Newsletter No 06
Autumn 2011

Orkney Archaeology Society

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Editorial

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Welcome to your Autumn 2011 newsletter. It has been another excellent year for archaeology in Orkney, with a number of significant new finds such as the runic plaque found in Deerness and the Pictish Symbol stone discovered recently in Sanday as well as the old favourites such as the Ness of Brodgar and the Brough of Deerness continuing to surprise and inform.

We have received a number of comments this summer regarding the events that we organise and the committee felt that the newsletter would be the ideal opportunity to ask you, the membership, what you would like to see from your society. Would you like to see the society and its membership become more involved in the practicalities of archaeology in Orkney – excavation, finds processing etc.? Would you like to see a wider range of topics in our talks programme? Or would you prefer we concentrate on local issues? Please let us know either via the website at http://www.orkneycommunities.co.uk/oas/ Or via the PO Box address.

As a significant part of our fundraising effort for 2012 the society will be taking over the Blue Door shop in Albert Street, Kirkwall for a week in June. We are desperately in need of a reasonably large, dry, convenient storage location for the enormous quantities of stock that we will be collecting over the next 6 months. If you or anyone you know may be able to help please get in touch as soon as possible.

We would like to wish you all a Merry Christmas and a Happy New Year.

News from the OAS committee:

Sue Barnard, Honorary Secretary, OAS

We've had a busy year in the OAS committee beavering away behind the scenes to arrange walks, talks and events, fundraising schemes and raising awareness of Orkney's incredible archaeological heritage. We couldn't do any of this without the support of everyone who has supported us. So many OAS members have volunteered support this year – everything from moral support and donations from afar to hands-on archaeology and setting up the shop at the Ness of Brodgar. This season saw a bigger and better shop at the Ness, courtesy of ace OAS supporter Willie Beedie of South Ronaldsay who delivered and erected our best shop yet on the site. Many OAS members were in evidence both helping on the dig and in the shop and our thanks go to each and every one of you. We could not have supported ORCA or OAS any better over those six weeks of typical Orkney

summer! Another successful fundraising scheme at the Ness was the sponsorship of a square of the dig site. Over 160 squares were 'sold' at £10 each and the sponsors stuck a 'sticky' on their square, receiving a bookmark thanking them for their donation and for supporting the significant costs involved in the excavation.

This year in the OAS Ness Shop we had some lovely Ness of Brodgar T shirts and tea towels designed for us by Sarah Johnston of Marram Studios. These sold very well to diggers and public alike. T shirts are still available for sale – see the attached order form. Another popular item was the pendants made from Birsay Bay pebbles by Sue Dunn. These too may also be purchased using the order form. Either would make an ideal Christmas gift and continue to raise funds for Orkney archaeology.

Events this year have ranged from field walking to trips to the island of Auskerry – inhabited only by one family, sheep, seals and some strange lumps and bumps in the landscape. Our thanks go to archaeologists Caroline Wickham Jones and Antonia Thomas for leading the walks and to Theresa and Simon for making us all so welcome.

Our big fundraising event this year was our OAS lottery and we would like to thank all our OAS members and friends who bought tickets and donated prizes. We sold 2369 tickets, raising a good proportion of the money needed to provide a full fees bursary to support a student on the MA in Archaeology Practice at Orkney College. As well as sending lottery tickets out to our members we also sold them at the Ness of Brodgar Shop and had our usual big thrust at the Dounby Show where a small team of OAS volunteers lured the unsuspecting public into Annabel's horsebox to purchase OAS goods, Ness of Brodgar 'squares' and, of course, lottery tickets.

Next year our fundraising efforts will concentrate on bringing in enough additional funds to enable a re-print of 'Rising Tides', the popular book by Julie Gibson with incredible photographs by Frank Bradford. Julie is currently updating the text and we are seeking an appropriate publisher. Proceeds of the sales of this book will again go to OAS to support Orkney's archaeology, related education and public dissemination.

We have been really fortunate to be allocated a week at the Blue Door next summer to help with our fundraising. For those who don't know, the Blue Door is a charity shop facility in Kirkwall kindly made available to individual Orkney charities by Mrs Jamieson on a weekly basis. The Blue Door is a very popular shop and has the capacity to raise over £2000 each week. But to do this we need 'stuff'! All unwanted (clean) clothing, books, bric-a-brac, household items will be wanted. Please start sorting out your cupboards and drawers now. We will be asking you to bring your 'stuff' to a collection point nearer the time – so please watch out for emails and notification in the next newsletter and Orkney press.

This is my last year as OAS secretary – where have the last five years gone? I am standing down at the June 2012 AGM and we are actively seeking a replacement. If you think you can help – let us know!

We look forward to seeing our members and friends at the OAS meetings over the Winter months.

Obituary: Eileen Beech 1948 – 2011

Antonia Thomas

It is with great sadness that I report the October death of Eileen Beech, who was a much-loved member of the team on the Wyre excavations. A recently retired teacher, Eileen had been an amateur archaeologist for a number of years and had amassed considerable knowledge and experience, particularly in the Peak District. Eileen first

volunteered with us in 2008, fulfilling a lifelong dream to dig in Orkney. It is testament to Eileen's spirit of adventure that she drove the long route from Sheffield on her own, using the trip as an opportunity to stop off and visit some of her many friends along the way.

In her early 60s, Eileen was the oldest member of the team by a long way, but she worked harder than most people half her age and certainly managed to keep up with the social side of things too! Eileen was not fazed by anything; when we announced that we were having a fancy dress party to mark the end of the dig in 2008, and that it would have a loosely 'historical' theme, Eileen went straight to the charity shops in Kirkwall and managed to rustle up a Queen Victoria outfit. She even managed to maintain a haughty regal expression all night, repeatedly commenting that 'one is not amused'. In 2009, when she came back to volunteer with us for a second year, Eileen was prepared and had brought another, different fancy dress outfit (this time a Viking woman) with her! She always had a smile on her face and was great fun to be around, often having us in fits of giggles.

Eileen was able to put her wide-ranging archaeological experience to use in a whole range of different tasks on site, but it was with dealing with the artefacts that she really found her niche. Eileen took control of the finds processing and cataloguing, allowing things to keep running in a way that just wouldn't have been possible without her hard work and organisational skills. On the Open Days, Eileen created beautiful displays of the artefacts to show to the public, and was always at hand to explain, in her wonderful school-teacherly manner, some of the stranger objects on show.

Eileen lived life to the full and, even during her illness and the gruelling treatment that it involved, she was determined to get out and do as many of the things she had planned to do with her retirement as possible. One goal was managing to drive the several hundred miles down to the southwest of England on her own for a holiday, a journey that many people much younger and fitter would be loathe to undertake. But Eileen was a very determined woman, with an incredible strength of spirit. I know she would have liked to have visited Orkney just one more time, but the distance was just too much, and there were so many other places she needed to see whilst she still could. Eileen will be fondly remembered by everyone that she met and worked with on Wyre, as will her contribution to both the archaeological and social side of the project.

Ness of Brodgar 2011

Nick Card, Senior Project Manager, ORCA, Orkney College UHI

The twists and turns of the Ness of Brodgar would make even the best Agatha Christie novel seem simplistic in nature! Just as you think that you are getting to grips with it, the site throws up yet more surprises to astound you and return to prolonged head scratching – this year was no exception!!

At the start of this season the interpretation of Structure 10 was veering towards the domestic – a house but on a truly monumental scale, the home of a truly exceptional family that perhaps reflected the apparent move in late Neolithic society towards a more hierarchical system – the so called Neolithic Cathedral seemed to have a slightly more mundane function. It exhibited several attributes that could be interpreted as purely domestic – a hearth, a dresser and recesses/bed spaces arranged around the walls. It also appeared to be mainly a single phase building. This year however changed all of that! – and be prepared for a few superlatives!!!

We have started to realise that the history of Structure 10 is much more complex and gone through some fundamental changes. It always seemed a bit strange that the surviving internal stonework (in particular the

SW corner buttress) of Structure 10 was a lot less impressive that the outer wall faces. This was thought to imply that Structure 10 was merely meant to impress from the outside from where most people would have viewed it and that internally the finish was of much less concern. This year however we have realised that internally at least, Structure 10 has been quite dramatically altered and that the SW buttress and its opposing pier on the N wall are probably later additions (possibly with other elements we are still disentangling). In its primary phase we are now considering that its internal floor plan was like a square with rounded corners, much like Structure 8 at Barnhouse. Relating to this primary phase is we believe some of the most elaborate, visually stunning and best Neolithic stonework to be found anywhere in the Neolithic of northern Europe (even surpassing Maeshowe)!! Quite a claim I hear you say but the fragments of walling we are now seeing of this earlier phase are breathtaking. For instance behind the dresser the lower surviving courses of walling are just perfect – although the local stone allows fantastically straight and vertical walls to be produced as evidenced in many of the structures at the Ness and elsewhere, this wall face has had any slight imperfections removed by peck dressing so that absolutely perfect wall lines were achieved. This use of peck dressing although already evident in other elements of Structure 10 such as the central pillar (for which we found its probable upper twin this year) and side supports of the west dresser (and in Structure 12) we are now realising the extent of its use in Structure 10. Several beautiful slabs have had their faces fully dressed by pecking and in one case a diagonal cross has been created by pecking the two opposed triangular sections deeper than the other two opposed sections (similar in many ways to one of the most common incised motifs at the Ness – the 'bow-tie' or 'butterfly'). Unfortunately most of the inner wall faces of this earlier phase have been robbed out but what remains provides a tantalizing glimpse of the inner grandeur of the original Structure 10 that matched if not surpassed its exterior. We are hopeful however that next year some of this walling may have escaped robbing behind the later SW buttress.

In searching for evidence of the internal plan of Structure 10 through the 'ghost' evidence from stone robbing trenches we also made another staggering discovery that totally surprised us all. On the north and south walls of Structure 10 there were the remains of low stone walls that appeared to run along and abutt the inner wall faces. These we presumed were like stone benches, however when the robber trench for the north wall was revealed it showed that there was a space between the bench and the wall just like the space behind the west dresser. In one of those eureka moments it was realised that this so called bench was in fact the remains of another dresser. Closer examination of this new dresser revealed more similarities in design and construction with the west one. Could the bench on the south side also have originally been the same before being incorporated into the new revised south wall? We have to wait till next year to answer this. But a 'house' with 3 dressers – quite remarkable but only if you view these in the traditional terms of archaeology when our Victorian forefathers who first viewed these stone edifices as Neolithic display cabinets. Personally I have never liked the term dresser as this conjures up a rather mundane explanation, but it is difficult to find another appropriate word that isn't equally loaded with meaning – so in the meantime I have suggested using altar that reflects a much more esoteric use of these stone constructs. As Professor Mike Parker Pearson has noted these items of Neolithic 'furniture' are not as ubiquitous in Neolithic houses as one might think, but were only allowed in special buildings. So this would bring us round to thinking that if they were special, what status would that provide Structure 10 with its three (or possibly 4 – potentially one on the east wall too!) – something very exceptional if not unique. And so the interpretation of Structure 10 has potentially come full circle – Neolithic 'Cathedral' to monumental house to now again something more spiritual in nature. We're sure that this is not the end of the story of Structure 10 as more evidence emerges -

but patience is a virtue and so we wait till 2012!

Outwith Structure 10 the bone deposit that filled the upper levels of the infill of the surrounding paved walkway came under closer scrutiny by Dr Ingrid Mainland our local animal bone specialist. Ingrid had excavated a small section of this last year on the north side of Structure 10 and had established the very unusual nature of this deposit – circa 85% cattle bone of which most was cattle tibia that had not been simply dumped there but had a structured deposition. This year with a grant from the British Academy and bringing to bear a host of the latest technology, GPS, laser scanning etc. Ingrid further investigated another section of this deposit. Initial findings would support her findings from last year that it is mainly cattle but perhaps with even more individuals represented than previously thought – in the small area she investigated there were potentially between 20 and 40 cattle present – multiplying that up by the length of this deposit there must be literally 100's of cattle here – a feast of biblical proportions, or perhaps as Ingrid has suggested something more akin to the selective deposition of particular animal bones we can read about in the later classical world at special sites.

The northern corner of our main trench had been somewhat neglected since we originally opened this trench in 2007. It seemed to exhibit a lot of ephemeral wall lines that we had presumed reflected some of the later activity on site after the major structures had gone out of use. There were however two sections of wall that did seem parallel and it was thought formed a structure that ran circa NW to SE. Little did we imagine that one of these wall lines was actually a pier within a structure and that the other wall line was in fact the end wall, so that the building was aligned SW to NE. Although only part of this building, Structure 14, was visible in our trench it seems to represent yet another large structure like Structures 1, 8 and 12, whose internal plan is defined by a series of opposed piers creating recesses along its inner wall faces. As we hoped it seems broadly contemporary with these other similar buildings thus adding to the sense of this major phase of the site being represented by many similar structures being built cheek by jowl within a massive walled enclosure.

The theory that the site was actually fully enclosed by a wall was also given further support this year. The original geophysics had only shown the northern site boundary wall, the so-called Great Wall of Brodgar, to be present across part of the peninsula with its full extent being only hinted at in test pits. Likewise the southern boundary wall was also incomplete, however refined geophysics this season revealed both walls continuing across the peninsula, and more compelling showed that the northern wall did start to curve around at its south-western end along the shore of the Loch Stenness just as it did at its north-eastern end along the shore of the Loch of Harray. Similarly the south-western end of the southern wall also now clearly curves around along the shore of the Loch of Stenness. And so a complete circuit of walling to contain and emphasise the major structures on the Ness seems more than wishful thinking – an actual walled precinct!!

This new geophysics also clarified the area just north of our main trench. The previous results from this area had proved to be a bit confusing and difficult to interpret. With the refinement however an unusual and surprising feature became apparent - a large sub oval anomaly circa 30m wide by 20m across with potentially two opposed entrances. What this represents is anybody's guess – is it a structure or an enclosure or a ???? Time may tell but no doubt yet another fascinating and unexpected aspect of this truly remarkable site.

At the end of last season Structure 8 was considered to be potentially longer than we had first imagined. This was confirmed this year with an overall length in excess of 20m, and potentially 10 recesses along its inner wall faces defined by 4 opposed pairs of stone piers. It was in this remarkable structure that last year we encountered the first evidence for a stone slatted roof. This

year in the northern half of the building the slate horizon was fully removed (almost 400 slates being recorded) to expose floor deposits. As we discovered last year, sitting on this floor were an amazing array of Neolithic artifacts – polished stone objects of every description, stone spatulas, hammerstones, spreads of knapping debris etc etc. Careful examination of these finds and the contexts they were found in should illuminate the function of Structure 8 or whether all these objects relate to a final closing act of Structure 8. It is interesting to note the contrast between this plethora of artefacts in Structure 8 and the almost dearth of similar objects from Structure 10.

Elsewhere on site an extension to the trench was made to the SE of Structure 12 in order to expose its full plan. As we thought last season its east wall had suffered from extensive robbing and this was borne out this year. The inner east wall face had almost totally disappeared along with two of the two piers, however quite unexpectedly most of the circuit of the outer wall face remained intact. Unlike the robbing of the walls in Structure 10 that seemed very systematic with vertically sided robber cuts that left a real ghost image of where the walls had been, this robbing was much more ad hoc. Large pits had been dug around wall faces in order to extract the stone, yet surprisingly enough the stone robbers had left much excellent building stone behind – was this an attempt to deliberately dismantle Structure 12 rather than rob it of its stone?

Internally the midden deposits that infill Structure 12 were also slowly removed and yet it still looks as if we have over 0.5m of deposits to remove before we hit floor levels – implying once again that Structure 12 will be preserved to over 1m in height. Work in and around the entrance to Structure 12 revealed a complex sequence as we had suspected of major remodeling with the entrance being reduced in size on at least one occasion. Excavation here was slow as we encountered deposit after deposit of pottery including at least two very large whole vessels one on either side of the entrance. As with so much of the pot from the Ness this was in an extremely poor condition and needed carefully recording before any attempt to lift it was made.

In Structure 1 Dan and his team removed the last vestiges of the mysterious oval stone structure that had been inserted into it during its last major phase of use. Even with careful dismantling the function of this strange construction remains unknown. Under this the floor levels relating to the second major phase of Structure 1 (when a massive curved wall was inserted that much reduced its internal area) were encountered complete with a large square hearth. These deposits will be further explored next year and then removed to reveal the primary floor levels associated with the original plan and use of Structure 1.

Structure 1 had always seemed to abound with Neolithic art with over 35 examples recorded however this year this figure almost doubled. Antonia Thomas as part of her PhD was carefully scrutinizing every wall face in each structure for evidence of ephemeral decoration. In Structure 1 she has now catalogued over 60 examples and painstakingly recorded each one. Overall the catalogue of art from the Ness probably outnumbers all of the Neolithic art from the rest of Britain put together apart from obviously the Irish component. Antonia really has her work cut out!

These are just a few of the discoveries from the Ness in 2011 – too many to mention in this short résumé – also painted pot; pot decorated with different coloured clay; a special area in Structure 10 used for the production of pigments; a whole host of new decorated stonework; our first stone ball; and of course the 'Brodgar Boy' – the anthropomorphic ceramic figurine; – the list goes on but unfortunately not enough space here to discuss further – can I therefore recommend those of you who have not done so already to catch up with these and other discoveries on www.orkneyjar.com – enjoy!

And also watch out for the forthcoming BBC2 special on the Ness that should finally see the light of day sometime around Christmas. Thank you all for your support and also Orkney Islands Council, the UHI, Orkney College, the Royal Archaeological Institute, the British Academy, the Robert Kiln Trust, Historic Scotland, European LEADER Fund, Orkneyjar and numerous individuals from around the world. Special thanks as ever to the landowners Ola and Arnie Tait and Carole Hoey.

Deerness Runic Inscribed Plaque

Professor Michael P Barnes, Professor Emeritus of Scandinavian Studies, UCL

In May 2011 a metal detectorist unearthed a lead plaque at "Quoys" or "Quoys farm", Deerness, close to the surface of the ground. Nearby and at roughly the same depth was found a fragment of a metal (bronze?) seal, possibly of ecclesiastical provenance. The lead plaque is about 18 mm in length and 12 mm in height; it is folded, and as such has a depth of some two-and-a-half mm.

The exposed faces of the plaque bear a runic inscription, which covers most of the surface. On one side the runes read: **irasabi** or possibly **krasaba**; on the other: **yniþik** or possibly **yliþik**, with perhaps a damaged **i** following the **k**. Neither sequence makes immediate sense, and it may be there are further runes in the fold that would cast light on the meaning of the text as a whole.

In **þik** it is possible to recognise the Old Norse word for 'you' [acc. sg.], so **yni** might be a verb governing the accusative. It could be past subjunctive of *vinna* 'to master' ' to overcome', but what motivates the past subjunctive '[that X might] overcome you' is unclear. Formally, **yni** could also be past subjunctive of *unna* 'to love', but that verb governs the dative, and the dative of 'you [sg.]' is *þér*, not *þik*. On the other side of the plaque we have **b**, which would normally signal the beginning of a word, but neither **bi** nor **ba** on its own forms a discrete lexical item in Old Norse. As for **irasa** or **krasa**, we are in the realms of pure speculation: **ir** could be taken as 'is', 3rd sg. present tense of the verb *vera* 'to be'; **asa** might be the female name *Ása*; there is an Old Norse word *rás* meaning 'race' 'running', or 'course' 'channel'; there is also a word *krás* meaning '[edible] delicacy'; and *sá* is the demonstrative pronoun 'that [masc. nom. sg.]' 'he'. It is worth noting that the two visible runic sequences are upside down in relation to one another. That might, but does not necessarily, suggest we are dealing with two different statements (each of which may begin on the inside of the fold).

In total over 60 lead plaques with runic inscriptions are now known (almost all bigger than the Deerness example), and 10 or so lead crosses. The oldest appear to be from the twelfth, the most recent from the fifteenth century. Around half of these lead objects bear texts that have proved uninterpretable. Those that give meaning suggest a context of "Christian magic": Christian formulas (and others, e.g. *abracadabra*) are employed with the apparent aim of harnessing supernatural powers. Often the purpose seems to be to cure or ward off sickness, and to that extent such plaques can be regarded as amulets.

(Photo: Frank Bradford)

Shadows of our Ancestors

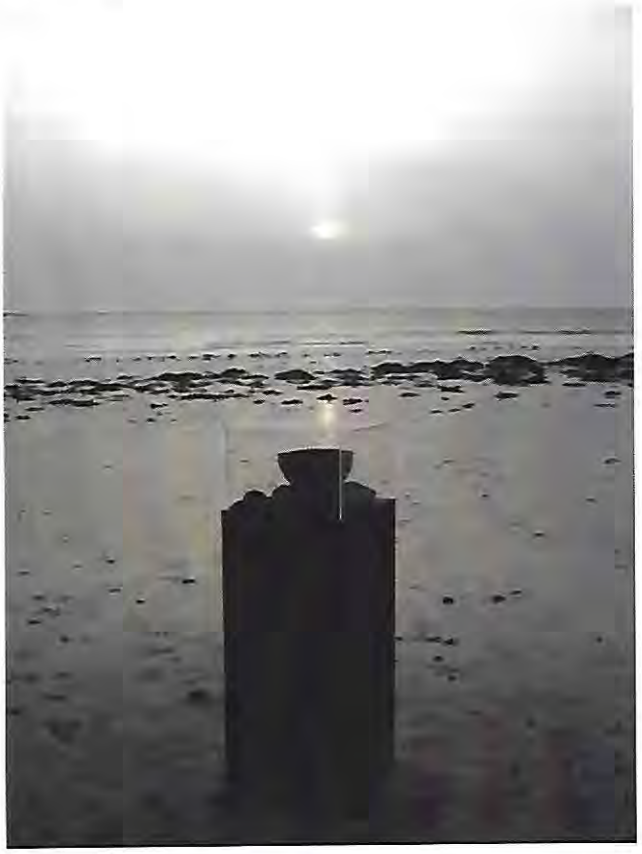
Sandra Miller & Elaine Clarke, World Heritage Site Rangers

This has been an exciting new project for 2011 with the aim of highlighting the international significance of Scotland's five World Heritage Sites and leading to five separate events to celebrate World Heritage Day on April 18th.

World Heritage Sites are described by UNESCO as exceptional places of 'outstanding universal value' and 'belonging to all the peoples of the world, irrespective of the territory on which they are located'. In December, 1999, it was announced that the Heart of Neolithic Orkney had been added to the list of UNESCO World Heritage Sites. With the stroke of a pen, some of Orkney's best known archaeological treasures were placed on a par with internationally-recognised monuments such as Stonehenge and the Pyramids of Egypt.

This has been about generating new connections to each of the five World Heritage Sites in Scotland, through the ideas and work of five artists each working with a local group, and ultimately it was about celebrating World Heritage Day.

In Orkney the WHS Rangers Sandra and Elaine worked with local writer and poet Yvonne Gray who ran a series of writing workshops throughout March. Local writers braved the weather to explore the Neolithic history of Orkney with the Rangers, using it as inspiration for a variety of writings, including some fantastic Renga poems. Along with the World Heritage Site landscape, five Neolithic replica objects were used as inspiration for the writers. These were taken out and displayed in beautiful purpose built display cases firstly on the beach at Skaill then at the Standing Stones of Stenness.



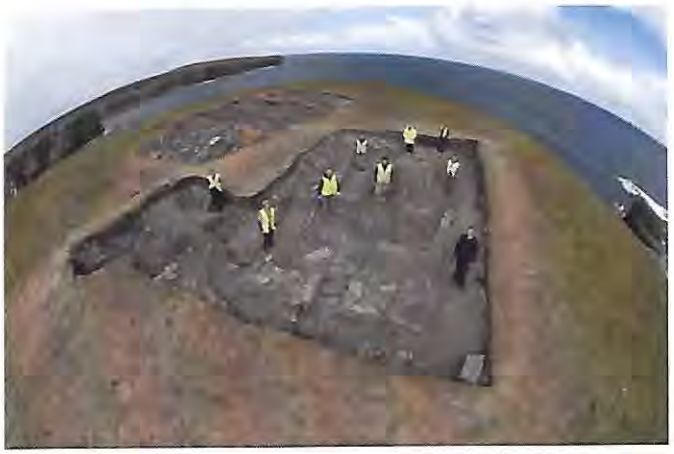
The mobile museum proved a huge hit, inspiring local writers as well as entertaining locals who came along to enjoy the familiar sites presented in a different way.
At the Pier Arts Centre on World Heritage Day, the 18th April, the event to celebrate our World Heritage Site here in Orkney reached its conclusion with readings of the new poetry created by the writing groups, as well as a short film in an adjoining gallery acted as a reminder of the earlier part of the project and the 'museum in a van' events at Skaill and Stenness.

The creativity generated in Orkney has been remarkable and the poems and writing produced by this exciting event will be available in a booklet beautifully illustrated by artist Jeanie Rose called Shadows of our Ancestors.

The Brough of Deerness

James Barrett - Deputy Director, McDonald Institute for Archaeological Research

The Brough of Deerness project is furthering our understanding of how Viking Age societies of the north impacted the political landscape of Britain during the Scandinavian diaspora of the Viking Age. It has long been assumed that Viking Age raiding in the west must first have involved the establishment of piratical communities in Orkney. If correct, these communities were one catalyst in the creation of Alba (later Scotland) and England from multiple polities – responses to the 'Viking' threat of the 9th and 10th centuries. This threat was created by mobile armies comprising diverse groups that could both fuse and fission. Their movements are charted in historical sources, but the communities from which they ultimately came are poorly understood. The Brough of Deerness may be one. It is an unusual settlement of approximately 30 buildings set atop a sea stack surrounded by vertical cliffs c.30m high. It was once thought to be a monastery, but lacks the stone sculpture and extensive burial ground that would indicate this function. Instead it has features suggestive of a long-term base for an otherwise mobile war band active in the North Sea and Irish Sea. Excavations in 2011, conducted in cooperation with the Friends of St Ninian's as part of the Deerness in 100 Objects initiative, aimed to clarify when the settlement was established and thus whether it could have served as a base for Viking Age raiding. We discovered that the Viking Age settlement was preceded by a Pictish one, and must now wait for the results of archaeomagnetic and radiocarbon dating to see when the former replaced the latter!



House 25 and surrounding middens at the Brough of Deerness, with the 2011 excavation crew (Photo: Frank Bradford)

The Project was funded by the Higher Education Innovation Fund, The Orkney Islands Council, The Friends of St Ninian's and the McDonald Institute for Archaeological Research

Grooved Ware Firing at Fursbreck Pottery

Andrew Appleby, OAS Vice Chair

Over the weekend of 2nd and 3rd July this year members of OPPRA, (*Orkney Prehistoric Pottery Research Associates*) fired the experimental grooved ware vessels made at Fursbreck Pottery the previous May.

Dr. Mark Cassidy of The University of St. Andrews had previously analyzed some shards of Orkney Neolithic pots for research purposes. He noted that there were a significant number of calcium rich inclusions within the matrix of the clay. He also analysed fired pieces of clay from Skaill Bay of Skara Brae fame. We had previously used this clay for experimentation, as it was the closest useable deposit to the Neolithic village. His results showed no calcium in the clay at all.

Orkney clays are difficult to fire successfully as a temperature of well over 1050 degrees centigrade is required. This temperature needs to be maintained for some considerable time to achieve success otherwise the pots are still liable to crack when cooling. This kind of heat is massive for prehistoric pottery. From other regions of the UK and Europe, normally a temperature of around 850 to 950 degrees, sometimes less, will suffice. Dr Cassidy explained that calcium would act as a flux and would therefore help the clay body fuse at a lower temperature than was necessary to fire the pure clay, thus making successful firings easier to achieve.

We had tried to fire pots made of Orkney clay before, without much success. It may well be that the lack of calcium had been one of the reasons for many of our experimental pots failing. The most recent firing (the last in our first series of experiments) was designed to test this hypothesis. It would also pose further questions, directing future exploration.

Various potters, Tim Palmer, Meg Sinclair, Antje Haut, Elaine Henderson, David and Chris Rendell, have made pots for this project. David and Chris Rendell fashioned a series of pots at Fursbreck in clay dug in S.W. France in May 2011 and Meg Sinclair created various vessels with selected clays from Broch Sites in Caithness, which reflected Iron Age forms.

Tim Palmer, Meg Sinclair, Antje Haut and Elaine Henderson extracted clay in May 2010 from the North end of Skaill Bay. This seam is revealed on the shore and is a glacial deposit from the last Ice Age. It would have shown through the banks of the brackish lagoon between Skara Brae Village and the sand dune, which protected it from the ocean. It was therefore a likely source for the Neolithic inhabitants. This material is full of decomposing flagstone, hard lumps of sandstone and the occasional rounded piece of quartz. If you remove all of this, there is little clay left. The majority of the rough inclusions were smashed down with hammer-stones and they became part of the body of the clay. This clay is very 'short' and flabby, difficult to work and unable to bear much weight when wet. In previous experiments we found that adding copious amounts of grass allowed the clay to be built into large shapes without collapsing.

From the South End of Skaill Bay we took a few buckets of much cleaner clay. This is from the same geological deposit, but had been washed finer by glacial and water movement. This material was used for making the finishing slips and also smaller, finer vessels.

We added around 20% of very fine shell sand to the rough clay and wedged it in. This was a laborious task and actually made the clay even more short! Grass was added to help in the building of the pots, but this was still difficult.

As a result of previous experiments, several layers of successively finer slips were spread over the body of the pots, then the applied decoration added followed by some final

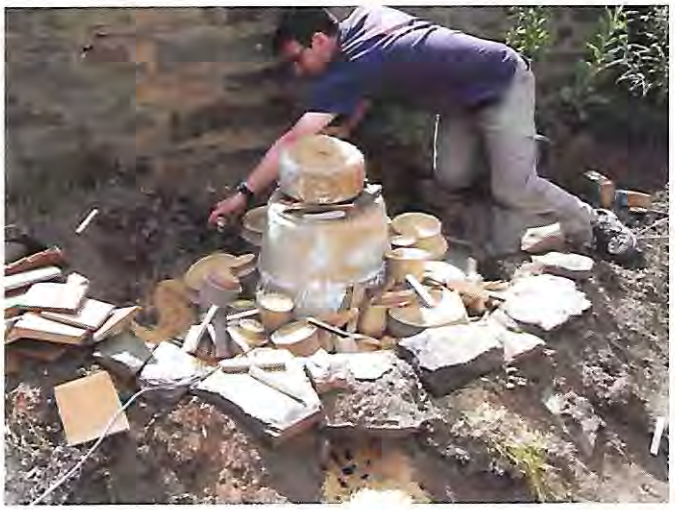
layers of even finer, levigated slips to finish. The vessels were then left to dry.

David and Chris Rendell made pots from the French clay. Grog was added to the clay for some of the pots. Grog is crushed fired clay from previous old and broken pots and has the effect of allowing the chemically combined water to escape easily from the vessels in the early stages of firing, preventing the pots from blowing up. Much Prehistoric pottery from finer clay sources was treated like this to prevent spalling. This is not necessary for Orkney clay, as it is rough enough with the porous, rocky nature of its natural inclusions but failure to grog finer clays can prove disastrous.

We chose to re-use a previous kiln, which we had constructed by digging into a midden. We wanted to test the effects of firing in midden and note the after effects. We cleaned out the old ash and enlarged the kiln to accommodate Tim Palmer's vast pot. It was noted that there was absolutely no burning to be seen on the sides of the pit we had dug for the old kiln. We discovered, however, that there was a fine layer of bright red material, deposited over a thin black layer of charcoal just above the kiln floor. We realized this was burnt soil, washed by rain from the sides of the pit onto the floor. It seems likely, therefore, that a pit firing in these conditions would be extremely hard to recognise archaeologically if all the pottery had been removed.

After the enlargement of the kiln a new bank and stone vent was constructed. Then a small fire was lit and more fuel introduced to create a conflagration. (We thank Mr. George Gray of Newark for all the finely split wood.) When this pile of fuel was burned to ember we spread it over the kiln floor evenly. We poured a large quantity of bere husks (Courtesy of The Barony Mill) on top of the embers to stifle the burning. This is always an alarming moment for the fire-master. All burning seems to cease and failure looms horribly before him. However, this is the moment when the raw pots are loaded into the kiln and flames are not good for a potter's skin.

Before packing the kiln, all the pots were numbered with black cobalt paint. Corresponding numbers were painted on to process temperature control rings. These objects, like wee polo mints, will record the heat-work that each pot experiences during the firing.



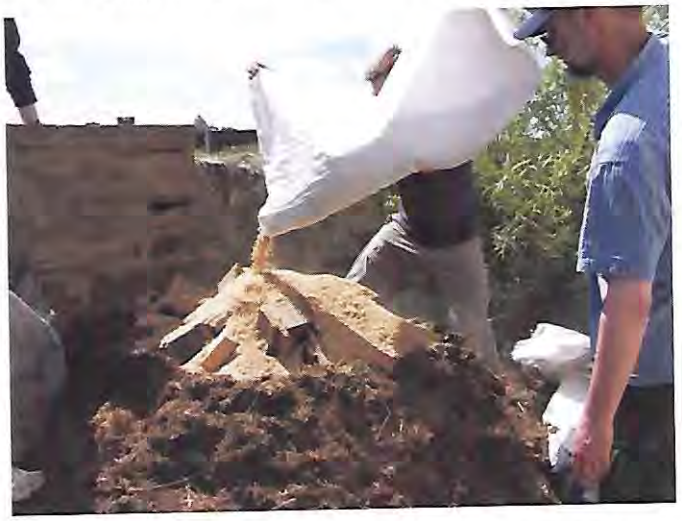
This is determined by measuring the shrinkage of the rings with a micrometer. With over 100 rings to measure and catalogue, this task will be carried out over the coming months by Mark Cassidy and his potter wife Diane. As well as associating rings with pots within the kilns several rings were buried 1-2cm deep at several locations on both the pit base and walls, this will hopefully give further information on the heat penetration into the kiln structure.

I, as fire-master and kiln-controller, was in charge of the packing of the pottery. Each pot's position was mapped and photographed by Mark and Diane so that we could determine how far they shifted during the firing as the fuel burned away. We would also be able to map heat peaks within the pit/clamp kiln. As a backup, a long, flexible metal pyrometer was employed to see how the firing would progress through its stages. Each pot was also filled with wood and bere husks, which would burn during the firing.

The first vessels to go in were Meg's Iron Age ones, which were covered by a Grooved Ware urn made by Tim Palmer. Four rough loom weights were placed on the bere husks. These were positioned to support the rim of

Tim's huge inverted Grooved Ware bin. This would allow oxygen to pass under the crock as the fire gradually rekindled itself. Also the bere would not be compacted too much so as to extinguish the central part of the ember base.

As the pottery was loaded into the kiln, fuel in the shape of finely split short lengths of wood, was packed around the ware. Wood was then piled up around the pots as a clamp wall of grass cuttings (courtesy of George Gray and Susan Johnson) was built over the rim of the original pit, the extended bank and new vent. More split, cut planking was then piled on.

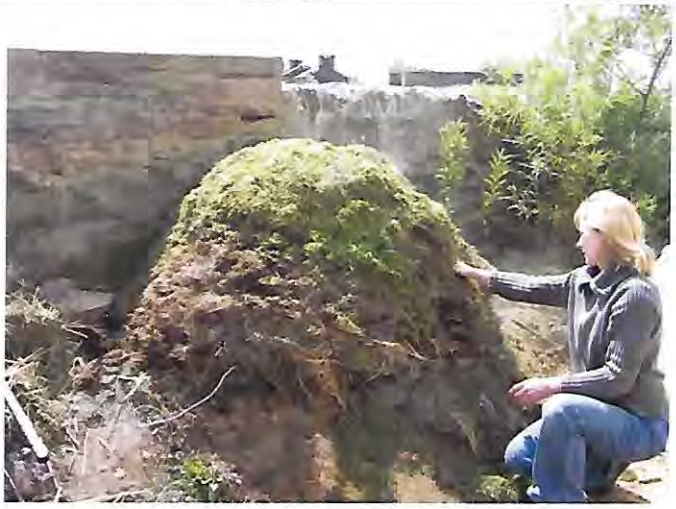


Bere husks were poured over them and this filled the gaps. The soft, cool grass clipping wall was heightened and domed in slightly as more wood and bere covered the top pot made by Antje, which was on the base of Tim's huge one. The clamp was finally sealed and we all stood back and admired the neat, smoking heap.

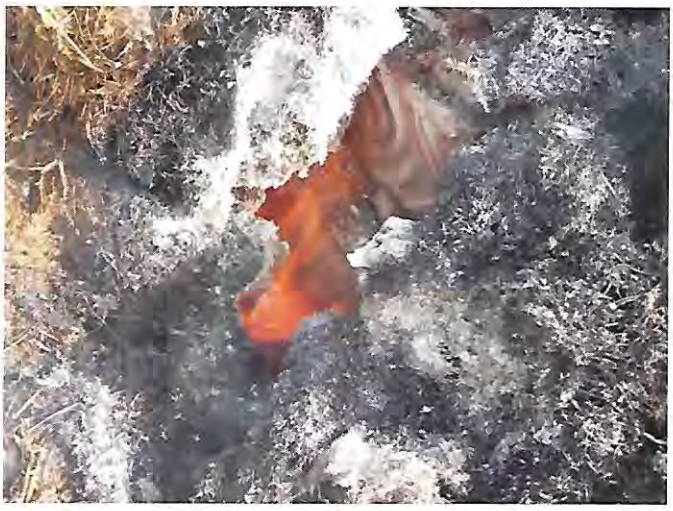
The pyrometer showed a low reading of 70 degrees centigrade for a very long while. Was this the warmth of composting grass? It was merely the fact that the kiln was burning on the other side of the structure. A faint flow of air was being drawn in by the vent. It was going widdershins round the interior of the clamp wall. Thus the fire was spreading in a direction determined by the airway, which had been angled because of the new shape of the kiln.

The crackling of wood later became quite audible. The fire had begun its ascent. But was it wood or pots crackling? Only time would tell. We blocked off all air escapes and sealed the ground-level passage. This slowed the progress of the fire immediately. Gradually the wood within the insulating clamp baked and became charcoal. Constant efforts to patch the clamp continued as the heat mounted, this was in order to control the rate of temperature rise. We later moved the pyrometer and checked the progress of the fire. Reassuring temperatures of seven, eight, eight hundred and fifty etc. were recorded after a period of three hours or so. In the natural course of events the heat built up and the clamp began to burn away at the top of the kiln where the wood was burning briskly. The temperature was checked and it was around 1,000 centigrade. You could also judge the temperature roughly by the colour of the fire. Not long before this happened, the outside of the clamp was quite cool to the touch. Through a tiny fissure, we had been able to see the fire within; a few inches below the surface the temperature was well over 900 degrees Celsius, yet at your very fingertips it was just plain balmy. This says a great deal for moist grass cuttings as an insulator.

The maximum temperature we recorded was 1,040 c. However, we suspect that we had not hit the real hotspot. We could see that the rear of the kiln would have got much hotter, and we felt that a higher temperature had been reached where our instrument was earlier. It is needle in haystack stuff.



As the grassy cap burned progressively away, the pottery became exposed. We could see that the fire had crept to the top of the clamp, where it could feed on the oxygen that it could pull in easily. As a result, the pottery at the top actually fired first! Then the fire began to burn downward and also creep towards the back of the kiln in an anti clockwise direction. The place where we originally placed the pyrometer on the left of the vent was still only about 100 degrees. Not nearly enough to fire a pot. The secret with these kilns, as we have learned, is to just leave well alone.



It would have been tempting to remove Antje's pot at the top. It would have survived as it had cooled considerably. We did not do this. Again, experience warned us that it could spoil the integrity of the burn. Removal may well have caused a rush of heat or a sudden cooling in the kiln. This is not good for pots. Patience was the order of the day. We began the firing at eleven a.m., and by around five-thirty p.m. much of the fuel had been consumed and many of the pots were exposed to the elements. There was nothing further we could do, so we all went home.

The next morning we arrived back at around ten-thirty a.m. The pots lay in still hot ashes, but it was okay to begin removing them. It is always sad to see a broken or blown up pot in a kiln. We soon realized that David and Chris's French clay pots had suffered. Several of un-grogged pieces had blown up a bit, or spalled, as they say. However, their grogged clay urns had survived, thus showing the efficacy of crushed up old pots mixed into new, fine clay.

The Skaill Bay pottery had all remained intact. It also felt harder and better fired than we had previously experienced. This MUST have been the Calcium! On checking the smaller vessels of fine clay from the South End of Skaill, these were nice and fine, but still soft. We had not added shell sand to that clay, confirming the effect of calcium as a flux in a very obvious way.

Meg's Iron Age pots using Caithness clay all survived well. It is stony clay with natural temper. Her pots were quite hard and were obviously well fired without Calcium. However, I feel that they would have been better with some.

Another very interesting thing to me is that the French clay, which is an absolutely natural product, dug by myself and used previously by many a prehistoric and Roman potter, was over-fired! The temperature was very nearly too hot for it and there are signs of it beginning to melt.

These early results confirm my original thoughts that Orkney clay, particularly from the West Mainland, requires a high temperature to fire it and therefore they MUST have used KILNS.

We have also shown that evidence of these kilns can be quite ephemeral. Only The Knowes of Trotty Kiln in Harray, oddly within sight of Fursbreck Pottery, has been recognised as a kiln site. Others argue this

point still, some suggesting that it was a bread oven. However, you do not require nearly eleven hundred degrees centigrade to bake a loaf.

Where do we go from here? The clay became shorter and even more non-plastic on the addition of the fine shell sand. One solution to this problem may be to add animal or bird fat to the clay. Fats from some birds, for example geese, are quite oily. Olive oil was added to clay in Italy by Leonardo to improve the sculpting quality of it. It also sets hard like putty when it evaporates and is strong. We know there were oil or fat based paints at The Ness of Brodgar, so this knowledge was freely available. Gesso has fat scraped from rabbit skins to help with modelling and hardening too. Perhaps substances akin to these may allow thinner, finer pots, which Orkney Potters were able to make at that time, even with the worst clay in the UK.

We also have to look more closely at the slips. Those that we have made to date can tend to rub off and powder after firing. Do we need to add super-fine calcium to them? Was Manganese and Hematite from Hoy used in the slips? The iron of Hematite would sinter at a low temperature and harden the slip. A new discovery at The Ness is a piece of decorated Grooved Ware with a very rare white slip on it. The white clay could have come from Orphir, but the slight gloss coming from it indicates to me something further. Coincidentally a small piece of Galena, or Lead Ore came up on the same day. Galena powder in white clay can give a gloss and a yellowish sheen, which this shard seems to have.

We have to look at the En-Barbotine slip decorated shards found a few years ago now. This method of piping colloidal slip onto a pot's surface for decoration wasn't employed elsewhere for another 1,500 years or so. Why were the Orkney Potters ***SO*** far advanced? I am sure it was because our clay here is so terribly poor. The potters had to really wrack their brains to come up with successful solutions to the problems of making and decorating pots with such poor clay. Potters elsewhere did not experience such severe problems, so their researches would not have had to be so extensive. I believe that it is the hardship and disadvantages of the Orkney clay here that created the circumstances that forced our potters to excel.

Orcadian potters were scientists too in their way, I feel. It seems that they had the first kilns, a very early slip technology and, unique to Orkney, Applied Grooved Ware. This, I truly believe, knocks all the other contemporary potters of Britain into a cocked hat.

Grateful thanks are due to Nick Card for sight of the special Ness of Brodgar shards.

P.S. All conclusions are my own at the time of writing

Orkney Archaeology Society Upcoming Events

Date	Event	Venue	Time
Friday 9th December 2011	Archaeological round-up of 2011 and Christmas Celebration	St Magnus Centre Kirkwall	7.30pm
Tuesday 17th January 2012	Caroline Wickham-Jones "Below the Waves" Recent results of the research into the submerged landscape of Orkney	St Magnus Centre Kirkwall	7.30pm
Thursday 23rd February 2012	Prof Mark Edmonds "Afterlives of Axes"	St Magnus Centre Kirkwall	7.30pm
Date to be confirmed March 2012	Fieldwalking – learn how to look for artefacts Weather permitting	Numbers limited – book through Nan Tel 01856 850889	

OAS website – www.orkneycommunities.co.uk/OAS

Usual admission prices for regular walks & talks are:

£2 for OAS members

£3 for non-members

Everyone is welcome at all our events. After talks, we usually have tea & coffee and a chance to chat. We look forward to seeing you soon.

All events will be advertised in local press and on the website – look out for further details.

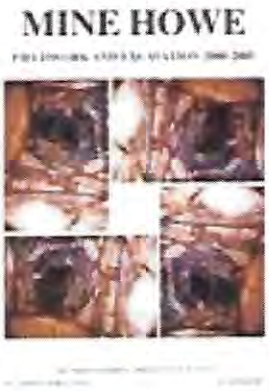
We email details of events to those of you for whom we have email addresses. If you do not currently receive email notification of events and would like to, please email oas@orkneycommunities.co.uk and we will add you to the list.

Other events

On Thursday 24th November, Nick Card will be giving a talk entitled 'The Ness of Brodgar - A Millennium of Prehistory' to the Orkney Heritage Society AGM at 7.30pm at Orkney College. Admission free, all welcome.

If you have anything you would like us to put into the next Newsletter, or any comments, please contact:
The Newsletter Editor, PO Box 6213, Kirkwall, Orkney, KW15 1YD

Orkney Archaeology Society Publications Available



Mine Howe: Fieldwork and excavation 2000-2005

FOAT Occasional Publication 1, December 2005, compiled by Dr Stephen Harrison

This publication covers the investigation of Mine Howe from the original discovery in 1946 through the rediscovery in 1999 and the subsequent archaeological work, providing a comprehensive summary of the work so far. Also included is a dig diary from one of the participants and a further reading list.

Published by The Friends of Orkney Archaeological Trust, now called Orkney Archaeology Society.

£5.95, postage free to Orkney Archaeology Society members, £1 for non-members

The Old Roman Plough

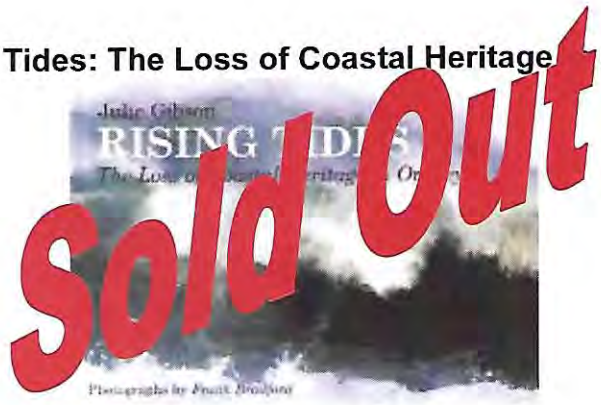
A facsimile reproduction of a lecture given by George Marwick in October 1903 on the traditional ploughs used in Orkney.

Published by Orkney Archaeological Trust.

£2.50, postage free to Orkney Archaeology Society members, £1 for non-members

The order form for these publications and other items available for sale is enclosed.

Rising Tides: The Loss of Coastal Heritage in Orkney



We are hoping to produce a reprint of Rising Tides during 2012.