



**ARO10: The cliff hanging cists; Sannox  
Quarry, Isle of Arran**

By Iraia Arabaolaza

with Beverley Ballin Smith, Torben Bjarke Ballin and,  
Susan Ramsay

**ARO10: The cliff hanging cists; Sannox Quarry, Isle of Arran**

**Published by GUARD Archaeology Ltd, [www.archaeologyreportsonline.com](http://www.archaeologyreportsonline.com)**

**Editor Beverley Ballin Smith**

**Design and desktop publishing Gillian McSwan**

**Produced by GUARD Archaeology Ltd 2014.**

**ISBN: 978-0-9575435-9-1**

**ISSN: 2052-4064**

**Requests for permission to reproduce material from an ARO report should be sent to the Editor of ARO, as well as to the author, illustrator, photographer or other copyright holder. Copyright in any of the ARO Reports series rests with GUARD Archaeology Ltd and the individual authors.**

**The maps are reproduced by permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. All rights reserved. GUARD Archaeology Licence number 100050699.**

**The consent does not extend to copying for general distribution, advertising or promotional purposes, the creation of new collective works or resale.**

## Contents

Abstract	5
Introduction	5
Excavation	5
Construction of the cists	5
Interior of the cists	8
The human remains	8
Lithic analysis	9
Pottery analysis	10
Description of the vessel	10
Decoration	11
Condition and firing	11
Discussion	12
Dating	12
The vessel	12
Botanical analysis	13
Radiocarbon results	13
Discussion	13
Mortuary practice	14
Grave goods	15
The empty cist	15
Conclusion	15
Acknowledgments	16
Bibliography	16

## List of Figures

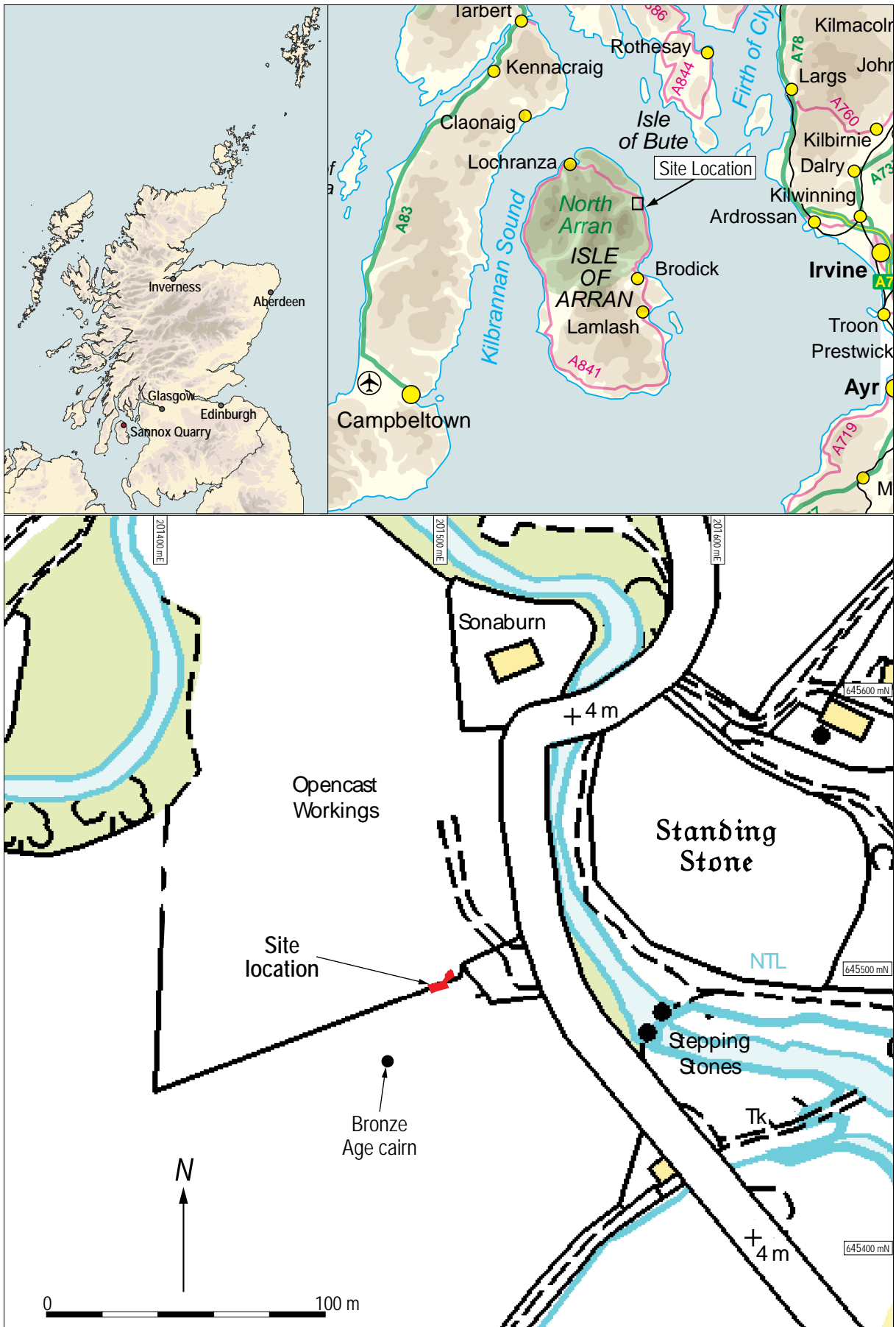
Figure 1: Site location	4
Figure 2: General plan of trench and features	6
Figure 3: Plan of Cist 1 during excavation	6
Figure 4: Plan of Cist 2 during excavation	7
Figure 5: West-facing section through Cist 1	7
Figure 6: Scale-flaked knife	10
Figure 7: The Food Vessel	11

## List of Plates

Plate 1: General picture of the site prior to archaeological work commencing	5
Plate 2: Cist 1 showing the location of the cremation and imprint of the Food Vessel (Facing south)	8
Plate 3: Light green staining of the right distal humerus	9
Plate 4: The Food Vessel after conservation	11

## List of Tables

Table 1: Fragmentation and weight of cremated bone	9
Table 2: Radiocarbon dates from Cist 1 and Cist 2	13



Contains Ordnance Survey data © Crown copyright and database right 2014.  
All rights reserved. Licence number 100050699.

Figure 1: Site location

## Abstract

*The discovery of two Bronze Age cists in a disused quarry in Sannox, Isle of Arran by the landowner and a local resident prompted their rescue excavation under the Historic Scotland's Human Remains Call-off Contract (HRCC). One of the cists contained a human cremation accompanied by a tripartite Food Vessel and scale-flaked flint knife while the second was empty. A radiocarbon date of 2154 - 2026 cal BC was obtained from the cremated bone dating it to the early Bronze Age. A charcoal fragment from the second cist was dated to 3520 - 3368 cal BC; which was thought to correspond to earlier activities in the area. This article sets out the results of the rescue excavation and its subsequent post-excavation analysis. The interpretation of the two cists is constrained by the circumstances of their discovery. They may not be contemporary or have the same function, and we do not know how many other cists have been lost to previous quarrying or remain undetected in the area. However the Food Vessel is of note because the majority of such pots have been found in eastern Scotland.*

## Introduction

An archaeological rescue excavation was undertaken by GUARD Archaeology Limited, on behalf of Historic Scotland under the terms of the Human Remains Call-off Contract (HRCC) at Sannox Quarry, Isle of Arran, North Ayrshire. The estate owner and a local resident made the initial discovery of a short cist exposed in the cliff face in the disused Sannox Quarry. A tripartite Food Vessel and scale flaked knife were collected from inside the cist to protect them from possible damage and theft. Subsequently, an archaeological rescue excavation conducted between 28 March and 5 of April 2012 revealed a cremation inside the cist, a further empty cist, and two modern features (Arabaolaza 2012).

The site lay to the north-west of Sannox Bay, Isle of Arran (NGR: NS 015 455). It is bordered by Sannox village to the south, by the A841 road, Sannox Burn and Sannox Bay to the east, by the Corrie Golf Club to the north and undulating pasture to the west. The archaeological remains were located on the edge of a disused part of the sand and gravel quarry (Figure 1). The underlying drift geology consists of glaciofluvial deposits of gravel, sand and silt, while the solid geology consists of, interbedded sandstone and

argillaceous bedrock (the Strathmore Group) ([www.bgs.ac.uk](http://www.bgs.ac.uk)).

## Excavation

On arrival at the site, general photographs were taken of all archaeological features prior to archaeological investigation work (Plate 1). The exposed sections of Cist 1 and Cist 2 revealed in the eroding face of the sand cliff, were cleaned by hand and recorded using a mechanical cherry-picker. Stone slabs identified on the slope just north of the cliff edge where Cist 2 was identified, were also cleaned to establish their size and type and to ensure that no finds were associated with them. They could have been part of other cists disturbed prior to the discovery of Cist 1 and 2, but their location prior to removal was not identified at the time of the excavation.



Plate 1: General picture of the site prior to archaeological work commencing.

A trench measuring 10.4 m east/west by 3.6 m north/south was laid out over the site (Figure 2). The trench was cleaned by a mechanical excavator fitted with a flat bladed bucket to expose the cist pits, fills and packing materials and other features observed at the cliff edge.

## Construction of the cists

Both cists proved to be similar in construction but different in size. Cist 1 was slightly larger at 1.45 m in length by 1.1 m in width (Figure 3), compared to Cist 2 which measured 0.93 m in length by in 0.76 m width (Figure 4). Both were rectangular-shaped structures, with large slabs set vertically within oval-shaped pits (context 005 Cist 1 and 011 Cist 2) but there were no base slabs to either. Additional revetting stones were placed behind the eastern and western side slabs (015) of Cist 1 and southern slab of Cist 2 (013), to reinforce the structures. However, the southern slab (015)

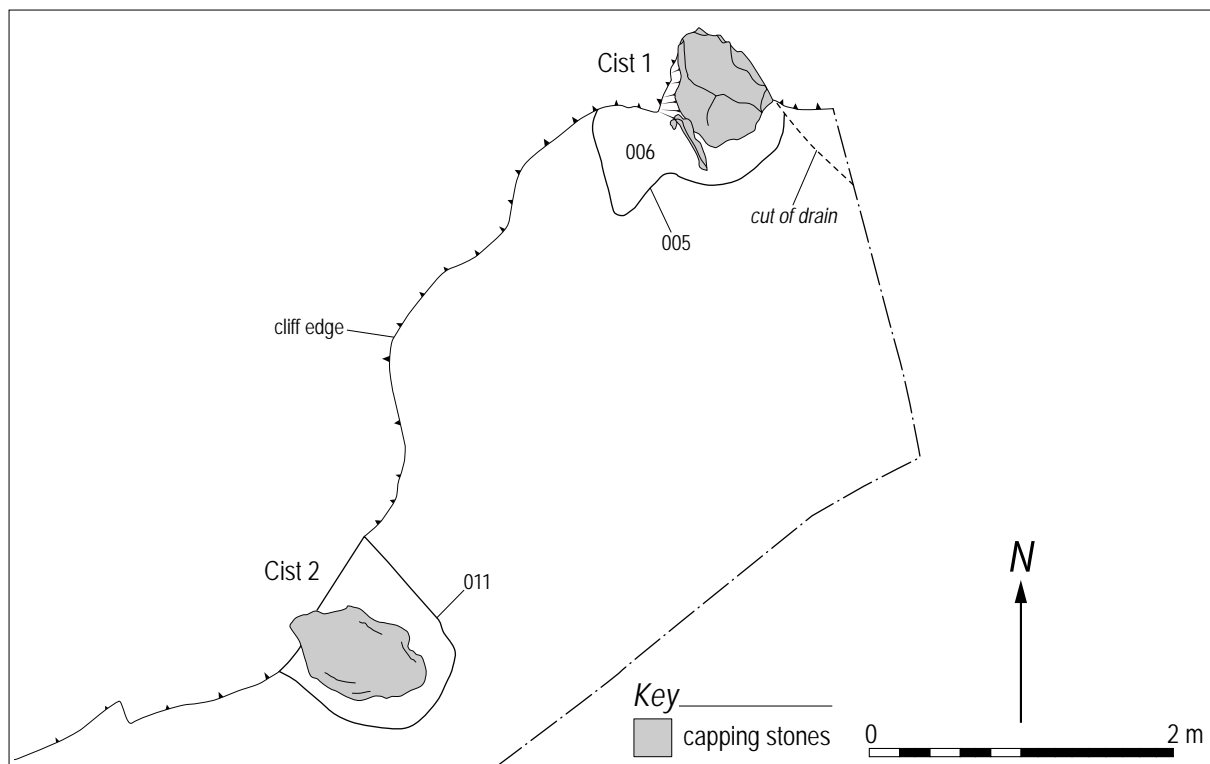


Figure 2: General plan of trench and features.

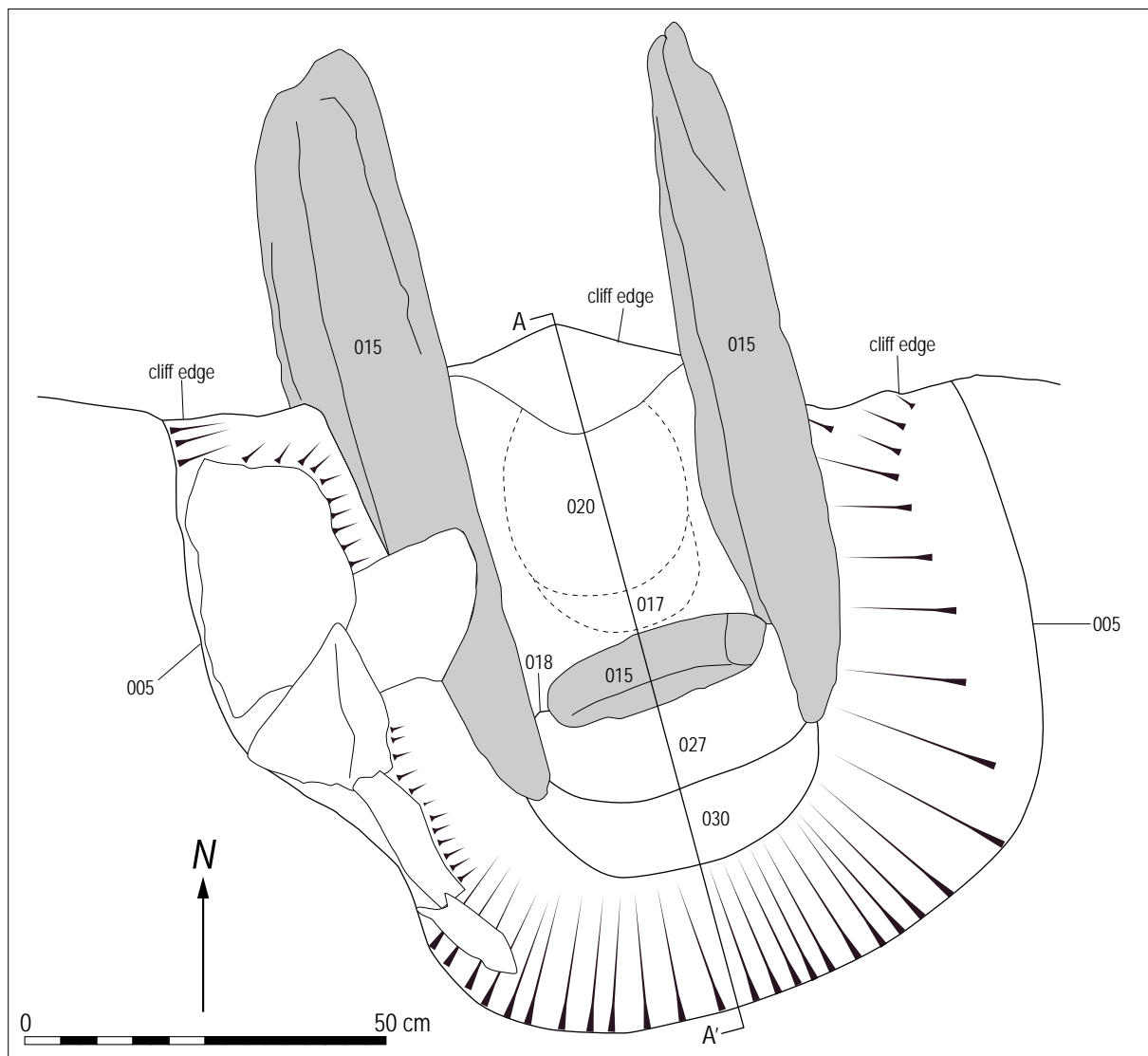


Figure 3: Plan of Cist 1 during excavation.

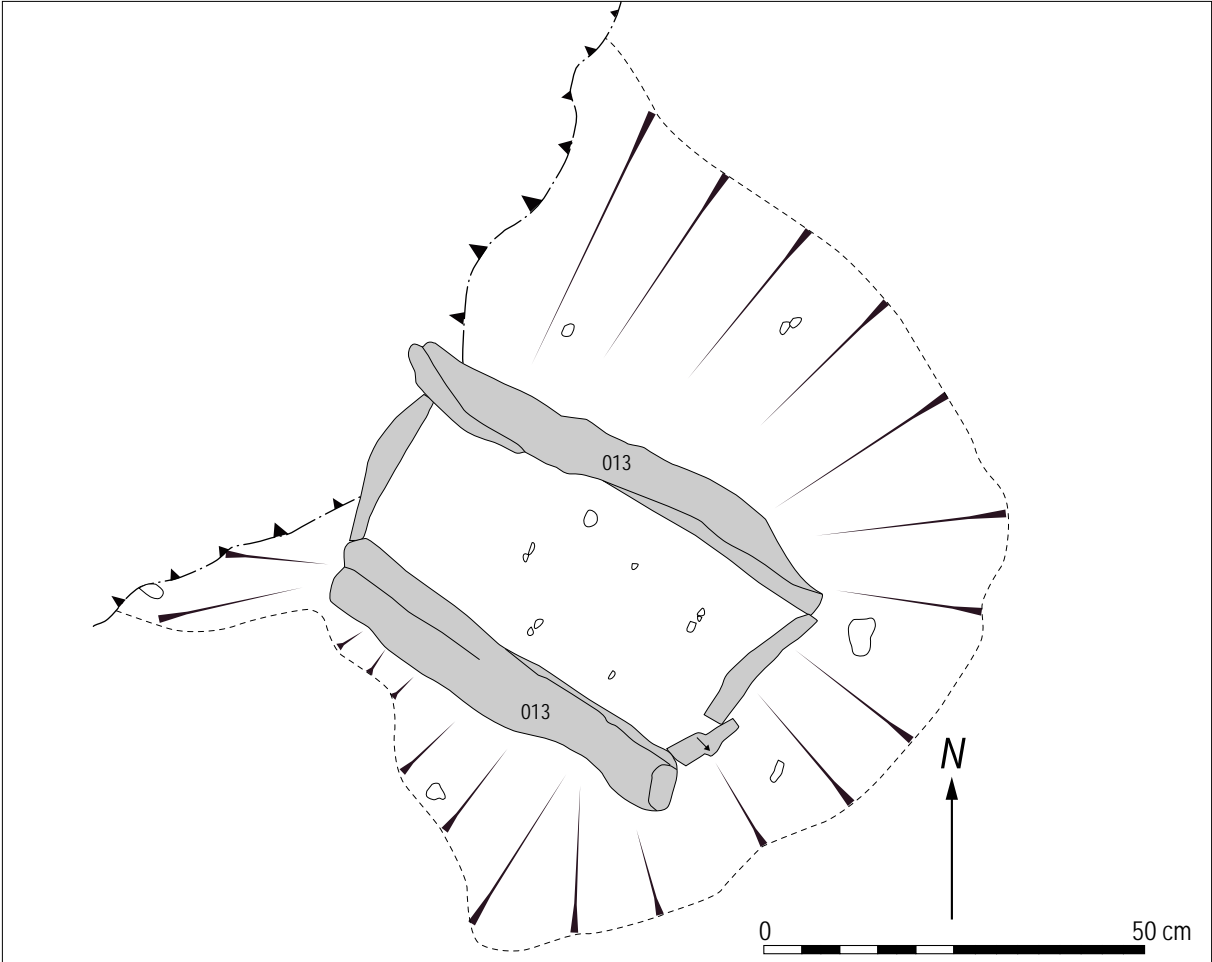


Figure 4: Plan of Cist 2 during excavation.

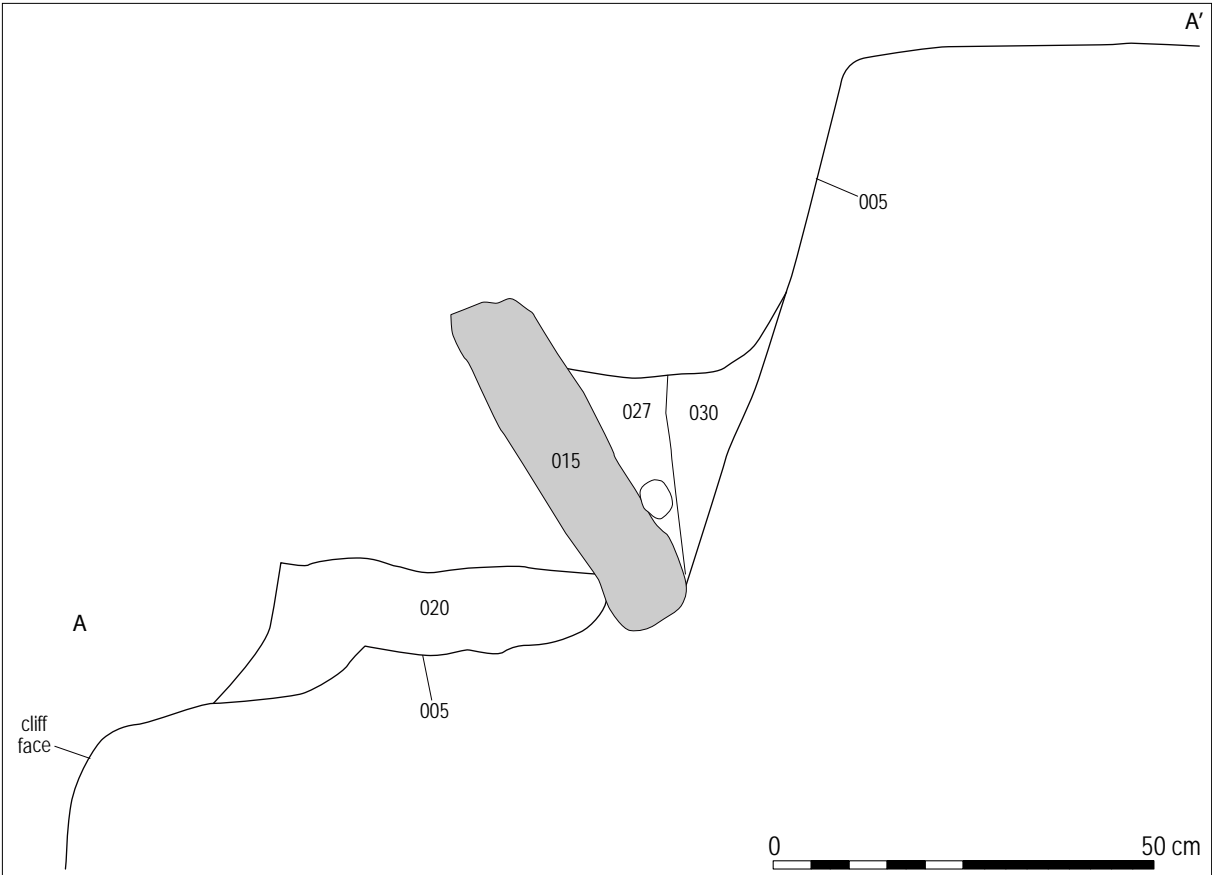


Figure 5: West-facing section through Cist 1.

of Cist 1 had fallen forward into the interior of the cist (Figure 5). The time of this collapse was not clear but the gap it left was filled in by brown silty-sand mixed with lumps of compacted dark red sand and gravel (027) and light sand (030). This deposit was overlain by the burial pit fill, which suggests that it may have been deposited when the cist was still uncovered. The burial pits had been partially filled with re-deposited soil before large capping slabs were laid over both cists to seal them.

## Interior of the cists

A cremation was placed in a scooped depression in centre of the base of Cist 1, which was a sandy subsoil deposit. This cist also contained a Food Vessel (SF 001) and a flint knife (SF 002) But as both the Food Vessel and the flint knife were removed prior to arrival of the archaeological team, their exact position and location within the cist are not known. A shallow depression in the base of the structure probably corresponds to the original location of the pot. It was also from this hollow that most of the cremated bone (context 020) was excavated. The evidence indicates that the cremation deposit lay beside and not within the vessel (Plate 2 and Figure 3). and that the artefacts and the cremated bone were buried at the same time.



Plate 2: Cist 1 showing the location of the cremation and imprint of the Food Vessel (Facing south).

The cremation was excavated by a series of horizontal spits and during this process a mid-brown silty organic deposit (017) was noted on the south side of the hollow. This sediment can be interpreted as the remains of a possible organic container (e.g. leather or wood) used to hold the cremated bone, although alternative explanations cannot be discounted. Further analysis and testing was not undertaken during the post-excavation phase, as no organic components were found during the sample processing.

Four different layers of sandy fill were recorded in Cist 2. Although no clear evidence was found that the cist had contained a burial, it remains a possibility, but any human remains did not survive. Uncertainty about the contents of Cist 2 is reinforced by the discovery in post-excavation analysis of a fragment of unburnt, modern Spruce wood from its interior sediments.

## The human remains

by Iraia Arabaolaza

All the cremated bones recovered from inside Cist 1 (context 020), as well as small finds and samples (recovered from inside the cist and from the slippage in front of it) were macroscopically analysed. The lack of difference between the preservation and condition (bone colour and texture) of the main cremation deposit (context 020), and the small finds and samples, suggest that they are all probably part of the same cremation remains.

All the bone was uniformly white and in a similar condition, which is evidence for a hot cremation pyre reaching temperatures in the order of c. 650° C to 950° C. The texture of the bones, cracks and warping suggests that the body was still fleshed when cremated, and it is likely that the cremation occurred soon after death. Based on the repetition of skeletal elements and different age categories a minimum number of one adult individual of indeterminate sex was identified in the cist.

A small rounded button-shaped dense bone was recorded in a skull fragment from context 020. It is most likely an osteoma, a form of benign tumour, which may not have caused the person any distress or symptoms during their lifetime.

The weight of the cremated bone found in the cremation deposit, together with the rest of the cremated bone which can be associated with it, was smaller than the average weight of a complete adult cremation at 1055 g. As indicated by McKinley (1993) the average weight of a modern complete cremated skeleton is 1615.7 g for a female and 2283.5 g for a male. This suggested that not all the cremated bone had been collected and moved from the original pyre site before burial (See Table 1).



	Spit 1	Spit 2	Spit 3	Spit 4	Spit 5	Rest of bone	Total	Percentage
Fraction>10 mm	7 g	32.5 g	45.8 g	100.8 g	61.7 g	108.2 g	356 g	33.7%
Fraction>5 mm	22.3 g	57.2 g	91.4 g	127.7 g	110.1 g	80.7 g	489.4 g	46.3%
Fraction>2 mm	10.4 g	30.8 g	43.6 g	45.8 g	35 g	44 g	209.6 g	19.9%
Total	39.7 g	120.5 g	180.8 g	274.3 g	206.8 g	232.9 g	1055 g	
Percentage	3.8%	11.4%	17.1%	26%	19.6%	22.1%		100%

Table 1: Fragmentation and weight of cremated bone

As indicated by Table 1, the bone preservation was good with 80% of the bone preserved in fragments larger than 5 mm. The highest concentration of bone as well as the less fragmented, was recovered from the lower spits, specially spit 4. This could be the result of the excavation, the intrusion of soil in the upper spits, the way the bones were deposited (biggest and therefore easiest first) and/or the shape of the scoop. When the skeletal elements were analysed, it was obvious that although all skeletal elements were present in the assemblage, there was a very low presence (less than 1%) of axial bones (vertebrae and ribs). The identified elements that were mostly represented were cranial and long bones. However this representation is probably biased towards these particular bones because they are easier to identify. Moreover the high number of unidentified bones, more than half at 56.81, means that the percentages are not a true representation of skeletal elements present in the assemblage, but more a representation of the difficulty of identifying fragments of bone. No patterns were present suggesting any preference in the distribution of particular skeletal elements according to spits, as they were uniformly distributed through the whole deposit.

The smaller average weight of the bones in this cist, as well as the absence of especially the axial bones, is a common trait in some Bronze Age cremations. There may be a number of reasons for this, including taphonomic agents (the bone itself, burial environment, human and biological factors, see Henderson 1987), secondary deposition of the remains after their initial cremation, and the possible selection/ collection of certain bones, or by an unintentional avoidance of some fragments due to their (small) size. Another cause for their absence could be the disturbance of the burial during its discovery and its location on a cliff edge with its subsequent erosion and collapse. McKinley also states the possibility of another (or more) “unknown location” for this bone, i.e. somewhere other

than the grave, or the pyre site and compares it with ethnographic evidence from the nineteenth century Aborigines, where cremated bone was given to mourners as keepsakes (McKinley 1997).

The lack of remains such as substantial amounts of charcoal associated with a pyre also reinforces the idea of a selected burial. Green staining was observed on a distal end of a right humerus and a fragment of unidentified long bone (Plate 3), which could be evidence for the presence of a copper or copper-alloy object on the body during the cremation, or the inclusion of such an object with the cremated bone. If the source of the green stain was copper then it demonstrates either the poor conditions for preservation for this object or an intentional retrieval of it after the cremation and before the burial.



Plate 3: Light green staining of the right distal humerus.

## Lithic analysis

by Torben Bjarke Ballin

The lithic implement from Cist 1 was based on a robust elongated flake (56 mm by 35 mm by 10 mm) in light-grey, mottled flint. Flint of this size and quality is rarely found along the west coast of Scotland, suggesting that the raw material may have been obtained through exchange. The vitreous character of the raw material of this piece, in conjunction with its colours and patterning, indicated importation from the

greater Yorkshire area (cf. Ballin 2011). The piece had smooth abraded cortex along the right lateral side, suggesting procurement through ‘beach combing’ rather than mining.

The knife had a pronounced ventral bulb-of-percussion combined with a circular impact-point on the tool’s plain platform remnant. This suggested that the tool blank was detached from its parent core by hard percussion. The reduction method included crude trimming of the parent core’s platform-edge. The entire left lateral side was transformed into an effective cutting-edge by invasive retouch (‘scale-flaking’). This flat retouch stretched up to 4 mm from the edge and across the dorsal face of the implement. Most of the opposed lateral side was cortical, probably serving the same function as blunting retouch would have served, i.e. protecting the user’s hand and fingers during use. In the present case, only the almost cortex-free proximal end of the right lateral edge had to be blunted by retouch (Figure 6).

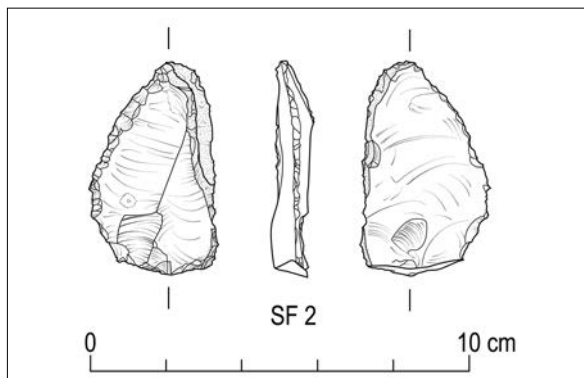


Figure 6: Scale-flaked knife.

The existence of an obvious cutting-edge defined the implement as a knife. In the archaeological literature, there is much confusion regarding the terminology of lithic knives (particularly regarding the distinction between scale-flaked and plano-convex knives), but it is suggested to follow Clark (1932) and Healy (1996) (also see discussion in Ballin 2011). The plano-convex shape of scale-flake knife must have been achieved by invasive retouch, and not simply by the incidental shape of the original blank. In addition, their cutting-edge(s) may have been shaped by (usually partial) invasive retouch of the ventral face, although this is not a typological requirement. In contrast, scale-flaked knives were shaped by invasive retouch (‘scale-flaking’) of their cutting-edge(s) only, frequently in association with abrupt blunting retouch of the lateral side opposite

the cutting-edge. This retouch of the cutting-edge may be dorsal, ventral or both. These two definitions define the piece from Cist 1 as a scale-flaked knife.

Following recent analysis by use-wear specialist Dr Randy Donahue, University of Bradford, of the gloss found in three knives from Overhowden Henge in the Scottish Borders (Juel Jensen 1994, 20) he concluded that the knives had been used for cutting/sickling grasses or cereals. Most likely, the Scottish scale-flaked and plano-convex knives are also sickles, and they probably carried out the same work as the crescent-shaped sickles of southern Britain. Although the piece from Sannox Quarry does not have any gloss, small flat chips were detached along its edge (ventral face) indicating that it had been used prior to deposition in the cist.

Scale-flaked and plano-convex knives were deposited in a variety of early Bronze Age burial forms. Finlayson (1997) suggests that they are mainly associated with Food Vessels (such as at Sketewan, Perth & Kinross; Mercer & Midgeley 1997), but they have also been found with Beakers (Beechwood Park, Inverness; Ballin 2006) and Collared Urns (Burnfoot Plantation, Dumfries & Galloway; Cowie *et al.* 1981). In some cases, they were placed with the cremation in an unburnt state (the present example), whereas others followed the deceased onto the pyre (e.g. the knife from cremation deposit 34/07, Lockerbie Academy, Dumfries & Galloway; Warren 2011, 31). Although the burial customs of the Scottish early Bronze Age varied greatly, across the period as well as from region to region, scale-flaked and plano-convex knives clearly represent an important tool category, with flint knives frequently forming part of the period’s burial goods.

## Pottery analysis

by Beverley Ballin Smith

### Description of the vessel

This tripartite vessel weighing a total of 1144 g is largely intact, but two cracks run from its rim to its somewhat eroded base. Its three sections are defined by ridges or horizontal raised mouldings, made by either pinching the clay coils together, or as an applied and moulded external coil of clay (Plate 4).



Plate 4: The Food Vessel after conservation.

Its height is 133 mm, measured from its flat base of 80 mm in diameter to its rim that is 146 mm in diameter. The width of the neck measured from the rim to the upper horizontal ridge is 40 mm; the distance between the upper and lower ridges measures 30 mm; and from the latter to the base is 70 mm. Its neck is straight, but with cavetto (slightly hollowed) zones between the ridges. From the lowest ridge the body of the vessel curves to the base.

The rim is slightly irregular. It is straight along some parts of its circumference but elsewhere it is malformed. This is likely due to the forming of its narrow external rim bevel. The interior rim bevel is broader, and both are decorated. The exterior of the vessel is also decorated.

The colour of the pot is a light red (Munsell 10R 6/6 - 2.5YR 6/6), and where the fabric is exposed through surface loss or erosion, it contains large grits of red and white sandstone. An application of a clay slip to the exterior surface in preparation for decoration also masked the grits when it had dried to a leather-hard state. The interior of the vessel has been roughly smoothed.

### Decoration (Figure 7)

The decoration of the vessel from rim to base is as follows. Both bevels of the rim are incised with oblique lines executed bottom left to top right, producing a decoration that appears opposed when the vessel is viewed from above.

The neck is decorated below the rim with two

rows of closely positioned incisions produced by a curved-ended bird bone or similar. The upper row of incisions has been made with the tool tip angled up and the bottom row with the tool tip angled down. Beneath this motif is a band of herringbone, poorly executed in parts. Some spalling of the pot surface has removed some of this motif. This may have been caused through firing, use or taphonomic conditions (see below).

The upper ridge is bordered by an upper row of close incisions made by the same tool tip angled upward, and a lower row where the incisions are angled downwards. The cavetto field is blank and the lower ridge is decorated the same as the upper ridge. Two further rows of this same design are roughly equally spaced between the lower ridge and the base. The base-edge appears to have been decorated with a single row of up-turned incisions.

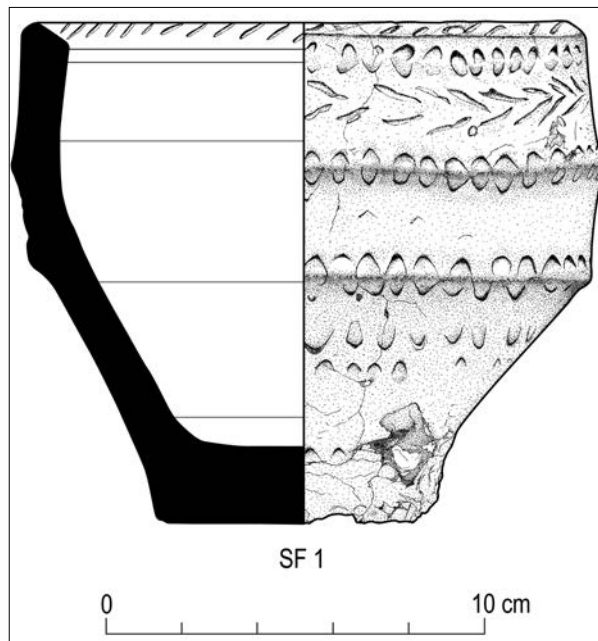


Figure 7: The Food Vessel.

### Condition and firing

In spite of its cracks, the pot is intact but there are significant areas of damage. These are mainly around the base, the body of the vessel just above it, and the bottom of the pot internally. The damage is partly due to a loss of surface caused by spalling and erosion of the fabric, partly because the vessel may have lain on the floor of the cist, and possibly because of how it was used and fired.

The appearance of the vessel suggests that it

may have stood in a hot fire. There is no sooting from flames, but the base of the pot indicates heat erosion. Excessive heat may have also been a cause of the cracks. One interpretation could be that the vessel was positioned on the edge of the funeral pyre, perhaps in order to fire it during the cremation of the body. In doing so, it received damage as it was not protected from direct flames or very hot ashes.

## Discussion

The vessel, identified as a tripartite Bronze Age Food Vessel was found in a short cist with cremated bone and a flint knife. The cracking of the pot and its damaged base may have occurred before it was placed in the cist, but water seepage over time would have made the damage worse. The impression in the floor of the cist may indicate where and how it lay - in the middle on its side, but slightly to the east. However, due to the removal of the vessel prior to the excavation and recording of the cist, its exact positioning is uncertain.

In the suite of Bronze Age funeral ceramics, Food Vessels are not as common as Beakers and urns and are less well known. In mainland Scotland, Food Vessels are frequently associated with cists with cremations, and several have been found recently: one at Keas Cottage, Spinningdale, Sutherland (Arabaolaza 2013), plus three others from Armadale, Skye in 2009 (pers. comm. Mary Peteranna). These add to the increasing number of Food Vessels excavated since Cowie's (1978) corpus.

The Sannox quarry vessel is shorter and less bulbous than other examples, although the Keas Cottage, Sutherland example would have been a similar in height (Ballin Smith 2013), and both are tripartite vessels. Although the Sannox pot follows some of the decorative motifs of Scottish Food Vessels, such as its bevelled rim and the slightly uncommon herring bone design, its decoration is in character comparable to those from the east coast. The paired and single incised half-circle motives can be mirrored in many places, not least York, Northumberland, Angus, Fife, and Kinross (Cowie 1978, Fig 9 Nor 11; and Fig 12 Yor 2 especially, but also Yor 6 and 10; Fig 18 Ags 1; Fig 20 Fif 7 and Fig 21 Kin 1). This is to be expected as the majority of Food Vessels have been located in the eastern half of the country. A

rare west coast comparable example is one from Maryport, Cumbria (ibid, Fig 6 Cum 4).

## Dating

National Museums Scotland (Dating Programme) has been concerned with the chronology of Scottish Bronze Age human remains and therefore by association, pottery vessels found in cists. The range of Scottish Food Vessels, which have been dated, falls between 2200 and 1520 cal BC at  $2\sigma$ , although comparably dated vessels from Ireland have a narrower range (c. 2180-1725 cal BC) (Sheridan 2004, 249, and see Brindley 2007 and 2008). A tripartite vessel from Pitmilny in Fife, slightly larger and heavier than the Sannox pot, but with shared motifs, was dated between 2050 - 1740 cal BC at  $2\sigma$  from associated cremated remains (Sheridan 2004, 268). The radiocarbon date obtained from the cremated bones from the Sannox cist suggests that its tripartite vessel was placed in the cist between 2154 - 2026 cal BC at  $2\sigma$ . This overlaps slightly with the dates from the human bone at Keas Cottage in Sutherland (2051 -1911 cal BC at  $2\sigma$ ), but also indicates a narrower date range for the vessel (see Ballin Smith 2013 and Arabaolaza 2013). The Sannox vessel lies within the dated period for Scottish Food Vessels, but this radiocarbon date is a valuable addition to the growing list of dated Bronze burials with associated vessels and other grave goods.

## The vessel

The relationship between the vessel, the Yorkshire flint knife and the human remains has been lost. However, the early Bronze Age knife and the vessel, as mentioned above, have east coast associations. The question is why this vessel with this heritage was found on the west coast of Scotland, where Food Vessels are rare?

Food vessels are not unknown on Arran, as a large fragment of the rim of what appears to be a large urn with applied and incised decoration, but definitely not a tripartite vessel, was found at Glen Cloy in the middle of the nineteenth century (Cowie 1978, 118). Other west coast examples include a Food Vessel found in Bute but in poor condition (ibid), and one at Luce Sands near Stranraer. This latter example had applied ornamentation (ibid, 136) and three cavetto zones.

Further research and discussion may be required to understand this grave, and its goods, in a west coast island setting. It may not now be possible to deduce whether the vessel was simply an accompaniment to the burial, or whether it fulfilled a function of containing the ashes of the deceased. Its discovery has left us with many questions about the interpretation, origin and positioning of the vessel and its role in the burial rites, but nevertheless, this is an important addition to add to the corpus of Bronze Age Food Vessels in Scotland.

## Botanical analysis

By Susan Ramsay

Charcoal was identified from several of the whole backfill samples processed from Cist 1 and Cist 2 but it was not possible to determine whether or not this charcoal was contemporaneous with the construction of the cists. It is possible that the charcoal became incorporated into the soil used for backfilling as a result of earlier activity on the site, although it could be evidence of cooking/heating fires used by the people that constructed the cist. The quantities of charcoal involved are relatively small and so it is thought that the charcoal in the backfill was more likely to be residual charcoal in the soil from earlier activity.

The only carbonised remains from Cist 1 that were considered to be contemporaneous with the construction/use of cist were those from the cremation deposit itself. There was evidence for birch, oak and hazel having been possibly used as part of the pyre fuel, although the quantities of charcoal that remained in the cist were small. It would appear that cremated bone was largely separated from the remains of the pyre fuel prior to deposition in the cist. The types of wood used for the pyre fuel are consistent with the species that would have been available in the local woodlands during the prehistoric period. Oak is usually preferred for pyre fuel since it has a higher calorific value than most other European woods (Gale & Cutler 2000). Where it has been possible to look at cremation deposits spanning the prehistoric period in Scotland, e.g. along the line of the A1 road upgrade (Lelong & MacGregor, 2008), there is evidence for a shift from oak being the preferred pyre fuel during the Neolithic and early Bronze Age, to 'non-oak' types from the early Bronze Age onwards. It is likely that this shift was

not a deliberate change in cremation practices but was simply because of the reduction in the abundance of oak within the local woodlands as a result of anthropogenic activity.

There was no evidence of a cremation deposit in Cist 2 and although traces of charcoal were found within some of the cist fills it is likely that these were residual charcoal fragments from earlier activity in the area. There was evidence for contamination of at least one of the fills in Cist 2, with the identification of cf spruce wood from fill (context 019, fill underneath the first layer found inside the cist). It was not certain how this fragment of uncarbonised wood became incorporated into the fill, but spruce was probably not grown in Scotland until the last few hundred years and so this wood fragment is almost certainly not contemporaneous with the cist.

## Radiocarbon results

Two samples were submitted to Scottish Universities Environmental Research Centre (SUERC) for radiocarbon dating: a bone sample from the cremation and a charcoal sample from a secure discrete context overlaid by another fill within the backfill of Cist 2. The date from Cist 2 implies that the charcoal fragment was residual from an earlier activity in the area (Table 2)

Site	Code	Material	Date	Calibrated date at 2σ
Cist 1	GU 29408	Cremated bone	3708 ± 29 BP	2154 - 2026 cal BC
Cist 2	GU 29409	Betula charcoal	4669 ± 27	3520 - 3368 cal BC

Table 2: Radiocarbon dates from Cist 1 and Cist 2

## Discussion

Several burial sites had been found in the vicinity of both cists in Sannox Bay, which point to a long tradition of cremation practice in the area and a landscape with many burial monuments. In the nineteenth century an urn with cremated bones was recovered in the east side of a cairn that lies just south of the present site (ONB 1864). At the Neolithic Sannox chambered cairn (NMRS: NS04SW 1), south of the site, another cremation deposit was also encountered in its middle compartment (Bryce 1909; Henshall 1972). And at Mid Sannox stone circle (NMRS: NS04NW 3),

north of site, burnt bone was found underneath a slab (Bryce 1863; ONB 1864).

There have been several short cists, with urn or un-urned cremations found on the island. One of the closest geographically and in appearance was located south of Sannox, at Lamlash. It was formed of a central heavily-stoned cist and surrounded by three satellite inverted urns and a possible robbed-out smaller cist within 5 m of the central cist. An inverted urn to the south and an emptied cist to the north-east were at a greater distance from the centre and interpreted as outliers. Four inverted urns with cremated human bone were recovered and funerary vessels were also recovered from two of the four cists. The large central cist also contained a retouched flint blade (Shaw 2005).

The cists interpreted as outliers in the small cist cemetery at Lamlash are similar to the cists found in Sannox Quarry. The vicinity of the large cairn named Sannox Bay (NMRS: NS04NW 8; SMR: 4803) just south west of the trench reinforces this interpretation (Figure 1).

### Mortuary practice

Early Bronze Age mortuary rituals are characterized by their diversity of the treatment of the dead body and on the burial itself.

The body in this case was cremated. This was the prevailing way of treating the dead in the British Isles during the Bronze Age (Parker Pearson 2003). The cracks and warping pattern present on the bone suggests that the cremation process occurred when the bones were still fleshed and so probably had taken place soon after death (Ubelaker 1989)(Plate 3). The pyre was possibly fuelled by birch, oak and hazel, woods that were available in the local woodland and it reached a high temperature between 645-940°C. The light green stain identified in two fragments: a right humerus and a fragment of long bone were indicative of a possible copper alloy based item/s being in contact with the bone during cremation (Buisktra and Ubelaker 1994). Similar stains had also been found in other sites as in Crantit, although in this particular case the chemical reaction between bone and uranium rich soils could also have caused the staining (Roberts in Ballin Smith forthcoming). However, the stains on the remains of Sannox Quarry were most likely

caused by copper alloys object/s. As McKinley (1994) has proposed, such objects are thought to be 'pyre goods' and they were probably an integral part of a 'form changing' ritual. The fact that this object was not retrieved from the pyre and placed in the burial along with the bone suggests that it might have been deliberately left out and/or given another purpose. McKinley (ibid) suggests that such objects may have been collected and reused. An example of this practice was noted in a cist with a Food Vessel in Tayvailich, Argyll (McKinley 1986).

The small quantity of charcoal within the cremation deposit as well as the lack of pyre debris suggests that the bones were cleaned and/or carefully separated from it after the cremation process. The small average weight of the human remains and the low percentage of certain bones, especially the axial bones (vertebrae and ribs) might be the result of this selection process, although some bones might have been unintentionally avoided due to their small size when collecting. However, it should not be assumed that this avoidance was accidental: anthropological evidence of funeral rites in the island of Bali indicates that 'no great effort is made to collect all the bones' (Metcalfe and Huntington 1999, 101). Another cause for their absence could be the disturbance of the burial during its discovery and its location on a cliff edge with its subsequent erosion and collapse. McKinley also suggests that cremated bone could have been given to mourners as keepsakes (McKinley 1997). Recently, it has been suggested that there was a selective cremation of partial remains instead of whole individuals (Duffy and MacGregor 2008).

The relationship in time of the burial of the Sannox cremated remains compared to the time of death of the individual is unknown. The cremated bones may have been selected and stored for an indeterminate time prior to their interment or they could have been buried immediately after the cremation; a practice that occurs nowadays. The possible organic container, whose shadow was interpreted from deposits beneath the cremation might have been used therefore as either for storage or a means of transport from the pyre to the cist, or both. Remains of possible bags containing cremated remains have also been found at other sites, such as Crantit where textile remains adhering to the bones were

recorded (see Roberts and others in Ballin Smith forthcoming). It is also possible that the Food Vessel was used as a container and it was placed next to the cremation after the emptying of its contents on to the floor of the cist.

### Grave goods

Grave goods are finds associated with the grave and therefore the burial rite. However, in this instance one of the grave goods may have been part of the cremation ritual too; the tripartite Food Vessel. As indicated by the analysis (Ballin Smith above), its appearance suggested that it may have been damaged through having stood in a hot fire. One possible explanation is that it may have accompanied the body in the transforming ritual of cremation, where it was also transformed. And as such, it is possible to consider it a pyre good as well as grave good. However, we must be cautious with this interpretation as there could be other explanations for the heat erosion.

Pottery vessels and either scale-flaked or plano-convex knives are frequently found together in early Bronze Age burials as grave goods. The knife, which could be an unused sickle, had been used prior to deposition in the cist (see Ballin above) and it is possible that the deceased or their mourners might have used it during their life time or it was made especially for the ceremony. It is a different story with the vessel. This was made for the mortuary rite: it was part of the cremation process and it accompanied the human remains to the burial.

Both grave goods have associations with the east coast; either by the origin of the raw material - from greater Yorkshire - or the typology and decoration motifs of the vessel. However, the exact nature of this association is unclear. It could be related to exchange of materials and object as well as ideas (decoration motifs) or immigration.

Grave goods represent the individual and/or their status/role in the society (Parker Pearson 2003). They could also be gifts given by the mourners either to appease the dead or to show a certain image of the deceased to the people witnessing the funerary rite and therefore 'open to manipulation' (ibid and Hunter 2000,84).

### The empty cist

There have been other empty cists found

throughout Scotland, including at Dalmore, Alness, Ross-shire (Jolly and Aitken 1879), Mordington Mains, Borders (Barber 1982) and more recently in Blairbuy, Dumfries and Galloway (Bailie 2013). Multi-element analysis proved that some of them were used as burials, as cist 3 in Beech Hill House, Perthshire (Stevenson 1995), while others such as Cist 2 and Cist 3 at Blairbuy did not contain any decomposed bodies in them (Bailie 2013). The bare state of some of these cists, which contained bodies, might be therefore the result of taphonomic changes. However the function of those with no signs of decomposed bodies remains unknown. They could have contained more perishable organic material, or they might have been built for burial purposes but never used. The contamination of Cist 2, evidenced by the retrieval of spruce wood, indicates a disturbance either by animal or human activity. This would have caused a change in the burial environment which would have affected the preservation of the remains, especially of organic material. It also invalidated further analysis.

However, other unknown metaphysical causes could also be behind their construction. Some empty 'boat-shaped' cists found on St Kilda and at Dunure Road, South Ayrshire had been considered to be left empty by design, possibly representing people who perished or were buried at sea (Duffy 2007; Pollard 1999). Cist 2 at Sannox Quarry located to the north-west of Sannox Bay and therefore facing the sea may support this hypothesis. It is also worth noting that it may be a monument for those buried elsewhere or lost as the cenotaphs constructed nowadays in order to commemorate the dead and missing during the two World Wars (Parker Pearson 2003).

### Conclusion

The discovery of these cists confirms a long tradition of burial practice in the area which extended from the Neolithic throughout the Bronze Age. Although only two cists were excavated during the rescue excavation it is possible that more may survive in close proximity or have been already lost to previous quarrying. The vicinity of the Sannox Bay cairn, the discovery of an urn in the nineteenth century at its east side and the similarities with other sites associated with a cairn such as Balnaguard cairn at Sketewan (Mercer and Midgley 1997) suggests this idea.

Both cists, and the human remains and grave goods found within Cist 1, provided a window into the complex and variable early Bronze Age mortuary practice. The ritual of cremation was an important rite and the one most frequently practiced during the Bronze Age (Parker Pearson 2003). The increasing reduction of woodland due to the anthropogenic activity that started in the Neolithic and continued through the early Bronze Age meant that wood was scarce. A tonne of wood was necessary in order to complete the full oxidation of the bones, as in this case (ibid). The use of this scarce and therefore valuable object indicates the importance that the society gave in providing the deceased with a 'good ceremony', which could reinforce the deceased's status or that of the community where they resided. The inclusion of grave goods with clear associations with the east coast, and therefore most likely valuable and rare items emphasizes the significance given to the burial.

Finally, the excavation and post-excavation study of these cists represents an addition to the ever expanding corpus of Scottish early Bronze Age burial practice and provides a more complete understanding of the meaning and treatment of the death in these societies.

## Acknowledgments

Thanks to Rod McCullagh at Historic Scotland for all his help during the excavation and post excavation process and his comments. Many thanks to all specialists involved in the post-excavation analysis: Beverley Ballin Smith, Torben Bjarke Ballin and Susan Ramsay. Thanks are also due to Beth Spence and Scott Wilson for assisting during excavation, and to Jamie McKinnon and Charles Forde, the landowner, who made the initial discovery.

The site archive is lodged with the RCAHMS, Edinburgh, and the finds have been declared to Treasure Trove.

## Bibliography

Arabaolaza, I 2013 Spinning the yarn: a cist at Keas Cottage, Spinningdale, *Archaeological Reports Online*. Available from: <http://archaeologyreportsonline.com/index.html> [Accessed 01-12-2013].

Baillie, W 2013 It started with a cist: excavation at Blairbui in 2012. *Archaeological Reports Online* 6. Available from: <http://archaeologyreportsonline.com/index.html> [Accessed 01-12-2013].

Ballin, T B 2006 The plano-convex knife, in Suddaby, I and Sheridan, A A pit containing an undecorated Beaker and associated artefacts from Beechwood Park, Raigmore, Inverness. *Proc Soc Antiq Scot* 136, 81-83.

Ballin, TB 2011 *Overhowden and Airhouse, Scottish Borders. Characterization and interpretation of two spectacular lithic assemblages from sites near the Overhowden Henge*. British Archaeological Reports British Series 539. Oxford: Archaeopress.

Ballin Smith, B 2013 Pottery analysis, in Arabaolaza, I Spinning the yarn: a cist at Keas Cottage, Spinningdale, *Archaeological Reports Online*, 10-12. Available from: <http://archaeologyreportsonline.com/index.html> [Accessed 01-12-2013].

Ballin Smith, B forthcoming 2014 *Between tomb and cist: the funerary monuments of Crantit, Kewing and Nether Onston, Orkney*. Kirkwall: The Orcadian Ltd.

Barber, J B 1982 A short cist at Mordington Mains, Berwickshire, Borders Region, *Proc Soc Antiq Scotland* 112, 536-541.

Brindley, A L 2007 *The Dating of Food Vessels and Urns in Ireland*. Galway: Department of Archaeology, National Museum of Ireland (=Bronze Age Studies 7).

Brindley, A L 2008 A Canon for the Bronze Age? *Bronze Age Review* 1 (Nov. 2008), 1-6.

Bryce, J 1863 Account of excavations within the stone circle of Arran, *Proc Soc Antiq Scot* 4, 505-6.

Bryce, T H 1909 On the cairns of Arran, no. III. with a notice of a megalithic structure at Ardenadam, on the Holy Loch, *Proc Soc Antiq Scot* 43, 356-9.

Buikstra, J E and Ubelaker, D H (eds.) 1994 *Standards for Data Collection from Human Skeletal Remains*. Arkansas: Arkansas Archaeological Survey Research Series No.44.

Clark, J G D 1932 The date of the plano-convex flint-knife in England and Wales, *The Antiquaries Journal* XII, 158-162.



- Cowie, T G 1978 *Bronze Age Food Vessel Urns*. Oxford: British Archaeological Reports (British Series) 55.
- Cowie, T G; Masters, L J M and Harman, M 1981 An urn burial from Burnfoot Plantation, Dowglen Hill, Westerkirk, with a note on a Bronze Age burial at nearby Carlesgill. *Trans Dumfriesshire Galloway Natural History and Antiquarian Society 3<sup>rd</sup> edition*, 56, 31-37.
- Duffy, P R J 2007 Excavation of Dunure Road, Ayrshire: a Bronze Age cist cemetery and standing stone, *Proc Soc Antiq Scot* 137, 69-116.
- Duffy, P R J and MacGregor, G 2008 Cremations, conjecture and contextual taphonomies: material strategies during the 4th to 2nd Millennia BC in Scotland, in Fahlander, F and Oestigaard, T (eds.) *The Materiality of Death: bodies, burials, beliefs*. British Archaeological Reports International Series 1768, 71-78.
- Finlayson, 1997 The plano-convex knife in Mercer R J and Midgley, M S The Early Bronze Age cairn at Sketewan, Balnaguard, Perth & Kinross, *Proc Soc Antiq Scot* 127, 309-311.
- Gale, R & Cutler, D 2000 *Plants in Archaeology*. Otley: Westbury Publishing.
- Healy, F 1996 Lithics, in Healy, F (ed.) *The Fenland Project, 11. The Wissey Embayment: Evidence for Pre-Iron Age Settlement Accumulated prior to the Fenland Project*, 50-94. Gressenhall: Field Archaeology Division, Norfolk Museums Services.
- Henderson, J 1987 Factors determining the state of preservation of human remains, in Boddington, A; Garland A N and Janaway, RC (eds.) *Death, decay and reconstruction: Approaches to archaeology and forensic science*. Manchester: Manchester University Press, 43-54.
- Henshall, A S 1972 The chambered tombs of Scotland, Vol.2 Edinburgh: Edinburgh University Press.
- Hunter, F 2000 Excavation of an Early Bronze Age cemetery and other sites at West Water Reservoir, West Linton, Scottish Borders, *Proc Soc Antiq Scot* 130, 115-182.
- Jolly, W and Aitken, T 1879 Notice of excavations and contents of ancient graves at Dalmore, Alness, Ross-shire. With notes on the crania, *Proc Soc Antiq Scot* 13, 252-264.
- Juel Jensen, H 1994 *Flint Tools and Plant Working. Hidden Traces of Stone Age Technology. A use wear study of some Danish Mesolithic and TRB implements*. Aarhus: Aarhus University Press.
- Lelong, O & MacGregor, G 2008 *The lands of ancient Lothian: interpreting the archaeology of the A1*. Edinburgh: Society of Antiquaries of Scotland.
- McKinley, 1986 The cremated bone, in Lehane, D *Three cists from Tayvallich, Argyll. Scottish Archaeological Journal* 13, 54-62.
- McKinley J I 1993 Bone Fragment Size and Weights of Bone from Modern British Cremations and the Implications for the Interpretation of Archaeological Cremations. *International Journal of Osteoarchaeology* 3 283-287.
- McKinley, J I 1994 A pyre and grave goods in British cremation burials; have we missed something? *Antiquity* 68, 132-134.
- McKinley, J I 1997 Bronze Age 'Barrows' and Funerary Rites and Rituals of Cremation. *Proceedings of the Prehistoric Society* 63, 129-145.
- Mercer, R J and Midgley, M S 1997 The Early Bronze Age cairn at Sketewan, Balnaguard, Perth & Kinross. *Proc Soc Antiq Scot* 127, 281-338.
- Metcalf, P and Huntington, R 1999 (2<sup>nd</sup> edition) *Celebration of death: the anthropology of mortuary ritual*. Cambridge: Cambridge University Press
- ONB = Ordnance Survey (Name Book) 1864 Object Name Books of the Ordnance Survey (6 inch and 1/2500 scale) Page(s): Book No. 3, 49 and 65.
- Parker Pearson, M 2003 (new edition) *The archaeology of death and burial*. Stroud: The History Press.
- Pollard, T 1999 The drowned and the saved: archaeological perspectives on the sea as grave, in Downes, J and Pollard, T (eds.) *The Loved Body's Corruption: Archaeological Contributions to the Study of Human Mortality*. Glasgow: Cruithne Press, 30-51.

Shaw, R 2005 Arran High School, Lamlash, North Ayrshire (Kilbride parish), cist cemetery, *Discovery and Excavation in Scotland* 6, 95.

Sheridan, J A 2004 Scottish Food Vessel chronology revisited, in Gibson, A M and Sheridan, J A (eds.) *From Sickles to Circles: Britain and Ireland at the Time of Stonehenge*. Stroud: Tempus Publishing Ltd, 243-67.

Stevenson, S 1995 The excavation of a kerbed cairn at Beech Hill House, Coupar Angus, Perthshire, *Proc Soc Antiq Scot* 125, 197-235.

Roberts, J forthcoming Cremation remains (Crantit and Kewing cists), in Ballin Smith, B *Between tomb and cist: the funerary monuments of Crantit, Kewing and Nether Onston, Orkney*. Kirkwall: The Orcadian Ltd.

Ubelaker, D H 1989 *Human Skeletal Remains Excavation, Analysis, Interpretation*. Second Edition. Washington: Taraxacum.

Warren, G 2011 Chipped stone, in Kirby, M Lockerbie Academy: Neolithic and Early Historic timber halls, a Bronze Age cemetery, an undated enclosure and a post-medieval corn-drying kiln in south-west Scotland. *Scottish Archaeological Internet Report (SAIR)* 46, 31-33. Available from <http://www.sair.org.uk/sair46/index.html> [Accessed 01-12-2013].

*ArchaeologyReportsOnline* 

Archaeology Reports Online

52 Elderpark Workspace

100 Elderpark Street

Glasgow

G51 3TR

Tel: 0141 445 8800

Fax: 0141 445 3222

email: [beverley.ballinsmith@archaeologyreportsonline.com](mailto:beverley.ballinsmith@archaeologyreportsonline.com)

[www.archaeologyreportsonline.com](http://www.archaeologyreportsonline.com)