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ARO5: Spinning the yarn: a cist at Keas Cottage, Spinningdale

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ARO5: Spinning the yarn: a cist at Keas Cottage, Spinningdale

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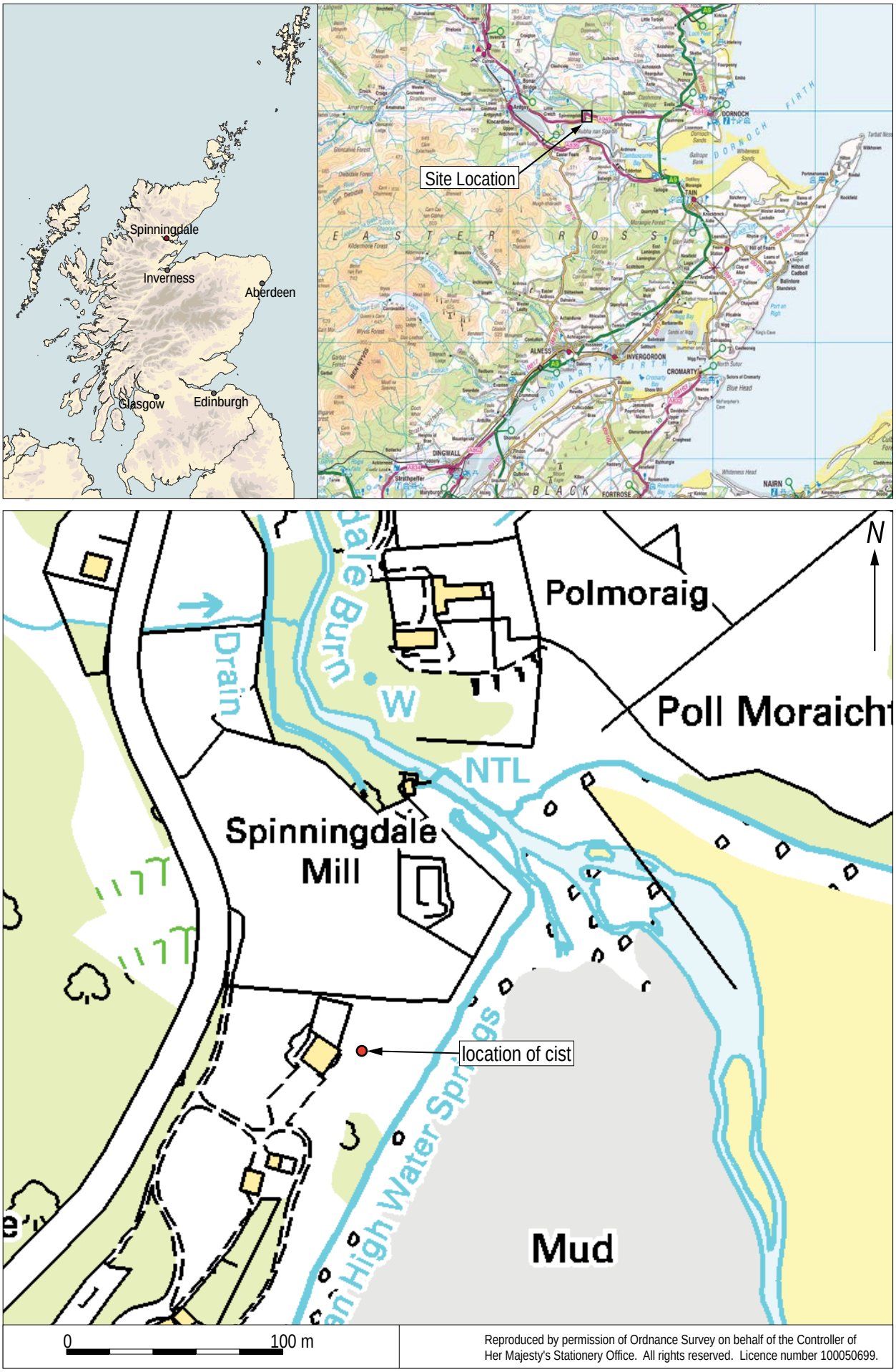

Figure 1: Location map of the site.

Abstract

A short cist was accidentally discovered in September 2011 during the construction of a septic tank at Keas Cottage, Spinningdale, Sutherland. The cist, built within a substantial pit, contained the remains of a crouched inhumation of a middle-aged adult female (35-50 years) with signs of spinal joint disease. A tripartite food vessel urn was placed to the west of her skull and some wool or sheep skin was also recovered from under the skeletal remains. A radiocarbon date of 2051-1911 cal BC and 2151-2018 cal BC was obtained from a bone and charcoal fragments respectively, placing the cist in the early Bronze Age period.

Introduction

Between 28 September and 2 October 2011 an archaeological rescue excavation was undertaken by GUARD Archaeology Limited, on behalf of Historic Scotland's Human Remains Call-off Contract, at Keas Cottage, Spinningdale, Sutherland (NGR: NH 6754 8934). While constructing a septic tank the cottage owner and the digger driver discovered a short cist. Its undisturbed contents included a complete crouched skeleton with organic residues and a food vessel.

Plate 1: Location of the cist.

The cist was located south-west of Spinningdale, Dornoch, and positioned on a raised beach in a prominent area looking towards the mouth of the Firth. It was found in a flat, landscaped back garden, which descends to the shore of the Dornoch Firth (Plate 1). The property was bound by Spinningdale village and Spinningdale Mill at its north end, by other cottages to the south, by the Dornoch Firth to the east, and by the A949 road to the west (Figure 1). The underlying subsoil is a till consisting of white/yellow sand with occasional deposits of gravel and cobbles. No other archaeological features were found in the excavated area.

Excavation

The site was examined and excavated with the aims of:

- assessing the character of the human remains and the associated archaeological features at the site,
- recording and recovering the human remains to establish their context of deposition, the nature of the burial rite, and if possible its date.

The cist and the surrounding area were photographed before the construction trench was extended to the north and west using a mechanical excavator. The trench sides were sloped to avoid collapse of the sandy subsoil and provide safe access. While conducting the excavation the burial pit was identified, together with cap stones at the north end of the cist (Plate 2).

Plate 2: The cist capstones are visible in the bottom half of the image.

A trench, measuring 3 m by 2 m NNE/SSW was laid out over the area centred on the cist. It was cleaned by hand to expose the pit for the cist, the surrounding deposits, and packing materials. The interior of the cist was also cleaned to remove loose, intrusive deposits that had fallen in during, or after, its discovery. This revealed a mostly complete skeleton with a pottery vessel positioned to the west of the cranium and a stone just behind it (Figure 2).

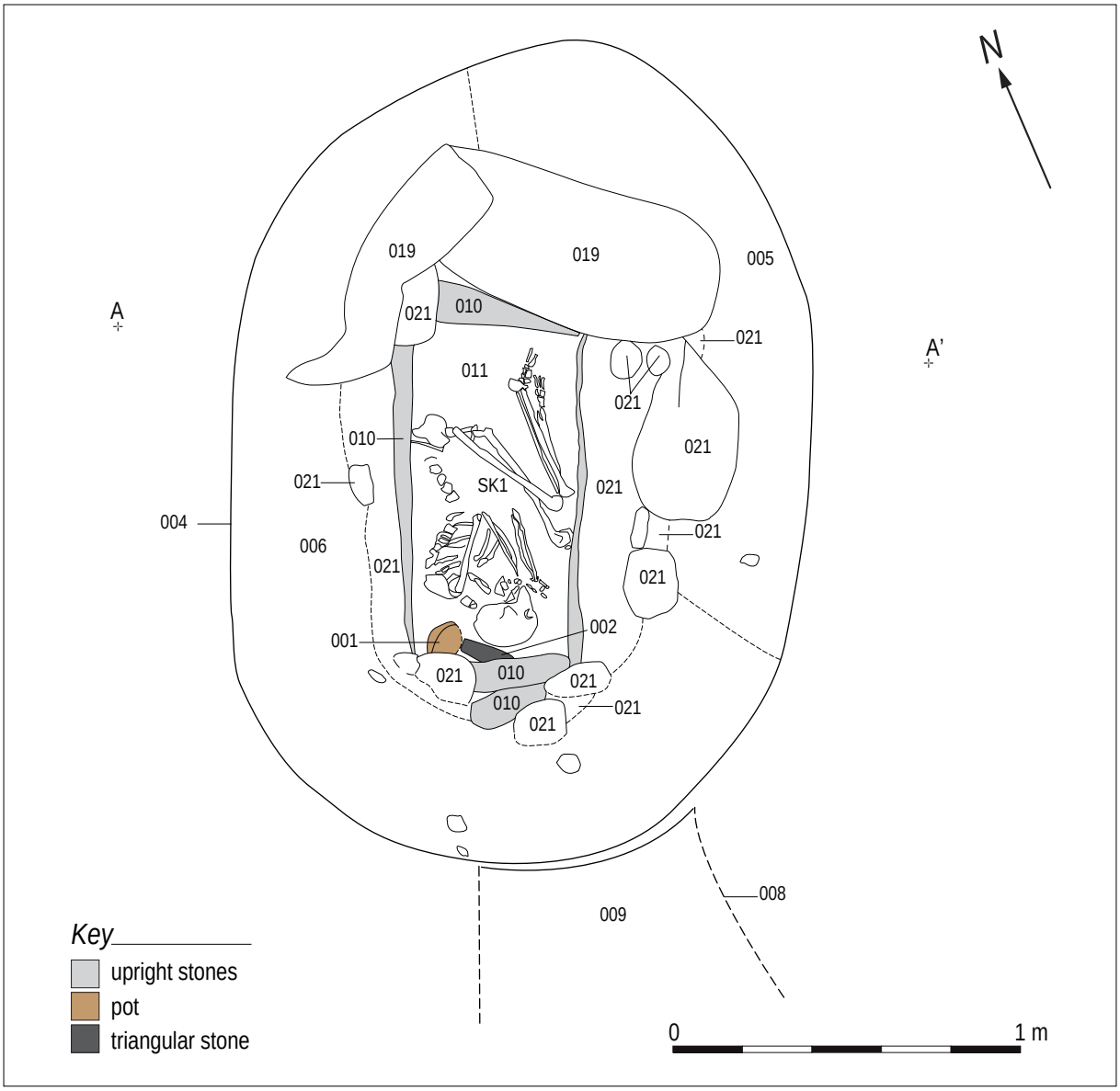

Figure 2: Plan during excavation.

The skeleton was lifted and bagged according to anatomical element but organic remains were noted on the left upper limb and around both femora (Plate 3). Consequently, the deposits surrounding these bones were sampled. Due to the fragmentary nature and the possibility of organic remains within and under the vessel a further sample was taken from deposits beneath the pot after it was lifted. The capstones were removed by the mechanical excavator to facilitate the recording of the cist and the outline of the burial pit (Arabaolaza 2011).

Plate 3: Organic remains around the limbs.

Construction of the cist

The burial pit (context 004) measured 2.36 m NW/SE by 1.68 m and was more than 1.05 m in depth. It was oval in shape and was cut through the original ground surface (002), a loose 0.3 m thick layer of dark orange/brown silty-sand with pebbles and cobbles, and the white/yellow fine sandy subsoil (003).

A short cist (010), rectangular in plan, measuring 0.96 by 0.48 m internally, and orientated NNE/SSW, was constructed into the pit. It comprised four upright slabs: the north and south slabs were sandstone while the east slab was grey granite and the west slab was rose granite. The end slabs measured between 0.6 and 0.8 m in height, 0.38 to 0.5 m in width and 80 to 110 mm in thickness. The east and west slabs were both 1.2 m in length, but the east slab was slightly thicker - up to 270 mm in thickness. Most of the slabs were rectangular and fitted against each other, but the east slab was slightly wedged-shaped at its north side. Additional stones (010) were placed behind both south and north slabs, to support the structure (Figure 2).

After construction, the gap between the pit sides and the slabs was backfilled with the material dug from the pit (006 & 020), up to the height of the cist slabs. It is not clear if the skeleton and its associated artefacts were deposited in the cist before or after the backfilling (Plate 4).

Plate 4: The cist within its pit during excavation of the back-filling material.

The skeleton was placed within the cist directly on top of its subsoil (003) base and in a crouched position. A pottery vessel (SF 1) was placed west of the cranium, and later a triangular-shaped stone (SF 2) positioned to the south of it. It was not possible to ascertain if the skeleton or the vessel was introduced first into the cist. However, the vessel was placed in the cist prior to the triangular-shaped stone, as a fragment of the pot was found beneath it (Plate 3). In addition, a burnt stone (SF 3) was found beneath the vessel. When the skeleton was lifted several organic deposits were encountered associated with the left radius, ulna, scapula and both femorae. A light-brown sandy deposit, probably staining by the process of decomposition, was recorded around the skeleton (011). The skeleton was later covered by a thin layer of redeposited natural sand (022), c. 50 mm thick.

Before the capstones were placed on top of the cist, packing material comprising irregular stones mixed with an organic sandy-silt (021) was deposited on top and around the slabs. The function of this deposit may have been to reinforce the cist's structure and provide a level base for the capstones.

The capstones (019) were positioned over the packing material as well as the cist and its contents. There were three main stones: the largest of rose-coloured granite, measuring 1.35 by 0.77 m, and 13-22 mm thick, covered the middle and southern end of the cist. The other two thinner capstones of grey granite covered the northern end of the cist. In addition, there were other smaller stones in the middle area of the burial. However, the disturbance caused by the discovery of the cist, and the removal of the largest capstone before the site investigation, made it difficult to assess if they were part of the capstone structure or additional stones overlying it (Figure 3, Plate 2).

A 30 mm thick organic-rich layer of dark-brown sandy-silt (007) sealed the cist completely. On top of this, and filling the rest of the burial pit (004) to a depth of c. 0.25 m, were two mixed sand and pebble/cobble deposits, with occasional slabs (005 and 006). Finally, a 0.45 m deep layer of mixed topsoil including some modern finds covered the entire site. This appears to represent landscaped material brought onto site when Keas Cottage was built.

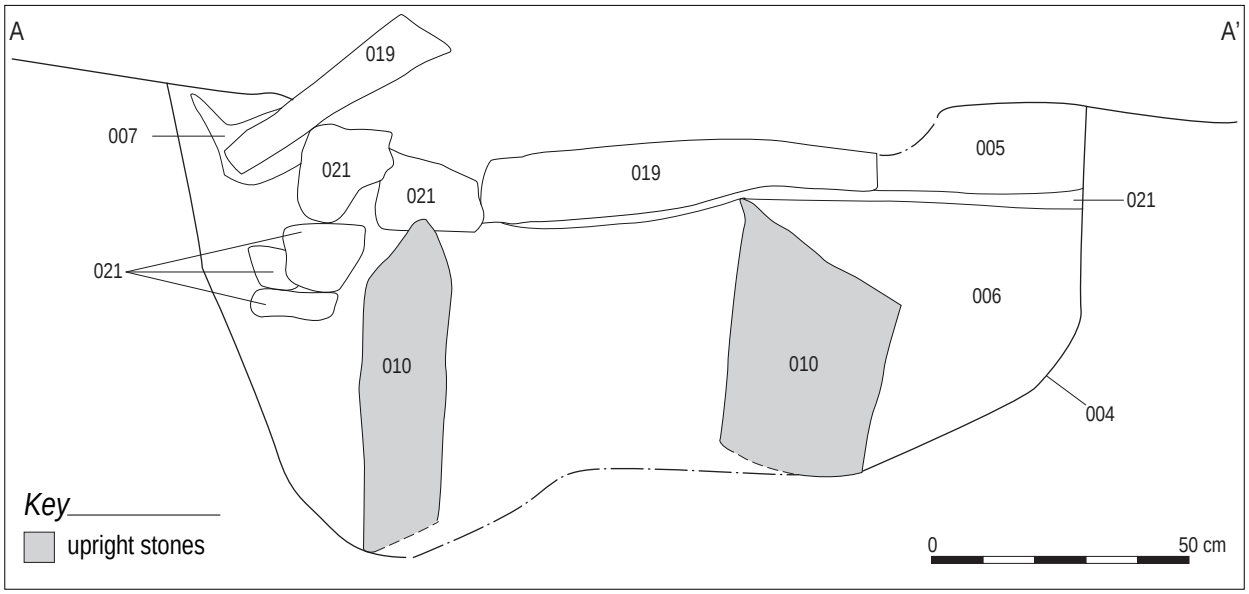

Figure 3: South southwest facing section through cist 010.

Interior of the cist

The remains of a mostly complete skeleton were recorded within the cist lying directly on top of the subsoil on its right side, and with the head turned towards south-east, facing the mouth of the Firth. West of the skull, an upright fragmentary pottery food vessel (SF 1) was found in situ. Overlaying part of this vessel and located south of the cranium, a triangular-shaped stone (SF 2) was noted. A fragment of stone (SF 3) was also collected from underneath the vessel. Both human remains and grave goods seemed to be part of a contemporary event with the triangular-shaped stone placed after the ceramic vessel (Plate 3).

The Skeletal Remains By Iraia Arabolaza

A macroscopic analysis of the human remains recovered was based on standards outlined by Brickley and McKinley (2004) and Buikstra and Ubelaker (1994). The data was recorded on *pro-forma* skeletal recording sheets.

Description

More than 90% of the skeleton was recovered, although ribs, both scapulae medial sides, and some hand and feet bones were missing. The bone surface presented erosion, mostly by root action, graded 2 according to the standards given by Brickley and McKinley 2004. The left side of the frontal bone as well as the temporal bone had white powder at the diploe and between the temporal squama and the left parietal bone. The origin of this material is not known but it is most likely the result of taphonomical changes.

The assessment of sex on this skeleton was determined using standards outlined by Buikstra and Ubelaker (1994). The sexual dimorphic traits on both the skull and the pelvic girdle were noted, even though a few of them were not observable due to the lack of preservation. The result was that a female sex estimation was given to the skeletal remains.

Degenerative changes in both auricular surface morphologies (Lovejoy et al 1985; Meindl and Lovejoy 1989) were observed to determine the age at death of this skeleton. The right auricular surface was complete but the left side missed the posterior inferior iliac spine. A phase 6 was obtained from the both auricular surfaces, giving an age range of 45-49. All third molars were erupted and their dental attrition gave an age estimation of 25-35 years (Brothwell 1981). However, since the different attrition stages do not follow a fixed and constant sequence, its accuracy is limited (Brickley and McKinley 2004). As a result, an age category of Middle Adult (35-50 years) was estimated for this skeleton (Buistra and Ubelaker 1994).

The completeness and good preservation of the skeletal remains made it possible to calculate the stature of the individual as 1.70 m ± 3.27 (5' 6'') (Trotter 1970). Standard measurements to calculate platymeric index from the upper shaft of both femora were used based on Brothwell (1981). This index demonstrates the degree of anterior-posterior flattening of the proximal femur. A result of 89.01 was obtained from the left side and 94.04 from the right side which

indicates that the femur was eurymeric (of average dimensions). Platycnemic index (degree of medio-lateral flattening of the tibia shaft) was also calculated from the left tibia using standard formulae based on Brothwell (1981). A result of 68.9 was obtained indicating a mesocnemic or medium broad tibia. The indexes show that both femora and left tibia were broad and consequently more similar to the modern populations than the flatter bones usually associated with early populations.

Non-metric traits, as their name indicates, are not measurable traits but are recorded as present or absent. Some of them are related to genetic causes while others are thought to be linked to environment, occupation and lifestyle (Brickley and Miles 1999). Consequently, they are generally used to identify and compare different genetic groups. Standard traits identified by Berry and Berry (1967) for the cranial bones, and Finnegan (1978) for the post-cranial bones, were studied in this analysis. For a full record of traits that were absent or not observable, see skeletal inventory (in the site archive). Table 1 highlights the traits which were present.

Cranial Trait	Right	Left	Number/Notes
Supraorbital structures	Present	Present	One notch and one foramen on the right One foramen on the left
Infraorbital foramen	Present	Present	One notch at the superior medial side of foramen
Parietal foramen	Present	Present	One in each side
Saggital ossicle	-	-	One ossicle
Apical bone	-	-	One ossicle
Lamboid ossicles	Present	Present	Three ossicles in each side
Condylar Canal	Present	Absent	-
Ptergo-spinous Bridge	Absent	Present	Incomplete bridge
Mastoid Foramen Exsutural	Present	Present	-
Post-Cranial Trait	Right	Left	Number/Notes
Suprascapula Foramen	Absent	Present	One notch
Distal Septal Aperture	Present	Absent	-
Talar Squatting Facets	Present	Present	Double facets
Calcaneus Talar Facets	Present	Present	Double facets

Table 1: Non-metric traits

The identification of different pathological manifestations and their diagnosis is dependent on the completeness and preservation of the skeleton. In this particular example the good preservation of the human remains and its completeness makes it possible to identify evidence of pathological conditions.

The most frequently identified disease found in any archaeological population is osteoarthritis (OA), which together with osteophytosis, is often termed degenerative joint disease (Roberts 2002). There are two types of OA, primary osteoarthritis whose aetiology is multifactorial, the most common causes being age, repetitive biomechanical stress and trauma and secondary osteoarthritis caused by other pathological conditions (Ortner 2003).

Degenerative changes were recorded in the form of joint contour change in the fourth to seventh thoracic and tenth and twelve thoracic vertebral costal facets. Two unidentified lower right rib head also presented joint contour changes and slight porosity on their tubercular articular facets. All these changes indicate degenerative joint disease of the costovertebral joints.

Other degenerative manifestations associated with spinal joint disease were identified on the ninth and tenth thoracic vertebrae as joint contour change at the right inferior and right superior articular process respectively. The fourth lumbar vertebral body was slightly wedged. The fifth lumbar vertebra was also wedged with its inferior body more affected than the superior part. At its anterior aspect of the inferior body there was bony reaction, which was more marked on the right side. Finally, the first sacral vertebra presented joint contour change, osteophyte formation and bone reaction/formation on its anterior aspect, which was also more pronounced on the right side. These manifestations suggest an anterior-lateral herniation of the vertebral disk.

Schmorl's nodes are herniated defects caused when the vertebral disk cartilage protrudes the vertebral body causing an oval or round shaped defect, and were visible in four vertebrae (Aufderheide and Rodríguez-Martín 2008; Ortner 2003). Slight depressions were identified on the inferior part of the body of the ninth thoracic vertebra and the superior body of the first lumbar. The third and fourth lumbar vertebrae

presented a severe depression and moderate depression on their superior bodies respectively. Finally, a severe depression was also visible on the superior body of the fifth lumbar. These pathological manifestations are often found in individuals over 45 years of age, the same age range as the skeletal remains (Aufderheide and Rodríguez-Martín 2008).

A possible congenital condition was observed on the sixth cervical vertebra. Moderate bone protuberances were identified on both sides of the lamina, just inferior to the superior articular processes.

Conclusion

The analysis revealed a middle-aged adult female (35-50 years old) with a gracile skeletal build who measured 170.65 m ± 3.27 in stature (Trotter 1970). Slight wear was recorded on the dentition, which was complete, with all third molars present. No dental pathologies or calculus were identified. All the pathological manifestations encountered on the skeletal remains; degenerative joint disease and associated conditions such as Schmorl's nodes and anterior lateral herniation; suggest an older individual with degenerative changes mostly concentrated on the lower lumbar spine. A possible congenital condition was also recorded on the sixth cervical vertebra where bony protuberances were identified on both sides of the vertebra (Aufderheide and Rodríguez-Martín 2008; Ortner 2003). None of these pathological conditions would have caused the death of the individual but they do indicate old age and/or a hard working life. The lack of calculus or dental disease indicates a possible low starch diet or it could signify some kind of dental hygiene or care (Hillson 1996). The low carbohydrate intake with possible fine particles of grit present on the processed food could also explain the slight wear present on these teeth (Mickleburgh 2007).

Pottery Analysis By Beverley Ballin Smith

All the sherds were examined and their attributes and statistics were compiled according to the revised guidelines of the Prehistoric Ceramics Research Group (1997) and the IFA's Standards and Guidance for the collection, documentation, conservation and research of archaeological materials (2001).

Description of the vessel SF 1 *(Figure 4)*

The fragments of pottery are highly friable and crumble easily into the components of stone and clay dust. This is due to the fact that the fabric contains a high percentage (c.40-50%) of quartz rock that is not well fused with its clay matrix. It has not been possible to ascertain whether vegetable temper was also added. The pottery was most likely fired at a low temperature and in predominantly reduced conditions, where the fusion of clay and temper had not successfully occurred. Together the sherds weigh a total of 890 g (see archive).

The vessel, most likely constructed of a combination of coils and slabs, has a flat base with a tripartite body form. From the base, the body of the vessel flares to its pronounced shoulder; above this are two concave (cavetto) zones divided by another horizontal ridge or cordon; the everted rim completes the profile (see Cowie 1978, 14 & Fig 1 - top right). The pot is c. 15 mm thick below the predominantly flat topped rim of which c. 10% is present. The rim diameter measures c. 240 mm and the diameter of the base is 80 mm, with 65% present. It is estimated that the vessel was c. 132 mm tall. The three largest sherds provide a complete profile of the vessel.

The outer surface is slipped and the decoration from rim to base of a combination of cord, comb-type and stick or bone tip incisions is separated into three zones by the two horizontal ridges. The inner surface of the vessel is smooth but the internal chamfer of the rim is impressed by a row of close set triangles (see below).

Detail of the decoration

The rim to the upper cordon forms a slightly concave neck of c. 25 mm depth. It is decorated from the rim down by three horizontal rows of cord impressions. A plain field follows which is bordered above the upper cordon by a row of closely positioned, roughly triangular impressions made by a stick or bone. The impressions are slightly angled into the clay.

The upper cordon is decorated by two rows of cord impressions forming the top of the next slightly concave design. A line of finger-nail or stick incisions are inverted and impressed below the cord pattern. Below them is a vertical design

Figure 4: Reconstruction of vessel SF 1.

of parallel short combed depressions c. 3.5 mm wide. This is followed and bordered by another line of roughly triangular impressions to the top of the lower cordon. The measurement between the cordon ridges is c. 30 mm.

The lower cordon is decorated by up to three cord impressed parallel lines. From that to the base of the vessel is a combination of designs. The upper one is a c. 30 mm deep decoration formed by parallel cord impressions angled top left to bottom right. Below this are another three horizontal cord impressed lines followed by a 20-25 mm decoration of parallel cord impressions angled top right to bottom left. The final decoration of two parallel lines of cord impressions decorates the foot ring, which is 7 mm deep to the flat base.

Discussion

The Vessel

The vessel, identified as a tripartite Bronze Age food vessel urn was found in a short cist with a crouched burial. The vessel was positioned to the west of the cranium, but had been damaged due to the later insertion of a triangular-shaped stone behind the head, which led to the accidental breaking of the pot. The evidence indicates that the vessel was placed with the body into the cist. Its position next to the head is significant, indicating that it was possibly meant to hold food or drink to accompany the deceased to the afterlife

Food vessel urns are frequently associated with cists on mainland Scotland, although they are probably not as common in the suite of Bronze Age funeral ceramics as Beakers and urns. The recent discovery of several cists and three intact food vessel urns from Armadale on the Isle of Skye in 2009 (pers. comm. Mary Peteranna), and other examples, have increased the numbers described in the corpus produced by Cowie in 1978 where a minimum of 130 examples was recorded.

The finely decorated Keas Cottage tripartite vessel is typical of Scottish Food Vessels, in that its decoration is incised with cord impressions (a dominant motif of these pots), and it has an all-over decoration that includes the bevel of the rim. Some of the motifs on this vessel are reminiscent of those within the suite of Beaker vessel decoration, but also those noted on Collared Urns (see Sheridan 2004, 253). Sheridan

(ibid, 257) discusses the chronological and geographical overlap between Scottish Beakers and Scottish Food Vessels, the fact that Collared Urns were also in use at the same time as Scottish Food Vessels, and that Cordoned Urns 'continued to be used after Food Vessel use ceased' (ibid, 259).

The impressed triangles which form part of the Keas Cottage group of motifs may have been indicative of an eastern variation as seen on other East Coast examples such as the Dalmore Food Vessel, Alness (Cat ROS1), which is described as having 'small triangular to D-shaped jabs' on the rim (Cowie 1978, 133) but is otherwise plain and undated, and a vessel from Loanhead of Daviot, Aberdeenshire (ABN5), which has haphazard small triangular slabs (ibid, 107). AGS6, a pot from Tealing, Brechin is also decorated by a series of triangular jabs in oblique lines (ibid, 111) but the occurrence of a triangular stamped decoration noted on a vessel from Ferniegair, the Clyde Valley (LNK4) (ibid, 127), suggests that this decoration is not confined geographically.

Scottish Food Vessels are perhaps less well known than other Bronze Age vessels, but the overlap and interplay of stylistic elements with Beakers and with urns makes the survival of the Keas Cottage an important addition to the corpus. It is possibly the most northerly identifiable vessel of this type to date.

Dating

The chronology of Scottish Bronze Age human remains and associated pottery vessels found in cists has been subject to a programme of radiocarbon dating by the National Museums Scotland (Dating Programme). The range of dates, for those Scottish Food Vessels which have been dated, falls between 2200 and 1520 cal BC at 2σ, which is wider than comparably dated vessels from Ireland (c. 2180-1725 cal BC) (Sheridan 2004, 249 and see Brindley 2007 and 2008). The dates of bi- or tripartite vessels such as Barns Farm 1, Fife (a tripartite vessel ibid, figure 81) generally span a range of c. 2200-1700 cal BC at 2σ, but the form and development of Scottish Food Vessels is complex. Another radiocarbon dating project, the Beakers and Bodies project (Curtis et al 2008) centred on Aberdeenshire, has produced a date of 2140-1950 cal BC (V-2243-50 3673 ± 29) from a skeleton associated with a Beaker/Food Vessel hybrid or Food Vessel from Beatties Hill, Surryhillock, Fetteresso. Dateable Food Vessels further north along the Scottish east coast are rare and Cowie only describes one north of the Black Isle.

The radiocarbon dates for the Keas Cottage cist returned results of 2051-1911 cal BC and 2151-2018 cal BC (see Table 3). Both these dates fall easily within the parameters of the dating programmes described above, but interestingly give a more narrow return for the burial and therefore the date of the vessel. These dates emphasis the continued need for dating of burials with Bronze Age pots, in order to provide understanding of activities associated with them, and the role that vessels played.

The role of the vessel

The placing and arrangements of body and objects in the cist is important in this example. It is assumed that the body would normally be positioned before any grave goods, including the pottery vessel. However, in this case, if the Food Vessel was placed first, it gives it an elevated status and significance in the burial ritual than previously thought. The south-west corner of the cist in which the vessel lay may also have had meaning. If the placing of the vessel took priority over that of the deceased, then it partly dictated the position of the body and of any other accompanying artefacts and rituals. It is interesting that the insertion of the triangular-shaped stone, which may have necessitated the disturbance of the body if it already lay in the cist, and caused the cracking of the urn, may have been an after-thought. More specifically, the urn was not lifted out of the cist while the stone was positioned. This might suggest that the vessel was not to be touched once it had been put in place. Perhaps it had special qualities or was deemed to have an unbroken link with the deceased.

In many of the examples cited by Cowie (1978, 32-42), the urns were often inverted and associated with cremations. The Keas Cottage Food Vessel Urn is important because of the variation it brings to the debate on Bronze Age burial rites, its clear association with the dead and the significance of its form and decoration.

Organic Residue By Penelope Walton Rogers

The organic evidence from the grave was poorly preserved and most of the material sampled proved to be plant roots and decayed bone (for details of the microscopy of individual samples, see report in archive). Two samples, however, contained remains relevant to the burial of the body. A mesh of brown fibrous material incorporating fine sinew-like strands, from inside the left scapula, is likely to represent decayed soft tissue from the body itself. Similar material was recorded under the left radius, but here it was in association with a small tangle of fibres identified as wool. Each of the wool fibres examined was broken at both ends, so that it was impossible to establish their exact relationship with the sinew-like material. This can be interpreted, therefore, either as further human tissue, with remains of a wool textile clinging to it, or as part of a sheepskin.

The wool fibres were identified by their irregular waved mosaic scale pattern with smooth near margins (Appleyard 1978, 26-7, figs 75-85); their continuous medullas on coarse fibres; and the diameter of the fibres, which ranged from 13-67, with a most common measurement (mode) of 21 microns. Approximately 15% of the 35 fibres examined had moderate pigmentation, the rest being non-pigmented. The modern Soay sheep of St Kilda is thought to be directly descended from Bronze Age sheep and most Soays have a brown body with a white underbelly (Ryder 1983a, 36, 47): experience has shown that a small number of brown fibres are often found in the white patches of predominantly brown fleeces. A fine underwool combined with coarser fibres is standard in Bronze Age wools and a mode in the region of 20 microns is also typical of the Soay (Ryder 1983b, 330; Ryder 1983a, 45-9). The small sample from Spinningdale is therefore consistent with established knowledge of Bronze Age wool.

A single body buried in a brown wool textile was found at Rylston, West Yorkshire, in a tree-trunk burial ascribed to the Early Bronze Age (Henshall 1950, 131; Ryder 1983a, 48; Bender Jørgensen 1992, 18-19, 197-8). There is another possible example from Coniston, Cumbria, a Late Bronze Age piece from Cromaghs, Armoy, Co.Antrim (Henshall 1950, 158-9; Bender Jørgensen 1992, 215) and many more from burials in Bronze Age Denmark (Broholm and Hald 1940). Most fibre products found with Bronze Age bodies in Britain, however, have proved to be either plant-based mats and covers (Henshall 1950) or animal skins. A brown cattle hide, for example, had been wrapped around the body in the cist at Langwell Farm, Strath Oykel, Sutherland (Walton Rogers in Lelong in prep). Other examples of burials with animal skins from Bronze Age Scotland have been reviewed by Ellen McAdam (McAdam 1982, 126-7; Watkins 1982, 61-2) and the practice probably extended through much of north-west Europe (Hald 1980, 313, 380). Most skins have been identified as 'bovine', except for one that proved to be fur, possibly from stoat (McAdam 1982, 127). Sheepskin (if it is a skin) does not appear to have been previously identified in a Bronze Age burial in Britain, although sheepskin garments are well attested from Iron Age burials in Denmark (Hald 1980, 313-20; Walton 1988, 144-6).

Stone Analysis By Ann Clarke

The triangular-shaped stone SF 2 is an irregular-shaped block of locally derived micaceous schist which was found behind the skull at the end of the cist. It measures 220 mm in length; 98 mm maximum width; and 45mm in thickness. The upper and lower faces of the stone are flat giving a rectangular cross-section and it is sub-triangular in plan. The archaeological literature would indicate that 'pillow stones' vary in form and size and occur in burials from the early Bronze Age through to the early Christian period. They are not a regular feature of early Bronze Age cist burials but where they do occur they are often found at the head end of the inhumation in close association with a pot. A Beaker and pillow stone were found beside the skull of an inhumation in a cist at Juniper Green, Midlothian (Sheridan 2007). As there was no cremation present in this example, it is suggested that the stone related directly to rites associated with the inhumation.

A wide stone was 'raised like a pillow where the head had rested' was found within a cist at Carbach, Aberdeenshire (Christie 1864, 363), together with the inhumation. There was also a broken urn from which a 'white yellow powder … dyed the part of the pavement on which it had so long rested' (ibid, 363). Another instance of the use of stones associated with early Bronze Age funerary rituals is those that are found inside urns with cremated remains. A large quartz pebble was found in a recently excavated Collared Urn from Airlie, Angus and it was most likely used to

crush the cremated bone before incorporation into the pot (Clarke 2011).

A stone spall SF 3 was found beneath the Beaker. It could have been accidentally knocked off one of the cist slabs during construction.

Small Ring By Iraia Arabaolaza

A semi-circular shaped fragment of non-organic, unidentified material was found within the fill of the vessel. It measures c. 3 mm in length and 1 mm in thickness. Further specialised work will be necessary in order to determine its material and possible function (Plate 5).

Plate 5: Small ring

Botanic Remains By Susan Ramsay

Macrofossil Analysis

Dried retents were examined using a binocular microscope at variable magnifications of x4 - x45. For each sample, estimation of the total volume of carbonised material >2mm was made and modern contaminants were scored using a scale of 1-3 'plus' marks. For each sample, all charcoal fragments >2 mm were identified, together with any other plant macrofossils present within the samples.

The internal anatomical features of all charcoal fragments were further identified at x200 magnification using the reflected light of a metallurgical microscope. Reference was made to Schweingruber (1990) to aid identifications. Vascular plant nomenclature follows Stace (1997).

Results

The results of the botanical analysis are shown in Table 2.

There were very few carbonised remains recovered from the samples from Keas Cottage cist. The fill (007) that was used to pack the cist capping stones and seal the cist contained traces of birch and Scots pine type charcoal as did the fill (011) of the cist itself. However, the charcoal fragments were tiny and may be residual from earlier activity rather than contemporaneous with the cist itself. The fill (012) of the cist that was located directly under the skull also contained a single fragment of Scots pine type charcoal, together with a carbonised piece of grass stem. The remaining cist fills, (015) from inside the pelvis, and (017) from beneath the femurs, did not produce any carbonised botanical remains, although (017) contained a significant number of uncarbonised fungal hyphae. This concentration of fungus may be connected with the presence of minerals leaching from the bones. The final sample 010 came from within the vessel that was located immediately to the west of the skull. This did not produce any carbonised plant remains but did contain large quantities of carbonised material of unknown origin, perhaps clay or food remains? In addition, a fragment of a small ring (Plate 5), of unidentified material was recovered from the fill of the vessel.

Discussion

There was very little charcoal recovered and so it is possible that this material represents residual material from an earlier phase of the site, rather than being contemporaneous with the cist itself. The charcoal types were birch and Scots pine type, both consistent with the native forest type for this part of northern Scotland (Tipping 1994). The fill of the Food Vessel contained carbonised material, although this did not appear to have a botanical origin, it might actually be the remains of burnt food.

	Context	007	011	012	015	017	Beaker
	Sample	001	008	002	005	007	010
	Description	Fill used to pack capstones, seal the cist	Fill of cist (bottom)	Fill under skull	Fill inside pelvis	Fill under femurs	Fill of beaker vessel
Modern roots		-	++	-	-	-	-
Volume of charcoal >2 mm		<<2.5ml	<<2.5ml	<<2.5ml	-	-	-
Charcoal							
Betula	birch	7 (0.05g)	1 (0.01g)	-	-	-	-
Pinus sylvestris type	Scots pine type	1 (<0.01g)	1 (<0.01g)	1 (0.01g)	-	-	-
Poaceae stem	grass stem	-	-	1 (<0.01g)	-	-	-
Misc							
Uncarbonised fungal hyphae		-	-	-	-	++	-
Burnt material - not botanical		-	-	-	-	-	+++++
Fragment of ring c.5mm diam.		-	-	-	-	-	1

Table 2: Botanical remains

Radiocarbon Dating Results

Two samples were submitted to Scottish Universities Environmental Research Centre (SUERC) for radiocarbon dating: a bone sample from the right radius of the skeleton and a birch charcoal (Betula) sample from the fill that sealed the cist. The bone produced the date of 2051-1911 cal BC and the charcoal produced a date of 2151- 2018 cal BC.

Lab Code	Material	Con	Desc	Un-calibrated	Calibrated 1-sigma	Calibrated 2-sigma
SUERC -41427	Human bone	011	Right radius from skeleton	3635 ± 30	2033-1950 cal BC	2051-1911 cal BC
SUERC -41428	Charcoal	007	Betula	3700 ± 30	2102-2036 cal BC	2151-2018 cal BC

Table 3: Radiocarbon dates

Discussion

Local Context

Numerous prehistoric sites had been recorded in the vicinity of the excavated area, indicating a landscape full of human activity. Several chambered cairns, representative of an earlier ritual landscape surround the site. Three of them, Rivra (SAM: 1813; NMRS: NH69SE 7) an Orkney-Cromarty type cairn, a Neolithic chambered cairn known as Bailenacuile or Allt nan Eun (NMRS: NH69SE.8; SMR: MHG9431), and Kyleoag (NMRS: NH69SE 42), were located north-west of the site. Ledmore Wood (NMRS: NH68NE.2) was situated to its west and Ardvannie chambered cairn (NMRS: NH68NE 7) lies south of the Dornoch Firth and the site.

Between the Rivra and Bailenacuile burial monuments, situated on the edge of a field, are two stone-walled huts, termed the Rivra circular enclosures, probably sheep folds (RCAHMS 1911a) and dated to the Bronze Age (NMRS: NH69SE.4; SMR: MHG9427). Further to the south of Dornoch Firth, burnt mounds and hut circles have been found. In addition to the Neolithic chambered cairns and remains of Bronze Age settlements, several early Bronze Age short cists had also been discovered around Dornoch Firth, portraying an array of different constructions, burial practices and grave goods.

Cists found in Dridaig Cottage, Edderton and Achinchater, Dornoch were the most similar and geographically closest to Keas Cottage, Spinningdale. Cut in natural sand and gravel and filled by redeposited subsoil fills, the cist in Dridaig Cottage revealed a crouched inhumation of a possible female of c. 35 years old, buried with worked flint, a copper-alloy fragment and possible organic material on the floor of the cist (Ralston 1996). In Achinchater, the only bone, a jaw bone represents an inhumation, which was buried with a barbed and tanged arrowhead, a Food Vessel type urn and a bronze pin (Davidson 1940).

Funerary ritual

Several characteristics of the Keas Cottage cist and its associated grave goods made this a significant and extraordinary site. The substantial burial pit in which the cist was constructed can be compared to Barnyards in Angus (Taylor et al 1998); Burial B and C at North Mains, Strathallan, Perthshire (Barclay 1983); and the burial at Mill Road Industrial Estate, Linlithgow, West Lothian (Cook 2000). However, Cook suggests that the large pits at Barnyards and Strathallan may be related to assist later rituals within the pit (ibid). In contrast, the Spinningdale cist had been sealed and therefore represents an exclusive event of an 'individual' grave, which appears to be a rare type of burial (ScARF 2012).

The dating of the cist corresponds with the chronology obtained by the National Museums of Scotland dating program for the Scottish Food Vessels, between 2200 and 1520 cal BC at 2σ (Sheridan 2004, 249). The form and development of this type of vessel is complex, due to their limited number and the overlapping and interchange of stylistic elements with Beakers and urns. The vessel found at Keas Cottage seems to lie further along the Scottish east coast than those previously found to date (Cowie 1978). It contained carbonised material of non-botanical origin, unidentified cremated bone and a fragment of small unidentified ring. All these elements indicate a possible belief in the afterlife and were placed there to assist the individual's journey into the next world. The insertion of the triangular stone into the cist and the consequent breakage of the vessel however could suggests that the food or drink contained within it, and the vessel itself, were placed there as an offering rather than for the individual's use in the afterlife.

The sheepskin or wool discovered within the left arm of the body is the first sample of this kind in Scotland. There have been two other samples of wool found in the British Isles (Henshall 1950; Ryder 1983; Bender Jørgensen 1992), but no other potential examples of sheepskin are known. Findings of hide or fur are few and are often associated with 'rich burials' of adult inhumations. Only one sample of a multiple burial, including an adult and an infant, has been discovered so far in Scotland (Watkins 1982).

There seem to be a tentative geographical relationship of the cist and its contents with the Scottish east coast; represented by the eastern variation on the decoration of the vessel, as well as other cists found with fur/hide and similar burial constructions. The fact that the individual was facing towards the east, to the Dornoch Firth, a water course used for communication and trade, emphasizes this assumption. However, neither the decorative motifs nor burials with fur have been restricted geographically to the east; other examples have also been found in western Scotland.

Grave goods

There are two possible explanations for the significance of the grave goods found within the cist. The first is that they represent the individual and were part of her everyday life. The second interpretation is that they symbolize what the people that were burying them wanted to show to others witnessing the funerary rite (Hunter 2000). According to Cook (2000), the burial itself is an important rite where the deceased had a certain status or their remains acquired status during the burial rites. Both hypotheses could also be combined as the burial rite could have been used as a reinforcement of the significance that this individual had when living, and continue to have after her death.

Conclusion

The Keas Cottage cist is an example of the complexity and diversity of early Bronze Age burials. The often accidental discoveries of prehistoric burials are increasing the numbers that can be added to the corpus and the general picture of the burial rites and people's beliefs. The preservation of organic material, such as sheepskin or wool, also supports the view of a elaborate burial rites being carried out in the vicinity of the Dornoch Firth during the early Bronze Age.

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