

The excavation of two Bronze Age burial cairns at Bu Farm, Rapness, Westray, Orkney

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with contributions by Kath McSweeny, Coralie Mills & Tanya O’Sullivan

ABSTRACT

Excavation recorded two large cairns with drystone kerbs and a third, miniature cairn of similar construction. Each of the large cairns contained a central, slab-built cist. Burnt deposits with bone inclusions underlay the basal slabs of both cists. The third, smaller cairn covered a pit which also contained burnt deposits. The cremated remains from the two larger cairns appear to represent a single adult in each case. Faunal remains from Cairn 1 include bones of a range of mammals, birds and fish. Radiocarbon dates indicate that the cairns were built in the mid- to late second millennium BC. Excavation and publication were funded by the former Historic Buildings & Monuments section of the Scottish Development Department (now Historic Scotland).

INTRODUCTION

CIRCUMSTANCES OF EXCAVATION

Excavations at Bu Farm, Rapness, were undertaken over a five-week period in May-June 1985 and formed part of a programme of investigation of sites threatened by coastal erosion. Other excavated sites in this programme included the chambered cairn at Point of Cott (Barber 1988; 1992; and forthcoming) and a burnt mound at Gill Pier (Lehane 1990). This work was conducted by the former Central Excavation Unit and was funded by the Historic Buildings and Monuments section of the Scottish Development Department.

THE CAIRNS

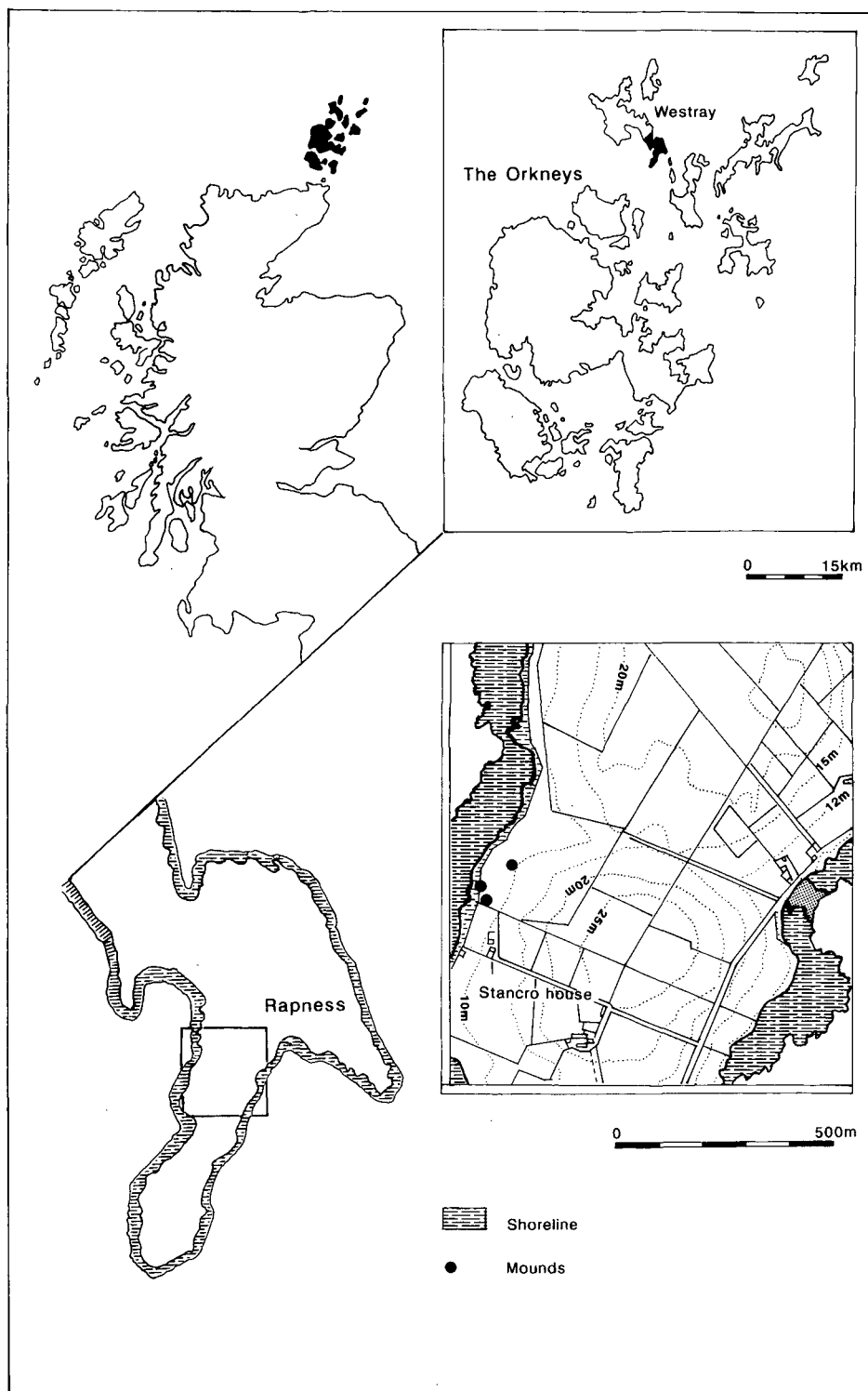
Site description

The excavated cairns are part of a group of three large mounds (illus 1) which were previously recorded by the Orkney Islands Archaeologist, Dr Raymond Lamb. They are described accordingly in the sites & monuments Inventory for the island of Westray:

Two mounds lie in the south-west corner of the pasture field north of Stancro House. The larger [Cairn 1], at HY 5006 4044, is on the shoreline and is being eroded; it comprises the surviving half of a circular

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ILLUS 1 Site location plan (Based on the Ordnance Survey map © Crown Copyright)

bank of about 14 m overall, 0.4 m high, at the south end of which, on the shoreline, two courses of an outer revetment are visible. Within it is a hollow, then a central knoll containing a large cist or small slab-formed chamber, of which the north side is represented by an upright stone aligned east-west, 1.7 m long and 0.7 m high. The knoll is composed of large slabs laid slantwise face-to-face; this site is probably a 'bell-cairn'. To the south [Cairn 2], at HY 5007 4042, is a grass-grown mound 9 m in diameter, 0.3 m high, its top hollowed. Further north, in the same field, at HY 4013 4049, is a grass-covered mound 8 m in diameter and 0.5 m high; a few slabs protrude at several points around the edge (Lamb 1983, 25).

At the time of excavation, the cairns were found to be as described, though excavation would demonstrate that, in this case, the 'bell-cairn' profile of Cairn 1 was due to disturbance rather than design.

Erosion

The cairns occupy an exposed site. Cairn 1 is located at the present shoreline and marine erosion had already claimed almost half of the monument at the time of excavation (illus 2). Cairn 2, at a distance of several metres from the shoreline, was subject to an additional threat. Here, a farm track traversed the narrow 4 m span between the two cairns. The passage of livestock and farm machinery was impinging on Cairn 2 and threatened to destroy any potential stratigraphic links between the cairns.

EXCAVATION RESULTS

CAIRN 1

Intrusion and stone-robbing

Cairn 1 was clearly disturbed in a number of ways. A layer of smaller stony debris littered the surface of the cairn and formed the upper fill of the cist. This is interpreted as the remnant debris of selective stone-robbing. One result of stone-robbing is that the height of the cairn was irregularly reduced, resulting in an annular depression around the cist (illus 3). It was this which produced the 'bell-cairn' profile which had previously been recorded (Lamb 1983, 25).

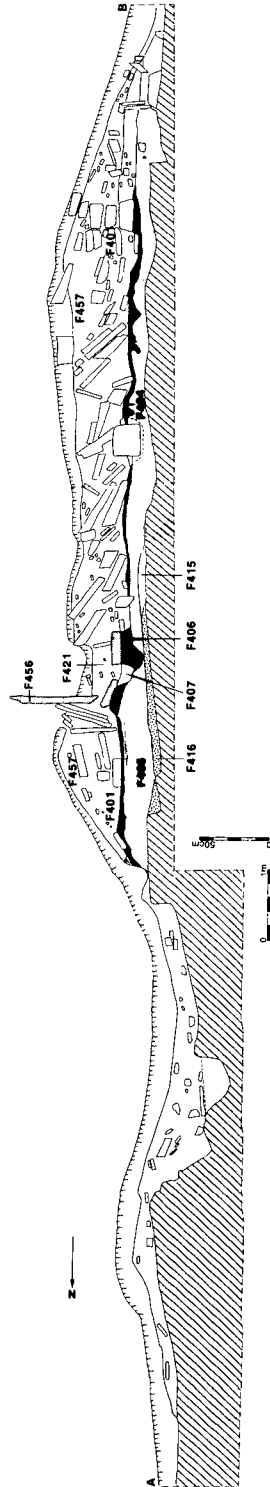
The cist itself was thoroughly robbed. No recognizably primary deposits (skeletal remains or grave goods) were found within it. The basal slab was broken through and burnt deposits underlying it were disturbed.

The cairn body and kerb

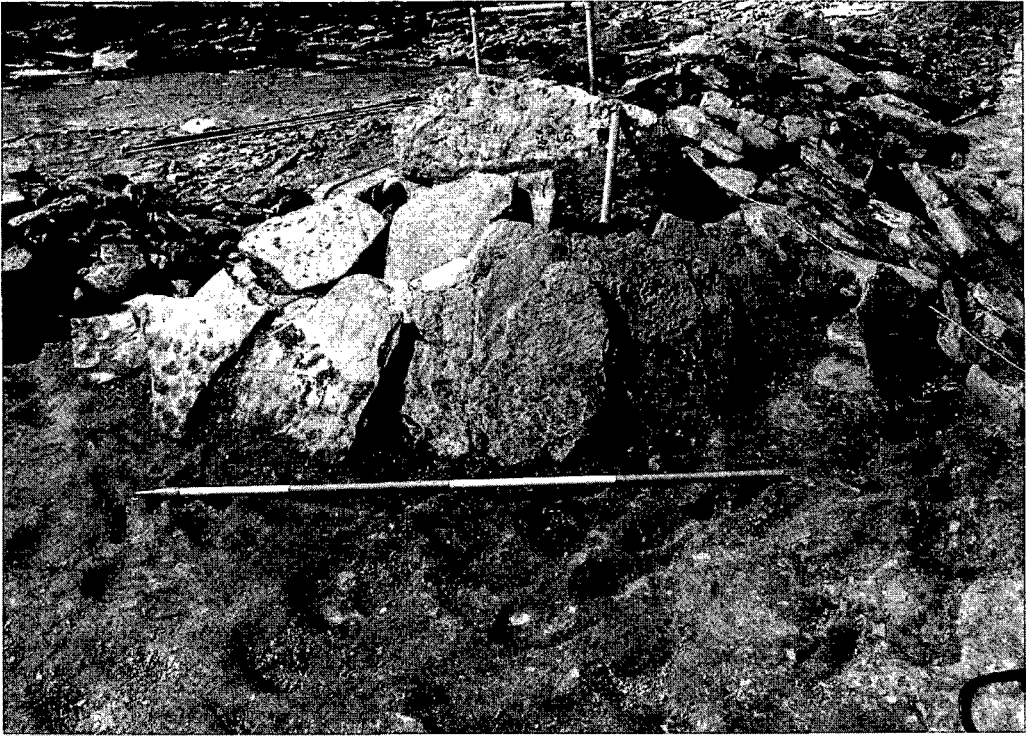
The main body of surviving cairn material consisted of randomly dumped slabs (F457). A clay-loam soil matrix (F401) was concentrated towards the base of the cairn and may be an inwashed or secondary sediment. These materials formed a semicircle of kerb-revetted rubble with an overall diameter of 14 m and a maximum height of 0.5 m. The retaining kerb was a well-built drystone wall (F446). This consisted of medium-large flat stone slabs, raised to three or four courses, and surviving to an overall height of c 0.4 m. The stones were laid so that the outer edges formed a fair-faced curvilinear wall face, while the more ragged, inner edges were keyed into the rubble body of the cairn. Towards the centre of the cairn, the slabs were more deliberately placed. Here, quantities of larger slabs were erected on end, forming a series of concentric, interleaving circles of stone which inclined against a central cist (illus 4).



ILLUS 2 Plan of the excavated area: the 'miniature cairn' lies immediately south of Cairn 1



ILLUS 3 Cairn 1: cross-section recorded at the eroding seaward face of the monument



ILLUS 4 Cairn 1: roughly concentric rows of interleaving flat stones incline against the cist

The cist

The cist (F456) consisted of two large slabs forming the north (1.9 m by 0.65 m) and south (0.9 m by 0.65 m) sides of a compartment 0.8 m wide. These side slabs were erected on edge upon a large, horizontal basal slab (1.75 m by 1.3 m). Other slabs may have once formed the east and west sides of the cist, and perhaps a cover, but these were not found *in situ*.

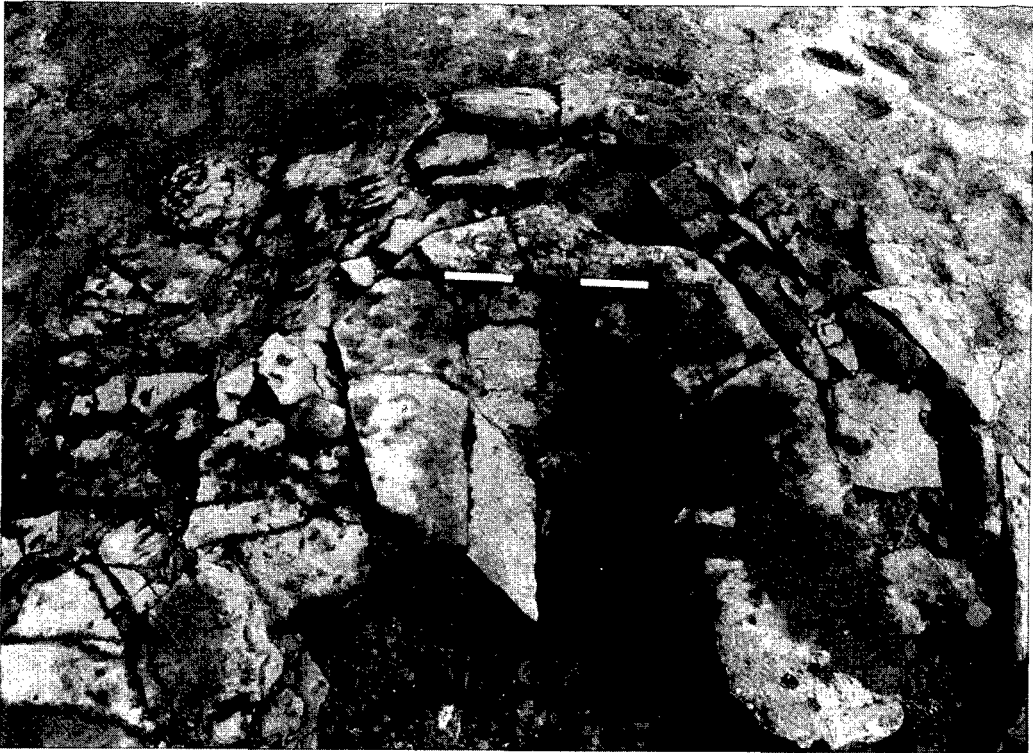
Underlying deposits

The basal slab did not rest directly upon the buried natural ground surface, but on a spread of dark soil (F406, F407) that included charcoal and burnt bone fragments. Some of this material (F407) may have been intruded from the cist at the point where the basal slab was broken through (illus 5), but it was also possible to identify undisturbed material (F406) which had clearly been deposited before the construction of the cist. Material from this context was submitted for radiocarbon dating and returned a determination of 2955 ± 85 BP (AA-11766); the material from which this date was derived may also have contained driftwood (see Mills, below).

CAIRN 2

The cairn body and kerb

The second cairn is a smaller monument, sited several metres from the present shoreline and 4 m south-east of Cairn 1. The overall diameter of the monument is 9 m and it survives to a height of 0.8 m. The construction of



ILLUS 5 Cairn 1: the broken slab which underlay the cist

this monument was similar to that of Cairn 1, with dumps of stony rubble (F452) surrounding a central rosette of large slabs, erected on edge and inclined against a central cist. The kerb consisted, again, of a well-built drystone wall (F447), brought to an even finish at the outer face, and raised to a height of c 0.4 m in three or four courses of large, flat slabs (illus 6).

The cist

In contrast to Cairn 1, the central cist (F433) in Cairn 2 was intact and appeared to be undisturbed. Two large, rectangular slabs formed the east and west sides of the cist. Smaller slabs were fitted between them to form the north and south sides. The cover-slab was close-fitting and appeared to be in its original position. The side-slabs were erected upon a flat, rounded basal slab (diam 1.4 m) and were retained by a loose clay-loam soil (F435) heaped against their outer faces. Overall, the cist formed by this setting of stones was small and very regular, approximating to a cube, with sides and base all measuring c 0.3 m. Within the cist, a loose dark soil, with burnt bone inclusions, was interpreted as a primary deposit (F432).

Underlying deposits

The basal slab of Cairn 2 rested upon a shallow, vacuous layer of rounded stones (F439), intermixed with lenses of loose dark soil with burnt bone inclusions (F438, F441). Beneath the stones were further stratified deposits of dark soil with bone fragments (F436, F440).



ILLUS 6 Cairn 2: general view from west

MINIATURE CAIRN

Immediately adjacent to Cairn 1, at the south side, a small pile of flat slabs (F411) in a loose clay-loam matrix (F420) formed a miniature cairn (1.5 m wide and 0.2 m high) (illus 2). The cairn was circular and, as with the kerbs of the larger monuments, the stones were arranged to present a regular outer face. Underlying this feature, a small pit (F425) was filled with loose, black soil with burnt inclusions (F424). In an adjacent setting, several small, flat slabs (F413) were erected on edge within the subsoil and may have formed a related feature, although these stones did not contain any cremated bone or other burnt materials.

MISCELLANEOUS CUT FEATURES

Several small, negative features were recorded in the vicinity of the cairns, including a possible post-pit (F450) and a linear trench or gully (F453). These were sealed by a deep, gleyed topsoil (F431) which developed after the erection of the cairns, or, in the case of the post-pit, by deposits associated with the miniature cairn. They are evidently early features, but their relationships (if any) with the construction and use of the cairns are unknown.

BURIED SOIL HORIZONS AND TILLAGE MARKS

Both of the larger cairns sealed a well-preserved early topsoil layer or A-horizon (F404). No tillage marks were seen in plan, either in the surface of this layer or in the underlying subsoil (F405/F415/F416). However, where it was recorded in section, the lower topsoil boundary was characterized by an irregular series of pointed scallops

which may represent ard-ploughing predating the cairns. However, as the A-horizon bore many indentations caused by the weight of the large slabs erected on edge on its surface, the features seen in section may have been caused in the same manner.

Later tillage has resulted in truncation of the soil profile in the vicinity of the monuments, though beneath the cairns themselves the early ground surface has been protected from further plough-damage. The evidence for this is clearly visible in the sharp 'scarp-edge' in the subsoil at the perimeters of the cairns.

ARTEFACTS

Excavation of the topsoil recorded some modern iron and ceramic objects, as well as miscellaneous fragments of shellfish, but – in the present context – only one object of any possible archaeological significance was found. This was a large rounded stone or beach cobble (Find No 401), identified on-site as a possible tool. Dr Bill Finlayson has commented that the 'percussion scars' on the stone are evenly distributed over its surface and are unlikely to represent its use as a hammer stone.

CREMATED HUMAN REMAINS

Kath McSweeney

METHODS

Bone fragments from both cists were washed in tap-water, using a light brush to clean the larger fragments. The bones were weighed, using a kitchen scales, and sorted according to anatomical provenance where this could be ascertained. Where size or condition made a more specific identification questionable, the fragments were placed in general anatomical groups (eg calvarium, longbone). Methods of ageing and sexing used are those outlined by Bass (1987).

A complete inventory of the cremated bone fragments forms part of the excavation archive in the National Monuments Record of Scotland (RCAHMS), Edinburgh.

CAIRN 1

The remains

Bone fragments from Cairn 1 derived from three contexts: the soil matrix of the cairn rubble (F401), a disturbed deposit intruded through the broken basal slab (F407) and an undisturbed deposit which underlay the basal slab (F406). In total, 68 fragments of cremated bone were recovered. These included fragments of the cranium and face, longbone, bones of the hands and feet and some vertebral fragments. The largest fragment was a piece of cheekbone, measuring 38 mm by 28 mm. There were several fragments c 35 mm long and the smallest was 8 mm long. More than half of the fragments were c 10 mm in size. Average size was c 18 mm. It is clear from the total weight of bone (only 60 g), the number of fragments and the skeletal areas present that a full individual is not represented by these fragments.

There was no duplication of skeletal areas and all cranial fragments were of a uniform thickness. Osteologically, there was no evidence to indicate that there was more than one individual represented in Cairn 1. The age of the individual (or individuals) is not clear, although the bones were clearly not those of a young child. One calvarium fragment, with sutures obliterated cerebrally, and one vertebral fragment, with possible fusion of the epiphyseal ring, (both from F401), suggest an individual over 25 years of age. However, another calvarium fragment from F406 had an open suture. This in itself does not necessarily indicate the presence of two bodies as individual sutures

become obliterated at different times. If these fragments do represent an individual, it was probably adult. No indication of sex could be identified. There was no evidence for the presence of disease.

It is clear that the remains which were recovered by the excavation did not represent a complete individual. Nonetheless, it appears that they were originally part of a full cremated body. The absence of a more complete bone assemblage may be partly due to the loss of some body parts prior to cremation or selection of burnt fragments at the time of deposition, but may also relate to post-depositional factors, including chemical erosion and the fact that the cairn was disturbed and robbed in antiquity.

Cremation practice

Apart from surface cracking on some bones, particularly calvarium fragments, there was little distortion or twisting and no evidence of curved splintering of the longbones. Experimental studies of fracture patterns have been used to identify characteristics of bones on which fleshy parts were still adhering at the time of cremation (Ubelaker 1978, 35). Surface cracking and the absence of distortion and curved lateral splintering of the remains from Cairn 1 suggest that the bones were burned while dry or fleshless, presumably some time after death. Bone colour was a general grey-brown, although a few calvarium and longbone fragments were blue and poorly calcined, indicating that firing was less intense in these areas.

CAIRN 2

The remains

Bone fragments in Cairn 2 derived from two contexts: a layer of stony soil which overlay the main body of the cairn (F430) and the dark soil with charcoal inclusions which formed the primary fill of the cist (F432). The main bulk of the bone fragments were contained within the cist deposit and only three fragments of longbone were found in the layer which overlay the cairn. The remains which were identified included fragments of the cranium, face, mandible, spinal column, scapula, sternum, upper limbs, pelvis, lower limbs, hands and feet. The teeth were completely missing and the rib cage was represented only by a few shaft fragments, tentatively identified. Neither the clavicles nor patellae were recognized but it is possible that fragments of these are among the unidentifiable bones. With the exception of one middle phalanx of the hand and two slightly damaged carpal bones, there were no complete bones. Most skeletal areas had been reduced to small fragments, averaging about 25 mm in length. This made identification difficult with a resulting high proportion of unidentified fragments.

The total weight of the remains was 0.78 kg. This is light for a full adult skeleton. A full male skeleton can weigh well over 2 kg, depending on the method of cremation. There were no duplicated bones in Cairn 2 and all calvarium fragments were of a similar thickness. It can be assumed that there was only one individual present in the cist deposit (F432). It cannot be confirmed osteologically that the few fragments of bone from the upper cairn deposit (F430) were from the same individual.

Several indicators confirm that the individual represented by fragments in the cist was adult. Mandibular evidence for the eruption of fully developed third molars suggests that age was in excess of 21 years, while fusion of epiphyseal rings on vertebral bodies puts age at over 25 years. There is no evidence for advanced adulthood and while an accurate assessment of age is not possible, the presence of slight degenerative change of the cervical spine and partial obliteration of the cranial sutures suggest that the individual was probably over 30 years of age.

Very few sexual indicators were detected. The most reliable areas, such as the pelvis, femoral and humeral heads, mastoid processes and chin were either missing or damaged. However, the absence of any markedly male characteristics, sharp orbital edges and the length of the glenoid cavity (30 mm) combine to suggest that this individual was probably female.

The right upper central incisor had been lost during life. There is no evidence for the loss of any other teeth during life although the status of 17 teeth is not known. The incomplete left head of the mandible, forming part of the temporo-mandibular joint, was worn almost flat. There were no associated macroscopic surface changes or osteophitic growth around the joint surface. Wear of this joint can occur as a result of changes in normal joint-loading because of dental attrition or ante mortem tooth loss.

Slight lipping around the edges of the bodies of three cervical vertebrae was noted. Damage to other vertebral bodies prevented any assessment of the true extent of this condition. Such lipping may occur as a result of trauma, may be occupationally related or may simply be the result of normal degeneration associated with ageing. The latter is the most common aetiology. Individuals are often unaware of the condition. In this case, the bony changes were slight, and were probably asymptomatic.

Cremation practice

Most of the bones were well burnt, brittle and a uniform grey-brown in colour. A few, particularly calvarium and longbone shaft fragments, were of a bluish colour and poorly calcined. That some distortion of bone had occurred could be seen in the pieces of cranium which had separated into inner and outer tables and the few fragments of longbones which had splintered laterally. These factors indicate that a high temperature was achieved during firing, although less so at the extremities. The same degree of surface cracking as with the bone from Cairn 1 was not observed and it is possible that this indicates that these remains were cremated soon after death while still bearing flesh (Ubelaker 1978). Several fragments of a brown lumpy substance were present. This may be what Wells has called 'clinker' and interpreted as transformed keratin from human hair (Wells 1960).

Although the teeth were absent, most other skeletal areas were represented, at least in part, and the remains appear to represent a fairly complete cremation rather than a partial or token deposit. While tooth enamel often shatters during cremation at high temperatures, the roots normally survive. The absence of tooth roots and the relatively light total weight probably indicates that collection of the remains from the remains of the pyre was not particularly careful, and that many smaller fragments were missed. The consistently small size of fragments indicates that the remains may have been deliberately broken after cremation, although chemical erosion may also have been a factor in reducing the total surviving bone mass over time.

FAUNAL REMAINS

Tanya O'Sullivan

The results of analysis are given here in summary. A complete catalogue of the faunal bone fragments forms part of the excavation archive at the National Monuments Record of Scotland (RCAHMS), Edinburgh.

All of the bird, fish and mammal bones recovered by excavation derive from two contexts: the deposit of undisturbed, loose, dark soil which underlay the basal cist slab of Cairn 1 (F406) and the clay-loam soil matrix of the cairn body (F401). The assemblage includes bones which were hand-

retrieved during the excavation and also smaller bones which were recovered from wet-sieved (1 mm) bulk soil samples. The bones were measured where possible using the guidelines outlined by Von den Dreisch (1976). Thirty-seven bones or bone fragments were examined, of which 20 could be identified to species. None of the bones was burnt.

Mammal, bird and fish bones were represented in the deposit which underlay the cist (F406). The mammal remains included sheep (*Ovis aries*), dog/fox (*Canis sp/ Vulpes vulpes*), and common vole (*Microtus arvalis*). It should be noted that immature dog and fox bones are morphologically very similar and, in the case of a single bone, it is difficult to draw a definite conclusion about the species present. The bird remains included red grouse (*Lagopus scoticus*), teal (*Anas crecca*), kittiwake (*Rissa tridactyla*), guillemot (*Uria aalge*), snipe (*Gallinago gallinago*), gannet (*Sula bassana*) and greylag goose (*Anser anser*). Fish was represented by a single cod (*Gadus morhua*) premaxilla.

The soil matrix (F401) of the cairn rubble also contained mammal and bird bones. Amongst the mammal bones were remains of adult horse (*Equus sp*), adult and immature cat (*Felis catus*), pig (*Sus domestica*) and rodent. Of the bird bones, in addition to cormorant (*Phalacrocorax carbo*), all of the same species which appeared in the pre-cist deposit were also represented by bone fragments in the cairn material.

Only one bone displayed signs of a pathological anomaly. This was in the form of a possible healed fracture in the proximal shaft area of an immature or unfused radius. The unfused nature of the radius, combined with the injury, rendered the bone unidentifiable to species. No butchery marks were in evidence on any of the bones.

Faunal remains in funerary monuments often occur in contexts unrelated to the construction and use of the tomb. In the present case, they may represent either creatures that used the cairn for nesting or remains which were deposited in the cairn by predators and carrion-eaters. This explanation may account for the wide range of faunal remains from the disturbed, partly vacuous body of the cairn, but is less likely to be true of the sheep, vole, dog/fox and wildfowl bones which were sealed by the central cist. These – with the possible exception of the rodent bones – may have been deliberately deposited prior to construction of the cist. This could be asserted with more confidence if the bones were burnt. However, as this is not the case, the possibility that these bones are also intrusive cannot be dismissed and their significance remains unresolved.

RADIOCARBON DATES

SAMPLE IDENTIFICATION

Coralie Mills

Burnt inclusions recovered from wet-sieved (1 mm; 3 mm) bulk soil samples were examined under a low power binocular microscope. Identification of charcoal was made by reference to the keys published in Schweingruber (1982). Two contexts supplied suitable sample material for radiocarbon dating: the burnt deposits (F406) underlying the basal cist slab in Cairn 1 and a soil deposit (F435) heaped against the outside of the cist in Cairn 2.

F406: pre-cist deposit, Cairn 1

The bulk of the burnt material present in this deposit was found to be a black, heavy, fused material which probably derives from burnt organic sediments such as peat or turf and is unsuitable for radiocarbon dating in the present case. However, a small amount of wood charcoal was retrieved (0.9 g). It is highly fragmented and

most is too small to be identifiable. Two fragments, however, were identified as *Larix* and other fragments appeared to be of coniferous wood. Drift wood is probably represented.

F435: cairn material, Cairn 2

Again, some of the burnt inclusions in this deposit were found to be organic sediments, probably turf or peat. The charcoal fragments which could be retrieved (0.2 g) were too small to be identified to species, but some appeared to be coniferous, indicating the likely presence of driftwood.

RESULTS

The samples were submitted for dating to the Scottish Universities Research & Reactor Centre and measured at the University of Arizona AMS Facility. Dates are expressed in conventional years BP (before AD 1950) and are calibrated after Dalland (forthcoming).

	Uncalibrated years BP	Calibrated one-sigma range	two-sigma range
AA-11766	<i>F406 Cairn 1</i> 2955±85 BP	1310 BC – 1020 BC	1420 BC – 930 BC
AA-11767	<i>F435 Cairn 2</i> 3205±55 BP	1525 BC – 1420 BC	1650 BC – 1395 BC

The fact that the samples contained driftwood carries the implication that these dates may be somewhat earlier than the construction of the cairns. Clearly, they must be treated as *terminus post quem* dates, suggesting that construction of the monuments occurred after a date in the mid- to late second millennium BC.

DISCUSSION

ORCADIAN BRONZE AGE BURIAL MOUNDS

Previous excavations

The list of excavated Bronze Age Orcadian burial mounds is not a long one. Hedges (1977) – in a report on the excavation of a cemetery group at Quoyscottie – reviewed previous excavation results from Corquoy (McCrie 1881), Trumland (Craw 1934), Quandale (Grant 1936), Summersdale (Ashmore 1974) and Queenjafold (Ritchie & Ritchie 1974). In addition to the present excavations, subsequent work has included investigation of a single mound at Holland in 1979 (Neil 1981) and excavation of mounds at Mousland (Downes 1994) and Linga Fold (Downes 1994) in the 1990s.

Cemetery characteristics

From this small corpus, a few general characteristics may be derived. Some of these were identified by Hedges' review (1977, 140): the majority of the excavated sites were regular mounds, round or oval; they were generally of a small diameter, seldom exceeding several metres; they often occurred in groups, ranging in number from two or three to as many as a dozen; they frequently occupied marginal land and were commonly found in areas where burnt mounds also occurred. Common

features could also be identified within the mounds: burials were most often contained by slab-built cists which were built above ground, were often erected on a basal slab and sealed by a capstone (Hedges 1977, 142).

BRONZE AGE BURIAL ON WESTRAY

The Westray Inventory (Lamb 1983) records over a dozen probable burial mounds on the island, as well as several cist sites without barrows or cairns. A few of the burial mounds occur in the Rapness area, and are of potentially similar date and type to the excavated examples at Bu Farm. These are the mounds near Scarra Taing (no 83) and Crow Tuo (no 69), as well as mounds with cists at Ness (no 89), now destroyed. Before the present excavations, there had been no systematic excavation of these sites on Westray, though a steatite urn was removed from a disturbed barrow at Wilkies Knowe in the early 19th century (no 74) and, early in the present century, a cist with cremated remains was destroyed by agriculture at Farrivald (no 77).

BU FARM IN CONTEXT

Cist and cairn construction

The above-ground construction of slab-built cists at Bu Farm, with basal slabs and capstones (Cairn 2), does generally conform to the type characterized by Hedges. Inclined supporting slabs might be regarded as an additional common feature. These occur at Quoyscottie, in mound K2, where stone slabs inclined against the central cist 'apparently had the function of protecting it from collapsing' (Hedges 1977, 135). A similar arrangement was recorded at Trumland (Craw 1934) and possibly at Nears, too, where Grant noted 'a distinct inward tilt' (1932, 25) in the erected slabs which formed the remnants of the denuded cairn monument. The feature of Orcadian cists most obviously absent at Bu Farm is the clay luting commonly used to seal and consolidate slab-built structures elsewhere.

Construction of the cairns has less in common with other Orcadian sites. Most of the excavated examples are 'scrape barrows' of earth or of earth and stone, rather than rubble cairns proper, as in the present case. The slab-built kerbs, also, are generally unlike the rubble kerbs of other excavated sites, with the exception of the well-formed kerbs retaining mounds at Trumland (Craw 1934) and at Mousland (Downes 1994).

Associated features

The single miniature cairn recorded at Bu Farm conforms to the observation by Downes that, where associated or secondary features occur in the spaces between burial mounds, they tend to occur in positions 'immediately around the mounds and not some distance away' (Downes, forthcoming). The point is most clearly illustrated by the excavations at Quoyscottie, where over two dozen pit burials were crowded into an area at the north-east periphery of Mound K1, some of them lying within the margin of the mound itself (Hedges 1977). The single secondary cremation in the mound at Summersdale may be seen in a similar position and was incorporated into the larger monument by extending the cairn material over it with turf dumps (Ashmore 1974, 41–2). One of the four cists excavated at Trumland lay immediately outwith the kerb (Craw 1934).

Downes (forthcoming) suggests that, adjacent to Mound 7, at Linga Fold, posts may have been erected over otherwise unmarked cists. The small pits (F425, F450) recorded between the Bu Farm

cairns cannot be definitively associated with the funerary monuments, but may be significant in this regard.

Cremation and funerary practices

There is somewhat more heterogeneity to be seen in the cremation and funerary practices of these sites than in their construction and grouping. Orcadian Bronze Age funerary mounds have been found to contain both inhumed and cremated remains of, variously, single adults, single juveniles/children, male and female adults and adults with juveniles/children. The excavated sites have produced predominantly juvenile or infant bones, though Hedges (1977, 43) attributes this to demography rather than preference. In any case, it is clear that the single adult cremations thought to have occupied each of the cairns at Bu Farm do not bear out any particular expectation based on the existing excavations.

At Bu Farm, the evidence from the two cairns suggests that the remains of the individuals' bodies had different histories prior to being cremated. The bones of the individual in Cairn 1 were fleshless or dry when exposed, while the corresponding signs were absent from the bones in Cairn 2 (see McSweeney, above). Both cremation deposits were very light and comprised in each case less than half of the expected weight of a full cremation. The charcoal analysis at Cairn I identified calcium carbonate deposits on the charcoal which could be derived from dissolved bone. The present high pH of the adjacent soil is maintained by liming and the natural environment of the depositions is quite acidic. Thus, both the low weights of bone present and the fragmentation of that which survives could be attributed to the loss of incompletely calcined bone by solution. However, it is equally possible that ritualized deposition, including selection and deliberate fragmentation, were also factors here.

At Bu Farm, although burnt deposits, or soils with burnt inclusions, underlay the basal slabs of both cists, there is no evidence for cremation pyres within the excavated area and thus, no evidence for the close juxtaposition of the pyres with the cairns. Burnt deposits also underlay the cists in Mounds 5 and 6 at Linga Fold (Downes, forthcoming) and the cist at Queenjafold (Ritchie & Ritchie 1974). In contrast, excavation of Mound 7 at Linga Fold showed that, not only was the cist erected prior to cremation, but that it became scorched by the adjacent pyre (Downes, forthcoming). The low incidence of clearly identified pyre sites is unsurprising. A recent study of some 1300 burial sites of the Bronze Age in Ireland could only identify five examples (Waddell 1990, 20). The separation of cremation site from burial site seems consistent with a ritual which emphasises the transition from the state of the living to that of the dead. The cremation ceremony represents the last social interaction of the deceased with those still living; burial of the remains represents the beginning of the new status of the dead, as ancestor.

Fuel

Examination of burnt materials from the Bu Farm cairns failed to identify significant quantities of charcoal. Some coniferous wood was present, possibly driftwood, but much of the burnt material tentatively identified as fuel appears to derive from an organic sediment, possibly peat or turf. This conforms to the general comment by Hedges (1977, 143) that brushwood and peat were probably the only reliable sources of fuel on the islands. This may have been the case from earliest times: large volumes of peat ash were recorded in Neolithic contexts at Pool, Sandy (Hunter *et al* forthcoming). This is not to suggest, of course, the Orkney was devoid of all tree cover. At Quooy-

scottie, the charcoal assemblage included birch, pine, willow and hazel (Hedges 1977, 150). Birch and hazel were identified at Queenjafold (Ritchie & Ritchie 1974, 35).

Cramp

The vitreous material known as 'cramp' or 'clinker' has commonly been found in cremation contexts in Orkney, but is known to occur in other contexts too. Deposits from the Bu Farm cairns were tentatively identified with human hair (after Wells 1960; see McSweeney, above) and as long ago as the 1860s, Petrie could make the observation that:

... in numerous instances of cremation in which I carefully examined the bone and ashes, I found undoubted fragments of human skulls generally adhering to, or imbedded in, the vitrified substance ('cramp') which is in Orkney almost invariably found in the graves or barrows in which cremation can be traced (Petrie 1867, 413).

However, various analyses of similar material have indicated a mineral source for cramp, probably silica-bearing natural sediments (Callander 1936; Fleet 1978). Most recently, cramp from a cist at Sand Field, on Orkney, is characterized as a fuel ash slag (McKinley & Kibble forthcoming) and, significantly, similar material has been associated with non-funerary contexts, such as the remains of a turf-built Norse house at Pool, on Sanday (Hunter *et al* forthcoming).

Faunal remains

The deer bones found with human remains in a cist at Queenjafold were also cremated (Ritchie & Ritchie 1974) and must certainly have formed part of the funerary deposit. This cannot be said of the extensive range of wildfowl and mammals identified from remains at Bu Farm. These bones were not burnt, and while those from the body of Cairn 1 may be secondary or intrusive, those from beneath the cist are more likely to have been primary deposits, contemporary with the cremated human bone from the same context. The bird bones are striking alike for their diversity and the fact that all of them have been included in the human diet in the recent past. It is possible that these are the remains of a feast, or possibly votive offerings which formed part of the cremation ritual. Waddel's (1990, 22) study of Irish Bronze Age burials records 12 instances where cremated human remains were intermixed with soil before being deposited in a cist. Both the deposit beneath the cist in Cairn 1 and within the cist in Cairn 2 may have been of this type, and faunal remains – either in the form of food remnants or body parts – may also have formed part of the ritually mixed deposits.

Dates

The characteristic absence of datable artefacts from Orcadian cists has been a complaint of more than one commentator (Ritchie & Ritchie 1974, 37; Hedges 1977, 142) and the Bu Farm cairns are typical in this regard. Only a few radiocarbon dates are available from the excavated sites. At Quoy-scottie, cremations produced calibrated radiocarbon dates in the 12th to 10th centuries BC (Hedges 1977, 151); at Holland, a secondary inhumation produced dates which broadly spanned the 14th to 11th centuries BC (Neil 1981, 38); and at Mousland, a single radiocarbon date spanned the 16th to 14th centuries BC (Downes 1994, 147). In this context, the radiocarbon dates from Bu Farm are unexceptional and, from a more general point of view, fall within the known date range for funerary cairns of Bronze Age type. Both dates derive from contexts which appear to be closely associated

with the erection of the cists in each cairn and, as suggested above, they may be regarded as *terminus post quem* dates for construction of the monuments.

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