THE STONES OF STONEHENGE PROJECT

INTERIM REPORT 2014

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Research objectives

The project's fourth season in 2014 continued one excavation – the Craig Rhosyfelin megalith quarry (SN117362) – and began another at a second identified source of Stonehenge bluestones at Carn Goedog, a rock outcrop that was surveyed in 2013. We also carried out excavations at a suspected henge at Bayvil Farm after completing a geophysical survey of this circular enclosure. A smaller circular enclosure, also suspected to be a henge, was surveyed at Felindre Farchog.

Craig Rhosyfelin

The aims of investigation in 2014 were:

1. To extend the excavation trench at Craig Rhosyfelin to the north beyond the lip of the quarry where the preserved Neolithic ground surface drops away, to investigate any evidence of what methods were used to move megaliths from the quarry to their next destination.
2. To complete excavation of the various quarry installations within the area opened in 2013. This includes two standing stone orthostats (set into cut features) that may have been props or fulcrums for supporting and swivelling large monoliths.
3. To further investigate the Mesolithic prelude to Neolithic use of the outcrop.

Carn Goedog

The aims of investigation in 2014 were:

1. To excavate around one of the prone pillars on the south side of the outcrop to see if it might be related to the quarrying of spotted dolerite at what may now be considered the dominant source of Stonehenge's bluestones.
2. To excavate beside the face of the outcrop where it has not been affected by post-Medieval quarrying, to look for evidence of Neolithic megalith quarrying.

Bayvil Farm

The aims of investigation in 2014 were:

1. To complete the geophysical survey (commenced in 2013) of this circular enclosure.
2. To carry out archaeological excavations to establish whether it is indeed a Neolithic 'formative' henge rather than an enclosure of later date.

Geophysical survey

The aims of investigation in 2014 were:

1. To complete the geophysical survey of the circular enclosure at Bayvil, as a prelude to a trial excavation to establish its date and character.
2. To survey a second enclosure nearby at Post-goch, to establish its likely date and character.
3. To survey a small circular enclosure in the Nevern valley at Felindre Farchog, to establish its likely date and character.

Background

In 2009, geologists Richard Bevins and Rob Ixer identified a rhyolite source of Stonehenge bluestones north of the Preseli Mountains in the Pont Saeson district, an area including specifically the impressive crag of Craig Rhosyfelin, not far from the spotted dolerite source at Carn Goedog on the northern edge of the Preseli Mountains, although in a much lower topographic situation (**Figure 1**). Later, they noted that SH32d, an unsampled stump within the bluestone circle at Stonehenge, appears macroscopically to conform to a major class of

debitage from Stonehenge, namely their ‘rhyolite with fabric’, that originates at Craig Rhosyfelin (Ixer and Bevins 2011). In March 2011 Rob Ixer and Richard Bevins were able to

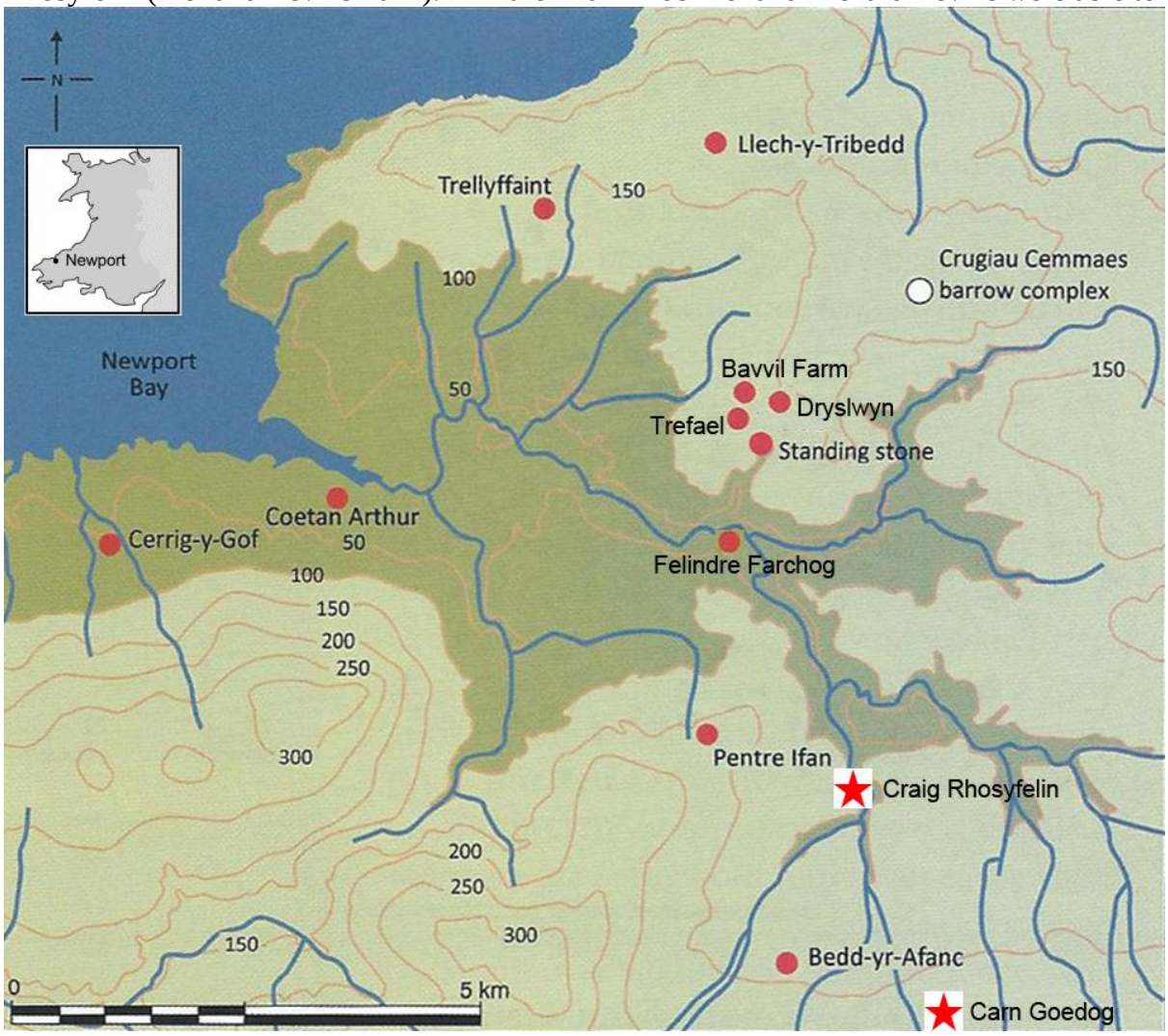

Figure 1. The research area in west Wales, showing the two bluestone megalith quarries (red stars), other known or suspected Neolithic sites (red circles) and a Bronze Age round barrow cemetery (white circle) (from a drawing by George Nash).

find a precise match between this ‘rhyolite with fabric’ from Stonehenge and a precise location on the northwest side of the outcrop of Craig Rhosyfelin.

In 2013 Bevins, Ixer and Pearce established that Carn Goedog, upstream from Craig Rhosyfelin, is the dominant source of spotted dolerite bluestones at Stonehenge. They identify a second source at Cerrig Marchogion, just to the west of Carn Goedog. This rewrites the textbooks, demonstrating that the bluestones were not quarried from the south face of the Preseli Mountains and taken south to be floated on boats from Milford Haven to Stonehenge, as has been thought for nearly a century (Thomas 1923; Atkinson 1956). It also switches investigative focus to the river system on the north side of the Preseli Mountains, namely the Brynberian valley (with which the rhyolite and spotted dolerite sources are associated) and the River Nevern into which the Brynberian tributary flows. Whilst the other Stonehenge bluestone sources (for sandstone and tuff) have yet to be located geologically, they are thought by Bevins and Ixer to lie somewhere within the local area of the Nevern catchment.

Theories about why the bluestones were taken 140 miles to Stonehenge have often concentrated on the presumed properties of the stones themselves (*e.g.* Darvill and

Wainwright 2009) but the latest geological provenancing supports a different hypothesis that the bluestones were initially sought from a variety of local outcrops for building a local stone circle (or, indeed, a number of local stone circles and monuments). We suspect that one such monument may have been constructed within the catchment of the Nevern river (Figure 1). Having discounted the prehistoric enclosure of Castell Mawr (excavated in 2013) as one such possible site (on the grounds of its post-Neolithic date), we now consider that the most likely location for a Neolithic complex of this sort is on a gravel ridge at and around Bayvil Farm, with commanding views of the Nevern valley. Recent research in this locale has identified a cluster of potential Neolithic monuments: a causewayed enclosure at Dryslwyn (Driver 2013), a cup-marked rock and standing stone at Trefael (Nash 2011; 2012), a circular enclosure at Bayvil Farm (Murphy 2006), and at least five former standing stones.

In our view, this transportation of the bluestones represented the re-founding of a western British centre of religious and political power by moving it to Stonehenge, an act of sacred and political unification embodied in the ancestral identities of the stones.

Craig Rhosyfelin megalith quarry

Methodology

Excavations in 2014 revealed four distinct zones of activity within the quarry. The southernmost of these was an artificial platform of sediment and stones, providing a level terrace on which a prone monolith rests (Figure 2). Adjacent to this is a zone which includes two orthostats (though to be pivot stones) set into pits, together with the recess from which a pillar was removed (ultimately to be taken to Stonehenge). Both of these zones were investigated in 2013, and excavations in 2014 were largely confined to excavation of the platform and the pit fill of one of the orthostats.

A further two zones were revealed in 2014, beyond the northern edge of the outcrop. One of these was a small occupation area and hearth set against the northern end of the outcrop. The other was a level and largely stone-free area, the northern end of which had been augmented with stones and sediment to form a second platform. This lower platform terminated at the bank of a palaeochannel where the course of the stream had run before, during and after the site's use as a megalith quarry. Where the lower platform reached the stream bank, the lower courses of a drystone revetment wall survived to indicate that a near-vertical drop of about 1m into the stream bed had been engineered here. The further bank of the former stream was found to be significantly lower, little higher than the streambed itself, suggesting that the drop-off was positioned adjacent to an area of relatively level ground (to be confirmed by future excavation).

The lower part of the excavated area was covered by a thick layer of yellow colluvium, merging nearer the palaeochannel with a thick layer of yellow alluvium. The colluvium is dated to 1090-890 cal BC and has formed a protective covering over Neolithic layers below.

Figure 2. Excavations at Craig Rhosyfelin in 2014, showing the megalith quarry's four zones: a) the upper platform and prone monolith (right); b) the area of orthostats and recess left by a removed monolith (centre); c) the occupation area (dark brown soil at north end of outcrop); d) the lower platform (left) adjacent to the stream's palaeochannel (e).

Continuing the process commenced in 2011, the occupation area (c) was sampled for magnetic susceptibility, phosphorous and other elements, and bulk sampled on a 100% systematic sampling grid for flotation to recover charred wood and plant remains (Smith *et al*. 1998).

Further evidence for prehistoric megalith quarrying

By the end of September 2013, there was sufficient evidence to confirm that the outcrop at Craig Rhosyfelin was a prehistoric megalith quarry: a 4m-long monolith lying prone in the quarry and set upon an artificial platform of soil and stone; a threshold slab positioned immediately downslope from the monolith and exhibiting crush damage, suspected to have been caused by a second monolith being pulled across the top of it; a pit containing a 1m-high stone orthostat, thought to be a pivot stone; and a second, smaller stone orthostat in its pit beside the recess from which a monolith (2.50m long, up to 0.45m wide and 0.40m thick) had been taken, ultimately to reach Stonehenge.

Excavations in September 2014 recovered sufficient carbonised material from the upper platform to provide radiocarbon dates for a TPQ for its construction. This platform pre-dates the prone megalith but post-dates the 1-m long orthostat, the pit of which was fully excavated in 2014 and sampled for carbonised material. This pit cuts into the southern end of a natural hollow (4m north-south x 3m east-west and 0.5m deep), into the top of which a sequence of four Early Mesolithic hearths (late 9th-early 8th millennia BC) had been inserted. The lack of Mesolithic artefacts (other than a single tiny flint flake) suggests that this spot may have been something other than a campsite; the location beside the outcrop and the juxtaposition of large stone blocks sticking out of the hollow to form an unusual but natural

formation could indicate that this was a place of symbolic and religious significance for Mesolithic hunter-gatherers.

The occupation area beside the megalith quarry

Excavations in 2012 revealed a small recess at the northern tip of the outcrop in which there was a sequence of layers, protected beneath a fallen slab, that produced a range of dates from the mid-1st millennium AD, the late 3rd, the late 4th and the late 6th millennia BC. In 2014 the layer associated with the late 3rd millennium BC date (3500-3120 cal BC at 95.4% probability [SUERC-46205; 4590±30 BP]) was found to extend out of this recess and over an area of 2m N-S x 3.5m E-W that was relatively level and stone-free in comparison to the area around it. Its focus was a small hearth, set in a small bowl-shaped pit, close up against the vertical wall of the outcrop's northern tip. No finds other than carbonised wood fragments were recovered from this occupation layer other than a tiny flint flake (recovered from the recess in 2012 during flotation) but this deposit has yet to be sieved and floated. The occupation area was accessed through a gap between large boulders on its NW side where the ground had been worn to form a U-profiled surface.

Figure 3. The occupation area at the northern tip of the outcrop, showing as an oval area of brown sediment relatively free of stones.

The lower platform

North of the quarry area (b) and west of the occupation area (c), the Neolithic ground surface could be found beneath the Late Bronze Age colluvium. This area is divided from the quarry area by a NW-SE line of seven large stone blocks. Northeast of them, the area is largely clear of large stones except for two huge, flat-topped boulders, one of which has slumped into the

Figure 4. The lower platform

palaeochannel. This cleared area (3m in diameter) is bounded by rubble-strewn zones on both sides. It is largely a natural deposit of glacial till but its northeast end has been artificially augmented by an artificial dump of redeposited till in which five stones have been set on edge in an arc, with its ends facing towards the palaeochannel. It is likely that these stones were set entirely within the platform matrix, perhaps to provide it with extra solidity, and that the deposit was eroded between the Neolithic and the Bronze Age, leaving them largely exposed. Even with such a loss of platform material, the upper surfaces of the two large flat-topped stones would still have stood proud of the top of the platform in the Neolithic. There is no crush damage to their tops but their positions would suggest that they were integral to the process of moving monoliths out of the quarry, perhaps as supports on which wooden beams could be laid for the monoliths to be slid along.

Figure 5. Remains of the basal courses of the drystone revetment wall at its southeast end.

The northeast end of the lower platform terminated at a drystone revetment wall which still stands in places to three courses, built to retain the platform deposits. Angular, un-eroded stones – remains of the fallen wall – lie on the base of the palaeochannel along the foot of the wall. It is clear that the wall and the two large flat-topped stones once provided a flat, level surface to maximize the height above the bottom of the palaeochannel. We initially speculated that this artificial jetty might have served as a wharf from which monoliths could be put in boats or on rafts but the small size of the stream and its steep angle of descent make this scenario impossible. Instead, the stream bed may have served as a level surface on which a timber sledge on rollers (or similar mode of transport) could be set. The unusually low height of the stream's opposite bank suggests that access from the stream bed to the dry ground to its northeast would have been relatively easy.

Conclusion

Excavations at Craig Rhosyfelin in 2014 have provided evidence of clear zonation within the megalith quarry and its exit. Perhaps the most interesting aspect is the degree of pre-quarrying landscaping, with an upper and a lower platform, the latter revetted with a drystone retaining wall where it meets the palaeochannel. It is also noteworthy that there was a small occupation area and hearth associated with this activity although without any evidence for stakeholes or postholes that might indicate the former presence of a roofed structure.

Carn Goedog

Methodology

Three trenches were excavated at about 10m intervals along the southern edge of this outcrop, the principal geochemical match for Stonehenge's spotted dolerite bluestones. Survey in 2013 had established that, despite the southwest part of the outcrop having been quarried with dynamite in the early modern period, the southern edge contained a high proportion of elegant, thin pillars of the type found at Stonehenge. The modern quarrying extends for 35m along the southern edge, leaving an undisturbed 8m-wide zone where tall pillars remain in situ. East of this zone, the nature of the outcrop changes, with the more blocky bedrock unsuitable for pillars and unmodified by splits in the rock and other signs of extraction.

Trench 1 (4m E-W x 10m N-S) was located in the 8m-wide undisturbed zone directly against the south face of the outcrop. Trenches 2 and 3 were located to its west but, since the face of the outcrop in this area was buried beneath modern quarry debris, they were sited at about 5-10m from the likely original face. Both were positioned so as to establish whether large prone pillars might have been extracted monoliths, as in the case of the one at Craig Rhosyfelin. Trench 2 (5m x 5m) was the furthest west and Trench 3 (5m E-W x 4m N-S) was positioned approximately equidistant between Trenches 1 and 2.

Figure 6. The locations of trenches at Carn Goedog.

Trench 1

After removal of topsoil and associated rubble, Trench 1 was found to lie within an area of mostly flat and level slabs and patches of exposed sediments and subsoil. Evidence for human activity was plentiful, clustered in three locations. Close to the rock face, where a socket for a small, removed pillar contained a fine, flaked dolerite blade, there was a small hearth, covered by a later deposit and sitting on top of another. In the middle of the trench, another small hearth was cut by an oval pit (0.6m x 0.65m x 0.2m deep). At the south end of the trench, there was a third hearth. Finds consisted of 22 dolerite flakes and a whetstone. The whetstone is likely to be Medieval.

Figure 7. Trench 1 viewed from the west.

Pillar sockets above Trench 1

Stone pillars form the southern façade of this outcrop for about 40m, exhibiting gaps and sockets where other pillars have been removed. For most of this length, the presence of early modern quarrying makes it difficult to establish whether those removals were ancient or modern. However, the face beside Trench 1 has not been damaged by early modern quarrying and 3m above it lies a large recess from which five pillars have been removed by human agency. This recess was subsequently blocked by a fallen pinnacle, hiding it from view to all but the most careful observer. A small trench was excavated into two of the removed pillars' sockets, emptying one entirely and excavating the other in half section. This revealed that a substantial period of time has elapsed since the pillars were extracted. In that time, a series of three distinct layers had formed, the uppermost consisting of a small hearth. Radiocarbon-dating of these layers should provide a TAQ for the removal of these pillars.

Figure 8. Excavation of pillar sockets above Trench 1.

Trench 2

Trench 2 was the most westerly of the three trenches. It was positioned around a prone pillar initially thought to be a megalithic quarry product but found on excavation to be an earthfast boulder. This boulder had been flaked transversely along one edge, although there is no indication of whether this occurred in antiquity or in the early modern period. Only one dolerite flake was recovered from this trench, in contrast to the higher densities in Trenches 1 and 3. On top of the subsoil, a mixed deposit of sediment contained small fragments of charcoal.

Figure 9. Trench 2 during excavation, viewed from the south.

Trench 3

Trench 3 was positioned around a prone pillar initially thought to be a megalithic quarry product. However, it lay directly on the subsoil and had no angular facets to indicate that it had ever been detached from the outcrop; it is clearly a natural feature. Yet this trench did produce 11 dolerite flakes, indicating likely prehistoric activity in its vicinity. After removal of rubble from the western part of the trench, a deposit of sediment on top of the subsoil was sampled for carbonised material.

Figure 10. Trench 3 during excavation, viewed from the west.

Bayvil Farm

Methodology

Aerial photography by Toby Driver in 2005 recorded a crop-mark of a circular ditched enclosure (70m diameter) at Bayvil Farm, on relatively level ground at 130m OD. An assessment in 2006 by Dyfed Archaeological Trust concluded that it was probably of Iron Age date but conceded that it might be a segmented-ditched enclosure, a type of Neolithic monument of which Stonehenge is the best known example. Geophysical survey of the enclosure and its environs was carried out in 2013 and 2014, confirming the potentially segmented nature of the otherwise continuous ditch and identifying a single entrance in the southeast. This was followed in September 2014 by excavation of two trenches (Trenches 1 and 2) within the enclosure) and two outside it (Trenches 3 and 4) to investigate geophysical anomalies of potential interest. In all cases the plough soil was stripped by mechanical excavator to the top of the subsoil at a depth of 0.25m to reveal features cut into the subsoil. After cleaning by trowelling, features were excavated by hand, their soil dry-sieved and extensively sampled for carbonised remains.

Figure 11. The circular enclosure at Bayvil Farm, showing as a crop-mark (photo by Toby Driver)

Trench 1 – the ditch and interior

Trench 1 (14m SE-NW x 7m NE-SW) was located through the southeast-facing entrance so as to include a 6m-stretch of the ditch's eastern terminal. It also included a 9m-wide area within the enclosure's interior. The enclosure's now-vanished bank (5m wide) was on the inside of the ditch (3.5m wide) and the bank was separated from the entrance by a line of postholes set in a post trench. Within the interior beyond the bank were eight postholes of various dimensions, none forming any apparent spatial pattern (although the excavated area was limited in extent). There was no evidence of any postholes or other features within the area of the bank, the outer limits of which were marked by a line of cobbles at the base of the plough soil.

The ditch (3.5m wide x 1.5m deep) has a V-shaped cross-section and is filled with a sequence of layers, many of them containing shingle derived from the bank. The lowest three layers form a primary fill devoid of any finds other than carbonised wood fragments. Above this, layers of secondary fill were largely stone-free, suggesting a period of stabilization before bank material began eroding into the ditch. This secondary fill contained sherds of at least two ceramic vessels. Their rims, bases and black inclusion-free fabrics are characteristic of plain Grooved Ware, pottery that dates to the time of Stonehenge. Higher up the ditch, in its tertiary fills, were fragments of a vessel with a fabric and profile consistent with Plain Wares of the Middle and Late Bronze Age.

Figure 12. Trench 1 (foreground) and Trench 2 at Bayvil Farm. The ditch terminal is at the lower right.

Trench 2 – the enclosure's interior

This 6m x 7m trench was excavated within the enclosure's interior to investigate three magnetic anomalies revealed by geophysics. There were, in fact, 11 features identified in this trench, of which seven were excavated. Four of these were double features – shallow pits that had been re-cut by later pits – and two formed a pair of adjacent pits. The seventh excavated feature was a 3.4m-long, 0.2m-wide arc-shaped gully which could be part of a later prehistoric roundhouse's eaves drip gully. One of the re-cut pits contained a scraper made from chalk-quarried black flint, undoubtedly imported to the region; flint was generally imported in the Neolithic whereas beach flint was used in the Bronze Age.

Trenches 3 and 4

Outside the enclosure, the substantial magnetic anomaly in Trench 3 turned out to be a corn drier, probably of Medieval date and containing quantities of carbonised barley. The geophysical anomalies within Trench 4 turned out to be the result of geological and subsoil variation.

Conclusion

Although no firm conclusions can be drawn until radiocarbon-dating results have been obtained, the ceramic and artefactual evidence is supportive of this being a Middle-Late Neolithic enclosure of the type described as a segmented-ditched formative henge. Formative henges have the bank inside the ditch (in contrast to later henges where the bank is on the outside). The largest of these is Stonehenge. Bayvil is the fourth largest (Flagstones

Dorchester and Llandygai A are slightly larger) which implies that this part of Pembrokeshire may have been of more than ordinary significance at that time.

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