NORTH OF THE WALL TYNEDALE ARCHAEOLOGY GROUP

Newsletter 3
December 2017

Inside this issue:

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We are a local voluntary group exploring the hidden aspects of our rich heritage spanning thousands of years.

BEYOND THE WALL

This is the third Newsletter we have produced. Thanks to all of you who sent articles. Wishing you all a very Happy Christmas and another exciting New Year's archaeology.

At the end of one year we look back to all we have achieved and look forward to what is to come. I hope this newsletter will stimulate your continued interest.

Dates for your Diary

- Talk by Don O'Meara, Saturday 27th January 2018, Hexham Community Centre, 2pm (see below)
- NOWTAG AGM, Wednesday 7th February 2018, Hexham Community Centre, 7pm.
- Greyside Farm landscape survey, 10-16 February 2018
- Rattenraw landscape survey, 24 February -2 March 2018

Changes to Membership

To simplify things a bit, the committee have decided to change our membership subscriptions to cover a standard period rather than rolling periods depending on when you first join.

From the New Year, membership will run from 1st April 2018 to 31st March 2019. If you have only joined recently, we are willing to allow your membership fee to cover you for the coming period, giving you a few months free. It is hoped that existing members will not mind paying again with renewal notices issued in March but please don't hesitate to contact Phil if you have any problems.

We aim to keep our rates modest: £10 single, £15 couple, £5 students or on benefits and all our subscriptions go to the cause of furthering our commitment to community archaeology.

Made of stone but built on sand: what now for rock art research?

A talk by Don O'Meara, Historic England Science Advisor

Don O'Meara, the Historic England Science Advisor for the North East and Hadrian's Wall, has kindly agreed to give a talk for our members on Saturday 27th January, 2 – 4pm at Hexham Community Centre.

Don is based in Bessie Surtees House, Newcastle. After working for 10 years as an environmental archaeologist, mainly in the commercial sector in Northern England, he started with Historic England in September 2016. As part of his role he promotes and advises the use of science within the heritage and archaeological sectors.

We have been in discussion with Don regarding our Tynedale Rock Art Project and our intentions for further rock art investigations, including the proposed de-turfing exercise at Carr Hill.

Don's focus on rock art stems from current concerns that many rock art sites are at risk from natural and man-made threats and may be deemed by Historic England as being 'Heritage at Risk'. However, the sheer number of rock art sites, their remoteness, and the nature of the sites means that it is an immense challenge to monitor and conserve these sites.

His talk will discuss some of the earlier Historic England sponsored projects that dealt with rock art, where it is felt current priorities lie, and suggests ways in which best practice can be encouraged in the future. He will also discuss some on-going research by other groups that seek to use new scientific techniques or new technology to help monitor and conserve rock art.

There will be plenty of opportunity for raising any questions with Don and discussing with him our local concerns and research interests. This is certainly an opportunity not to be missed by anyone with an interest in our rock art heritage.

Plans for further investigation of rock art sites at Carr Hill

Remember the 5th of November?

On that date in 2016 Paul Frodsham led a couple of rock art assessment recording training sessions for us at Carr Hill. He was enthusiastic about the site and outlined the idea of carrying out a de-turfing exercise at the prominent mound on which are some decorated, apparently earthfast, rock surfaces. We have not forgotten his suggestion and are now seeking the necessary permissions and financial support to undertake a professionally supervised investigation.

Jon Welsh of AAG Archaeology has visited the site with us and prepared a 'written statement of investigation' setting out objectives and methodology. Carr Edge Farm owner Michael Gibson is supportive of the project, but following his successful Countryside Stewardship application he will need to secure approval from his Natural England officer to ensure that no environmental issues arise. We are hopeful that come the New Year we will be in a position to apply for funding and start specific planning with a view to conducting supervised de-turfing during the summer.

Paul and volunteers at Carr Hill training session

It cannot be emphasised too strongly that casual de-turfing at rock art sites is not only a potential threat to the conservation of irreplaceable rock art heritage, but also that the site we hope to investigate is on private land for which permission to access is required.
Phil Bowyer

Two exciting landscape surveys for the New Year

We have secured landowner permissions to carry out initial walkover (Level 1) landscape surveys on two farms before the start of the lambing season in 2018.

Greyside Farm, Newbrough
Scheduled for Saturday 10th to Friday 16th February.

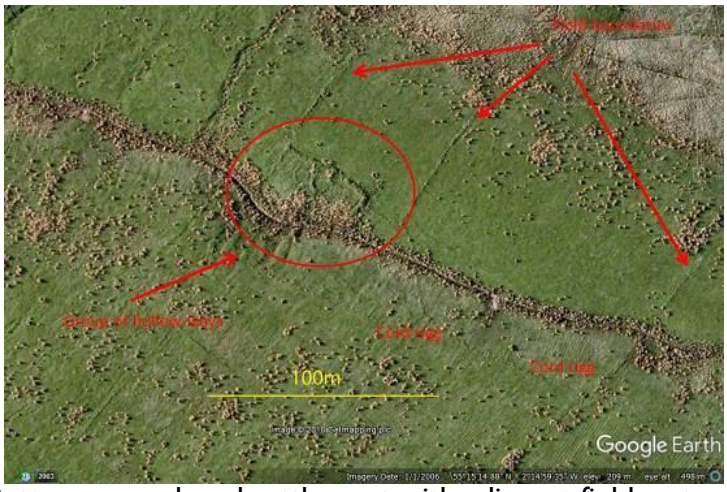
Adjacent to areas of Carr Edge farm that we surveyed last spring, is a large unimproved field at the eastern end of Greyside farm. Those of you at Carr Edge last year will know that we spotted an interesting enclosure and signs of ancient boundary features immediately north of our then survey area.

The Historic Environment Record also lists an enclosed settlement further west in the same field. These features have not been surveyed in any detail and there is a good likelihood that a systematic walkover will reveal other unrecorded sites.

Enclosure north of Greyside Plantation

Rattenraw Farm, near Otterburn.
Scheduled for Saturday 24th February to Friday 2nd March.

Last summer Andy Curtis and I visited Rattenraw with Chris Jones and Ed Hudspith from NNPA to record a recently discovered enclosed settlement site. From just a couple of hours looking around it is clear that there is an exceptionally well-preserved and extensive Iron Age landscape. Whereas at most such sites, lengths of field boundaries are intermittent and may run for a few dozen metres, at Rattenraw we were able to follow boundaries for much further, encountering junctions with continuing boundaries visible in a choice of directions. Add to this the extensive areas of well preserved cord rigg that aligns closely with the boundary features, plus at least one further enclosed settlement, and it is clear that Rattenraw offers a very rich, largely unexplored, prehistoric landscape. Our brief overview also noted the remains of a number of other structures of possible medieval date. The farmer, Dennis Salt, is very enthusiastic and keen to help us discover more. It is likely that this site will offer much opportunity for further investigations extending well beyond our initial walkover. It will be well worth the journey to reach the farm.



Rattenraw enclosed settlement with adjacent field system.

Details for bookings for both surveys will be emailed to you in due course. As the weather in February can be unpredictable we have kept some scope to vary exact timings if need be.
Phil Bowyer

Successful completion of 'Beyond the Wall: Edges Green' project.

Between 2013 and 2015 our group's work was enhanced by opportunities for professionally-led on-site training and detailed Level 3 survey support under the auspices of Altogether Archaeology (North Pennines AONB) and Northumberland National Park (NNPA). During that period members learnt a good deal and we developed the capacity to conduct and report on our own walkover (Level 1) surveys, and in 2015 carried out and reported on our own Level 3 survey north of Sewingshields Crags. At the end of 2015 the North Pennines AONB version of Altogether Archaeology came to an end, and Altogether Archaeology became an entirely volunteer group, initially without external funding. It was against this background that we decided to apply to the Heritage Lottery Fund (HLF) for financial support for our own Beyond the Wall project.

Our members designed their own programme of both Level 1 and Level 3 landscape surveys on Edges Green and Cleughfoot farms north of Cawfields Gap, supported by classroom-based and on-site professional training for participants. A group of five members undertook a programme of archival research. We also included a Tynedale Rock Art project, working closely with Newcastle University's CARE Project to carry out a series of condition assessment visits to rock art sites across Tynedale. Funding support from HLF and NNPA also enabled us to purchase equipment and software for photogrammetric 3D modelling. Andy Curtis's article in this newsletter reports on this aspect of the overall project.

Between April 2016 and June 2017 some 58 volunteers participated in various parts of the project. The landscape surveys had been completed by the end of 2016, with members having compiled an extensive report of the initial training sessions and Level 1 survey results that we published in July 2016. In the early months of 2017 three teams of volunteers braved difficult weather conditions to carry out our programme of rock art site visits.

Rock Art Condition Assessment at Padon Hill, January 2017

The dissemination of project results is important both for promoting public awareness of local heritage and for providing archaeological data and interpretation to a professional standard contribution to the archaeological record. In community archaeology Level 3 survey reports are usually the province of professional archaeologists but, in line with our objective of maximising capability within the group to undertake a full range of activity without having to rely upon

external funding, a team of four members undertook the task of compiling a full Level 3 report and delivering a couple of public presentations of our findings.

Presentation in Priors Hall, Hexham Abbey

The following reports have been published:

- Level 1 Walkover Survey Report, July 2016. Compiled by Phil Bowyer, Martin Green, Andrew Tate and Anne Tate.
- Final Report, May 2017. Compiled by Phil Bowyer, Martin Green, Derek Gunby and Andrew Tate.
- Archive Research Group Report, May 2017. Archive Group : Lynn Bridgett, Derek Gunby, Michael Hall, Roger Owen and Ralph Wrighton. Report compiled by Derek Gunby.
- Tynedale Rock Art Project, June 2017. Compiled by Phil Bowyer and Andy Curtis. Additional photogrammetry by Lorraine Clay and Michael Hall.

Downloadable copies of all project reports are available on our website,
http://tynedalearchaeology.org.uk
The website upgrade has been carried out by Andy Willis with assistance from Andrew Tate.

Officers from HLF and NNPA have indicated that they have been very impressed by our highly successful project. None of this could have happened without the enthusiastic participation of members and other local volunteers, all of whom are mentioned by name in both our Walkover Survey and Final Reports. We are also grateful to Mr Willie Weatherson and Mr Dennis Yates for allowing us repeated access to their farms.

Phil Bowyer

Abandoned before completion? The Roman aqueduct to Great Chesters.

The Roman aqueduct north of Cawfields Gap is a well-known scheduled monument. During the first phase of our 'Beyond the Wall: Edges Green' landscape survey in May and June 2016 we identified that a number of sections of the recorded route were visually absent. We then obtained all the previous survey data we could from a variety of sources, in particular the Mackay survey of 1990. Using this prior survey data as a basis we subsequently conducted a detailed survey at specific locations where further clarification was needed.

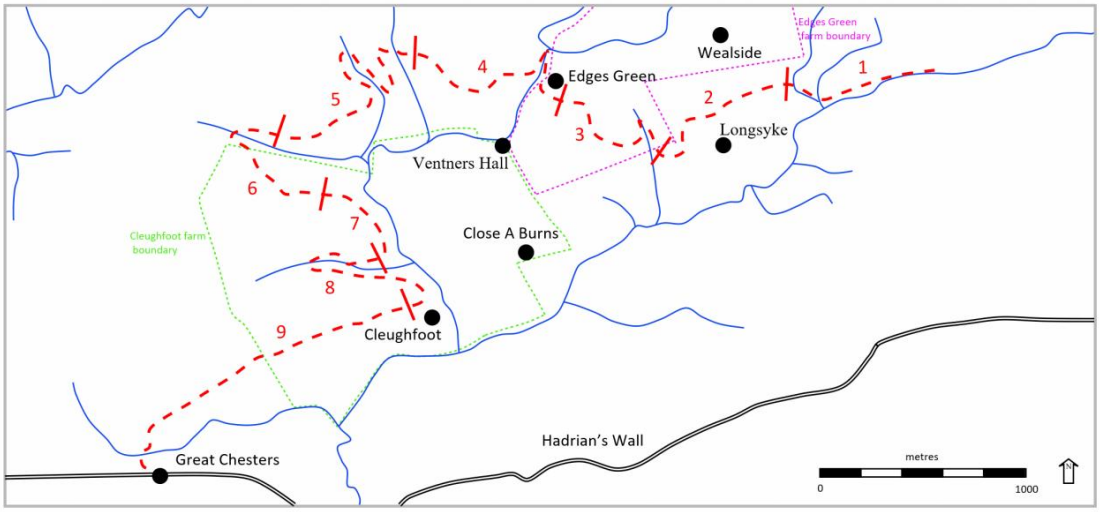


Fig 1. Route of aqueduct as shown on OS map
(Numbered sections as referred to in the text)

Sections 1 and 2 of the aqueduct were not surveyed as they were beyond our survey area. Analysis of aerial photography along this section did not however identify any missing sections of aqueduct.

Fig 2. Volunteers using a dumpy level to survey aqueduct route

Section 3 of the route had two missing segments identified. The first, at the point where the aqueduct crosses a ravine, showed that the ravine is likely to have been bridged 75m further south than the published route. This avoids the need for the dog-leg which is shown on the published route but is not visible on the ground. The second missing segment within Section 3 is due to the route having been misinterpreted. It actually follows a revised route some distance from the

published route and is intermittently visible on the ground. It is unclear why the published route is wrong in this area as the correct route is easy to identify and the 1990 aqueduct survey by Mackay did show the correct route.

Along Section 5 of the route, the aqueduct appears on the ground as two parallel lines, approximately 1m apart in height, cut into the slope which it follows for about 400m. This, in the past, had been interpreted as an error on the part of the Roman builders. Careful inspection of this section, combined with anomalies on other parts of the route, led us to reinterpret this feature as the lower line being an access walkway for construction and maintenance, with the actual aqueduct 1m higher up the slope.

Fig 3. Aqueduct and walkway

Further work shows that it is likely that this feature was present along the entire aqueduct, with the construction walkway consistently on the down-slope side of the actual aqueduct and around 1m in width. On relatively level ground the walkway was adjacent to the aqueduct and on steep slopes generally some 1m below the aqueduct. However, part of the route in Section 8 has the walkway adjacent to the aqueduct on a steep slope, requiring some complex construction. Section 6 and Section 7 of the route were confusing. The aqueduct appears to be entirely missing for the first part of Section 6 for no reason that could be identified. It then reappears as a well-constructed aqueduct and walkway at the end of Section 6 and the beginning of Section 7. On the second half of Section 7 and the beginning of Section 8 there appears to be a walkway 1m below the level where the aqueduct should be, but no aqueduct can be found.

Fig 4. Walkway but no sign of aqueduct

In summary, the aqueduct appears to be fully constructed for the first 7km of its length from the water source to the end of Section 5. There then appears to be partial construction for the next 2km along Sections 6, 7 and 8 and then no construction along Section 9 for the final 2km to the fort. This points to the aqueduct being an incomplete structure, on which construction was abandoned somewhat abruptly. This assessment that the aqueduct was not completed has not been previously put forward.

A review was made of what is known about water systems at Aesica, since if the aqueduct was a completed structure then running water systems should be present to take advantage of the supply. There is no evidence of water systems in the fort; the bathhouse, for which a supply is essential, is located away from the fort, down-slope where local springs could be used.
What reasons might there be for the failure to complete the aqueduct? Construction may have been interrupted by military conflict that caused a change of policy as to whether it was wise to complete a long aqueduct that could be difficult to protect; or construction may have been halted when troops were despatched to construct the Antonine Wall in the 140s. After the return to Hadrian's Wall in the 160s the aqueduct construction may not have restarted due to the perception that north of the Wall was now outside Roman territory (or that the fort had functioned without an aqueduct for so long that there was no need for one).

Tynedale North of the Wall Archaeology Group's 'Beyond the Wall; Edges Green' Project was supported with funding from the Heritage Lottery Fund and Northumberland National Park.
A full report on the surveys undertaken can be downloaded from our website
http://tynedalearchaeology.org.uk

Andrew Tate and Phil Bowyer
Tynedale North of the Wall Archaeology Group

Walkover Survey north of the Stanegate

At the request of landowner Mr Michael Gibson and in association with Northumberland National Park Authority our group undertook a Level 1 (English Heritage criteria) Archaeological Landscape Survey on Carr Edge Farm at the beginning of March. In all 18 members of the group participated in the survey at various times. A full report was provided to Mr Gibson to be incorporated into his successful Countryside Stewardship application. Members were also informed of the survey results but it would not have been appropriate to put the full report into the public domain. Here we present a summary of a couple of our main findings. With Mr Gibson's support we are continuing with further investigations on Carr Edge Farm, as mentioned elsewhere in this newsletter.

Ancient field system
We identified and recorded a long perimeter stone and earthen bank from N side of Meggies Dene Burn gorge extending around end of a natural spur. This encloses a field system comprising four stony linear internal boundaries, four probably clearance cairns, two terraces and two hollow ways. The features identified would be consistent with a field system of either prehistoric or medieval date.
Figure 1 below plots the site onto a Google Earth image, with banks shown in red, platforms in orange, cairns as grey dots and hollow ways in green.

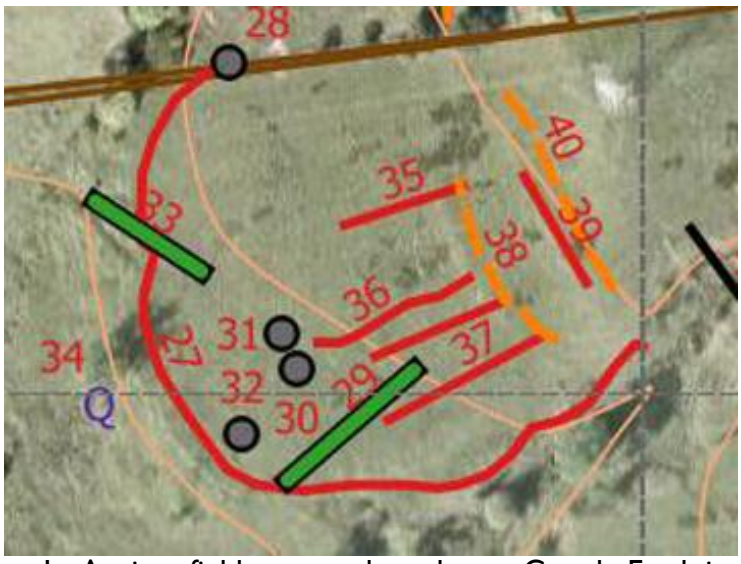


Figure 1. Ancient field system plotted onto Google Earth image.

Ancient Field Boundaries

Three lengths of stony linear banks, potentially marking field boundaries in locations north and east of later rig and furrow at Carr Hill in proximity to previously recorded rock art. These probably represent the remains of ancient field boundaries, which could be either prehistoric or medieval.


Figure 2. Linear bank.

Figure 3 below shows a Google Earth image of the area with linear banks marked in red and rock marked with light blue stars.

Figure 3. Linear banks and rock art locations at Carr Hill.

With Mr Gibson's permission we are hoping to carry out further investigations in the vicinity of the rock art.
Phil Bowyer

Carr Edge Field Walking October 2017

Over the 4 days 15 members participated in field walking the stubble field immediately south of the rock art sites on Carr Edge Farm. In all some 780 items were gathered, almost all of probable post-medieval date. The finds have been washed and catalogued by Lorraine Clay, with some help from Michael Hall.

Our original hope that, given the proximity to the Carr Hill rock art sites, we may recover some significant prehistoric material was not realised despite our systematic search. We did however find one piece of possible worked flint that may have been a tool as it has an apparently serrated edge.


Possible flint tool, serrated edge on left.

Lorraine picks up the story from here …

You know the maxim "never volunteer for anything"?

When the Wednesday field walk was to be cancelled I asked Phil if he had a little job I could do as I had the day free, he suggested I cleaned the finds, and I agreed, oh, and you could photograph them too….

Under the small box I'd spotted in his boot was a huge, heavy box with bits of metal sticking out! Wednesday flew by but I didn't even get the small box cleaned, dried and photographed! I called the cavalry and Michael agreed to come over and help, he took over the photographing backlog then helped wash and lay out the rest of the finds.

Perhaps I had a temperature but I found myself wanting to put these all in a database before they ended up in someone's garage. There was no point doing that unless I made a brief note on each find… and so began the marathon task of recording every find. It might have been awful but the majority of the finds were clay so as a potter I was in heaven (and as a potter lots of the categories I chose are clay related), from fine sherds of bone china to whopping bits of brick 4x2".

Finds totals:

Square	Finds	Glass	Metal	slag	Terracotta	terracotta vitreous slip	glazed terracotta	White clay unglazed	white clay vitreous slip	White clay plain glaze	white clay patterned	bone china/porcelain	textured white clay glazed	Concrete	plastic	misc
sum	783	112	7	39	132	2	33	29	8	126	69	59	57	1	3	104
max	41	13	2	5	25	1	5	4	1	10	6	7	6	1	1	12

Typically once I'd drafted this behemoth I thought of a better way to present it, and then found my notes on pivot tables, two more days slipped by!

Someone pointed out "it was all very nice but it's not archaeology" so I decided I should try to pull some dates together too!

Glass

Most of our glass appears to be pressed glass, which was first patented in 1825. By the mid-19th century, most inexpensive mass-produced glassware was pressed (1850–1910).[1] .
A handy moulded round glass base was marked "..CO….KILNER…WAKEFILD": Kilner, were in production 1832-1937 so our sherd was deposited later than 1832.

Field drains

MAFF as it was collected field drain examples and gave them to the Museum of English Rural Life! Clay drains were in use by 1800, becoming common practice by 1850. One of our specimens (press moulded brick, 42) is 2" thick and could be from one of the earlier forms, the majority of finds appear to be from broad based horseshoe type. Early pieces were formed from slabs over a drum,

> "*with the invention of the extrusion method of brick making it became possible to form complete drains in one piece, and it is natural that first extruded pieces should be in the form of a horseshoe with a flat base …… with the passing of time the centre opening became circular but the flat base remained*" (sarsen.org)
> *Thomas Scragg patented a cheaper method of making tile-pipes in 1845; by 1849 a writer in the Journal of the Royal Agricultural Society of England could describe a machine for making drain tiles operated by one man and three boys. From, 1890s, with the start of the period of agricultural*

depression, no more tile-pipe drainage was laid, virtually until 1939. Mole-drainage (cheaper, although it had to be renewed) was used instead.

Some of our pieces show typical extrusion lines but do not appear to be from completely circular/cylindrical pipes, so probably date to the middle of the 19th century.

Clay pipes

Michael noticed one piece is marked "GATE" on the stem, Gateshead was a major producer of clay pipes. The HER shows 2 17th Century and 4 19th Century pipeworks in Gateshead from the C17th to C19th!

The Gateshead piece has a nipple and impressed writing; the National Pipe archive states that these were introduced around 1850. Moulded marks or pattern numbers on the sides of the stem were introduced around the middle of the nineteenth century too (see below) so our little Gateshead pipe is probably manufactured (and deposited) after 1850.

By 1914 the industry had largely disappeared, the last pipe maker in Gateshead was 1935

I narrowly missed a Gateshead pipe with heart (1890) on Ebay so can't download the picture! It is feasible all three parts (heart, stem, mouth) are from the same pipe.

Decorated pottery

We have quite a few bits of decorated pottery, most revealingly copper plate transfer prints.

The first commercially widespread bone china was developed in the early 1790s.

Different colours (green, brown, grey, black, pink and 2 colour prints) were discovered in 1822.

In the 1830s pieces were paler and more stylised, more open space; where there was darker blue used (1840-1860) these prints had blur and bleeding which the American market was fond of, one of our pieces has bleed.

Our sample is largely blue, both pale and dark, with one piece pink, one green and three with brown, suggesting pieces manufactured largely after 1830.

I had a couple of photos on my phone, one of a triangular trademark, slightly blurred, "CT.. ESTONIA ENGLAND" I started surfing the net to no avail, went to the local antique shop. On a whim, just wondering which potteries would supply Tynedale farmers, I decided to look at Maling, and there it was!! "CTM (Christopher Thompson Maling) ESTD1762" The mark was used from around 1875 to 1908. So our piece was deposited later than 1874. Success.

The back of one piece has "Asia" printed on and a bird and flowers on the other side. There are 9100 designs documented by the transfer collectors club but only 4 in the "Friends of Blue" with "..Asia.."

The most probable is Asiatic Pheasant which was the most popular pattern of the Victorian era introduced in 1827, with a romantic gentle blue pattern. Copeland, Burleigh, Wedgewood and Co. produced it and Maling! The 1898 plate opposite also has the CTM stamp, so our Asia in 36 might link our bird/CTM sherd in 26a.

Staffordshire dog

I couldn't' resist checking whether our two pieces, a white glazed nose (2a) and a white glazed eye with a hint of blue at the pupil and a yellow line underneath (6b), joined and they did!

As the popularity of the figurines increased towards the end of the 19th century, thousands were manufactured and the quality began to decline.

Our little dog is roughly press moulded from cream clay with thick white glaze, I suggest the poor thing is a late one, but there are a fine couple with yellow under their eye on the web:

Our pooch

undated dog from net

So more Victorian rubbish than Neolithic ritual! Never mind, it's been real fun investigating!

Lorraine Clay

A volunteer dig at Otterburn

The opportunity came this September to take part as a volunteer with Wessex Archaeology for a 15 day dig on the Otterburn Ranges – no experience necessary, all equipment provided, full training given. How could you refuse? I signed up for five days but ended up doing eight. The excavation was on the eastern ramparts of a supposed Roman Marching Camp located on part of the old Redesdale Military Camp at Rochester.

The excavation had been precipitated by a large landslip which threatened the site; the modern wire fence close to the ramparts was already hanging in mid-air as the soil and rocks had cascaded down into the steep valley of the Sills Burn. Other scallop shapes in the valley sides showed that this was not a particularly unusual occurrence.

Although not used for live firing, this part of the ranges is often closed to the public, and wandering from footpaths is not encouraged. We were going to dig up part of a scheduled monument. All this and the opportunity to learn some valuable skills from real archaeologists. Historic England listing describes two Roman Camps (550m east of Burdhopecrag Hall (list entry 1011392), one (better preserved) within another (poorly preserved). The outer camp was so much larger than the inner, and trapezoidal rather than square in shape. There was no doubt about the Roman credentials of the former but much doubt about the latter. On the first day, as a mechanical digger did the preliminary back-breaking clearance on our site, a group of volunteers examined the ramparts of the inner camp and were shown how to use precision GPS to take profiles over its Roman ramparts.

The inner camp was typically playing card shaped with sides of 200m and 175m with an entrance on all four sides each protected by a short external section of bank. The surrounding ditch was some 3m wide and the inner bank 4m wide and still 1.5m high. The outer camp in comparison was more prominent on aerial photos and its outer perimeter over 1.3km enclosing what is now a large area of boggy moorland. Was this really a much earlier Roman marching camp or a later enclosure of land?

The digger opened up a trench of 20 by 8m along the eastern ramparts of the outer camp, only a few meters from the landslip, which had been temporarily re-fenced for our protection. A section had also been cut at right angles through the bank and ditch. We would spend much time later cleaning this up and drying it out from seeping water.

Despite our initial misgivings, the dig proved to be much more interesting than we first thought. There were few finds made, despite a lot of trowel work, but this was considered normal – Roman soldiers wouldn't have much to throw away on the march, and their occupation of the site might have been limited.

Sections cut across the bank revealed curving dark bands of its turf construction usual for Roman camps, but the outer ditch was not as large as one expected for their night-time defences. Sod-cast dykes like these were being built as field boundaries right up to the medieval period and maybe later. Sections of the bank and ditch were taken as 'monoliths' contained as columns enclosed within lengths square plastic guttering and wrapped with cling film.

Outside the putative Roman ramparts, the ditch had been partly filled at a later time, and was overlain by a road surface made up of small cobbles. The same surface extended into the enclosure through an entrance in the bank at the south end of our trench. Larger stones had been laid as a short internal roadway across the boggy land and curved out to join the track outside. Infrastructure such as this would be unusual for a Roman marching camp and the presence of a metal pipe below the road surface to drain an internal ditch certainly looked a little more modern. It could have worse; the pipe could have been plastic! It had already been located by Otterburn soldiers who carried out a preliminary metal detector scanning survey to check for unexploded ordnance, so good we found it on the dig!

Remains of a twig from a large tree lay in the silt at the bottom of the inner ditch and looked like it had been put there only yesterday, which may be the case. No trees exist on the moorland today. A trace in the lower soil surface running almost parallel to the ditch, appearing like a single wheel rut, could be explained by use of a mechanical ditching machine. YouTube shows something similar from the early 1900s. The track with its short entrance and inner ditch would be consistent with features dating from the first use of the Redesdale Camp for military training around 1911.

On the top of our putative Roman embankment, a fireplace had been built with large stones and a large area of reddish soil, coal and burnt residue extending down the bank below the stone track surface. In this layer we found the broken stems and bowls of about three clay pipes, dated to 1680-1730. Suddenly I could imagine men (or women, as I was corrected by a lady volunteer) huddled around a fire, smoking their pipes. Were they just keeping warm, or was it some low-level industrial site? Bell-pits on the moorland nearby may have been the local source of their coal. On the last day, we found a small metal disc stained green in much the same layer as residue from the fire. Was this the Roman coin we were looking for? Wessex archaeologist, Martina, told me

recently that their finds expert thought the object to be unidentifiable, but possibly a button, post-medieval in date. Perhaps it belonged to the men with the pipes.

I can now imagine the soldiers of Redesdale Camp with their horses and gun-carriages exercising in preparation for WW1, and even the earlier scene of the men around the fire on the bank. However, I still can't yet imagine Roman soldiers digging the bank and ditch of their huge camp site after a day's march up Dere Street. Hopefully the sections and the many soil samples we took will provide biological and dating evidence to take our bank and ditch back to their time.

The weather was favourable, midges reasonable and the company excellent. The peace and beauty of the moorland and its views will stay with me for some time. Many thanks to the staff of Wessex Archaeology, Northumberland National Park and the Defence Infrastructure Organisation for providing us with the valuable opportunity to work with them, and for all the skills they taught us.
Andy Curtis

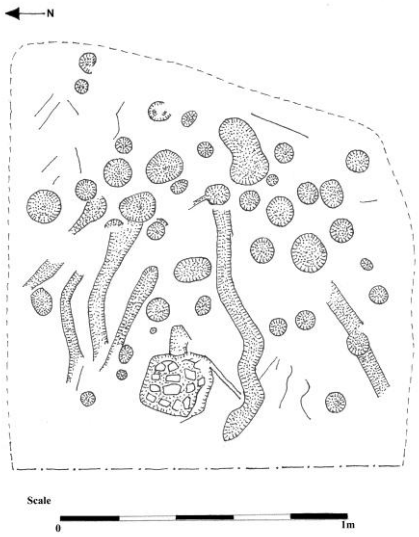
My experiences of rock art rubbings

My first lesson on how to make a rock art rubbing was at Ravensheugh Crags on Midsummer Day 2013. My teacher was the master, Stan Beckensall. The weather was perfect, no rain and no breeze. Stan demonstrated with a running commentary, kneeling, laying a sheet of paper over the stone, securing it gently with bits of soil, turf and small stones. He used his fingers almost flat on the surface to find cup marks or other features. With a chunky wax crayon held parallel to the surface of the stone he began picking up the edges of shapes, being careful not to dig in and tear the paper. He chose where to start and systematically worked his way across and down the whole stone.

Two years later, in July 2015, we were doing a professionally led Level 3 survey at Sewingshields. We had found some cup-marks on an exposed part of a largish stone and it had been decided to pull back the turf to examine the rest of the stone. I came prepared to do a rubbing with large A1 sheets of paper, masking tape, wax crayons, brush, tape measure, compass and a bottle of water. As I worked with Paul Frodsham carefully peeling back the turf that covered the rest of the stone we began feeling more cup marks beneath the turf. The stone turned out to be much bigger than I had expected. "Oh hell, have I got enough paper to cover this huge stone?"
I was relieved when Paul said we had uncovered enough and he went across to fetch all the volunteers who had been busy surveying. We were all very excited at this fantastic rock art.

Rock Art stone with rare grid pattern, deep serpentine grooves and multiple cups.

After everyone had gone back to what they were doing I was left on my own to take the rubbing. Because the breeze had got up I had asked people to leave some ranging rods, bags or bottles that I could use to secure the paper over the stone. " Have I got enough paper?" It turned out to be just enough after I had torn sheets at angles and joined them with masking tape. As the breeze got stronger one sheet was blown away towards a quarry. Each time I had run close to it the wind blew it onwards towards the quarry! Eventually I managed to complete the rubbing and used this to create a scale drawing as Stan does. The turf covering was carefully replaced over the stone.



Anne's Scale drawing of the Sewingshields stone.

Learning from a Dragon

Among others I had told my daughter Emma about the experience. The following year I'm working with her making an 8 metre long medieval dragon for Durham University using 16th Century materials, willow, sheeps wool and calico cloth as the dragon had to be authentic. Emma recalled my rock art rubbing story and said "Mam, why don't you try calico?"

When I needed to take a rubbing in October 2016 of the newly discovered rock art on Cleughfoot farm she gave me some calico to try. When I arrived with all my equipment in a bag it was overcast and looked likely to rain. Lorraine offered to help. When we arrived at the stone the area was very wet and muddy and we had to cut channels in the ground to drain off water before we could start cleaning off the stone. Then it started to rain!

Lorraine and I cleared the stone and bits of grass covering some small cup marks at the bottom of one side. I laid the calico over the stone allowing a drop on the side with the most artwork. The stone and calico were wet. It was fantastic the way the calico clung to the stone, including the steeply sloping side. Following Stan's system I started at the top left corner and worked left to right across the top face of the stone, and then from left to right on the side panel. It was raining heavily and we were both soaked but determined to finish the job. Once finished I was able to just fold the calico and put it in my bag. Back at the tent we hung the rubbing up and had a cuppa. Even though the calico was still wet the wax rubbing was very clear. After showing the rest of the group I folded it up and carried it home, hung it up to dry and then did the scale drawing.

Cleughfoot Stone

Cleughfoot Stone Rubbing

Thanks go to Stan, Paul Frodsham, Lorraine and to Emma for her brilliant suggestion and for the donation of a roll of calico for the group's future use. It would have been impossible to take a paper rubbing in the conditions at Cleughfoot and the calico is so much easier to handle and work with compared with sheets of paper.

Anne Bowyer

There are videos of Stan teaching his method and talking about rock art on our website http://tynedalearchaeology.org.uk. Copies of some of Anne's drawings and rubbings can be found in the various downloadable survey reports.

Rock Art Photogrammetry

Photogrammetry became a standard tool for recording rock art in the Northumberland & Durham Rock Art Project (NADRAP) in 2005. As volunteers we were encouraged to capture stereo-photo pairs of panels and process them through very expensive software provided by Paul Bryan of English Heritage.

The results were very good for small panels which could be captured in enough detail with a single pair of digital photos. The software required users to locate a large number of points in common (to pixel resolution) which was very time consuming and became even more complicated when additional photo pairs needed to be stitched in.

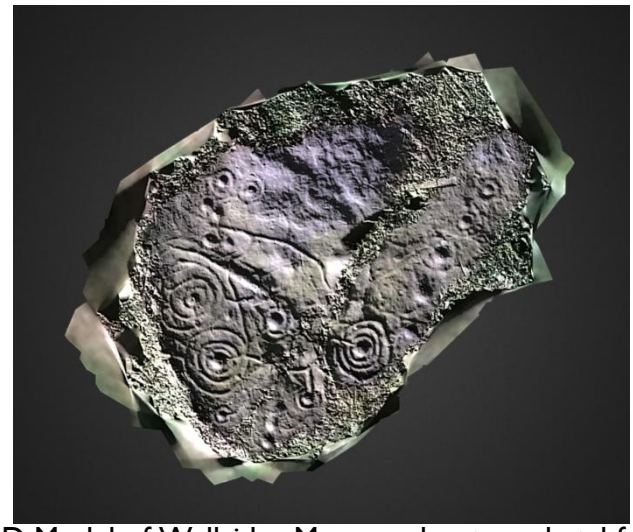
The results can be seen for many panels in the media sections of entries in the ERA database: http://archaeologydataservice.ac.uk/era/. The standard way for users to view 3D models at that time was a standard called *vrml* which required installation of suitable viewer software. Technology has moved on considerably since that time and I have been pleased to get involved with it again through our local rock art project.

Paul Bryan is now Geospatial Imaging Manager in the Imaging Team at Historic England who recently brought out detailed guidelines *Photogrammetric Applications for Cultural Heritage: Guidance for Good Practice (2017).* You can download it here: https://historicengland.org.uk/images-books/publications/photogrammetric-applications-for-cultural-heritage/

Our archaeology group has made available a few copies of Agisoft Photoscan which enables 3D surface models to be made from numbers of overlapping digital photos. It uses an approach called SfM (structure from motion). It works in a manner similar to how humans can recover 3D information from 2D images received by the eyes. For cultural heritage uses it is of course largely non-invasive. In many cases photography has to be carefully planned in order to capture the whole surface but results for relatively small flat surfaces can still be modelled with only a few photos.

Large numbers of photos, and large detailed models may require greater computer processing power and memory.

In the last few years the website sketchfab: https://sketchfab.com/ has provided a common platform to "*publish, share and discover 3D content*". It is integrated with every major 3D content creation tool and compatible with every browser. It also provides a player that can be embedded in other websites as Andy Willis has now done for ours. Not only does it provide a consistent platform to share models but many effects can be applied including surface effects and lighting. The latter can be used to highlight subtle features even those difficult to see in the field when natural lighting is poor. A small collection including some of our recent new rock art finds can be found here: https://sketchfab.com/andrewcurtis53



3D Model of Wallridge Moor rock art on sketchfab

You may need to be patient for models to download if your internet connection is slow but the viewer should allow you to rotate, zoom and pan models either in a small window or full screen. Use the model inspector control to change to matcap which removes the applied photographic texture and lets you examine the underlying surface. A good 3D rock art model must model the cups, rings and other grooves in the created surface rather than just show them in the draped photographic texture. Lateral lighting can then be applied which makes a raking light effect independent of that experienced in the field. The best photos for photogrammetry are usually taken on dull days but applying lighting to the model can then replicate that rare sunny winter's day with light in the best direction.

After success with a 3D model of the Matfen Standing Stone (cup-marked on 3 of its 4 faces) I wanted to push the boundaries and thought a good test would be the large boulder at Old Bewick. However, there is already a good model of it on sketchfab by a Dr Arron Watson and I could do no better: https://sketchfab.com/models/43ad6007881e49688fc8784edf5827da

A friend with much more experience in this field has many good examples (and not just of rock art): https://sketchfab.com/rockrich
Ketley Crag is a very fine model but his Roughting Linn made from over 100 photos only really captures the rock surface and not the carvings: probably demonstrating the necessary trade-off between processing power and resolution.

The world of rock art research continues to chip away. Here are some recent and future things:

- Aron Mazel's Newcastle University press release, '*Preserving Rock Art at the Touch of a Button*' for the CARE mobile phone app: http://www.ncl.ac.uk/press/news/2017/11/rockartapp/
- Kate Sharpe's Rock Articles, issue 18, October 2017 on scribd: https://www.scribd.com/document/362396560/Rockarticles-18
- British Rock Art Conference, Ilkley, Yorkshire, 9-10 June 2018. Theme is *Rock Art in the Landscape*.

Andy Curtis