# EARLY NEOLITHIC SETTLEMENT AND AN EARLY IRON AGE HILL TOP ENCLOSURE AT CARROG, LLANBADRIG, ANGLESEY

# Publication Report for Studia Celtica

# THE ANCIENT LANDSCAPE OF MÔN ARCHAEOLOGICAL SURVEY PROJECT



GAT Project No. G2076

Report No. 1148

# Prepared for Cadw April 2013

By

George Smith with Astrid Caseldine, Catherine Griffiths, David Hopewell, David Jenkins, Frances Lynch, Richard Madgwick and Inga Peck

> Ymddiriedolaeth Archaeolegol Gwynedd Gwynedd Archaeological Trust

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Cover picture: Carrog: Simplified geophysical survey and excavation results

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Early Neolithic settlement and an Early Iron Age hill top enclosure at Carrog, Llanbadrig, Anglesey

# By George Smith<sup>1</sup>, with Astrid Caseldine<sup>2</sup>, Catherine Griffiths<sup>2</sup>, David Hopewell<sup>1</sup>, David Jenkins, Frances Lynch, Richard Madgwick<sup>3</sup> and Inga Peck<sup>2</sup>

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#### SUMMARY

A small hill-top enclosure at Carrog, Llanbadrig, Anglesey, that had been identified from a crop mark on an aerial photograph was investigated by geophysical survey and subsequently evaluated by excavation. The enclosure was interpreted on typological grounds as a possible Late Bronze Age or Early Iron Age defended site.

The enclosure ditch was substantial but there was no trace remaining of any accompanying bank. Within the enclosure were numerous post-holes and pits. Some of the latter proved to be hearths of Early Neolithic date and these have produced radiocarbon dates in the 4<sup>th</sup> millennium Cal BC. The post-holes appeared to belong to structures from occupation of the enclosure and dates from these and from the ditch showed that it was probably constructed about 800 Cal BC and occupied until about 400 Cal BC confirming the original interpretation. Late in its existence the ditch had been partially backfilled and a small building constructed within it, radiocarbon dated to the 8-9<sup>th</sup> C Cal AD.

#### **INTRODUCTION**

Archaeological features were first discovered at Carrog at SH 3780 9180 during aerial photographic survey by Chris Musson for the RCAHMW in July 1996. This recorded a possible small settlement enclosure 'about 30m diameter with an entrance on the east side' (GAT PRN 7362, NPRN 309,535). The shape, size and hill-top location of the enclosure suggested comparison with enclosures of Later Bronze Age or Early Iron Age date in southern England but not previously identified in north-west Wales. If so this was potentially a significant discovery for Anglesey, where the presence of burial mounds and standing stones demonstrates much activity in the Early Bronze Age, but where evidence of settlement before about the Middle Iron Age is lacking. This may be just because of the effects of intensive clearance and cultivation over several millennia. New and improved aerial photographs of the enclosure were taken by John Rowlands and Dafydd Roberts of *Pixaerial.com* during the dry summer of 2006 which showed the enclosure as well as several other circular and sub-circular features in an adjoining field to the south. The latter features were three ring ditches, each about 20m diameter that are almost certainly the remains of burial mounds of Early Bronze Age date. Geophysical survey was carried on all these features as part of a wider project on Anglesey for Cadw (Smith and Hopewell 2010) and the excavation at Carrog aimed to evaluate the results of the survey.

#### Acknowledgements

The work was carried out with grant-aid from Cadw. Thanks are due to the landowner, Prof. Robin Grove-White and to the farmer, Jac Jones, for permission to carry out the survey and excavation. The excavation was made possible with the help off volunteers, Helen Grove-White, Chris 'Beaver' Hughes, Jeff Marples, Emily May and several local people. Outreach work in connection with the excavation was made possible by a grant from the Anglesey Area of Outstanding Natural Beauty Sustainability Project, administered by Efan Milner for the Anglesey County Council.

#### TOPOGRAPHIC AND ARCHAEOLOGICAL BACKGROUND

The enclosure lies at a height of 30m OD in low, gently undulating countryside, on the east side of the summit of a low hill (Fig 1b). The land is part of Carrog Farm, which is part of the Brynddu Estate, in the 18<sup>th</sup> century belonging to William Bulkeley (1691-1776), a son of Sir Richard Bulkeley of Baron Hill, Beaumaris. An early 19<sup>th</sup> century estate map survey the field containing the enclosure as called Cae'r Wlan Frêch, meaning 'Field of the Spotted Seagull'.

The fields at Carrog lie over glacial drift boulder clay (HMSO 1974), which covers ancient metamorphic green mica schist (HMSO 1972). The soil is a brown earth (Soil Survey1958) and the land is classified as of agricultural Grade 3, which is of reasonable quality, suitable mainly for pasture but with occasional arable (MAFF 1977). The straight sides of most of the fields in this area suggest that the present field pattern was a result of 18<sup>th</sup>-19<sup>th</sup> century improvement and it is largely unchanged from that shown on the Ordnance Survey map of 1889 and a Brynddu Estate map of 1805. However,

the southern edge of the field is irregular, following the line of a former stream channel, used also as a Community boundary and is therefore likely to have been a much earlier boundary.

## AIMS AND METHODS

The main aims were to identify the function, date and potential of the sub-surface remains. The excavation was based on the results of the geophysical survey by fluxgate magnetometer. It aimed to sample the interior of the enclosure, where there were several geophysical anomalies that suggested features such as pits or hearths and part of the entrance on the south-east side, including one ditch terminal. The trench layout used the grid previously established for the geophysical survey (Fig. 3). The turf and topsoil were stripped by machine, followed by hand cleaning and excavation. This proved that nearly all geophysical anomalies were the result of subsurface features even where they were too slight to allow interpretation before excavation.

# MAGNETOMETER AND SOIL SURVEY RESULTS

An area of 60m x 60m on the top of the hill was surveyed at high resolution  $(0.5m \times 0.25m)$  (Fig. 3) with an additional area of 60m x 40m on the slope to the north at lower resolution  $(1.0m \times 0.25m)$ . Levels of background noise were very low and archaeological anomalies were relatively faint. Data was cropped to +-5nT. Three small soil test pits were also dug, one within and two outside the enclosure to help inform the survey. These showed shallow topsoil of *c*. 300mm depth over fluvio-glacial till of fine clay-silt with scattered sub-angular gravel.

A very well-defined circular anomaly was detected corresponding to the previous crop-mark and best interpreted as a circular ditched enclosure (Fig. 3). This has an external diameter of 40m and has a 6m wide entrance at the eastern side. The ditch (A) appears to be about 4m wide. A slight anomaly (B) around the inside of the ditch could indicate the remains of a bank but this interpretation would have to be tested by excavation. The survey shows a scatter of typical strong responses from iron debris in the topsoil but several weaker anomalies within the enclosure could be post-holes or pits belonging to settlement. A narrow curvilinear anomaly (C) runs up the hill to the edge of the enclosure. It then appears to continue as a faint anomaly running parallel to the ditch for a short distance. It either divides or is crossed by a second anomaly (D) corresponding to the south edge of the enclosure entrance. There is no obvious interpretation for this anomaly, it appears to be a narrow, cut feature (or combination of features) and respects the edge of the enclosure, either implying that is contemporary or perhaps simply avoiding the earthwork. A few faint straight linear anomalies elsewhere in the survey could indicate former field boundaries.

# **EXCAVATION RESULTS**

The main excavation area included part of the interior of the enclosure and the enclosure bank (Trench 1) and of the enclosure ditch and entrance (Trench 2) (Fig. 4). Removal of the ploughsoil showed that cultivation had entirely removed any trace of the bank. However, inside the enclosure, within the former inner edge of the enclosure bank, the subsoil surface was lower and the topsoil was deeper than elsewhere. This can be ascribed partly to the presence of a 'ghost' feature where the bank had been, where there had been less plough erosion because of the protection formerly provided by the remains of the bank. It is also possible that the interior of the enclosure had been deliberately lowered to level it or that it had simply been worn down by use. It may be then that the subsoil surface and any features cut into it, within the enclosure, have been reduced in depth by least 0.20m.

The ditch terminal was located, as expected from the geophysical survey. Lower down the slope was a smaller ditch or gulley, part of an extensive linear feature, also identified by the geophysical survey (Figs 3, C).

Numerous features were present within the trench. These were concentrated in the western half of the trench, i.e. within the area of the former enclosure bank. However, a few features also occurred within

the expected area of the bank and so these seemed likely to pre-date the construction of the bank and therefore of the whole enclosure.

## The Enclosure Ditch (Fig. 5)

The ditch terminal was targeted because of the likelihood that objects may have been deposited close to the entrance, but its fill contained relatively few artefacts. The lowermost layers were quite sterile gravel and silt. A stable soil layer had formed when the ditch had silted to about half its depth, subsequent to which there was a period of deliberate backfilling prior to further activity.

The ditch was v-shaped in cross-section, 4m wide and c. 2.5m deep, indicating that it must have been accompanied by a bank of a considerable size.

After the enclosure ditch had been largely silted up a humic soil had developed within it. The remaining hollow of the ditch had then been partially backfilled and what was probably a small rectangular stone-walled building [124] had then been built in the ditch. One side of this structure [124] was exposed in the excavated area. It consisted of a probable floor of horizontally laid flat slabs. At one end were three stones set upright, probably marking the edge of one wall. At the other end was a line of stones set on edge, suggesting another wall line [123]. Two stake-holes [32] and [95] were found at the west edge of the structure, driven into the layer (27) on which the slabs were laid. These were neatly circular vertical holes filled with dark humic material and oak charcoal was obtained from [95] for radiocarbon dating. There were also a few similar but smaller holes cut into the ditch edge further west, which might be associated with the structure. These stake holes did not form any pattern and one was under one of the floor slab but seem likely to have formed part of the structure [124] in its earliest phase.

Finds from the soil overlying the structure included the lower part of a flat rotary hand quern, a pierced stone loom-weight (Fig. 9) and two rubbing stones.

A small part of the top fill at the edge of the ditch, probably corresponding to layer (10) in the main ditch cutting, was exposed in the north-east corner of the trench. This produced a small spherical yellow-glass bead SF32, which could also belong with the use of structure [124].

Structure [124] lay above a deep layer of orange-brown clay-silt (27) interpreted as a result of backfilling of the ditch with material from the bank to the west (Fig. 5a and 5b). This lay on top of a thin old turf line (40) over a natural silt (52) suggesting a stable phase. This lay over another clayey layer (53), probably another backfill phase, but biased towards eastern, outside edge of the ditch.

Layer (53) overlay another probable turf line (120) representing a phase of stable land surface in the ditch silting which corresponded to the final abandonment of the enclosure. A soil column was taken through this old land surface for possible environmental analysis but no pollen was preserved.

Beneath (120) was a deep secondary silt (54) which included three lenses of coarser material. This layer may have formed during the period of occupation of the enclosure and produced charcoal for possible radiocarbon dating. The layer produced several finds, including five discs chipped from thin plaques of slate, two of which were centrally perforated, and a stone pestle (Fig. 9).

The lower layers (64), (113), (114) and (115) were the rapid primary ditch silts and consisted of stony clay. These did not produce any artefacts although oak charcoal was obtained from (64) for radiocarbon dating.

#### Interior of the enclosure

Within the enclosure was a considerable scatter of smaller features, mainly pits and probable postholes. These were concentrated at the west side of the excavated area, towards the centre of the enclosure. A few were within the area where the enclosure bank would have been, suggesting that they might pre-date the enclosure.

The features present within the enclosure were grouped into five types. Representative examples of profiles of each are illustrated (Fig. 6). There was also one small linear feature [97].

1. Shallow, sub-circular concave-profile pits, probable hearths (12, 24, 28, 49, 67, 103, 106 and 108). The first of these excavated, Pit 28, was in the expected area of the enclosure bank and proved to predate the enclosure. Pit 28 was *c*. 1.2m diameter and 0.20m deep with fine silty fill above a 'lining' of fine charcoal-rich soil. The pit produced some waste flakes of flint and black chert but no retouched pieces and a few sherds of thin plain-rimmed pottery, of Early Neolithic type, possibly all from a single pot (Lynch, below). In all there were six pits of similar type and size - Pits 12, 24, 28, 49, 67 and 103. No others contained pottery but three produced flint or chert. Pits 24 and 28 lay under the expected former area of the enclosure bank; the others formed a group a little to the west.

2. Elongated shallow pits packed with burnt stones, probable cooking pits (89 and 116). These two pits, 89 and 116, were very similar in shape size and depth, being elongated ovals, *c*. 1.6m long, 0.5m wide and 0.25m deep, both packed quite tightly with heat-fractured stones. Neither produced any artefacts although both produced charcoal and one was radiocarbon dated.

3. Larger post-holes (18, 62, 65, 71 and 73).

These were identifiable as post-holes by the presence of arrangements of post-packing stones. None of these produced any artefacts although a few produced charcoal and some from 65 and 73 was radiocarbon dated.

4. Probable post-holes (20, 22, 47, 55, 58, 69, 75, 79, 81, 83, 85, 87, 93, 110 and 118) These were slightly smaller and mainly shallower than those of group 5, but some contained probable packing stones and so were all probably minor post-holes. None produced any artefacts although a few produced some charcoal.

These post-holes and probable post-holes did not form any obvious pattern to suggest a structure but generally lay at approximately even spacing in an arc concentric to the enclosure ditch and bank. Four of them straddled, but respected a burnt stone pit, 89, and so may have formed a structure associated with the pit.

5. Other pits of uncertain function (5, 14, 16, 30, 45, 60, 77 and 91).

These were a miscellaneous group of varying shapes and depths, but mainly shallow pits, some of which may have been the remnants of post-holes.

A small linear feature [97], probably a drainage gully was oriented east to west, and would have drained to the east, where it lay within the area where the enclosure bank was believed to have been, indicating that the gully pre-dated the enclosure bank. It had a fairly distinct end at the east, where I would have been protected by the bank but tapered away gradually to the west, demonstrating the amount of erosion inside the enclosure. The gully cut through Pit 5, which was similar in size and profile to the shallow scoop hearths but did not contain as much charcoal or any cultural material such as worked chert or pottery. However, it did contain a scatter of small fragments of burnt bone and some of these had been eroded down the gully [97]. If it is correct that gully [97] predates the enclosure then so too must Pit 5. Study of the burnt bone showed that it was of animal origin and so not a cremation burial as was suspected (G. Tellier pers.com.).

Just west of Pit 5 was another similar feature Pit [106] which produced numerous pieces of a large thick-walled, well-fired coarse fabric pot with stabbed decoration (Fig. 7) as well as two beach-pebbles and some charcoal, which was radiocarbon dated. The fill of Pit [106] had been cut by a small post-hole [125], which had post-packing stones still *in situ* (Fig. 6). This probably belongs with the

other post-holes associated with the enclosure, suggesting that Pit [106] belonged with the preenclosure phase of activity and that [125] had cut pit [106] by chance.

The trench across the enclosure ditch terminal included part of the entrance causeway where it was expected there might be post-holes for a gateway or revetting for the enclosure bank, as found at other similar enclosures in southern England. However, no such features were found. One small probable post-hole [55] was found close to the entrance but was unlikely to be part of any gate structure. Two features [30] and [45] were just shallow scoops, possibly backfilled stone-holes. It may be that the entrance through the bank was much narrower than that suggested by the ditch terminals and so any entrance structure may lie just beyond the excavated area.

Lower down the slope from Ditch [9] was a small linear feature [7], part of an extensive feature identified on the geophysical survey (Fig. 3 C). This was a small ditch, v-shaped in cross-section, *c*. 1.20m wide and 0.5m deep (Fig. 6). It fill was of silt with a distinct layer of small flat stones 100-200mm in length, occupying its mid-fill, possibly from field clearance. The silt was almost sterile of material that could be associated with settlement except for a small disc of fired clay, possibly a fragment of pot re-used as a game counter. The ditch respects the enclosure, so some of the ditch and bank must have remained when it was dug. It seems likely to belong with the activity represented by the structure [124] in the top of the main enclosure ditch.

# ARTEFACTUAL EVIDENCE

The main finds have been noted in the description of the excavation and their occurrence by context and type is summarised in Table 1.

	Context	Context Type	Flint	Chert	Pottery	Stone	Other
	1	Topsoil Trench 1	1	3	-	-	-
Early	6	Pit 5	-	-	-	-	Burnt bone frags
Neolithic	51	Pit 5	1	-	-	-	-
pits	13	Pit 12	1	-	-	-	-
	37	Pit 24	1	-	-	-	Burnt clay
	3/29	Pit 28	2	27	20	4	Burnt bone frags
	50	Pit 49	2	-	-	-	-
	68	Pit 67		1			
	104	Pit 103	-	6	-	-	-
Middle	107	Pit 106	3	2	many,	1	-
Neolithic					one pot		
?Neolithic	17	Pit 16		1			
Iron Age	35	Pit 34	1				
post holes	68	Pit 69	1				
	119	Pit 118		1			
Iron Age	27	Upper backfill Ditch 9	-	4	-	1	-
ditch silts	39	Ditch 9	-	1	-	1	-
	53	Lower backfill Ditch 9	-	-	-	1	-
	54	Middle silts Ditch 9	-	1	-	6	-
Early	4	Lower topsoil Ditch 9	4	2	-	1	-
Medieval	10	Top fill Ditch 9	-	-	-	3	Fired clay
	44	Top fill Ditch 9	-	-	-	-	Glass bead
	33	Post-hole Top Ditch 9	-	-	1	-	-
	26	Slab floor Ditch 9	-	-	-	1	-
?Medieval	8	Ditch 7	-	-	-	-	?Game counter

### Table 1 Carrog, Summary of finds

# Pottery (Fig. 7) By Frances Lynch Llewellyn

## **Pit 28 Earlier Neolithic pottery**

15 sherds of undecorated vesicular pottery, including three rim sherds (Fig. 7). Judging by slight variations in fabric 4 pots may have been present. Two of the rim sherds are probably from the same vessel (EN 2); the other is harder and is probably a different pot (EN 1). The rest of the sherds are from the lower body and come from 2 other pots, one in a soft grey/black fabric, the other with some small grits. Both the fabrics and the assumed shape of all four are typical of carinated bowls from elsewhere in Anglesey which date from about 3,800 - 3,600 BC, a date corroborated by the radiocarbon date from this pit.

EN 1: 5 sherds (largest 35 x 25 x 5-7mm) of very hard vesicular fabric with voids visible in both inner and outer surfaces. The thickness ranges from 4 - 7mm. The simple everted rim belongs to this pot.

EN 2: 5 sherds (largest 40 x 45 x 7mm) of hard vesicular fabric with a smooth outer surface in which the voids are smaller than EN 1; the inner surface is badly corroded on all pieces. The thickness (5-7mm) is marginally thicker than EN 1. The two rim sherds are very similar in fabric but vary in profile; the straighter one looked as if it might have deliberate cuts across the top but I judge this to be damage.

EN 3: 4 sherds, most up to 10mm thick of grey ware with a very black softish core showing very small and relatively rare voids. There are several recent breaks, rare in the other pots. There is one curved sherd ( $40 \times 40 \times 10$ mm) which might be from an everted neck. This has a burnt deposit on it.

EN 4: 1 scrap (20 x 20 x 10mm) and 1 crumb of grey ware which has a grittier feel. One very small quartz clast is visible.

# Pit 106

Five large sherds (four of which join on ancient breaks) form the lower part of a relatively narrow (c 140-160mm in diameter) slightly conical base which was probably flat. The clay typically contains a great deal of large angular stone grit, but the surfaces are relatively smooth and the outer surface is randomly covered with various stabbed impressions. These seem scarcely decorative but are clearly deliberate. The clay is 15 - 20mm thick, very hard fired; pink/beige on the exterior and black on the inside. Some split sherds with a concave surface have a redder (inner) surface. There are 8 generally smaller sherds (largest 60 x 50 x 12mm; smallest  $35 \times 25 \times 13$ +mm and 4 smaller pieces and 7 fragments) but no rim or base sherds can be confidently recognised. Some of the sherds have become caked with a hard ferrous concretion of which several lumps were also found within the pit and retained.

The very thick walls, plentiful grits (though quartz is not conspicuously present) and impressed marks suggest that this could be judged to be Mid Neolithic pottery in the Peterborough tradition. A thick flat base comes from Dyffryn Lane henge (P6) (Gibson 2010, 216-7) and is generally similar, though the marks on the Carrog pot are less coherent in their arrangement. The radiocarbon date from charcoal in Pit 106 of 3340-3080 Cal BC at 95% probability (SUERC-33074) would add confirmation of this attribution.

#### Main enclosure ditch 9

1 featureless sherd (20 x 15 x 7mm), grey with a gritty feel: slightly similar to EN 4 but essentially undateable.

#### Ditch 7

The fill of the small (undated) ditch 7 produced a small thick disc created from a broken pottery sherd of fine fabric with scattered dark grits, possibly amphora, chipped and abraded into shape, 26mm diameter and 16mm thick. This is possibly a game counter.

### Flint and chert (Fig. 8) By George Smith

The material is summarised by context, material and lithic category in Table 2.

Table 2	Summary	of	worked	flint	and	chert
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Context	Context													
No.		hed		gg		y rag		lary rag		y rag		ar		
		onc	e	/ə.	e Jre	mar	nar ie/fi		ona ce/fi		tiar ce/fi		se se	
		Ret	bied	Cor	cor	$Pri_{i}$	flak	Sec	flak	Ter flak		Irre piec		
		ert	ut	ert	ut	ert	nt	ert	nt	ert	nt	ert	ut	
		ch	flii	ch	flii	ch	flii	ch	flii	ch	flii	ch	flii	
1	Topsoil	-	-	-	-	-	-	-	-	2	1	-	-	
	Trench 1													
6/51	Pit 5	-	1	-	-	-	-	-	-	-	-	-	-	
13	Pit 12	-	-	-	-	-	-	-	-	-	1	1	-	
37	Pit 24	-	-	-	1	-	-	-	-	-	-	-	-	
3/29	Pit 28	-	-	-	-	1	-	1	1	29	1	-	-	
50	Pit 49	-	-	1	-	-	-	-	-	-	2	-	-	
68	Pit 67									1				
104	Pit 103	1	-	2	-	-	-	-	-	2	-	1	-	
107	Pit 106									2	3			
4	Lower topsoil Ditch 9	-	2	-	-	-	1	-	-	3	-	-	-	
27	Upper backfill Ditch 9	-	-	2	-	-	-	-	1	1	-	1	-	
39	OLS 40 Ditch 9	-	-	-	-	-	-	-	-	1	-	-	-	
54	Primary silts Ditch 9	1	-	-	-	-	-	-	-	-	-	-	-	
8	Ditch 7	-	-	1	-	-	-	-	-	-	-	-	-	
17	Pit 16									1				
35	Pit 34							1						
70	Pit 69										1			
119	Pit 118									1				

The material used was predominantly of black chert, which, where identifiable, was tabular, which occurs in limestone outcrops on the east side of Anglesey (Greenly 1919, 648) but is somewhat rolled so must be from a beach or glacial sediment not quarried from an *in situ* source. The flint was of variable colours and quality and all flaked from pebbles. This would entail anvil splitting of pebbles and some scalar flaking was present.

The material in the Early Neolithic pits was mainly black chert, the largest amount from pit 28. These were nearly all tertiary flakes showing some that secondary working was taking place on site. There were also three pieces of burnt shattered flint pebble from Pit 12. The few complete flakes were small, longer than broad, of maximum length 30mm, possibly struck by punch. The only certain retouched piece came from Pit 5. This was a small convex scraper of flint, SF34, with abrupt retouch, its ventral surface removed by burning. Pit 103 produced a small thin piece of chert, 20mm long, with steep abrupt retouch on one straight edge (not illus.). This could be just a core preparation flake.

A few pieces came from the fill of ditch 9 and were probably re-deposited. These included, from the backfill layer (27) a chert core fragment, a chert core trimming flake and a scalar piece of flint. From the top of the buried old land surface (40) came another chert core trimming flake. From the top of the primary silts (54) came a chert edge retouched knife, SF44, made on a broad secondary flake with abrupt unifacial retouch along one straight side.

Three waste pieces came from the topsoil cleaning in Trench 1 within the enclosure. Six pieces came from the uppermost ploughsoil layer above the fill of Ditch 9. These included one flint scalar piece and two incomplete retouched pieces. SF10 was a thin piece of flint with abrupt retouch on two converging sides, broken after burning, possibly part of an oblique or kite-shaped arrowhead fragment. The other was a possible spurred piece, SF73, with the tip snapped off and slightly burnt. This was a small broad secondary flint flake with abrupt retouch on two converging sides of one end.

These pieces are not clearly diagnostic of date but the edge-retouched knife and the spurred piece are types that have been found elsewhere in well-dated Early Neolithic contexts, e.g. at Briar Hill (Bamford 1985). The use of abrupt retouch is economical and probably symptomatic of the small size and poor quality of the raw material available.

#### Stone Objects (Fig. 9)

By George Smith

+

The stone objects are summarised in Table 3.

#### **Table 3 Summary of stone objects**

Context	Context No.	Context type	Recorded find No.	Description
Neolithic Dita	104	Pit fill	86	Pebble
Pits	107	Pit fill	87	?Utilised pebble
Ditch 9 Early Medieval	4	Lower topsoil Ditch 9	4	Rotary quern
	10	Top fill Ditch 9	14	?loom weight
Ditch 9 Iron Age silts	27	Upper backfill Ditch 9	80	Slate disc fragment
	39	Buried soil Ditch 9	91	Utilised pebble
	53	Lower backfill Ditch 9	36	Pebble
	54	Primary silt upper Ditch 9	45	?Pestle
	54	ditto	49	Rubbing stone/whetstone
	54	ditto	38	Perforated slate disc
	54	ditto	69	Perforated slate disc
	54	ditto	70	Slate disc
	54	ditto	72	Slate disc fragment
	54	ditto	71	Slate disc fragment

*Neolithic pits.* The two pebbles have been brought to site deliberately but have not obviously been used. They are dense and smooth, possibly from handling and one (SF 87) has one smoother face that may have been used.

**Ditch 9. Structure [120].** Two objects come from the layers associated with structure [120]. The first is the lower stone of a rotary hand quern SF4. It is made on a split slab of XXX? rock, trimmed to an approximately rounded shape, *c*. 410mm diameter and now worn to 60mm deep. It has a slightly convex upper surface worn by rotary action. The central pivot hole cuts completely through the stone and has been at least partly drilled from below, tapering from 45mm to 25mm diameter. The stone is thin but does not seem to have been abandoned due to wear. However, its edges have subsequently been broken off, in an apparently deliberate way, creating two symmetric converging sides. This could have allowed the stone to hang in a stable way if suspended from a rope. The stone is rather small for an anchor but could have been used as a net or thatch weight.

The second object is a possible loom-weight SF14. This is a flat oval of a fragile split shale cobble, 101mm long by 53mm wide and 17mm deep. An hourglass perforation has been made at one end, tapering from 12mm to 7mm diameter.

These two objects indicate domestic use of the structure [120]. The quern is of a simple type of flat rotary quern using local materials that is more typical of native Romano-British contexts, Rotary hand querns continued in use in the Early Medieval period, although this is not of a specifically Medieval type.

*Ditch 9. Contexts associated with the enclosure occupation.* The remaining objects came from contexts sealed below structure [120] and most are likely to belong with the occupation of the enclosure.

SF91 is a small oval quartzite pebble, 43mm x 38mm x 23mm, that has some polish on one edge and one face showing some use for smoothing. SF36 is another imported pebble, smooth and attractive but with no use wear.

SF45 is an elongated, flat-ended cylindrical cobble of hard igneous stone, 106mm long and 38mm diameter. It appears to be quite weathered and shows no certain evidence of manufacture or use but the flat ends seems certain to have been deliberately created and use as light hammer or pestle seems likely.

SF49 is a sub-rectangular natural block of cherty siltstone, 114mm x 50mm x 34mm. It has wear signs on three faces, one face worn probably from use as a whetstone and two faces longitudinally scratched from rubbing.

The other six pieces are all discs or disc fragments of slate, five coming from the ditch primary silts. Two are perforated, one is a complete unperforated disc and three are fragments of broken discs. They vary markedly in size. The smallest, SF69 is 53mm diameter and only 3mm thick. It has been carefully shaped by both edge chipping and abrading. It has a slightly off-centre hourglass perforation that tapers from 8mm to 5mm. The other perforated disc SF38 is 100mm diameter and 11mm thick, created by edge chipping only. It has a slightly off-centre hourglass perforation tapering from 18 to 8mm diameter. The complete unperforated disc SF70 is slightly oval, 85mm x 77mm and 8mm thick and created by edge chipping. The other fragments come from edge-chipped discs, probably slightly oval, one of c. 100mm diameter, the other of c. 80mm diameter.

Plain, perforated and cup-marked slate slabs and discs have been found incorporated in a number of Early Bronze Age burial mounds in Cornwall and assumed to be symbolic and ritual in nature (Miles 1975, 57). However, occasional examples are also found in settlement contexts. Smaller perforated examples, like SF38 and SF69 were spindle whorls while plain discs may have been unfinished whorls

or just pot-lids. In North Wales Iron Age spindle whorls are normally made from pebbles of fine sandstone, producing a more durable and better result, e.g. at Braich y Dinas and Caer Seion hillforts (Conwy), despite the easy availability of slate. The use of slate at Carrog is also odd in that slate must have been imported, whereas pebbles of other useable material such as limestone, schist or fine sandstone was easily available from local beaches.

### ANIMAL BONE

By Richard Madgwick, Cardiff University

A small quantity of animal bone was recovered from four contexts. A total of fifty six fragments were recovered, of which only one could be identified to species. All specimens were calcined, showing that they had been burnt at a high temperature. It is only due to this treatment that the remains have survived at all. Context 6, a fill of a probably Early Neolithic pit 5 produced by far the largest sample, comprising 42 unidentifiable fragments and a single distal first phalanx, probably deriving from a red deer. Context 29, a fill of the early Neolithic pit 24 produced five unidentifiable specimens. The probably Middle Neolithic gully (97) produced a further eight unidentifiable specimens from two contexts (6 from 101 and 2 from 102).

#### ENVIRONMENTAL EVIDENCE

# Charcoal By Astrid E. Caseldine and Catherine J. Griffiths

A small amount of charcoal was identified from the hill-top enclosure, mainly from hand-picked samples apart from two samples taken from bulk samples. The principal aim was to identify charcoal for radiocarbon dating, but at the same time the analysis provided some information about the past woodland in the area and its exploitation. The samples were from a range of features including pits, post-holes, stake-holes and the enclosure ditch.

#### Methods

Charcoal from the bulk samples was randomly selected. The charcoal was fractured to produce clean sections in three dimensions to enable the wood anatomy to be examined. The sections were examined using a Leica DMR microscope with incident light source. Identification was by reference to wood identification manuals (Schoch *et al* 2004, Schweingruber 1978) and modern type material. Nomenclature follows Stace (1995). The identifications are given in Table 4.

#### Results

#### Pre-enclosure activity evidence

Charcoal from samples (17, 21, 104, 109, 112, 118) from shallow pits, interpreted as possible hearths, consisted of oak (*Quercus* spp.), hazel (*Corylus avellana* )and willow (*Salix* spp.) from pit 12, oak and hazel from pit 28, oak, birch (*Betula* spp.) and hazel from pit 49 and birch and willow from pit 67. Hazel charcoal from pit 28, which contained early Neolithic pottery, produced a date of 3640-3500 cal BC, broadly in line with the pottery. Although no charcoal was recovered from another shallow pit (24), charcoal from a sample (111) from the fill of a smaller pit (36) within pit 24 comprised hazel and oak, which is not inconsistent with that from the other pits. The view that the charcoal is contemporary with that from the other pits, and hence that pit 24 is as well, is also supported by other plant remains (see above/below plant macrofossil report).

Charcoal from a sample (101) from a shallow pit (5), which also produced burnt bone, consisted of oak and oak was also recovered from a sample (126) from a linear feature (97), thought to be a drainage gully, which cut pit 5. The latter oak may have been re-deposited as fragments of burnt bone, presumably from pit 5, were also found in the gully. Hazel charcoal, identified from a sample (128) from a nearby pit (106) which contained pottery fragments, probably Middle Neolithic in date, gave a date of 3340-3080 Cal BC, which is in agreement with the pottery. The charcoal from these samples and the earlier ones probably represents fuel waste.

#### Enclosure Activity Evidence

A sample (116) from the top of the primary ditch fills (64) of the enclosure ditch (9) produced some oak (*Quercus* spp.) which gave a date of 810-740 cal BC, whilst oak charcoal from sample 113 from a layer (53) lying above a probable turf line (120) in the ditch gave a date of 770-480 cal BC. Both dates point to a Late Bronze Age/ Early Iron Age date for the enclosure.

Of the larger post-holes within the enclosure, charcoal from a sample (115) from post-hole 62 comprised alder (*Alnus glutinosa*) and this provided a date of 600-400 cal BC. Oak was identified from samples (117, 120) from two other post-holes (65, 73) and a date of 790-520 cal BC was obtained from one of them (73). Oak was also identified from a sample (119) from a smaller probable post-hole (69), possibly dating to this period of activity, as well as oak and willow from sample 105 from another probable post-hole (16). A slightly different charcoal assemblage comprising birch, hazel and willow was obtained from a sample (122) from one of the elongated shallow pits (89) packed with burnt stone. Willow charcoal from this pit gave a date of 770-480 cal BC which is consistent with the dates from the post-holes and enclosure ditch. It is possible that some of the charcoal, notably the oak, from Late Bronze Age/Early Iron Age samples may be derived from structural timbers but otherwise it probably represents the remains of wood used for domestic fires

Further samples (108, 110, and 124) from the enclosure ditch are from later contexts associated with the small rectangular building constructed in the remains of the ditch. Willow was identified from the sample (108) from the layer (27) on which the floor slabs of the building had been laid, whilst birch was identified from sample 110 from a stake-hole (32) cut into the layer. Both birch and willow were identified from sample 124 from another stake-hole (95). A date of Cal AD 760-900 was obtained from the willow charcoal from this stake-hole. Charcoal from sample 103 from the final fill (10) of the ditch, which overlay the structure, comprised hazel. Again it is likely that the charcoal reflects domestic fires, although some of it could be the remains of burnt structural wood.

#### Discussion

The evidence, although limited, suggests the presence of oak, hazel, birch and willow woodland in the area during the Neolithic phase of activity on the hill-top. It also adds to the record for woodland obtained from the nearby sites of the possible chambered tomb at Cromlech Farm and Llanfechell standing stone. At Llanfechell there was evidence of oak and hazel woodland dating to the late Mesolithic (Caseldine *et al* 2011) and at Cromlech Farm dating to the Beaker period (Caseldine and Griffiths 2009). Birch was also recorded at Cromlech Farm.

During the Late Bronze Age/Early Iron Age the same species continue to be present in the area and exploited, as well as alder. Birch and willow were still being exploited during the early medieval period and there is also evidence that hazel was possibly being utililized during this period or some time later. The absence of oak in the later assemblages probably owes more to the size of the samples examined rather than its absence in the area, although it is possible that birch and hazel scrub and willow, growing in wetter areas, were closer and more readily available and oak woodland in the immediate area was reduced. There is evidence of oak, along with hazel and alder, from a charcoal assemblage dating to the Early Medieval period from Cromlech Farm (Caseldine and Griffiths 2009).

Period group	Feature	Context	Sample	Quercus spp. (Oak)	<i>Betula</i> spp. (Birch)	Alnus glutinosa (L.) Gaertner (Alder)	Corylus avellana L. (Hazel)	Salix spp. (Willow)	Total
Early	P 5**	6	101	5	-	-	-	-	5
Neolithic	P 12	13	104	1	-	-	3	1	5
reonune	P 28	29	21	-	-	-	10	-	10
	P 28	29	109	1	-	-	1*	-	2

# **Table 4 Charcoal identifications from Carrog**

	P 36	37	111	1	-	-	6	-	7
	P 49	50	17	6	1	-	3	-	10
	P 49	50	112	9	1	-	-	-	10
	P 67	68	118	-	1	-	-	2	3
	G 97	102	126	1	-	-	-	-	1
Middle	P 106	107	128	-	-	-	2	-	2
Neolithic									
Iron Age	P 89	90	122	-	1	-	2*	4	7
nits and nost	PH 16	17	105	1	-	-	-	1	2
holo	PH 62	63	115	-	-	1*	-	-	1
noie	PH 65	66	117	1	-	-	-	-	1
	PH 69	70	119	3	-	-	-	-	3
	PH 73	74	120	8*	-	-	-	-	8
Structure 120	32	33	110	-	1	-	-	-	1
Upper ditch 9	95	96	124	-	1	-	-	1*	2
Ditch 9 upper	9	10	103	-	-	-	2	-	2
Ditch 9	9	27	108	-	-	-	-	2	2
middle									
Ditch 9	9	53	113	3*	-	-	-	-	3
lower	9	64	116	3*	-	-	-	-	3
Total				43	6	1	29	11	90

\*Includes charcoal used for AMS dating. \*\*Feature: G= gully; P = pit; PH = post-hole.

## **Charred Plant Remains**

### By Astrid E. Caseldine, Catherine J. Griffiths and Inga Peck

During the excavations at Carrog a number of bulk samples were taken from a range of features within the enclosure, namely pits, post-holes, a stake-hole and a gully, as well as from the enclosure ditch. The samples were taken primarily for the analysis of charred plant remains with the aim of gaining palaeo-economic and palaeo-environmental evidence which would provide information about agricultural activity and the use of wild plant resources in the area during the periods of occupation at the site.

#### Methods

Either flot samples already processed by Gwynedd Archaeological Trust or bulk samples were received for analysis. The charred plant remains were recovered using flotation. The finest sieve used to retain the flot was  $250\mu$ m while that for the residue was  $500\mu$ m. The samples were sorted using a Wild M5 stereomicroscope and remains identified by consulting modern reference material and standard reference texts (e.g. Hather 1993, Cappers *et al* 2006 Jacomet 2006). In some cases more than one sample was obtained from a context. The evidence from these samples has been combined and the results are presented in Table 5. Details of the individual samples are in the site archive.

#### Results

#### Pre-enclosure evidence

Samples were examined from five of the probable hearth pits and all produced other charred plant remains as well as wood charcoal. The fill (13) from pit 12 contained a significant amount of hazelnut shell fragments and some onion couch grass (*Arrhenatherum elatius* Var. *bulbosum*) tuber. Onion couch grass is typical of coarse grassland and rough ground but is also a weed of arable land where the tubers help it to propagate effectively. Grazing is also considered to be a factor in its success, declining when there is greater grazing pressure and returning when grazing is reduced or removed (Robinson 1988).

An even greater quantity of hazelnut shell was recovered from the fill (29) of pit 28. Cereal remains included hulled barley (*Hordeum* sp.), possibly wheat (*Triticum* sp.) and oats (*Avena* sp.) as well as some indeterminate cereal. The presence of a twisted barley grain suggests the presence of six-row barley rather than 2-row barley. The oats in the samples could be wild rather than cultivated. A few weed seeds were present including orache (*Atriplex* sp.), sheep's sorrel (*Rumex acetosella*) and pale

persicaria (*Persicaria lapathifolia*). All these plants can be associated with cultivation. Other remains from pit 28 included onion couch grass tuber and tree buds. Early Neolithic pottery was recovered from this pit and hazel charcoal gave a date of 3640-3500 cal BC.

The largest amount of hazelnut shell from the site was recovered from the fill (50) of pit 49. The only other remains from the pit comprised fragments of an oat awn, heather (*Calluna vulgaris*) stems and a grass (Poaceae) stem/rhizome fragment. In contrast hazelnut shell was scarce in the fill (68) of pit 67. However barley and a grain of wheat (*Triticum* sp.) and a fragment of oat/grass caryopsis were present. Dock (*Rumex* sp.) and sun spurge (*Euphorbia helioscopia*) seeds also occurred in the fill. The former can be a weed of cultivation though it also commonly occurs in grassland and other habitats, whereas the latter is found on cultivated or waste ground. A hawthorn (*Crataegus* sp.) seed in the fill could also indicate rough ground and scrub. Heather and onion couch grass remains were found in the fill. Whilst the couch grass could be indicative of arable land, waste ground and grassland, the heather suggests acidic soils and perhaps some soil deterioration in the area. The only identifiable charred plant remains in the fill (104) from the final pit (103) included a relatively small number of hazelnut shell fragments and a grain of hulled barley.

Several other features, and hence plant remains, might belong to this phase although the features lacked any artefacts which might support this interpretation. They included a hollow/shallow pit (108) in the area where the Late Bronze Age/Early Iron Age enclosure bank would have been. The fill (109) from this pit, like some of the previous pits, produced a significant amount of hazelnut shell fragments and parenchymatous material that could have been derived from cereal, fruit or roots and tubers. Hazelnut shell was also relatively frequent in the fill (37) from a small charcoal-rich pit (36) within a larger shallow pit (24). The latter also underlay the enclosure bank and broadly resembled the Early Neolithic pits. The hazelnut shell in the inner pit perhaps lends support to the interpretation that Pit 24 is contemporary with these pits.

Pit 5, which contained burnt animal bone, was another shallow pit which, although in the interior of the enclosure, predated the enclosure bank as it was cut by a gully (97) which underlay the bank. Charred plant remains from the fill (6) included a glume base of emmer wheat (*Triticum dicoccum*), a seed of stitchwort (*Stellaria* sp.), a seed of heath grass (*Danthonia decumbens*) and a fragment of blackthorn (*Prunus spinosa*) fruit stone. Seeds of clover (*Trifolium*) type, grass rhizome/stem fragments and onion couch grass tuber were present, all suggesting grassland. The glume base provides some firm evidence for the cultivation of emmer wheat and stitchwort can be associated with cultivation. The presence of heath grass again could indicate acidic soils in the area while the blackthorn could indicate scrub.

A moderate amount of hazelnut shell was obtained from the fill (107) from another pit (106), close to and similar in appearance to pit 5. Also present were heath grass, onion couch grass and heather remains and these again suggest rough grassland and heathland. Hazel charcoal from this pit gave a date of 3340-3080 cal BC and Middle Neolithic pottery was also present.

#### Enclosure evidence

Most of the remaining samples were from post-holes or probable post-holes relating to the period of construction and occupation of the enclosure. Charred plant remains from the fill (19) from one of the larger post-holes (18), possibly associated with a round-house, included a barley grain, an emmer glume base, indeterminate cereal and seeds of sheep's sorrel and heath grass, as well as a relatively large quantity of heather stems and some grass stem/rhizomes fragments. The assemblage indicates acidic soils and heather-grass communities in the area as well as some cultivation taking place. AMS dates obtained from charcoal from other post-holes suggest an Early Iron Age date and the presence of emmer wheat and absence of spelt wheat, although the evidence is very limited, tends to support this. The heather remains could represent flooring or thatch associated with a round-house, or the remnants of fuel, perhaps peat.

The evidence from the fill (17) of a probable post-hole (16), also probably part of a structure in the enclosure, comprised some possible indeterminate cereal, onion couch grass tuber and heather stem fragments. The absence of hazelnut shell tends to suggest a later rather than earlier date, but the other remains, in particular onion couch grass, do occur in the early Neolithic pit samples and could suggest an earlier date or residual material.

Charred remains from the fill (111) from a smaller post-hole (110), part of a group surrounding an elongated pit (89), failed to produce anything apart from small fragments of wood charcoal. The only remains from fill 70, from another probable small post-hole (69), comprised some indeterminate parenchymatous material as well as wood charcoal. A hazelnut shell fragment occurred in the fill (119) from a post-hole (118) cut into the fill of the Middle Neolithic pit 106. The fill of this pit also produced hazelnut shell and therefore it is possible the hazelnut is residual rather than contemporary.

The final fill (33) examined was from a stake-hole (32) within a pit (24) at the western edge of the small rectangular stone building that had been constructed in the remains of the ditch (9). This fill yielded the most cereal from the site and included hulled barley and oats, mainly the latter, as well as indeterminate cereal. Although an oat floret was present it was not well enough preserved to say whether it was from wild or cultivated oat. The barley consisted of both straight and twisted grains and, again, suggests six-row barley, although the presence of two-row barley cannot be ruled out. Barley and oats may have been grown as separate crops, as a mixed crop (drage), as alternate crops with oats invading barley crops, or wild oat may simply have been tolerated as a weed in barley fields. The growing of mixed crops was frequently done as a safeguard against one crop failing.

Charred seeds indicative of cultivation or grassland, or both, included fat hen (*Chenopodium album*) sheep's sorrel, dock, pale persicaria (*Persicaria lapathifolia*), charlock (*Sinapis arvensis*), cinquefoil (*Potentilla* sp.) and grass. Also present was a capsule fragment of wild radish (*Raphanus raphanistrum*), again commonly associated with cultivation. Other charred plant remains included hazelnut shell, a fruit stone of blackberry/raspberry and crab apple remains, perhaps suggesting the exploitation of wild resources. A significant quantity of parenchymatous material, once again, could be derived from cereal, fruit or tubers. In addition charred straw, frequent heather stems and tree buds were present. Overall the assemblage suggests waste material from a domestic fire. An AMS date of Cal AD 760-900 from willow charcoal from a second stake-hole (95) suggests the plant remains reflect early medieval farming activity and the continued use of wild resources, but there is a possibility that the plant remains, or at least some of them, are residual and relate to the pit (24), considered to be early Neolithic in date.

#### Discussion

#### Pre-enclosure activity

The evidence from the shallow pits pre dating the enclosure bank is of particular interest given the Early Neolithic date based on pottery and radiocarbon evidence. These pits resemble those sometimes found on Mesolithic sites and the presence of hazelnut fragments as well as cereal grain in the samples indicates the continued dependence on, or at least utilisation of, wild foods at the same time as cereal cultivation was taking place, assuming the cereal was contemporary rather than intrusive. Hazelnuts would have been a nutritious foodstuff which could be easily dried and stored and could have been eaten raw or roasted, or made into a paste. The occurrence of hazelnut shell in the samples may also lend some support to the suggestion that they were used for cooking, perhaps roasting hazel nuts. Equally the few cereal grains may indicate food preparation.

The occurrence of cereal grain and wild foodstuffs is not uncommon on Neolithic sites in Britain (Moffett *et al* 1989, Jones 2000, Robinson 2000, Jones and Rowley 2007) and there are several sites in Wales which have produced early Neolithic assemblages. They include Llandygai where an early Neolithic house produced hazelnuts and cereal, including emmer wheat and barley, and hazelnuts were recorded from pits (Kenney 2009). Other Welsh sites where cereal grain and hazelnuts have been recovered include Gwernvale (Britnell and Savory 1984), Llandysul (Caseldine and Griffiths 2006) and Plas Gogerddan (Caseldine 1992). The charred plant assemblage from Plas Gogerddan also

included crab apple and, although it is probable that the plant remains from the stake-hole (32) in pit 24 are all early medieval in date, it is possible that some of them, including the apple, could be residual and early Neolithic in date.

Onion couch tubers have also been recorded in a number of assemblages from the Neolithic to Medieval periods in Britain and north-western and central Europe (Roehrs *et a*l 2012). The presence of onion couch tuber in several pits at Carrog is probably most likely to be a result of the plants being uprooted and used as tinder (Robinson 1988) but it has been suggested that the tubers might have been used as a plant food (Engelmark 1984, Preiss *et a*l 2005). However the results of recent research suggest they are inedible (Mears and Hillman 2007).

The continued exploitation of wild food plants at the site is suggested by the occurrence of hazelnut in pit 106 which is dated to Middle Neolithic. Again the evidence is similar to that from Llandygai II where charred hazelnut shell was common in the Middle and Later pit groups (Kenney 2009). At Llandygai there was some evidence cereal but it was scarce. Only one pit produced cereal, a barley grain and an unidentifiable grain.

### Enclosure Activity

Cereal evidence is scarce from the Late Bronze Age/Early Iron Age phase of the site but suggests that emmer wheat and barley were still being grown in the area. Other evidence from the local area includes Ericaceous charcoal from Llanfechell standing stone, around 600m to the south-west, which gave a date of 740-390 Cal BC. No charred cereal remains were recovered from the site but the occurrence of Ericaceae charcoal dating to this period is in agreement with the heather remains found at Carrog and provides further evidence for soil deterioration and the development, or expansion, of acidic soils and heather vegetation communities in the area.

The reason for the construction of defensive enclosures is discussed in more detail elsewhere (p archaeology section); including greater territoriality and the need for secure communal storage areas for agricultural produce. The scarcity of cereal grain from the site does not preclude the latter as one of the reasons for its development and may simply reflect the limited number of samples examined from this period. In addition care may have been taken not to burn processed cereal grain accidentally and crop processing waste may have been considered a useful commodity and used for other purposes such as animal fodder, manure on the fields, fuel or disposed of in areas of the site not examined. However, it is also noticeable that generally there is a lack of plant macrofossil evidence dating to the Late Bronze Age and Early Iron Age in Wales (Caseldine in prep.).

There is slightly more evidence for cereal cultivation, namely barley and oats, dating to the early medieval period. There is also some further possible evidence from the site of a possible chambered tomb at Cromlech Farm, around 1km to the west of Carrog. An AMS date from charcoal from a similar soil to that which contained barley, oats and wheat suggests the assemblage dated to the early medieval period but Beaker pottery was recovered from the same layer as the cereal remains (Caseldine and Griffiths 2009). There is, however, early medieval – medieval evidence from other sites on Anglesey, such as Cefn Du and Melin y Plas (Ciaraldi 2012), which suggests that barley and oats were widely grown during this period.

# **Environmental summary**

Charred plant remains suggest the exploitation of wild food resources, notably hazelnuts, at the same time as cultivation of barley and emmer wheat during the early Neolithic, while charcoal indicates woodland comprising oak and hazel with some birch and willow, the last growing on wetter ground, in the surrounding area. Although there is evidence for the continued exploitation of hazelnuts during the Middle Neolithic, there is no evidence for cereal growing. By the Late Bronze Age/Early Iron Age there is some evidence for cereal cultivation again and that barley and emmer wheat were still being grown. All the woodland taxa continue to be represented, with the addition of alder. Although there is some tentative evidence prior to this, a possible increase in heather communities perhaps suggests a more open landscape or an increase in soil deterioration and expansion of acidic soils, or both. A

change in crops is suggested by the early medieval period with barley and oats becoming the main crops. Although some birch and hazel scrub and willow carr remained, oak woodland may have decreased in the immediate area but continued in the wider region.

				Early N	leolithic				Middle Neolithic	
Feature	Pit 5	Pit 12	Pit 28	Pit 36	Pit 49	Pit 67	Pit 103	Pit 108	Pit 106	Ecological Preference
Context	6	13	29	37	50	68	104	109	107	
Sample	4, 5	9	14	20	16	26	31	18	12	
-			21		17	27			13	
			37			28			34	
Hordeum sp. straight (Hulled)	-	-	5	-	-	-	-	-	-	А
(Barley)										
Hordeum sp. twisted	-	-	1	-	-	-	-	-	-	
(Hulled)										
Hordeum sp. indet.	-	-	3	-	-	3	1	-	-	
(Hulled)			0							
Avena spp.	-	-	9	-	-	-	-	-	-	A, G
(Oals)					1					
Avena/Pooceoe	-	-	-	-	1	-	-	-	-	A G
(Oat/Grasses)	-	-	-	-	-	1	-	-	-	А, О
<i>Triticum dicoccum</i> – glume base	1	_	_	_	-	_	_	_	_	А
(Emmer wheat)	1									11
Triticum sp	-	-	-	-	-	1	-	-	-	
(Wheat)										
cf. Triticum sp.	-	-	1	-	-	-	-	-	-	
Cerealia indet.	-	-	3	-	-	-	-	-	-	А
Cerealia indet. frags.	-	-	9	-	-	-	-	-	-	
cf. Cerealia indet. frags.	-	-	-	-	-	1	-	-	-	
Corylus avellana L.	-	139	632	38	847	7	17	141	53	W
(Hazel) – shell frags.										
Atriplex sp.	-	-	1	-	-	-	-	-	-	A, C, D,
(Oraches)										S
<i>Stellaria</i> sp.	1	-	-	-	-	-	-	-	-	A, B, C, G, M,
(Stitchworts)										W, w, d, s
Persicaria lapathifolia (L.) Gray	-	-	2	-	-	-	-	-	-	D, A, w
(Pale persicaria)										
Rumex acetosella L.	-	-	1	-	-	-	-	-	-	A, G, H, a s, o
(Sneep's sorrel)						2				
<i>Rumex</i> sp.	-	-	-	-	-	2	-	-	-	A, B, C, G, W,
(DOCKS) Calluna vulgaris (L.) Hull					6	11			1	W H M Wo a
(Heather) stem frags	-	-	-	-	0	11	-	-	1	n, wi, wo, a,
Prunus spinosa I frag	1	_	_	_	_	_	_	_	_	p, s W
(Blackthorn)	1									
Crataegus sp.	-	-	-	-	-	1	-	-	-	W
(Hawthorn)						-				
Trifolium type	2	-	-	-	-	-	-	-	-	C, D, G, o, s
(Clover)										
Euphorbia helioscopia L.	-	-	-	-	-	1	-	-	-	A, D
(Sun spurge)										
Arrhenatherum elatius Var.	2	6	2	-	-	3	-	-	4	C, D, G,R, W
bulbosum (Willd.) St Amans										
(Onion couch) tuber										
Danthonia decumbens (L.) DC.	1	-	-	-	-	-	-	-	1	A, H
(Heath-grass)										
Poaceae	11	-	-	-	1	2	-	-	-	
Rhizome/stem trags.			4							117
Tree buds	-	-	1	-	-	-	-	-	-	w
Parenchymatous frags.	+	-	-	-	-	-	+	+	+	
Charcoal	-	-	1	-	-	1	-	-	-	
CharCoal	+	+	+	+	+	+	+	+	+	

### Table 5a Charred plant remains from Carrog enclosure: Early and Middle Neolithic contexts

Ecological preferences; A = arable & cultivated; B = bank side, pond margins; C = coastal, salt marshes; D = disturbed ground, wasteland, rough ground; H = heaths; M = marshes, fens, bogs; R = road sides; W = woods, hedgerows, scrub; a = acid soils, calcifuge; d = dry; l = limestone, calcareous

Table 5b C	harred p	lant remains	from	Carrog	enclosure:	Iron	Age and	Early	Medieval	contexts

		Iron Ago				Farly	
			ii oli Age			Medieval	
Feature	Post -hole 16	Post -hole 18	Post -hole 69	Post -hole 110	Post -hole 118	Stake -hole 32	Ecological Preference
Context	10	19	70	111	110	33	
Sample	3	6	36	40	35	7	
Hordeum sp. straight (Hulled)	-	1	-	-	-	11	A
(Barley)							
Hordeum sp. twisted (Hulled)	-	-	-	-	-	5	
Hordeum sp. indet.(Hulled)	-	-	-	-	-	1	
Avena spp. (Oats)	-	-	-	-	-	01 42	A, G
Avena sp. floret	-	-	-	-	-	42	
Avena/Poac eae (Oat/Grasses)	-	-	-	-	-	1	A G
Triticum dicoccum – glume base	_	1	_	-	_	-	A
(Emmer wheat)		-					
Cerealia indet.	-	1	-	-	-	3	А
Cerealia indet. frags.	-	-	-	-	-	13	
cf. Cerealia indet. frags.	2	1	-	-	-	-	
Straw internode frag.	-	-	-	-	-	1	
Corylus avellana L.	-	-	-	-	1	26	W
(Hazel) – shell frags.							
Chenopodium album L.	-	-	-	-	-	1	A, D
(Fat-hen)							
Persicaria lapathifolia (L.) Gray	-	-	-	-	-	3	D, A, w
(Pale persicaria)							
Rumex acetosella L.	-	1	-	-	-	1	A, G, H, a s, o
(Sheep's sorrel)							
Rumex sp.	-	-	-	-	-	1	A, B, C, G, W, w
(Docks)							5.4
Sinapis arvensis L.	-	-	-	-	-	1	D, A
(Charlock)						2	
<i>Raphanus raphanistrum</i> L.	-	-	-	-	-	3	A,D
(w) (w) (d) rad(sn) – capsule (rag.	4	> 100				42	H M Wo o p o
(Heather) stem frags	4	>100	-	-	-	42	<b>H</b> , <b>W</b> , <b>W</b> O, <b>a</b> , <b>p</b> , <b>s</b>
Rubus sp	_	_	_	_	_	1	DGWo
(Brambles)	_	-	-	-	-	1	D, O, W, O
Potentilla sp	-	-	-	-	-	1	DGHMRadlo
(Cinquefoils)						-	<i>D</i> , <i>G</i> , <i>H</i>
Malus sylvestris (L.) Miller	-	-	_	-	-	1	W
(Crab apple)							
Malus sylvestris (L.) Miller	-	-	-	-	-	1	
Pericarp							
Arrhenatherum elatius Var.	2	-	-	-	-	-	C, D, G,R, W
bulbosum (Willd.) St Amans							
(Onion couch) tuber							
Danthonia decumbens (L.) DC.	-	8	-	-	-	-	A, H
(Heath-grass)							
Poaceae	-	-	-	-	-	3	C, D, G, H, M, R, W, d, o, w
(Grasses)							
Poaceae	-	14	-	-	-	1	
Rhizome/stem frags.						2	
Tree buds	-	-	-	-	-	2	vv
Parenchymatous Irags.	-	-	+	-	-	+	
organic muet. – incl. straw &	-	-	-	-	-	ð	
Seeds indet		1				2	
Charcoal	- -	1	-	-	-	5	

Ecological preferences; A = arable & cultivated; B = bank side, pond margins; C = coastal, salt marshes; D = disturbed ground, wasteland, rough ground; H = heaths; M = marshes, fens, bogs; R = road sides; W = woods, hedgerows, scrub; a = acid soils, calcifuge; d = dry; l = limestone, calcareous

#### **DISCUSSION AND DATING**

#### **Pre-enclosure activity**

The discovery of a feature (Pit 28) in the area where the enclosure bank had been suggested the presence of an earlier phase of activity and this was confirmed by the presence in the pit of worked flint and chert as well as pottery of Early Neolithic type. Several very similar features were found elsewhere in the trench. These were pits 12, 24, 49, 67, 103 and 106. All were shallow pits with concave profiles, containing few stones but several with layers of finely comminuted charcoal on their bases. These pits resemble the shallow pits found on some Mesolithic and Neolithic transitory camp sites. Quite high temperatures were involved in their use as they contained some animal bone fragments that were all calcined but there was no evidence of burning of the clay subsoil *in situ*. The bone fragments were all unidentifiable fragments apart from one piece of in Pit 5, which was probably from a red deer (Madgwick, above). Pits in this group produced mainly hazel charcoal, but there was also some of oak, birch and willow and all except Pit 5 produced amounts of charred hazelnut fragments. Pit 28 had the largest quantity of lithic material as well as several pieces of pottery. This was of a smooth, dark fabric from thin-walled pots, with three pieces of rim, possibly from 4 different pots (based on rim styles and fabric types) of Early Neolithic plain bowl ware (Lynch, above). Pits 12, 28, 49 and 103 also produced some worked flint or chert but none that was typologically diagnostic.

The occurrence of a number of similar pits occurring in a group suggest the focus of a small camp site, possibly used on more than one occasion, although none of the pits intersected, so they could have been used as part of a contemporary communal activity.

The suggested dating of the features based on the pottery was supported by the radiocarbon dating (Fig. 10). Hazel charcoal from pit 28 produced an AMS radiocarbon date of 4750+/-30 BP, 3640-3500 Cal BC at 95% probability (SUERC-33064).

There were a few stray pieces of worked flint and chert from the ploughsoil and other features that were probably residual from this pre-enclosure prehistoric activity on the hill top. The majority came from the silting layers in the enclosure ditch [9] including an edge-retouched chert knife from one of the middle fill layers (54) (Fig. 8).

It is possible that some other (undated) features could belong to this phase but there was no worked flint or chert and no pottery to support that interpretation. A few other features that might belong with this phase were in the area where the later enclosure bank had been. These were the possible postholes 47 and 58 and hollows 60 and 108 (Fig. 4). Another feature that partly lay within the area of the enclosure bank was gully 97. This did not produce any datable objects but cut through another shallow concave pit [5] which was similar to the Early Neolithic pits although it had no basal layer of charcoal and no hazelnut shell. It did however contain some pieces of burnt animal bone and a few small fragments were also present in the downslope fill of the gully 97, where they must have been redeposited after the gully had cut the pit fill.

Close to pit [5] was another similar shallow pit [106]. This did not contain a charcoal 'lining' or any flint but did contain fragments of a large pot with heavily impressed decoration, of a different fabric from the pottery in pit [28]. The pot was identified as of Middle Neolithic type in the Peterborough tradition (Lynch, above) corresponding to an AMS radiocarbon date of 4480+/-30 BP, 3340-3080 Cal BC at 95% probability (SUERC-33074) on hazel charcoal from the pit.

#### **Enclosure activity**

The majority of the remaining features are identifiable as probable post-holes and most are likely to be of a single general phase, although not necessarily directly contemporaneous, belonging with the construction and occupation of the enclosure. There is a similarity in the size and spacing of these probable post-holes that suggests that some at least may have belonged to a single structure. Several of

them fit an arc on the circumference of a circle of about 15m diameter. This could belong to the outer wall of a large timber-walled round-house, which if so would be situated centrally within the enclosure (Fig. 3).

AMS radiocarbon dates were obtained from post-holes 62 and 73. Alder wood charcoal from 62 produced a date of 2450+/-30 BP, 600-400 Cal BC at 95% probability (SUERC-33070) and oak wood charcoal from 73 produced a date of 2510+/-30 BP, 790-520 Cal BC at 95% probability (SUERC-33071).

There is a group of smaller probable post-holes at the north-west corner of the trench that could be part of a separate structure. Situated within these and possibly respecting them, or vice versa is an unusual elongated. 'trough-shaped' pit [89]. This was packed with burnt stones and so is presumed to be a cooking pit of some type, although other functions are possible. There was no sign of burning of the pit sides so the stones were probably not heated in the pit itself. Its elongated shape must have been relevant to its function. Another almost identical pit [116] with a similar fill was found to the south-east, with only one possibly associated post-hole. Willow wood charcoal from pit 116 produced an AMS date of 2480+/-30 BP, 770-480 Cal BC at 95% probability (SUERC-33072). This date coincides with those from the post-holes 62 and 73 and helps to provide a reliable date range within which the occupation of the enclosure took place.

The post-holes were almost devoid of finds but there was some environmental evidence. Four postholes produced oak charcoal (as did the middle silt layers in ditch [9]), which would be suitable structural material. Heather stems were also present, possibly derived from thatch. Other plant material showed that there was both cultivation and pasture in the vicinity. Cultivation was shown by seeds of weeds of cultivation as well as grains of barley and emmer wheat. Pasture was shown by seeds of plants typical of acid soils and poor pasture. Altogether there is reasonable evidence that the post-holes belonged to domestic structures but there was no evidence, at least in the area excavated, of grain storage.

The very small amounts of charcoal present in the post-holes and in the ditch silts indicated that there had never been a destruction phase here. The ditch silts provided the greatest potential for survival of artefactual or environmental evidence related to the use of the enclosure. Charcoal indicated an oak/hazel woodland similar to that present in the Neolithic phase. The middle and lower ditch fills did produce a small number of artefacts that probably derive from the use of the enclosure. These included a number of slate discs of different sizes, two centrally perforated, but of uncertain function as well as a stone pestle and two rubbing stones. In all the finds are unusually sparse for such a major earthwork, although apart from a small amount of pottery, the same was the case at the defended hill top settlement of Castell Odo, for instance (Alcock 1960).

The precise limits of the enclosure bank are impossible to define but pit [116] must have been close to the inner edge of the bank unless the pit belonged to a construction phase before the bank was built. Enclosures of a similar period in England, for example Mucking North Ring (Essex) and Thwing (Yorkshire), often have banks that were revetted with posts but there was no evidence of that here. The lack of any bias to the ditch silting suggests there had been a reasonable gap or berm between the ditch edge and the bank.

Two AMS radiocarbon dates were obtained from the enclosure ditch, one from the middle fill and one from the top of the primary fill. The upper was from layer (53); a re-deposited horizon after the ditch silts had reached a stable point, when a humic soil had become established. This date was 2475+/-30 BP, 770-480 Cal BC at 95% probability (SUERC-33068). The second date was from layer (64), a rapid erosion layer on top of the primary silts, which probably relates to a period within a few years after the ditch completion. This date was 2565+/-30 BP, 810-740 Cal BC at 95% probability (SUERC-33069).

The dating evidence indicates that the enclosure was constructed about 800 Cal BC and that occupation probably continued for at least another two centuries. This is a period for which there is presently no other settlement evidence from Anglesey. The nearest settlement of that period is the enclosure of Castell Odo on the Llŷn peninsula, where the earliest dates overlap with those from Carrog (Alcock 1960; GAT Archive). Castell Odo was also a hill-top settlement although the earliest phase was interpreted as unenclosed. The later settlement enclosure was about 40m diameter internally, with several roundhouses, compared to the 30m internal diameter of the Carrog enclosure. Its banks were created from shallow scoops rather than neatly cut deep ditch of Carrog.

The number and wide distribution of Early Bronze Age round barrows on Anglesey shows that the island was well settled and presumably prosperous in agricultural terms by that time and this accords with the distribution of land with good potential for arable farming. Settlement remains should therefore be widespread but at present the only evidence of domestic activity in this period is that of numerous burnt mounds, which are most likely to have been cooking places and only one has been found associated with a structure. This was at Cefn Cwmwd, near Llangefni, where the foundation trench for a rectangular timber structure c. 6m by 3m, was found close to a burnt mound dated to 1640-1290 cal BC (Maynard 2012, 126-7). However, this seems likely to have been a specialised industrial or agricultural structure, rather than a house. Several Bronze Age round houses have been found elsewhere in Wales and it is likely that most settlement in this period on Anglesey was of unenclosed timber-walled roundhouses, which leave no upstanding traces after later cultivation. In the Middle and Later Bronze Age even burial evidence is scarce, largely because burials were no longer placed beneath mounds and it can only be assumed that settlement continued. This was a period marked by deteriorating environmental conditions and this may be inferred by the evidence of heathland from the plant material at Carrog. It was only about this time that defensive enclosures began to be built, creating more substantial earthwork structures with greater permanence in the landscape. Even so, the substantially built enclosure bank and ditch at Carrog survived only as a subsoil feature. Other similar enclosures are likely to exist and await discovery. The construction of defensive enclosures has been linked to changes in climate, the deterioration of the uplands and their margins after the clearance of natural woodlands, widespread grazing and the subsequent degradation of soils. There was then increased settlement pressure on the lowlands, including the spread of cultivation onto areas of soils that were not of the best quality. This expansion may have produced greater territoriality with competition for land (Barrett 1980, 91-5). It was also a time when exploitation of copper from nearby Parys Mountain was declining, being replaced by cheaper imported metal, and when the trade in gold objects from Ireland was increasing.

The increase in territoriality in this period has also been interpreted as leading to the construction of enclosed settlements to provide secure communal storage areas for agricultural produce belonging to a local farming community and inhabited by a person who, by organising the collection and protection of such goods acquired status. Such enclosures therefore are characterised by the presence of probable grain storage structures (although none were recognised at Carrog). Castell Odo was just one of a number of similar (so far undated) lightly defended hill-top enclosures in Llŷn as well as several smaller sub-circular enclosures of similar size to Carrog, for instance at Pwll Parc, Nefyn (Ward and Smith 2001). Numerous similar sized and shaped enclosures have also been identified as crop marks in lowland North-East Wales (Manley 1991) and these could represent a missing part of the prehistoric landscape. Anglesey has not been a good subject for aerial photography and much more must remain to be identified. However, there are a few small, undated, lightly defended enclosures that might belong to this period (Fig. 1a), including two nearby, Cae Trenches, a sub-circular enclosure about 25m diameter and Mynydd Groes, a hill-top enclosure (Fig. 1b). The re-use of earlier earthworks may also mark one of the early phases of the development of defended enclosures. One such may be that of the Later Neolithic circular earthwork, a possible henge, of Castell Bryn Gwyn, Brynsiencyn, the enclosure bank of which was re-built (Wainwright 1962). Similar re-use occurred at another Neolithic henge enclosure at Llandygai, Bangor, in which a large timber-walled roundhouse, c. 15m diameter was built as well as several other structures interpreted as granaries (Lynch and Musson 2004). These re-use phases have not been dated, either by cultural material or by radiocarbon dating at either site but the use of timber-walled buildings does suggest an earlier Iron Age date. Circular settlement

enclosures are known from further afield with firm evidence of Later Bronze Age date, for instance at Springfield Lyons and Mucking (Essex), Mill Hill and Highfield (Kent), all of which have wide, south-east facing entrances as at Carrog (Champion 1980). These seem to be associated with a renewal and expansion of agriculture in the valleys and coastal plain (Champion 1982). The same could be the case at Carrog but it differs from these south-east British examples in that the lack of artefacts such as bronze work, but which might indicate just a less prosperous economy. There would have been unenclosed roundhouse settlements on Anglesey contemporary with Carrog, but although many examples of that type of settlement are known and several have been excavated, none have been shown to belong to the Later Bronze Age. This may be chiefly because excavation has concentrated on the more substantial walled houses or enclosed settlements. However, one unenclosed settlement of large stone-walled roundhouses dating to the Pre-Roman Iron Age has been discovered near Penrhos, Holyhead, Anglesev (Kenney 2007). Within the same period on the mainland a class of lightly enclosed circular homesteads with single large, centrally placed roundhouses has been identified, exemplified by excavated and dated examples at Moel y Gerddi and Erw Wen, Meirionnydd (Kelly 1988). The circular plan of these small enclosures indicates an element of deliberate monumentality that may have been culturally related to the larger circular enclosures such as those of Castell Odo and Carrog. The shape of the Carrog enclosure is also unusual, which suggest some deliberate design which could be monumental. It is not a simple circle but slightly flattened at the west, with the 'arms' of the terminal extended with a very wide causeway of c. 6m width (Fig. 3). The excavation failed to find any trace of a gate structure. There was also an unusual lack of domestic objects such as querns, rubbing stones or spindle whorls. This contrasts with the large amounts of domestic material from other, equally 'monumentally designed' enclosures of Later Bronze Age date, such as Thwing, Yorkshire (Manby 1980) and the North and South Rings, Mucking, Essex (Jones and Bond 1980). However, the gateway at Carrog could have been just beyond the excavated area and the domestic artefacts were similarly scarce at Castell Odo and at the similar, recently excavated enclosure of Meillionydd, Llŷn (Karl and Waddington 2011).

The Carrog enclosure seems to have gone out of use by about 400 Cal BC. Presuming it was a defended settlement its function could have been replaced by the development of larger hill forts, such as the nearby large coastal promontory fort of Dinas Gynfor, Cemaes or the inland multivallate hillfort of Werthyr 1, Llantrisant, further to the west (Fig. 1). These forts would provide economies of scale in terms of defensive capability and perhaps act as foci for larger territories and populations, with a concomitant concentration of wealth and status.

The enclosure evidently still survived as an earthwork in the later 1<sup>st</sup> millennium BC as part of it was demolished to backfill part of the ditch to create a platform for construction of a small dwelling in the final phase of activity on the site. This Early Medieval occupation in the top of the ditch adds to new evidence of widespread agricultural activity in this period coming from recent excavations on Anglesey, for instance at Cromlech Farm, Llanfechell (Caseldine and Griffiths 2009) and Melin y plas, Bryngwran (Ciaraldi 2012).

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Carrog Fig. 1a Carrog in relation to the distribution of other defended enclosures in Anglesey and the nearby mainland



Fig. 1b Llanfechell topography and location of archaeological features



Carrog Fig. 2 Aerial photograph of the enclosure crop mark, grassland during drought. Copyright Pixaerial



Carrog Fig. 3 Fluxgate gradiometer survey, grey-scale plot in relation to the excavated area and suggested central building



# Carrog Fig. 4 Plan of excavated area



# Carrog Fig. 5 Ditch 9, plan and section



Carrog Fig.6 Sections of representative examples of pits, post-holes and gulleys (orientations given to site grid)



Carrog Fig. 7



Carrog Fig. 8





#### Carrog Fig. 10 Radiocarbon dating, Summary plot





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