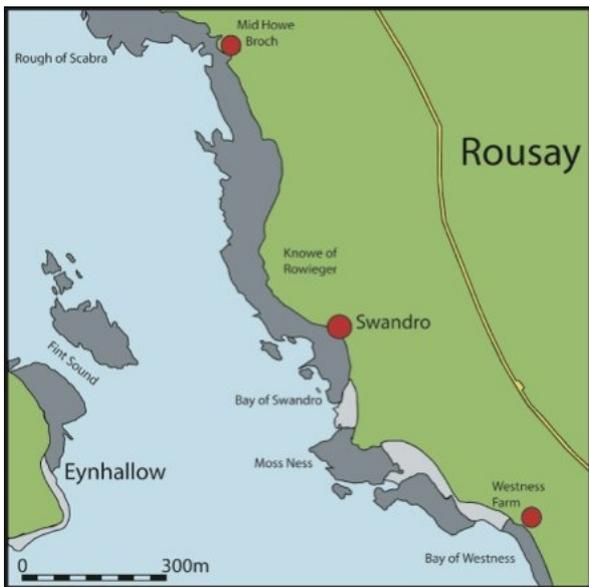


Swandro 2016

Data Structure Report

Introduction

The Knowe of Swandro on the Orcadian Island of Rousay, (HY 3753 2966), consists of an eroding mound with obvious stone inclusions, which is situated immediately behind a boulder beach on the Bay of Swandro. On its eastern flank is the Norse settlement site known as Westness, excavated by the Norwegian archaeologist Sigrid Kaland in the 1970's (Kaland 1993). Described by RCAHMS in 1946 as 'the much disturbed remains of



Location of Swandro

a stony mound', this knowe has generally been considered to be the remains of an Iron Age broch. At the top of the mound a crescent-shaped ridge facing towards the sea, which looked like the disturbed remains of a curving wall, surrounded a level area. RCAHMS records suggest it has been investigated at some point in the past but there is no published record. The mound may have been disturbed during Radford's investigation of the nearby Westness Norse houses in the 1960's (Radford 1962, Wilson and Hurst 1965). Assessment over several seasons has shown that this mound is actually the remains of a Neolithic chambered cairn, with a buildup of subsequent Iron Age settlement (DES 2010, 2011, 2012, 2013, 2014, 2015)



The Knowe of Swandro looking to the East

A number of coastal erosion sites on the island of Rousay were selected for investigation as part of the *Gateway to the Atlantic Project* a long term project involving archaeologists from several institutions in the UK and USA. This over-arching project focused on Rousay, Orkney, examines sites with long time sequences and their interaction with both the land and sea. Due to the vulnerability of the remains at Swandro, work so far has concentrated on the investigation of this site. This research builds on the site and landscape studies undertaken at Tofts Ness, Sanday (1984-8 by Dockrill (Dockrill *et al* 2007), Old Scatness and

Jarlshof (1995-2006) in Shetland by Dockrill & Bond (Dockrill *et al* 2015, Dockrill *et al* 2010, Dockrill & Bond 2009) and the Viking Unst (2006-8) project by Bond (Bond & Dockrill 2013, 2016).

The key research questions for the project are:

- 1. What is the extent of the Iron Age settlement and how does this change over time?** The understanding of the Iron Age settlement sequence in cultural and economic terms by the excavation and sampling of these truncated archaeological surfaces will provide a current and informed understanding of people living on Rousay in the Iron Age and how this changes over time.
- 2. What is the stratigraphic association with the Norse settlement and what does this tell us about the nature of the Pictish/Viking cultural interface?** The taking of existing estates by Scandinavian settlers is still a contentious issue in terms of its nature and date. Only with more detailed excavation will it be possible to gain an insight into this important transition on what increasingly seems to be a vital site for this transition period (Dockrill *et al.* 2010, Bond and Dockrill 2016).
- 3. What is the potential of the Chambered Cairn in providing new data to complement the burial monuments excavated previously in Orkney?** The site has the potential to establish the relationship of this monument form to later Iron Age activity, a phenomenon observed at a number of sites in Orkney, as well as providing a unique opportunity to investigate the construction of the Neolithic mound, due to the erosion on the seaward side.

The investigation of this eroding site takes place within a research framework designed to answer specific research questions. The work also demonstrates the relevance of the disappearing record and has enabled a greater understanding of the nature and rate of the threat by assessing the site over a number of seasons. The long settlement history or “biography” revealed by the erosion enables the study of human behaviour in this particular place through major changes in culture, climate and environment.

Swandro is an unusual site in that although coastal erosion sites have been identified and studied on numerous occasions, the survival of deposits of this nature beneath an active boulder beach had not previously been recognised. This has implications both for future survey and for heritage management. The excavation is providing an important understanding of the erosion processes which take place on a beach such as this and the nature of the archaeological survival and is enabling the development of appropriate recording methods. This work has wider implications as it will help to inform the future management of other such sites.

Summary of previous work and the 2016 season

Evaluative excavation continued upon the eroding beach at Swandro, Rousay, Orkney for a four week season in July 2016. The archaeology is suffering from erosion from the sea which has cut into a settlement mound (Iron Age to Norse) which developed upon the eastern flank of a Neolithic Chambered Cairn. Previous seasons have established the presence of a structural sequence, which has been exposed by the sea cutting terraces

into the archaeological deposits. This erosion has provided an opportunity to examine and sample the archaeological sequence. Unfortunately the seaward deposits surviving at the lowest terrace have suffered from extensive erosion with much of the midden material being especially susceptible to the action of the sea. Larger structural stones demonstrate smoothing by the movement of water and beach material. Work on the beach exposing the chambered cairn casement walling in 2012 and 2015 demonstrated that the outer casement wall had been greatly affected by erosion despite careful reconsolidation of the beach in 2012. Much of the outer casement wall had been removed or smoothed by the sea with much of the core having been washed out.

Sequences butting the Neolithic Cairn - Outer Casement Wall

The curving outer casement wall of the Neolithic cairn [105] is butted by a single faced alignment of stones [1117] which runs from the cairn in an easterly direction, suggestive of a retaining wall. This was first observed in the 2012 season and in 2015, when a much greater degree of erosion was noted in this area. The investigation of this feature and the presence of any surviving ground surface was seen as being a key target of the 2016 excavations, before erosion completely destroyed any evidence. Excavation revealed a number of large water worn boulders [3309], [3310] and [3311] to the south (seaward) of [1117]. These boulders are interpreted as redeposited 'storm thrown' rocks. These boulders sealed a dark yellow sand [3312] and a black compacted sand [3326] containing what appeared to be decayed seaweed. There appeared to be no surviving anthropogenic deposits or an *in situ* old ground surface seaward of [1117], all contemporary deposits seemingly having been scoured away. Despite this the remains of a reddish ashy midden deposit [3330] was found to be sealed by [1117]; the overlying wall had protected this deposit from the scouring effect of the sea.

To the north (landward side) of the single faced wall [1117] an attempt was made to investigate the next erosion 'terrace' where there is a sequence of material overlying and possibly contained by [1117] and butting the Neolithic casement wall [105]. Large platy stones [117] butting the outer casement wall of the Neolithic cairn [105] were revealed in 2011. This area had not been defined since that initial exposure. The angular platy rubble [117] was found to seal spreads of thin midden layers; a dark firm clay silt with charcoal flecking [3332], and a dark brown spread containing shell [3348] forming a discrete layer butting [105]. This sealed a more extensive deposit [3349]. Excavation on these terrace deposits ceased at this point for 2016. No evidence pointing to the date of these deposits was found during excavation; sample processing in post excavation may help with their interpretation.



The Neolithic Casement Wall [105] and secondary wall [1117]

The passageway to the Neolithic Cairn

An entrance passage apparently leading into the chambered cairn was defined in 2015, with the definition of outer wall face [105] upon the uppermost (landward) erosion terrace. The northern (landward) wall of the passage was formed by [1020]. The opposing southern (seaward) wall of the passage [3283] survived at a slightly lower level due to erosion. Both walls are single faced and the upper infill of the passage, [3223] a layer of small angular stone (shillet) containing some large fish and mammal bone, appeared to be late in date. This was confirmed by the finding of a coin; a styca of Eanred (King of Northumbria 810-840 AD), together with other copper alloy fragments and the disarticulated skeleton of a cat. This disturbance and infilling may represent Viking Age activity; Gareth Williams (pers. comm.) has suggested that this coin would have been in circulation in the mid-ninth century and is more likely to have been associated with Viking than Northumbrian activity.

Work in 2016 continued to define the top of the passage and to assess the nature of the later activity in this area. The passage, represented by the parallel wall faces [1020] and [3283], widens into a chamber/passage represented to the north (landward side) by a single faced wall formed by contexts [1025] and [3351]. Context [3351] is secondary in the construction sequence as it butts the orthostat. It is interesting to note that [1020] and [3283] are parallel and although surviving at two different levels appear to be associated with each other. The step widening the passage from [1025] to [1025] again appears to form a contemporary and integral constructional element. Context [3351] however is not

parallel having a slightly different alignment to [1025]. An orthostat [3358] lines an inward faced turn [3295] which appears to be concentric and integral to [105].

The area contained in this wider zone formed by these two wall elements ([1025] and [3351]) contained rubble formed by large slabs dipping to the centre of the passage. These flags were sealed by a shillet layer that appeared to be a continuation of [3223].

The further excavation of [3223] between [1020] and [3283] revealed more faunal remains including more cat bones, suggesting more than one animal, and the remains of several sheep displaying chop marks which suggested the use of a large metal blade. This deposit sealed large angular rubble [3355]. This angular rubble was also sealed by a layer of angular flags [3357] in the trench edge. The large angular rubble [3355] (sealed by this flag



The passage to the Chambered Cairn was formed by [1020 and the seaward wall of the passage [3283.]

layer and [3233]) seems to represent the rubble infill of the passage.

The alignment of the southern wall of the passage [3283] was continued beyond the outer wall [105] by another wall face [3286] backed on the southern (seaward side) by context [1151]. This double faced wall seems to be an addition as it butts the external casement wall face [105]. The area to the north of [3286] contained rubble formed by large slabs mainly in a near horizontal position although some stones show some dipping. The alignment of [1151] is continued by wall element [051]; this is separated from [1151] by a possible entrance represented by orthostats [3262] and [3158]. The alignment of [051] is continued further eastward by the orthostats [055]. These features seem to post date the

cairn but may make use of the entrance passage and may account for the late infill of the passage itself.

Structure 1: A truncated Mid Iron Age Roundhouse

This roundhouse is represented by just one segment of its circumferential cells, the interior and southern portion having been lost to the sea. The circumference of the building is represented by orthostats [013], [012], The northern (landward) cell is defined by orthostats forming the radial sides [031] and [025], The inner kerb of the paved cell was formed by a single long orthostat [024] and [018]. This cell contained large rubble [019], [3085] and midden [0125] sealing the paved floor of the cell [3365].

The floor of the cell was formed by single flag [3365], which was made to fit the cell. Several notches had been cut into the flagstone which, it is suggested here as representing post settings (see photo below). It seems likely that if this assumption is correct, that these posts would have supported a mezzanine level around the circumference of the structure. The presence of such mezzanine circumferential structures was suggested by Middle Iron Age remains of Structures 12 and 14 at Old Scatness, Shetland (Dockrill *et al* 2015, 67-103 & 459-460).



The Paved floor [3365] of the cell and the two post settings.

To the west of this cell is a stone structure [3045], which forms a stone construct interpreted as an oven. This oven is closely paralleled to a more complete example which was excavated by the authors at Old Scatness (Structure 8) (Dockrill *et al* 2015, 83-8). The central area of the structure contained a layer of clay [081] possibly representing a floor surface. This overlaid the remains of flagging [0349]. These flags partly sealed a hearth

The flag floor represented by [3319][[080] located adjacent to the oven structure. This hearth was comprised of burnt clay and burnt stone and was sampled for an archaeomagnetic dating.

The archaeological survival below Structure 1.

The erosion terrace below the truncated remains of Structure 1 and situated east of the casement wall was investigated further in 2016 in order to sample the midden sequence. This sequence consisted of [3324] sealed by [3271], which had been identified by work on the truncated sequence in previous seasons. Context [3324] sealed a midden layer [3328] which in turn sealed midden [3329], this in turn overlaid a midden [3345]. It is hoped that samples from this sequence will provide economic and dating evidence for the early settlement pre-dating Structure 1.

Structure 2: A Late Iron Age Roundhouse

Definition of the upper eroded terrace of the beach identified the remains of what appears to be half of a circular structure, perhaps more cell-like than a roundhouse at this late structural phase. The other half of the structure runs into the un-eroded zone covered by storm beach. The building is formed by wall elements [1503] and [161] and contains an orthostatic divide with an apparent hearth in the centre represented by fire scorched stones [3053]. The eastern orthostatic division was formed by [1510] with the setting [3052] forming the western divide. Large flags [3059] formed a floor surface to the south (seaward side) and [3125] to the north. The seaward side of this structure had suffered erosion, with the sea having removed archaeological material from the southern area of the building. Despite this there is a suggestion that the building may have been entered from the south. A curved alignment of orthostats formed by [159], [069], and [061] suggested an earlier form to the structure.

In 2016 investigation indicated that the orthostatic divide and flagging either side together with the western wall [161], were clearly later elements belonging to a late modification to the building and these were removed to reveal the original form represented by [1503] and the curved line of orthostats formed by [159], [069], and [061] together with a door sill (threshold stone) indicating a western entrance. The seaward section demonstrated a greater degree of erosion and did not survive, and the suggestion of a southern entrance to the later building now seems less likely. Beyond the threshold stone the outer orthostatic alignment continues with another orthostat [3361] which enters the section on the landward side. A floor level formed by large flags [3319] was contained by [1503] and the curved orthostatic setting. The larger roundhouse form created by these features contained evidence of radial divisions. As the building is entered via the threshold stone, a radial orthostat [3362] blocks passage to the left (north/landward side) forcing entry to the centre or to the right. This phenomenon of barring entry to the left has been observed within other Iron Age roundhouse structures in the Northern Isles (eg. Structures 12 and 14 at Old Scatness, Shetland). Another radial setting was represented by [3121] on the seaward side. A hearth [3347] was found in the centre of the structure and enters the landward section.

The flag floor represented by [3319] and the hearth are clearly part of a sequence of floors representing several modifications to the building as the remains of part of a rectangular stone tank represented by orthostatic settings [3363] could be clearly seen under the flags [3319].



Structure 2 with the flag floor represented by [3319]].

Structure 3

Structure 3 is a cellular structure, partly under the northern landward section with a characteristic use of stone within the build that appears to be Pictish in nature. This building consists of the following constructional elements; curved wall [1534] conjoining a corridor formed by walling [3200], orthostat [3202], and a triangular pier formed by [3195] representing the western wall of the cell, [3215] forming the entrance to the cell opposite [3200] and [3199] the corridor opposite to the orthostat [3202]. The southern wall, which is on the beach proper, was identified first and excavated and revealed evidence of an intramural recess or 'cupboard', adjacent to a complete *in situ* cupboard. The infilling of this initial excavation of the structure revealed the following stratigraphic sequence; rubble [3031], sealing dark midden [3034] which in turn sealed a layer of large stones thought possibly to be structural [3035].

In 2014 the excavation area was extended in order to have a fuller understanding of the structure. The excavation of the stratigraphic sequence in this extended area revealed some disturbance to the upper fill. This was represented by [3138] and [3197], with the latter being the bottom of a kelp burning hearth. Under this was a sequence of rubble

infilling with some ashy middens interleaved consisting (in stratigraphic order) of [3196], [3214], [3221], [3242], [3242] and a dark ash midden layer [3275]. This in turn sealed a layer of horizontal stones (possibly purposefully laid) which sealed a dark midden [3346]. The contexts in this lower sequence were found to contain evidence of metal working with finds of slag, possible crucibles and mould fragments together with fragments of copper alloy. An orthostat [3228] parallel to [3198] divided the interior of the cell. In the western zone defined by this orthostat the following sequence was excavated, comprising of ash based middens with significantly less rubble [3196], [3229], [3248], ash [3248], black ash [3269] and [3270].



Structure 3, showing the location of the main cell, entrance and passage way.

The passage formed by the orthostat [3202] and wall face [3199] consisted of a sequence of small angular rubble [3133], angular rubble tipped at an angle [3201] and dark ash based layers [3217] and [3244] sealing possible paving [3264]. A series of steps [3265] was found in 2016 to lead from the north (landward) section into the building. The passage way between wall elements [3200] and [3219] demonstrated wear to the stones consistent with rubbing caused by the passage of the past occupants. This phenomenon has been observed by the excavators where there is a pinch point of



The Steps leading down into the passage of Structure 3

passage in other dry stone structures, notably the Old Scatness aisled roundhouse Structure 12 (Dockrill et al. 2015). The presence of a threshold stone in the narrow passage created by these two walls (identified at the end of the 2016 season) together with a bolt hole created in the build of [3219] clearly indicates that there would have been a physical door dividing the passage and the central area of the structure.



The doorway separating the passage from the main cell of Structure

Structure 4

Structure 4 was the designation given in the 2016 season to what, through the build of the stonework together with both its stratigraphic situation in the site sequence and spatial location on the upper erosion terrace appears to be a Pictish construction. The structure is only partly revealed on the erosion terrace with the rest being under the northern or landward section. The structure consists of the followings elements: single faced walling [3027], orthostats [055], [054], double faced wall [051] and [3098]. Wall element context [3927] is formed by orthostats overlain by single faced walling. The two orthostats ([055] and [054]) seem to have once been a contemporary part of this walling element having lost the faced walling in antiquity. This style of construction, using orthostats and a single faced wall composed of small tabular stones, is consistent with architecture of the Pictish period as evidenced by Structure 5 excavated by the authors at Old Scatness, Shetland (Dockrill et al. 2010).

The building has elements which might belong to an earlier form, in particular [051]. This wall is not quite in alignment with [1151], the wall extending from the seaward side of the



The use of orthostats as the base course for the wall of the Pictish Structure 4

passage of the chambered cairn, however the stonework is very 'tight' and regular and is very different to the other Iron Age wall elements. It is possible that this is a reused Neolithic constructional element. Damage, due to erosion between these two main wall elements had removed the backing of the wall. A large flag [3263] bounded by orthostats [[3158] and [3262] separates [051] and [1151] at this point. This is butted by [3098]. The presence of a hearth bottom [3222] sealing [3098] and the presence of a series of parallel set orthostats [3333] and [3335] displaying signs of intense burning suggest the possible

presence of the base of a corn dryer flue and hearth bottom set into this end wall. At the south eastern end of the structure a sequence of flagging and midden comprising of a large flag [3028], sealing a layer of dispersed flags [3029], [3238], [3254] sealed a well laid flag floor [3256] which appears to be contemporary with floor flagging [3323] at the north western end, sealed by midden [3322], which in turn was sealed by [3258].



The top of the tabular set stones / orthostats [3333] and [3335] displaying signs of intense burning suggestive for the presence of a wall constructed hearth possibly representing the base of a corn dryer flue and hearth.

Discussion

The 2016 excavation season has helped in providing a clearer understanding of the surviving archaeology sequence. The work has also helped to inform on the both the extent of erosion and the process that are occurring. These observations are only possible with the continued evaluative work over a number of seasons, as this enables a degree of comparative observations that could not be achieved in a longer single excavation season.

The Neolithic Chambered Cairn and associated archaeology.

The eroding element of the Chambered Cairn continues to suffer badly. The seaward

casement walling in particular is subject to erosion from tidal movement where the effects of scouring and suction of softer archaeological deposits occurs, leaving *in situ* only the more substantial stone elements. When a comparison is made between the survival of remains between 2012 and 2015 it can be seen that even a number of the large facing stones have been lost to the sea. Much of the core material retained by the lower casement wall faces has also been lost.

Work in 2016 targeted the south eastern outer casement face and its relationship with a single faced wall that butts the outer circumference wall [105] of the Chambered Cairn. Excavation revealed that the sea had scoured out all of the original deposits that would have been associated with these structural features. The area to the south east (seaward) side had been infilled by mixed redeposited beach material. A number of redeposited large boulders were in this area. These appear to be embedded, having been thrown down by the sea with some force presumably due to the sea's high energy during storm events. It was hoped that an old (Neolithic) ground surface might have survived but the scouring effect of the sea had removed all evidence of this. The secondary wall element [1117] butting the casement wall had some evidence for an earlier deposit, pre dating the wall's construction. This however seems to be secondary to the cairn's casement walling.

The area on the next erosion terrace above and contained by this secondary wall element [1117] had also been badly scoured by the tidal effects of the sea even though the deposits had been covered by plastic and overlain with a substantial backfill layer of beach pebbles. There had been a loss of finer particles from the deposits and in places this activity had washed in beach sand. Extreme care was needed in sampling the remaining deposits to avoid any contamination due to marine movement.

This situation of the removal of finer deposits within the casement walling of the cairn and the lower middens seems to be further exacerbated by this zone being on a spring line, with fresh water also removing material at the interface of the water table. The work in 2016 demonstrated the importance and fragility of these finite deposits and their need to be investigated further before these natural events completely destroy the surviving evidence.

The passage of the chambered cairn appears to have been disturbed in the Later Iron Age or the Viking period. The presence of the early ninth century 'Eanred' coin and the butchery methods utilising a large blade in the upper fill supports the possibility that the infill might be associated with Viking re-organisation of the settlement prior to the later construction of the surviving Norse long houses. The top of a layer of larger angular rubble [3255] was exposed at the end of the 2016 season. This needs to be investigated further to see if this predates this disturbance. The nature of the short passage and slightly larger cell which this opens out to again requires further investigation in order to clarify the construction of this entrance. There are also questions about other wall elements [051] which is in build and appearance suggestive of a different style of dry stone walling and in contrast to the other Iron Age walls. It is clear that [051] predates other structural elements of Structure 4 and may represent secondary Neolithic walling associated with the chambered cairn. Here again further work is required in order to understand more fully the stratigraphic sequence.

The Neolithic Chambered Cairn is an extremely significant monument. Although there appears to have been some disturbance in antiquity the monument has largely escaped the damage and disturbance of antiquarian and later investigations. The monument is of particular importance as its chamber appears so far to have escaped significant damage by the sea. However, the excavation has demonstrated the sites vulnerability and that this

site and the associated burial conditions are extremely valuable. The nature of the form of the cairn is intriguing; the circular nature of the casement wall, the size and structure of the monument might be reflective of a form of Maeshowe type cairn. Examination of other excavated examples demonstrates some similarities to the Bookan Chambered cairn. Only further work will determine how this cairn fits into the Orcadian typological sequence. An analysis using new visualisation recording technique of the structure, infill and deposits together with questions of recent research such as Lawrence's (2012) doctoral thesis on the Isbister osteological assemblage heighten the importance of this component of the site.



Coin of EANRED found in the upper infill of the passage way of the Chambered cairn.

Structure 1

Although the majority of this building has been completely destroyed by the sea, excavation of the upper radial cell in 2016 was extremely illuminating. The substantial flag that covered the entire floor of the cell suggests a degree of monumentality that indicates that this building was of some importance. The carefully cut notches, which we interpret as post settings, add to this perception. The presence of an upper level even if at a partial mezzanine circumferential zone is of importance and echoes the aisled roundhouse at Jarlshof and the Old Scatness roundhouses (represented by Structures 12 & 14; Dockrill

et al. 2015). The presence of a substantial stone-constructed oven and nearby substantial hearth suggests that this would have been a large and impressive roundhouse. It is unclear at present how this site relates to contemporary deposits on the upper terraces. It is clear that many of the later Iron Age structures have earlier underlying structural elements. To understand this Middle Iron Age phase the complete excavation and removal of the eroding Later Iron Age structures and deposits would be required. This surviving sequence presents a unique opportunity to investigate an Orcadian structural sequence post Old Scatness. Previous excavations in Orkney have failed to provide a full structural understanding that might be tied into the Old Scatness structural sequence. This unites the development of building forms from the middle of the Iron Age to Late Iron Age in both Shetland and the Western Isles. Swandro provides post Old Scatness both the opportunity and more importantly on the observations so far the potential to tie in the Orcadian sequence of building forms where there is a greater use of orthostats in the lower levels of building construction.

Structure 2

This building ended its life as a cellular structure, re-using earlier structural elements. It is clear that the latest phase is constructed within an earlier roundhouse form. The evidence suggests that this in turn had been built within a slightly larger earlier structure. This appears to have been circular and contains some evidence for radial divisions.

The evidence for a number of flagged surfaces again indicates a number of refurbishment events. Such longevity is not unusual in the Northern Isles. For example at Old Scatness Structure 11 provided a sequence of dates that indicated a history of use for a roundhouse form in excess of 700 years, while the dominance of the standing broch although modified internally (with the later construction of a wheelhouse which was then superseded by a Pictish cellular structure) still formed a focal standing monument for a millennium, being eventually demolished during a major alteration to the site in the Viking period. The understanding of these long-lived and well preserved structural sequences on the upper erosion terraces at Swandro offers an important opportunity to gain a greater understanding of the development of the site as well as the greater understanding of Orcadian structural forms outlined above with the discussion of Swandro Structure 1.

Structure 2 has some similarities in size to the smaller of the two roundhouse forms excavated in the 1980's at Pool, Sanday (Hunter *et al.* 2007). This particular building had a number of floor layers and appeared to have been used as a cellar or cold store for a Viking longhouse.

Structure 3

Structure 3 echoes Structure 2 with a series of modifications being suggested by the structural remains. The presence of a late ash-based floor might be suggested by the artefact distribution, but subsequent subsidence of this deposit with material infilling underlying vacuous spaces makes full interpretation difficult and it is hoped that the future planned spatial analysis will help in interpretation. There appears to be a difference in the deposits within the passage and the north western side of the orthostat [3228]. The occurrence of a significant number of artefacts associated with metal working (both Iron and copper alloy) are of particular interest. This includes hammer scale indicative of

forging iron and a large quantity of spheroidal slag who McDonnell has suggested represents fire welding indicative of skilled workmanship (McDonnell pers. comm . May 2017 on survey of the metallurgical evidence). The finding of crucible fragments from large and small crucibles and a mould fragment suggest that this is a high status site in the Late Iron Age. Such a Pictish estate ties into the developing pattern of Viking estate taking (Bond and Dockrill 2016, Bond forthcoming).



Spheroidal slag produced by fire welding indicating evidence of sophisticated iron working.

Structure 4

The structural remains designated as Structure 4 comprises of part of a Late Iron Age building, with the majority being on the landward side of the straightened beach section. The stone work seen in [3027], consisting of small tightly packed stone constructed on top of orthostats, is a technique of construction seen in a number of Pictish dry stone walled buildings. There are other structural elements such as the double-faced wall [051], which appear to be reused elements of earlier structural forms. The regular dressed tabular stone used in the wall element appears to be truncated at both ends by later features. The regular tightly laid form of this drystone work seems to contrast to the other structural elements belonging to the Iron Age structures at Swandro. This build quality does have some similarity, in stone shape and size together with the way in which the stone is laid, with some Neolithic dry stone work such as that being excavated currently at the Ness of Brodgar. This wall element certainly pre-dates other structural elements but unfortunately has as yet no directly associated dating evidence. There is a near alignment to the

entrance passage and further excavation might provide clarity to the earlier structure that this wall element belongs to.

The presence and possible interpretation of the hearth bottom and burnt orthostats as a corn dryer is worth considering. Unfortunately, the survival is not as good as that of the Iron Age corn dryer kiln that survived in the later usage of Structure 21 at Old Scatness in Shetland. The hearth bottom was sampled for flotation but much of the structure had been destroyed in antiquity. The flagged surface within the buildings may have been used in crop processing and again flotation samples may help to elucidate the usage of this structure.

Summary

The short 2016 excavation season has continued the archaeological evaluation of this multiperiod site and has provided greater understanding of the rate of erosion, vulnerability and the nature of the marine erosion. The archaeological evaluation indicates that this site is both finite and on the extent evidence on the wave cut terraces is diminishing fast. The archaeological survival, although compromised by further erosion events, demonstrates a structural and depositional sequence that is able to provide high quality data and can contribute to a greater understanding of the Neolithic, Iron Age and Viking periods.

References

- Bond, J.M. and Dockrill, S.J. 2013. Excavations at Upper House, Underhoull. In Turner, V.E., Bond, J.M. and Larson, A.-C. (eds.). *Viking Unst Excavation and Survey in Northern Shetland 2006-2010*. Lerwick: Shetland Heritage Publications. 156-165
- Bond J M and Dockrill S J 2016. Viking settlement and Pictish estates: new evidence from Orkney and Shetland. In Turner, V. E., Owen, O. A and Waugh, D. J. (eds.) *Shetland and the Viking World: Proceedings of the Seventeenth Viking Congress, Lerwick*. Lerwick: Shetland Heritage Publications.
- Dockrill, S.J., Bond, J.M., Turner, V.E., Brown, L.D., Bashford, D.J, Cussans, J.E. and Nicholson, R.A. 2015. *Excavations at Old Scatness, Shetland Volume 2: The Iron Age Settlement*. Lerwick: Shetland Heritage Publications.
- Dockrill, S.J., Bond, J.M., Turner, V.E., Brown, L.D., Bashford, D.J, Cussans, J.E. and Nicholson, R.A. 2010. *Excavations at Old Scatness, Shetland Volume 1: The Pictish Village and Viking Settlement*. Lerwick: Shetland Heritage Publications.
- Dockrill, S.J. and Bond, J.M. 2009. Sustainability and Resilience in Prehistoric North Atlantic Britain: The Importance of a Mixed Palaeoeconomic System. *Journal of the North Atlantic* 2(1): 33-50
- Dockrill, S. J., J. M. Bond, R. Nicholson & A. Smith 2007. *Tofts Ness: An island landscape through 3000 years of Prehistory Orcadian. Investigations on Sanday, Orkney Vol 2* Edinburgh: Historic Scotland
- Hunter J R with Bond J M and Smith A N 2007. *Investigations on Sanday, Orkney Vol 1. Pool*. Kirkwall: The Orcadian (Historic Scotland).
- D.M. Lawrence 2012 *Orkney's first farmers : reconstructing biographies from osteological*

analysis to gain insights into life and society in a Neolithic community on the edge of Atlantic Europe (Unpublished PhD) University of Bradford.

- Radford C A R 1962. Art and architecture: Celtic and Norse. In Wainwright F T *The Northern Isles*. Nelson, Edinburgh 163-87.
- Wilson D M and Hurst D G 1965. Medieval Britain in 1962 and 1963. *Medieval Archaeology* 8: 1964, 240
- *DES* 2010, 11, 123-4. , *DES* 2011, 12, 136-7, *DES* 2012,13, 135-136, *DES* 2013, 14, 141-2, *DES* 2014.15, 149, *DES* 2015