

PAST

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New geophysical surveys at Dowth Henge, Brú na Bóinne

Dowth Henge (Site Q) is the largest and best preserved of the nine embanked enclosures (five of which have been identified since 2010) within the area of the Brú na Bóinne World Heritage Site in Co. Meath, Ireland. Dowth Henge is unusual for Irish monuments of this type in that it has two opposing entrances, with the vast majority of Irish embanked enclosures having only a single entrance. However, it has been argued that the northeast entrance is a later addition to the site, owing to the presence of a break of slope immediately external to the northeast, suggesting a former continuation of the bank. The site occupies an unusual position for an embanked enclosure in one of the most elevated positions within the local landscape: it slopes appreciably from southwest (uphill) to northeast (downhill) with the former entrance being 8m higher than the latter.

Unlike the majority of British henge monuments, Irish embanked enclosures are considered to have been constructed by the drawing up of a shallow, wide scarped area into a bank rather than by the digging of a *bona fide* ditch. Previous lidar-based visualisation has hinted at a degree of complexity within Dowth Henge. Local relief modelling

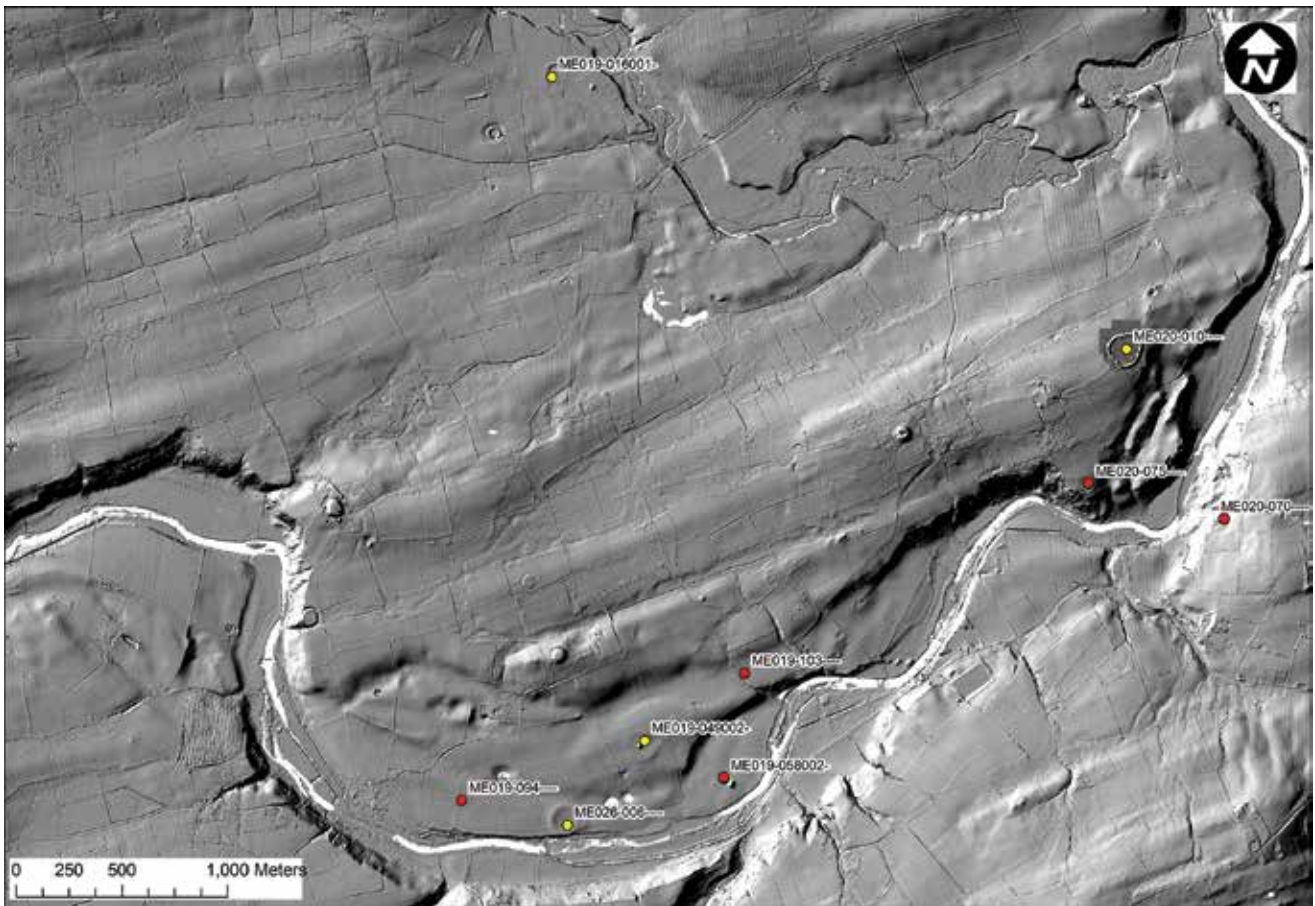
provides suggestions of both internal and external scarping as well as a central raised platform area. Lidar-based survey was followed up in autumn 2012 with geophysical survey, primarily using magnetic gradiometry with limited earth resistance. These surveys have revealed a range of hitherto unidentified features.

Contrary to previous opinion and unlike excavated examples at Monknewtown and Ballynahatty, Dowth Henge is clearly ditched, not only internally but also externally, with a berm of *c.* 10m between the external ditch and the current bank line. This has traces of a possible stone revetment to the north, which may account for the exceptional preservation of the site in comparison with many of the other Boyne enclosures. Both entrance features are characterised by interruptions in the inner and outer ditches, with areas of increased magnetic response between the inner ditch terminals in both cases. Interruptions in the inner ditch are significantly narrower than those in the outer. To the northeast the outer ditch shows traces of continuation beyond the entrance implying that, as previously suggested, this entrance may be a later addition. A funnel-like feature extends outwards from the northeast terminus of the inner ditch in an arc to the north.

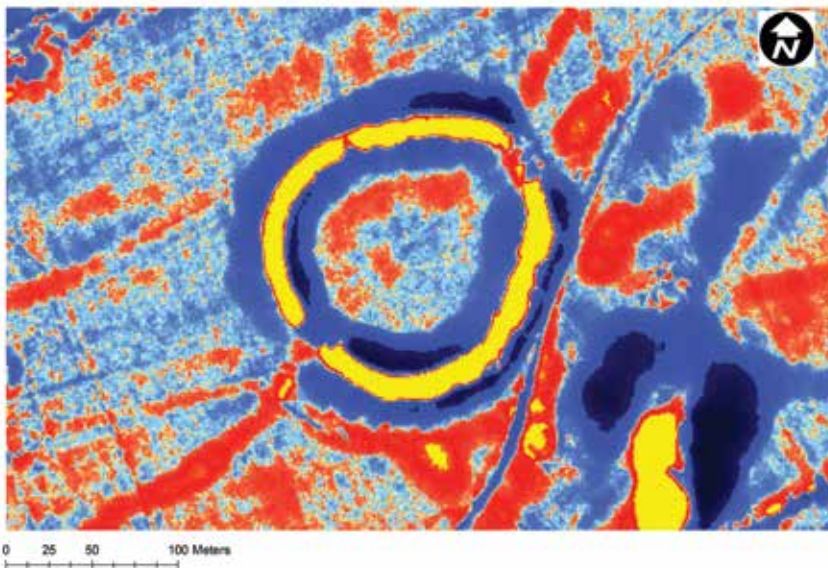
Internally, at least two enclosures of pits or postholes are evident. These are very roughly circular, with the larger measuring *c.* 85m in diameter. They are not centrally placed within the henge, but shifted slightly to the southeast. Within the second enclosure and directly opposite the southwest entrance is a pair of distinct pits or postholes, separated by less than 2 metres. Further weak, arcuate features are evident to the north of the enclosure. Central to the site lies a horseshoe-shaped group of high-magnetic response anomalies open to the southeast. A rectangular anomaly (24 × 17m) is located abutting the interior of the bank in the southeast quadrant. Earth resistance survey clearly identifies a low-resistance enclosure, *c.* 20m in diameter with a possible



Dowth henge, Brú na Bóinne, Co. Meath, Ireland



Lidar-based DEM showing recorded embanked enclosures in Brú na Bóinne (sites marked in red have been identified since 2010)

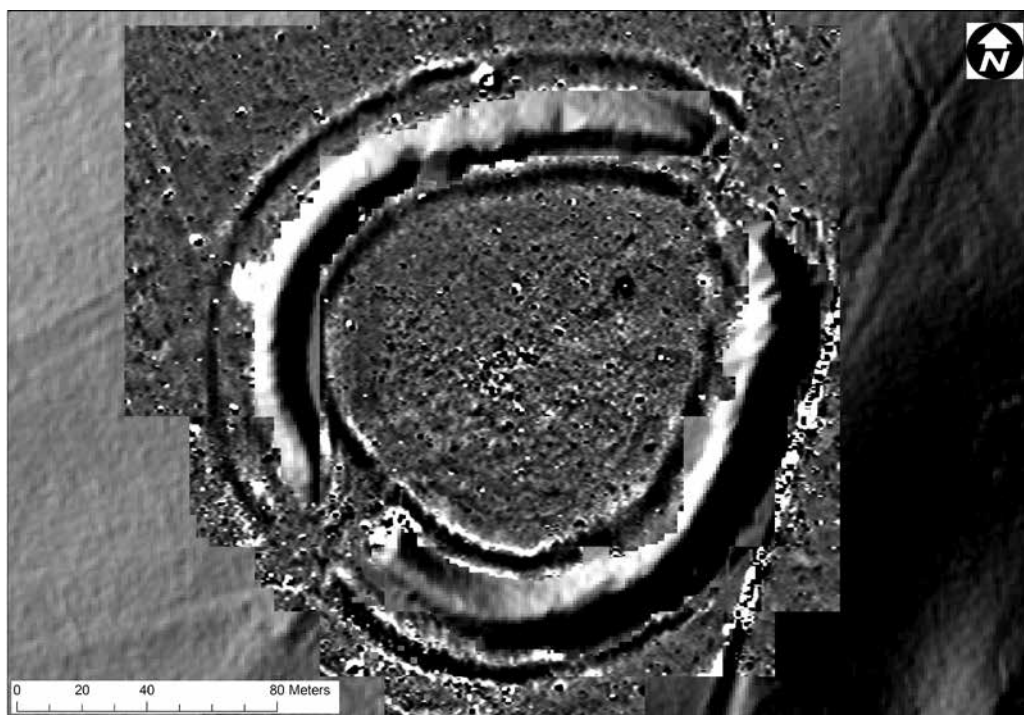


Local Relief Model of Dowth Henge, blue signifying lower areas, yellow elevated areas and red slight elevations

entrance to the southwest, within the central area of the site; this is almost but not entirely coincidental with the area of high magnetic response.

These results are intriguing in that they differ substantially from all other embanked enclosures investigated in Ireland to date. Excavated sites of similar scale (e.g. Ballynahatty, Co. Down) have shown no evidence of genuine ditches, only scarping. The interior, roughly circular arrangement is similar in scale to the Late Neolithic/Early Bronze Age pit

circle at Newgrange. The southwest entrance which faces uphill away from the river appears to be an original feature, with successive narrowing from a 24m breach in the outer bank, through the entrance itself (9m), the inner ditch (also 9m) and the inner pit/post pair (2m). At the northeast, the picture is less clear owing to the possible continuation of the outer ditch and further survey is required in this area. Expansion of the area of geophysical survey and small-scale excavation are the next steps in the project, for which funding is currently being sought.



Magnetic gradiometry, overlying lidar-derived hillshaded DEM

Acknowledgements

Survey was undertaken with Christine Markussen, with assistance from Joanna Leigh. Field assistance was provided by Susan Curran and Karen Dempsey. This research was funded by the Office of Public Works, Ireland. Grateful

thanks are also extended to the estate of the late Patsy Pidgeon for facilitating site access. LRM processing was carried out by Dr Ralf Hesse.

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A Bronze Age corn-drying kiln from Argyll

A Middle Bronze Age corn-drying kiln dating to 1446–1367 BC (at 75.4% probability; GU28846) has been excavated in the garden of Rowantree Cottage in Kames, Cowal, Argyll. The kiln was 4.25m long and 1.90m wide and was keyhole-shaped. It had a shallow pit at its northern end which was possibly originally paved. This area was covered by an organic superstructure supported by four or possibly five slanting posts. The superstructure would have served to protect the grain from the elements as well as containing hot air drawn from a fire at the southern end of the kiln along a flue lined with green schist. The fire was fuelled mainly with oak, with smaller amounts of alder and hazel. The grain must have been supported on a suspended wooden rack upon which straw and then the grain was laid. Although the ash that choked the flue is clearly derived from the fuel of the fire, the recovery of just two carbonised cereal grains indicates that this structure may well have been used to dry corn. In Scotland's rather damp climate, it was necessary to dry grain in order to achieve full ripeness and to aid threshing, dehusking and removal of the awns, milling, storage and malting (drying the grain hardens it, as well as killing pests, preventing mildew and stopping germination). The kiln sits within a Bronze Age landscape where both ritual and domestic architecture is apparent. Within Kames, there

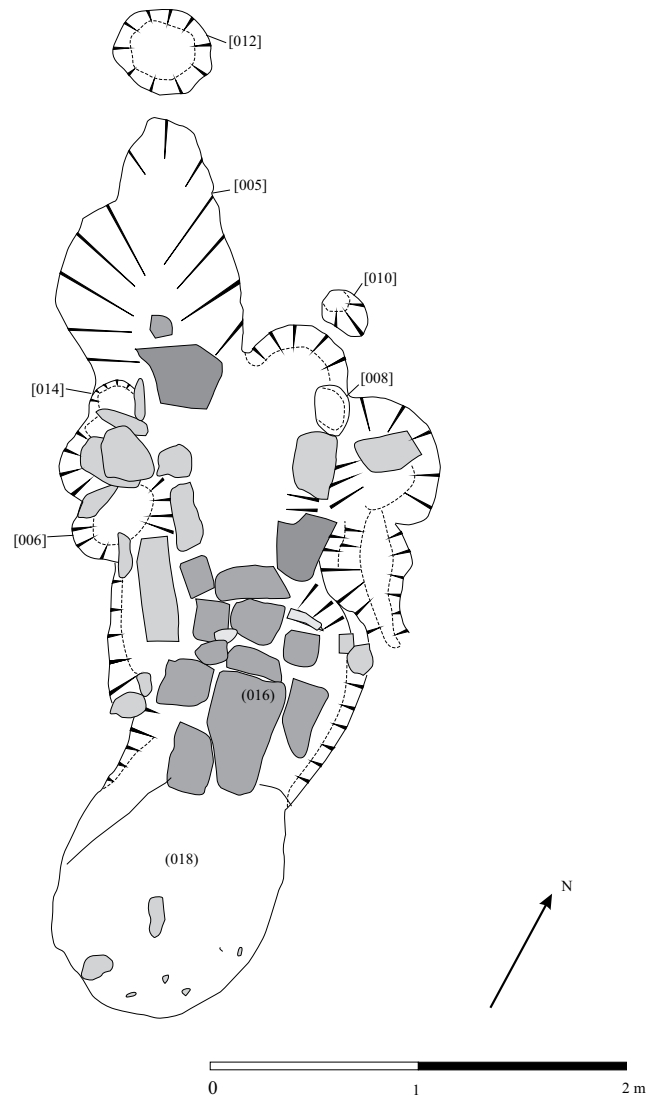
are standing stones and numerous cists; recently a series of postholes and a hearth dating to the end of the Early Bronze Age have also been excavated. There are also a number of cup-marked stones in the surrounding countryside.

There are no other corn-drying kilns in Scotland dating from the Bronze Age. An Iron Age corn-drying kiln, tentatively dated using archaeomagnetism to the second-fifth centuries AD, has been excavated at Old Scatness. The earliest figure-of-eight or keyhole-shaped corn-drying kilns in Scotland date from the Medieval period. A recent example dating to the seventh-ninth centuries AD was excavated by the current author at Dunstaffnage in Argyll, and others have been excavated at Hoddom, Inverness, Capo, Inchmarnock and Lhanbryde. However, the Bronze Age corn-drying kiln at Rowantree Cottage is not unique, with two corn-drying kilns dating to the Middle Bronze Age having recently been excavated in the Republic of Ireland. A figure-of-eight-shaped kiln at Knockgraffon, County Tipperary, dates to the end of the Early Bronze Age. It comprised two concave pits separated by a short flue and measured 3.8m in length. This too used a mixed fuel of oak, ash, hazel and possibly hawthorn. The majority of the grain was of indeterminate type but there were three barley grains. A second kiln



excavated at Carrigtogher near Nenagh in County Tipperary was a smaller figure-of-eight-shaped kiln and was dated to the Middle Bronze Age. These two kilns are smaller and have much shorter flues than the one excavated at Rowantree, but surprisingly this difference in style is clearly not due to the type of fuel being utilised. Neither of the Irish examples had any evidence for a superstructure.

The discovery of the Middle Bronze Age kiln at Rowantree Cottage is important because it demonstrates that corn was being dried on a relatively large scale and in a sophisticated manner in the Bronze Age some 1400 years before it is generally supposed that such kilns were used. The construction of such a large kiln implies collective



use, crop surplus as well as the potential for long-term over-winter storage of significant quantities of grain at a much earlier date than has previously been demonstrated in Scotland.

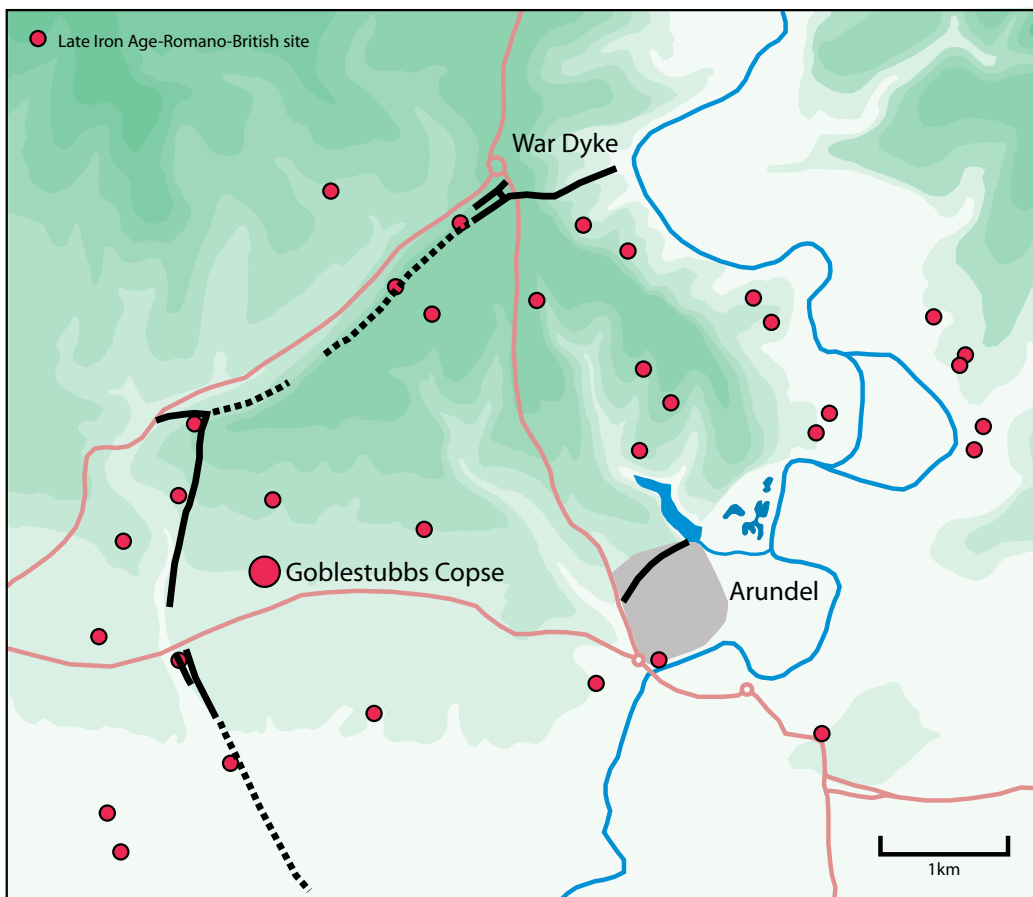
Clare Ellis, Argyll Archaeology

Arundel and the end of prehistory

Arundel is a beautiful market town nestling in the South Downs of southeastern England and provides a scenic gateway to the local National Park. A number of years ago, English Heritage produced a brief guide to the history of the town and during this work it became apparent that Arundel had developed on a peninsula of downland that had been isolated by a massive bank and ditch constructed, possibly, in the second half of the first millennium BC – another component in a staggeringly lengthy inventory of sites of Late Iron Age and Romano-British date in the immediate area. But why here, and in such density too? The search for an answer led deep into an area of woodland lying to the west of the town and to the uncovering of an intriguing archaeological landscape which throws light on the dramatic

events in southern England in the early decades of the first millennium AD.

The woodland had drawn the attention of earlier workers. The Curwens, in particular, had attempted to instigate a long-term programme of work but this was abandoned simply because they couldn't generate enough funding despite being able to demonstrate the significance and antiquity of the remains they were assessing. There are six surviving earthwork enclosure complexes – including a newly discovered hillfort – and these are bounded on the north and west by a massive linear boundary, multiple in places, called the War Dyke. There has been much speculation about the nature and origin of this linear earthwork but



General location of major Late Iron Age and Romano-British sites in the area around Arundel, West Sussex.

it is almost certainly pre-medieval in date, though later re-used as a deer park boundary. The linear earthwork extends southwestwards, crossing the A27 to the north of Binsted, and terminates in an area of boggy ground near the village of Ford. This boundary, therefore, encloses an area of over 21 sq. km, flanked on the east by the River Arun.

The date of the earthwork complexes was disputed. The Curwens believed them to have late prehistoric or Romano-British origins but the most recent survey work, by the Ordnance Survey, suggested that on balance they were likely to represent medieval hunting lodges and/or related attempts at stock/deer management. The 'fresh' appearance of the enclosures certainly gives them a more recent look and a map, held in the archives at Arundel Castle, supposedly names them too. However, having now viewed this map, it is clear that the sites depicted don't – apart from one example – correlate with what can be seen on the ground.

Indeed, field reconnaissance suggested that, in morphological terms, the earthworks are more closely akin to what Mark Corney has termed 'sub-oppida' – Late Iron Age/Early Roman period agglomerations of settlement, industrial and ritual activity. In order to test this hypothesis, one of the enclosures at the Goblestubbs complex was selected for more detailed survey, then trial trenching, the work being led by Worthing Archaeological Society.

The Goblestubbs complex is large and consists of a number of elements dominated by two enclosed components – west

and east. The western element is the better known of the two and is a scheduled ancient monument (West Sussex 59; NMR No. SU 90 NE 16). However, the second enclosure complex lies approximately 50m to the east and beyond the scheduled area. A small linear earthwork bounds both elements on the north and a triple-ditch system leads from it on the south.

Remarkably, during preparatory work in advance of the excavation, record of an unpublished previous campaign of investigation on the western site was uncovered. Undertaken in the early 1970s by a team led by Con Ainsworth, two short seasons had been completed before the dig was halted due to the death of the co-director Dr Ratcliffe Densham. Good evidence for Early Roman period activity was uncovered, including evidence of a possible shrine as well as Roman military activity.

Our attentions focussed on the eastern element and the survey revealed that it comprised one rectilinear enclosure covering an area of 0.25ha defined, largely, by substantial ditches with internal banks. Annexes lay to the south and east and there is a strong possibility that these are remnants of earlier enclosed units. Four narrow slots across each enclosed element were opened and a relatively small but cohesive and immediately diagnostic pottery and lithic assemblage was retrieved.

Although residual worked flints of later Mesolithic/Early Neolithic date were found, the Roman-period pottery

that characterised the western site is absent from all four trenches, suggesting the sealed layers of these earthworks are undisturbed by activity after the mid-first century AD. Apart from a few sherds of Bronze Age and Middle-Late Iron Age dates, most of the pottery is datable to the early-mid first century AD, including a single piece of imported Gallo-Belgic White Ware.

This pottery is significant as it bridges the gap in the ceramic record for the area in the period immediately pre-dating the Roman Conquest. Most of the assemblage is locally-produced, but consists of handmade vessels which were subsequently finished using a turntable. The vessel forms appear to be precursors to fully wheel-thrown wares produced in the Arun Valley during the Early Roman period, and therefore indicate localised production in a period directly before changes in ceramic technology brought about by the Roman Conquest. The assemblage illustrates a shift from flint-tempering to quartz sand, and the copying of certain forms imported into the West Sussex area at the end of the Iron Age. This suggests that people were beginning to adopt new ideas, and possibly changes in dietary habits, while still being slightly resistant to external influences.

It is not too extraordinary a leap of faith to suggest now that the majority of the earthwork complexes within the wood, and contained by the War Dyke, are broadly contemporary. If so, we are dealing with a remarkable concentration of activity constructed on the eve of the Roman Conquest. An arm of the War Dyke extends westwards and is clearly part of the Chichester entrenchments – an array of substantial linear boundaries which centred on that town and may well be connected with the oppidum known as *Noviomagus Reginorum*. It is clear, however, that in an earlier phase the War Dyke and its extension to the south created a massive isolated enclave on the flank of the river Arun; within this, a number of separate enclosed elements dating to the early first century AD, and others yet unidentified, flourished.

The accompanying historical narrative is largely speculative but it bears closer scrutiny as it may well provide an



The ditch defining War Dyke is massive, and triple in places. Although it was undoubtedly used as a park pale in the Medieval and later periods, it has a Late Iron Age origin and defines an area that covers close on to 22 square kilometres.

explanation for this incredibly intense burst of activity at the end of the Iron Age. At this time, Arundel was probably situated within the territory of the southern Atrebates who were led from c. AD 15 by Verica. According to written sources, the Atrebates were engaged in near constant war with the Catuvellauni who, under Cunobelin, were pressing from the east. Is it plausible that the earthwork enclosures and the massive War Dyke boundary were built to protect and define an Atrebatian enclave? In the early AD 40s, Caratacus completed the Catuvellaunian expansion and Verica fled to Rome where he sought Roman intervention. The rest, to coin a phrase, is history!

Acknowledgements

The authors would like to acknowledge a generous grant from the Prehistoric Society which allowed us to carry out a more detailed assessment of the pottery recovered from this excavation and in the wider region too.

David McOmish (English Heritage)

Gordon Hayden (Worthing Archaeological Society)

The first date for a projecting basal-looped spearhead of Type 9B, Variant A

Hitherto all dated examples of Group 9 basal-looped Bronze Age spears have come from contexts in southern England and County Galway, Ireland. In August 2007, however, a spearhead of Type 9B, variant A, was found in the Lancashire Pennines with part of its wooden shaft (*Fraxinus* sp.) intact. This organic material, from a relatively short-lived genus, provided a unique opportunity to date an example of variant A by AMS radiocarbon assay for the first time, and thereby to provide a northern British date for Group 9 spearheads. When added to the corpus of leaf-shaped basal-looped spears in Britain and Ireland, the new date refines the chronology and

suggests that variant A appeared after the development of Type 9B spearheads, perhaps in the Pennines of northern England.

The spear was found by a local metal-detectorist on farmland in the vicinity of Barnoldswick, Lancashire, SD 8244, at 176 m HOD. Typologically, the object is a leaf-shaped basal-looped spearhead of Davis's Type 9B (triangular, variant A, prominent blade ribs: *Prähistorische Bronzefunde Abteilung V, Band 5, 145, No. 935*). The spearhead is well-preserved with a dark brown patina, although it was broken in two in antiquity; the owner has repaired it using reversible resin.

Site	BP	Cal range (2 σ)	Lab No		
Barnoldswick	2950 \pm 40	1300–1020 BC	Beta-243685	Ash	
St Ives	3045 \pm 55	1430–1130 BC	OxA-5187	Ash	Needham <i>et al.</i> 1997, <i>Archaeological Journal</i> 154, 72.
Isleworth	3015 \pm 45	1396–1127 BC	OxA-5953	Ash	
Fairford	3030 \pm 100	1500–1000 BC	OxA-1526	Wood	
Menlough	3015 \pm 35	1389–1130 BC	GrN-16879	?	Brindley 2001, in Metz <i>et al.</i> (eds), <i>Patina</i> , 154.
Menlough	2990 \pm 35	1378–1119 BC	GrN-16880	?	
Menlough	2930 \pm 35	1260–1018 BC	GrN-16881	?	

Table of radiocarbon dates for Type 9B. Note the 1-sigma calibrated result (68% probability) for the Barnoldswick spearshaft was 1260–1120 BC.



Spearhead showing basal loops and repaired break. Dimensions: length 192 mm; width blade (max) 38.3 mm; diameter socket exterior at base 23.5 mm; diameter socket interior 20.2 mm.

The finder reported that ‘when I rinsed the spearhead under the tap and cleaned out all the clay from the haft part, a piece of very well-preserved wood came out. The wood has now dried out and measures 45 mm in length.’ The spearhead was subsequently sold by the finder, but with the assistance of the British Museum the author was able to make contact with the purchaser who generously agreed to donate the wooden haft for AMS radiocarbon dating. Analysis was undertaken by Dr Darden Hood, producing a conventional radiocarbon age of 2950 \pm 40 BP (Beta-243685: 1300–1020 BC at 2 σ).

Davis catalogued 82 spearheads of Type 9B, of which 13 spearheads are of variant A, defined by its prominent blade ribs, long socket, wide blade and expanding blade edges. Compared to Type 9B, this variant is shorter and has a more northerly distribution (five examples), with the remainder coming from the Thames (four) and the Cambridgeshire Fens (two). Distribution of Type 9B is dominated by finds from the River Thames (27 examples) and the East Anglian Fens (19), although 18 examples have been found in northern Britain, with notably fewer in the west of Britain, including three from the southwest and one from Wales. In Ireland, 39 Type 9B spearheads have been identified.

Type 9B spearheads are known from the Appleby, Burringham, Wallington, Farnley and Shelf hoards and date to the Penard phase. Six Type 9B spearheads have previously been radiocarbon dated: three from southern and eastern Britain and three from Ireland (the latter dredged from the River Corrib, County Galway). The dates range from 1430–1000 BC and cover the British Taunton, Penard and

Wilburton phases; the Irish equivalents are the Bishopsland and Roscommon phases. Notably no radiocarbon dates have previously been obtained for the Type 9B, variant A.

The new date places the spearhead in the late Penard/early Wilburton phase in keeping with the general range of existing dates. Interestingly, the date for the Barnoldswick find places it at the younger end of the distribution, perhaps indicating that variant A was developed in northern England shortly after the form of Type 9B was established in the southeast. This proposition is supported by the northerly distribution of the variant.

The area around Barnoldswick has afforded several examples of later Bronze Age metalwork. These include a socketed axe and chisel found at Twiston and an Ewart Park type sword found at St Mary’s Church, Barnoldswick. The area is significant for its proximity to Portfield Hillfort, Whalley, and the strategically important crossing of the River Ribble, which connects the east of England to the west coast and Ireland. The presence of a further four Type 9B spearheads along the east-west trans-Pennine routes hints at the importance of these connections during the later Bronze Age

The role of metal-detecting in the recent discovery of bronze artefacts in Lancashire and elsewhere once again demonstrates the potential for further discoveries by this method and the need for ongoing communication between archaeologists and detectorists.

Acknowledgements

The author would like to thank the finder and particularly the owner of the spearhead, Mark Duffy, for generously donating the wooden shaft for analysis. Dr Ben Roberts, formerly of the British Museum, now University of Durham, brought the find to my attention and helped to locate the owner. Peter Iles, Lancashire County Council, provided access to the Historic Environment Record for the county. Grahame Appleby discussed the corpus of spearheads in Lancashire in the context of his own research in Cambridgeshire. Dr Richard Davis corresponded with me on the subject of spearheads, and kindly gave me access to both published and unpublished research that he has undertaken. Dr Mary Chester-Kadwell commented on the draft of the report. All errors and omissions do of course lie at my feet.

David Barrowclough.

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Prehistoric Society 2013 Europa conference in honour of Professor Kristian Kristiansen

The rise of Bronze Age society: new results from science and archaeology

The 2013 Europa weekend saw 120 members, speakers and guests descend on the Division of Archaeological Sciences, University of Bradford, for a series of lectures on Bronze Age Europe in celebration of the work of Prof Kristian Kristiansen. Many of the speakers were colleagues of Prof Kristiansen and it was a pleasure to welcome them to the UK.

After the usual housekeeping and welcome from the President, Prof Mads Holst (Aarhus) opened with a fascinating account of the evidence for group-construction of round barrows in the Nordic Bronze Age through the evidence obtained by extremely detailed total excavation. Dr Johan Ling (Gothenburg) outlined how lead isotope analysis of Swedish bronzes was indicating ore sources in Iberia and the Mediterranean. The ore origins coincided with finds of Baltic amber and he suggested that the copper and amber trades were closely linked. This theme was continued by Dr Anne Lene Melheim (Gothenburg) who also reminded us that much work remains to be done on Scandinavian copper sources. In the afternoon Drs Karin Frei (Copenhagen) and Sophie Bergerbrant (Trondheim) gave an illuminating joint lecture on Bronze Age textiles, not just their technology but the economics and practicalities of textile production and also their value by examining Middle Eastern texts (textiles were half the price of silver). It was suggested that textile production could be as much a craft specialisation as potting or smithing. The metalwork theme was resumed by Dr Serena Sabatini (Gothenburg) who examined copper oxhide ingots not just from a technological but also a theoretical point of view suggesting that their form was full of meaning as important as the raw material they contained.

Dr Joanna Sofaer (Southampton) was the first speaker to deal with ceramics looking at the relationship(s) between original and reproduction in Croatia. The art theme was continued by Dr Peter Skoglund (Gothenburg) who suggested that Scandinavian rock art saw a transformation in the eighth and seventh centuries BC with the appearance of Hallstatt elements in the carvings. He argued that this reflected a major change in settlement and farming practices. Dr Morten Allentoft (Copenhagen) then outlined current research into the ancient DNA of early Europeans, DNA preservation in ancient samples and attempts to define genomic potential. This theme was continued by Prof Doug Price (Wisconsin) looking at the results of DNA and isotopic analysis in relation to Beaker populations. The lecture changed direction



Figure 1: Prof Kristiansen (with an appreciative President in the background) entertaining the audience with more than just archaeology

midway through, however: the speaker humorously and warmly charted the career of Prof Kristiansen – either he liked to ‘think’ a lot or there were a surprising number of photographs of Prof Kristiansen asleep.

Saturday saw a change of venue into the John Stanley Bell lecture theatre in the Richmond Building. The morning was started by Prof Mike Rowlands (UCL) who, after outlining his Marxist credentials, discussed the connections between Asia, Eurasia, sub-saharan Africa and the Mediterranean. The Marxist theme was continued by Prof Tim Earle (Northwestern) who examined the role of micro-regional polities in the movement and restriction of raw materials and prestige goods in the European Bronze Age. Dr Marie-Louise Stig Sørensen (Cambridge) discussed portrayals of the human form in Scandinavian rock art and noted how different parts of the body seemed to have been treated differently even forming foci such as hair and calf muscles. Prof Helle Vandkilde (Aarhus) looked at the origins of the Nordic Bronze Age *c.* 1600BC and noted links with southern Europe, particularly the Carpathian Basin and Eurasian Steppe, seen in weapon forms and cosmological symbolism decorating the artefacts.

In the afternoon, Dr Jens Henrik Bech (Thisted Muesum) spoke about the Thy project in northwest Jutland between 1990 and 1998. This is nearing final publication, and has looked at the Bronze Age settlement and land-use in the area from house plans, artefact types including amber collection,

EUROPA 2014 CONFERENCE

We are delighted to announce that the winner of the 2014 EUROPA Prize is Professor Alasdair Whittle, of the University of Cardiff. The 2014 EUROPA conference in his honour will take place at the University of Cardiff on 30 and 31 May 2014. See our website for further details and a booking form.

and burial types suggesting maritime links along the North Sea coast. Dr Svend Hansen (Berlin) outlined his research on the Bronze Age of Eurasia suggesting that the universality of certain weapon types indicated a new social type of warrior; however these ideas were not spread as a package but followed different, sub-regional paths with periods of continuity and discontinuity rather than a pan-European commonality.

The Society's AGM, expertly chaired by our President, Alison Sheridan, was attended by almost 40 members of the Society. Winners of research awards were announced as was a new award kindly financed by SUERC. The Baguley Prize was presented to Harold Mytum and Ken Murphy for their paper *Iron Age enclosures in west Wales* in volume 78 of the *Proceedings*. The Europa Prize had been paid to Prof Kristiansen by bank transfer so a bottle of fine malt substituted for the award. Prof Kristiansen then delivered an enthusiastic, informative and wide-ranging lecture on the rise of Bronze Age society. He highlighted the importance of

connectivity between societies but also reminded us of the inherent violence within human groups to the extent that the Mycenaean breakdown caused such a collapse as to form the prelude to the European Iron Age.

Both days ended with convivial wine receptions generously sponsored by Cambridge University Press and Oxbow Books and they and Archaeopress had bookstalls at the conference. On Saturday a secret (and weighty) festschrift was presented to an uncharacteristically speechless Prof Kristiansen who also entertained us with some fine jazz piano at the Saturday reception in the airy 'atrium' of the Richmond Building. Once again, the Europa weekend proved to be a fine celebration of prehistory – educational and convivial in equal measure. We thank everyone involved in the organisation and sponsorship of the event, especially our student helpers Debbie Hallam, Becca Nicholls and Joe Page for ensuring the streamlining of the two days, and the University of Bradford for hosting us.

Alex Gibson

Professor Thurstan Shaw and Lady Mollie Clark

The spring and summer of 2013 have seen the loss of two remarkable, distinguished and long-lived individuals with a special connection to the Prehistoric Society.

Professor Thurstan Shaw CBE FBA FSA, President of the Prehistoric Society between 1986 and 1990, died on 8th March, aged 98. His ground-breaking work in Ghana and Nigeria made him a revered founder figure in West African archaeology, and one of his many contributions to the Society was to promote the publication of prehistoric research undertaken outside Europe in our *Proceedings*.

Lady Mollie (Gwladys Maude) Clark, widow of Professor Sir Grahame Clark, died on July 3rd. Lady Mollie was a great supporter of the EUROPA Prize which her husband had established in 1991, and after his death in 1995 she continued to attend the award ceremony and present the Prize until she was no longer able to make the journey to London.

The Society extends its condolences to the families, and its gratitude for the contributions made by Professor Shaw and Lady Clark to the Society.

Alison Sheridan, President

Kent's Bronze Age gold treasures on show in Dover

A hoard of some of the rarest prehistoric gold ornaments ever found in Britain is now on public display for the first time in many years. Owned by the Kent Archaeological Society (KAS), the Bronze Age torcs have been released for display at Dover Museum until December 2013. During this time, events in the town will focus on the Bronze Age and earlier periods of prehistory and the world-famous Dover Bronze Age Boat, unearthed during road works in 1992, will be one of the museum's main attractions.

Mystery surrounds the torcs' provenance. Four of them were given to the KAS by one of its members, Edward Pretty, who bought them in 1861 from an unnamed vendor and understood that they had been found in a box in the River

Medway at Ferry Crossing, Aylesford. Pretty heard that the box was subsequently thrown back into the river. 'It is much to be lamented that a relic was lost that might in itself have been scarcely inferior to its precious contents in interest, and possibly have contributed something to their history,' said Pretty, writing in the society's journal *Archaeologia Cantiana*. Then, in about 1869, the KAS was given seven more Bronze Age gold torcs by an unknown donor. These too were said to have been found at Aylesford and were probably bought from antique dealers. Two of the objects fit neatly together to form one ornament. However, recent research has found that the 1869 acquisition is a mixture of Middle and Late Bronze Age types and therefore unlikely to have been a single hoard.



‘The torcs are important because they are among a group of rare finds of Bronze Age ornaments from southern England’, said KAS Hon Curator Dr Andrew Richardson. ‘They are further evidence that communities in Kent had access to considerable wealth and supplies of gold in this period.’

Our hoard has rarely been displayed before – certainly not during this century. The torcs are normally kept in a secure location that I’d rather not disclose!’ Said KAS president Ian Coulson: ‘This is an appropriate time to bring our torcs to light. Normally they are kept under lock-and-key. We are displaying them to support the BOAT 1550 BC project, which is focussed around cross-Channel connections during the Bronze Age. The project relies on grants and voluntary contributions and we have donated £7,500’.

On October 18–20, Dover’s Cruise Terminal 2 will be the venue for the international conference, ‘Yesterday Today: Bronze Age Connections in a Modern World’, and Dover Museum will also host a travelling exhibition, ‘Beyond the Horizon: Societies of the Channel and North Sea 3,550 Years ago’. For more details of the BOAT 1550 BC project, visit <http://www.canterburytrust.co.uk/trust-blog/boat-1550-bc-project/>. For more details of the conference and exhibition visit <http://www.kentarchaeology.org.uk/kent-archaeology-events/yesterday-today-2013/>

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Reporting finds, sharing treasures: Bronze Age metalwork discoveries from Wales

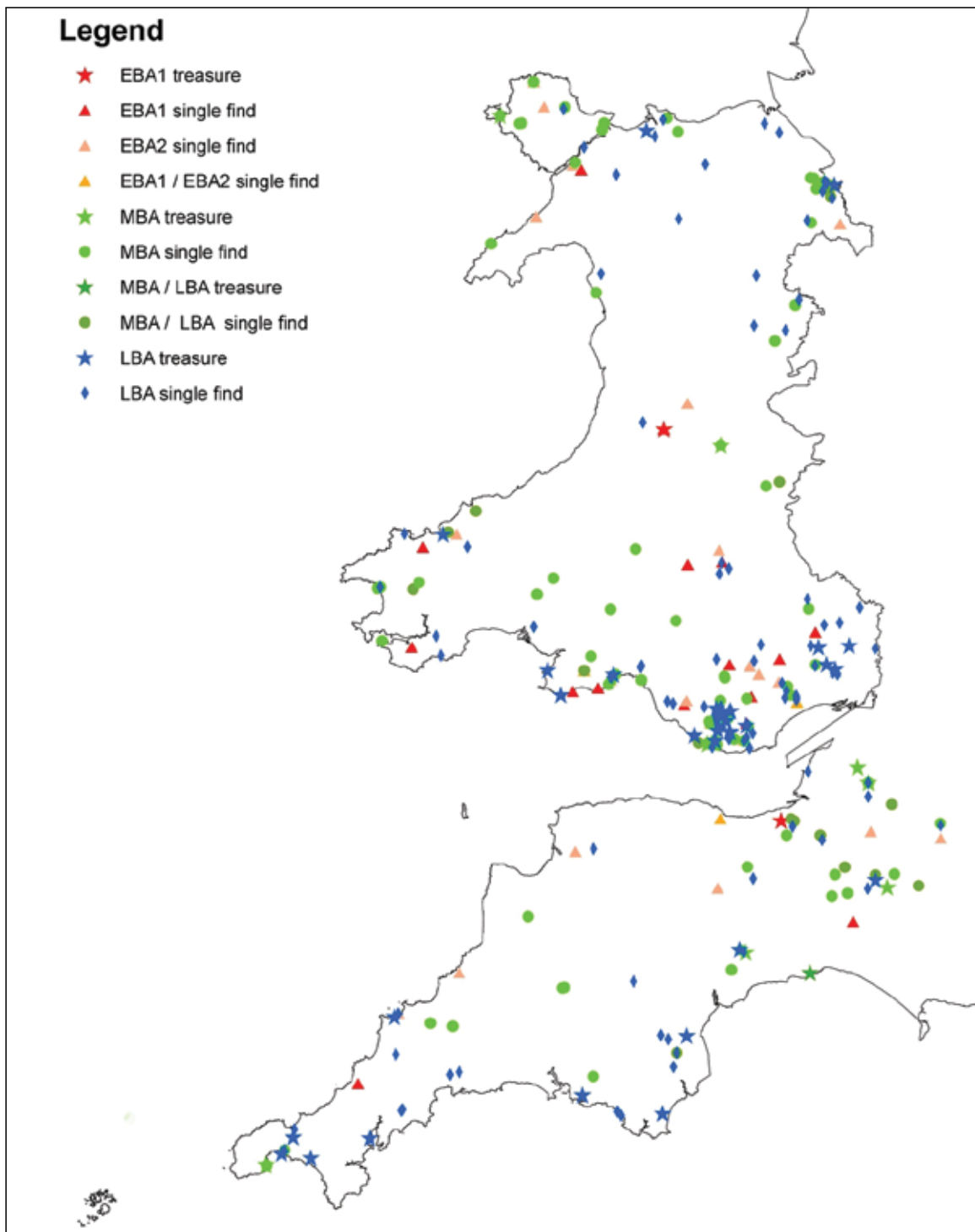
Over the past ten to fifteen years, there has been a significant increase in the number of newly recorded Bronze Age metal artefact discoveries across England and Wales. In large part, this is attributable to the Portable Antiquities Scheme, greatly improving the voluntary reporting of non-treasure finds, and made accessible via a web-based database (www.finds.org.uk). In addition, changes in treasure legislation have resulted in many more cases of Bronze Age treasure being reported and declared each year. Interrogation of this significant resource for Wales is beginning to reveal some intriguing patterns with the potential to contribute to new understanding of Bronze Age exchanges, identities and beliefs.

A combined dataset of all the Bronze Age metalwork for Wales and southwest England (Somerset, Devon and Cornwall) was compiled, revealing 753 recorded artefacts from 302 different find-spot locations. For Wales, we estimate that this represents approximately 15% of the total known Bronze Age metalwork corpus. Included within this total were 40 treasure cases, 32 hoard associations and 22 different find-spots of gold artefacts. Equally significant were the 269 single and non-treasure artefacts, widely distributed and accounting for the majority (89%) of all find-spot locations.

Over half (14 of 25) of the newly reported Late Bronze Age hoards were found in southeast Wales, suggesting a ‘hotspot’ of hoarding practice here. Approaching 50 Late

Bronze Age hoards are now known from this region alone. Late Bronze Age hoards were also frequently reported in Devon and Cornwall with nine new hoards recorded. By contrast, only two new Late Bronze Age hoards were reported across the rest of Wales. This echoes a wider observed hoarding pattern: in these regions of Wales, Late Bronze Age hoards are significantly less frequent, while Middle Bronze Age hoards are more strongly represented. Within the recently recorded material, Middle Bronze Age hoards were comparatively under-represented, with only six new hoards reported (two in northeast Wales, one in southeast Wales and three in southwest England). The large numbers of single finds of both Middle and Late Bronze Age date (77 and 117 artefacts respectively) reported from *all these regions* suggest that observed hoard frequencies relate to regionally- and chronologically-specific ancient hoarding practices rather than simply reflecting modern biases and variations in detecting activity and reporting.

As part of the treasure reporting process in Wales we have investigated around 20 newly-reported Bronze Age hoard find-spots across Wales soon after their discovery and with the help of finders. This has enabled the relocation, verification and accurate survey of the precise find-spot; excavation of a small test-pit to elucidate burial context; and photographic recording of the landscape location, considering views and relationships with possibly significant natural and known archaeological features. Such work addresses an historic



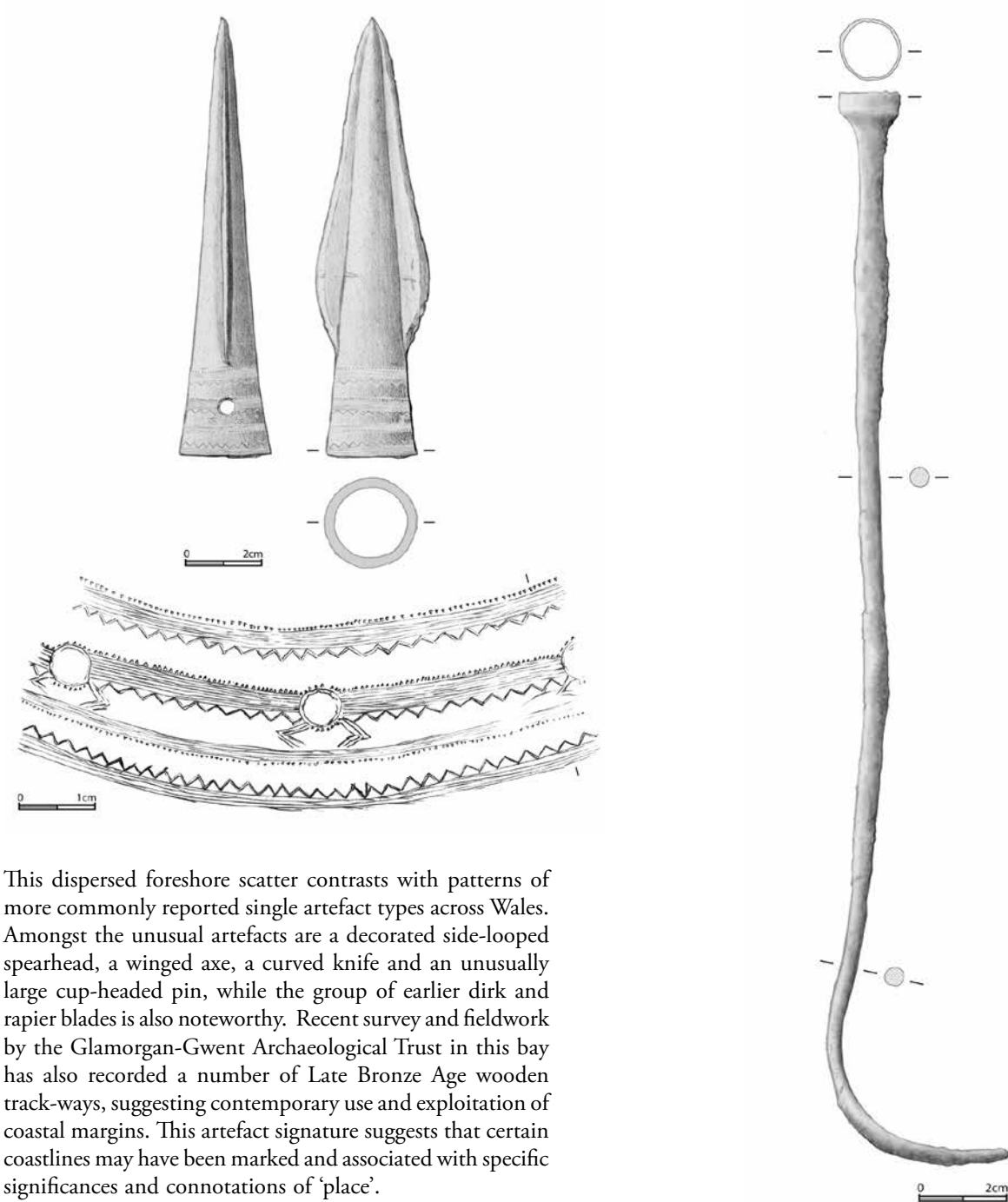
Distribution of PAS-recorded single metalwork finds and reported treasure finds of Bronze Age date from Wales and southwest England between 1997 and 2010 (datasets: PAS Cymru 1997-2010; PAS southwest England 2002-2010; treasure 1997-2010; key: red & yellow = Early Bronze Age; light green = Middle Bronze Age; blue = Late Bronze Age; dark green = uncertain Middle or Late Bronze Age)

dearth of archaeological information concerning hoard contexts, helping to inform the publication and future museums display of the hoards.

We can now identify the frequent preparation and care invested in the placing of hoard objects within small, purpose-made pits, apparently isolated and discrete from settlements, farmed landscape features or activity locations. Significant or dramatic views in valley-side and coastal settings are often repeated locations. Rivers – overlooking sources, courses,

confluences and mouths – appear to have been significant places. Certain rivers in Wales, including the Rivers Usk, Ely and Alun, particularly seem to have attracted strings and clusters of Bronze Age hoards. We are now considering and investigating the possible cosmological and social significances of these flowing watercourses, referenced by the Bronze Age communities who buried their objects with such care.

Another notable emerging pattern is the distinctive character of single metalwork finds reported from across Swansea Bay.



This dispersed foreshore scatter contrasts with patterns of more commonly reported single artefact types across Wales. Amongst the unusual artefacts are a decorated side-looped spearhead, a winged axe, a curved knife and an unusually large cup-headed pin, while the group of earlier dirk and rapier blades is also noteworthy. Recent survey and fieldwork by the Glamorgan-Gwent Archaeological Trust in this bay has also recorded a number of Late Bronze Age wooden track-ways, suggesting contemporary use and exploitation of coastal margins. This artefact signature suggests that certain coastlines may have been marked and associated with specific significances and connotations of 'place'.

Adam Gwilt, Mark Lodwick & Sally Worrell, Amgueddfa Cymru- National Museum Wales & Portable Antiquities Scheme (England & Cymru)

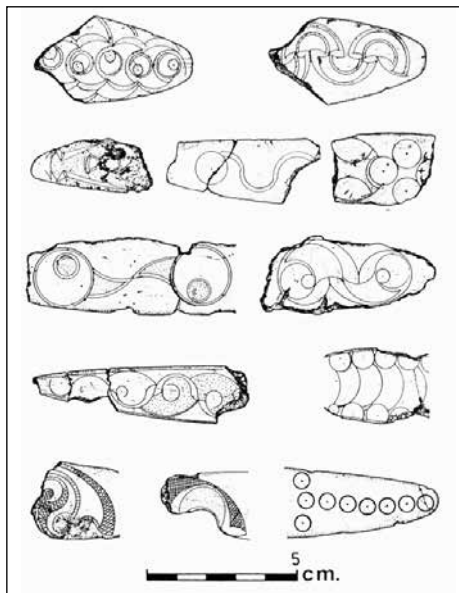
The decorated spearhead and cup-headed pin from Swansea Bay (illustrations by T. Daly)

New radiocarbon dates from Loughcrew Cairn H carved bone slips

The most famous artefacts uncovered at the Loughcrew megalithic cemetery in Co. Meath, Ireland, are the over 4,000 cattle bone slips that were discovered during excavations of Cairn H by Eugene Conwell in the 1890s and Joseph Raftery in 1943. These bone flakes were retrieved from the sockets of two different orthostats and may represent 500 to 600 original pieces, 150 of which were decorated with La Tène style carvings. It is the intricate carvings on these

highly-polished and carefully-worked slips that have attracted particular interest.

Thirteen of the flakes appear to have originally formed part of bone combs; however, the use of these combs and the function of the rest of the flakes remain unclear. Some have argued that the bone flakes may have been trial pieces belonging to a bronze smith, knives accompanying burials in



After Jones, C. 2007. *Temples of stone: exploring the megalithic tombs of Ireland*, 249.

the tomb, or the remains of a Celtic craftsman's workshop. It has also been suggested that the flakes served a ritual purpose and that their deposition within the tomb was associated with Iron Age ritual activity at the site.

The combination of the Iron Age-style carvings and the stratigraphic evidence led Joseph Raftery to argue that Cairn H must itself have been constructed in the Iron Age. However, the Neolithic and Early Bronze Age deposits found within the tomb make this exceedingly unlikely, and it is now generally agreed that the finds represent subsequent activity during the Iron Age.

Though we may never know for certain what motivated the burial of these bone slips or why they were carved in the first place, the other artefactual evidence from the tomb does indicate a Neolithic construction date for Cairn H. This was later followed either by the intentional disturbance of the tomb and its orthostats, or by an unintended partial collapse of the structure. The carved slips would then have been placed within the orthostat sockets, after which the orthostats would have been reset in place.

Three important implications of this sequence of activities are worth highlighting:

- 1) at least some, if not all, of the Neolithic remains and grave goods that had been placed in the chamber and passage were left within the tomb;
- 2) the bone slips carved with Iron Age motifs were intentionally placed within the orthostat sockets, possibly by digging beneath the orthostats if they were still in place;
- 3) alternatively, if the orthostats had shifted, they were re-erected into their sockets following the deposition of the slips. Given the size of the orthostats, this would have taken a considerable amount of effort and the previous scenario may be more likely.

The lack of modern excavations at Loughcrew has meant an absence of absolute dates for this site. What we know of its chronology, therefore, has been drawn from the analysis of its artefacts as well as established chronologies for the Boyne Valley megalithic cemetery where radiocarbon dating has previously been conducted. The La Tène-style carvings have led researchers to assume a Mid-to-Late Iron Age date for the deposition of these bones.

The goal of this project was to add to our knowledge of the Loughcrew passage tomb cemetery and to explore the connections between the subsequent activity at this site and other potentially related activity nearby at places such as Loughcrew Cairn L, Rathkenny, Corstown R2, the Hill of Tara, Knowth and Newgrange.

To this end, the National Museum of Ireland granted permission to submit two of the undecorated bone slips found alongside the carved bone slips for radiocarbon dating. Funding for these dates was provided by a Prehistoric Society research grant. Radiocarbon measurements were taken from these samples by the Oxford Radiocarbon Accelerator Unit. Initial results were calibrated using OxCal version 4.2.2 and produced projected date ranges to within 95.4% probability. The results were as follows:

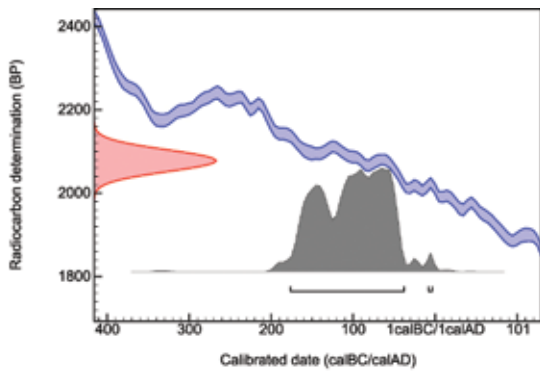
Sample Codes	Uncalibrated BP	Calibrated to 95.4% probability
OxA-27956	2078 ± 26	177–39 BC 9–4 BC
OxA-27957	2108 ± 25	197–53 BC



© National Museum of Ireland

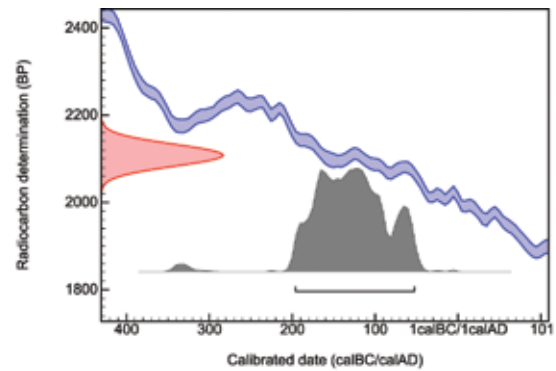
A joint date range for these two independent samples was then calculated using the raw data provided by ORAU ($P(X=x|Y=y) = P(X=x)$). The outcome of these calculations at 95% confidence is 164.5–54.5 BC (Middle Iron Age).

These results are not only earlier than the dates that had been anticipated, but they also indicate that La Tène artwork was present in Ireland during the Middle Iron Age. The frequency



and distribution of the art style within Ireland during this period, however, will require further research.

These carved bone slips have drawn considerable attention and have sparked debates over the nature of subsequent Iron



Age activity at Loughcrew Cairn H. A forthcoming article will discuss Iron Age material that has been uncovered at other megalithic tombs in Co. Meath, and the further significance of these new Loughcrew dates.

Mara Vejby

Rock carvings in the Syunik Mountains of Southern Armenia

Introduction

The Ughtasar Rock Art Project recently completed its fifth season of fieldwork in the Syunik Mountains of Armenia in the Southern Caucasus. The project (with modest funding) is organised through an agreement between the Institute of Archaeology and Ethnography of the Academy of Sciences of Armenia and the Landscape Research Centre, UK. Since the project's inception in 2009, the Ughtasar team of archaeologists, art historians, students and volunteers, led by co-directors Anna Khechoyan from Armenia and Tina Walking from the UK, has recorded 840 carved rocks out of an estimated 900-1000 in the study area which comprises a caldera within the Tsghuk-Karckar volcanic ridge of the Lesser Caucasus mountain range. It is hoped to complete the 'rapid survey' of the carved rocks within the caldera during next year's fieldwork season. A primary aim of the project is to make as full a record as possible of this increasingly fragile corpus of rock art. Additionally, through analysis of what will be a total, geo-referenced survey, the project team is gaining a better understanding of how those who pecked the figurative and abstract motifs onto the rocks several thousand years ago may have used and perceived this remote landscape.

The landscape setting

The base of the caldera (*c.* 1½ × 1km in area and centred on 46°03'10"E/39°41'10"N) is approximately oval in shape. This area is bounded by high craggy peaks, remnants of the eroded rim of an ancient volcano, and lower rounded hills

of pumice from more recent volcanic events. The study area includes the two main approaches to the caldera, a steep and rocky ascent from the south and a more gradual slope from the north. At 3300m in elevation, the site is snowbound for 9 months of the year. A permanent glacial lake is held by a natural 'dam' of massive boulders, while seasonal pools of snow-melted water evaporate by mid-summer. Most of the rock art is located within the streams of glacially smoothed basalt boulders that spill across the site but motifs are also pecked onto earthbound rocks within the extensive grassland. The area supports a wide variety of fauna (bears, wolves, boars and foxes) and flower- and herb-rich grassland used for hunting and seasonal grazing from early prehistory.



General view of the site (photo: Tina Walking)

RUN OF PPS

Free to a good home (ideally to an archaeology student): most of *PPS* vols 7–73 except for vols 11, 13, 17.2, 18.1, 19.2, 26–29, 44–47, 56–58 and 62–63, available as a run for collection from the Oxford area. For further information, please email sarahstow@tiscali.co.uk.

Methodology

The work involves a 'rapid' survey of all the carved rocks (including modern graffiti) and other archaeological features within the study area. Each carved rock is photographed, documented on a paper recording form and the location recorded by hand-held GPS units. In addition 'specialist' photographs are taken of each panel in order to create a comprehensive archive of all the petroglyphs within their landscape context. Areas with the main concentrations of rock art are divided into 50m grid squares. Field-walking in 50m wide columns is employed to locate and record the carved rocks in the extensive areas of open grassland.

In addition to traditional recording methods, the use of innovative techniques including multi-image photogrammetry (processed by Agisoft PhotoScan software), stereo photogrammetry and multi-light imaging (Highlight-Reflectance Transformation Imaging/Polynomial Texture Mapping) enables a highly accurate level of visualisation for the later, off-site study of the carvings and their relationship with the natural 'topography' of the rock surfaces. The transfer and sharing of skills and the training of team members in these specialist techniques is a vitally important aspect of the project.

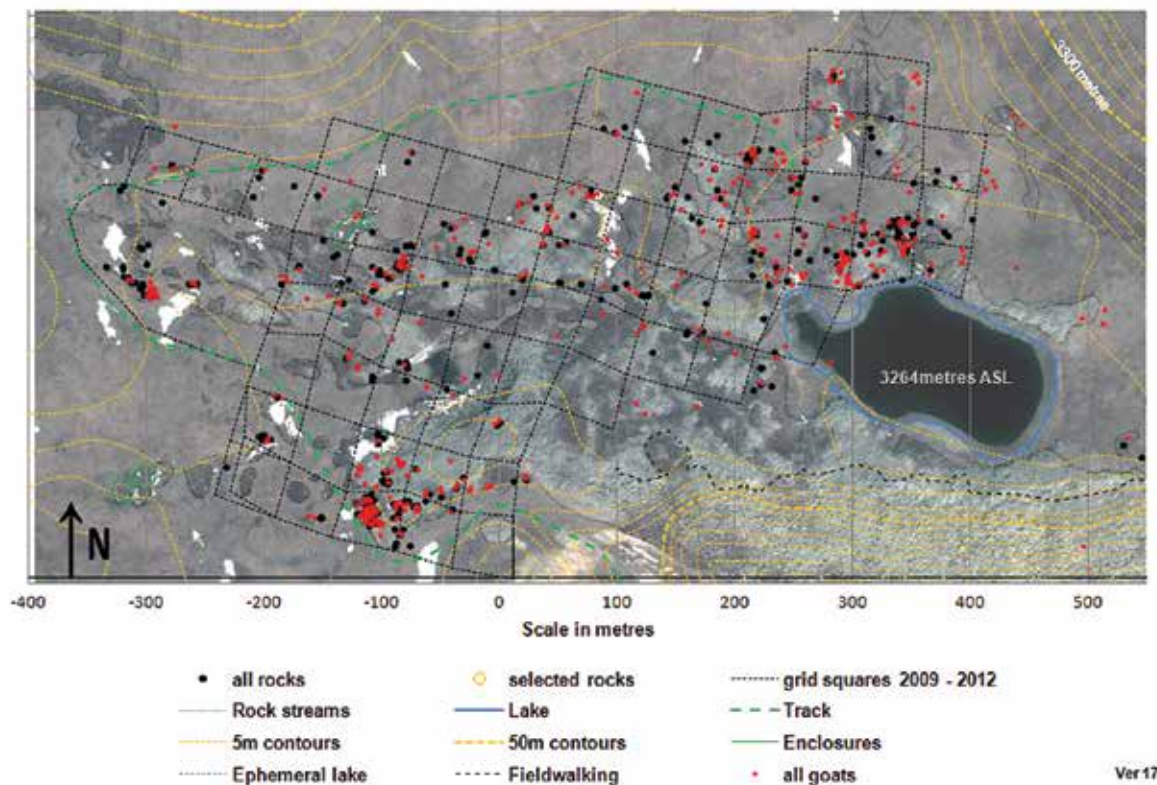
A topographical survey is being conducted to enable accurate mapping of natural features and to ascertain the relationships between the rock art and the landscape and also the other archaeological features which include stone-built enclosures, shelters and animal pens, burial mounds, a probable inhumation cemetery, cairns and walls, as well as surface finds of obsidian flakes and ceramic sherds.



Rock 81, showing severe erosion (photo: Chris Musson)

Dating

As elsewhere, dating of the petroglyphs is problematic and at present relies on indirect methods including clues from motifs, comparisons of motifs found on other kinds of artefacts in more securely dated archaeological contexts and surface finds of obsidian tools and debitage and pottery fragments. The majority of figures were probably engraved during the Armenian Chalcolithic and Bronze Ages (from the fifth to the end of the second millennium BC).



Distribution of petroglyphs (black dots) and goat motifs (red dots) recorded 2009-2012 (produced by Richard Walkling; satellite image supplied by GeoEye-1)

Motifs and themes

A wide variety of figurative motifs includes animals, humans, occasional figures of wheeled transport and a unique plough with ard, yoked bulls and 'ploughman'. Consistently across the study area, wild goats with massive horns predominate at 64% of all figurative motifs, humans account for *c.* 17%, felines (probably leopards) make up *c.* 7% and snakes (or zig-zags) *c.* 4%, while bulls, stags, canines and occasional bears and boars also appear (1–2%). In addition, numerous (often complex) 'abstract' motifs are engraved onto the rocks. Although they bear no 'meaning' for us today, perhaps the knowledge surrounding these enigmatic figures was deliberately limited to certain people or groups. The act of pecking in itself may well have held as much significance as the resulting motifs.

Several themes can be perceived within the rock art of Ughtasar, including 'hunting', 'dancing' in groups of two or three, 'masters' or 'mistresses of animals' often carrying staffs, 'twins', and humans physically attached to wild goats. Many of these scenes may have carried more symbolic than literal meanings to their creators. However the emphasis on themes that might relate to 'performance' within some of the more complex designs suggests that some panels may be connected with the enactment of ceremonies and rituals perhaps associated with rites of passage such as initiation, the passage of the dead, or perhaps the memory of such events.

Micro-topography of the rocks

In many instances the engravers made use of natural features, such as changes in texture, natural cracks and fissures and glacial striations on the surfaces of the rocks. Five seasons of close observations of changing light and atmospheric conditions that can sometimes illuminate the petroglyphs with brilliant clarity, the effects of mists and sun-warmed rocks 'steaming' after rain, as well as thunder and lightning, support the idea that the rock surfaces were not perceived as inanimate, neutral elements in this dramatic landscape.



Capturing imagery for multi-image photogrammetry (photo: Chris Musson)

When freshly pecked, especially on surfaces with a natural, shiny brown patina, a marked colour difference will have made the petroglyphs more visible than now in their weathered and often lichen-encroached condition.

Summary of results

Whilst the achievement of a total survey poses considerable challenges in this harsh environment at high altitude, various patterns are emerging. The most complex and richly carved panels are clustered in two particular locations, one in the vicinity of the permanent glacial lake and, to a lesser extent, within the boulder streams apparently 'facing' the highest mountain peaks. The majority of carved panels are quite accessible, close to the edges of boulder streams or on earthbound rocks in open grassland – these may perhaps be described as 'public' art. On the other hand, engravings are to be found in the most remote ('private') areas of the caldera which are often difficult or even dangerous to access. Some places are notably devoid of rock art despite the presence of apparently 'suitable' rock surfaces: most strikingly, the area immediately below the highest craggy mountains has no ancient rock art, although the presence of modern 'graffiti' suggests that some of those surfaces could have been used had the 'artists' chosen to do so.

The team's total survey also allows for the testing of models such as that proposed by Robert Layton and others who suggest that if one particular animal appears at least twice as frequently as the mean for the remaining figurative motifs (as do the wild goats of Ughtasar (64%)), then it is likely that much of the 'art' originated and functioned in a broadly shamanistic context rather than a 'totemic' or 'secular' one. Perhaps wild goats acted as 'spirit guardians' or vehicles for spiritual activity of various kinds. In this and other ways, the Ughtasar corpus has many points of comparison with other areas of rock art in the Caucasus and Central Asia. However, within this broad commonality, the project's detailed spatial and topographic record may allow us to suggest emphases and combinations of motifs that seem to specifically relate to the dramatic landscape of the Ughtasar caldera.

Acknowledgements

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