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Containment, closure and red deer: a Late Neolithic butchery site at Skaill Bay, Mainland, Orkney

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ABSTRACT

Erosion of sand dunes in the Bay of Skaill, close to the Neolithic site at Skara Brae, exposed a spread of faunal remains and stone tools representing a Late Neolithic butchery site separated by a wall from a deposit of articulated red deer bone. This is an unusual and significant bone assemblage comprising both fragmented and articulated remains of red deer together with some domesticates. Also a whale mandible was closely associated with the butchery area. An interpretation of the site incorporates a reappraisal of the role of red deer and cattle elsewhere in Late Neolithic Orkney.

DISCOVERY

During a series of storms over the winter of 1992–3, substantial erosion was sustained by the sand dune system in the Bay of Skaill, Mainland, Orkney. An area which was particularly badly damaged lay approximately 100m to the west of the Late Neolithic village of Skara Brae (illus 1). Here, the sand dunes were completely truncated, revealing a shelf or ledge of glacial till which overlay the sandstone Stromness flags and projected outwards between 4–5m from the dune 'cliff face'. An examination of this erosion shelf by local amateur archaeologists revealed the exposure of an archaeological deposit lying directly above the natural till. Included in this deposit were many faunal remains, in association with a number of Skaill knives and other stone tools.

After a preliminary examination in August 1993, it was noticed that the major component of the faunal remains was red deer and because of its basal stratigraphic position, the deposit was likely to be of Neolithic date. From these observations it was clear that this site was of particular importance for the following reasons. First, given its primary stratigraphic position, the archaeological deposits represented initial human activities at this location and may well relate to the settlement at Skara Brae. Second, the direct and exclusive association of animal bones with Skaill knives tended to support the supposition that these stone tools were primarily used for butchery practices (Clarke 1989, M Armour-Chelu pers comm). Third, the virtual absence of Skaill knives and querns at Barnhouse (Richards 2005), suggests that primary food preparation, including cereal processing and animal butchery, was undertaken beyond the confines of the habitation area. At Barnhouse, these locations were undiscovered; however, the Skaill Bay site appeared to be one such area and in all probability relates to the later occupation of Skara Brae. Consequently, it offered the possibility of examining an 'off-site' butchery area in detail. For these reasons, Historic Scotland agreed to support the 'rescue' excavation of the Skaill Bay site, before further destruction could ensue.

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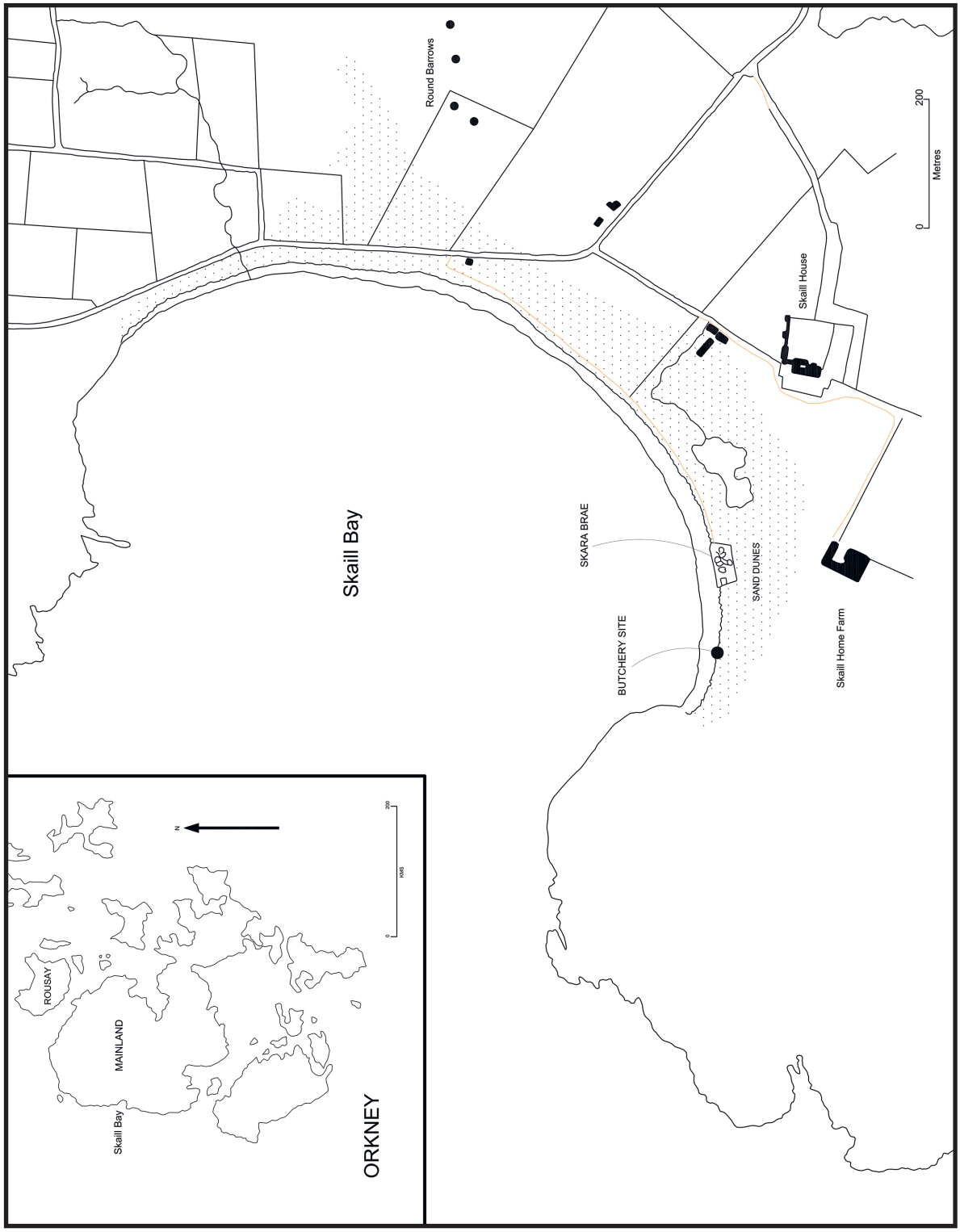


Illus 1 Site location

EXCAVATION

Colin Richards

Excavation of the site was basically a recovery exercise, in that the deposits were merely within a single stratum (01). Consequently, the site was excavated 'in plan' as a single open area. The fieldwork was done over a five-day period in mixed weather in late March 1994. The condition of the faunal material was highly variable. For instance, during excavation, the western area of the revealed surface was effectively flooded with water continually running from beneath the sand dunes; hence it was extremely difficult extracting complete bones as they maintained the consistency of cardboard. Nonetheless, it was clear that entire articulated sections of red deer were present. This contrasted with the less wet conditions to the west of the wall, where the faunal material was in much better condition.

After clearing the overlying sand and stone rubble, an area measuring 12.5 × 3m was excavated along the exposed ledge (illus 2). It soon became clear that the faunal remains and Skaill knives lay in (and on) a single horizon (01), which was sealed by windblown sand (02). Layer (01) was composed of compact grey clay, approximately 7–10cm thick, with a matrix of stone flakes and fragments. The deposits, however, varied across the trench and were effectively divided by a stone wall (03), which projected from the sand dunes in a SSW/NNE direction (illus 2).

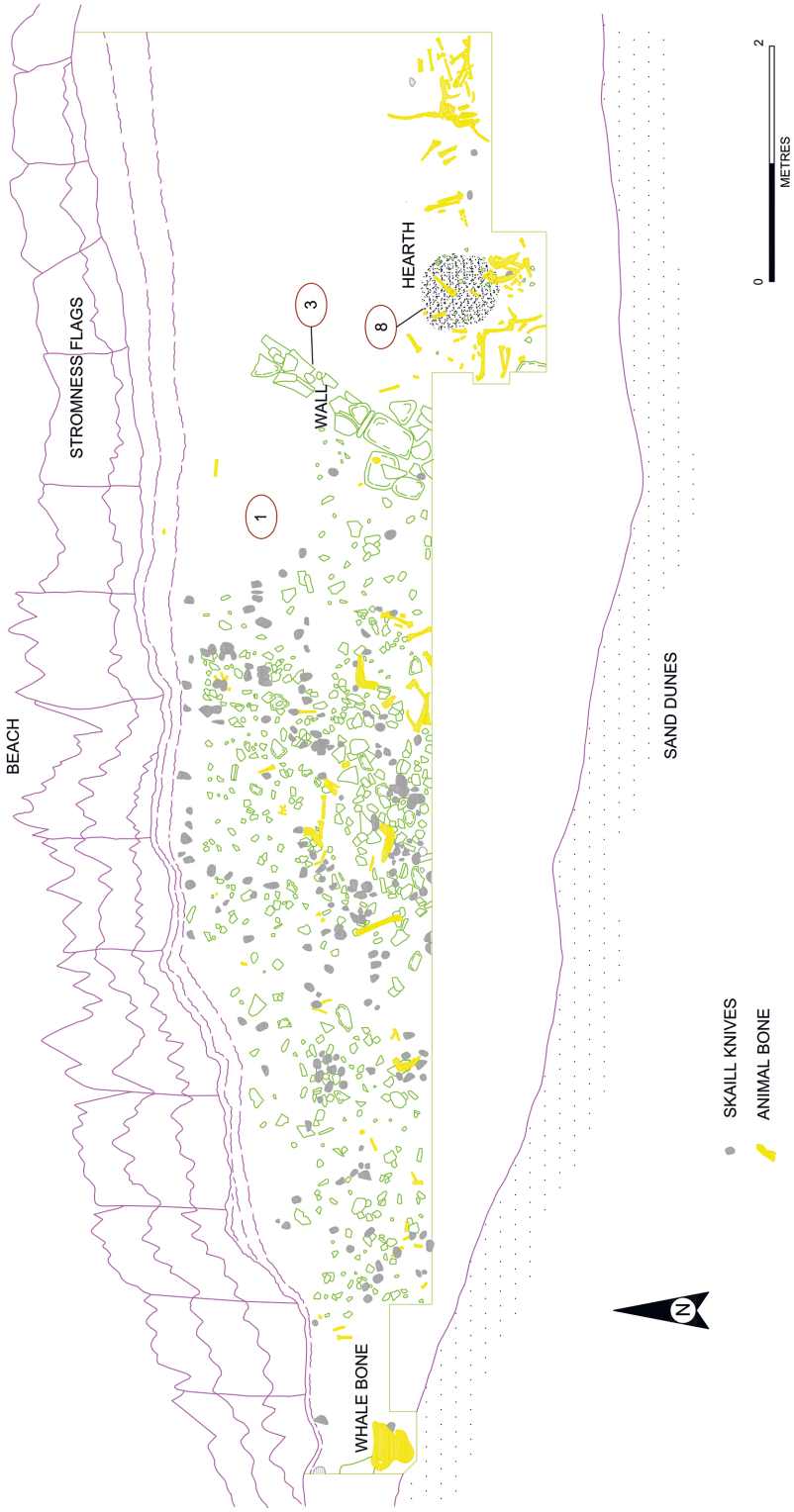
To the west of the wall, large quantities of Skaill knives were present together with stone flakes and fragments of pebbles. Intermingled with this material were other small stones and disarticulated animal bones, including five mandibles and three antlers of red deer (illus 3). Situated at the western end of the trench was a large whale bone mandible associated with three Skaill knives (illus 4).

The nature of the western deposit (01) is difficult to establish (though see Environment section below), the faunal remains tended to be situated either in its upper levels or directly on the surface. Although some of the Skaill knives were located in a similar position, the majority were mixed with other stones at a slightly deeper level. In terms of depositional chronology, however, this variation in depth is deceptive. Here the position of rest of the Skaill knives is vital since most were angled into the clay; some were even set vertically with their upper edges projecting through the surface of the layer. This suggests that the context of deposit was of a muddy composition allowing the heavier knives to sink or be trampled into the soft ground, while the lighter animal bone remained near the surface.

During the final stage of excavation, a whale mandible was discovered resting on the same land surface some *c* 9m to the west of the main concentration of Skaill knives. Although not completely excavated, it was clear that Skaill knives were also present in this area (three were recovered in close proximity to the whale mandible), and may be associated with practices involving the whale mandible.

On the eastern side of the wall the old land surface was of a far more sandy composition. Skaill knives were rare with only a few examples being recovered. Similarly, the faunal remains contrasted greatly with the more fragmentary disarticulated bones present in the western area. Here, articulated remains of red deer, including a complete skull with attached antlers, leg bones and vertebrae, were grouped together (illus 2 and 5). Moreover, the articulated red deer remains were clearly part of more extensive deposits as they continued in quantity beneath the sand dunes.

In the eastern area, a circular hearth scoop (08), containing black ash (04), had been cut into the top of the old land surface, consequently it post-dated the deposition of much of the articulated red deer bones incorporated in the OLS. The ash (04) was of a burnt peaty consistency and did not include identifiable pieces of charcoal (hence, no date was obtained for this feature). Several flint flakes were associated with the hearth being incorporated in the spread of secondary white ashy fill (07), representing its later use. Also contemporary with the secondary use of the hearth was a spread of stone paving (06), laid down to the south. The paving represented the final occupation of this



Illus 2 Site plan showing distribution of bone and Skaill knives

ILLUS 3 Vertical view of western deposits

ILLUS 4 Whale mandible with Skaill knives in the foreground

area which was subsequently covered by wind blown sand. No higher deposits were observed in the build up of sand.

ENVIRONMENT AND DATING

The environment has changed dramatically since the Late Neolithic occupation of areas around Bay of Skaill. Today, both Skara Brae and the Skaill Bay butchery site occupy an exposed coastal location on the south side of the bay. However, during the Late Neolithic, the opening to the current bay was closed, resulting in the presence of a substantial loch (Vega-Leinert et al 2000). Skara Brae and the butchery site would at this time have been positioned adjacent to the south-eastern lochside. Given the steep angles at which many of the Skaill knives were resting, the deposition environment of the Skaill Bay butchery site must have been relatively soft or marshy. This interpretation is further supported by the condition of the stone artefacts, the surfaces of which appear to have been altered by chemical action, almost certainly a result of lying in a badly drained environment.

A series of environmental changes during the Mid Holocene in the Bay of Skaill have been identified (Vega-Leinert et al 2000) and are summarised here together with the accompanying dates. Freshwater marsh was formed by streams flowing into a natural depression on the glacial sediments from 6550 ± 80 BP (5590–5305 cal BC). This subsequently developed into the formation of freshwater ponds. These ponds began to be infilled with windblown sand from 6120 ± 70 BP (5040–4855 cal BC) and there followed a series of sand blow events up to 4410 ± 60 BP (3325–2900 cal BC). Anthropogenic activity in the area identified in the pollen and charcoal record is dated to 5340 ± 160 BP (4370–3115 cal BC) whilst the occupation of Skara Brae took place between 3640–1942 cal BC. A recent series of radiocarbon dates from the 1972–3 and 1977 excavations place the occupation of Skara Brae between 4480 ± 35 BP and 3775 ± 35 BP (3340–2140 cal BC) (Sheridan et al 2012).

It is possible then that the butchery area was situated in one of these infilled freshwater ponds and that the bad drainage on top of the glacial sediments made it occasionally swampy or muddy, hence the angle of rest of the stone artefacts. In a recent site visit, the geomorphologist Professor Alastair Dawson highlighted the fact that the deposits of the butchery site rested directly on top of a clast-supported diamict of glacial origin. A grab sample of organics which rested directly above the diamict, but to the west of the site (there was no organics layer in the hollow of the site), and kindly examined by Dr Paul Ledger of Aberdeen University was found to have a low pollen

Table 1
Radiocarbon dates (Calibrated using OxCal3)

Sample	*Material*	*Context*	*Description*	*Depositional context*	*Uncal* BP	*Calibrated 64.2% probability* (all BC)	*Calibrated 95.4% probability* (all BC)	*Delta –13C %*
SUERC-4850 (GU-124808	Antler	OLS	Old land surface east of wall [03]	Deposited articulated red deer	3825+/-35	2340–2320 (4.5%) 2310–2200 (63.7%)	2460–2420 (2.1%) 2410–2190 (86.8%) 2180–2140 (6.5%)	–21.1%
SUERC-4851 (GU-12481)	Antler	OLS	Old land surface east of wall [03]	Deposited articulated red deer	3775+/-35	2280–2250 (16.4%) 2230–2130 (51.8%)	2310–2120 (86%) 2100–2030 (8.8%)	–20.8%

concentration and an assemblage dominated by herbs.

Two radiocarbon determinations obtained from antler show the articulated deer skeletons to date to the later third millennium cal BC (Table 1). The presence of these deposits, which date to the Late Neolithic and overlap with the later occupation of Skara Brae, lying directly on the glacial till possibly indicates the prior removal of turf in this area. Given the results of soil micromorphological analysis at Barnhouse, turf was clearly employed widely in Late Neolithic settlements (French 2005: 378–9). Consequently, areas around settlements such as Skara Brae and Barnhouse may have been extensively stripped of turf. Alternatively, a substantial sand-blow event or a series of events eroded the organic horizon between the glacial till and the Late Neolithic deposits. Certainly, at this date the sporadic re-occupation deposits associated with 'temporary' hearths within certain houses at Skara Brae are sealed by sand-blow deposits (Childe 1931: 61–4).

THE STONE TOOLS

Ann Clarke

The stone tool assemblage is dominated by Skaill knives which are simple flake tools made from micaceous sandstone, some of which bear traces of damage from use. There are also cores and some debris from the manufacture of these flakes together with a few cobble tools, a stone disc, and a small amount of worked flint (Table 2). The distribution of these stone artefacts suggests at least two different areas of activity. One, involving the Skaill knives and animal bone, lies to the west of the projecting wall, and a second, associating the flint with the hearth, paving and possibly the earlier articulated animal remains, to the east of the wall.

TABLE 2
Stone artefact types by layer

	1	*2*	*3*	*4*	*Total*
Flakes:	171	1	1	–	173
Primary	*134*	*1*	–	–	*135*
Secondary	*36*	–	*1*	–	*37*
Inner	*1*	–	–	–	*1*
Spalls:	11	–	–	1	12
Primary	*4*	–	–	–	*4*
Secondary	*7*	–	–	*1*	*8*
Cobble core	3	–	–	–	3
Cobble tool	3	–	–	–	3
Flaked cobble	4	–	–	–	4
Cobble unused	3	–	–	–	3
Stone disc	1	–	–	–	1
Flint	–	6	–	3	9
Total	196	7	1	4	208

ILLUS 5 Articulated red deer bone east of wall

RAW MATERIAL AND CONDITION

All of the coarse stone tools were made using rounded beach cobbles of the local grey and black micaceous sandstone. This medium-grained stone has reasonable flaking qualities that allow it to be easily worked into simple flake tools.

The condition of the flakes is varied; none are particularly fresh-looking and in fact, the surfaces of many have clearly been altered, most likely by chemical action to make them quite friable, and this is responsible for much of the post-excavation breakage along the edges of the flakes. More severe abrasion is visible on 5% of the flakes and it was noted that on a few pieces just one side or face was affected, suggesting that the flakes had lain partially exposed for quite a time after deposition. Most of the abraded flakes were found in the western 4m of the site, perhaps indicating a wetter environment in this area than for the rest of the site – or perhaps these were groups of tools that had been deposited at different times. Burning, or at least heat-damage, affected another 5% of the flakes.

MAKING THE SKAILL KNIVES

Skaill knives are very simple flake tools which are quickly and easily made; their manufacture and physical characteristics have been discussed fully (Clarke 2006: 16–22) and the main points are summarised here. Most of the flakes would have been detached from rounded beach cobbles by throwing the parent cobble forcefully against an anvil, most likely a larger cobble or boulder. The impact leaves a characteristic crushed scar on the proximal end of most of the flakes (illus 6). Both primary flakes (those flakes which retain cobble cortex over the entire dorsal face) and secondary flakes (those flakes which retain only partial cobble cortex over the dorsal face) are removed in this manner. It is likely that most of the primary flakes were made on the beach itself, where both parent nodules and large anvils were freely available and it would have saved taking heavy rocks back and forth; although the site is directly on the present day storm beach, during its occupation some 4,300 years ago, the coast line and consequently a ready supply of beach cobbles would have been further away to

ILLUS 6 A selection of Skaill knives

the west than at present. No doubt there would have been an amount of incidental debris as the cobble shattered on the anvil, and some of the more useful secondary flakes would have been collected together with the preferred large primary flakes or Skaill knives.

The presence of stone debitage at the site indicates that some cobbles were flaked in the more immediate area. The debitage comprises smaller secondary flakes and just one inner flake. Most of these flakes have a cortical platform and it is probable that they were a by-product of removing the intended larger primary flakes. In three cases the flake was detached at right angles to a previous removal indicating that the cobble had been turned to re-flake it.

The three cores are undistinguished: two are cobble fragments with random flake removal and the other is a rounded cobble with one large primary flake removal.

MODIFYING THE FLAKE EDGE

Only two of the Skaill knives have evidence for secondary working; on the majority of the flakes the original long, curved flake edge was sufficient for the intended work. In both cases of retouch, the edge has been modified by the removal of large single flakes to make a coarse denticulate outline (illus 7). On one tool (SF137) the flakes were detached from the ventral face in order to reduce the angle of the rather thick flake whilst on the other tool (SF118) the modified edge was made steeper through the removal of abrupt flakes from both ventral and dorsal faces.

USING THE SKAILL KNIFE

Because of the relative coarseness and softness of the micaceous sandstone in comparison to siliceous materials such as flint and quartz it is possible to identify macroscopic damage sustained on the surface of a flake or cobble tool through use. Unfortunately, the great majority of these flakes were subject to unavoidable post-excavation damage in the form of breakage along the very friable edge of the tool and consequently, the full extent of use wear traces could not be assessed. However, macroscopic

ILLUS 7 Skaill knives with modified edges. SF137 on left, SF118 on right.

edge damage representing wear traces was visible on 36 (21%) of the Skaill knives, indicating that they had been used in some way. In most cases, this edge damage took the form of light unifacial flaking and/or edge rounding along the distal edge, so these flakes would not have been subject to heavy use. Occasionally, bifacial flaking was visible along the used edge and in a few cases a coarse denticulate edge was formed, most likely by snapping the edge against something hard like bone.

COBBLE TOOLS

Two rounded sandstone cobbles bear traces of use as hammerstones. Both of these were only lightly worn, with very light pecking on one end of SF133 and small circular patches of faceted pecking on either end, together with a light spread of pecking in the centre of one face on SF176. The third cobble tool (SF21) has been more

ILLUS 8 Cobble tool SF21

ILLUS 9 Skaill knives with pecking on dorsal face. SF206 on left, SF76 on right.

ILLUS 10 Flaked cobbles with chopper-like edges

heavily used as not only is it broken across its width, but it has traces of heavy pecking on either face – towards the unbroken end – and this is also accompanied by bifacial flaking from this end (illus 8).

Two of the Skaill knives bear spreads of pecking over the dorsal faces, indicating that they had not just been used as flake tools (illus 9). On the larger flake, which is incidentally the largest flake in the assemblage at 500g in weight (SF206), a spread of light pecking is located in the centre of the cortical face, suggesting that the damage was caused by using the back of the Skaill knife as a small anvil/rest. The smaller flake (SF76) has traces of heavy pecking, which are spread over the dorsal face out to the edges of the flake, indicating that the cobble had originally been used as a hammerstone before being flaked.

Four other flat cobbles have altered edges formed by irregular flaking around one or both faces of the cobble: SF319, SF326, SF340 and SF72. These are all roughly shaped to form an irregular chopper-like edge (illus 10). The modified edges do not appear to be considered or planned and it is probable that most of the flaking is through use rather than deliberate shaping.

Illus 11 Stone disc

STONE DISC

This is a small disc made of tabular black micaceous sandstone which has been flaked bifacially around the perimeter to form a circular outline with a diameter of 79mm (SF289, illus 11). It is on the small side for Neolithic stone discs as they are generally much larger, for example, the stone discs from the Neolithic phases at Pool ranged from 50–240mm in diameter with the greater majority occurring in the range of 100–240mm (Clarke 2006: 37). However, recent analysis of the stone discs from the Neolithic site at Ness of Brodgar has demonstrated a significant grouping of discs of the size of the Skaill Bay example, which suggests these smaller discs are more common than previously thought (Clarke 2015).

FLINT AND CHERT

Nine flaked lithics (seven flakes and two scrapers) came mainly from the area in and around the hearth scoop.

Most of the flaked lithics are of grey flint, a few are burnt and there is a large core/scraper of a light grey, chert-like material. Beach pebbles of both materials were used – as demonstrated by the smooth cortex present on three of the pieces (including both scrapers) – and there is a heat spall of grey flint from a multi-platform core with a small amount of chalky cortex (SF200). There is no clear knapping strategy – the flakes tend to be small, fragmentary and with an irregular outline and complete pieces retain either narrow or crushed platforms.

Both of the scrapers are made from primary flakes (illus 12). The complete scraper (SF201) is a flake from a bipolar core; the distal end retains a heavily crushed platform, indicating that the pebble was held on a stone anvil whilst being struck from above. Irregular steep retouch around the narrow proximal end forms a slight notched outline. The broken chert scraper (SF210) is coarser both in material and manufacture than that of flint, and the distal end has four large

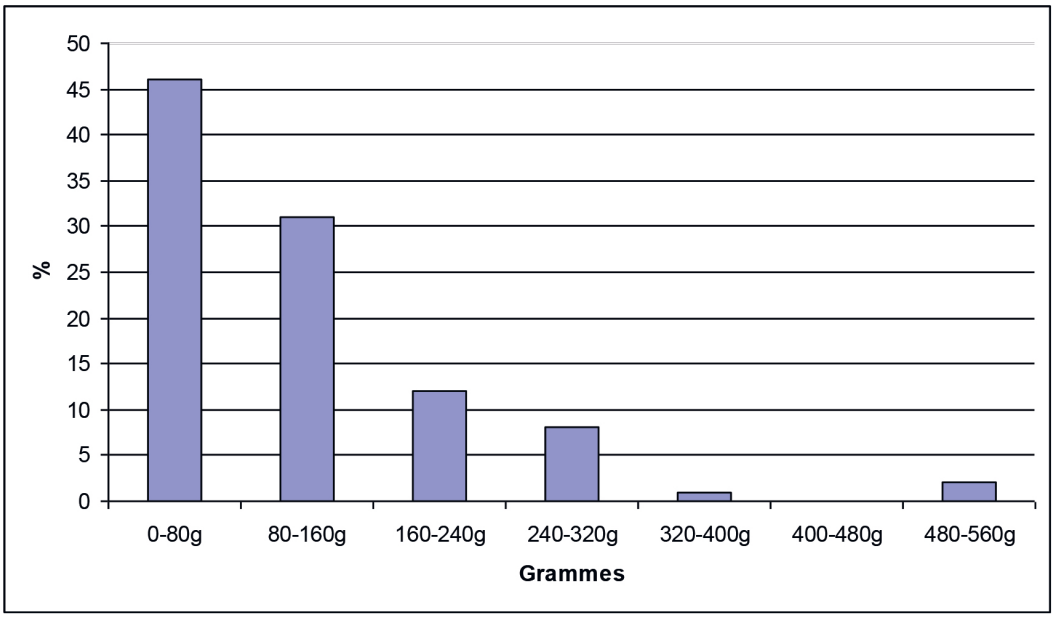
Illus 12 Chert and flint scrapers

flakes removed along its edge from the ventral flake face, providing a slightly angled steep edge. This edge could be interpreted as a scraper edge or it could be a shallow core.

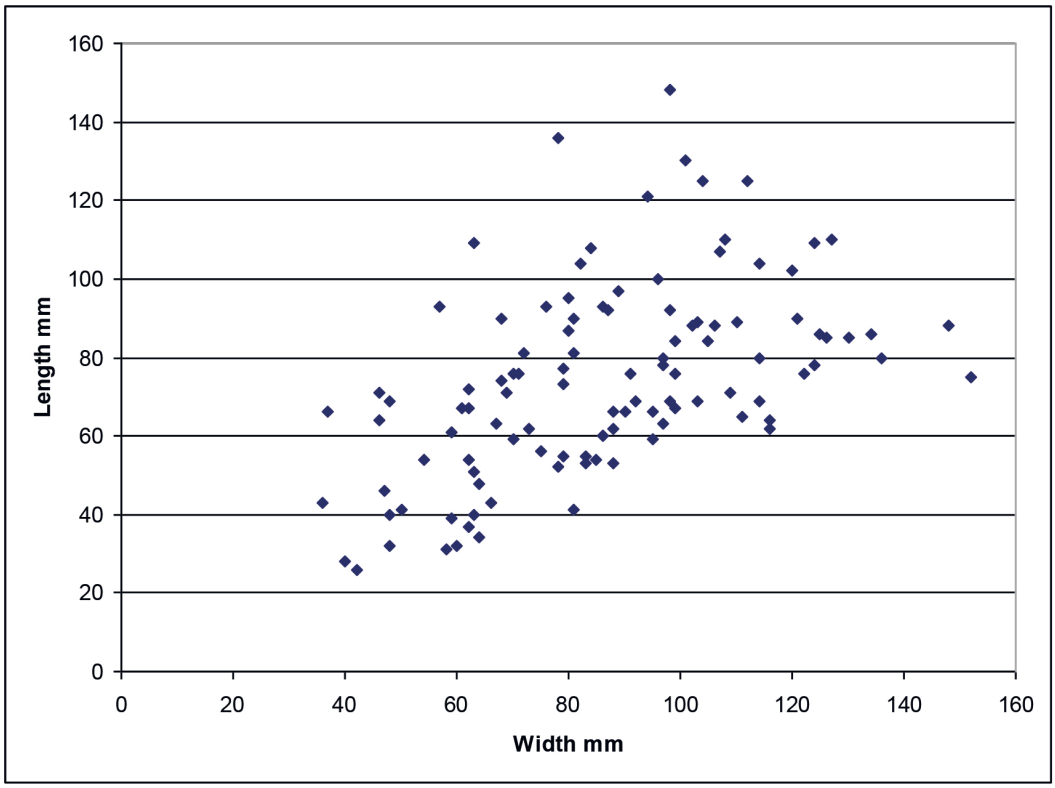
Since the excavated area at Skaill Bay represents just a fragment of the original extent of occupation, it is unwise to form conclusions on what is most likely a very small sample of what would have been a larger flint assemblage.

A BUTCHERING TOOL KIT

The typical Skaill knife is squat to round in plan, with a thick proximal end that enables it to be gripped comfortably in the palm of the hand, whilst leaving a long, unmodified working edge free to use (illus 7). These flakes were quickly and easily made and produced from an almost infinite resource of stone cobbles. The assemblage of Skaill knives from Skaill Bay shares all the main characteristics observed in other stone tool assemblages from Neolithic Orkney – and the ranges of weight and dimensions are very similar between all of the sites (illus 13 and 14)



Illus 13 Skaill Bay: weight ranges of complete Skaill knives (T = 102)



ILLUS 14 Skaill Bay: dimensions of complete Skaill knives (T = 102)

(Clarke 2006: 18–19). The wide range of weights and dimensions suggests that flakes of different sizes were needed for particular tasks, and the similarities of these size ranges between sites most likely means that Skaill knives were used in the same way throughout Neolithic Orkney.

Butchering is likely to have been the main task to which these flake tools were put. This proposition is supported by the results of an experimental butchering programme which was set up some years ago to test the usefulness of the Skaill knife as a butchering tool, and to examine the resultant post-use edge damage (Clarke 1989). The work showed that Skaill knives were very efficient butchery tools and the professional butcher made selections from the experimentally produced tools for flakes of a shape and size suitable for the task in hand; the smallest flakes for skinning and the largest for chopping bone, with the intermediate sizes used for a wide range of tasks. Given the similarities in size range between the experimental tools and those observed at Neolithic sites, it is highly probable that butchery tool kits are present in the prehistoric stone tool assemblages.

The lack of further retouch on the edges of the flakes suggests that the original edge was suitable for most of the tasks to which they were put and that it may have been easier to select a fresh flake when needed rather than to maintain the edge of a flake during use. During butchery, the flakes may have become sticky or greasy quite quickly and not even retouching the working edge would have protected the flake, or the hands, from the accumulation of grease or blood on the flake. The lack of curation of these flakes also suggests that they were highly disposable, perhaps only being used once before being discarded.

The flaked cobbles were roughly flaked to produce irregular chopper-like edges and it is

Illus 15 Clusters and arcs of Skaill knives

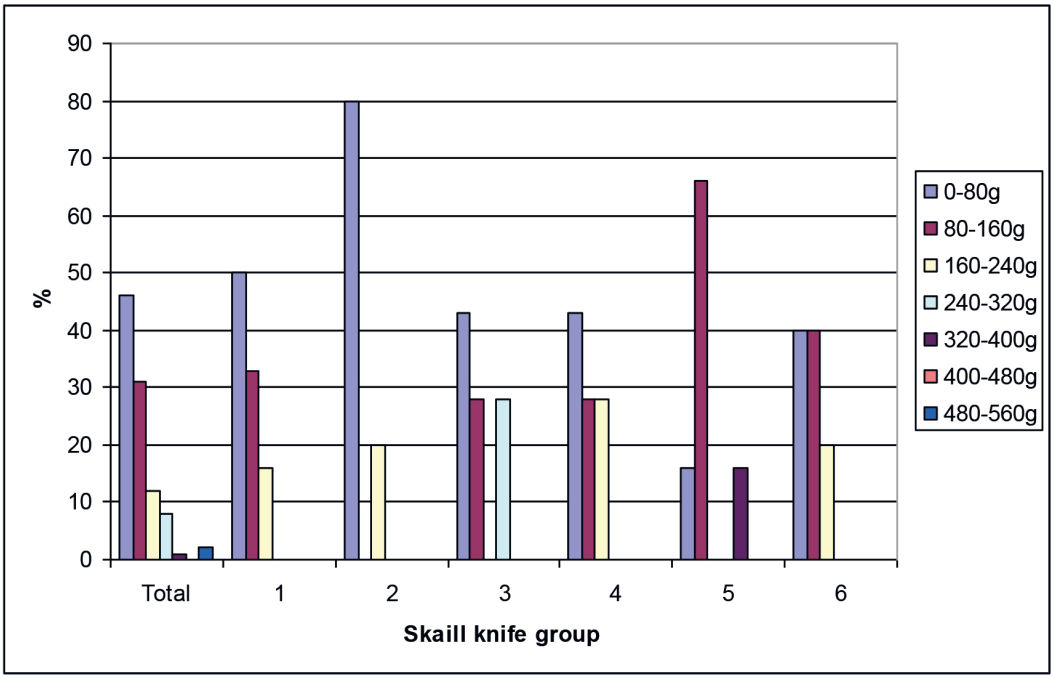
possible that the edges were actually formed through use rather than as a planned alteration. None of these tools were particularly large, in fact they fell midway in the size range for Skaill knives, so clearly heavy cobble choppers weren't required and they were just there to supplement the use of the flake tools.

None of the hammerstones bore extensive wear traces and they seem almost incidental to the larger assemblage of flake tools. They could have been used to shape a roughly flaked edge on the flaked cobbles or they may have been part of the butchery process, perhaps to hammer in the Skaill knives as wedges between joints or to split bone, but judging by their wear patterns they were clearly not heavily used.

The distribution of the stone tools reveals several clusters of flakes, some of which are associated with bones. It was not possible to locate all of the Skaill knives individually by finds number on the plan, but six small groups were identified and their properties investigated (illus 15). The Skaill knives from groups 1–3, to the western end of the excavation, were found to be smaller by weight than those from groups 4–6, situated centrally (illus 16). This echoes the distribution of the abraded flakes (see above) which occurred in the western end of the site and may support the proposition for slightly different activities across this part of the site.

There is also some association between bones and the stone tools (illus 15). For example, a number of flakes appear to be arranged around the edge of the large central southern concentration of bones and this may suggest working around the edge of a carcass or pile of joints. Arcs of stone tools are also present to the north of the site, but these are not associated with faunal remains and perhaps the bones were removed from this area after butchering.

The bone itself shows little or no evidence of cut marks, as is commented on below, however, the lack of visible marks on the bone may be because softer sandstone Skaill knives were used rather than sharp flint edges. Though experimental work has been done on the use of



Illus 16 Skaill Bay: weight ranges within groups of Skaill knives

Skaill knives as butchery tools, there has as yet been no analysis of the types of butchery marks left on the bone by these tools.

FAUNAL REMAINS

Claire Ingrem and Jacqui Mulville

The bone assemblage comprises mainly the remains of red deer, both articulated and disarticulated, and there were also a few bones of cattle and sheep/goat. The whale mandible together with a red deer skull with antlers attached (taken for radiocarbon dating) were not available for inclusion in this report.

METHODOLOGY

Anatomical elements were identified to species where possible, with the exception of ribs and vertebrae which were assigned to animal size categories. Mandibles and limb bones were recorded using the zonal method developed by Serjeantson (1996), to allow the calculation of the minimum number of elements (MNE) and individuals (MNI); this is based on the most numerous zone of a single element taking into account side. Percentage survival of selected elements is based on the minimum number of elements (MNE) calculated as a percentage of the maximum number possible according to MNI. In addition, all bone fragments over 10mm in the hand recorded material and over 2mm in the sieved samples were recorded to species or size category to produce a basic fragment count of the Number of Identified Specimens (NISP). Fragments categorised as large mammal are likely to belong to red deer (*Cervus elaphus*) or cattle, those in the medium mammal category to sheep/goat.

The presence of gnawing, butchery and burning together with the agent responsible was recorded. Fracture characteristics of major long bone diaphysis were recorded according to the method of Outram (2001). Measurements were taken according to the conventions of von den Driesch (1976) and Payne and Bull (1982) for mammals, and Cohen and Serjeantson (1996) for birds. The wear stages of the lower cheek teeth of red deer were recorded using the method proposed by Lowe (1967) and for caprines using the method proposed by Grant (1982) and age attributed according to the method devised by Payne (1973). The fusion stage of post-cranial bones was recorded and age ranges estimated for domestic mammals according to Getty (1975), and for red deer according to Habermehl (1985).

A selected suite of elements was used to differentiate between sheep and goat (Boessneck 1969; Payne 1985): horncore, distal humerus, proximal radius, distal tibia, distal metapodials, astragalus, calcaneus and deciduous fourth premolar. No elements were positively identified to sheep or goat, so for the purposes of this report the caprine remains are referred to as sheep/goat.

CONDITION OF THE BONE AND OTHER TAPHONOMIC CONSIDERATIONS

The condition of the animal bone was recorded on a scale of 1 to 5 whereby the first category is reserved for bones in excellent condition that display little or no surface damage, and those at the other end of the scale in very poor condition and recognisable only as bone that is unlikely to retain evidence of surface modification, such as butchery or gnawing. Most of the remains (80%) from Skaill Bay are moderately well-preserved, with the remainder in poor or very poor condition (Table 3). This level of surface damage can make butchery marks, particularly those made with blunter instruments, harder to observe. The assemblage was carefully examined for butchery marks and extremely few were visible (see below). It is possible that the identification of sandstone Skaill knife butchery marks on bone requires further research.

Due to the loss of the excavation plans which recorded the location of the numbered finds, it was not possible to determine which bones were articulated. As a result, it was extremely difficult to identify partial skeletons or ascertain the number of animals represented, despite laying it out in anatomical order, since the material has suffered a considerable degree of fragmentation.

ASSEMBLAGE COMPOSITION

There was a total of 735 fragments of animal bone of which 27% are identifiable to species or taxon (Table 4). The identifiable material is dominated (88%) by red deer, with cattle and sheep/goat present in small numbers. One bird bone was also recovered – a humerus belonging to a wader (*Charadriidae* spp).

Red deer

The red deer assemblage consists of 175 individual animal bones (Table 4). According to NISP, antler fragments are particularly numerous, although this is probably due to fragmentation since, apart from two naturally shed bases, almost all the specimens are fragments of main beam or tines. Femora and 1st phalanges are the most numerous postcranial elements, and the calculation of MNE and MNI indicates that femora are the most frequent bone when side and fragmentation are taken into account. A minimum of four individuals (Table 5) are represented by femora.

Elements from most parts of the body are present with large size mammal vertebra and rib fragments also likely to belong to red deer (Table 6). An attempt at re-articulation by means of visual examination suggests that at least three skeletons may originally have been deposited – two adults and a juvenile. However, ageing data indicates that at least two juveniles are represented (see below) and three or more adults are represented by other elements (the calcaneus).

Table 3
Condition of bone (NISP)

Condition	*Total*
1	
2	
3	512
4	199
5	24
Total	735

Percentage survival has been calculated using the method of Brain (1969) in which the elements are listed according to their expected survival in a goat assemblage that has been subjected to gnawing. This provides an indication of the extent to which the assemblage has been affected by density mediated taphonomic processes such as gnawing (illus 17). It is clear from this exercise that the assemblage from Skaill Bay has been affected by other factors, since dense bones such as mandibles and humeri are under-represented when compared with less dense elements like the femur.

Tooth eruption and wear data indicate that the left side of a pair of mandibles belonged to a juvenile aged between 26 and 27 months of age, whilst an isolated deciduous fourth premolar came from an animal less than 22 months old. Epiphyseal fusion data indicates that the adult red deer were older than five or six years of age when they died, and the juvenile less than eight months old.

Table 4
Taxa representation (NISP and percentage of identifiable component)

	n	%
Cattle	7	4
Sheep/goat	16	8
Cervus elaphus	175	88
Charadriidae spp	1	1
cf cattle	1	
cf sheep/goat	6	
cf *Cervus elaphus*	75	
Large mammal	65	
Medium mammal	3	
Unidentifiable	386	
Total bone	735	
Total identifiable	199	
% identifiable	27	

One bone, a tibia, preserves gnaw marks (Table 7). A linear incision, reminiscent of a cut mark, is visible on a fragment of probable red deer ulna but apart from this, butchery evidence is absent. A femur belonging to large-sized mammal, most probably red deer, is burnt brown. Two femur shafts appear to have been broken whilst the bone was fresh but in general there is little to suggest that the bones of red deer were deliberately broken in order to extract the marrow.

The naturally shed antlers were most probably collected for use as implements or raw material with which to manufacture tools and artefacts. The skull with antlers attached although not seen by this author, indicates that at least one stag is represented. Male red deer carry fully developed antlers through the autumn and winter before shedding them in March/April the following year, which indicates that this individual died during the autumn or winter months (MacDonald & Barrett 1993: 202).

A few bones were able to provide metrical data and this is given in the appendix. These measurements were compared with other Orcadian Neolithic deer measurements (Noddle forthcoming; Armour-Chelu 1992) and found to be of a similar size range. These animals are larger than the single Bronze Age examples from Moaness (Mainland 2005) and the few available animals from Iron Age Howe (Smith 1994) and Mine Howe (Mainland et al 2004; Mainland & Ewens 2005).

Cattle and sheep

A small number of specimens belong to cattle and sheep, representing just 12% of the assemblage (Table 4). Seven bones belong to cattle – and these represent a minimum of one individual (Tables 5 and 6). Elements derived from the head, upper hind limb and lower forelimb are present. Ageing data is extremely scarce as only one bone, a femur with a fused distal epiphysis,

Table 5
Minimum number of elements (MNE) and individuals (MNI)

(i) Cervus elaphus			*(ii) Cattle*			*(iii) Sheep/goat*		
	Left	Right		Left	Right		Left	Right
Mandible	2	2	Femur		1	Mandible		1
Scapula	2		Tibia	1		Tibia	6	3
Humerus	2	2						
Radius	2	2	MNE	1	1	MNE	6	3
Ulna	2	2	MNI	1		MNI	6	
Pelvis	1	1						
Femur	4	3						
Tibia	3	3						
Calcaneus	1	3						
Metacarpal	3	1						
Metatarsal	3	1						
MNE	25	20						
MNI	4							

Table 6
Anatomical representation (NISP)

	Cattle	*Sheep/ goat*	*Cervus elaphus*	*Large mammal*	*Medium mammal*	*Total*
Antler			54			54
Petrous				1		1
Premaxilla			1			1
Occipital condyle			2			2
Incisor			2			2
Upper premolar			3			3
Upper molar	1	1	6			8
Lower premolar			2			2
Lower molar	1		6			7
Maxilla			4			4
Mandible		1	9			10
Axis			2			2
Scapula			2			2
Humerus			4	1		5
Radius			6			6
Ulna			4			4
Pelvis			4			4
Femur	1		12	2		15
Patella	1		2			3
Tibia	1	14	8			23
Calcaneus			4			4
Navicular cuboid			3			3
External and middle cuneiform			2			2
Lunate	1					1
Metacarpal			5			5
Metatarsal			5			5
Metapoidal	1			1		2

TABLE 6 (*continued*)

	Cattle	*Sheep/ goat*	Cervus elaphus	*Large mammal*	*Medium mammal*	*Total*
1st phalanx			12			12
2nd phalanx			5			5
3rd phalanx			5			5
Sesamoid				2		2
Rib				2		2
Skull fragment				1		1
Tooth fragment				2		2
Limb bone fragment			1	16		17
Rib fragment				6	2	8
Vertebra fragment				8	1	9
Total	7	16	175	42	3	243

is able to provide an indication of age and this belonged to an animal older than 42 months. A single bone displays evidence for gnawing (Table 7). A patella is burnt brown (Table 7) and a tibia shows fracture characteristics indicative of its having been broken whilst fresh.

Sixteen specimens belong to sheep/goat (Table 4). Apart from a mandible and upper molar tooth, all the remains are tibia shaft fragments representing a minimum of six individuals (Tables 5 and 6). Tooth wear data indicates the mandible is from an animal aged over three years.

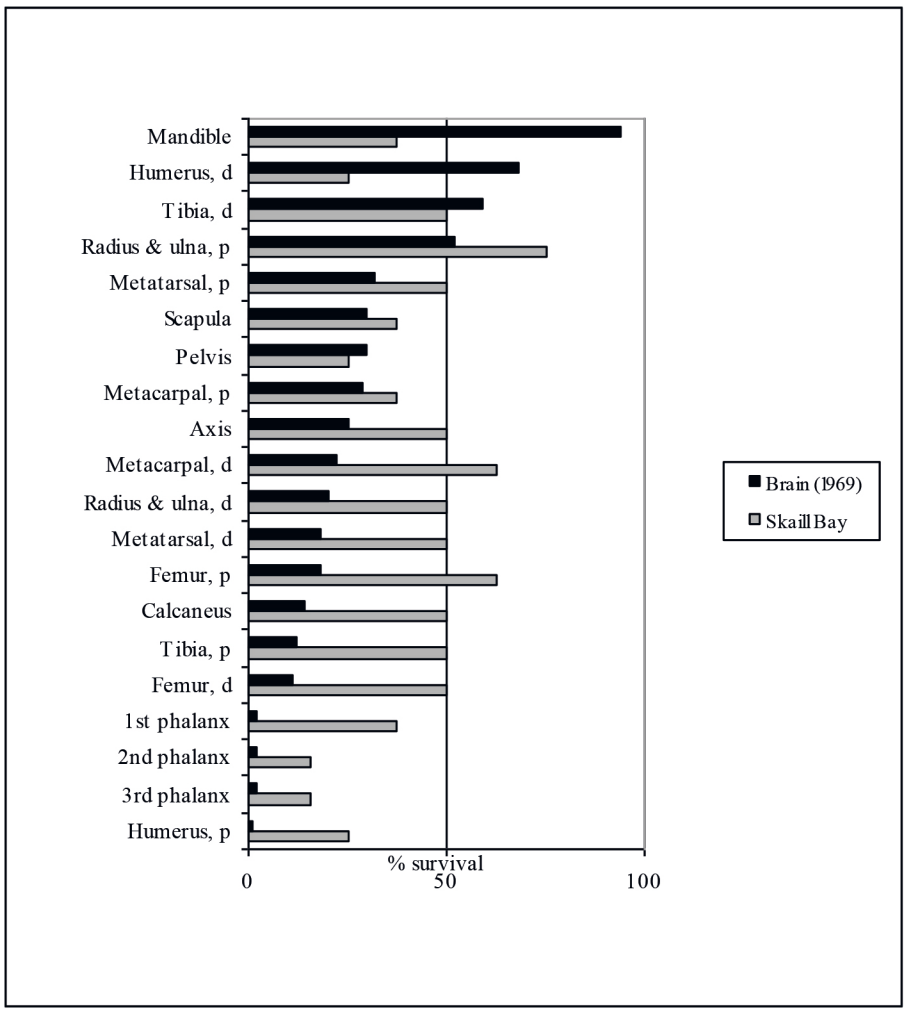
TABLE 7
Incidence of Taphonomy (NISP)

	Gnawed	*Butchered*		*Burnt*	
		cut	*?cut*	*Black/white*	*?Brown*
Cattle	1				1
Sheep/goat		1			
Cervus elaphus	1				
cf cattle	1				
cf *Cervus elaphus*			1		
Large mammal				1	1
Total	3	1	1	1	2

A transverse cut mark is preserved on the posterior face of one tibia, in the middle of the shaft.

INTERPRETATION

The site at Skaill provides an interesting glimpse into practices occurring external to traditional settlement and burial sites. The faunal assemblage itself is highly unusual in its species composition and deposition and provides further information on the complex and intriguing history of red deer in Orkney, and in the Scottish islands in general. Whilst red deer formed the backbone of human Mesolithic diet and culture on the majority of mainland sites, there is as yet no direct evidence for an Orcadian red deer population at this time. Thus it remains unclear as to when and how deer first arrived on the islands. Scotland was denuded of fauna during the last glaciations and re-colonisation of the outer islands was hampered by rising sea levels and isostatic changes (Corbet 1961; Yalden 1982; Serjeantson 1990; Fairnell & Barrett 2007). Red deer can swim up to 7km, distance enough to gain access to the Inner Hebrides with ease, but for Orkney, separated by wider and dangerous straits, their movement



ILLUS 17 Percentage survival of red deer bones

must have been assisted by humans (Serjeantson 1990).

The Early Neolithic in Britain saw an immediate decline in the exploitation of red deer and other wild fauna (Serjeantson 2011: 40) but the Orcadian sites differ in that significant quantities of red deer are recovered from the earliest Neolithic chambered cairns, eg Quanterness, Knowe of Ramsay and Yarso, with smaller amounts within settlements. Whilst these early specimens may represent imported joints of meat, it is more feasible that they derive from the first live introductions to the islands and evidence for both calves and older individuals indicates that a breeding population was established at this time. The available measurements suggest that deer in this breeding population were smaller in size than the mainland Mesolithic deer and may have therefore been derived from a pre-established island population, on Orkney or elsewhere.

There is an overwhelming predominance of deer at Skaill Bay compared to other Neolithic and Bronze Age sites, including the settlement assemblages at the Point of Buckquoy and Skaill, Deerness (Mulville 2010: Table 5). This suggests that Skaill Bay is a specialist deposit predominantly, but not exclusively, dedicated to deer processing. Many of the remains were originally articulated and at least two adult red deer and a juvenile were brought to the site whole.

On the western side of the wall, large numbers of Skaill knives were found intermingled with small stones and disarticulated animal bones. A large whale bone was also found in association with three Skaill knives at the western end of the trench. In contrast, Skaill knives were rare in the eastern part of the site and articulated remains of red deer were recovered, including a group of bones comprising a complete skull with antlers still attached and leg and vertebrae bones. This variation in the nature of the deposits on either side of the wall could be explained if carcasses were initially deposited on the eastern side and dismembered into more manageable joints, before being taken into the western area where the meat was filleted from the bones. Given the proximity of a Neolithic settlement at Skara Brae, it is possible that the deposits at Skaill Bay represent off-site butchery and primary food preparation by its inhabitants.

There is, however, no evidence for blade marks on the material examined for this report, although dismemberment of a carcass using knives does not always leave marks, and according to Gifford-Gonzalez, 'of the numerous cuts made on flesh, few will leave traces on the bone' (1989: 202). Also, whilst the range of elements suggests that entire animals are deposited at the site, with skull and foot bones represented, the predominance of the meat-bearing femora are not indicative of a kill or primary butchery site, where subsequent transport of joints for consumption elsewhere is expected (Binford 1978). There are three types of activity that would result in this pattern: either not all red deer carcasses were fully exploited; the consumption of deer occurred at the site; or specialised carcass processing activities took place that included the removal of meat from major limb bones for use elsewhere.

There is minor evidence for the season of site usage with the presence of a red deer skull with antlers suggesting deposition between the autumn and early spring. The shed antlers provide little further evidence: whilst antlers are best recovered soon after shedding in the spring, they can be archived for use as tools or as artefacts. The lack of evidence for marrow extraction could point to occupation outside the late winter and early spring when animals are at their leanest (Speth 1991) and fat in high demand.

The recovery of the articulated remains from Skaill Bay is of particular interest as it has parallels with a burial deposit of red deer from the contemporary site of Links of Noltland, Westray, Orkney. Here, 15 deer, including juveniles and adults as well as males and females, were deposited in a single episode, with many articulated skeletons and no butchery marks (Armour-Chelu 1992: 266). The deer were placed next to a boundary wall, with most laid on their left-hand side (Sharples 2000); a large set of antlers and two bird wings were also deposited. This unusual patterning led Sharples (2000) and later Morris (2005) to suggest that the venison was not consumed and that the burials might represent displays of power and

control of important animals and conspicuous non-consumption. Skaill Bay provides important additional evidence for similar activities, with both adult and juvenile deer killed, deposited but not fully exploited for their death products.

The scarcity of bones belonging to domestic animals, combined with the high frequency of caprine tibiae, raises the possibility that joints of beef and mutton were brought to this location from a more permanent settlement where domestic animals were raised, as provisions. The single bird bone could represent a natural casualty, be the remains of a wader deliberately hunted for meat and/or feathers, or also have symbolic associations, as was suggested for the deposition of bird wings at Links of Noltland.

The assemblage of animal bones from Skaill Bay could be interpreted in two quite different ways. Looked at in isolation, a functional explanation seems the most likely explanation, with the deposit representing food procurement and butchery practices, perhaps in order to provision the nearby settlement of Skara Brae with meat and other resources obtained through hunting red deer. However, when considered alongside evidence for red deer exploitation at contemporary sites on Orkney and some other Scottish Islands, it appears that the deposit could represent activities of a symbolic or ideological nature. That is not to say that everyday activities were isolated from, or unconcerned with ideology. However, without further contextual evidence it is difficult to ascertain the true nature of the activities surrounding the deposition of the red deer.

DISCUSSION: THE SKAILL BAY SITE

Colin Richards and Ann Clarke

The area examined at Skaill Bay was defined purely by erosion, consequently the deposits encountered represent an extremely partial picture of far more extensive Late Neolithic contexts running eastwards beneath the sand dunes. Nonetheless, there are a number of interesting points arising from the excavations. First, despite the small area that was exposed, two or three different episodes of activity are represented by the deposits. Second, these activities appear to have been structured and segregated by a stone wall aligned north-east/south-west that projected from beneath the sand dunes. Third, the spread of faunal remains, Skaill knives and other stone tools on the west side of the wall clearly reveals a different order of depositional practice to that represented by the articulated remains of red deer on the east side. Finally, the close proximity of this boundary wall to the village of Skara Brae indicates some sort of activity outside the nucleated settlement that has not previously been identified.

There is evidence to suggest that there were different depositional environments on either side of the wall. For instance, to the west of the wall, the Skaill knives had most likely been trampled or sunk into soft soil or clay as they lay at different angles, and in some cases assumed almost a vertical position. This interpretation is further supported by the alteration of the surfaces of several of the stone tools by chemical action; a characteristic consistent with deposition in a wet environment. In contrast, the old land surface on the eastern side of the wall was of more sandy composition, potentially providing greater drainage and a drier environment. Under such circumstances, the wall may have been placed at an interface to demarcate the wet from the dry. Such a boundary assumes greater significance with the deposition of articulated red deer on its east side. Especially when the idea of red deer as an ambiguous animal associated with forms of liminality is considered (eg Morris 2005: 10–12).

Taking the deposits located west of the wall first, practices surrounding butchery were represented by bones and masses of Skaill knives. The Skaill knives, other stone tools and the faunal remains maintain a close spatial relationship and clusters and gaps are visible in their distribution. Separate groups of stone tools and bone suggest multiple butchering episodes, whilst arcs of Skaill knives around empty gaps most likely demonstrate that some faunal remains were removed elsewhere after having been disjointed. In support of this proposition is the evidence from the bone assemblage indicating that in addition to primary butchery more specialised carcass processing activities took

place, including the removal of meat from major limb bones. Interestingly, it is likely then that this area was used for butchering over a reasonable length of time rather than it being the context of a single event.

The area concerned with butchery was clearly extensive. Not only did it run south into unexcavated areas beneath the sand dunes but continued at least another 9m west, where a whale mandible was associated with three Skaill knives. The relationship between this whale bone and the rest of the faunal remains is unclear. The gap between it and the nearest spread of red deer bone suggests the whale bone processing was carried out as a different event, perhaps physically separated because of the difference in animal matter or else simply because it took place at a different time.

Whether the whale bone was originally brought to site as an articulated specimen or as a single large fragment is unknown, particularly as the small area of excavation did not expose the total spread. Nonetheless, it must have been brought from the shore to the site for processing. Perhaps the carcass was stripped on the beach and individual components such as blubber, meat, skin and bone brought away separately. Large pieces of whalebone are found at Skara Brae, where they assumed a structural role as components of roofs and walls (see Childe 1931: 11, 48; Jones & Richards 2003: 46).

Over the wall to the east, an entirely different depositional picture was present. Here the remains of at least three articulated red deer lay on the sandy ground surface and these articulated remains continued south beneath the sand dunes. Consequently, as with the butchery deposits to the west, the articulated deer remains encountered during excavation provide only a partial view of the entirety of the deposits.

Stratified above the deer bone, situated adjacent to the wall, was a scoop hearth. Around the hearth there was a small assemblage of worked flints. Two scrapers were identified from an otherwise undistinguished collection of flaked lithics, which suggests that this area could have been used for some form of hide preparation. One interpretation is that the carcasses were skinned by the hearth before being taken over the wall for dismemberment; in which case the articulated remains on the drier east side were left there for the purely practical reasons of it being a better storage area. However, the hearth is clearly later than the deposition of the deer carcasses, and its relationship with the butchery area west of the wall is less certain.

When taken together with gathering evidence from other Late Neolithic habitation contexts, for instance, the pile of articulated red deer uncovered adjacent to a stone wall at the Links of Noltland, Westray (Sharples 2000: 110–12), it is clear that a more complex social strategy is being enacted through the deposition of articulated red deer at the Skaill Bay site. Indeed, the activity on this small area of eroded sand dunes may be interpreted using less functional explanations than explored above. For example, it can be productively incorporated into a broader review of other Late Neolithic faunal depositional practices and a discussion of the social role and appreciation of animals in Late Neolithic Orkney.

DISCUSSION: WRAPPED IN THE SKIN OF A DEER: THINKING ABOUT ANIMALS IN LATE NEOLITHIC ORKNEY

Colin Richards, Ingrid Mainland, Claire Ingrem, Jacqui Mulville and Ann Clarke

Knowledge of primary food production and off-site activities relating to the Orcadian Late Neolithic villages is limited. There is evidence from the recently excavated sites in Sanday of Tofts Ness and Pool for the butchering of cattle, in particular filleting (Dockrill 2007: 33; Hunter 2007: 214). At Tofts Ness, long bones were also smashed for marrow extraction (Dockrill 2007: 176). Preliminary analysis of the animal bone from the 2007–9 excavations at Links of Noltland also demonstrated skinning, dismembering, filleting and marrow extraction on cattle, sheep/goat and pig (Fraser 2011: 49). There is also a close association at several Late Neolithic sites in Orkney between middens and the presence of large assemblages of Skaill knives, eg Skara Brae, Links of Noltland, Tofts Ness, Pool and Crossiecrown (Clarke 2006) and it is likely that

butchering was carried out, together with other activities, on the surface of the midden.

This butchering was of domesticates; there were some remains of red deer – but very few – and they were treated very differently. For example, at Pool all red deer bone elements and a wide range of ages were represented, suggesting that off-site butchery was not routinely carried out and they were not selected for hunting (Hunter 2007: 214). In contrast, at Tofts Ness there was less evidence for butchery of red deer but a greater proportion of metapoidal shaft fragments suggested they were selected for further use (Dockrill 2007: 183). At Links of Noltland (2007–9) there was some evidence for butchery on red deer bone, but in contrast to the Skaill Bay assemblage, there was no mandible, skull or forefoot bones (Fraser 2011: 49). Clearly, red deer were treated differently from domesticates on settlement sites and also between sites.

In contrast to the butchering practices from these large midden sites, there is little evidence for primary food processing at other Neolithic sites. Barnhouse, situated approximately seven miles to the south-east of Skaill Bay, provided extensive information for the primary production of material culture, such as Grooved ware, bone tools and worked stone. However, unburnt bone did not survive and although extensive areas of the settlement were excavated, there was little 'midden' material and very few Skaill knives to suggest butchering practices on site.

Although clearly defined segregation of task specific activities involving the manufacture of material culture is present, the slaughtering and butchery of animals is not occurring within the confines of some of the Late Neolithic villages (see Jones & Richards 2003; Smith 2015). This may be a chronological difference. For example, at the settlement of Rinyo, Rousay, Skaill knives (possibly representing primary butchery) are virtually absent in the earliest periods of occupation. It is only later that large numbers become present – and even then they are restricted to the confines of a ruined house 'G' and its associated middens (Childe & Grant 1947: 19). Alternatively, some food processing may be occurring on the edges of sites. At Pool, there is some indication of activity peripheral to the main centre of Neolithic occupation in the form of a shallow sand-filled depression with animal bone and pot (Hunter 2007: 33). It is probable that on many sites there is activity on the edges of the settlement yet to be discovered because the main excavations centre on the structures and middens.

Besides the absence of butchery remains from within some of the settlements, and the contrast in processing domesticate and red deer bone, in terms of deposition there are further distinctions regarding the treatment of different animals. One of the clearest distinctions recognised is between red deer and domesticates such as cattle and sheep (cf Clarke & Sharples 1985: 76–7). Accepting the ambiguity of the evidence from the Skaill Bay site, direct evidence of the butchery and consumption of deer in the Orcadian Late Neolithic is conspicuous by its absence (Armour-Chelu 1992: 266; Sharples 2000: 113–14). Instead, where deposits of deer are discovered they appear to have been treated in a very strange way. A classic example of such practices is the deposit of red deer uncovered in excavations peripheral to the Late Neolithic structures at the Links of Noltland, Westray. Here, at least 15 completely articulated red deer were discovered, apparently piled one upon another, and with the exception of one animal, on their left side. In one instance, the antlers of an older deer were positioned against the head of an immature deer. As Sharples emphasises, 'clearly, we are dealing with a carefully collected, placed and arranged deposit of considerable social and economic significance' (2000: 112).

With regard to the Links of Noltland evidence, there are several points of significance that are worth discussing further. However, these can be prefaced with the observation that in specific contexts there is more than a passing relationship, even resemblance, between the treatment on death of red deer and human beings (cf Pollard 2006: 140–2). For instance, the extraordinary occurrence of the stack of 15 articulated deer placed one upon another at the Links of Noltland seems of a different character and order to other Late Neolithic deposits of animal remains. Interestingly, there is an incidence of a very similar deposit present within a chambered cairn on the same island of

Westray, but in this case, it was a reported heap of articulated humans as opposed to red deer. At the chambered long cairn of Curquoy, Westray, Davidson and Henshall quote Petrie in describing the deposits encountered in two chambers:

> The skeletons in each grave lay N and S in several tiers one above the other, the heads of the skeletons of one tier lying N and the other S and so on alternatively. Five or six tiers were counted in one grave and six skulls in each tier, and the other grave was believed to contain about the same number which would give about sixty or seventy skeletons altogether. In the E grave some of the skeletons were observed to lie in a doubled or contracted posture, but in the W they lay on their sides with their faces to the E.
>
> (1989: 141)

Whether or not these skeletons were on stone shelves, and although of greater quantity, it is apparent from this account that human corpses were stacked or heaped lying on their left sides within the Curquoy chambered cairn. Given that this unusual mode of human burial replicates the heaped 'burial' of red deer at Links of Noltland, it is of equal interest that both are occurring on a single island. The tangible difference between these two burial forms is one of visibility and containment, with the deer decaying as public spectacle as opposed to the invisibility of the humans within the chambered cairn.

In a different vein, thanks to the programme of radiocarbon dating of faunal remains in Orcadian chambered cairns (Sheridan & Higham 2006; 2007), it is now clear that animal bones were being interred into older burial chambers around the mid-third millennium cal BC. As if replicating the condition of the disarticulated human bone within the chambers (see Richards 1988; Davidson & Henshall 1989: 52–9; Reilly 2003; Lawrence 2006) we find that the later insertions of red deer at sites such as Knowe of Yarso and Knowe of Ramsay are also disarticulated (Platt 1935; 1936). In commenting on the condition of the red deer in the Knowe of Ramsay, Platt notes that 'as in the case of the Yarso cairn, skeletal remains of the Red Deer (*Cervus elaphus*, L) are the most numerous … few bones approach being intact, the majority being extremely broken up, and were so probably at their initial accumulation' (1936: 415).

Taking the chambered stalled cairn of Knowe of Yarso, Rousay, as a further example, in its two innermost compartments an arrangement of twenty two human skulls were positioned adjacent to the walls 'looking' into the interior of the chamber (Callander & Grant 1935: 334; Richards 1988). In the central area of each chamber, and covering the human skulls, were substantial deposits of disarticulated red deer. Clearly, the deer skeletal remains both replicated the disarticulation of the human remains and covered and contained them. The idea of the employment of red deer to embrace, contain and wrap humans will be pursued below, but it is noted here that not only did the remains of deer cover the lower deposits but were also used in sealing or containing the contents of the entire burial chamber (Platt 1935: 341). In assessing the linkage between the treatment of red deer and human beings, we also need to 'acknowledge how fluid different states of personhood and animality may have been in the Neolithic' (Pollard 2006: 141).

Returning to the Links of Noltland red deer heaps, there are three points that can be drawn out, first, the deer were articulated and showing no signs of butchery were deposited as complete carcasses. Second, the heap of deer was adjacent to a boundary wall away from the main settlement (Sharples 2000: 112). Finally, the deposit appears to have been more extensive, as Sharples considers that 'there are suggestions that more deer exist in the area to the south' (ibid: 111). These points instantly resonate with the character and context of the articulated red deer deposited east of the wall at Skaill Bay.

Overall, there appears to be very little deer deposited within the Late Neolithic settlements during their main periods of occupation, for example, Clarke and Sharples (1985: 77) comment that at Skara Brae red deer made up less than one percent of the faunal assemblage. This qualifies Childe's observation on 'the rarity of bones and antlers' of red deer at Skara Brae (1931: 96). At the settlement of Pool, Sanday, red deer was present in the Early Neolithic layers but 'later periods … show little red deer bone' (Bond

2007: 214). Equally, red deer were entirely absent from the Late Neolithic settlement of Stonehall, Mainland (Smith 2015). Where red deer is present in any quantity within a Late Neolithic settlement context is when houses and places appear to be abandoned. For example, Childe notes that above and below a thin midden, which accumulated after the western area of Skara Brae was abandoned, 'a relatively large number of stags' antlers were found in sand' (1931: 59–60). Within Hut 7 he further recognised:

> a foot of blown sand had settled over the built hearth before the next occupation of the hut. It is denoted by a very thin layer of ash and shells, covered in its turn by a foot of drift sand. Upon this rested a third layer of shells and charred bones, five foot above the hut's floor. In this stratum we found the skull of a red deer with antlers complete
>
> (Childe 1931: 62)

Further antlers were present above these deposits within the final filling of Hut 7 (ibid). As within the Knowe of Yarso and Knowe of Ramsay chambered stalled cairns, we recognise red deer bones being deployed at a particular juncture, in this case as part of the interface or skin covering occupation deposits. Chronologically, we can link the divergent forms of red deer deposition, as the faunal remains present within the chambers of the Knowe of Yarso and Knowe of Ramsay, Rousay, are roughly contemporary with the articulated deer being deposited at the Links of Noltland and Skaill Bay, and in all likelihood the closing practices in Hut 7 described above (see Sheridan & Higham 2006; 2007). Additionally, there is mid-third millennium cal BC incorporation of disarticulated red deer bones in the body of the horned cairn at Vestra Fiold, which overlooks Skaill Bay to the south (Richards et al 2013).

Taken together, there does seem to be an overall consistency and logic to the differential condition of the deer bones placed in different contexts from the mid-third millennium cal BC. Such practices appear to appropriate red deer within broader strategies of closure and containment, which could be described as a form of 'embrace' by wrapping or binding the ancestral past within the 'skin' or body of the deer.

In comparison with other domesticates, the small quantity of deer recovered from third millennium cal BC settlement contexts and its presence within chambered tombs has provoked the interpretation of deer as 'liminal' creatures (eg Morris 2005: 10–12). Equally, the ambiguous neither 'wild nor tame' quality of deer (see Mulville 2010) propagates classificatory uncertainty, a distinction once deemed essential for defining the Neolithic (eg Hodder 1990; Thomas 1991: 13).

Whilst there can be little doubt that deer could be understood as 'liminal', it is uncertain just how this designation helps to explore the complexity of the inter-relationships between red deer and humans that occurred in the Orcadian Neolithic. Instead, an answer may lie in an acknowledgement of the metaphoric and metonymic potency of the relationship between red deer and humans, and the locales with which they are associated (Jones 1998). Put more simply, by depositing animals in different ways, and in different forms, for instance, an articulated carcass as opposed to disarticulated bones, people were extracting, transforming and re-substituting attributes of the red deer in specific contexts to make statements regarding the nature of human identity and its cosmological status.

Recently, two different discoveries in Late Neolithic Orcadian sites have complicated the view of deer as being in some way an ambiguous 'special' animal (eg Morris 2005). First, the discovery of a large number of cattle skulls, some with interlocked horns, running around the wall core of a Late Neolithic house at the Links of Noltland, Westray (Fraser 2011: 51). Second, the discrete groups of cattle tibia placed at strategic points around the periphery of the large Structure 10 at the Ness of Brodgar, Mainland, Orkney (illus 18). Upon the heaps of cattle tibia the remnants of articulated red deer were also present.

With these discoveries comes the realisation that the deposition of animals is far more complex than had been previously thought. Clearly, differentiation is important as cattle and red deer in various forms and conditions are employed in marking different interfaces in different ways. The cattle skulls wrapping

ILLUS 18 Excavating the faunal remains around Structure 10, Ness of Brodgar. Photo: Nick Card

the Links of Noltland Late Neolithic house were presumably placed in the wall core during construction, thereby constituting the fabric of the house during its occupancy. This is obviously different to the deposition of red deer at Skara Brae, which covers the lower contents of Hut 7 after occupancy or use ceases. Yet the cattle deposits around Structure 10 at the Ness of Brodgar were themselves covered by articulated deer. This reveals a sequence of deposition which could be considered to mark the end of the use or occupation of this building, since the animal bone overlies and effectively blocks the surrounding flagstone pathway (N Card pers comm). Consistent with the 'sealing' deposits of red deer at higher levels within the fill of structures at Skara Brae (eg Childe 1931: 62), are deposits of articulated red deer laid down in higher levels of infill within the interiors of Structures 1 and 10 at the Ness of Brodgar.

Whilst the deployment of red deer and cattle bones are quite divergent, a degree of unity lies in their conjunction as a material strategy of wrapping places. From this, we can introduce a scheme whereby cattle were slaughtered and dismembered, with certain bones being employed to surround and contain places of dwelling (in one form or another). Therefore, the remains or essence of particular animals, in this case cattle, fuse with stone to effectively constitute the fabric of houses. In contrast, red deer remains tend to be articulated and conjoined, apart from deposits within the stalled cairns, and provide an upper 'skin' that wraps houses at the end of their lives, participating in their closure.

As recognised at Skaill Bay and Links of Noltland, the peripheral wrapping of settlements or villages, as places of dwelling, is through standing walls and masonry. At specific times, further definition is afforded by depositing articulated carcasses of red deer. Yet another dump of articulated red deer, of probable late third millennium cal BC date was uncovered in Cuttings 5 and 6 at the Point of Birsay, Mainland, Orkney (Morris 1989: 91–102). Here, the articulated red deer were deposited on a surface directly above the glacial till and significantly adjacent to a stone wall (ibid: illus 69). Once

again, the resonance between this deposit and that at Links of Noltland and the Skaill Bay site is great (see Sharples 2000: 110), and may well indicate the presence of Late Neolithic settlement near the Point of Birsay.

Such deposits do not lack clarity, since as Sharples (2000: 112) remarks, the size of the heap of red deer carcasses at Links of Noltland must have been a highly visible component of the habitation, albeit in a peripheral location. The gradual rotting of the carcasses may well have had potent metaphorical resonance; however, the physical process of decay must have had an equally dramatic effect on the human senses and awareness of the places where decomposition was occurring. The same would undoubtedly have occurred at the Skaill Bay site. Hence, through the deposition of different animals, of flesh and bone, deployed to wrap different places, a physical and sensory microcosmic relationship was established between 'concentric' zones of habitation and the outer landscape.

Returning to the Skaill Bay site, a final point of interest concerns the position of the wall that divides the eastern area of articulated deer carcasses from the western area of butchery and stone tools. The wall also appears to be a division or membrane dividing the wet from the dry. If the recent geophysical surveys of Skara Brae and its environs (J Downes pers comm) are accurate in identifying a broader complex of walls and areas of habitation, then the wall identified in the 1994 excavated area is a peripheral, if not outer wall, demarking the area of dwelling. The place of dwelling is always of great social and cosmological import, consequently defining different domains is of equal significance. In conjunction with architecture, various physical properties (such as wet and dry areas), the deposition of different animals, treated in different ways, constituted layers of wrapping around people and their place in the world.

In standing back and considering the nature of evidence comprising the Late Neolithic of Orkney, one cannot avoid the huge emphasis placed on boundaries and divisions. Houses were wrapped by multiple skins of walling (Childe 1931: 8–10), just as were passage graves. For instance, when Childe (1956) excavated a cutting through the mound at the great passage grave of Maeshowe, he unexpectedly discovered its composition to be of clay and soil. However, within the mound, three concentric rings of masonry were encountered, but as Kilbride-Jones noticed, 'they are not revetment walls, for they support nothing' (1973: 78). His final conclusion was that because 'they served no practical purpose … they were symbolic' (ibid). Clearly, in third millennium cal BC Orkney, the positioning of different animals, in different places, in differential condition, was an equally good way to think about skins and membranes as the physicality of stone masonry. Moreover, it may well be better to conceive the juxtaposition of animals and masonry as constituting a fusing of entities within the fabrics or skins that created the architecture of Late Neolithic Orkney.

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APPENDIX
Red deer metrical data (mm)

Element	*Measurement type*					
	45	*46*				
Antler	42.2	37.2				
	GL	*GB*				
Calcaneus	107.2	31				
Calcaneus	108.9	36				
Calcaneus	112.2	34				
	SD	*Bd*	*BT*			
Humerus		56.4	52.5			
Humerus			49			
Humerus	22.7					
	GL	*Bp*	*Dp*	*SD*	*Bd*	*B@f*
Metacarpal	241	37.3	26.7	19.7	39.5	36.9
Metacarpal			27.1	20.3		
Metatarsal	271	34	37.3	19.6	e37.9	38.2
	GB					
Navicular cuboid	39.8					
Navicular cuboid	40.4					
	GL	*Bp*	*BFp*	*SD*	*Bd*	*BFd*
Radius	255	53.2	50.5	28.2	47	41.1
Radius	281	52.2	49.8	26.9	45.3	36.7
Radius		52.2	50	27.3		
Radius				26.2	45.7	38.3
	BG	*LG*	*SLC*			
Scapula	36.9	42.2	33.8			
	SD	Bd	Dd			
Tibia		45.8	36			
Tibia		46.5	35.2			
Tibia		e46.8	32.8			
Tibia	25.1					

Key: 45 Greatest diameter of horn core base; 46 Least diameter of horn core base; GL Greatest length; Bp Greatest breadth of proximal end; Dp Greatest depth of proximal end; SD Smallest depth of the diaphysis; Bd Greatest breadth of the distal end; B@f Breadth at point of fusion; BFp Greatest breadth of the Facies articularis proximalis; BFd Greatest breadth of the Facies articularis distalis; BG Breadth of the glenoid cavity; LG Length of the glenoid cavity; SLC Smallest length of the Collum scapulae.