Fig. 1.
General view of the Clwydian Range looking north from the slopes of Moel Arthur. The excavation site is on the pale strip cut into the heather in the middle distance. Note the neighbouring hillfort of Penycloddiau at the top left of the picture.


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5. Finds photographs 2011–2015
Non–Technical Summary.

In the spring and summer of 2015 an archaeological excavation was carried out on the sloping terrace on the north-western flank of Moel Arthur, part of the Clwydian range of hills on the border of Denbighshire and Flintshire. This followed a geophysical survey of the area during the autumn of 2014.

Earlier excavations in 2011 and 2012 had revealed Late Neolithic/Early Bronze Age worked flints and a possible trackway higher up the slope, followed in 2013, by excavations lower on the terrace, which discovered further flints and a possible burnt mound.

In 2015 two trenches were opened (Trench 11 & Trench 12) to investigate strong ferromagnetic signals shown by the recent survey. Trench 12 proved to be largely sterile and uncovered a significant natural rocky outcrop which could have accounted for the signal in this area. Trench 11, however, produced several worked flints, small amounts of red ochre and areas of burning shown by the presence of charcoal and dark soil. Several stones appeared to have been deliberately placed and a number of very shallow stake holes were uncovered suggesting a temporary shelter or possibly a windbreak surrounding a hearth. This trench is a few metres south east of Trench 8 (the possible burnt mound) excavated in 2013, and higher up the slope. Charcoal samples from the hearth were sent for Carbon 14 Dating and returned results ranging from 7517BP to 5939BP (6386 calBC to 4781 calBC). The excavation results, together with further radiocarbon dating of charcoal, and a paleobotanical report on the samples sent for analysis, indicate that there has been activity on this terrace over a long period, probably from the Mesolithic period onwards.
1. Introduction

1.1 Background.

Moel Arthur is located towards the north end of the Clwydian Hills in Denbighshire (SJ145600) and is 456m at its highest point. It is a small hill fort of only 5 hectares and occupies a strong defensive position dominating the col Bwlch y Frainc. To its northwest is the hill fort of Penycloddiau, approximately 2km away. It is defended by two strong banks and ditches with a counterscarp bank on the north side. It has an in-turned entrance to the northeast with what appears to be guard chambers. There is evidence of hut platforms on the interior of the hill fort and a Mesolithic flint was found nearby. Excavation carried out in 1849 by Wynne Ffoulkes recorded some possible stone structures along with Roman pottery and flints. In 1963 a small hoard of three early Bronze Age Irish flat axes was discovered on the southern part of the Iron Age enclosure (Brown 2004. p.52).

In August 2010 a geophysical survey was carried out by Engineering Archaeological Services Ltd. on the sloping terrace to the north of the hillfort. This had been commissioned by the Heather and Hillforts Partnership Scheme to be used as a training event for members of the general public alongside members of the Heather & Hillforts Archaeology Group (HHAG) (in 2013 this group was renamed The Clwydian Range Archaeology Group – CRAG). Further surveys were carried out by Engineering Archaeological Services Ltd., members of HHAG and students from Holywell High School in 2011 and 2012 using a fluxgate magnetometer. These surveys highlighted a number of anomalies on the terrace to the northwest of Moel Arthur Hillfort. Some of these have been investigated by excavation over the following years.

Fig. 2. Plan of Moel Arthur and the terrace to the north-east, showing the results of the 2012 geophysical survey. Courtesy of I.P. Brooks & K. Laws. (EAS)
1.2 Previous Excavations.

1.2.1 2011
In May 2011 excavations by Sarah Peverly (a local archaeologist attached to the Heather and Hillforts Project) and the HHAG took place over a two week period to investigate anomalies found during the 2010 geophysical survey. Five trenches were excavated by hand. Two trenches produced nothing at all. One showed a layer of flat stones that appeared to have been laid. Another produced a possible trackway, illustrated by ruts leading towards a large terrace further to the west of Moel Arthur. A tanged flint knife (R01—see Appendix 4 & 5) was also found. (HHAG 2011).

1.2.2 2012
In May a new trench was opened under the direction of Sarah Peverly. Further evidence of the trackway discovered the previous year was uncovered, together with a number of apparently worked flints and a barbed and tanged arrowhead of possible early Bronze Age date (R06). In October a new trench (Trench 3) was opened further down the slope to investigate a ferromagnetic anomaly further to the north (A on the plan) shown by further geophysical work in June of this year. This uncovered a circle of larger stones and two more flints. As there was no time for further investigation the trench was closed with a view to returning the following year.

1.2.3 2013
In January of this year the Heather and Hillforts Archaeology Group was renamed the Clwydian Range Archaeology Group (CRAG), the name used from now on in this report. In May this year Trench 3 was re-opened and extended to 6m square and renamed Trench 8. This exposed an area of heat shattered stones, several pieces of red clay and a small flint flake. It appeared these stones formed the filling of a sub-circular pit containing some small charcoal fragments. Returning to the site in July the pit was further excavated down to bedrock. Further flints and a possible burnishing stone (R44) were found, soils samples taken and fragments of charcoal and carbonised hazel nutshell removed for carbon 14 dating and paleo-environmental analysis. At the end of the excavation period the trench was backfilled after depositing a current 10p piece at the bottom of the pit.
The findings were interpreted as the remains of a burnt mound with the fire-cracked stones being used to heat water in the pit. The charcoal and nutshell were analysed by SUERC (Scottish Universities Environmental Research Centre) and produced a radiocarbon date of 3996 +/- 33 BP (SUERC 49808 [GU32372]. This places the pit in use during the late Neolithic/Early Bronze Age, predating the Iron Age hillfort.

1.2.4 2014

In September 2014 a further geophysical survey was carried out by CRAG Volunteers, under the supervision of Dr. Ian Brooks, on the terrace surrounding the 2013 Trench 8, on a grid approximately 160m x 100m running North West to South East. (Brooks 2014). A range of anomalies was highlighted by this report, providing material for several further years of excavation if this could be achieved. It was decided by the group that an area just to the south of Trench 8 (the possible burnt mound from 2013) would be investigated initially, covering the anomalies N, O & P noted in the report (See Fig.3). It was felt that any hearth associated with the burnt mound was likely to be situated in this area.

Fig 3. Interpretative plan of geophysical survey from Sept 2014 highlighting a range of anomalies over the area.
Grid squares are 20 metres.

Courtesy of I.P.Brooks & K. Laws. (EAS)
2. **The Team for the 2015 Excavations.**

15 members of CRAG took part in the excavation over two 2 week periods from May 23\textsuperscript{rd} to June 5\textsuperscript{th} and then 25\textsuperscript{th} July to 7th August. During second fortnight we were joined by two secondary school pupils from Holywell and three university students from Liverpool and Chester. There were usually between 8 and 11 people on site on any one day. The site was supervised by Irene Milhench, and we received periodic visits from Fiona Gale (Archaeologist with the Denbighshire Countryside Service) and Ian Brooks (Engineering Archaeological Services).

The Following people were involved:

- Alice Bray
- Chloe Clapham
- Philip Culver
- George Davis
- Afnan Ezzeldin
- Nick Harrison
- Tony King
- Hilary Lidbury
- Karen Lowery
- Keith Lowery
- David Matthews
- Irene Milhench
- Robert Moore
- Ralph Newsam
- Calum Richardson
- Simon Shepherd
- Elizabeth Slingsby
- Graham Thompson
- Terry White
- Diane Williams
Fig. 4. Plan 00. Overall site plan showing the positions of Trench 3/8 (2013), Trench 11 (2015) and Trench 12 (2015).

The temporary bench mark (TBM) was surveyed in by GPS at 060E /280N measuring 409.05m OD
3. **The 2015 Excavations.**

The excavation site is centrally placed on a terrace to the Northwest of the Moel Arthur hillfort, approximately 450 m x 300 m in extent, which slopes gently to the north-west before dropping steeply to the pass containing the unclassified country road between Nannerch and Llandyrnog. There are spectacular views (on a good day) to the west over the Vale of Clwyd as far as Snowdonia; to the north-east over the Dee Estuary to the distant Wirral and to the north up the Clwydian range to the neighbouring hillfort of Penycloddiau about 2 km distant (See Fig. 1.)

During the May/June fortnight the weather was mainly dry apart from the middle weekend when the trench flooded after heavy rain on the Friday which prevented any activity on that day. A stiff breeze most of the time soon dried the ground, and kept the team well wrapped up. On the best days the views were superb. The July/August fortnight started unpromisingly with thick mist, but turned out to be mainly dry and sunny.

### 3.1 May/June 2015

An archaeological excavation took place on the north-western flank of Moel Arthur to investigate ferromagnetic anomalies found by the group during geophysical survey carried out in September 2014 (Brooks 2014).

A trench (Trench 11) 10m x 5m was laid out in grid square 13 to cover anomaly N and P as shown in the report from EAS Ltd who undertook the survey with the group.

After taking off the heather turves and trowelling off the peat layer (1101) there appeared to be a few dark patches which required further attention as these may indicate possible features including post holes etc. On further investigation these just turned out to be dark patches of the context (1101). The under-surface of the turves was also examined and two of the worked flints found on the site came from these (less than 10cm under the current land surface).

The area in the centre of the trench was sectioned to determine the results of the ferromagnetic anomaly seen on the geophysics survey. However again there was no indication of any archaeological activity in this area. A sondage was cut across this area to determine a sequence of contexts, and found they were similar to the sondage within Trench 8 in 2013.
The dark area in the northern end of the trench was sectioned and this proved to be a bit more interesting. There was a group of stones which appeared to have been piled up on the left hand side of the section. This group of stones was not very deep. The thin section of burning was fairly spread out, and could be the result of people spreading burnt material around when walking about the area, as there appears to no deep penetration of hard burning as would be found in a hearth. There were several thin pockets of sand within the context (1109) which could indicate a possibility that the area had been exposed to wind-blown particles at some time.

It is probable that the stones had been washed down over a long period and at times of prolonged rainfall when the water runoff from the hillside was a lot faster and heavier. The stones then reaching some kind of blockage (e.g. tree or bush roots) collected and were piled up on top of each other. This could also account for the other possible feature in the north-east corner where there appears to be an area built up of clay with very small stones throughout (1104).

An extension at the north end of the trench was put in to establish whether the build up of stones and the burning continued further. This proved inconclusive at this stage of the excavation.
Fig. 6. Plan of Trench 11 on 4th June 2015 - showing the build up of stones at the northern end of the trench and the two large upright stones towards the north-east corner.
Other areas were investigated around two large upright stones in the north-west corner but there was no evidence for postholes. However at this stage it was felt that we needed to go deeper to confirm this. The thin dark brown context (1104) underlying the clay (1102) is probably due to extensive clearance burning during the late Neolithic /early Bronze Age. The southern half of the trench had significantly fewer stones and was largely devoid of any features. At the end of the fortnight the northern end of the trench was covered with terram and the trench backfilled and re-turfed.

3.1.1 **Finds in Trench 11 - May/June**

There were five flints found in between contexts (1101) and (1102), also several pieces of red clay.

![Flints found during May/June (Scale 15cm) (NB: The right-hand flint flake was found later during July/August - see below) (See Appendix 4 & 5, Nos. R55, R56, R57, R58, R61 & R66)](image)

![Red clay. Appendix 4 & 5 No. R59](image)
3.2 **July / August 2015**
At the end of July Trench 11 was re-opened, together with a new 5 m square trench (Trench 12) sited 40 metres to the north-west of Trench 11.

3.2.1 **Trench 11.**
The north end of June's trench was opened to expose the stones and dark areas found at that time.

![Fig. 9. Showing Trench 11 re-opened. (Scale 2m)](image)

The area between the two upright stones was excavated down to the dark context (1108). A large stone at the edge of the trench in June was removed and a burnt area (1111) discovered below it. There was no other sign of any archaeology around these stones at this level.

The original trench was extended to the north, (3 m x 3 m) to include a number of features, stones and apparently burnt areas which had been appearing at the close of the June season. The feature (1106) did not appear to continue into the area, and there were no other obvious features at this level.

![Fig. 10. Showing northern extension of trench](image)
The context (1111) extended towards feature (1106) with definite signs of burning and several pieces of charcoal were recovered from this context. The large stones did not show any signs of burning.

A section cut adjacent to the large stone showed the burnt area was localised and underlain with context (1110) which underlies (1108) throughout the trench. A further dark area of soil – possibly burnt – appeared in the north east edge of the extension. This was given context number (1112). No charcoal was found here however. It consisted of black hard burnt organic material and stones.

Fig. 11. Showing context (1111) (Scale 80mm)
Fig. 16. Plan of extension to Trench 11 (Plan 03)

Fig. 17. North facing section of Trench 11 extension (Section 04) showing the typical depth of stratigraphy. (scale 80mm)

Fig. 18. North facing section of trench 11 extension. (Section 04)
Meanwhile, back in the main part of Trench 11, further trowelling through (1108) revealed an arc of small pits filled with silvery sand and, in some cases, clay lumps. These were treated as shallow stake holes and given cut and fill numbers, the whole area being called (1113). The stake holes were all approximately 3cm deep.

Further trowelling showed burnt areas appearing within context (1113). The fan shape of this arc of holes suggested a light structure possibly surrounding an oven. Underneath hole (1124), next to a small group of stones, was a somewhat larger hole packed with clay - contexts [1141] and (1142).

**Fig. 12.** Showing context (1112) (Scale 1m)

**Figs. 13,14 &15** Close-ups of three of the stake holes
Two large stones to the south east, set on edge, seem to bear a relationship with the arc of stake holes. The burnt area extends out between these stones and then fans out to the south. This area was underlying (1108). Further stones which seemed to have been placed on their edges were explored near the eastern trench edge, however they are placed deeper and may not have any connection with the group in (1113). Further stake holes appeared as context (1111) was excavated down to (1110). Some of these were filled with sand and some with clay. Several hand sized lumps of clay were found, some with circular holes stamped into them.

The whole trench was excavated down to the context (1110) which was a hard packed orangey-brown clay layer, considered to be the underlying natural soil level. There were no signs of archaeology below this level. The overall depth of the trench down to (1110) was between 10 and 12 cms.

After recording and section drawing, the trench was back filled and re-turfed.

Three samples of charcoal were recovered from contexts (1111) & (1113) and these were sent for identification and Carbon14 testing.
Fig. 20. Showing clay packed hole with indentations. (Scale 100mm)

Fig. 21. View of Trench 11 looking south showing semi-circular arrangement of 'stake-holes, area of burnt soil and large stones possibly forming a flue. (Scale: 2m)
Fig. 22. Plan of the north end of Trench 11 showing the upright stones and arc of stake holes together with further stake holes to the north-east.
3.2.2 **Finds in Trench 11 – July/August**

Several small flint flakes, a possible hammer stone, and a modern lead bullet were found.

![Possible hammer stone (Scale 80mm)](image1)

Fig. 23 Possible hammer stone (Scale 80mm)

![Flint (scale in cms)](image2)

Fig. 24. Flint (scale in cms) (Appendix 4 & 5, No. R61)

![Flint flakes (scale in cms)](image3)

Fig. 25. Flint flakes (scale in cms) (Appendix 4 & 5, Nos. R63 & R64)

![Flint (scale in cms)](image4)

Fig. 26. Flint (scale in cms) (Appendix 4 & 5, No. R66)

![Lead bullet (scale in cms)](image5)

Fig. 27. Lead bullet (scale in cms)
3.2.3 **Trench 12**

Trench 12, five metres square, was opened to the north west of the site to investigate an anomaly labelled D on the magnetometry report. This was trowelled down to the bed rock, which was very close to the surface here and could account for the anomaly. A darker area in the south west corner was explored. It proved to be a hollow in the rock filled with dark peaty material. There was a suggestion that the bed rock had been deliberately cut into. However on reflection this was considered to be the action of water or ice.

There was nothing that could be called a feature, and the trench was not planned. A few pieces of apparently worked chert were recovered. Levels were taken and the trench back-filled.

![Fig. 28. Trench 12, looking west (Scale 2m)](image)

**3.2.4 Finds in trench 12**

5 pieces of worked chert including a core.

![Fig. 30. Chert core and worked pieces. Report nos. R67 –71](image)
4. Discussion

The use and significance of burnt mounds is still controversial, varying from use in cooking, beer making, provision of sweat lodges/saunas, marking boundaries, retreats for ritual purposes (possibly taking of hallucinogens) or for metal working (Pryor 2003. p.192; Champion 1999. p.102; Darvill 2002. p.59). However the presence of large quantities of fire heated and cracked stones present in all such sites implies the existence of a substantial hearth in the neighbourhood. Following the discovery of a possible burnt mound on the north-eastern slopes of Moel Arthur in 2013 (Milhench 2013) a further geophysical survey was carried out with the aim of locating such a hearth in the area and any other features which might have been linked with the site. As mentioned above (para.1.2.4) the survey located a number of anomalies, and the 2015 excavations concentrated on those closest to the burnt mound (Trench 8).

The nature of the site, with its thin covering of peat and clay over the underlying chert - a maximum depth of about 20 cms – makes it very difficult to distinguish a time scale for the various finds. There had certainly been burning in the area, probably over many centuries. The charcoal recovered, mainly from the burnt area of context 1111 in the area of the stake holes, and sent for analysis returned dates ranging from about 7500 BP to 5900BP (6300 calBC to 4700 calBC) which corresponds with the Atlantic phase pollen zone when the vegetation is likely to have consisted of extensive woodland up to 700m with a preponderance of oak, ash, lime, alder and hazel (Aldhouse-Green 2000, p.24ff). This, together with the flints ranging from the Mesolithic to the Bronze Age found nearby in recent years, suggests that there had been human activity, including the use of fires, throughout these periods. Whether any of this was linked to the possible burnt mound was impossible to determine.

Most Mesolithic settlement, prior to the Mesolithic/Neolithic interface (around 5300BC), seems to have been on lowland sites around estuaries and the coastal plain. However, rising sea levels in this period may have made the upland areas more attractive to mobile groups for hunting or recreational activities (Aldhouse-Green 2000, p.41; Brown 2004, p.32).

The discovery of the semicircular row of shallow post holes, together with other shallow hollows filled with silty sand, the general spread of burning, and the position of larger stones set on edge, would appear to indicate that some kind of lightweight construction, possibly made of withies, had been made. This could have
been used either as a windbreak for a hearth or oven; or, if these had been covered with heather or turves, some form of shelter. A similar collection of postholes indicating a light shelter has been reported from Pembrokeshire, at Brennig and not far away from here at Rhuddlan (Aldhouse-Green 2000, p.32). Such a construction could only have been very temporary and was probably repeatedly replaced over a long period of time as the need arose. Coupled with the finds of simple flints and knapping debitage, it seems likely that the site was used over a long period, by small groups passing through the area, maybe following their own animals or on the hunt for food. Although there were clear indications of burning in several areas of Trench 11, it does not appear to be sufficient to be considered as the site of a hearth related to the 2013 burnt mound.

While the conclusions are necessarily rather vague, the number of possible features demonstrated by the geophysical survey suggests that, time and money permitting, the area still has considerable potential for excavation over future years.

5. Acknowledgements
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6. References


Appendix 1.


Brooks, I.P.
Appendix 2.


Appendix 3.

Radiocarbon dating report, Report No: S
UERC 66219 (GU40089).

Scottish Universities Environmental Research Centre.
SUERC] (2016).
Appendix 4.

Analysis of the flints found on Moel Arthur 2011 - 2015


(2016)
Appendix 5

Photographs of finds on Moel Arthur from 2011–2015