CONWY MOUNTAIN HILLFORT
RE-EVALUATION EXCAVATION 2008
PRELIMINARY REPORT

Project No. G1770
Report No. 780

Prepared for Cadw
February 2009

By George Smith

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
☎ 01248 352535 ✉ 01248 370925 email : gat@heneb.co.uk

CONWY MOUNTAIN HILLFORT
RE-EVALUATION EXCAVATION 2008
PRELIMINARY REPORT

Project No. G1770

Report No. 780

Prepared for Cadw

February 2009

By George Smith

Cover picture:
Caer Seion, Trench 1. Hut 4 during re-excavation

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

CONWY MOUNTAIN HILLFORT RE-EVALUATION EXCAVATION 2008

PRELIMINARY REPORT

CONTENTS

ILLUSTRATIONS

1. SUMMARY

The re-excavation of two trenches first excavated in 1951-2 was carried out to identify dating material to provide a chronology for the separation between the first and second phases of construction of the defences. This was made difficult by the existence of a flat point in the radiocarbon calibration curve during the second half of the first millennium BC. However, wood charcoal provided three AMS dates that showed that the fort was in occupation around 400-200 BC and that the later phase of the fort was constructed within or soon after this date range. The dates for the beginning and latest occupation of the fort are still unknown.

Environmental analysis of samples for possible macro-botanical and pollen evidence still has to be carried out in 2009 and when completed may allow additional interpretation.

2. INTRODUCTION

Conwy Mountain hillfort, sometimes known as Caer Seion or Caer Lleion is a substantial fort with a commanding position overlooking Conwy Bay and estuary and over the ancient trackway that followed the coastal ridge, continuing westwards towards Anglesey. It may be significant that it is intervisible with the next nearest strong forts and possibly tribal centres at Pen-y-dinas (Great Orme), Pen-y-corddyn (Llandulas), Pen-y-gaer (Llanbedr-y-cennin) and Braich y Dinas (Penmaenmawr).

The earliest excavations were carried out in 1906 and 1909 but produced no satisfactory evidence (Picton 1909). More extensive excavations were carried out in 1951-2 of several huts and parts of the defences (Griffiths and Hogg 1956). These did not produce any pottery or other datable artefacts but did produce numerous sling stones, spindle whorls, rubbing stones, fragments of several saddle querns and some iron fragments, including possibly part of a pair of tweezers. The presence of saddle querns, but not rotary, and the absence of any Romano-British material was taken to indicate that the fort was occupied during the Middle to Late Iron Age, about 300 BC to 1st century AD and perhaps abandoned when the Romans conquered North Wales in 78 AD.

The fort had two periods of defence. In the first period a single stone wall of 3 to 4m width encircled the whole hill top apart from at the steep north side where no defence was needed. It had one entrance, at the south side, which would have had a timber gate. The greater width of the wall around the gate suggests it had a ‘fighting tower’ over it. Within the fort were over 50 timber round houses, many just behind the rampart at the south side (to shelter from the wind) and they are visible as circular platforms terraced into the hill slope. They varied in size from about 4m to 8m diameter and traces of walling survive at some of them. In one place there is a possible corn-drying kiln.

In the second period a smaller and stronger fort was constructed at the west end of the hill. The older fort appears to have still been occupied but there was no access between the two, except that a causeway running along the crest of the hill close to the north-east bastion of the small fort suggests that there may have been ladder access between the two at that point. The smaller fort had somewhat wider walls and a strong gateway protected by bastions on either side and probably a ‘fighting tower’. Comparison with similar forts suggests that the wall would have been about 3 to 4m high with a walkway and breastwork wall on top. The defences were further reinforced by the addition of deep ditches at the east, north-east, west and south-west. The entrance into the small fort was protected by an ‘outwork’ – an outer wall that made rapid, approach to the entrance impossible and exposed any attackers to missiles from the defenders on the overlooking inner walls. The entrance through this outwork was later neatly blocked, making the approach to the main entrance difficult to explain.

The excavations carried out in 1951 found a hearth inside one house in the small fort as well as spindle whorls (for spinning wool) and a quern (for grinding corn). In the large fort the house next to the entrance contained over 400 sling stones, so perhaps was a 'guard chamber'. One interpretation could be that the small fort was built during the period between the first Roman attack on north Wales in 60AD and the final conquest in 78 AD. The absence of Roman period finds from the fort suggested that it was not occupied after the Roman conquest, and so it may have been destroyed and deserted. However, there is a poem of the 9th century that links the fort with Maelgwn Gwynedd in the 6th century and it has been suggested that the small fort belongs to that period, but this is probably a purely imaginary tale.

Several parts of the stone-built defences of the fort are subject to considerable erosion due to trampling by visitors, particularly along the north wall of the small fort, which forms part of a path through the fort and along the ridge. In 1991 a survey of the condition of the fort was carried out by Peter Crew, then archaeologist for the Snowdonia National Park and a programme of consolidation work was given Scheduled Monument Consent and carried out. This included reinforcing of vulnerable parts of the walls, establishment of new path lines to divert foot traffic from vulnerable areas, clearance around the entrance of the small fort to provide interest for visitors and placing of two small interpretation panels in the small fort.

The work in 2008 was carried out as part of a wider hillforts project in the Conwy area, itself part of a hillfort project in the whole of Wales for Cadw. The hillfort and its immediate surrounds are a Scheduled Monument and consent was obtained from Cadw for the work. The work was carried out between 7th July to 21st July 2008 to coincide with National Archaeology Week and school and public visits were arranged to the fort and excavations.

3. PROJECT OBJECTIVES AND DESIGN

The agreement was to re-excavate parts of the trenches excavated and backfilled in 1951-2. The positions of the 1951 trenches were measured in from fixed points identifiable on the original detailed site plans and this proved to be quite accurate. The excavated material was stored on plastic sheets, keeping the removed vegetation separate and this was all replaced after the work.

Two of the 1951-2 excavation trenches were chosen for re-excavation, in both of which the earlier report had described layers containing charcoal and from which, therefore, it might be possible to obtain radiocarbon dating samples. The first was in a round house within the small fort, called Hut 4 in the earlier report, where a distinct layer of charcoal was recorded sealed beneath the hut wall (Fig. 5). The second was a trench through the outer rampart at the east side of the east wall of the small fort where a buried 'occupation horizon' containing charcoal was recorded sealed underneath the bank (Fig. 6).

Acknowledgements
Thanks go to Alun Jones, Conwy BC Countryside officer and warden who gave permission for the work and facilitated access. Also to Shirley Williams, Conwy Museums Education officer for arranging a school visit to the site. The work involved very exposed and difficult conditions, largely carried out by volunteers and many thanks go to C. 'Beaver' Hughes, Jeff Marples and Emily May.

4. BACKGROUND

Previous interpretation of the periods of use of Caer Seion was hindered by the lack of dating evidence despite two earlier excavations having taken place. However, the actual lack of such

evidence could be used since most hillforts and roundhouse settlements in the north-west have produced some Roman material, of pottery or coins, whether by excavation or casual finds, demonstrating at least continued use, whatever their origins might be. The absence of Roman material at Caer Seion was therefore taken to mean that the fort was abandoned at the time of the Roman incursion and never re-settled. It was even suggested that because most other forts did continue to have settlement that the Caer Seion defences might have been deliberately demolished. The walls are exceptionally ruinous, but this may be more to do with the impact of trampling. On the other hand there is a large roundhouse outside the fort and downhill from it at the south-east. This has a very large boulder lying within it, which must have derived from the fort wall above and which is likely to have been deliberately moved. Possibly it even fell while the house was still standing.

5. EXCAVATION RESULTS

TRENCH 1 (Fig. 3)

The whole of the interior of Hut 4 had been excavated in 1951 and a detailed plan and section were included in the 1956 published report. The 2008 excavation was limited to a one metre wide strip across the interior. The 1956 report described first finding a layer of stone slabs in the hut interpreted as a floor. Removal of this floor revealed the subsoil into which a number of features were cut. These comprised several post-holes, possible post-holes and possible hearths (Fig. 3d). The 2008 excavation also had to first clear a layer of stone slabs, probably placed in the hut as backfill to stabilise it during the 1991 conservation works. The remainder of the hut was filled with a more mixed layer of stony backfill from the original excavation.

The subsoil surface of mid-orange gravely clay was re-exposed, through which bedrock protruded in places. The 1951 excavations had removed some areas of subsoil during the investigations so not all the features recorded in the earlier plan survived. In the interior two post-holes, [14] and [16] were identified of the five possible post-holes recorded in 1951. The position of the others had been removed in 1951. Post-hole [14] was approximately circular, 0.18m diam. and 0.45m deep below the top of the subsoil (Fig. 8). Some post-packing stones still remained *in situ* as well as some of the original fill but there was no charcoal that might have been used for dating. Post-hole [16] was 0.26m diam. and 0.18m deep below the top of the subsoil, but no original packing stones or fill remained.

Within Hut 4 the 1951 excavation also recorded two areas marked as hearths. It was hoped that some of these might remain to provide a radiocarbon date for the latest occupation of the hut. However, the fill of both areas had been totally removed in 1951 and nothing remained (Fig. 3a), not even any evidence of burning, such as heat-altered soil or rock.

The main objective of Trench 1 was to re-expose a layer of charcoal recorded in 1951 as occurring beneath the roundhouse wall at the west side, where the wall butted against the rampart wall. This charcoal layer (19) was still quite clearly evident as a thin lens of almost pure charcoal where the face of the hut wall was exposed (Fig. 3b and Fig. 7)). Where the hut wall met the rampart wall it could also be seen to butt up against the rampart (Fig. 3c). Another thin layer (21) was also exposed lower down that underlay the rampart wall. This was a layer of soil but did include some charcoal fragments.

Charcoal layer (19) was quite extensive and clearly pre-dates the hut wall and post-dates the rampart wall, which at this point was used as the hut wall and on which the roof timbers must have rested. The extent of the charcoal suggests it was clearance prior to construction of the hut, which could therefore be dated by the charcoal. However, the sequence is not so simple or at least so certain. The inner rampart wall was taken to be continuous with the hut wall in the 1951 excavations so was in effect both contemporary and earlier than the hut (Fig. 3d).

However, the 1951 description noted that the hut wall at the south-west, between the incorporated outcrop and the rampart wall was different than the rest. This part was built of small laid stones, whereas the rest was of orthostatic facing infilled with rubble. It might be that the hut itself was from an early phase of the fort and that for some reason the south-western part was re-built at a later date. Certainly the 1951 excavations showed that there were round houses in the area of the small fort that pre-dated the small fort as one was found in the area of the small fort entrance. The charcoal layer (19) may therefore derive from destruction or damage to one of these early houses when it was repaired or re-built, perhaps when the small fort was built, but not certainly so. Excavation and partial dismantling of the inner rampart wall would be needed to help determine the relationship with the house wall.

TRENCH 2 (Fig. 4)

The trench was excavated cautiously until the backfill of the 1951 trench had been certainly identified and was then cut back to the original trench sides. Fortunately the original trench outline was found to be exactly as measured in. This trench was 8m by 1.6m and included a complete section across the outer rampart and its ditch, which consisted of a conjoined line of quarry pits (Fig. 2). The sides of the trench revealed the rampart fill still standing but the deeper south face across the quarry ditch must have collapsed during the earlier excavation and only backfill was revealed in the 2008 trench side, except for some thin deposits on the base.

The rampart quarry pit was cut into the blocky bedrock and must therefore have produced mostly large pieces of rock. The rampart bank however, was made of mainly small pieces of broken stone in a matrix of silt. In the lower part of the bank were lenses of darker humic silt that must represent the remains of the topsoil first thrown up during the construction of the bank. There was no evidence of any use of larger stones in the bank or in a facing or revetment even though numerous large slabs of rock lay in the backfilled quarry pit (Fig. 4c), which came out of the trench during the 1951 excavation and were suggested to be fallen facing stones (Fig. 4d). Much of the bank seems to have been made of superficial silt deposits above the bedrock and some of the quarried slabs perhaps were used in construction of the small fort wall to the west.

The profile of the subsoil and bedrock shows that the line of quarry pits lay within a shallow ditch about 1m deep, where the superficial deposits had been removed. The quarry pit excavated was about another 1m deep (Fig. 4c and Fig. 11). These together, *c*. 2m deep fronted a bank, eroded to a height of 1m that must originally have been about 2m high, together producing a massive defensive obstacle and one that would have funnelled any potential attackers to a narrow approach at either end.

At the base of the ditch were three thin lenses of material that appeared to be *in situ* silts left in during the 1951 excavations. These were sterile iron-panned silts with no artefacts or visible charcoal.

The bank fill overlay a distinct buried soil (9) of dark humic silt containing a scatter of charcoal fragments (Fig. 12). This buried soil was quite deep and appeared mixed and disturbed throughout as opposed to a natural soil profile that might have had a developed turf horizon at its top. This was the same as the ‘occupation horizon’ described from the 1951 excavation. Individual wood charcoal fragments were collected for identification and possible radiocarbon dating and a bulk sample was taken for assessment for carbonised macro botanical material. A soil column for pollen analysis was also taken by Astrid Caseldine. The 1951 excavation report described the buried soil as ‘about 4 inches thick …. containing some crushed and burnt bone and much charcoal.’ (Griffiths 1956, 63). The soil was from 10-20cm

(4-8ins) deep but no bone was seen and possibly its presence was mistaken fragments of cream-coloured weathered bedrock.

Two pits were recorded here [4] and [6] that were described as possible post-holes in 1951. Both were very similar, oval in plan approximately 0.85 by 0.75m and 0.55m deep and both showed evidence that they were indeed post-holes. Pit 4 still contained a good deal of *in situ*, unexcavated fill in which were vertical post-packing stones. The base of the pit also had a horizontal pad stone set in shallow post-butt socket indicating a post of about 0.35cm diameter (Fig. 9). Pit 6 had been almost completely emptied in 1951 but some material still remained on its sides in which were two vertical post-packing stones (Fig. 10). This pit had a fairly level base with no post-butt socket. The 1951 report suggested that the pits might be the post-holes of a roundhouse indicated by a shallow curving gully and this feature was found again in 2008. It was about 18cm wide and 6cm deep, cut into the top of the silty subsoil, curving in a regular arc, which, if continued, indicated a circle of about 4m diameter (Fig. 4b). In appearance it was more like the slot for a timber roundhouse wall than an outer or inner drain. However, in plan it did not obviously respect the position of the post-holes. The 1951 excavation report also stated that the gully delimited the sp read of charcoal-rich occupation deposit. However, more of the charcoal-rich soil was found over the top of the fill of pit 4 (Fig. 4c), i.e. beyond the arc of the gully/slot but did not spread far beyond the position of the pit.

Interpretation of these post-holes as belonging to a roundhouse seems credible since the buried land surface here is almost level and this terrace could have been artificially created (Fig. 4a and c). However, the buried soil around the post-holes is quite deep and humic with no evidence of any internal or external floor surface. This suggests that if the post-holes were part of a building then this had been abandoned and a soil had then developed over the site or that they had been part of some other type of structure that did not have any kind of floor associated such as a free-standing granary. If the excavated area had been larger then the layout of the posts may have become evident, if they had continued in an arc or not. The position of the holes does not seem related to the line of the defensive bank but it is an outside possibility that they were revetting for the bank. Certainly the post-holes are also quite different from the post-holes in the internal post-ring of Hut 4 in terms of size.

In the first phase of the fort, before the construction of the outer bank, the rampart wall to the west formed the outer wall and the area to its east could have been a favoured, sheltered area for settlement but as there is no sign of terraced-in hut platforms perhaps the area was used for granaries.

6. ARTEFACTS

Trench 1: From the 1951 backfill were 3 possible sling stones and one burnt fragment of a possible rubbing stone. In the buried soil (19) was another possible sling stone.

Trench 2: From the 1951 backfill came 6 possible sling stones and one larger smooth flat pebble of ‘soapy’ stone - a possible smoothing stone with multiple fine scratches in various directions.

7. DISCUSSION AND DATING

The objective of the excavation was to allow better interpretation of the hillfort by producing material for radiocarbon dating. Three radiocarbon dates were produced as part of the work, one from Trench 1 and two from Trench 2 (Appendix 1).

In Trench 1 the object was to re-expose a layer of charcoal described in the 1956 report. This layer (19) was found to still exist and was a thin layer of fairly pure wood charcoal, not a scatter of charcoal in a soil layer, and so probably derived from a single event. It lay directly under the wall of Hut 4 and so represented an episode at or closely prior to its construction. Moreover it could also be shown to butt against the wall face of the inner rampart. One piece of charcoal was selected for dating, this was of birch round wood (Appendix 3). The remainder has yet to be identified. The AMS date received from this piece was 2240 +/- 40 BP (Beta – 254607), 1 Sigma calibration Cal BC 380-350, and Cal BC 200-210, 2 Sigma calibration Cal BC 390 to 200. The context of this date shows quite closely when the wall of Hut 4 was built. This house was one of those in use when the small fort was in use and shows that the small fort itself had been built and was in use by at latest the end of the 3rd century BC.

The two AMS dates from Trench 2 came from wood charcoal derived from individually collected pieces, identified to species (Appendix 3).

One was of alder, round wood with bark Caseldine from the buried soil (9) and this produced a date of 2420 +/-40 BP (Beta –250542), 2 Sigma calibration: Cal BC 750 to 680 (Cal BP 2700 to 2630) and Cal BC 670 to 610 (Cal BP 2620 to 2560) and Cal BC 600 to 400 (Cal BP 2560 to 2350).

The other was of hazel, not round wood Caseldine from the fill of post-hole 4. It was a small discrete piece of charcoal and not from a charred *in situ* post. This was 2320 +/-40 BP (Beta – 250543), 2 Sigma calibration Cal BC 410 to 360.

The scatter of charcoal in layer (9) was in a restricted area so may have derived from a single activity but was not a discrete lens but mixed within the soil layer, and the soil layer itself appeared mixed, perhaps through trampling prior to dumping of the overlying bank material. The relationship of the soil as it overlay post-hole 4 suggests that the charcoal in post-hole 4 might have derived from the same activity, perhaps dropped into the post-hole after removal of a post prior to dumping of the overlying bank material. The dates do not indicate a contemporary source for each piece of charcoal but the shape of the calibration curve in this period means that the charcoal from the buried soil could be from a range of dates and statistically the two pieces of charcoal could be contemporary. Similarly their ranges overlap with the date from Trench 1.

The defensive bank in Trench 2 was constructed directly over the buried soil (9) with no hint of a separating phase and so was constructed sometime after 360BC, possibly quite soon after. The defensive bank is part of the defences of the small fort, whether part of it original design or as an addition to it. The agreement between the ranges of the dates from Trench 1 and Trench 2 gives them more confidence.

8. FUTURE WORK

The new radiocarbon dates still leave open the questions of when the main fort was first constructed and when the end of occupation took place, although there is a possibility that the fort was abandoned before the Roman incursion. The date of last use could be pursued by excavation of the interior of one of the roundhouses in the small fort not previously excavated, where it should be comparatively easy to locate a hearth and produce material for dating.

Further work is still to take place on the soil samples. Only sufficient charcoal was identified to allow selection of suitable pieces for radiocarbon dating (Appendix 3) and only three dates were agreed at this stage. Charcoal was also retrieved from layer (21) in hut 4, a layer that

predated the inner part of the fort wall there, and a date from this would help to define that phase. A soil column was also taken from the buried soil (9) in Trench 2 and this will be assessed for possible pollen analysis. A bulk sample from the same layer will also be processed fro carbonised macro-botanical material, other than wood charcoal.

When this scientific work is completed a summary report will be produce for publication in Archaeology in Wales.

9. REFERENCES

Griffiths, W.E. and Hogg, A.H.A. 1956. The Hill-Fort on Conway Mountain, Caernarvonshire, *Arch. Camb*. CV, 49-80.

Picton, H. 1909. Caer Seiont, Conway Mountain, *Arch. Camb*. 1909, 500-4.

APPENDIX 1

RADIOCARBON DATING RESULTS

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. George Smith

Report Date: 11/7/2008

Gwynedd Archaeological Trust

Material Received: 10/17/2008

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 250542	2400 +/- 40 BP	-23.9 o/oo	2420 +/- 40 BP
SAMPLE : G1770CS11			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 750 to 680 (Cal BP 2700 to 2630) AND Cal BC 670 to 610 (Cal BP 2620 to 2560) Cal BC 600 to 400 (Cal BP 2560 to 2350)			
Beta - 250543	2320 +/- 40 BP	-25.0 o/oo	2320 +/- 40 BP
SAMPLE : G1770CS12			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 410 to 360 (Cal BP 2360 to 2310)			
Beta - 250544	1960 +/- 40 BP	-25.6 o/oo	1950 +/- 40 BP
SAMPLE : G1629TT110			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 40 to Cal AD 130 (Cal BP 1990 to 1820)			
Beta - 250545	2290 +/- 40 BP	-24.3 o/oo	2300 +/- 40 BP
SAMPLE : G1629TT111			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 410 to 360 (Cal BP 2360 to 2300) AND Cal BC 290 to 240 (Cal BP 2240 to 2180)			

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.9:lab. mult=1)

Laboratory number: **Beta-250542**

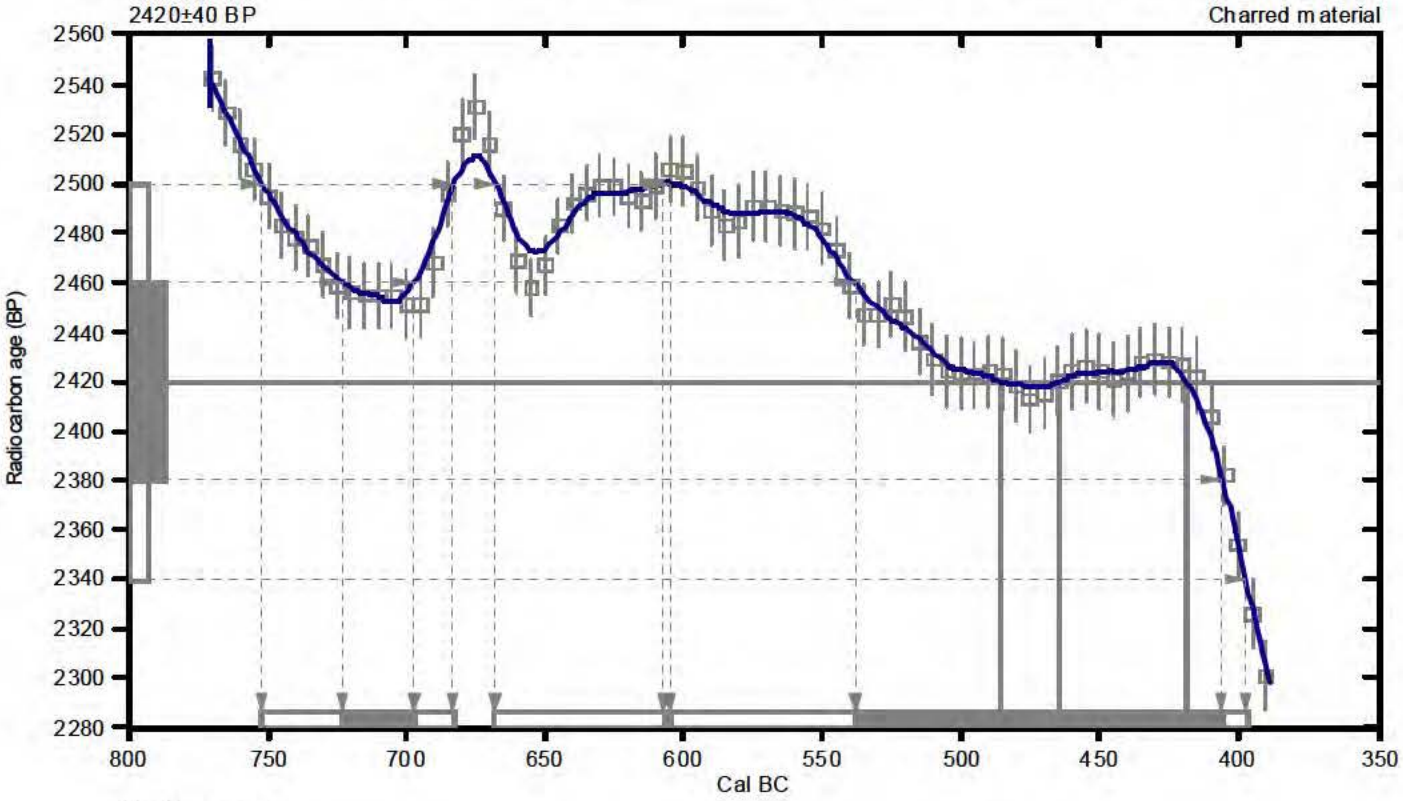
Conventional radiocarbon age: **2420±40 BP**

2 Sigma calibrated results: **Cal BC 750 to 680 (Cal BP 2700 to 2630) and**
(95% probability) **Cal BC 670 to 610 (Cal BP 2620 to 2560) and**
Cal BC 600 to 400 (Cal BP 2560 to 2350)

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 490 (Cal BP 2440) and
Cal BC 460 (Cal BP 2410) and
Cal BC 420 (Cal BP 2370)

1 Sigma calibrated results: Cal BC 720 to 700 (Cal BP 2670 to 2650) and
(68% probability) Cal BC 540 to 410 (Cal BP 2490 to 2360)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

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

Laboratory number: **Beta-250543**

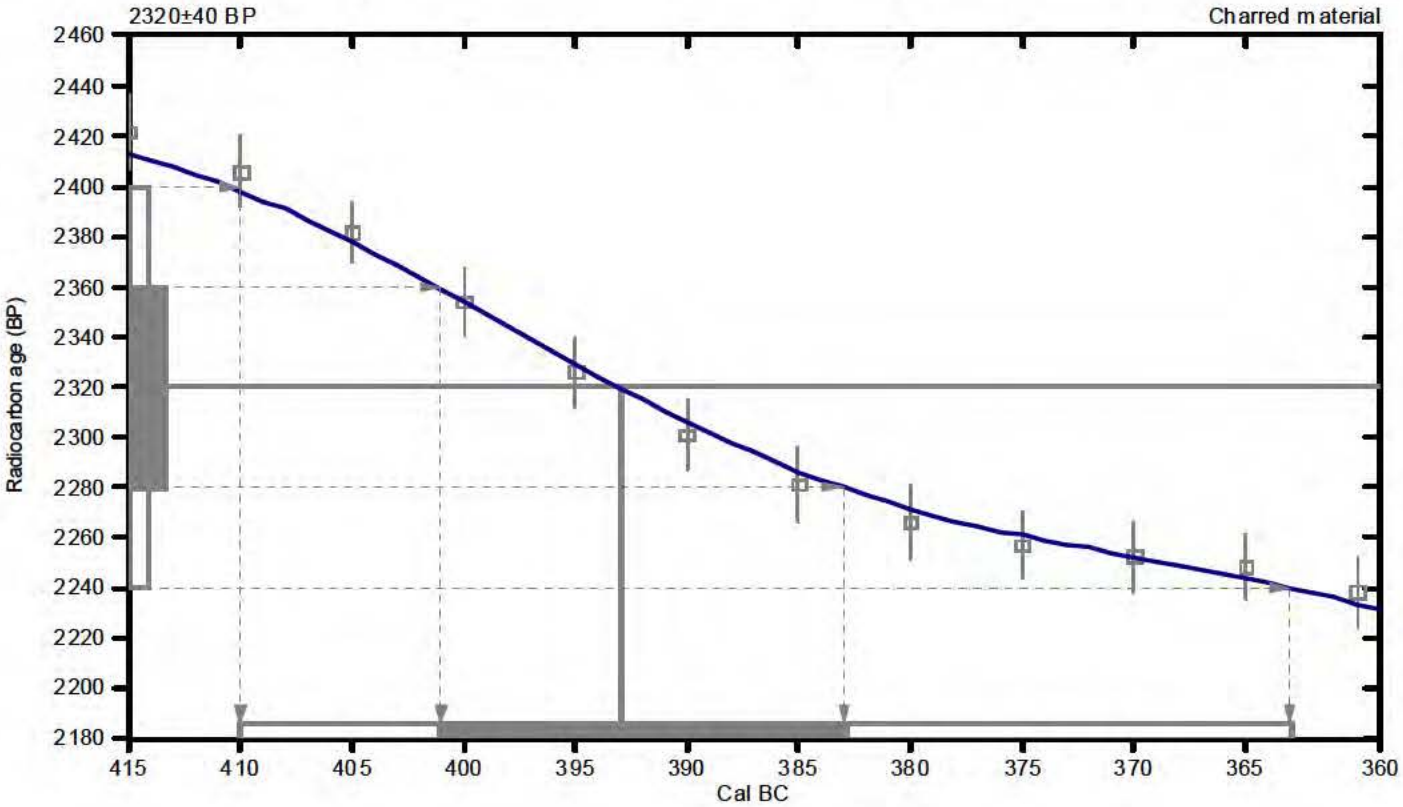
Conventional radiocarbon age: **2320±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 410 to 360 (Cal BP 2360 to 2310)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 390 (Cal BP 2340)

1 Sigma calibrated result: (68% probability) Cal BC 400 to 380 (Cal BP 2350 to 2330)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. George Smith

Report Date: 2/9/2009

Gwynedd Archaeological Trust

Material Received: 1/14/2009

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 254607	2280 +/- 40 BP	-27.5 o/oo	2240 +/- 40 BP

SAMPLE : G1770CS13
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal BC 390 to 200 (Cal BP 2340 to 2150)

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27.5:lab. mult=1)

Laboratory number: **Beta-254607**

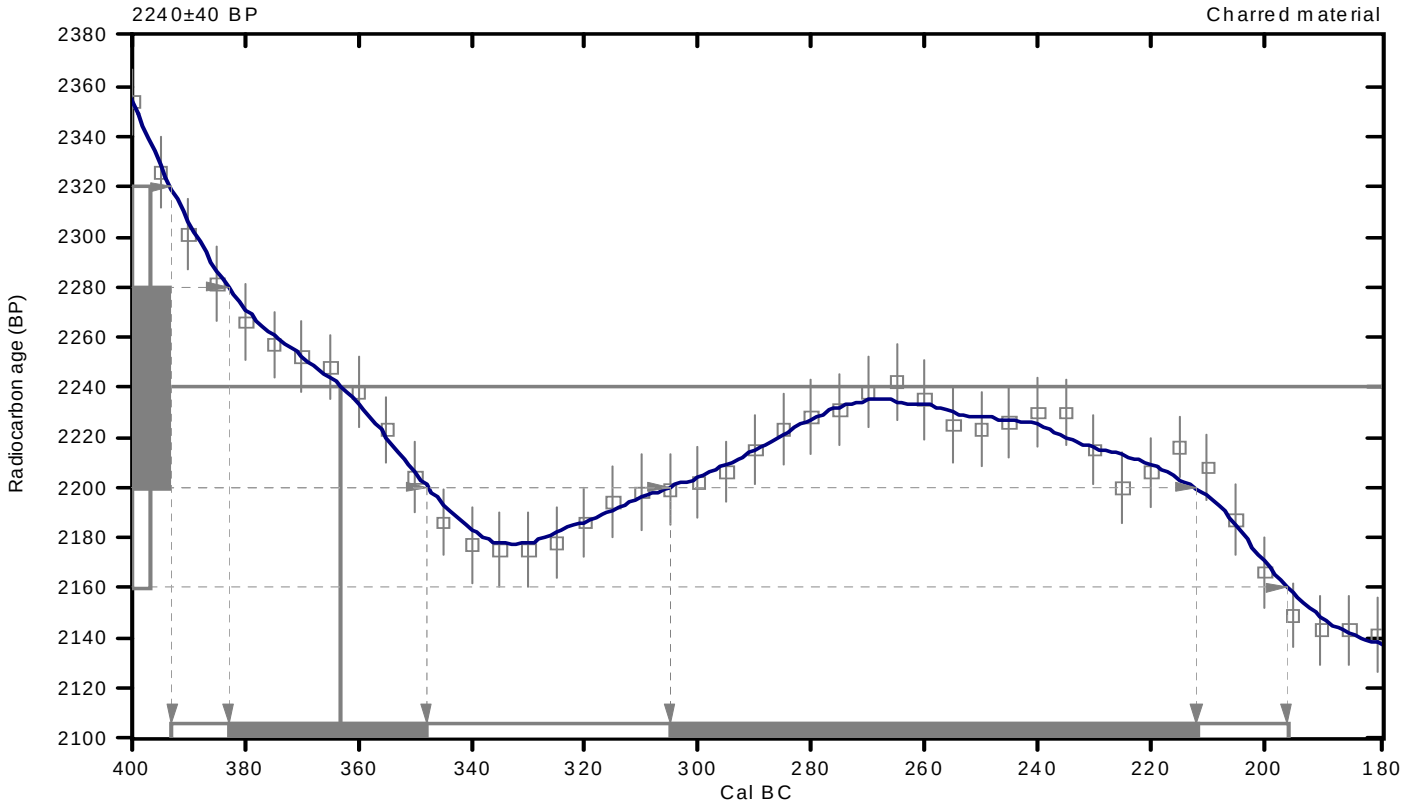
Conventional radiocarbon age: **2240±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 390 to 200 (Cal BP 2340 to 2150)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 360 (Cal BP 2310)

1 Sigma calibrated results: (68% probability) Cal BC 380 to 350 (Cal BP 2330 to 2300) and Cal BC 300 to 210 (Cal BP 2260 to 2160)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

APPENDIX 2

G1770 CAER SEION SAMPLE INDEX

Sample No.	***Context No.***	***Sample Type***	***Description & Purpose of sample***	***Quantity***	***Sent to/date***
1	8, 9	Soil	Column through buried OLS. Assessment for pollen analysis	20cm column	AC
2	23	Soil	Lower, humic ditch fill. Flotation for macrobotanical analysis	1 x 2l bag	
3	9	Column	Bulk sample from buried OLS. Flotation for macrobotanical analysis	1 sack	Sub-sample AC
4	19	Column	Charcoal-rich lens for ID and possible C14	1 x 1l bag	AC
5	21	Soil	Lens below house wall for sieving for possible charcoal for ID and C14	1 x 1l bag	AC
6	5	Charcoal	10 singly bagged pieces. 2 small bags mixed.	1 small bag	AC
7	9	Charcoal	17 singly bagged pieces 1 bag possibly mixed.	1 small bag	AC
8	10	Charcoal	5 singly bagged pieces	1 bag	AC
9	27	Charcoal	7 singly bagged pieces	1 bag	AC
10	30	Soil	Bulk sample from buried OLS. Flotation for macrobotanical analysis	3 sacks	
11	9	Charcoal	1 of sample 7 for C14	1 bag	Beta
12	27	Charcoal	1 of sample 9 for C14	1 bag	Beta
13	19	Charcoal	1 of sample 4 for C14	1 bag	Beta

APPENDIX 3

G1770 CAER SEION CHARCOAL IDENTIFICATION FOR RADIOCARBON SAMPLES. Astrid Caseldine

Context	***Species***	***Weight grammes***	***No of rings***	***Description***
5	*Corylus avellana* L. (Hazel)	0.1587	4+	Not round wood
9	*Alnus glutinosa* (L.) Gaertner (Alder)	1.3769	5	Round wood with bark
10	*Alnus glutinosa* (L.) Gaertner (Alder)	0.1058	6	Round wood with bark
19	*Betula* sp.	0.4929	2	Round wood
21	*Corylus avellana* L. (Hazel)	0.1913	8	Round wood
27	*Corylus avellana* L. (Hazel)	0.1940	3+	Frag of round wood

APPENDIX 4

CAER SEION 2008: ARTEFACTS

Context	*Site Sub Div*	*Description*	*Dimensions*
1	2	1951 Bank backfill. 5 sub-angular pebbles of hard rock, possible sling stones	30-60mm long
2	2	1951 Ditch backfill. 1 sub-rounded pebble. Possible sling stone	30mm long
3	1	1951 backfill. 2 sub-angular pebbles. Possible sling stones	40 and 50mm long
3	1	1951 backfill. 1 sub-rounded pebble. Possible sling stone	55mm long
3	1	1951 backfill. 1 burnt and broken sandstone frag. Possible broke rubbing stone.	140 by 70mm and 55mm deep
7	2	1951 backfill of post-hole 6. 1 sub-angular pebble of soft 'soapy' stone with multiple fine scratches in various directions. Possible smoothing stone.	100 by 80mm and 35mm deep
7	2	1951 backfill of post-hole 6. 1 sub-angular fragment of smooth slate. Probably natural.	42mm long
7	2	1951 backfill of post-hole 6. 1 sub-rounded pebble, possibly of limestone so imported.	60mm long
19	1	Buried soil beneath hut wall. 1 sub-rounded pebble. Possible sling stone.	60mm long

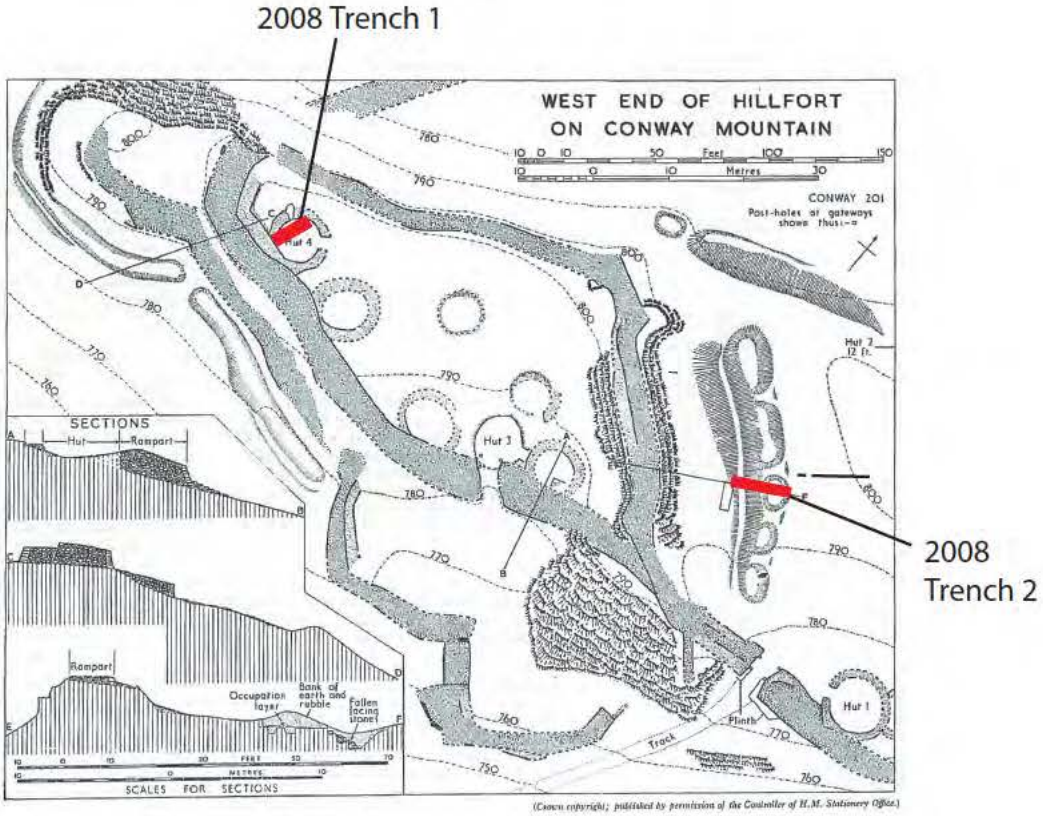


Fig. 1 Caer Seion, Conwy Mountain. Plan of the small fort at the west end of the hill, by W. E. Griffiths (1956), annotated to show the locationof Trenches 1 and 2 excavated in 2008. Scale 1:1000

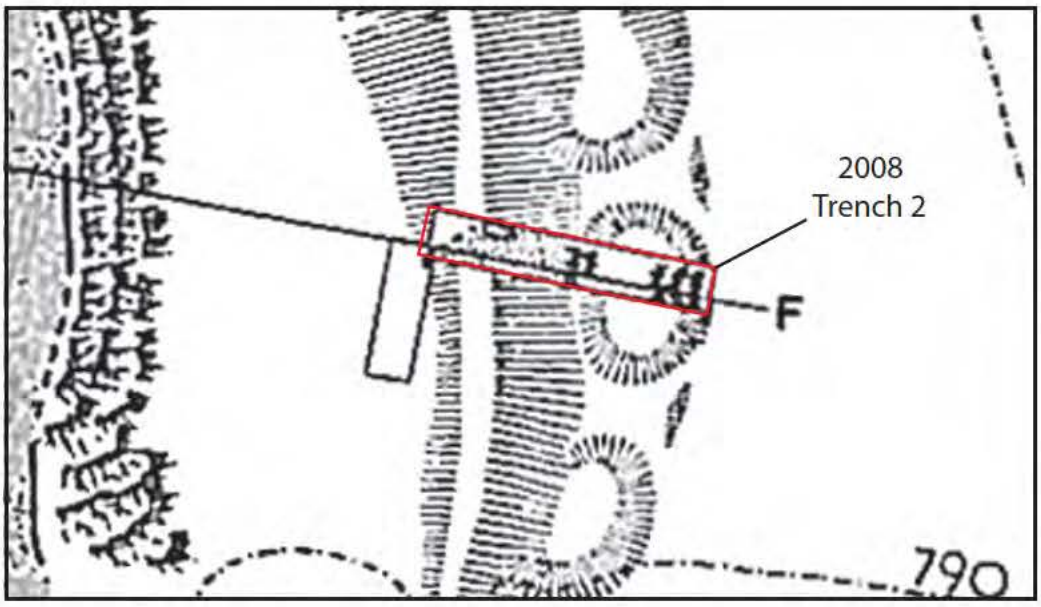


Fig. 2 Caer Seion, Conwy Mountain. Plan of 1951 Trench F, enlarged from W. E. Griffiths (1956), annotated to show the location of 2008 Trench 2. Scale 1:200

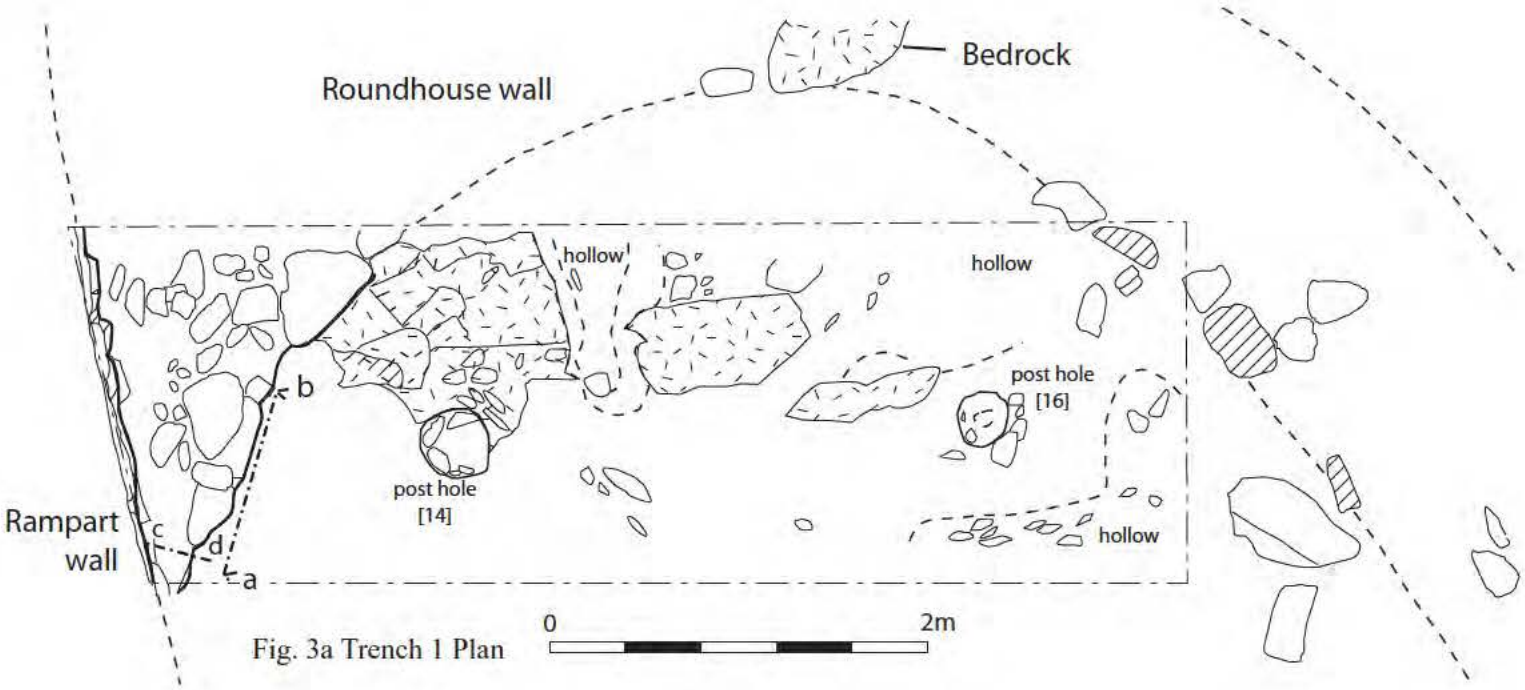


Fig. 3a Trench 1 Plan

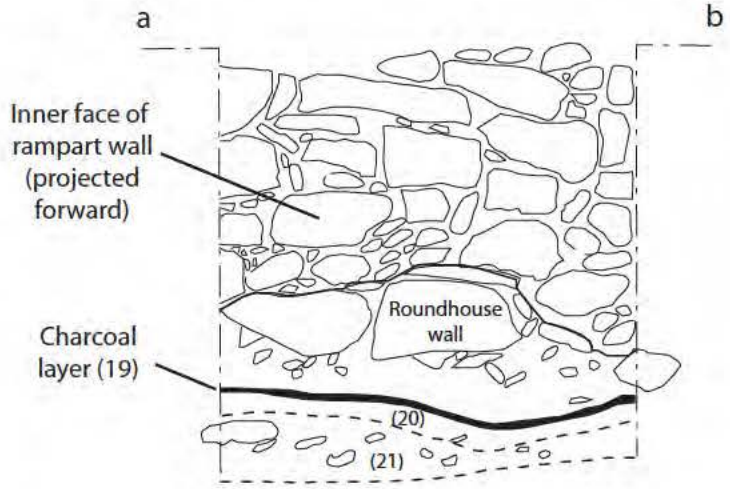
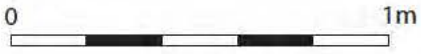


Fig. 3b Elevation of rampart wall and roundhouse wall



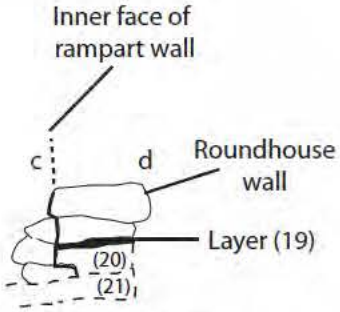


Fig. 3c Section showing relationship between rampart wall and layer (19)

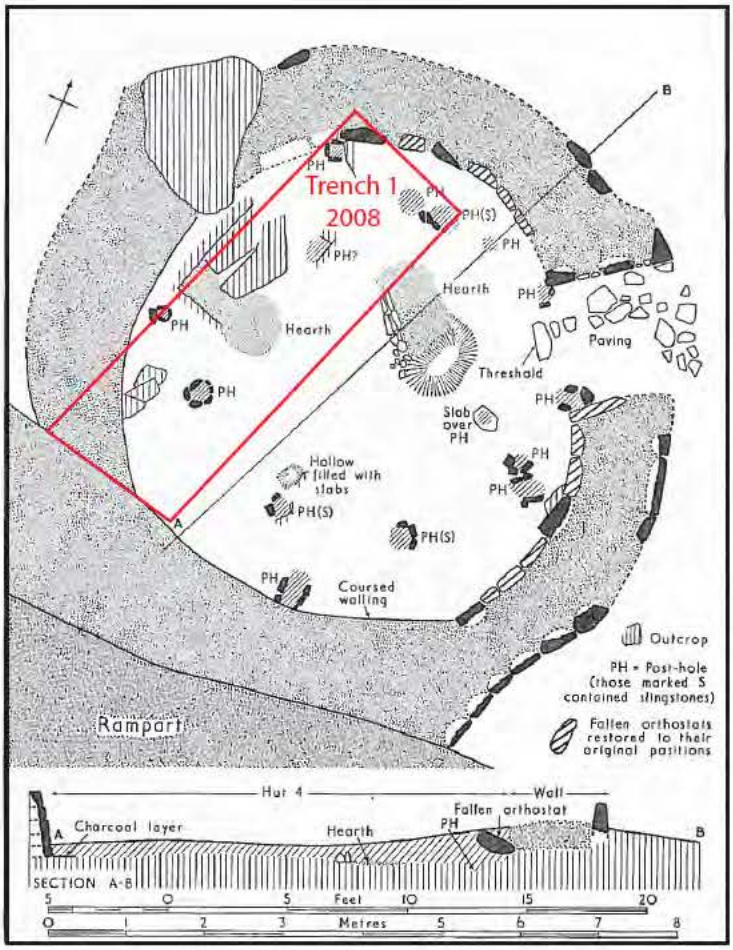


Fig. 3d 1951 excavation plan of Hut 4 annotated to show position of Trench 1

Caer Seion: Fig. 3: Trench 1. Location of the 2008 trench in relation to the 1951 excavation plan of Hut 4 and plan and elevations of rampart and hut wall to show the location of the buried soil (19)

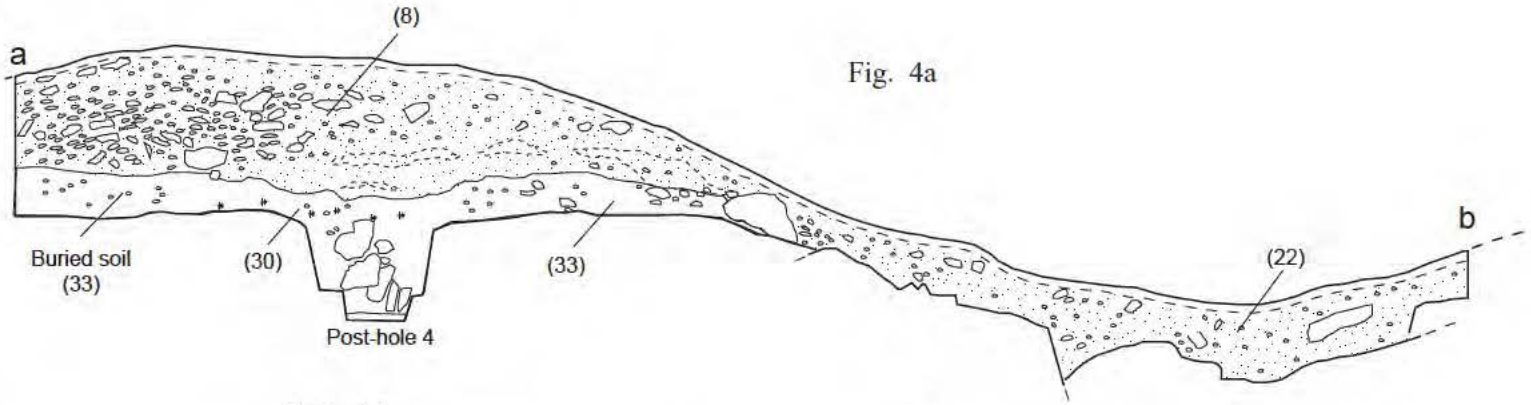


Fig. 4a

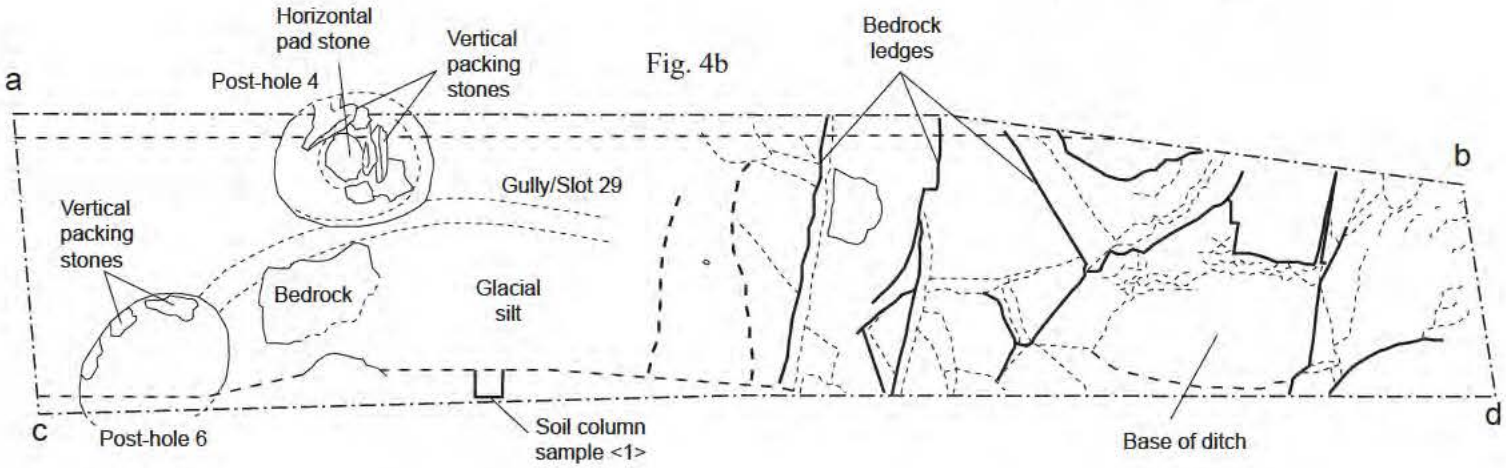


Fig. 4b

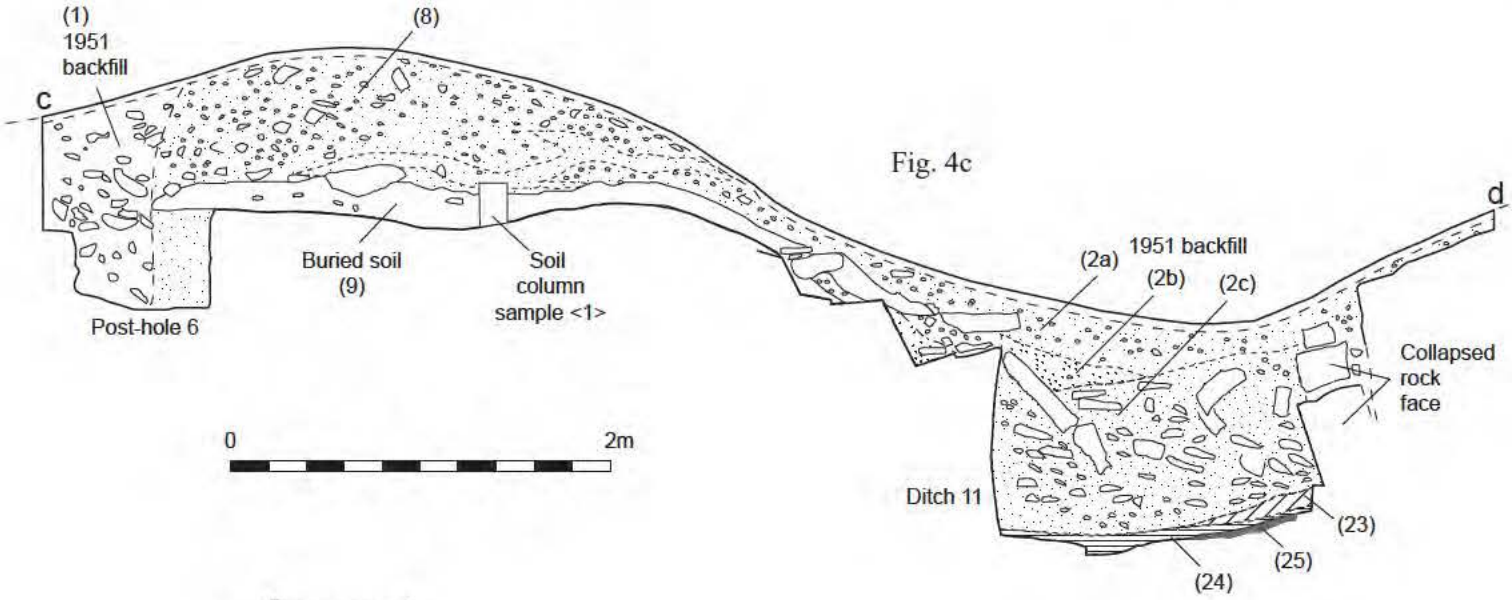


Fig. 4c

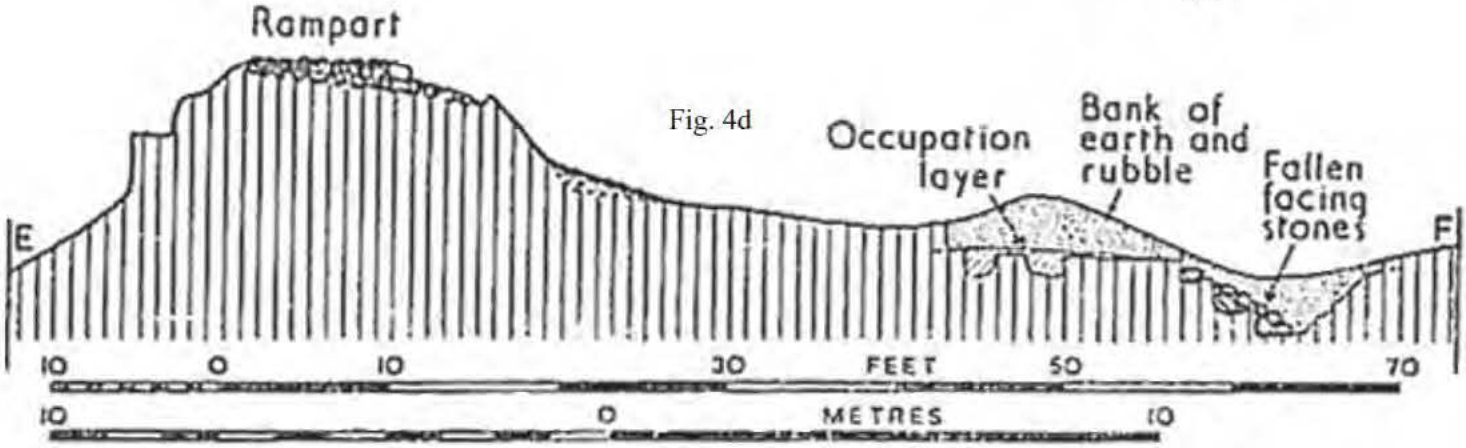


Fig. 4d

Caer Seion Fig. 4 : Trench 2. 2008 Plan and sections of bank and ditch, showing the buried occupation horizon and postholes (Section c-d mirrored)
4d: Profile of small fort rampart and section of bank and ditch enlarged from Griffiths 1956

Caer Seion: Fig. 5 Trench 1 before excavation, from the south-west. 2m scale

Caer Seion: Fig. 6 Trench 2 before excavation, from the east. 1m scale

Caer Seion: Fig. 7 Trench 1. Buried soil 19 below hut wall, from the north-east. 1m and 30cm scales

Caer Seion: Fig. 8 Trench 1. Post-hole 14 from the south-east. 1m and 30cm scales

Caer Seion: Fig. 9 Trench 2. Post-hole 4 with packing stones from the south. 30cm scale

Caer Seion: Fig. 10 Trench 2. Post-hole 6 with packing stones, from the south. 30cm scale

Caer Seion: Fig. 11 Trench 2. Ditch excavated, from the west. 1m scale

Caer Seion: Fig. 12 Trench 2. Bank and buried soil after excavation, from the north. 1m scale

Caer Seion: Fig. 13 Trench 1 after backfilling, from the south-west.

Caer Seion: Fig. 14 Trench 2 after backfilling, from the south.

REGISTERED IFA ORGANISATION

YMDDIRIEDOLAETH
ARCHAEOLEGOL
GWYNEDD

GWYNEDD
ARCHAEOLOGICAL
TRUST

Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT Ffon/Tel 01248 352535 Ffacs/Fax 01248 370925
e-mail: gat@heneb.co.uk web site: www.heneb.co.uk