
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From: Jane Kenney [mailto:jkenney@heneb.co.uk]
Sent: Friday, May 04, 2001 3:01 AM
To: Ron Hatfield
Subject: Re: QA results

Dear Ron,

Thanks for your E-mail. The results are very interesting, and seem to suggest contamination with coal or other ancient carbon.

The date on the part of the sample that is most probably charcoal
QA-474B 3050 +/- 40BP
is actually quite close to the expected date, and I would be very grateful if you could send me a calibration of this date.

The site is supposed to be late Iron Age and Romano British, i.e. roughly 2500-1700BP. That makes the new date a bit early, but it is from one of the earliest features on the site. Most of the other dates we have received for this site have been problematic in that they are considerably too young, compared to the artifacts from the same contexts.

Thank you for your efforts in trying to sort out this problem.

Jane

Hi Jane;

I'll print out a calibration and send it to you today for the 3050 +/-40 BP age; it will be listed as B152576 QA474-B on the print out. Both the 1 and 2 sigma ranges are still considerably older than the expected range for this site.

The 2-sigma range (95% probability) for the 3050 +/-40BP date is: Cal BC 1410 to 1200 (Cal BP 3360 to 3150)

The 1-sigma range (68% probability) for the 3050 +/-40 date is: BC 1390 to 1270 (Cal BP 3340 to 3220)

One thing I forgot to mention is that the C13/12 ratios were also a bit different for each of the runs, further suggesting a possible mixture of sample materials. On the original date reported the C13/12 was measured at –25.5 o/oo, on the second run it was –23.7 o/oo. This is a small but noticeable difference of 1.8 o/oo. I'm interested in your observation that many of the dates are too recent from the same site. Is it possible that this site had multiple usages over an extended period of time (1000 years or so) or is there just a lot of mixture with different ages of materials. .

What is the geologic deposition like, are there any streams, slump deposits or faulting near by....what about peat bogs?

I think for future sample datings from this area that it would be best that we only consider materials that can be identified visually or microscopically as wood charcoal after the pretreatment. Unfortunately with AMS we use so little charred material for the analysis, reacting somewhere between 1 to 4 mg of material that this is sometimes very hard if not impossible to do. During the pretreatment in an attempt to insure the completeness of acid and alkali leaching on all of the fragments, we have to break the sample down into a fairly small uniform size range (usually a mm or less in diameter). During the pretreatments these fragments are reduced further and in some instances the fragments are very small and it is sometimes very hard to see structure at 20X magnification with a binocular scope.

One thing we could do would be not to crush the samples down initially and then increase the concentration and duration of the chemical leaches to insure uniform pretreatment on the larger irregular sized fragments. We could then select for the analysis larger easily identifiable fragments and then crush them just prior to analysis so that we could get the 1-4 mg required. This has worked well in other instances of mixed or multiple use occupations.

The other thing that has worked quite well is to have a local paleobotonist identify the material prior to submission for dating (this can add a bit of time on your end as many of the paleobotonist are quite slow at making the I.D.s), but very effective in identifying mixtures of materials. This has been especially useful to many researchers in the US who have found extinct species of wood mixed in with contemporary species (usually in intermountain or sub-glacial areas), causing dates to appear a bit too old or very old depending on the degree of mixture.

Unfortunately without more information its very hard to decide on a plan of action, but I think the suggestions above would be good in absence of any other revelations.
Let me know what you think, I hate it when its not something simple, but then again I guess that's just part of science.

Cheers,
Ron
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6.1.2 Correspondence on sample E14/173/315

between Jane Kenney (GAT) and Ron Hatfield, Deputy Director, Beta Analytic Inc.

The sample from the coffin stain in grave cut 304 proved on close inspection to be charcoal rather than timber from the coffin, so it was discarded.

From: Ron Hatfield <rhatfield@radiocarbon.com>
To: 'jkenney@heneb.co.uk' <jkenney@heneb.co.uk>
Date: Monday, March 05, 2001 11:59 AM
Subject: AMS Sample E14/173/315

Dear Ms. Kenney;

One sample listed as "wood" sent for AMS dating is actually wholly charred. In the event that you only wished uncharred wood to be dated rather than the carbonized or charred fraction, I wanted to contact

you to clarify this matter. Usually this is just a case of semantics, but I wanted to check to be sure that by dating the charred fraction that it would not alter you interpretation of the results.

Please let me know what you would like us to do. As always if there are any questions, don't hesitate to let me know.

Best Regards,

Ron

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From: Jane Kenney [mailto:jkenney@heneb.co.uk]
Sent: Wednesday, March 07, 2001 5:39 AM
To: Ron Hatfield
Subject: Re: AMS Sample E14/173/315

Dear Mr Hatfield

It is very unfortunate that the sample E14/173/315 is charred, rather than unburnt wood. It was recovered by sieving from a coffin stain within an early medieval long cist grave. Although these graves are relatively common in Wales and Scotland there are very few reliable dates from them, and a date on a coffin would have been very valuable.

However, there is no evidence that the coffin was burnt, and no reason why it should have been, so the charred sample is unlikely to have originated from the coffin. As we do not know its provenance the sample is not worth the expense of an AMS date, so we will abandon the dating of this sample.

The foil package enclosed with the charred sample contains the sieved remains of the coffin stain including organic fragments, little larger than dust. If you think that a date may be possible from this material we will
consider whether such a date would be worthwhile.

Thank You

Jane Kenney
Gwynedd Archaeological Trust

Hi Jane;

I am sorry that the sample is not acceptable, but better to be safe than sorry, so I am glad that I checked with you regarding the charred vs. uncharred wood.

Unfortunately the small amount of stain and organics did not survive the alkali extractions used to clean the sample. This being the case, it is unlikely that they would have provided an accurate age, as they were
essentially humics that may have contained carbon from other sources of differing ages.

If you would like we can return the charred material extracted to you, or it can be disposed of if there is no value to retaining it. The only charges due will be $35 for the examination and pretreatment

performed. Please let me know how we can best proceed and as always if there are any questions, don't hesitate to let me know.

Best Regards,

Ron

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6.3 Tables relating to section 2.2.1

6.3.1 Table 1
List of species identified from the samples from Melin y Plas, Anglesey

	Sample Number		**321**	**250**	**336**	**254**	**261**
	Feature/Context		**593=639 ?**	**639=593 ?**	**885**	**334**	**654**
	Vol. Soil processed		**3**	**15**	**5**	**10**	**4**
	Seeds/liter		**18**	**14**	**116**	**10**	**21**
	Phase		**3a**	**3a**	**3 b**	**3b/c**	**3b/c**
	Building		**G2.2**	**G2.2.**	**G2.3**	**G2.3/G2.4**	**G2.3/G2.4 (more likely)**
	Type of context		**burnt layer**	**drain**	**Possible capped hearth**	**drain**	**large posthole**
	Cereals						
spelt/bread wheat	*Triticum spelta/aestivum*	g		2	1		
?spelt	*Triticum* cf. *spelta*	g				2	
?bread wheat	*Triticum* cf. *aestivum*	g				2	
bread/club wheat	*Triticum aestivum/compactum*	g			1		1
barley	*Hordeum vulgare* L.	g			225	4	7
barley	*Hordeum vulgare* L. germinated	g			5		
barley	*Hordeum vulgare* L. hulled	g		1	21	2	6
barley	*Hordeum vulgare* L. hulled, germinated	g			4	1	
six-row barley	*Hordeum vulgare* L. hulled, twisted	g			1	3	2
barley	*Hordeum vulgare* L. hulled, straight	g					3
cereals	Cereals	g	1	4	165	12	8
	Chaff						
?emmer	*Triticum* cf. *dicoccum*	glb				1	
emmer/spelt	*Triticum dicoccum/spelta*	glb	10	24	1	9	
emmer/spelt	*Triticum dicoccum/spelta*	f	2			1	
spelt	*Triticum spelta* L.	glb	2	62			
?spelt	*Triticum* cf. *spelta*	glb				1	
spelt	*Triticum spelta* L.	f		8			
?bread/club wheat	*Triticum cf. aestivum*	ri			3		
hexaploid wheat	*Triticum* sp. hexaploid	ri	2	18		4	
wheat	*Triticum* sp.	ri		20		1	1
barley	*Hordeum vulgare* L. six-row	ri	1	1			
barley	*Hordeum vulgare* L.	ri	1	1	8	1	
Cereals	Cereals	ri	3				
cereals	culm basis		18	21			
	Weeds						

Hen's goosefoot	Chenopodium album *L.*	s	1			10	
goosefoots	Chenopodium *sp.*	s			19		1
oraches	Atriplex *sp.*	s		5			
blinks	Montia fontana	s	1				
Ragged robin	Lychnis flos-osculi.	s				1	
pale persicaria	Persicaria laphatifolium *Gray*	s		2	58		
	Polygonum *sp.*	s				1	
Docks	Rumex *sp.*	s			8		
Perforate St. John's wort	Hypericum perforatum *L.*	s	3				
Raspberry	Rubus *cf. idaeus*	s				1	1
Blackberries	*Rubus* sp.	th				1	
Restharrows	*Ononis* sp.	s		1check			
leguminosae clover –type	*Medicago/Melilotus/Trifolium*	s	1	3			1
ribwort plantain	*Plantago lanceolata* L.	s		1	2		
Eyebrights/bartsias	Euphrasia/Odontites	s	2				
stinking chamomile	Anthemis cotula *L.*	s					1
sedges	*Carex* sp. flat	s		2			
sedges	*Carex* sp. trigonous	s		8		1	
sedge family	Cyperaceae	s		1			
Brome-brass	*Bromus hordeaceus/secalinum*	s				1	
rye-grasses	*Lolium* sp.	s					2
oats	*Avena* sp.	g		2	54	36	51
heath-grass	*Danthonia decumbens* DC.	s	1	8check			1 check
grasses	Poaceae medium	s	2		8		
grasses	Poaceae *Poa* type	s		6			
	Other						
hazelnut	*Corylus avellana* L.	sh				4	1
whitebeams	Sorbus *sp.*	s				1	
	Twig		x		X	x	
	Ericaceae	fl	x	2			
bracken	Pteridium aquilinum *L.*	lf	2	1		1	
	Sea ball				X		
	Indet	S		8			
			53	212	584	102	87

6.3.2 Table 2
List of wild species present in the plant assemblage from Melin y Plas and their habitats

	Wasteland/disturbed lands	**Cultivated ground or arable land**	**Heath and moors**	**Grassland**	**Acid soils**	**Woodland**	**Wetland**
Chenopodium album *L.*	x	x					
Atriplex *sp.*	x	x					
Montia fontana							x
Lychnis flos-osculi.							x
Persicaria laphatifolium *Gray*	x	x					x
Hypericum perforatum *L.*				x (dry)			
Rubus *cf. Idaeus*			x			edge of x	
Ononis sp.				x			
Plantago lanceolata L.	x			x			
Euphrasia/Odontites	x some species of O and E		x Most of the species of E.	x Most of the species of E.			x Most of the species of E.
Anthemis cotula *L.*	x	x					
Carex sp. Flat							x
Carex sp. Trigonous							x
Cyperaceae							x
Bromus hordeaceus/secalinum		x		x			
Lolium sp.		x		x			
Danthonia decumbens DC.			x		x		sometime x
Poaceae medium		x		x			
Poaceae *Poa* type				x			
Pteridium aquilinum			x		x (dry soils)		

Appendix 6.4.1. Melin y Plas: Flint and chert database field codes and definitions

rec: recorded find number **context**: stratigraphic unit

gtyp: general lithic type, fl: flake, rp: retouched piece, up: utilised piece, c: core, crp: casually retouched piece, ep: ecaille piece,if: irregular fragment, b: burnt, n: natural, f: fragment

styp: specific type: cp: core prismatic, cs: core single directional, cb: core bidirectional opposed, cp: core bidirectional perpendicular, cf: core frag, aho: arrow-head oblique, ahl: arrow-head leaf-shaped, ahc: arrow-head chisel, ahb: arrow-head barbed and tanged, np: nosed piece, awl: awl, dent: denticulate, sce: scraper end, scs: scraper side, sth: scraper thumbnail, erk: edge-retouched knife bin: bifacial knife, cut: utilised cutting flake, bbl: backed blade, ser: serrated piece, spp: spurred piece, tf: truncated flake, ep: ecaille pieceup: utilised piece, bur: burin, sp: split pebble, gf: gunflint, unc: unclassified, m: missing.

m: material, f: flint, bac: banded chert, blc: black chert, gc: greensand chert, o: other

col: colour: l: light, d: dark, m: mid, gr: grey, br: brown, bf: buff, bl: black, y: yellow, red: red, mot: mottled

pat: patina/cortication coded 1-3, low, medium, high

bur: burning, 1: slight, 2: medium, 3: high

dam: secondary damage, 1: slight, 2: medium, 3: high

cor: cortex type code, 1: pebble, 2: rolled, 3: nodular, 4: tabular, 5: uncertain

imp: primary impact type, 1: normal, 2: pronounced, 3: flat, scalar, 4: bipolar

cla: reduction class, 1-3

fra: fragmentation class, 1: distal, 2: proximal, 3: mid-part

pla: platform type code, 1: plain, 2: cortical, 3: battered, 4: facetted

len: length of complete piece, perpendicular to the striking platform

ilen: length of incomplete piece, perpendicular to the striking platform

bre: breadth of complete piece, parallel to the striking platform

ibre: breadth of incomplete piece, parallel to the striking platform

rettyp: retouch type: ab: abrupt, mar: marginal, st: steep, inv: invasive, sc:scalar

retpos: retouch position: side, distal, proximal

retfac: retouch face: b: bulbar, n-b: non-bulbar

retsha: retouch shape: str: straight, conv: convex, conc: concave, ang: angular

retlen: retouch length, mm

wrtyp: usewear type, 1: polish, 2: crushing, 3: abrasion, 4: microchipping

Appendix 6.4.2. Melin y Plas: flint and chert summary

rec	*context*	*gtyp*	*mat*	*col*	*pat*	*bur*	*dam*	*cor*	*imp*	*cla*	*fra*	*pla*	*len*	*ilen*	*bre*	*ibre*	*dep*	*idep*
1.0	4	ff	c	mg	0	0	0	0	1	3	2	1	0	31	20	0	5	0
2.1	4	ff	f	mg	2	1	0	0	1	3	2	0	0	18	0	21	8	0
2.2	4	bf	f	mg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0	4	if	f	bf	0	0	0	0	0	0	0	0	0	30	17	0	10	0
4.0	4	ff	f	yb	0	0	0	0	1	3	2	0	0	19	21	0	3	0
6.0	4	ff	f	bf	0	0	0	1	0	2	2	2	0	15	12	0	6	0
7.0	4	if	f	rb	0	0	0	0	0	3	0	0	13	0	14	0	8	0
8.0	4	if	f	mg	0	0	0	1	0	2	0	0	18	0	17	0	8	0
15.0	4	rpf	f	dgb	0	0	0	0	0	3	0	0	18	0	12	0	6	0
17.0	4	rp	f	dgb	0	0	0	0	1	3	0	0	0	30	16	0	5	0
18.0	4	cr	f	yb	0	0	0	0	0	0	0	0	29	0	28	0	18	0
19.0	4	if	f	bf	0	0	0	1	0	2	0	0	16	0	15	0	6	0
22.0	4	if	f	bf	0	0	0	1	0	1	0	0	17	0	15	0	6	0
26.0	4	ff	c	dg	0	0	0	0	0	3	0	0	0	22	0	22	8	0
27.0	4	nf	f	lg	0	0	0	0	0	0	0	0	33	0	18	0	15	0
31.0	4	rp	f	yb	0	0	0	0	0	3	0	0	15	0	21	0	5	0
32.0	4	f	f	yb	0	0	0	0	1	3	0	1	22	0	16	0	4	0
34.0	4	if	f	bf	0	0	0	1	0	1	0	0	22	0	14	0	9	0
35.0	4	f	f	ybf	0	0	0	0	0	3	0	0	10	0	7	0	1	0
38.0	4	rpf	f	rb	0	0	0	0	0	2	0	2	0	19	16	0	4	0
40.0	0	f	c	bl	0	0	0	0	0	0	0	34	0	27	0	6	0	0
41.0	95	ff	f	yb	0	0	0	1	0	2	0	0	22	0	20	0	8	0
43.0	0	nf	f	rb	0	0	0	0	0	0	0	0	39	0	33	0	15	0
48.0	4	ff	f	mg	0	0	0	0	0	3	1	0	0	7	0	7	2	0
50.0	33	bf	f	rb	0	0	0	0	0	0	0	0	15	0	13	0	8	0
54.0	33	bf	f	rb	0	0	0	0	0	0	0	0	16	0	7	0	4	0
57.0	33	if	f	yb	0	0	0	0	0	0	0	0	11	0	11	0	8	0
60.0	158	nf	f	yb	0	0	0	0	0	0	0	0	17	0	6	0	6	0
62.0	0	ff	f	lg	0	0	0	1	0	2	2	0	0	15	17	0	3	0
68.0	33	np	c	bf	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70.0	4	rp	f	mg	0	0	0	1	0	2	2	0	18	0	18	0	5	0

rec	context	gtyp	mat	col	pat	bur	dam	cor	imp	cla	fra	pla	len	ilen	bre	ibre	dep	idep
79.0	33	if	f	mg	0	0	0	0	0	0	0	0	18	0	17	0	7	0
85.0	209	nf	f	yb	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100.0	0	if	f	yb	0	0	0	1	0	0	0	0	9	0	9	0	4	0
105.0	4	ff	c	bl	0	0	0	0	0	0	0	0	0	27	10	0	3	0
119.0	0	if	f	yb	0	0	0	1	0	0	0	0	26	0	19	0	9	0
122.0	3	nf	f	lg	0	0	0	0	0	0	0	0	32	0	16	0	14	0
137.0	0	ff	f	mb	0	0	0	1	0	1	2	0	0	28	23	0	4	0
138.0	152	ff	f	mg	0	0	0	1	0	2	0	0	19	0	14	0	3	0
149.0	377	f	f	mg	0	0	0	0	0	3	0	0	33	0	16	0	3	0
188.0	348	crp	f	mg	0	0	0	0	0	3	0	0	50	0	36	0	16	0
207.0	318	ep	f	dg	0	0	0	0	0	3	0	0	24	0	15	0	5	0
217.0	318	ff	f	yb	0	0	0	0	0	3	0	0	12	0	6	0	2	0
218.0	318	if	f	yb	0	0	0	1	0	2	0	0	27	0	18	0	12	0
219.0	580	ff	f	bf	0	0	0	0	0	2	2	0	0	16	22	0	6	0
220.0	580	nf	f	ybf	0	0	0	1	0	2	1	0	11	0	5	0	3	0
223.0	580	ff	f	yg	0	0	0	0	0	0	0	0	0	16	10	0	3	0
228.0	580	nf	f	rb	0	0	0	0	0	0	0	0	5	0	4	0	1	0
243.0	4	ff	f	ybf	0	0	0	0	0	3	0	0	9	0	5	0	2	0
245.0	635	cr	f	yb	0	0	0	0	0	0	0	0	26	0	24	0	14	0
271.0	610	if	c	bl	0	0	0	0	0	0	0	0	16	0	20	0	12	0
282.0	71	nf	c	61	0	0	0	0	0	0	0	0	16	0	15	0	12	0
331.0	350	nf	f	gb	0	0	0	0	0	0	0	0	13	0	9	0	5	0

Appendix 6.4.3. Melin y Plas: specific records

rec	*context*	*gtyp*	*styp*	*rettyp*	*retpos*	*retfac*	*retsh*	*wrtyp*	*comment*
15.0	4	rpf	sc	st				0	Small, thick fragment of a larger retouched object
17.0	4	rp	awl	st	2sides	nb	st	3	Broken-off tip of a triangular awl on end of a flake.
31.0	4	rp	sth	st	end	nb	conv	0	On a short, wide flake
38.0	4	rpf	bbl?	st	side	nb	st	0	Flake retouched on one side. Backed blade?
70.0	4	rp	sth	st	side	nb	slcon	0	Pebble-backed flake.
188.0	348	crp	crp	ab	side	b	st	0	Thick piece with one sharp edge utilised.
207.0	318	ep	ep					0	Scalar piece with bipolar flakes from both faces.

Appendix 6.5.1. Melin y Plas: Stone objects catalogue

rec	*context*	*gtyp*	*len*	*bre*	*dia*	*dep*	*bolen*	*bobre*	*bodia*	*bodep*	*hodia*	*hodep*
12.0	4	Burnisher, pebble	44	39	0	23			0	0	0	0
		Very fine stone well smoothed from use. Small sub-rounded beach pebble with all-over polish.										
20.0	4	Furnace brick, modern	97	69	0	44			0	0	0	0
		Fragment of furnace brick.										
39.0	4	Burnt stone frag	40	40	0	24	0	0	0	0	0	0
		Burn pebble frag. Pot-boiler?										
44.0	4	Slingstone?	35	28	0	25	0	0	0	0	0	0
		Slingstone? Small sub-rounded beach pebble. No polish.										
45.0	33	Rubber?	250	160	0	120	0	0	0	0	0	0
		Naturally shaped sub-angular cobble with one very flat facet that has probably been smoothed from use.										
53.0	33	Burnisher	86	57	0	20	0	0	0	0	0	0
		Lozenge-shaped block of fine, abrasive stone, facetted from use and with slight striations, wear and polish on both faces and side.										
83.0	196	Whetstone, pendant, miniature	105	15	0	9	0	0	0	0	0	0
		Broken into 3 pieces. Small, slim rectangular sectioned pendant of fine-grained abrasive stone. Steep-sided hour-glass perforation. Only lightly used and on the sides, not on the face. The perforation reduces from 7mm down to 3mm dia..										
88.0	209	Burnisher, pebble	48	38	0	19	0	0	0	0	0	0
		Small, sub-rounded beach pebble with all-over polish.										
91.0	159	Mortar, boulder, frag	190	60	0	80	0	0	0	0	0	0
		Fragment of the lip of a mortar made on a naturally shaped sub-rounded boulder. The mortar bowl is rounded and steep-sided and would have been about 140mm dia. if it was circualr and probably 120-140mm deep.										
93.0	16	Knife/needle hone, pendant	55	48	0	5	0	0	0	0	0	0
		A lozenge-shaped thin slate pendant with hour-glass shaped perforation cut mainly from one side, whicb is clearly the 'front'. The perforation reduces from 8mm down to 2.5mm. On the front are fine, non-parallel criss-cross scratches, possibly from sharpening a bone needle										

rec	context	gtyp	len	bre	dia	dep	bolen	bobre	bodia	bodep	hodia	hodep
96.0	33	Slingstone?	39	34	0	22	0	0	0	0	0	0
		Natural sub-rounded pebble. Not a burnisher because there is no polish although it could have weathered.										
101.0	0	Rubber?	180	120	0	75	0	0	0	0	0	0
		Cobble rubber. A naturally shaped cobble with one flattish face that has been worn smooth but with no development of a proper facet.										
104.0	0	Saddle quern, frag	180	130	0	100	0	0	0	0	0	0
		Naturally shaped boulder frag with a flattish facet which seems to have been the base of a fiarly large, flattish open, bowl-shaped quern.										
107.0	292	Waisted stone	90	46	0	38	0	0	0	0	0	0
		An elongated pebble with a pecked 'waist' and probable light pecking on the tip.										
112.0	292	Burnisher, pebble	50	32	0	20	0	0	0	0	0	0
		Small, sub-rounded beach pebble of very fine stone with all-over polish.										
123.0	0	Natural pebble	102	72	0	58	0	0	0	0	0	0
		A very heavy pebble with 3 slightly facetted sides which are probably a natural feature.										
126.0	196	Working slab	260	170	0	80	0	0	0	0	0	0
		Naturaly sub-rectangular shaped slab of which one face has been smoothed and worn from use. It also has a small cup-mark worn into it, 20mm dia. and 7mm deep.										
164.0	291	Mortar, boulder	310	270	0	170	240	80	0	90	0	0
		Naturally shaped boulder with an oval bowl with medium sloping sides and rounded lip. The lip is broken off on one side.										
165.0	1572	Natural pebble	77	53	0	40	0	0	0	0	0	0
		Very heavy stone. No visible signs of use.										
195.0	533	Utilised stone?	140	100	0	70	0	0	0	0	0	0
		Apparently natural flat facetted rock which has been well burnt and then broken. A fine abrasive stone but no evidence of use. It seems likely to be foreign to the site and not part of the glacial till so possibly was used but the fragment left after breakage has nothing to prove it.										
252.0	649	Bead	0	0	20	14	0	0	0	0	5	0
		Slightly biconical, parallel-sided drilled perforation.										
344.0	917	Burnisher, pebble	38	28	0	13	0	0	0	0	0	0
		Small, sub-rounded beach pebble with all-over polish.										

rec	*context*	*gtyp*	*len*	*bre*	*dia*	*dep*	*bolen*	*bobre*	*bodia*	*bodep*	*hodia*	*hodep*
362.0	336	Mortar, boulder	410	370	0	270	0	0	240	140	0	0

Large, naturally shaped sub-ractangular boulder with a slightly rounded rectangular bowl. The sides probably cut to shape, the base rounded but wiiith only a shallow curve. The lip of the bowl is broken off on 3 sides.

Appendix 6.6.1. Ty Mawr: Flint and chert database field codes and definitions

rec: recorded find number **context**: stratigraphic unit

gtyp: general lithic type, fl: flake, rp: retouched piece, up: utilised piece, c: core, crp: casually retouched piece, ep: ecaille piece,if: irregular fragment, b: burnt, n: natural, f: fragment

styp: specific type: cp: core prismatic, cs: core single directional, cb: core bidirectional opposed, cp: core bidirectional perpendicular, cf: core frag, aho: arrow-head oblique, ahl: arrow-head leaf-shaped, ahc: arrow-head chisel, ahb: arrow-head barbed and tanged, np: nosed piece, awl: awl, dent: denticulate, sce: scraper end, scs: scraper side, sth: scraper thumbnail, erk: edge-retouched knife bin: bifacial knife, cut: utilised cutting flake, bbl: backed blade, ser: serrated piece, spp: spurred piece, tf: truncated flake, ep: ecaille pieceup: utilised piece, bur: burin, sp: split pebble, gf: gunflint, unc: unclassified, m: missing.

m: material, f: flint, bac: banded chert, blc: black chert, gc: greensand chert, o: other

col: colour: l: light, d: dark, m: mid, gr: grey, br: brown, bf: buff, bl: black, y: yellow, red: red, mot: mottled

pat: patina/cortication coded 1-3, low, medium, high

bur: burning, 1: slight, 2: medium, 3: high

dam: secondary damage, 1: slight, 2: medium, 3: high

cor: cortex type code, 1: pebble, 2: rolled, 3: nodular, 4: tabular, 5: uncertain

imp: primary impact type, 1: normal, 2: pronounced, 3: flat, scalar, 4: bipolar

cla: reduction class, 1-3

fra: fragmentation class, 1: distal, 2: proximal, 3: mid-part

pla: platform type code, 1: plain, 2: cortical, 3: battered, 4: facetted

len: length of complete piece, perpendicular to the striking platform

ilen: length of incomplete piece, perpendicular to the striking platform

bre: breadth of complete piece, parallel to the striking platform

ibre: breadth of incomplete piece, parallel to the striking platform

rettyp: retouch type: ab: abrupt, mar: marginal, st: steep, inv: invasive, sc:scalar

retpos: retouch position: side, distal, proximal

retfac: retouch face: b: bulbar, n-b: non-bulbar

retsha: retouch shape: str: straight, conv: convex, conc: concave, ang: angular

retlen: retouch length, mm

wrtyp: usewear type, 1: polish, 2: crushing, 3: abrasion, 4: microchipping

Appendix 6.6.2. Ty Mawr: flint and chert summary

rec	*context*	*gty*	*mat*	*col*	*pat*	*bur*	*dam*	*cor*	*imp*	*cla*	*fra*	*pla*	*len*	*ilen*	*bre*	*ibre*	*dep*	*idep*
1.0	4	f	f	yb	0	0	0	1	1	2	17	0	12	0	3	0	0	0
7.0	4	f	f	lg	0	0	0	0	1	2	0	0	20	0	9	0	2	0
18.0	1	f	f	bf	2	0	0	0	1	3	0	0	25	0	17	0	5	0
19.0	5	if	f	lg	1	0	0	1	4	2	0	0	29	0	13	0	6	0
20.0	5	f	f	lg	0	0	0	1	3	1	0	0	25	0	19	0	5	0
21.0	5	ff	f	lg	1	0	0	0	1	3	0	0	0	20	0	21	6	0
22.0	5	rp	c	bl	0	0	0	1	1	2	0	2	20	0	25	0	6	0
23.0	5	cf	f	mg	0	1	1	2	0	0	0	1	0	24	25	0	19	0
24.0	5	rp	f	bf	0	0	0	0	0	3	0	0	0	18	20	0	3	0
25.0	5	if	f	lb	0	0	0	1	0	1	0	0	28	0	11	0	6	0
26.0	1	f	f	dg	0	0	0	0	0	3	0	0	17	0	14	0	2	0
27.0	4	f	c	bl	0	0	0	0	0	3	0	0	47	0	15	0	12	0
30.0	5	f	f	mg	0	0	0	1	3	0	0	0	18	0	11	0	4	0
31.0	5	sp	c	bl	0	0	0	0	0	1	0	0	27	0	21	0	13	0
32.0	5	ff	c	bl	0	0	0	0	0	3	0	0	0	22	30	0	11	0
33.0	5	f	f	bf	1	0	1	1	0	2	0	2	0	23	17	0	5	0
34.0	5	f	f	bf	2	0	0	1	0	1	0	2	24	0	17	0	5	0
40.0	4	f	f	bf	1	0	0	1	0	2	0	2	32	0	12	0	8	0
42.0	4	rp	f	bf/b	1	0	0	1	0	1	0	2	0	27	22	0	7	0
43.0	4	ff	f	bf	2	0	0	0	1	3	2	1	0	29	17	0	5	0
45.0	4	crp	c	bl	0	0	0	0	0	3	0	0	0	31	13	0	4	0
46.0	4	f	c	bl	0	0	0	1	0	1	0	0	0	24	27	0	7	0
47.0	4	rp	c	bl	0	0	0	0	1	3	0	0	0	35	17	0	5	0
49.0	4	f	f	bf	0	0	0	0	1	3	0	2	16	0	11	0	2	0
50.0	4	rpf	c	bl	0	0	0	0	0	3	0	0	0	19	13	0	7	0
51.0	4	f	f	ybf	0	0	0	1	1	1	0	0	24	0	12	0	4	0
52.0	4	f	c	bl	0	0	0	0	0	3	0	1	28	0	19	0	4	0
54.0	4	f	f	ybf	0	0	0	1	0	0	0	0	31	0	15	0	5	0
56.0	4	bf	f	lg	0	0	0	1	0	0	0	0	12	0	24	0	16	0
63.0	38	ff	f	bf	1	0	0	1	0	0	0	0	0	9	15	0	4	0
64.0	38	ff	f	bf	1	0	0	1	0	0	0	0	0	26	18	0	6	0

rec	context	gty	mat	col	pat	bur	dam	cor	imp	cla	fra	pla	len	ilen	bre	ibre	dep	idep
65.0	38	ep	f	lg	0	0	0	1	0	0	0	0	29	0	21	0	10	0
66.0	4	f	c	bl	0	0	0	0	0	3	0	1	38	0	25	0	7	0
72.0	77	f	f	bl	0	0	0	2	1	2	0	0	26	0	13	0	3	0
78.0	5	sp	f	bf	2	0	0	1	0	0	0	0	28	0	24	0	11	0
79.0	21	f	c	bl	0	0	0	0	0	3	0	1	36	0	22	0	12	0
83.0	38	f	c	bl	0	0	0	0	0	3	0	1	27	0	32	0	9	0
89.0	5	f	c	bl	0	0	0	1	0	2	0	2	32	0	35	0	8	0
94.0	5	f	f	bf	1	0	0	1	1	2	0	0	17	0	23	0	3	0
104.1	198	if	c	bl	0	0	0	0	0	3	0	0	76	0	34	0	24	0
104.2	198	if	c	bl	0	0	0	0	0	3	0	0	65	0	34	0	12	0
104.3	198	if	c	bl	0	0	0	0	0	3	0	0	39	0	35	0	26	0
104.4	198	if	c	bl	0	0	0	1	0	2	0	0	36	0	32	0	15	0
104.5	198	if	c	bl	0	0	0	0	0	3	0	0	35	0	25	0	13	0
104.6	198	if	c	bl	0	0	0	0	0	3	0	0	29	0	24	0	10	0
104.7	198	if	c	bl	0	0	0	0	0	3	0	0	29	0	20	0	15	0
105.0	4	f	f	ybf	0	0	0	0	1	3	0	0	27	0	24	0	4	0
111.0	78	ff	f	bf	0	0	0	0	0	3	0	0	0	12	13	0	3	0
114.0	20	crp	c	bl	0	0	0	0	0	2	0	0	32	0	30	0	11	0
116.0	27	ff	c	bl	0	0	0	0	0	3	0	0	0	13	24	0	6	0
121.0	3	crp	f	bf	0	0	0	0	1	3	0	0	34	0	44	0	8	0
122.0	4	crp	c	bl	0	0	0	1	0	2	0	0	47	0	55	0	13	0
129.0	284	sp	f	ybf	0	0	0	0	0	0	0	0	48	0	24	0	12	0
136.0	4	f	f	ybf	0	0	0	1	0	1	0	0	21	0	13	0	4	0
141.0	38	if	c	bl	0	0	0	0	0	3	0	0	45	0	17	0	9	0
145.0	38	rp	c	bl	0	0	0	1	0	2	0	0	62	0	42	0	22	0
146.1	187	ff	c	bl	0	0	0	1	0	1	0	2	0	28	23	0	8	0
146.2	187	f	c	bl	0	0	0	0	0	3	0	0	20	0	22	0	4	0
146.3	187	ff	c	bl	0	0	0	0	0	3	0	0	0	17	0	15	0	5
148.0	181	f	f	bfg	0	0	0	1	0	2	0	0	28	0	34	0	7	0
149.0	331	ff	f	lg	0	0	0	0	0	3	0	0	0	13	18	0	6	0
157.0	38	if	c	bl	0	0	0	0	0	3	0	0	0	13	0	18	0	16
158.0	38	if	c	bl	0	0	0	0	0	3	0	0	0	23	0	13	0	6
166.0	340	ff	c	bl	0	0	0	0	0	1	0	2	0	39	29	0	10	0

rec	*context*	*gty*	*mat*	*col*	*pat*	*bur*	*dam*	*cor*	*imp*	*cla*	*fra*	*pla*	*len*	*ilen*	*bre*	*ibre*	*dep*	*idep*
167.1	38	nf	c	bl	0	0	0	0	0	0	0	0	17	0	22	0	17	0
167.2	38	nf	c	bl	0	0	0	0	0	0	0	0	16	0	14	0	8	0
167.3	38	f	c	bl	0	0	0	0	0	3	0	0	7	0	11	0	3	0
177.0	320	c	c	bl	0	0	0	0	0	3	0	0	31	0	42	0	23	0
192.0	187	crp	c	bl	0	0	0	1	0	2	0	0	29	0	23	0	9	0
193.0	77	ff	c	bl	0	0	0	0	0	3	0	1	0	18	20	0	4	0

Appendix 6.6.3. Ty Mawr: specific records

rec	*context*	*gtyp*	*styp*	*rettyp*	*retpos*	*retfac*	*retsh*	*wrtyp*	*comment*
22.0	5	rp	sth	st	end	nb	conv	0	
23.0	5	cf	irreg					0	Small, multi-directional core broken as a result of burning
24.0	5	rp	ahl		inv	bif		0	Leaf-shaped arrowhead frag
42.0	4	rp	dent	dent	soide	b	dent	0	Split pebble piece with denticulations
45.0	4	crp	crp	ab	side	nb	conv	0	
47.0	4	rp	spp	ab	side,end	nb	sp	0	Spur on end of a blade-like flake
50.0	4	rpf	sce	st	end	nb	conv	0	Part of scraper edge, accidentally? struck off
114.	20	crp						0	Possibly just damage not deliberate retouch
121.	3	crp	crp	ser	side	nb	st	0	Large irregular flake with a short length of serrations
122.	4	crp	crp	st	side	nb	st	0	Large thick flake with sharp edge on one side
145.	38	rp	erk	inv	end	b	conv	0	Ad hoc piece, a suitably shaped pebble frag with slight trimming on the tip
177.	320	c	singl					0	A very thick piece, possibly a heavy denticulate
192.	187	crp	crp	ab	side	nb	conv	0	Sharp convex edge on side and tip

Appendix 6.7.1. Ty Mawr: Stone objects catalogue

rec	*context*	*gtyp*	*len*	*bre*	*dia*	*dep*
29.0	4	Natural rock frag.	40	30	0	29
		A natural unmodified fragment of tabular chert. Could have been brought to site as raw material for knapping.				
62.0	74	Natural pebble frag.	77	45	0	10
		A thin siltstone pebble frag. with a chipped hole on one edge, which is probably recent damage.				
68.0	74	Natural rock frag.	62	45	0	8
		Accidental flake of fairly soft stone from a cobble or boulder.				
80.0	80	Spindle whorl frag.	0	0	48	12
		Flat schist frag., roughly snapped to shape and with a chipped and slightly worn central perforation, 9mm dia.				
86.0	4	Natural pebble	129	53	0	34
		Elongated pebble. A few recent scratches but no evidence of use although it must have been imported to the site.				
115.0	38	Spindle whorl	66	52	0	16
		Thin oval pebble of siltstone. Slightly trimmed to shape with a central hour-glass perforation reducing from 17mm on the outside to 7mm in the middle.				
120.0	20	Whetstone frag.	55	22	0	13
		Elongated natural pebble of fine sandstone. No identifiable wear signs although the surface may have weathered.				
126.0	38	Hammerstone	115	95	0	55
		A large sub-rounded pebble of hard igneous stone with heavy peck marks around most of the perimeter and some flake removals. Probably used for both heavy and light hammer knapping therefore.				
135.0	21	Natural rock frag.	137	74	0	29
		A rock frag. split from a boulder or outcrop. Reddened, possibly by burning.				
137.0	324	Natural pebble	79	47	0	20
		Thin oval pebble of hard igneous stone. Probably imported for use as a hammerstone but there are no wear signs.				
138.0	38	Hammerstone	85	75	0	58
		A thick triangular shaped pebble of hard igneous stone with heavy pecking on one tip.				

rec	*context*	*gtyp*	*len*	*bre*	*dia*	*dep*
143.0	38	Hammerstone	81	63	0	39
		A thick, slightly triangular pebble of hard igneous stone with light pecking around most of the perimeter but concentrated on one more pointed tip.				
144.0	38	Natural rock frag.	195	80	0	60
		A natural rock frag. with natural linear markings that, when found, were thought to be man-made.				
147.0	38	Hammerstone	119	100	0	83
		Large, sub-rounded pebble of hard igneous stone with a pecked facet on one tip.				
155.0	38	Natural rock frag.	87	80	0	41
		Soft siltstone frag. Not used.				
156.0	38	Hammerstone?	146	112	0	50
		A large pebble with one tip probably lightly pecked.				

Appendix 6.8.1. Penymynydd: Flint and chert database field codes and definitions

rec: recorded find number **context**: stratigraphic unit

gtyp: general lithic type, fl: flake, rp: retouched piece, up: utilised piece, c: core, crp: casually retouched piece, ep: ecaille piece,if: irregular fragment, b: burnt, n: natural, f: fragment

styp: specific type: cp: core prismatic, cs: core single directional, cb: core bidirectional opposed, cp: core bidirectional perpendicular, cf: core frag, aho: arrow-head oblique, ahl: arrow-head leaf-shaped, ahc: arrow-head chisel, ahb: arrow-head barbed and tanged, np: nosed piece, awl: awl, dent: denticulate, sce: scraper end, scs: scraper side, sth: scraper thumbnail, erk: edge-retouched knife bin: bifacial knife, cut: utilised cutting flake, bbl: backed blade, ser: serrated piece, spp: spurred piece, tf: truncated flake, ep: ecaille pieceup: utilised piece, bur: burin, sp: split pebble, gf: gunflint, unc: unclassified, m: missing.

m: material, f: flint, bac: banded chert, blc: black chert, gc: greensand chert, o: other

col: colour: l: light, d: dark, m: mid, gr: grey, br: brown, bf: buff, bl: black, y: yellow, red: red, mot: mottled

pat: patina/cortication coded 1-3, low, medium, high

bur: burning, 1: slight, 2: medium, 3: high

dam: secondary damage, 1: slight, 2: medium, 3: high

cor: cortex type code, 1: pebble, 2: rolled, 3: nodular, 4: tabular, 5: uncertain

imp: primary impact type, 1: normal, 2: pronounced, 3: flat, scalar, 4: bipolar

cla: reduction class, 1-3

fra: fragmentation class, 1: distal, 2: proximal, 3: mid-part

pla: platform type code, 1: plain, 2: cortical, 3: battered, 4: facetted

len: length of complete piece, perpendicular to the striking platform

ilen: length of incomplete piece, perpendicular to the striking platform

bre: breadth of complete piece, parallel to the striking platform

ibre: breadth of incomplete piece, parallel to the striking platform

rettyp: retouch type: ab: abrupt, mar: marginal, st: steep, inv: invasive, sc:scalar

retpos: retouch position: side, distal, proximal

retfac: retouch face: b: bulbar, n-b: non-bulbar

retsha: retouch shape: str: straight, conv: convex, conc: concave, ang: angular

retlen: retouch length, mm

wrtyp: usewear type, 1: polish, 2: crushing, 3: abrasion, 4: microchipping

Appendix 6.8.2. Penymynydd: flint and chert summary

rec	*context*	*gty*	*mat*	*col*	*pat*	*bur*	*dam*	*cor*	*imp*	*cla*	*fra*	*pla*	*len*	*ilen*	*bre*	*ibre*	*dep*	*idep*
2.0	0	ff	f	yb	2	2	0	0	1	3	0	0	0	40	0	36	0	15
3.0	1	crp	f	mg	0	0	1	0	0	3	0	0	0	22	0	20	5	0
12.	61	rp	f	rb	1		0	0	0	3	0	0	28	0	12	0	3	0
13.	2	ff	f	rb	1	1	0	0	0	3	0	0	17	0	16	0	4	0
14.	2	ff	f	mg	0	0	0	0	0	3	0	0	0	7	0	14	0	2
15.	2	ff	f	pink	0	0	0	0	0	2	0	1	0	19	15	0	8	0
19.	2	rpf	f	pink	0	0	0	0	0	3	0	0	0	11	0	10	0	3
24.	23	f	f	bf	0	0	0	1	0	1	0	2	18	0	26	0	6	0
25.	2	c	f	ybf	0	0	0	1	0	0	0	0	30	0	22	0	14	0
26.	2	f	f	yb	0	0	0	1	0	2	0	0	25	0	15	0	4	0
27.	0	f	f	pink	0	0	0	1	0	2	0	0	24	0	20	0	6	0
28.	0	nf	f	yb	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29.	2	cf	f	yb	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30.	2	ff	f	pur	0	2	0	0	0	3	0	0	0	24	19	0	6	0
31.	2	ff	f	bf	0	2	0	0	0	0	0	0	0	12	0	12	0	3
32.	2	c	f	rb	0	0	0	0	0	0	0	0	27	0	20	0	13	0
33.	0	pe	f	dg	0	0	0	0	0	0	0	0	35	0	26	0	12	0
38.	2	up	f	lg	0	0	0	0	1	3	2	0	0	16	14	0	3	0
39.	2	ff	f	mg	0	2	0	1	0	0	0	0	0	19	0	23	0	9
40.	2	bf	f	mg	0	0	0	0	0	0	0	0	17	0	16	0	7	0
41.	2	if	f	pur	0	2	0	0	0	0	0	0	0	7	0	12	0	5
46.	29	f	f	mg	0	0	0	1	0	2	2	0	23	0	19	0	6	0
47.	29	ff	f	gb	0	0	0	1	0	2	0	0	0	24	12	0	3	0
48.	2	ff	f	pur	0	2	0	0	0	0	0	0	35	0	24	0	6	0

Appendix 6.8.3. Penymynydd: flint and chert specific records

rec	*context*	*gtyp*	*styp*	*rettyp*	*retpos*	*retfac*	*retsh*	*wrtyp*	*comment*
3.0	1	crp	crp	ab	dist	b	st	0	Possibly just a result of trampling damage.
12.0	61	rp	tf	ab	side	b	st	0	Obliquely truncated piece
19.0	2	rpf	unc	st	side	nb	slc	0	Possibly the tip of a backed blade
25.0	2	c	cbp					0	Small flat with 2 opposed platforms
29.0	2	cf	cf					0	Trimming flake from a small conical core
32.0	2	c	cbp					0	Fragment of a small core with 2 perpendicular platforms
38.0	2	up	up		side	b	slc	4	

Appendix 6.9.1. Penymynydd: Stone objects catalogue

rec	*context*	*gtyp*	*len*	*bre*	*dia*	*dep*
21.0	57	Polished axe frag.?	22	32	0	6
		A flake of fine hard igneous stone bearing previous flake facets and two areas of ground and polished surface with grinding striations. This ground surface is shallowly convex and seems more likely to be deliberate, from an axe rather than just from a natural a pebble.				
42.0	65	Natural pebble	87	83	0	16
		A broken, thin flat oval pebble of fairly soft stone. No wear signs although probaly imported to the site.				
49.0	153	Retouchoir, pebble	70	34	0	18
		A small elongated pebble of fine hard stone with light pecking on both ends and two flakes also removed from one end, probably through use as light hammer.				
51.0	65	Hammerstone	85	73	0	50
		A thick sub-rounded pebble with pecked facets on two tips and light facetting around the perimeter. There is also a small cup-mark pecked area in the centre of one face.				
52.0	59	Burnt stone frag.	81	72	0	39
		A split cobble frag., probably split because of burning. This looks like typical burnt mound type stone. A fine sandstone.				