

# Excavations at Dunure Road, Ayrshire: a Bronze Age cist cemetery and standing stone

Paul R J Duffy\*

with contributions by N Finlay, G MacGregor, D McLaren, J McKenzie, J Miller, S Ramsay, A Sheridan, C Smith and R Will

## ABSTRACT

*In March 2005, excavations were undertaken by Glasgow University Archaeological Research Division (GUARD) at the Craig Tara Holiday Park, Dunure Road, Ayr in advance of proposed development. Two main archaeological sites were examined.*

*The first, a flat cist cemetery covered by an earthen mound, comprised 23 separate burial features of varying morphology from two separate phases of burial, including cists, pits and what has been interpreted as a 'boat-shaped' setting. Nine cremations and four possible inhumations were recovered from within the burial features as well as a range of material culture including Food Vessels, flint artefacts and a bone pin. Dating of cremated bone from the cists indicated that activity at the site stretched from the late third to the early second millennium BC.*

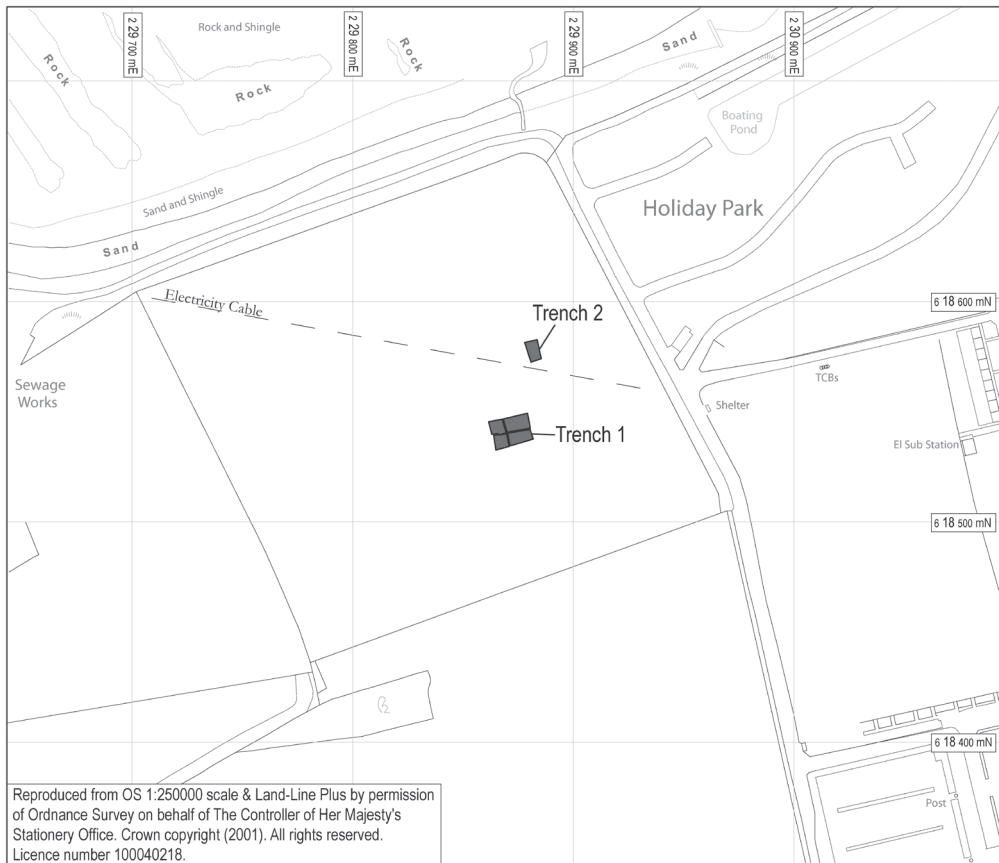
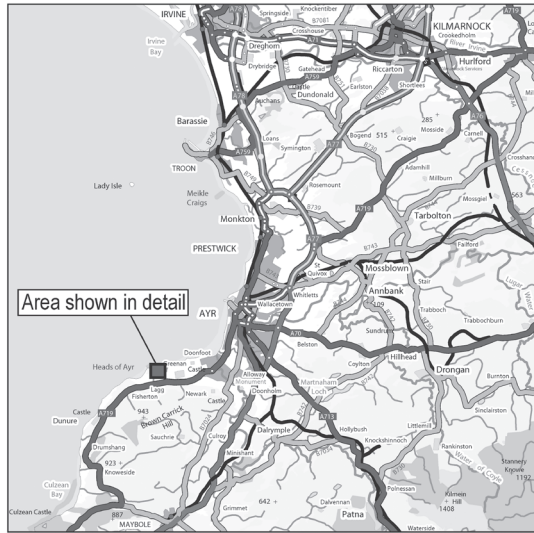
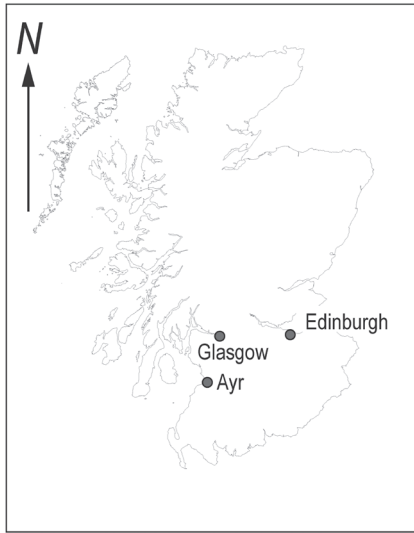
*The second site, a demolished or fallen standing stone, was located some 35m to the north and east of the first. Although the sequence of monument construction and demolition is clear, the reasons for the demolition of the stone are less so. However, a rare opportunity to date the stone was presented with the identification of a cremation deposit within the construction pit backfill. This indicated that the stone was constructed in the last quarter of the second millennium BC, suggesting a continuum of activity in the area late into the second millennium BC.*

## INTRODUCTION

The excavation areas (centred on NGR NS 2298 6185) were located immediately to the west of the Craig Tara Holiday Park, approximately 11km south-west of Ayr town centre, South Ayrshire, in an undulating field currently used as rough pasture (illus 1). The sites are low-lying, at 8–9m OD and sit in an area dominated by the watery expanse of the Firth of Clyde, which in turn is bounded by several key landscape features. Immediately to the west, the volcanic outcrop of the Heads of Ayr rises to some 80m

above sea level and dominates the foreground, whilst in the far distance beyond, the high peaks of Arran break the horizon (illus 2). Further north, views of the distant shoreline of Bute give way to the more immediate North Ayrshire coast before the land swings east to create the wide sea inlet of Ayr Bay. To the south, the ground rises slowly from the bay before levelling as a low ridge some 30m above sea level, which defines the entire southern horizon. The underlying geology comprises sedimentary carboniferous sandstone overlain by post-glacial raised beach deposits of littoral sands and gravel (Geological

\* Glasgow University Archaeological Research Division, Gregory Building, Lilybank Gardens, University of Glasgow, Glasgow G12 8QQ



ILLUS 1 Site location

Survey of Britain (Scotland) 1978a; 1978b). The overlying soils are imperfectly-drained brown forest soils of Dregghorn association (Soil Survey of Scotland 1962).

The potential for the presence of Bronze Age features at the site was identified during a programme of archaeological works undertaken by GUARD between 2000 and 2004. In 2000, an archaeological watching brief identified a truncated pit containing the fragmented remains of a vase urn, *c* 200m to the south-east of the sites described in this paper (Johnstone 2000). A subsequent evaluation in an adjacent area in 2004 located further, more substantial archaeological features (Duncan 2004). This evaluation also established that topsoil depths in particular areas precluded the long-term in situ preservation of the underlying archaeological deposits in the event of future development. Accordingly, a strategy of preservation through record for those threatened areas was agreed between the owners of the site, Bourne Leisure Ltd, and the West of Scotland Archaeology Service (WoSAS) acting on behalf of South Ayrshire Council. This agreement was mediated by GUARD and formalized as a Written Scheme of Archaeological Investigation (MacGregor 2005). A large pit feature with affinities to the burnt mound tradition, located *c* 80m to the north of the main focus of the archaeology, was preserved in situ through avoidance by development.

The excavations focused on two specific areas of archaeological deposits (illus 1). The first site, referred to here as Trench 1, measured *c* 20m east/west by *c* 16m north/south and was designed to investigate and excavate the cist cemetery. A 7m by 3m extension was later opened at the eastern side of Trench 1 in order to

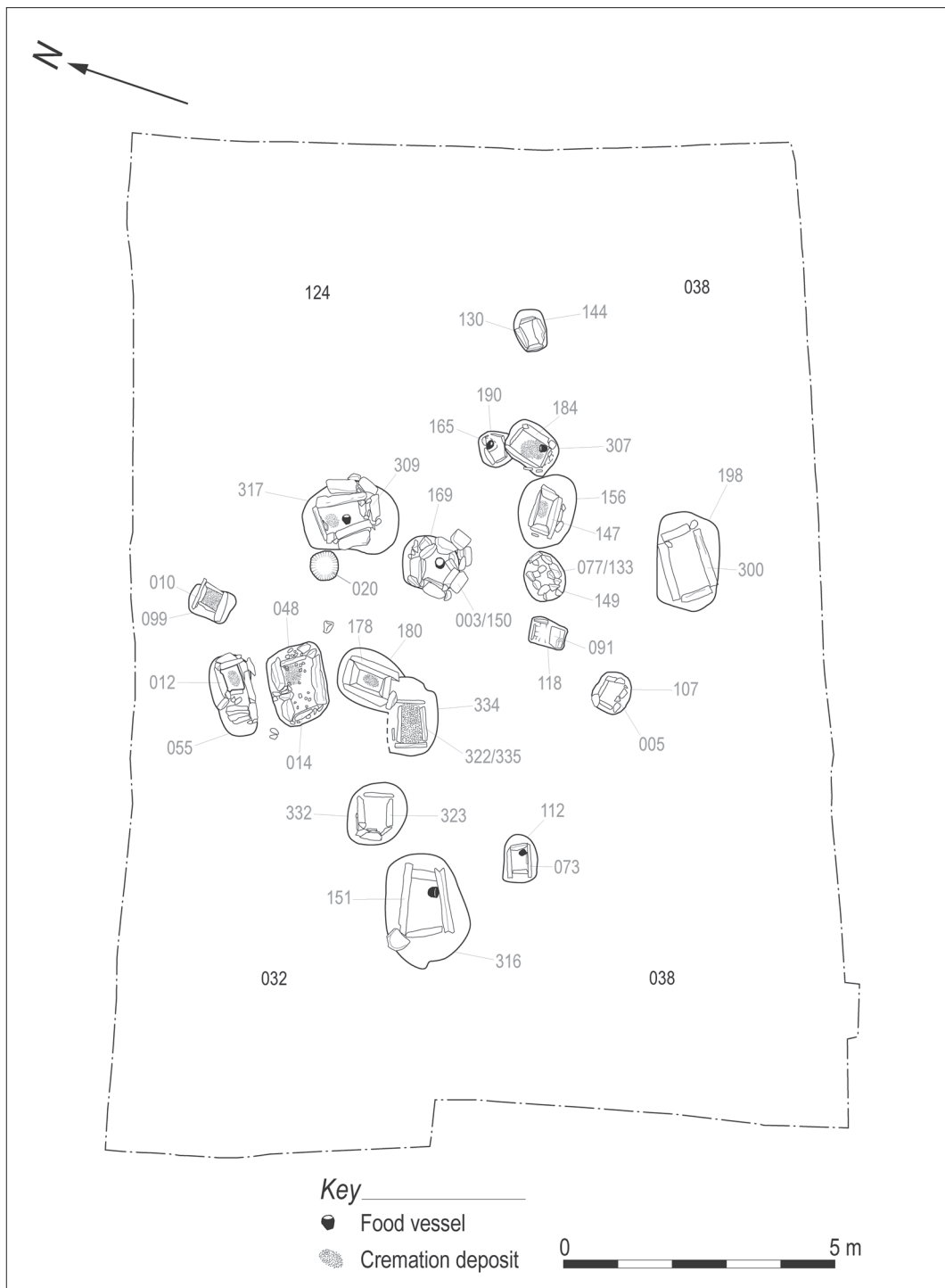
confirm the extent of the archaeological deposits. The second site, Trench 2, was located *c* 35m to the north and east of Trench 1, measured 10m north/south by 6m east/west, and was positioned to examine what was subsequently identified as a demolished standing stone. Both sites were covered by a layer of colluvium of varying depth (maximum *c* 0.6m) that may have formed, in part, as a result of cultivation.



ILLUS 2 Trench 1 general site view

## THE LATE THIRD MILLENNIUM CREMATION CEMETERY

Initial Early Bronze Age activity appears to have focused on a small natural sandy knoll. There, 18 stone-built features were constructed and formed the focus of activities related to the disposal of burnt and unburnt human remains, lithic artefacts and pottery vessels (illus 3). Intermittent evidence of an old ground surface (OGS) (032, 038, 124) suggests the pits in which the features were constructed were excavated through turfed ground, although the sandy nature of some of the sub-soil may indicate that this was an active dunal system. Most of the structures appeared not to have been disturbed, apart



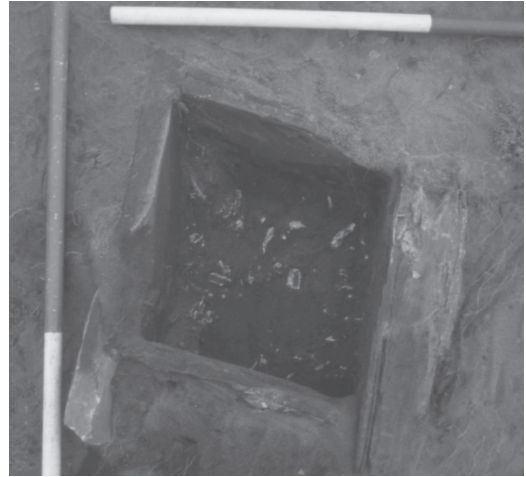
ILLUS 3 Late third millennium cist cemetery



from occasional burrowing by moles, although the mound and upper features showed some indications of truncation by plough activity. Dating of burnt bone from eight of the structures established that the bones were cremated during the last 200 years of the third millennium BC and the first 100 years of the second millennium BC. The taphonomic insecurity of the limited, predominantly oak (*Quercus*), carbonized macroplant remains and the poor preservation of unburnt bone precluded the reliable dating of those cists containing only inhumations or those cists which were empty.

FEATURES WITH CONTENTS

Thirteen structures from the first phase of the cemetery were found to contain artefactual and/or skeletal material. The results from the excavation of these cists are presented below.



ILLUS 5 Cist 010

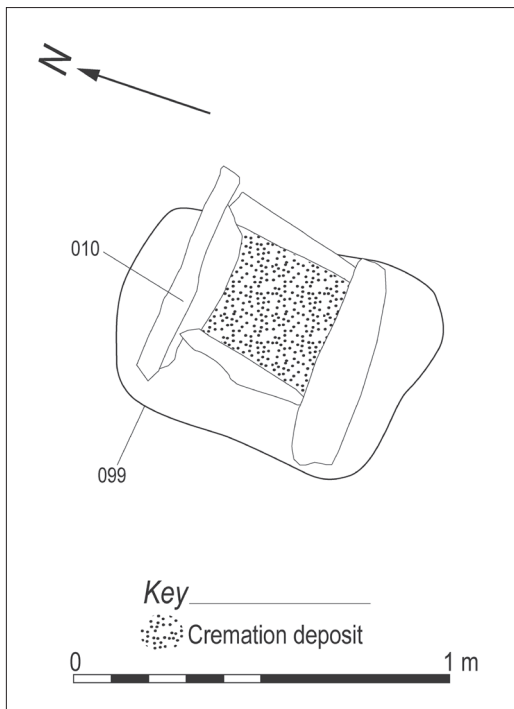
Dimensions are internal plan dimensions and depths of the enclosing structures.

*Cist 010*

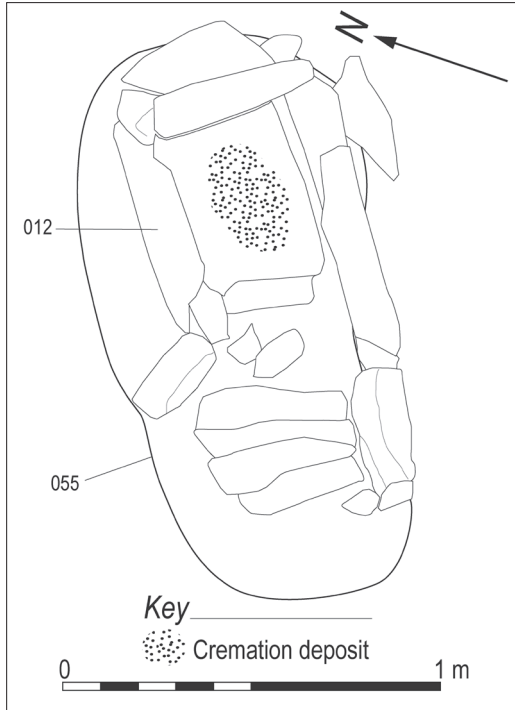
A sub-angular sandstone capstone (0.85m by 0.5m by 0.05m thick) with a weathered, rippled uppermost face sealed a small sub-rectangular cist measuring 0.36m by 0.34m by 0.25m deep and orientated east/west. The cist was four-sided, constructed from roughly-dressed sandstone slabs and contained within a small close fitting construction pit (099) (illus 4). It was floored with a thin stone slab which covered most of the base of the structure and upon which lay a cremation deposit (illus 5). Analysis demonstrated that this deposit represented the remains of a minimum of one adult individual. An apparently unburnt edge-retouched blade (Lithic 17) was found associated with the deposit. Dating of the cremated bone indicated that the individual had died between 2120 and 1870 cal BC (SUERC – 9123).

*Cist 012*

An uncapped sub-rectangular cist measuring 0.83m by 0.34m by 0.43m deep, orientated north-west/south-east (illus 6). At the south-western side of the cist, three sub-rectangular



ILLUS 4 Cist 010



ILLUS 6 Cist 012

stones appeared to represent a collapsed part of possible structure (illus 7), the purpose of which is not clear. The structure was contained within a small close-fitting pit (055) and was floored with small sub-rounded pebbles. Onto these pebbles, in the centre of the cist floor, a cremation deposit

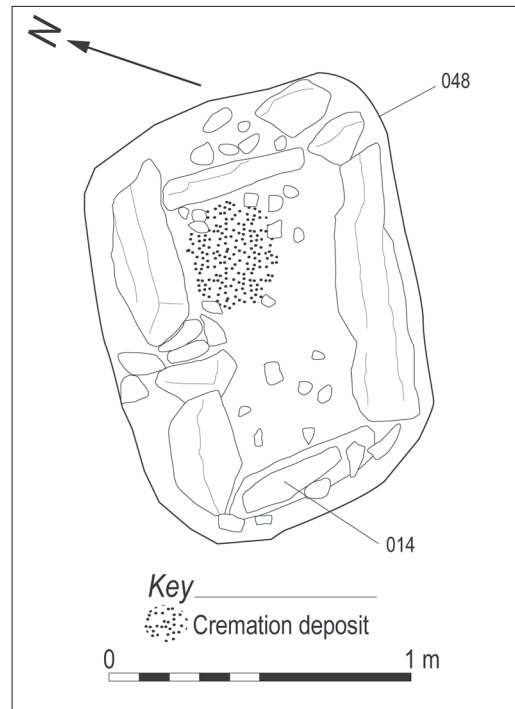


ILLUS 7 Cist 012

had been placed, which represented the remains of a minimum of one adult individual. Dating of the cremated bone indicated the individual had died between 2130 and 1890 cal BC (SUERC – 9118).

*Cist 014*

A large sub-rectangular cist measuring 1.06m by 0.8m by 0.66m deep, orientated north-west/south-east (illus 8). The cist was capped by a small slab (0.8m by 0.4m by 0.25m) which rested on the deliberate backfill inside the cist. It was contained within a small close-fitting pit (048), with some packing stones on its eastern and northern sides, and floored with small sub-rounded pebbles. Onto these pebbles, in the north eastern corner of the cist floor, a cremation deposit had been placed, which represented the remains of a minimum of one adult and one non-adult individual (illus 9). Dating of the

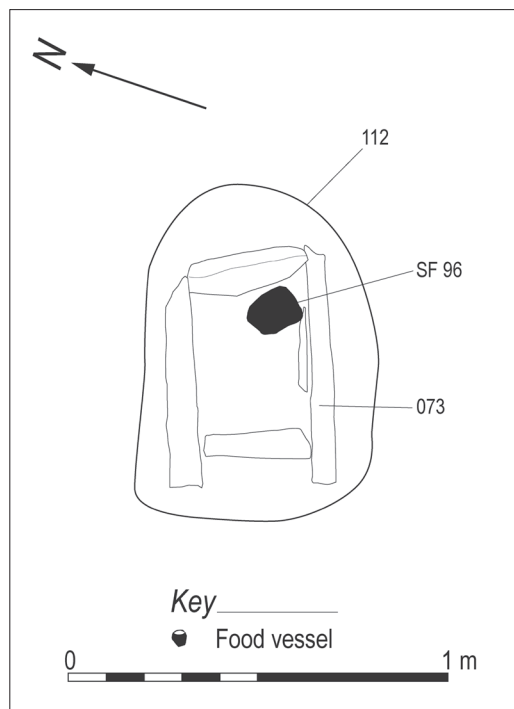


ILLUS 8 Cist 014

cremated bone indicated that the adult individual had died between 2200 and 1950 cal BC (SUERC – 9120).

*Cist 073*

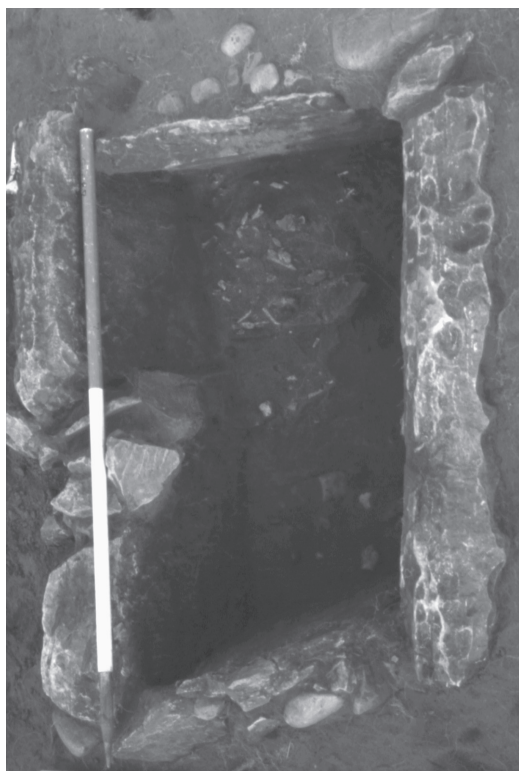
A small sub-rectangular cist measuring 0.5m by 0.35m by 0.36m deep, orientated north-east/south-west (illus 10). The structure was contained within a small close-fitting pit (112), backfilled with sand. It was floored with a thin slab which covered all but the south-eastern corner of the cist. From this unfloored corner, a small, squat Bipartite Vase Food Vessel (SF 96) was recovered (illus 11 & 40). The vessel lay on its side with the mouth to the south east, although a small plinth like sub-circular stone at the base of the vessel may suggest that it was originally placed upright.



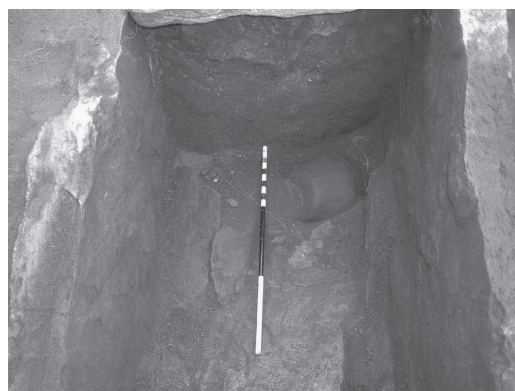
ILLUS 10 Cist 073

*Cist 147*

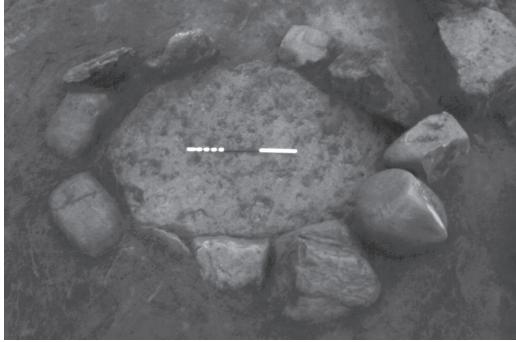
The structure comprised a small (0.74m by 0.52m by 0.1m thick) top slab surrounded by a sub-oval ring of stones (146) measuring 0.4m by 0.25m (illus 12). Removal of this upper structure



ILLUS 9 Cist 014



ILLUS 11 Cist 073



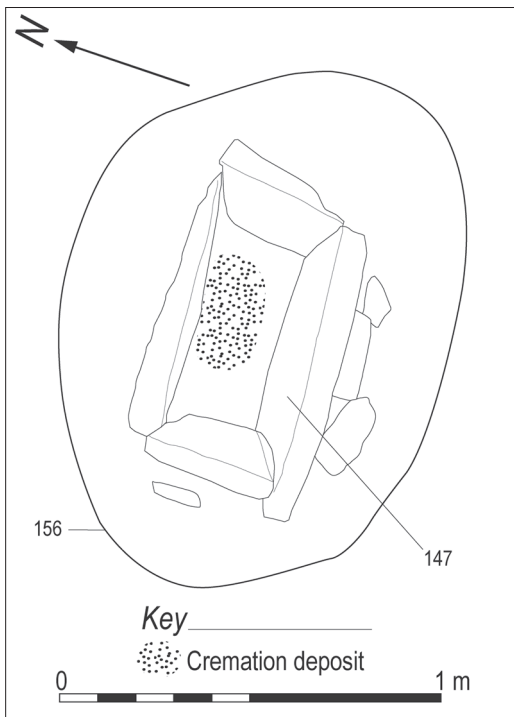
ILLUS 12 Cist 147



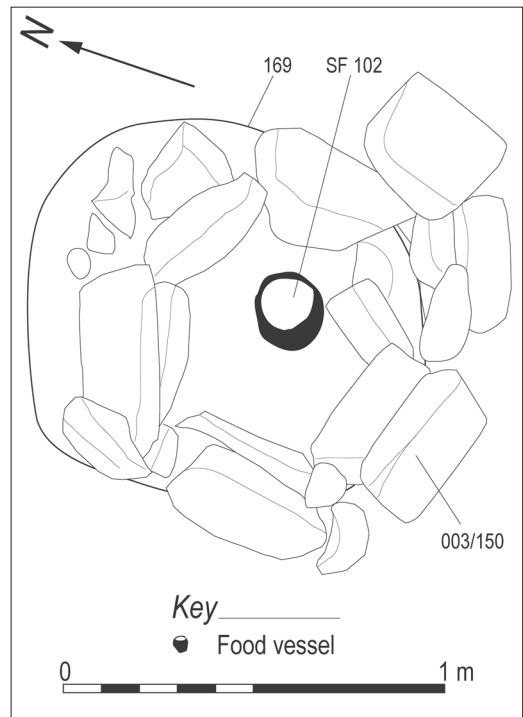
ILLUS 14 Feature 003/150

revealed a small sub-rectangular cist measuring 0.6m by 0.3m by 0.35m deep, and orientated east/west. The structure was contained within a small close-fitting pit (156), backfilled with sand. It was floored with pebbles, which extended across the entire base. In the centre of the cist

floor a small cremation deposit was recovered, representing the remains of a minimum of one adult individual (illus 13). A very fragmented and burnt possible scraper fragment (Lithic 23) was recovered from this deposit, along with a bone pin (SF 122; illus 46) and fragments



ILLUS 13 Cist 147



ILLUS 15 Feature 003/150



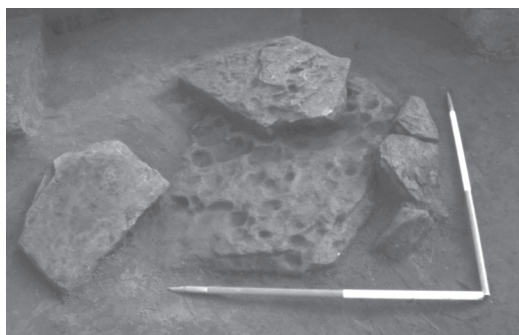


ILLUS 16 Feature 003/150

of cremated animal bone of small and larger ungulates. Dating of the cremated human bone indicated that the individual had died between 2030 and 1770 cal BC (SUERC – 9128).

*Feature 003/150*

A small sub-circular cairn (003), c 1.46m in diameter and 0.6m deep (illus 14), sealed a small stone top slab measuring c 1m by 0.7m by 0.08m thick, which in turn overlay a sub-rounded stone structure (illus 15). This structure was constructed of small-to-large sub-rounded beach boulders arranged in a drystone circle between two and three courses high (0.25m) set into a close-fitting pit (169). In the middle of the pit,

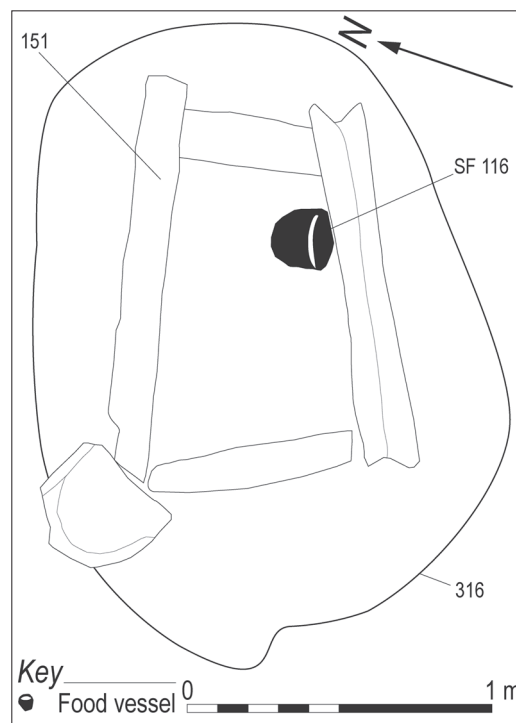


ILLUS 17 Cist 151

offset slightly to the south of centre, a Tripartite Bowl (SF 102) was uncovered standing upright and tilted slightly to the north (illus 16 & 40).

*Cist 151*

A large sub-rectangular cist measuring 1.08m by 0.7m by 0.7m deep, and orientated north-east/south-west. This cist was sealed by a weathered



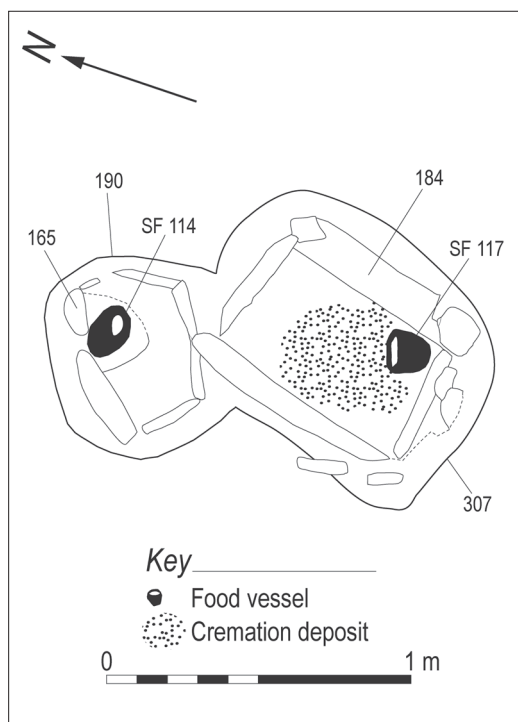
ILLUS 18 Cist 151

sandstone capstone, measuring 1.75m by 1.12m by 0.24m thick, which underlay five smaller stones, possibly the remnants of a small cairn (illus 17). The cist was contained within a large construction pit (316), measuring 2m by 1.3m by 0.8m and backfilled with sand. The cist had occasional small sub-rounded pebbles across its base and contained the highly-degraded



ILLUS 19 Feature 101/165/184

remains of an inhumation burial, evidenced by fragmentary tooth enamel remnants in the north-eastern corner. At the southern edge of the cist, just east of centre, a Tripartite Bowl/Vase Food Vessel (SF 116) was recovered (illus 18, 41). The vessel lay on its side, with the mouth facing to the south.



ILLUS 20 Feature 101/165/184

### Feature 101/165/184

A semi-circle of sub-rounded and sub-angular cobbles (021/085) had been placed on top of the mound material (see below for further discussion of this feature). Removal of this stone setting, and of the overlying mound material, revealed a slumped sub-circular cairn (101) (illus 19), constructed from small sub-angular slabs and sub-rounded cobbles, originally 3–4 courses high (*c.* 0.3m). Underlying this arrangement were two distinct features: a small rectangular cist (184), capped by a single slab measuring 0.92m by 0.7m by 0.10m thick, and a small sub-rectangular cist (165) (illus 20). Removal of the slab revealed that cist 165 incorporated part of the northern corner of cist 184 into its structure (illus 21), suggesting that cist 165 is the later of the two cists: a suggestion supported by the positioning of the cut for cist 165, which appears to respect structure 003/184. Cist 184 was orientated north/south, whilst cist 165 was orientated east/west.

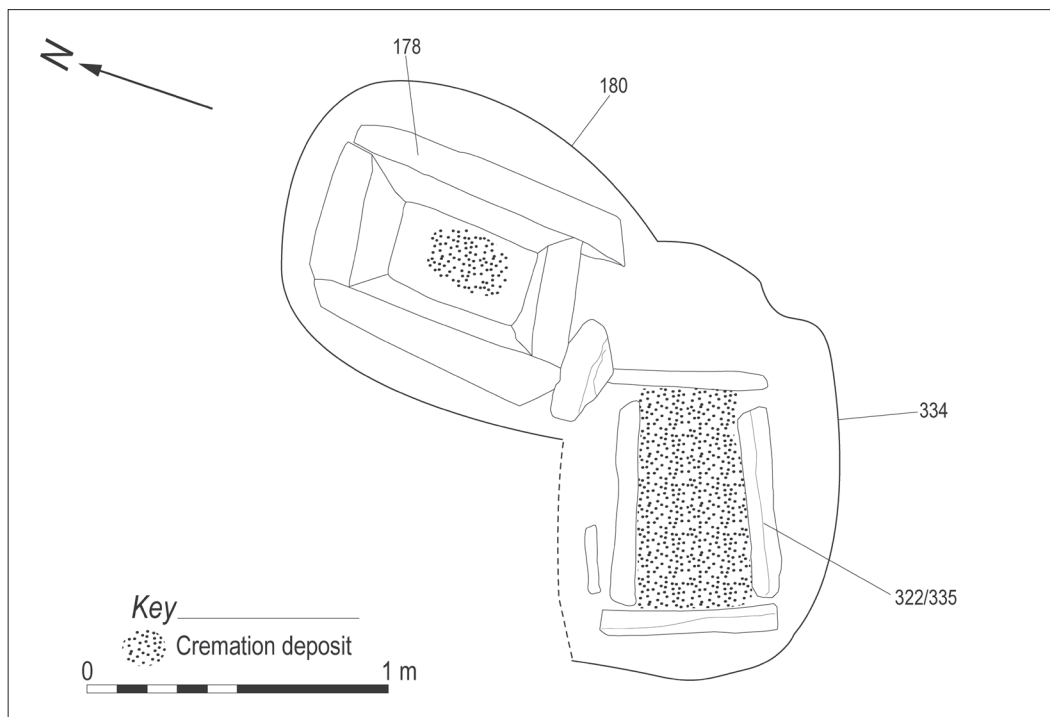
Excavation of cist 165 revealed a stone floor across most of the cist base, comprising several small slabs. In a stone-free depression or shallow cut in the northern corner, a Bipartite Vase Food Vessel (SF 114) was excavated (illus 41). The vessel stood upright and tilted slightly, with the mouth facing to the south-east. The cist lay in a small cut (190) backfilled with sand.

Excavation of cist 184 revealed that it was unfloored and that it contained a cremation



ILLUS 21 Feature 101/165/184





ILLUS 22 Cist 178

deposit representing the remains of a minimum of two adults and two non-adults. In the southern corner of the cist, a Bipartite Vase Food Vessel (illus 42) had been placed (SF 117). This vessel was found on its side with the mouth facing north. Dating of adult cremated bone from the cist revealed that one of the individuals died between 2130 and 1880 cal BC (SUERC – 9129). Dating of oak (*Quercus*) charcoal from this deposit produced a broadly similar date of 2210–1970 cal BC (SUERC – 9130). Six heavily-calcined lithics representing two broken edge-retouched flakes, both in two pieces (Lithics 15=80 and 16=81; illus 44), a flake fragment (Lithic 14) and a small pot-lid fracture (Lithic 13) were also identified within the cremation deposit, along with several fragments of cremated animal bone from a small ungulate. The cist lay in a close-fitting cut (307) backfilled with sand.

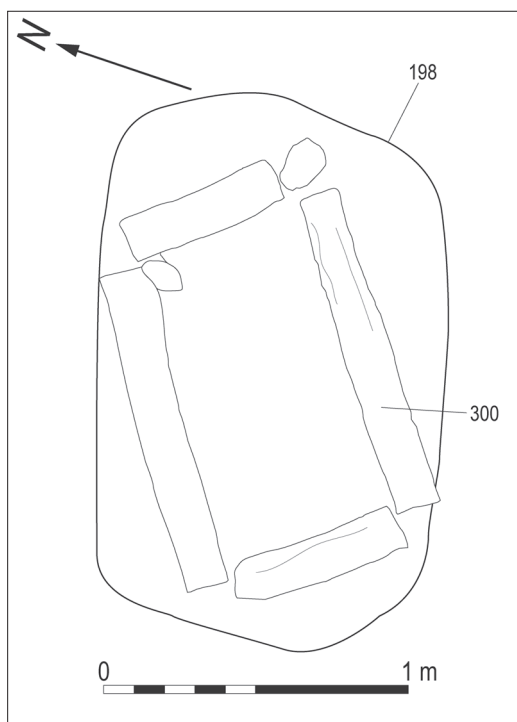
#### *Cist 178*

Removal of a weathered sandstone capstone measuring 1.3m by 0.7m by 0.15m thick revealed a second capstone measuring 1.3m by 1.4m by 0.16m. Underlying this was a smaller sub-rectangular cist measuring 0.64m by 0.44m by 0.7m deep, and orientated north/south. The cist was contained within a close-fitting construction pit (180), backfilled with sand. It had a floor comprised of medium-sized sub-rounded pebbles which extended across most of the base (illus 23). In the centre of the cist, a cremation deposit had been placed, representing the remains of two adults and one non-adult individual. Burnt worked flint in the form of a small pot-lid fracture chunk (Lithic 11) and two pot-lid fracture fragments (Lithics 78, 79) was incorporated within the cremation deposit, along with fragments of cremated cattle and smaller



ILLUS 23 Cist 178

ungulate bone. Dating of adult cremated bone indicated that the individual had died between 2140 and 1920 cal BC (SUERC – 9134). Dating



ILLUS 24 Cist 300

of *Alnus* charcoal from the cremation deposit produced a broadly similar date of 2120–1880 cal BC (SUERC – 9138).

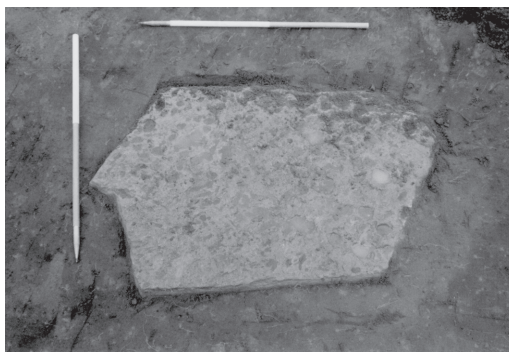
Excavation of the cut of the cist had disturbed an earlier structure 322/335, which lay to the south (illus 22).

#### *Cist 300*

A large sub-rectangular cist measuring 1.02m by 0.6m by 0.9m deep, and orientated east-west (illus 24). This cist was sealed by a weathered sandstone capstone, measuring 1.55m by 1.15m by 0.2m thick (illus 25), and contained within a close-fitting construction pit (198), backfilled with sand. The cist was unfloored and contained poorly-preserved tooth enamel at the eastern end, which probably represents the remains of a highly-decayed inhumation burial.

#### *Cist 309*

Cleaning revealed a large weathered sub-angular capstone, measuring 1.3m by 0.67m by 0.1m thick. Removal of this revealed a sub-rectangular cist, measuring 1.1m by 0.5m by 0.46m deep, orientated north-west/south-east and surrounded by a setting of large sub-rectangular boulders (illus 26). The cist lay in a close-fitting cut (317) backfilled with sand. In the centre of the

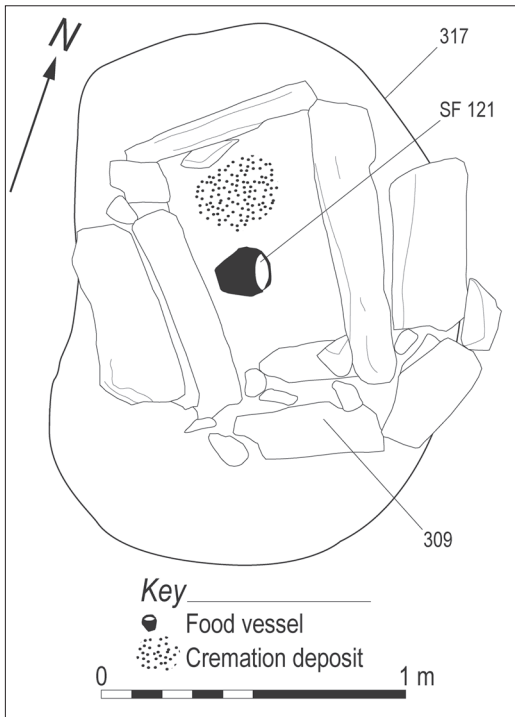


ILLUS 25 Cist 300



ILLUS 26 Cist 309

cist, a small Tripartite Bowl (SF 121) had been placed (illus 42). This was found lying on its side, with the mouth of the vessel facing west. On the northern side of the pottery vessel, a



ILLUS 27 Cist 309

cremation deposit representing the remains of a minimum of two adults and one non adult were recovered (illus 27). A fine burnt edge-retouched blade in two fragments (Lithics 82, 83; illus 44) and a pot-lid fracture (Lithic 3), probably from another artefact, were deposited with the cremation deposit, along with several fragments of cremated small and large ungulate bone. Dating of cremated adult bone indicated that the individual had died between 2140 and 2080 cal BC (SUERC – 9133). To the south of the vessel, fragmentary tooth enamel indicated that the cist originally contained unburnt human bone.



ILLUS 28 Feature 322/335

*Feature 322/335*

Initial cleaning revealed a sub-circular cairn (322) constructed of a number of flat sub-angular slabs, extending to a maximum of three courses high (0.5m) which had been covered by c 0.2m of sand (illus 28). Removal of this capping revealed a large top slab, measuring 1.1m by 0.58m by 0.12m thick, which overlay a sub-rectangular cist orientated east/west (illus 29). The cist measured 0.65m by 0.3m by 0.4m deep and had a floor comprising small sub-rounded pebbles which covered the entire base. On top of this floor a cremation deposit had been placed, covering the entire area. Analysis revealed that the deposit

represented the remains of a minimum of three adults and one non-adult. Dating of cremated bone suggests that the individuals had died between 2200 and 1890 cal BC (SUERC – 9139). Several flint artefacts were found incorporated into this deposit: a heavily burnt possible edge-retouched flake in two pieces (Lithics 9, 84), a proximal flake fragment (Lithic 74), a complete secondary flake (Lithic 75) (all illus 44), a pot-lid fracture (Lithic 77), and a burnt lateral flake spall (Lithic 76). Several fragments of cremated bone from a small ungulate were also recovered.

#### FEATURES WITHOUT CONTENTS

Five cists (005, 091, 130, 133, 323) were found to be devoid of further significant in situ material. No specific reason could be discerned as to why this was so: certainly the group cannot be distinguished on morphological grounds



ILLUS 29 Feature 322/335

or location from the rest of the structures on the site, although the five cists all fall into the smaller sub-rectangular grouping. However, only cist 005 incorporated any sort of floor, perhaps suggesting that taphonomic processes may have played a part in the apparent emptiness of these structures. That said, comparing preservation conditions with those in other areas of the site,

it is judged unlikely that the five cists contained human remains.

#### *Pit 020*

A small circular pit measuring 0.5m in diameter and 0.35m in depth. The pit was filled with a number of sub-angular cobbles, which probably came from the beach.

#### *Cist 005*

A small sub-rectangular cist measuring 0.55m by 0.45m by 0.3m deep, and orientated east/west. This cist was sealed by a small sandstone capstone, measuring 0.8m by 0.6m by 0.1m, and had a floor formed of occasional small sub-rounded pebbles. A flint flake found within the upper portion of the cist backfill is suggested to be residual given its stratigraphic position. The cist lay in a close-fitting cut (107) backfilled with sand.

#### *Cist 091*

Initial cleaning revealed a sub-circular cairn, *c* 0.5m in diameter, constructed of a number of flat sub-angular slabs and extending to a maximum of three courses (0.2m) in height. Removal of this capping revealed a small top slab, measuring 0.5m by 0.4m by 0.08m thick which overlay a sub-rectangular cist orientated north/south. The cist measured 0.35m by 0.35m by 0.25m deep

and was unfloored. It lay in a close-fitting cut (118) backfilled with sand.

#### *Cist 130*

Cleaning revealed a small sub-rectangular capstone measuring 0.72m by 0.4m by 0.11m thick. Removal of this capstone revealed a small



sub-rectangular cist measuring 0.64m by 0.32m by 0.3m deep, and orientated east/west. The cist was constructed in a close-fitting cut (144) backfilled with sand.

### *Structure 076/077/133*

Cleaning revealed a sub-oval ring of small to medium beach cobbles (076) placed on top of the earthen mound (see below). Removal of this material and the underlying earthen mound revealed a small denuded cairn (077), surviving to a maximum of two courses (0.2m) in height, which protruded above the mound. Underlying



ILLUS 30 Structure 076/077/133

this was the top slab of cist 133, a small sub-angular beach slab measuring 0.5m by 0.35m by 0.15m. This in turn overlay a further sub-oval setting of stones placed at the top of a cut (149) measuring 0.9m by 0.75m by 0.3m (illus 30). There were no side slabs within the cut, but a sub-oval ring of sub-rounded and sub-angular stones had been placed at its base.

### *Structure 323*

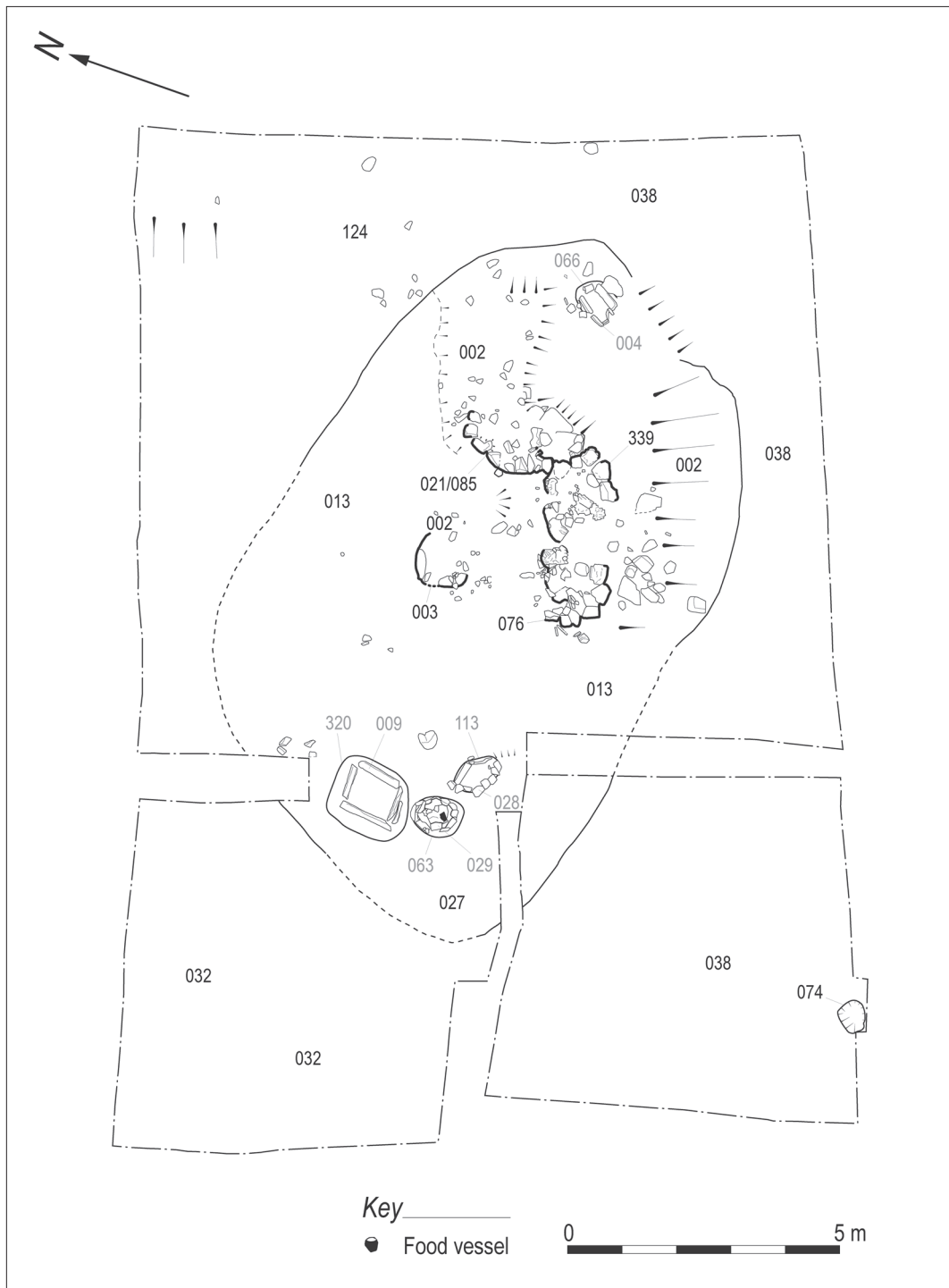
This structure was first identified after the excavation of structure 009 (illus 32; see below). It comprised an apparently unlidged

sub-rectangular cist measuring 0.5m by 0.4m by 0.4m deep and orientated north-east/south-west. The cist was placed into a slightly larger cut (332), measuring 0.9m by 0.8m by 0.45m, which had been backfilled with sand.

### MOUND CONSTRUCTION, STONE SETTINGS AND LATER INSERTIONS (ILLUS 31)

Burial within the flat cist cemetery ended by the start of the first century of the second millennium BC. Subsequently, this cemetery was sealed beneath a low sub-oval earthen mound (002/013), measuring c 11m by 8m and 0.3m in height. Thin section analysis (see McKenzie below) confirmed that the mound represents an intentional capping event, although it had been denuded, probably by later cultivation activity evidenced by a slower build up of parts of the upper mound. As there are few anthropogenic indicators within the mound material, and only ephemeral evidence of turf construction within it, it is probable that the mound material derived from the surrounding soils and turf: absence of the OGS on the north side of the mound may indicate the origin of at least some of this material. No evidence was found of an enclosing ditch, outer kerb or stone covering defining the extent of the mound.

A number of sherds of pottery dating to the second millennium BC were also found scattered across the mound surface, which potentially indicate that further burials – which have subsequently been destroyed – had been inserted into the mound (see Sheridan below). In particular, several of these sherds derive from two vessels (urn 1 and 2) (see Sheridan below), fragments of which were recovered from the floor of cist 300, the adjacent OGS and the overlying mound material. Given the large capstone of cist 300 and the quantity of backfill that separated the sherds inside it from those found on the mound and the OGS, the most logical explanation for the distribution of sherds is that they represent the smashing of a vessel at the side of the cist, before it was sealed and backfilled. Sherds have



ILLUS 31 Mound and later insertions



then become incorporated or been deposited in the cist, left on the OGS and become incorporated into the mound material during the same episode of activity.

Numerous quartz pebbles were also recovered from the mound. Specialist analysis of these pebbles (see Finlay below) has identified neither indication of anthropogenic modification nor evidence of deliberate size selection, although it is conceivable that they were deliberately selected for deposition on the mound.

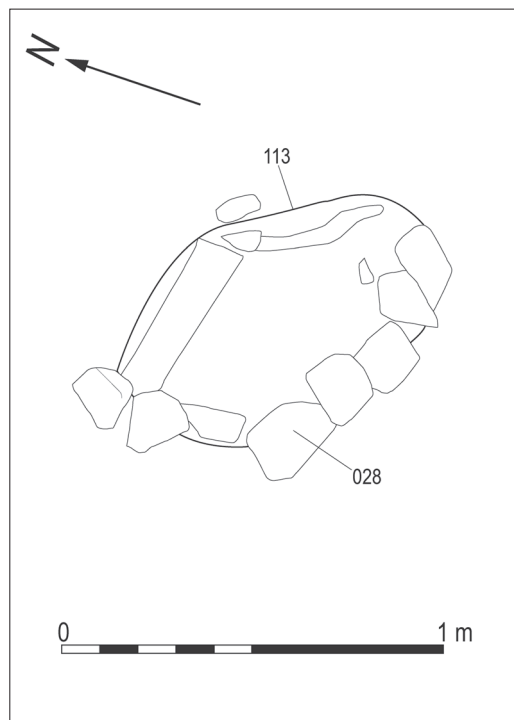
A series of sub-circular stone settings (021/085; 076; 146) lay directly on top of the upper surface of the mound and appeared to respect the position of the three underlying cists, two of which were topped by cairn structures. Most of the stones used to construct these settings were sub-rounded grey granite boulders from the nearby beach, but interspersed in the pattern were deliberately placed red and orange sandstones. Perhaps more significant for our understanding of the monument, the relationship between cists, cairns and stone settings suggested that these features were part of the overall construction plan for the mound. Certainly, the location of the underlying features must have been deliberately preserved during the construction of the mound, most probably by leaving the small cairn features uncovered,

as the respective positions of the stone settings and the underlying features are too close to have resulted purely by coincidence.

Four features were subsequently cut through the mound: three on the western side and one on the east (illus 31). All of these features respected the placement of the stone settings, suggesting that they postdate the construction of these settings.



ILLUS 32 Structure 009



ILLUS 33 Structure 028

#### *Structure 004*

An uncapped and partially-disturbed small sub-rectangular cist, measuring 0.79m by 0.47m by 0.22m, orientated north-east/south-west, and positioned in a close-fitting cut (066). A possible sub-circular stone setting (068) was positioned around it.



ILLUS 34 Structure 028

#### *Structure 009*

A large much weathered sandstone capping stone, measuring 1.3m by 0.9m by 0.13m, sealed a large sub-rectangular cist measuring 0.8m by 0.6m by 0.64m deep and orientated north/south (illus 32). The cist was contained within a slightly larger cut (320) measuring 1m by 0.8m by 0.7m deep and had been backfilled with sand. The cist contained decayed tooth enamel, which may represent the remains of a poorly preserved inhumation. The builders had utilized a cup-marked slab for the westernmost slab of this cist (see MacGregor below).

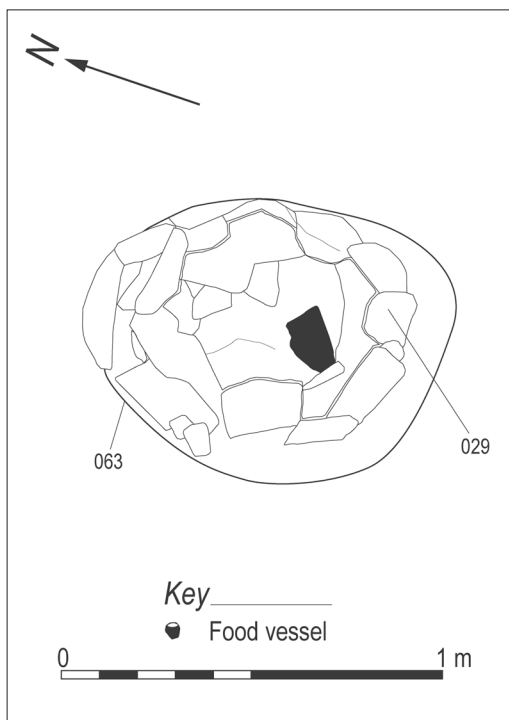
The excavation for the cut for this cist had uncovered an earlier, deeper cist (323). The lower cist underlay structure 009 in the south-western corner and appears to have been largely undisturbed during the later activity after it had been initially revealed.

#### *Structure 028*

A sub-rectangular capstone measuring 0.8m by 0.4m by 0.1m thick was removed to reveal an unusual sub-oval stone structure orientated

north-west/south-east. This structure was constructed of small slabs inserted at an angle into a small sub-oval cut measuring 0.86m by 0.54m by 0.7m deep, and topped with small sub-rounded cobbles to the south (illus 33). The slabs had been placed to form a structure with two bowed long sides, a pointed end at the north-west and a flatter end at the south-east: perhaps giving the impression of a boat shape (illus 34, 49). The main axis of the structure was orientated towards Arran. The cist contained a fine, fresh, grey flint edge-retouched flake (Lithic 26) (illus 44 below) which had

been deposited at the north-western end of the cist.



ILLUS 35 Structure 029



ILLUS 36 Structure 029

### Structure 029

Initial cleaning revealed a large sub-angular fragmented beach slab, measuring *c* 0.8m by 0.7m by 0.1m thick. Underlying this slab was a sub-oval structure of rough drystone construction, comprising sub-rounded and sub-angular beach cobbles contained within a close-fitting cut measuring 1m by 0.8m by 0.3m deep (illus 35 & 36). Just south of the centre of the feature, a slender Tripartite Vase Food Vessel (SF 63) had been placed (illus 42 below). The vessel was on its side with the mouth open to the east, and it had been covered with a small flat stone just wider than the vessel mouth. Small quantities of carbonized hazel roundwood, possibly the remains of a burnt artefact, were recovered from samples of the fill (see Miller & Ramsay below).

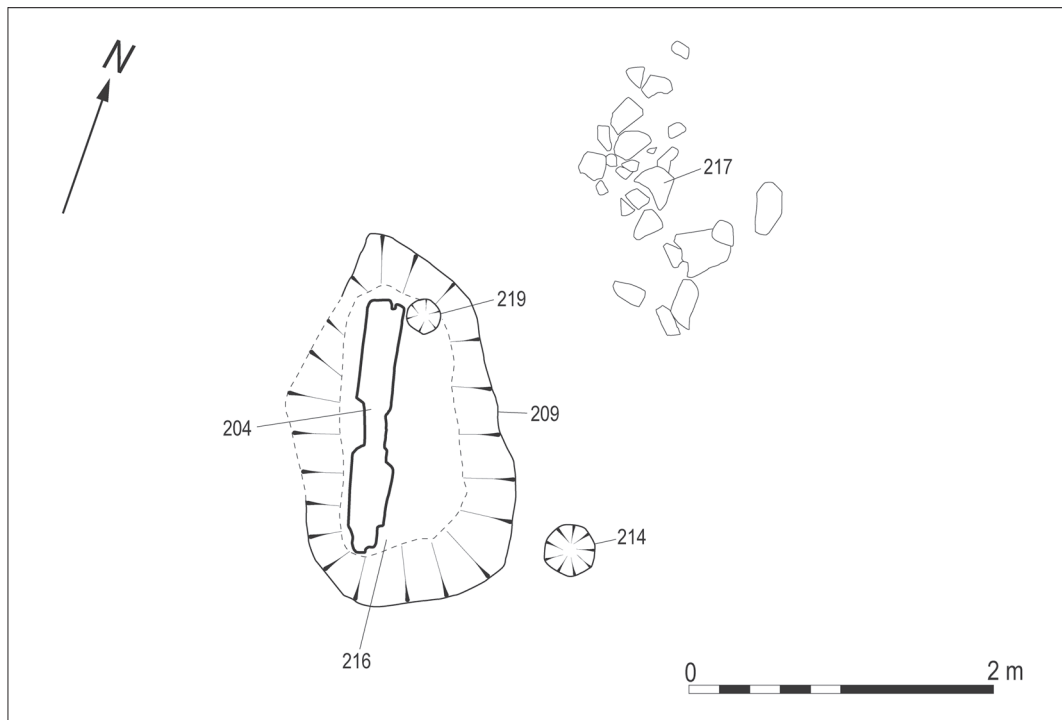
### THE LATE SECOND MILLENNIUM: STANDING STONE AND CREMATION PITS

The burial of human remains, pots and other materials discussed above did not signal the abandonment of the area as a focus of ceremonial activity. Excavations carried out some 35m to the north of Trench 1 demonstrated that, at least 600 years after the latest dated activity on the mound, a standing stone was erected (illus 37). The construction of this monument must have been labour intensive due to the large size of the stone, although it was probably straightforward

to erect given the ease with which the underlying sandy sub-soil could be dug. A slab (204), measuring 1.6m in width by 0.25m thick and perhaps as much as 3m in length, was brought to the site already in a dressed state and was then hauled into a pre-prepared sub-oval pit (209), probably from the west. The pit was 1.2m deep, presumably to compensate for the relative instability of the sandy sub-soil. It was backfilled in a single event with grey/brown sand and frequent small-to-large sub-rounded packing boulders. During this operation, a small sub-circular pit (219), measuring 0.2m in diameter and 0.1m in depth, was excavated in the north-west corner of the backfill (216). A small deposit of carefully selected cremated bone, representing the skull and long bones of a minimum of one adult individual, and small quantities of carbonized hazel charcoal were placed into this pit before backfilling was completed. Radiocarbon dating of the cremated bone indicates that these events occurred between 1260 and 1010 cal BC (SUERC – 9131). Dating of *Corylus* charcoal from the pit indicated a broadly similar date for the wood fragments of 1380–1080 cal BC (SUERC – 9132).

To the east of the stone lay an area of rough paving (217) and a bowl-shaped pit (214). The pit had been filled with a small deposit of selected cremated human bone, representing the skull and long bones of a minimum of one infant and notable quantities of alder (*Alnus*) charcoal chunks. Dating of associated *Alnus* charcoal suggests that these events were broadly contemporary with the erection of the slab, occurring between 1310 and 1050 cal BC (SUERC – 9119). Overlying the pit was a sub-circular deposit of charcoal-rich silt/sand (212), primarily containing alder (*Alnus*) charcoal but also significant quantities of birch (*Betula*) and hazel (*Corylus*). This material was stratigraphically inseparable from the underlying deposit and must have been placed immediately after the pit was filled.

The stone remained upright for sufficient time to allow the formation of pea-grit layer



ILLUS 37 Standing stone – first constructions

(208) and a 0.10m thick deposit of silt/sand (210), before the upper portion (suggested to be between 1.5m and 2m in height) was broken horizontally at ground level and fell. Whether this action was accidental or deliberate is not certain, but a rough kerbing (211) was constructed to the south, incorporating into its alignment what was probably the top part of the collapsed slab (206), whilst the main body of the stone was apparently broken up and removed. An intermittent layer of angular stones on the top of silt/sand 210, and several larger fragments of the stone (205, 206), were all that remained of this action. However, it is also possible that a relatively stone-free hollow (213), perhaps a natural rather than a cut feature, was created by the weight of the slab on the underlying sands (illus 38 and 39). Following this activity, hollow 213 filled with mottled silt/sand which contained

moderate amounts of charcoal, probably derived from underlying context 212 (illus 39). The site was subsequently covered with a 0.25m thick layer of silt/sand (202). The destruction of the standing stone is undateable but a single sherd of Scottish White Gritty Ware pottery (see Will below), found on the surface of the sealing layer (202) and dated to the 13th or 14th century AD, provides a *terminus ante quem*.

Activity also continued in the wider landscape at this time, as is evidenced by a sub-oval pit (074) (illus 37). This pit measured 0.65m north/south by 0.51m east/west by 0.21m in depth and was located to the south-west of the mound in Trench 1. The pit was filled with a dark brown silt (075) which contained the skull and long bones of one individual, possibly male, and substantial quantities of alder charcoal, apple family charcoal, carbonized hazel nutshell

and hazel kernel fragments and occasional carbonized grassy rhizome fragments. Human bone and alder (*Alnus*) charcoal from this feature produced dates of 1390–1120 cal BC (SUERC – 9121) and 1410–1210 cal BC (SUERC – 9122) respectively.

mortuary rites. Methodology and recording criteria followed schema described by Brickley and McKinlay (2004):

Infant:	0–3 years
Child:	3–11 years
Adolescent:	11–18 years
Young Adult:	18–30 years
Middle Adult:	30–45 years
Mature Adult:	45 years +

## SPECIALIST CONTRIBUTIONS

### THE CREMATED HUMAN REMAINS

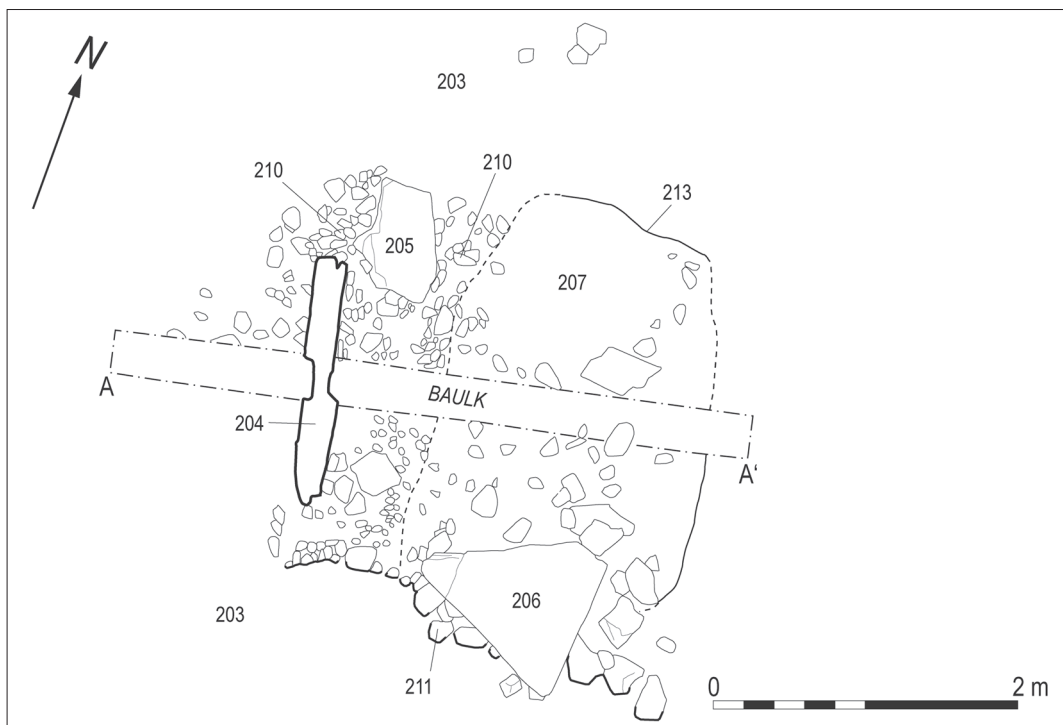
Paul R J Duffy

#### *Introduction*

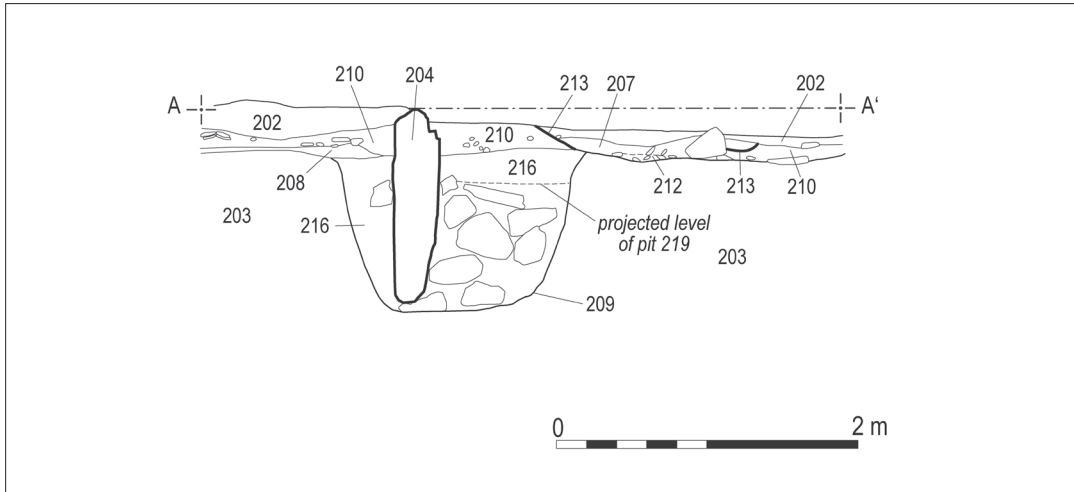
The human remains analysis was undertaken with the objectives of establishing the number, age and sex of individuals represented, examining any evidence for health and disease and establishing any evidence for specific

Where a specific age in years could not be given, the following categories were used, based on subjective observation:

Immature:	Refers to any individual less than 18 years of age.
Adult:	Individuals of adult size and development where no more precise indicators of age are present.



ILLUS 38 Standing stone – after felling



ILLUS 39 Section across Trench 2

In total, 16,094g of cremated human remains was recovered from 37 contexts across the site, representing a minimum number of 28 individuals.

### *Preservation*

Preservation was assessed on two main criteria: overall surface abrasion, reflecting processes of weathering and taphonomic alteration to the bone surface and relative percentages of fraction weights, allowing an understanding of how fragmented the deposit was at the time of analysis. Overall, the majority of the bone examined was in a good state of preservation: fractionation was slight, with at least 50% of the bone over 10mm in size, and little erosion was noted on the cortical surface of the bone. In total, 59% of the assemblages from individual features were in good condition, 29% were in average preservation condition and 12% were in poor condition. This is undoubtedly due to the fact that the majority of the remains were deposited in cists that were subsequently backfilled, affording protection from both weather and post-depositional taphonomic processes such as animal activity or ploughing,

which can fractionate delicate cremation deposits. This distinction is highlighted when the preservation of material from sealed cists is compared to that recovered from open pits. Retrieval of whole assemblages, rather than excavation by spit, affording less excavator contact with the bone, and efforts to minimize post-excavation sorting of the material may also have contributed to maintaining the good preservation condition.

### *Elements present*

Perhaps the most significant observation is that all of the cist assemblages contained skeletal elements from all parts of the body and in quantities suggesting that, in each case, at least one complete individual could have been cremated and subsequently deposited in a feature. This is demonstrated by the recurring presence of small bones of the hands and feet, ribs, pelvis and vertebrae as well as more commonly observed skulls and long bones. This pattern contrasts sharply with the assemblages from pit features (074, 214 and 219), all of which are dominated almost exclusively by skulls and long bones. The potential for differential



TABLE 1  
Preservation of the human remains assemblage

<i>Cist/Pit</i>	<i>Context</i>	<i>Description</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>	<i>Weight (g)</i>
009	320	Fill of cut	X			1.3
010	080	Cremation deposit	X			932.2
012	054	Fill of cut	X			1.2
012	037	Cremation deposit		X		1303.7
014	042	Cremation deposit		X		1846.6
014	047	Fill of cut			X	7.7
147	167	Cremation deposit	X			921.8
151	197	Primary cist fill	X			2.1
165	170	Fill of cut	X			1.1
178	311	Cremation deposit	X			2720.4
184	192	Cremation deposit	X			2899.7
309	302	Cremation deposit	X			1793.5
335	328	Cremation deposit	X			2428.9
204	216	Fill of pit		X		205.1
219	218	Fill of pit		X		227.8
074	075	Fill of pit		X		790.6
214	215	Fill of pit			X	12.3

preservation of material between these two types of depositional environment could be pointed to as a causal factor. However, the contrast between the two types of deposit is significantly marked

and distinct enough to suggest that, in the pit features, a deliberate choice was made to select particular elements of the skeleton for deposition. Whether this choice occurred pre-cremation or

TABLE 2  
Comparative bone weights of cremation deposits

<i>Cist</i>	<i>MNI and sex</i>	<i>Recorded weight (g)</i>	<i>Minimum Predicted weight (MPW)</i>	<i>Percentage of MPW recorded</i>
010	1 ?F	932.2	1615	58
012	1 M	1303.7	2285.5	57
014	1 ?F, 1 non-adult	1846.6	3230	57
147	1 ?F	921.8	1615	57
178	1 M, 1?F, 1 non-adult	2720.4	3900	70
184	1 M, 1 adult, 2 non-adult	2899.7	3900	74
309	1 M, 1 adult, 1 non-adult	1793.5	3900	46
335	1 M, 1?F, 1 adult, 1 non-adult	2428.9	5515	44

post-cremation cannot be ascertained from the skeletal material.

It is also clear, however, that the expression of choice of skeletal material must have extended to the depositions in the cists. In none of the assemblages examined was the weight of bone close to what we would expect as average for an adult male and/or adult female, calculated to be 2285.5g for males and 1615g for females by McKinlay (1993). This is demonstrated in Table 2.

Whilst some of this discrepancy can be explained through loss of material during the process of cremation and subsequent gathering of material from the pyre, this does not seem to provide adequate explanation for the loss of upwards of 30% of the skeletal material. Thus, we are left with something of a puzzle as to how the discrepancy has come about.

Such losses are frequently attributed to the process of cremation. It is, however, of interest to consider that, although the frequency of elements suggests that all parts of the skeleton are present within the assemblage, the process of analysis cannot offer sufficient resolution to understand whether this represents a complete individual or a number of body parts from different individuals.

#### *MNI and demographics*

Overall, the assemblage represented the remains of a minimum of 28 individuals. The population demographics are shown below.

It is clear that males outnumber (possible) females 6:5, although individuals of unidentified sex are most common with ten individuals in this category. It is perhaps surprising that, although

TABLE 3  
Demographic summary

<i>Cist/Pit</i>	<i>Context</i>	<i>Description</i>	<i>MNI</i>	<i>Adult</i>	<i>Non-Adult</i>	<i>Age</i>	<i>Sex</i>
009	320	Fill of cut	1	1			U
010	080	Cremation deposit	1	1			?F
012	054	Fill of cut	1	1			U
012	037	Cremation deposit	1	1			M
014	042	Cremation deposit	2	1	1	Child	?F
014	047	Fill of cut	1	1			U
147	167	Cremation deposit	1	1			?F
151	197	Primary cist fill	1	1			U
165	170	Fill of cut	1	1			U
178	311	Cremation deposit	3	2	1	35–39 y, Child	M,?F
184	192	Cremation deposit	4	2	2	40–44, Neonate	1 M, 1 U
309	302	Cremation deposit	3	2	1	Infant	1 M, 1 U
335	328	Cremation in cist	4	3	1	Child	1 M, 1 ?F, 1 U
074	075	Fill of pit	1	1			?M
204	216	Fill of slab cut	1	1			U
219	218	Fill of pit 219	1	1			U
214	215	Fill of pit 214	1	0	1	Infant	

infants and children are represented in the assemblage, no adolescents were identified.

*Health and disease*

Evidence of skeletal pathologies was observed on several elements within the assemblage. However, overall, identifications of pathological conditions were few.

*Dental disease*

A prevalence rate of 17% was identified for periodontal disease (n=100). Three teeth were found to have been lost ante-mortem, probably as the result of periodontal disease, and one tooth root showed evidence of sub-gingival calculus formation.

*Spinal joint disease*

Schmorl's nodes, caused by herniations of the intervertebral discs, were observed on two separate vertebrae (cist 184, cist 309).

Osteophyte formation and/or pitting of the vertebral body surface was observed on a further three adult vertebrae. It was not possible to ascertain whether these changes were the result of age or trauma.

*Porotic hyperostosis*

Two possible cases of this condition were noted during the analysis (cist 184, pit 074), with a third potential case more difficult to diagnose (cist 335). The condition results from iron deficiency anaemia, which has been linked with malaria, and can also occur in response to poor diet or parasitic infection of the gut.

*Trauma*

Two separate contexts produced fragments of skull with possible cut marks on them (pit 074, cist 335). In both cases, the marks were apparently peri-mortem, as no evidence of healing was identified. It is uncertain whether

TABLE 4  
Animal remains from Heads of Ayr, Dunure Road

<i>Context</i>	<i>Cist no</i>	<i>Species</i>	<i>Details</i>
167	147	Large Ungulate	3 calcined long bone shaft fragments
167	147	Small Ungulate	3 calcined long bone shaft fragments; 1 probable rib shaft
189	178	Indeterminate Mammal	3 calcined fragments
192	184	Small Ungulate	11 calcined long bone shaft fragments
302	309	Large Ungulate	Probable rib shaft
302	309	Small Ungulate	5 calcined fragments, probably long bone
311	178	cf Cattle	2 calcined fragments from metapodial distal condyle; do not conjoin
311	178	Small Ungulate	1 calcined right styloid process and part of right occipital condyle. Appears to be chopped through occipital condyle
311	178	cf Small Ungulate	3 long bone shaft fragments
311	178	Indeterminate Mammal	4 calcined fragments
328	335	Small Ungulate	cf Right innominate: calcined shaft of ilium only cf R tibia: 2 conjoining calcined shaft fragments from proximal end of bone cf rib: calcined shaft
328	335	Indeterminate Mammal	10 calcined fragments, possibly SU

these are related to mortuary practice or represent evidence of trauma.

### *Mortuary ritual*

Many of the cremation deposits from Dunure Road produced evidence consistent with pyre temperature and duration such as to fully or almost fully combust the organic portions of the bone. This suggests that pyre technology was sufficient to generate heat in excess of 800 degrees Celsius for sustained periods and, by inference, that the cremations were not affected by inclement weather conditions. In only four instances (24%) could evidence be found to show that incomplete combustion occurred. In these cases, it appears that the evidence may indicate that all individuals represented within the assemblage were subjected to similar pyre conditions, perhaps implying that they were cremated together.

## THE ANIMAL REMAINS

### Catherine Smith

All of the cremated bone was white-to-grey in colour, dense in structure, occasionally vitreous in appearance and, in some cases, markedly distorted in shape. There was some difficulty in determining whether the bone was of animal or human origin where no diagnostic zones survived on the bones. Where the fragments are small and the size of the bones from which they derive cannot be determined, they have been described as indeterminate mammal.

Cists 147, 178, 309 and, possibly, 335 contained bones from more than one animal species. In cist 178, fragments of distal metapodial, probably from cattle (although possibly red deer), were recovered. In addition, a skull fragment comprising the right styloid process and a butchered part of the right occipital, probably from a sheep or goat (or perhaps roe deer), was recovered from the same context. However, the surviving fragments are not from prestige joints of meat: the distal metapodial is relatively low in meat content when compared

with other parts of the carcass and, while a fair quantity of muscle can be retrieved from a sheep's head, it is possibly not as prestigious as the rest of the carcass. It is possible, therefore, that these bones are all that remain of complete carcasses, rather than having been deposited as single, lower quality, joints of meat. Indeed, in cist 335, there is a suggestion that the hind quarters of a sheep may have been present, the recovered bones having been tentatively identified as part of the innominate (ilium) and tibia shaft. A possible rib fragment was also recovered.

### *Discussion*

Joints of meat seem to have been an acceptable funerary offering in cist burials throughout Scotland and indeed Europe. Bones thought to originate from joints of pork have been recovered from cists in mainland Scotland at Longniddry, East Lothian (McCormick 1991, 113-4), Gairneybank, Kinross-shire (Cowie & Ritchie 1991, 98), Uppermill, Cruden, Aberdeenshire (Harman 1977, 90) and Muirhall Farm, Perthshire (Stewart & Barclay 1997, 43). Unidentified animal ribs and, unusually, several sea urchin spines, were recorded along with human remains in a cist at East Campsie, Angus (Taylor et al 1998, 63).

The animal bones from the cists at Dunure Road thus seem to be part of a tradition of depositing animals, or parts of them, alongside human remains, both cremated and uncremated. So far, most of the mammals found in association with Bronze Age burials appear to be domestic in origin, although, given problems of precise identification caused by the cremation process, the presence of wild animals cannot be wholly ruled out.

## BRONZE AGE POTTERY

### Alison Sheridan

In the descriptions below, all dimensions are in mm. Abbreviations: Ht = height; [E]RD =

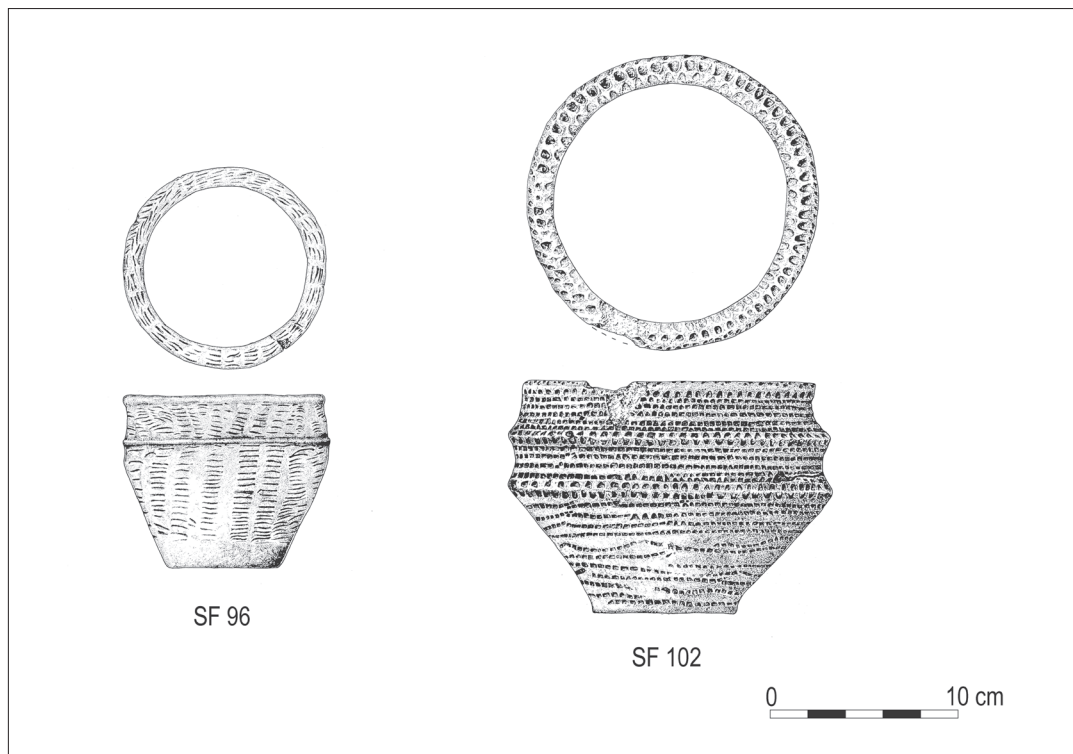
[estimated] rim diameter; max. D = maximum diameter; BD = base diameter; Th = wall thickness.

The Bronze Age pottery comprises seven complete Food Vessels, plus fragments of a Vase Urn, a second urn and two undecorated vessels from cist fills and the capping of the mound. The Food Vessels had originally been deposited upright, but some were found tilting and one (SF 63) was on its side. All contained sediment from this infilling.

Most of the Food Vessels had carefully smoothed surfaces that had been covered with slip prior to decoration. This served to conceal the fragments of crushed stone filler, but many are nevertheless visible protruding through the interior surface. The fabric is fairly gritty, with fragments generally no larger than 7×4.5,

occurring at densities of between 7–10% and 15–20%; one specific stone type, a speckled black and white crystalline stone, was noted in all but one of these pots, and is also present in the urns and in at least one of the undecorated pots.

Decoration, in all cases, is present over the whole of the exterior surface including the rim bevel(s) and excluding the underside of the base. The vessels' colours – with a medium and/or dark-grey core and lighter-coloured surfaces – indicate that they had been fired rapidly, probably in an open bonfire. Traces of the vessels' former contents are present in SF 96, 102, 117 and 63, in the form of thin patches or specks of a blackish-brown organic encrustation; a whitish encrustation seen on some of the pots represents post-depositional precipitation of carbonate from percolated groundwater.



ILLUS 40 Food vessels

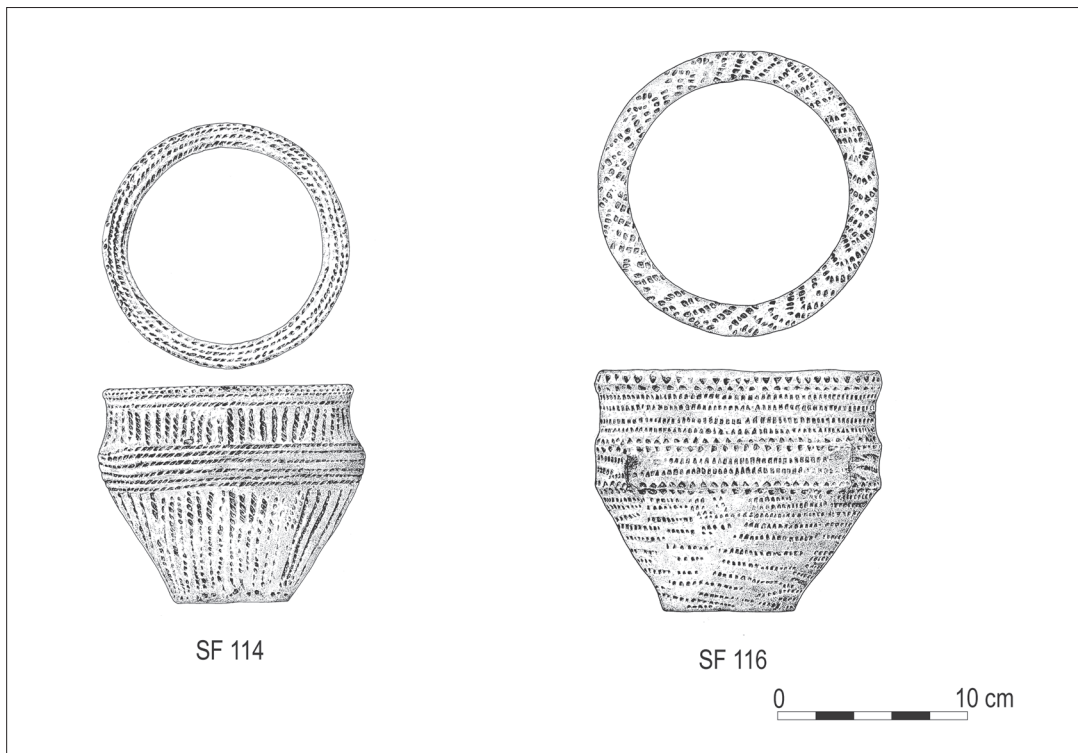
*From the primary cist cemetery*

**SF 96** (cist 73) (illus 40). Small, squat Bipartite Vase Food Vessel, intact and complete but for minor spalling and chipping; some vertical cracking, especially on the interior. Ht 96; RD 108; max. D (just below ridge) 114; BD c 66; Th: neck 11, base 16. Impressed finger- or thumb-nail decoration, arranged in rough columns down the belly, as uneven horizontal lines on the neck, and as rough 'columns', plus a short stretch of herringbone design, on the rim bevel. The surfaces are markedly less smooth than on the other Food Vessels, with several fingertip indentations visible.

**SF 102** (cist 150) (illus 40). Tripartite Bowl, intact and complete but for some spalling and some deep cracking, including one running around a coil joint line on the neck. Ht 130; RD 156; max.

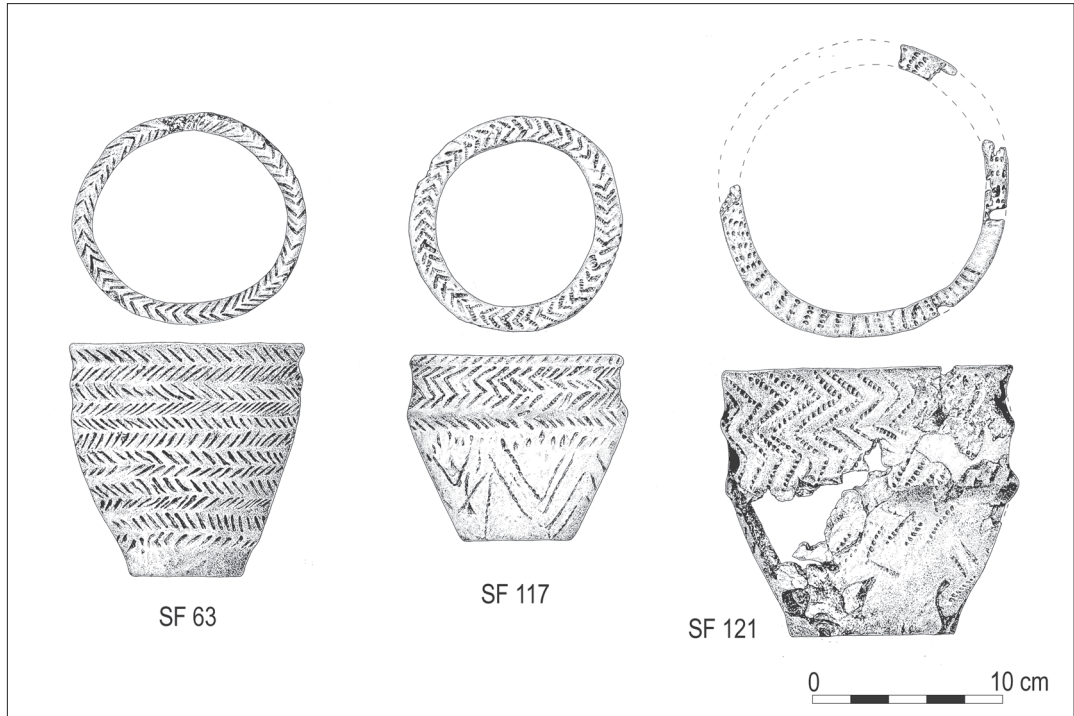
D (at neck-belly ridge) 171; BD 66; Th: neck 11, base 20. Impressed decoration featuring: i) a triangular-ended spatulate tool, used to create areas of false relief, defining and highlighting the rim bevel, the ridges and the top of the neck; and ii) a rectangular-toothed comb (40 long and 2.5 wide), used to create horizontal lines on the neck and belly. There are finger marks on the upper neck, where a finger has been pulled across the slipped surface in preparation for decoration.

**SF 114** (cist 165) (illus 41). Bipartite Vase Food Vessel, intact, and complete but for minor chipping and spalling. Ht 119; RD 130; max. D 140; BD 60; Th: neck 11, base 14. Impressed decoration featuring three tools: i) a small spatulate tool with rounded-triangular point, used to create two adjacent rows of impressions highlighting the outer edge of the rim; ii) a small,



ILLUS 41 Food vessels





ILLUS 42 Food vessels

uneven-ended, round-sectioned tool (possibly a wooden stick), used to create a similar row of impressions around the pedestal; and iii) twisted cord, used to create three concentric lines around the interior rim bevel and alternating zones of horizontal and vertical lines on the vessel's exterior. Cracks along coil joint lines indicate that the vessel had been built up in four parts: the base and lower belly had been formed from an initial lump of clay, then the upper belly (including carination and lower part of neck) was added; then part of the upper neck; and, finally, the rim bevel and rest of the upper neck.

**SF 116** (cist 151) (illus 41). Tripartite Bowl/Vase Food Vessel, intact and complete but for minor spalling in the interior. There is some deep exterior cracking at the lower belly and extensive surface cracking on the interior. Ht 130; RD 149; max. D (at lugs) 162; BD 69; Th:

neck 11, base 14. The lower part of the neck has four imperforate lugs, forming a 'stop-ridge'. Impressed decoration featuring: i) a triangular-ended spatulate tool, used to create areas of false relief, defining and highlighting the external rim bevel and the ridges; and ii) a rectangular-toothed comb 22 long and 3.3 wide, with eight teeth, its impressions arranged as a running chevron/herringbone design on the internal rim bevel, and as horizontal lines elsewhere. (One of the horizontal lines, over part of the stop-ridge, has been partly obliterated by smudging while the pot was being made.) This decoration is similar, in its technique and design, to that seen on SF 102 although different tools have been used. Some of the cracking may have occurred during the pot's manufacture: a near-blank area on the belly corresponds to an area surrounded by cracks, and it may be that a piece of the wall threatened to detach itself, so the decision

was made not to cover the surface with comb impressions at this point.

**SF 117** (cist 184) (illus 42). Bipartite Vase Food Vessel, intact and complete but for some surface spalling from the belly on one side. Minor cracking. Ht 100; RD 115; max. D (at carination) 117; BD 63; Th: neck 8, base 9. Slightly asymmetrical in profile. On the inside of the neck is a cereal grain impression. Impressed decoration using: i) whipped cord (up to 3mm wide), its impressions arranged in a herringbone design on the internal rim bevel, neck, and top of the belly, and in short, sloping lines on the external rim bevel; and ii) fairly loosely-twisted cord (up to c 2mm wide). The twisted-cord impressions form a looser design over the belly, comprising: a discontinuous fringe of roughly vertical short lines, just below the herringbone design; one to two roughly horizontal lines, cross-cutting the fringe at various points and overlapping with the herringbone design; and a vertical zigzag design featuring multiple (usually triple) lines. There are some accidental thumbnail impressions in the area of the fringe, where the cord was pressed into the pot's surface.

**SF 121** (cist 309) (illus. 42). Tripartite Bowl, comparable in size and shape to SF 121, complete but disintegrated and subsequently reconstructed. Ht 131; RD c 155 (the upper part of the pot being a slightly oval shape); max. D (at neck-belly junction) 158; BD 85; Th: upper neck 10.2, neck-base junction 12. Impressed decoration featuring a comb with large rectangular teeth; impressions arranged as radial lines on the internal rim bevel and as a continuous herringbone design on the exterior, the diagonals becoming longer and more shallowly impressed towards the base.

*From the secondary funerary activity on top of the mound*

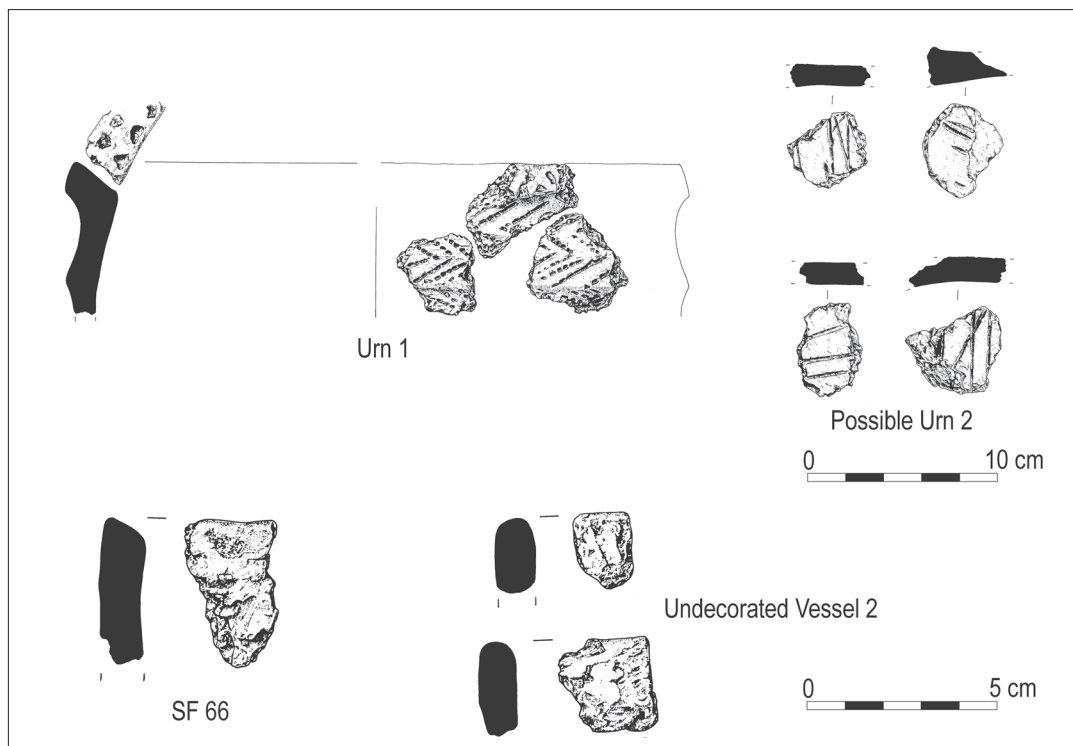
**SF 63** (cist 029) (illus 42). Slender Tripartite Vase Food Vessel, intact but with a large part

of one side spalled off and with some deep vertical cracking; there is also a large chip missing from the rim and the fabric is friable. Ht 122; RD 110–120 the upper part of the pot being oval, possibly from post-depositional deformation; max. D (at upper ridge) 130; BD 60; Th: neck c 11.5; base 23. Incised decoration in a continuous herringbone design.

#### *Fragmented vessels*

**Urn 1** (illus. 43; SF 51, 57, 64, 65 from context 002, SF 100 from context 155, and SF 110–12 from context 158). Eight sherds (of which several are spalls) from the rim and neck of a large Vase Urn; less than a tenth of the pot is present ERD c 320; Th (neck) 15.4. Impressed decoration featuring: i) at least one triangular-ended spatulate tool (and possibly also a more irregularly-shaped spatulate tool), used to create a loose kind of 'false relief' design on the rim bevels, and ii) a rectangular-toothed comb (c 32 long and 2.5 broad), its impressions arranged in a herringbone design running over the neck and down onto the belly. A blackish, possibly organic encrustation on the interior rim bevel may derive from the urn's cover.

**Probable urn 2** (illus 43; SF 2 and 9 from context 001; SF 71 from 002; SF 97 from 013; SF 73–4 and 98–9 from 038; SF94 from 095; SF 109 from 153; SF103–4 from 155; SF 101, 106, 113 from 158; sieve 84 from 177; and sieve 78 from 187). Around 20 sherds and several fragments (including the additional pieces listed above); less than a tenth of the pot is present. There are indications that this may well have been a Vase Urn: these include one possible neck sherd with a concave outer surface ending in a low ridge and the presence of decoration over the belly. The diameter of the vessel is at least 200mm. Decoration is by incision, featuring horizontal and/or diagonal lines of varying thicknesses and depths, with some of the latter crossing the horizontal lines.



ILLUS 43 Fragmentary vessels

**Undecorated vessel 1** (illus 43; SF 66, context 002). Rimsherd, 23.5 × 38.5 × (max. Th) 15.2 from a fairly small, undecorated vessel; ERD 120–140mm. Patches of a thin, blackish-brown organic encrustation are present on both surfaces. In its size and likely shape, this vessel is comparable with some larger accessory vessels that are sometimes found with cinerary urns (eg Pot 41 Lesmurdie Road, Elgin: Sheridan forthcoming b), although it is unusual to find organic encrustations on such vessels (Gibson 2004).

**Undecorated vessel 2** (illus 43; SF 34, context 022). Two small rimsherds and a small, featureless body sherd from what may be a similar vessel to Undecorated vessel 1.

### Discussion

The Food Vessel ceramic tradition – which includes Vase Urns, or ‘Enlarged Food Vessel Urns’ (Cowie 1978) – is well represented in Clydesdale and parts of the Firth of Clyde (Cowie 1978, fig. 36; Simpson 1965, fig 1; Simpson 1968, fig 48; Young 1951, fig 5); and there are several findspots of Food Vessels within 10km, including the cemetery cairn at Doonfoot (NMRS No. NS31NW 10; Simpson 1965, no. 10). Parallels for individual vessel forms and for decorative techniques, motifs and schemes, can readily be found in south-west Scotland (Simpson 1965; Young 1951) and further afield in parts of Scotland (eg Watkins 1982), Ireland (eg Sheridan 1993, figs 21–3) and northern England (eg Manby

et al. 2003, 61–4). Such parallels offer one of many kinds of evidence for the existence of extensive networks of contacts during the Early Bronze Age (see Sheridan 2004a for further discussion).

The radiocarbon dating evidence relating to SFs 117 and 121, suggesting their use within the last two centuries of the third millennium BC, is generally in line with the overall picture of Scottish (and indeed Irish) Food Vessel currency, and places the Dunure Road vessels among the earliest dated examples (Sheridan 2004a; Brindley 2007). The date of  $3635 \pm 35$  BP (GU-13759, 2140–1900 cal BC at  $2\sigma$ ) for the cremated bone associated with the Tripartite Bowl/Vase SF 121 compares closely with that of  $3670 \pm 45$  BP (GrA-23998, 2200–1910 cal BC at  $2\sigma$ ) for a slightly taller, but similarly-decorated, Tripartite Bowl/Vase from Barns Farm (Cist 1), Fife, for example (Sheridan 2004a, figs 80–1). It also accords with comparable Irish specimens (Brindley's Stage 1 bowls) which are argued to date to between 2160 and 2080 BC (Brindley 2007, 250). There are no close *comparanda* among dated Scottish Food Vessels for SF 117, with its date of  $3620 \pm 35$  BP (GU-13755, 2130–1880 cal BC at  $2\sigma$ ), although the least dissimilar examples of Vases from Ireland (Brindley's Stage 1 Vases) have been dated to 2020/1990–1920 BC (Brindley 2007, 265). Regarding the likely date of the other Food Vessels from Dunure Road, they are almost certain to fall within the overall range of c 2100–1600 BC established for Scottish Food Vessels (Sheridan 2004a), their Irish congeners falling within the range 2160–1740 BC (Brindley 2007, 328).

The fragments of urns and of undecorated vessels might relate to a final phase of cemetery use, perhaps contemporary with the un-urned cremation deposit in pit 074 beside the mound, but whether the two small possible accessory vessels had originally been deposited with, or inside, the two urns is impossible to tell. As regards the likely date of these pots, in Scotland the currently-available dates for Vase

Urn suggest a currency from the 22nd or 21st and 19th centuries BC (Sheridan 2007, 169). In Ireland, the dates range between 2000/1980 and 1740 BC (Brindley 2007, 328). Essentially, the overall picture that emerges from the ceramic assemblage as a whole at Dunure Road suggests the use of the cemetery over the course of a few generations.

The recurrent presence (in both Urns and most of the Food Vessels) of white and black speckled stone as a filler points towards local manufacture, although identification and sourcing of the stone would be necessary to confirm this. There had clearly been adherence to the norms of the Food Vessel tradition in the shaping and decorating of the pots, and vessels SF 102 and SF 116 share similarities in the method and layout of their decoration, but there is not the degree of consistency as seen, for example, in the cemetery at Leven, Fife, where the work of a single potter could arguably be discerned (Sheridan 2004b). Indeed, the variability in the quality of manufacture – with SF 96 being less competently or carefully manufactured than the other pots – suggests that different potters were involved.

## MEDIEVAL POTTERY

### Bob Will

The excavations at Dunure Road recovered one sherd (SF1; not illustrated) of Scottish White Gritty Ware pottery, from an open vessel, probably a bowl. The sherd was wheel thrown and comprises a pale off-white coloured fabric with patches of pinkish brown heat skin on the external surface. The interior surface is covered with an even green lead glaze with patches of brown glaze, while the external surface has a spot of brown glaze with a patch of green. This pottery tradition has a long date range, beginning in the later 12th century and continuing through to the later 15th century. This sherd probably dates to the 13th or 14th century.

THE LITHIC ASSEMBLAGE

Nyree Finlay

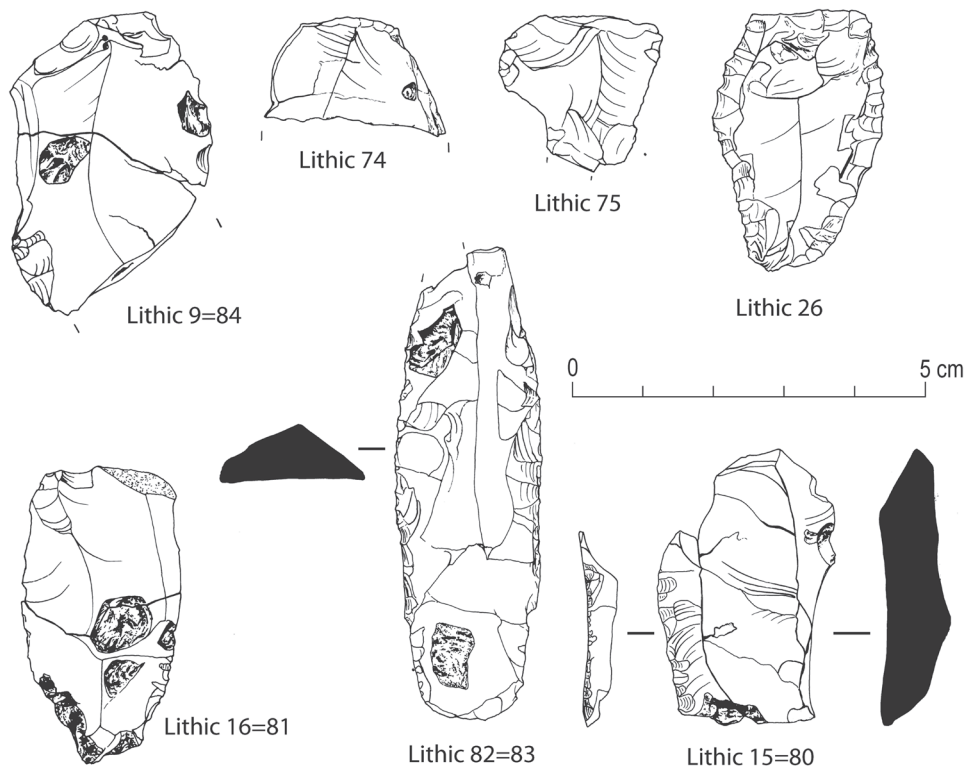
A total assemblage of 92 lithic pieces was submitted for examination and catalogued utilizing the criteria outlined in Mithen (1990). All pieces are referred to by lithic catalogue number throughout this report. A number of pieces are not considered to be the by-product of human action and are not discussed here. Six burnt flint chunks from surface contexts do, however, appear to be the remnants of burnt flint derived from the addition of lime to the fields.

*Flint assemblage*

The struck flint assemblage is predominately burnt, but fresher pieces document the exploitation of grey- and brown-coloured material, and

indicate the exploitation of secondary sources – beach, moraine or riverine deposits. Two types of reduction techniques are evident: bipolar and platform reduction. The platform types and extant bulbs of percussion indicate hard hammer reduction strategies with longitudinal and multi-directional scars indicative of single- and multi-platform reduction. Overall, the character of the assemblage is consistent with the Late Neolithic/Bronze Age attribution of the site; the character and technology of pieces recovered from non-cist contexts is also consistent with the later prehistoric knapping activities documented for the cist deposits.

The retouched pieces form an interesting collection directly associated with the cremation and cist deposits. Most are intensively burnt and fragmentary due to pot-lid fractures and, in a



ILLUS 44 Lithic artefacts



number of cases, artefacts were reconstructed from fragments from the same cist. The majority of fractures are burnt, although some fracture surfaces are fresh indicating post-depositional breakage and it is not possible to address whether artefacts were deliberately broken before burning. The almost complete character of most, however, suggests that pieces were burnt intact and the resulting fragments retrieved along with cremated human bone from the pyre site.

The most parsimonious explanation for the presence of the artefacts is inclusion on funerary pyres. It is alternatively possible, but less likely, that lithic artefacts were recovered from other pyre features or hearths and kept for deposition at a later date. Burning at high temperatures transforms the colour and texture of flint. In this process, stone metaphorically becomes bone and the significance of this change may have held particular resonances. During collection, some of these artefacts may have been mistaken for bone whereas others would maintain a recognizable artefactual form.

Some burnt, non-retouched pieces were also recovered in association with cremation deposits including complete flakes, as well as pot-lid fracture fragments likely to derive from further artefacts. Whilst some of the missing fragments of these artefacts may have simply exploded during the cremation process, their absence may equally reflect token collection of deposits or distinct discard processes other than selective collection from a funerary pyre.

One edge-retouched flake and a fresh, cortex-backed regular flint blade appear to be fresh and unburnt. The condition of both of these pieces is suggestive of different depositional histories than the rest of the heavily-burnt retouched pieces, although the experimental burning of flint suggests that changes indicative of burning are not always observable macroscopically (Finlayson 1990). Although unlikely, it is still possible that these fresher artefacts were potentially exposed to the heat of the pyre.

### *Other Raw Materials*

A possible basal core fragment of blackish volcanic glass found within the upper mound material (002) was examined (Lithic 25). The piece has phenocrysts and small crystal inclusions and, although not typical, is most likely to be a type of pitchstone, the most obvious source being Arran (Williams-Thorpe & Williams 1984). It has been struck and has sustained some fresh edge damage. A single tiny fragment of quartz flake debitage was the only other probable worked piece.

### *Coarse stone assemblage*

Four potential coarse stone tools were examined. Only a flaked cobble fragment from context 161 (Lithic 47) retains clear evidence of deliberate working and this may have had potential use as a polisher or pigment source. A splintered flake (Lithic 46), a possible hammerstone (Lithic 48) and a small elongated pebble (Lithic 45) all displayed inconclusive wear traces and are less certainly artefactual.

### *Quartz pebbles*

Thirty-two small quartz pebbles were retained for analysis during the excavation. These were examined for wear traces and to identify any potential prehistoric selection preferences. No evidence for the deliberate modification or reduction of quartz was present. The character, variability and spatial spread of pebbles were inconclusive and could well reflect the natural variable composition of pebbles in the sub-soil deposits rather than deliberate selection preferences.

## THE DECORATED CIST SLAB

### Gavin MacGregor

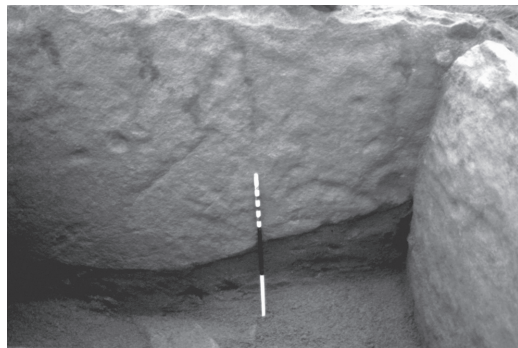
The slab of fine-grained, micaceous sandstone forming the western side of cist 009 measures 1.18m by 0.56m by 0.12m. The upper edge and



one side have been roughly dressed, probably using a hammerstone, to form a more regular edge. In contrast, the lower edge and other side exhibit a series of rough angular fractures indicating that the slab has been quarried from a larger piece of rock, possibly an in situ rock outcrop. A series of smaller scars are present along the bottom left-hand edge which may indicate where quarrying had first commenced but has removed a small portion of the surface of a weathered cup mark.

The inner face of the slab has evidence for two distinct cup marks, measuring 0.06m and 0.04m in diameter, which are probably anthropogenic in origin. The concave surfaces of these cup marks are weathered smooth, indicating that they were exposed for some time before being incorporated into the cist. There are three further smaller cup marks, measuring 0.02m in diameter, which are more ambiguous in character.

The slab had probably been reworked to form a component of the cist during the second millennium BC, and may have derived from a local outcrop that had previously been decorated during the third or fourth millennium BC. There are a number of examples of rock art from Ayrshire, including the highly decorated cliff face at Ballochmyle (Stevenson 1994) and the outcrop of up to 300 cup-and-ring marks at Blackshaw, West Kilbride (Cochran-Patrick 1886; Morris 1981, 27). There is considerable evidence for the deliberate incorporation of rocks, which had previously been decorated, as cist slabs during the second millennium BC (Simpson & Thawley 1973; Bradley 1997). Several examples are known from the west coast, the closest of which is a cist slab, with five ring markings, from a stone circle at Beoch, Dalmellington (Macleod 1937; Morris 1981, 23). Another decorated cist slab was recovered during excavations of a cairn at Coilsfield and may have been associated with a Food Vessel and cremation deposit (Morris 1981, 27–8). Further afield on the west coast, examples of more complex decorative motifs are present on the Baden and Cairnbaan cist slabs from Kilmartin (Campbell et al 1963).



ILLUS 45 Decorated cist slab in situ

It is clear that a tradition of quarrying and re-depositing fragments of rock art formed a potent element of some funerary rites during the second millennium BC. This act would have involved the audible violation, smashing and breaking of rock outcrops, possibly ancient sites that were already imbued with significance. Incorporating fragments of these places in funerary sites such as Dunure Road would have metaphorically, and literally, connected them to other places in the landscape.

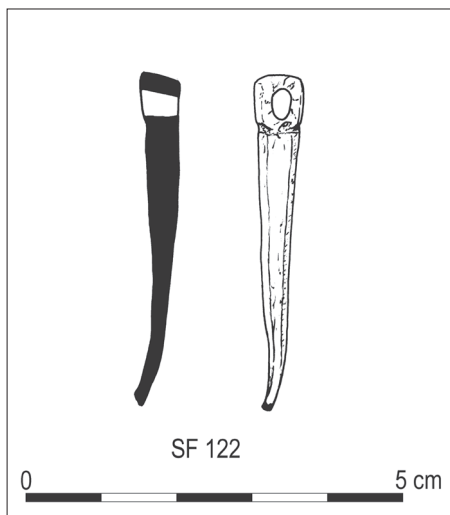
#### PERFORATED BONE PIN

Dawn McLaren

A short burnt bone pin, with oval perforation (D: 3.5mm) through the head, the end carefully squared off, was found amongst cremated remains (context 167) from cist 147. A shallow incised groove (W: 1mm), 1.5mm below the perforation, creates a distinct sub-rectangular head. The pin shaft is oval in section at the head, tapering to a rounded point which is slightly distorted by heat. The extreme tip has been lost. Only one face appears to have been prepared for outward display, as the finish is more careful on one surface than the other, with areas of polish remaining towards the tip. The brittle white appearance of the pin indicates that it passed through the pyre, probably as a

fastener for securing a shroud or garment worn by the deceased. The incised detail suggests that this pin was decorative as well as functional. L: 44.7mm, head W: 7mm, head T:5.7mm, weight: 1.6g.

The Dunure Road pin generally conforms to Longworth's (1984, 64) type 5 category, but the unusually short length and the distinct sub-rectangular head are features that are difficult to parallel. Although Bronze Age perforated bone pins of type 5 are not common, a few examples,



ILLUS 46 Bone pin

all from cremation burials, are known from southern Scotland: from Machrie Moor, Arran (Foxon 1991, 78, illus 17), Moncreiffe, Perth and Kinross (associated with two bone toggles and some fragments of bronze; Close-Brooks 1985, 142–3) and a large example with a bi-conical perforation from a cremation burial at Kirkburn, Lockerbie, Dumfries and Galloway (with a tubular bone bead; Longworth 1963, 125, illus 9a). Such pins are consistently recovered in a burnt condition, indicating that they were included on the funeral pyre as fasteners for clothing or decorative ornaments.

A perforated pin from Fordhouse, Angus, has been dated to 2120–1820 cal BC (Sheridan 2007, 20) whilst a Bipartite Cordoned Urn from Machrie Moor (Henshall 1991, 79) and a Collared/Cordoned Urn from Moncreiffe (Close-Brooks 1985, 142–3) with type 5 pins suggest a general Early Bronze Age date. Further dates from cremation burials associated with pins from Skilmafilly, Aberdeenshire (1890–1660 cal BC; Johnson 2005, 157), Burnfoot, Dumfries and Galloway (1890–1520 cal BC; Sheridan 2007, 17) and Lairg, Highland (1945–1520 cal BC; McCullagh 1998, 94), indicate that the use of bone pins can generally be attributed to the first half of the second millennium BC. The date of 2030–1770 cal BC obtained from associated cremated bone (see cist 147 above) thus fits broadly with the dating of other such artefacts from Scotland.

#### PALAEOBOTANICAL REMAINS

Jennifer Miller and Susan Ramsay

##### *The cist cemetery*

Both phases of cemetery use are dominated by the use of oak, presumably as pyre fuel. This is undoubtedly in part due to the fact that oak has a higher calorific value than most other European woods (Tylecote 1962; Gale & Cutler 2000), achieving very high temperatures for sustained periods. Oak would also have been readily available at this time, in contrast to the later prehistoric period, and these practical considerations, coupled with the ritual and folklore that has always surrounded the oak tree (Gale & Cutler 2000), could explain the ubiquitous utilization of oak for the highly ritual practice of cremation in antiquity.

The exception to the pattern within these cist assemblages was that from cist 028, which was dominated by hazel round wood. A possible interpretation for this dominance of round wood is that the assemblage from this cist represents the remains of partially carbonized wickerwork,

such as a basket or hurdle. The use of hazel for small wicker artefacts is recognized from contexts dating from prehistory to the modern day (eg Coles & Orme 1982; Edlin 1973). A similar, but unburnt, hazel wickerwork artefact was recorded, deposited in a small pit within a peat bog, at the Late Bronze Age site of Gearraidh na h'Aibhne, Lewis (Duffy 2006).

Elm charcoal was also recorded from two of the cists (cist 130 and cist 147) that related to the primary phase of the cist cemetery. By the Bronze Age, Dutch elm disease precluded the survival of many mature trees and elm would not have been a significant component of the lowland broadleaf woodland of Scotland (Ramsay & Dickson 1997). A number of cists (130, 147, 151, 178, 191) relating to the primary phase of the cremation cemetery also contained occasional charcoal of other taxa that probably relate to pyre kindling or hearth waste, although food remains were not recorded.

#### *The standing stone and environs*

The charcoal assemblage from spreads of material surrounding the standing stone (204) in Trench 2 was dominated by alder, possibly indicating that oak supplies in the local area had been exhausted by this time. Notably, the charcoal within pit 214, adjacent to the slab, was entirely alder, in contrast to a mixed alder, birch and hazel charcoal spread 212 which overlay it. The difference between these two assemblages confirms that they are discrete deposits. The remains themselves are largely undiagnostic and could indicate hearth waste, beacon fires, or burnt posts; the context and date of the deposit also offers an interpretation of the material as pyre fuel, selected at a time when oak was scarce in the landscape. The charcoal volume recorded was also significantly greater than that observed from the other deposits, and charcoal occurred in significantly larger pieces, which suggests that the charcoal from both contexts may have been intentionally selected and deposited alongside the cremated bone.

The charcoal assemblage within pit (074) was of broadly similar character to those from contexts in Trench 2 discussed above: it contained evidence of hazel nutshell with large quantities of alder and apple family (rowan, hawthorn or apple) charcoal, although, significantly, no oak, even though cremated bone was recorded. This suggests that domestic hearth waste involving food preparation had been added to the cremation in that pit. This suggestion is strengthened by the fact that samples from the OGS relating to the primary phase of use of the cemetery contained pyre fuel, but little that could be interpreted as pyre kindling or hearth deposits. Together, these strands of evidence suggest that, at least in some instances, hearth remains had indeed been intentionally deposited within the cists.

#### SOIL THIN SECTION ANALYSIS

Jo McKenzie

#### *Introduction*

Samples for micromorphological analysis were taken from three contexts: the OGS (038), the lower mound material (013) and the upper mound capping (002). These samples were selected in order to address two specific issues: how rapid and deliberate was the covering of the cist cemetery by the lower mound material was; and whether the upper mound deposit represented a deliberate and rapid capping of this lower mound material.

Undisturbed samples were collected from the site in Kubiena tins, and thin sections prepared and analysed following the procedure of Murphy (1986), Bullock et al (1985) and Stoops (2003). Mineralogical investigation was undertaken using the atlases of MacKenzie and Guilford (1980) and Adams et al (1984). Interpretation of the observed features rests on the accumulated evidence of a number of workers, notably Courty et al (1989), Fitzpatrick (1993) and Stoops (2003).

### *Discussion*

The analysed contexts (013 and 002) represent a series of dumping events, evidenced by the patchily distributed fine material fraction, the occurrence of fairly frequent rock fragments within a series of otherwise typically 'blown sand' deposits and, most importantly, the very frequent down-profile movement of especially clay particles. In the absence of strong evidence for illuviation, this is a clear sign of physical disturbance. Some evidence for a difference in composition between the upper and lower portions of context 013 indicates that this first dumping event may have taken place in more than one stage. However, a relative lack of direct indicators for anthropogenic activity is notable. It is suggested, then, that although this sequence represents a series of deliberate events, the material used to create these contexts may have originated away from the focus of anthropogenic activity on the site.

Two intentional capping events are therefore indicated, with the lower mound material in particular showing two clear phases of rapidly dumped material and the upper mound indicating a more gradual covering of the cist cemetery.

### TOTAL PHOSPHOROUS ANALYSIS

Jo McKenzie (laboratory analysis by Jonathan Cluett)

Soil samples for total phosphorus analysis were taken from the series of apparently empty cists excavated at the Dunure Road site, in order to identify whether these cists may have contained now-decayed organic remains.

Overall, these samples from the cists are high in total phosphorus (P) content, indicating significant anthropogenic activity. This may either be a result of activity associated with the site itself, or from later activity such as cultivation and/or intensive manuring. The association of high soil P, not only with the cist samples but also the controls, suggests

that, whatever the cause, later activity of this nature has, in most cases, masked any residual signature associated with degraded bone or other organic material within the cists. The exceptions to this are samples from cists 151, 178, and 300 which show clear signs of discrete P enhancement, with control P levels from adjacent to these cists well below the uniformly high P seen in the series of four and three within-cist samples taken from these contexts. It is of interest to note that cists 151 and 178 contained degraded inhumation burials and the significantly-enhanced phosphate levels may, potentially, result from the decay of the body within the cist.

Can these results be taken to indicate an absence of organic material – particularly bone – from within those cists for which no such enhancement can be detected? Within the sandy soils from which these samples were taken, the answer is possibly not. Crowther (2002, 407) has indicated that phosphate released from decomposing bone at the experimental earthwork at Wareham, Dorset, can leach rapidly through sandy soils. Geochemical investigations into phosphorus concentrations retained within known grave 'silhouettes' have also shown that these can retain less than 4% of the original calcium phosphate in fresh bone (Keeley et al 1977, 19). It is possible, therefore, that at the Dunure Road site, a combination of the leaching processes described above, plus later anthropogenic activity, may have distorted and/or destroyed a possibly slender phosphorus signature from the majority of these cists.

### RADIOCARBON DATES

Paul R J Duffy

In total, 16 samples were submitted for radiocarbon dating: 10 of cremated human bone and a further six of wood charcoal, all from cist and pit fills. Dates were calibrated using OxCal v 3.10. Initially, it had been hoped that dateable material would be obtained from all features,

TABLE 5  
Radiocarbon dates from Dunure Road

Feature	Lab No	Sample Material	Lab age BP	$\delta^{13}C$	Calibrated dates	
					1-sigma	2-sigma
Cist 147	GU-13754	Cremated Human Bone	3575 +/- 35	-23.6%	1975 BC–1880 BC	2030 BC–1770 BC
Cist 309	GU-13759	Cremated Human Bone	3635 +/- 35	-21.5%	2120 BC–1940 BC	2140 BC–1900 BC
Cist 178	GU-13760	Cremated Human Bone	3655 +/- 35	-24.3%	2130 BC–1960 BC	2140 BC–1920 BC
	GU-13761	<i>Alnus</i> Charcoal	3610 +/- 35	-26.7%	2025 BC–1920 BC	2120 BC–1880 BC
Cist 335	GU-13762	Cremated Human Bone	3625 +/- 35	-26.6%	2035 BC–1935 BC	2130 BC–1890 BC
Cist 184	GU-13755	Cremated Human Bone	3620 +/- 35	-24.3%	2030 BC–1935 BC	2130 BC–1880 BC
	GU-13756	<i>Quercus</i> Charcoal	3710 +/- 35	-25.7%	2190 BC–2030 BC	2210 BC–1970 BC
Cist 014	GU-13749	Cremated Human Bone	3675 +/- 35	-22.2%	2140 BC–1980 BC	2200 BC–1950 BC
Cist 012	GU-13747	Cremated Human Bone	3630 +/- 35	-25.6%	2035 BC–1935 BC	2130 BC–1890 BC
Cist 010	GU-13752	Cremated Human Bone	3595 +/- 35	-21.1%	2020 BC–1900 BC	2120 BC–1870 BC
Cist 028	GU13753	<i>Corylus</i> Charcoal	3655 +/- 35	-26.2%	2130 BC–1960 BC	2140 BC–1920 BC
Pit 074	GU-13750	Cremated Human Bone	3015 +/- 35	-25.1%	1380 BC–1210 BC	1390 BC–1120 BC
	GU-13751	<i>Alnus</i> Charcoal	3045 +/- 35	-26.2%	1390 BC–1260 BC	1410 BC–1210 BC
Pit 214	GU-13748	<i>Alnus</i> Charcoal	2965 +/- 35	-26.4%	1260 BC–1120 BC	1310 BC–1050 BC
Pit 219	GU-13757	Cremated Human Bone	2930 +/- 35	-26.5%	1210 BC–1050 BC	1260 BC–1010 BC
	GU-13758	<i>Corylus</i> Charcoal	2980 +/- 35	-25.8%	1270 BC–1120 BC	1380 BC–1080 BC

allowing tight chronological resolution of the development of the site. Absence of suitable carbonized material and the taphonomic insecurity of suitable material instead required that a series of alternative strategies was adopted.

In order to provide a framework of dates for the various features, all features containing cremated bone were dated. In two cases where suitable cremated bone was not available, charcoal from secure contexts was submitted. Where firm association between charcoal and cremated bone could be demonstrated, additional wood charcoal samples were submitted to provide controls on the bone dates.

The results demonstrated two main phases of activity at the site. The first, represented by

the cist cemetery, dated to the late third/early second millennium BC. Dates from the early and later phases of this monument were statistically indistinguishable, suggesting activity took place over a maximum period of around 300 years. The possibility, however, that some or all of this material may have been curated should be recognized.

The second phase of activity, represented by pits containing human remains associated with the standing stone, occurred in the last third of the second millennium BC. Pit 074, to the south-west of the cist cemetery, was also dated to this period, indicating that activity in the area at this time was diffuse and not concentrated solely in the immediate environs of the megalithic monument.



## DISCUSSION

*Throughout the whole of this space [the Ayr parish coastline] ... British Places of sepulture are found ... with British Urns of rude baked clay, hatchet and arrow heads and other implements of warfare.*

Auld and Cuthill 1845, 40.

The observation above from the *New Statistical Account of Scotland* of 1845 illustrates the long-known potential of the coastline around Dunure Road to yield prehistoric archaeological remains. In recent times, several Bronze Age burial sites have been excavated within 5km of the site (Morrison 1978; 1995), including Doonfoot (Davidson 1967) and Alloway (MacKie & Robertson 1963). Archaeological evidence of broadly-contemporary domestic activity has also been recorded, in the form of lithic scatters at High Greenan (Engl & Cook 2001) and a ring-groove structure and lithic scatter at Ailsa View (Gooder & Engl 2002). Several nearby standing stones may also be contemporary with the site, including the now demolished stone at Belleisle (Smith 1895) and possibly Stonefield (RCAHMS 1985).

The excavations at Dunure Road add to this corpus of knowledge a series of snapshots of the physical remains of various practices of the local community in the late third and the second millennia BC. Clearly a place utilized for the disposal of human remains and associated practices, familiar elements of Bronze Age ritual can be recognized in the material culture, human remains disposal patterns and various forms of construction at the site. The first activity for which we have evidence is the use of the area as a cemetery during the last two centuries of the second millennium BC. Here, at a confluence of sky, sea and land, a focus was created for the transformation of bodies through decomposition, and for the reincorporation of cremated human remains through burial. Such actions were clearly mediated through a suite of culturally-appropriate material, predominantly

Food Vessels and worked lithics. New advances in radiocarbon dating allow us to infer that the site was in use over a maximum period of 280 years and that both inhumation and cremation were broadly contemporaneous in their occurrence. Analysis of the cist morphology, the locations of artefactual material and the choice of burial rite also allows some general correlations to be put forward and the site bears some comparison with similarly-dated sites such as West Water Reservoir (Hunter 2000), Barns Farm (Watkins 1982), Doonfoot (Davidson 1967), Larkhall (Maxwell 1949) and Law Cairn (Smith 1895). Yet, when attempts are made to understand the motivations behind the various choices taken by those who built and utilized the structures at Dunure Road, we are faced at both a site and regional level with the same general 'mixture of striking similarities and unfathomable differences' (Neighbour 2003, 61) which define the rapid diversification in funerary monuments in Scotland in the third millennium BC (Russell-White et al 1992).

It is clear from the excavation that the cremated remains were generally contained within smaller cists and that all of the cists that contained cremations were floored (75%, n = 8), either with deliberately-placed, small, sub-rounded pebbles or stone slabs. The majority (75%, n=8) were also associated with worked lithic artefacts, most frequently occurring in the form of edge retouched flakes or blades, most of which appear to have been cremated along with the human remains. Examples of lithic artefacts associated with inhumation are entirely absent. The number of lithic artefacts or potential artefacts also increases in proportion to the minimum number of individuals within each cist and it may be that there was a direct correlation, perhaps even one item per body. In this light, the apparently-uncremated blade associated with the cremation in cist 010 is clearly different. Perhaps this represents simple human forgetfulness and a failure to deal with the material on the pyre, or perhaps it illustrates the difficulty of recovering



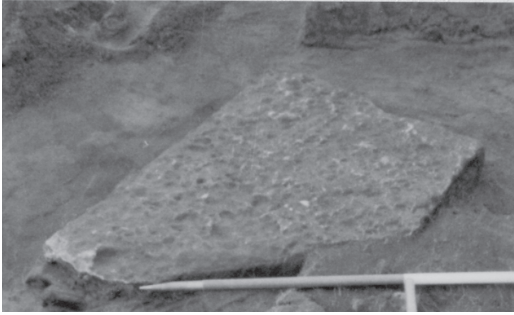
white, calcined and shattered lithics from amongst other pyre material. More certainly, it indicates the significance of understanding by the community that such material was included with the cremation as part of the burial rite and perhaps it suggests that it is the burial, not the cremation, of this material that is of most significance.

In contrast to the cremated remains, cists where fragmentary tooth enamel was found were generally composed of larger stone slabs, had larger internal dimensions, and were entirely without floors. Further correlations between other aspects of the burials and material culture from the site are, however, less clear. Only a single piece of 'exotica' was recovered from the site: a perforated bone pin, which may hint at personalization or status of burial but helps little in wider understandings of the complexity of choice in burial rite. Pots, on the other hand, are common, and indeed have been suggested to be the commonest grave goods associated with early Bronze Age burials (Hunter 2000). Seven Food Vessels and at least four other fragmentary vessels were recovered, three of which were deposited along with human remains: one was associated with an inhumation, one with a cremation and one with both a cremation and inhumation. The other four whole pots were found in isolation within cists, two of which were more complex drystone structures topped with cairns (cists 150 and 133). Clearly the deposition of such artefacts was the result of complex choices. Fragments of at least four other vessels were also found in isolation across the top of the mound and in cist 300; the absence of any bone associated with these fragments perhaps indicates they are not all the result of later disturbed burials and hints that pottery may have been used in alternative ways.

Much has been written on the distribution and associations of Food Vessels and other associated 'grave goods' (eg Simpson 1965; Cowie 1978; Sheridan 2004a) and there is no intention to revisit these arguments here.

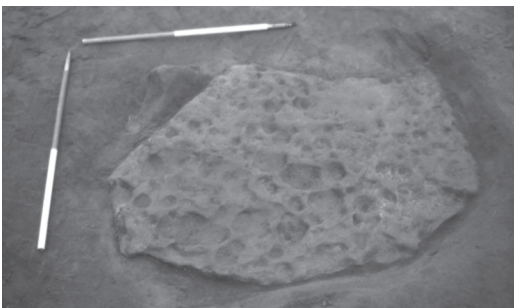
Instead, it is perhaps more informative to consider the artefacts themselves. As a suite of cultural material, parallels are common: the elements represent a repertoire of appropriate but interchangeable motifs associated with the disposal of human remains during the early Bronze Age and, indeed, are often the means by which we ascribe the practices and participants to the early Bronze Age. What is of interest at Dunure Road, however, is the fact that, rather than featuring imported items or high status artefacts, the assemblage as a whole clearly speaks of expediency in its manufacture and it was probably all locally produced. Certainly, influences of decorative style from Ireland and the wider west coast can be discerned on the pottery vessels. However, clearly none of the material has been obtained through these wider trading networks and the assemblage probably represents the effort of several local potters. Similarly, lithic artefacts are functional, but not crafted with any particular care or skill; the bone pin is unusual, but simple in form and working. Similar poverty may also be seen in the assemblage of animal remains which accompanied the cremation deposits: familiar domestic animals are incorporated, but 'non-prestige' elements of the carcass are utilized. Overall, the material culture at Dunure Road is defined by its simplicity and rusticity. More immediately, it suggests the expressions of a people cradled within wider cultural frameworks, but bound by experience of specific locality.

This theme of locality and the local is further referenced through the situation of the monument itself. The main aspect faces north and physically places this activity within a local arena of social practice. This choice is of note: the site is low-lying and provides a clear vista, not of the land that the people would have worked and walked, but of a body of water, the Firth of Clyde, enclosed at its periphery by islands and forming what must have been a recognized community. These visual references to local networks and to the sea are



ILLUS 47 Cist 009 – capstone

reinforced by other structural elements. A cup-marked stone has been quarried, transported and incorporated into one of the last cists to be constructed. Covers for some of the cists, such as cist 009 (illus 47), cist 178 (illus 48), and cist 300 (illus 25), have been derived from the beach and placed in order to show rippled surfaces. Final choices in cist construction also include a distinctly boat-shaped cist (028), its ‘prow’ pointing out across the expanse of the Clyde Basin towards Arran (illus 49). This sub-oval structure (029) containing fragments of burnt wickerwork, which is also intriguing in form and content in light of the reported finding of a coracle burial from Barns Farm (Watkins 1982). More substantive parallels can, however, perhaps be drawn: the empty ‘cenotaph’ boat-shaped settings described by Pollard (1999) on St Kilda, raising the interesting thought that at



ILLUS 48 Cist 178 – capstone



ILLUS 49 Cist 028 – looking towards Arran

least some of the cists from the site may be empty of human remains by design. As on St Kilda, perhaps the absence of body itself references the sea, and those who will never return from its unyielding grasp.

The final phase of the cemetery is marked by the creation of a low earthen mound, which served to physically seal the cists beneath as a ‘construction of memory’ (Barrett 1994, 109). It is clear that the circular stone settings on the top of the mound, and the cairns which they respect and identify, were constructed as part of a homogenous plan for this phase of the site and not only monumentalize the place of the site in the immediate locality, but also reinforce an understanding of the material sealed beneath. It is unclear whether such memories were still understood some 600 years later when the standing stone was constructed, although pit 074 may be seen to respect the earlier cemetery mound. However, similar associations of standing stones, pits and funerary monuments have also

been noted at places such as Islay, where a fallen standing stone associated with Late Bronze Age artefacts existed in close proximity to a possible cist cemetery at Kilchoman (RCAHMS 1988). More certainly, the identification of the erection of a standing stone and associated activity at this time serves to illustrate that local choices of appropriate location for ritual action remained apparently constant.

Individual and multiple monolithic constructions with associated cremated bone deposits are documented throughout Ayrshire (Smith 1895; Morrison 1978) and are not uncommon throughout Scotland (Ashmore 1996) and Britain (Parker Pearson 1993). Several have been excavated, but dating of the construction of such sites has generally been through combined entity dating such as at Lochmaben, Dumfries (Crone 1983), or through association such as at Dumgoyach, Strathblane (MacKie 1974); few have been dated securely. The cremated bone date of 1310–1050 cal BC from a deposit within the stone pit and the complimentary cremated bone date of 1260–1010 cal BC from depositional activities to the east of the stone thus provide a valuable addition to a currently small corpus of evidence.

Chronologically, the site bears close comparison with the charcoal date of 1260–910 cal BC from a stone row at Ardnacross, Mull (Martlew & Ruggles 1993) and with the recently-dated cremated bone of 1370–1040 cal BC from the construction pit of a standing stone close to two stone rows at Ballmeanoch, Kilmartin (Barber 1978; Sheridan 2007). Architectural motifs of associated paving can also be readily compared with Glengorm, Mull (Ruggles & Martlew 1989), while the spread of carbonized wood has some resonances with a charcoal layer at Ardnacross (Ruggles & Martlew 1989). Excavated examples from the west coast, including Lochmaben (Crone 1983) and Duntreath (MacKie 1974), have identified the deposition of cremated bone in and around such orthostats. Such practices were not uncommon elsewhere in Scotland, as at Orwell, Perthshire

(Richie 1974) and Baliscate, Mull (Wright 2004), and in the rest of Britain (Richie 1974; Barber 1978). The presence of the partial cremated remains of a young adult alongside Glengorm A (Ruggles & Martlew 1989) is also reminiscent of the site at Dunure Road. Thus it appears that the standing stone is part of a local cultural tradition which increasingly appears to develop in the latter third of the second millennium cal BC. Concepts of cosmological significance suggesting such monoliths are fixed points for the observation of solar or lunar phenomena have been developed and assessed by several authors (Thom 1971; MacKie 1974; Martlew & Ruggles 1996), but it is of equal interest that a picture appears to be emerging of possibly widespread re-emerging construction of such monoliths at a time of climatic deterioration (Cowie and Shepherd 1997).

What is most obvious at Dunure Road is that we see a series of unique interpretations of a variety of complex and interrelated actions by a local population eager to mitigate the uncertainties of life and the passage between life and death. Considering both of these monuments within the wider landscape at Dunure Road, it is tempting, in the absence of structural evidence or paleoenvironmental detritus of domestic habitation, to see the entire area as a long-lived local arena for ritual practice. Implications for understanding the duration of social memory amongst the local population are clear. Much of the evidence recovered from the excavation is familiar as part of a generalized suite of material culture identified as 'Bronze Age'. Yet much is unfamiliar, unusual and even unique. Such observations serve to reinforce the assertion that an understanding of past experiences through such remains cannot be achieved through a scaling down of general principles (Hodder 1984). Instead, what we observe are the physical residues of a series of 'highly localized' social encounters of ritual (Barrett 1994, 72), organized within a framework of wider cultural motifs, but manifest as a distinct entity of local time, place and experience.

## ACKNOWLEDGEMENTS

Many people have assisted in the process of bringing this paper to fruition and thanks go to all. In particular, I would like to thank the excavation team of Amanda Brend, Martin Goldberg, Maureen Kilpatrick, Nic Marquez-Grant, Joe Summerville, John Arthur (total station survey) and Dr Nyree Finlay (press-ganged), whose hard work and enthusiasm ensured a successful and enjoyable excavation; Dr Gavin MacGregor for providing invaluable project management, support and discussion during the excavation, post-excavation and publication phases of the project; Dr Chris Dalglish for copy editing and offering useful comment; Dr Nyree Finlay for advice and constant support. Jill Seivewright produced artefact illustrations; John Arthur, Caitlin Evans, Charlotte Francois, Gillian McSwan and Ingrid Shearer all contributed to the digital images and thanks go to all. Thanks also to Nigel Allen of A&M Architects and Paul Robbins of West of Scotland Archaeology Service who specified and monitored the project on behalf of South Ayrshire Council.

## REFERENCES

- Adams, A E, MacKenzie, W S & Guilford, C 1984 *Atlas of sedimentary rocks under the microscope*. Longman, England.
- Ashmore, PJ 1996 *Neolithic and Bronze Age Scotland*. Batsford, London.
- Auld, R & Cuthill, A 1845 'Ayr Parish', *New Statistical Account of Scotland*. Volume 5. 1–85: <http://stat-acc-scot.edina.ac.uk/link/1834-45/Volume/Contents/> [accessed 04/06]
- Barber, J 1978 'The Excavations of the Holed Stone at Abllmeanoch, Kilmartin, Argyll', *Proc Soc Antiq Scot* 109, 105–11.
- Barrett, J C 1994 *Fragments from Antiquity: An Archaeology of Social Life in Britain, 2900–1200 BC*. Blackwell, Oxford.
- Bradley, R 1997 *Rock art and the prehistory of Atlantic Europe: signing the land*. Routledge, London.
- Briekley, M & McKinlay, J I (eds) 2004 *Guidelines for the Standards for Recording Human Remains*. BABAO/IFA, Southampton.
- Brindley, A L 2007 *The Dating of Food Vessels and Urns in Ireland*. National University of Ireland, Galway.
- Bullock, P, Fedoroff, N, Jongerius, A, Stoops, G, Tursina, T & Babel, U 1985 *Handbook for Soil Thin Section Description*. Waine Research, Wolverhampton.
- Campbell, M, Scott, J G & Piggott, S 1963 'The Badden cist slab', *Proc Soc Antiq Scot* 94, 46–61.
- Close-Brooks, J 1985 'Appendix I: The Prehistoric Finds', in Stewart, M E C 'The excavation of a henge, stone circles and metal working area at Moncreiffe, Perthshire', *Proc Soc Antiq Scot* 115, 125–50.
- Cochran-Patrick, R W 1886 'Rock surface with cup-marks and other sculpturings at Blackshaw, West Kilbride, Ayrshire', *Proc Soc Antiq Scot* 21, 143–51.
- Coles, J M & Orme, B J 1982 *Prehistory of the Somerset Levels*. Somerset Levels Project, Thorverton.
- Courty, M A, Goldberg, P & Macphail, R I 1989 *Soils and Micromorphology in Archaeology*. Cambridge University Press, Cambridge.
- Cowie, T G 1978 *Bronze Age Food Vessel Urns*. BAR British Series 55, Oxford.
- Cowie, T & Ritchie, G 1991 'Bronze Age burials at Gairneybank, Kinross-shire', *Proc Soc Antiq Scot* 121, 95–109.
- Cowie, T G & Shepherd, I A G 1997 'The Bronze Age', in Edwards K J & Ralston I B (eds) *Scotland: Environment and Archaeology. 8000 BC–AD 1000*. Wiley & Sons, Chichester, 151–68.
- Crone, A 1983 'The Clochmabenstane, Gretna', *Trans Dumf Gal Nat Hist Soc* 58, 16–20.
- Crowther, J 2002 'The Experimental Earthwork at Wareham, Dorset after 33 years: retention and leaching of phosphate released in the decomposition of buried bone', *Journal of Archaeological Science* 29, 405–11.
- Davidson, J M 1967 'A Bronze Age Cemetery at Doonfoot, Ayr', *Trans Glas Arch Soc* 1967, 15.
- Duffy, P R J 2006 'Excavation of a Bronze Age Wicker Container, Gerraiddh na h'Aibhne, Isle of Lewis', *Scottish Archaeological Internet Report* 19: <http://www.sair.org.uk/> [accessed 05.06]
- Duncan, J S 2004 *Dunure Road, Ayr*, unpublished GUARD report 1724.
- Edlin, H 1973 *Woodland Crafts of Britain*. David & Charles, Newton Abbot.
- Engl, R & Cook, M 2001 'Greenan, Ayr, South Ayrshire (Maybole parish), fieldwalking', *Discovery and Excavation in Scotland* 2, 89.



- Finlayson, B 1990 'Experimental Burning', in Wickham-Jones, C R (ed) *Rhum: mesolithic and later sites at Kinloch, excavations 1984-1986*, 61-72. Society of Antiquaries of Scotland Monograph Series (7), Edinburgh.
- FitzPatrick, E A 1993 *Soil Microscopy and Micromorphology*. John Wiley & Sons, Chichester.
- Foxon, A 1991 'The bone point', in Haggerty, A 'Machrie Moor, Arran: recent excavations at two stone circles', *Proc Soc Antiq Scot* 121, 51-94.
- Gale, R & Cutler, D 2000 *Plants in Archaeology*. Westbury Publishing, Otley.
- Geological Survey of Britain (Scotland) 1978a *Ayr sheet 14W Solid*, 1:50,000.
- Geological Survey of Britain (Scotland) 1978b *Ayr sheet 14W Drift*, 1:50,000.
- Gooder, J & Engl, R 2002 'Ailsa View, South Ayrshire (Maybole parish), flint scatter; ditched enclosure; ring-groove roundhouse', *Discovery and Excavation in Scotland* 3, 108-9.
- Harman, M 1977 'The bones from Uppermill', in Kenworthy, J B 'A reconsideration of the "Ardifferry" finds, Cruden, Aberdeenshire', *Proc Soc Antiq Scot* 108, 89-90.
- Henshall, A 1991 'The urn', in Haggerty, A 'Machrie Moor, Arran: recent excavations at two stone circles', *Proc Soc Antiq Scot* 121, 51-94.
- Hodder, I 1984 'Burials, Houses, Women and Men in the European Neolithic', in Miller, D & Tilley, C (eds) *Ideology, Power and Prehistory*. Cambridge University Press, Cambridge, 83-91.
- Hunter, F 2000 'Excavation of an Early Bronze Age cemetery and other sites at West Water Reservoir, West Linton, Scottish Borders', *Proc Soc Antiq Scot* 130, 115-83.
- Johnson, M 2005 'Radiocarbon Dates, Skilmafilly, Maud', *Discovery and Excavation in Scotland* 5, 157-8.
- Johnstone, L H 2000 *Laigh Kylestone Farm*. Ayr, unpublished GUARD report 981.
- Keeley, H C M, Hudson, G E & Evans, J 1977 'Trace element contents of human bones in various states of preservation', *Journal of Archaeological Science* 4, 19-24.
- Longworth, I H 1963 'Appendix 1: The pottery and other small finds', in Cormack, W F 'Burial site at Kirkburn, Lockerbie', *Proc Soc Antiq Scot* 96 (1962-3), 107-35.
- Longworth, I H 1984 *Collared Urns of the Bronze Age in Great Britain and Ireland*. Cambridge University Press, Cambridge.
- MacGregor, G 2005 *Dunure Road, Ayr Archaeological Excavation: Written Scheme of Investigation*, unpublished WSI, GUARD.
- MacKenzie, W S & Guilford, C 1980 *Atlas of rock-forming minerals in thin section*. Longman, England.
- MacKie, E W 1974 'Archaeological Tests on Supposed Prehistoric astronomical sites in Scotland', *Phil Trans R Soc London* 276, 169-94.
- MacKie, E W & Robertson, A S 1963 'Alloway: the Cambusdoon cairn', *Discovery and Excavation in Scotland*, 21.
- Macleod, A G 1937 'Excavation of two bronze-age burial sites in Ayrshire', *Proc Soc Antiq Scot* 72, 235-47.
- Manby, T G, King, A & Vyner, B 2003 'The Neolithic and Bronze Ages: a time of early agriculture', in Manby, T G, Moorhouse, S & Ottaway, P (eds), *The Archaeology of Yorkshire: an Assessment at the Beginning of the 21st Century*, Yorkshire Archaeology Society, Leeds, 35-116.
- Martlew, R D & Ruggles, C L N 1993 'The North Mull Project (4): Excavations at Ardnacross 1989-91', *Archaeoastronomy* 18, 55-64.
- Martlew, R D & Ruggles, C I N 1996 'Ritual and Landscape on the West Coast of Scotland: an Investigation of the Stone Rows of Northern Mull', *Proceedings of the Prehistoric Society* 62, 117-33.
- Maxwell, J H 1949 'Bronze Age Graves at Patrickholm Sand Quarry, Larkhall, Lanarkshire. Excavated during the Autumn of 1947', *Proc Soc Antiq Scot* 83, 207-20.
- McCormick, F 1991 'Animal bones', in Dalland M 'A short cist at Grainfoot, Longniddry, East Lothian', *Proc Soc Antiq Scot* 121, 1131-4.
- McCullagh, R P J 1998 'Excavations 1990-1', in McCullagh, R P J & Tipping, R, *The Lairg Project 1988-1996: The evolution of an archaeological landscape in Northern Scotland*, Scottish Trust for Archaeological Research Monograph 3, Edinburgh.
- McKinley, J I 1993 'Bone Fragment Size and Weights of Bone from Modern British Cremations and the Implications for the Interpretation of Archaeological Cremations', *International Journal of Osteoarchaeology* 3, 283-7.
- Mithen, S 1990 *Hunter-gatherer landscape archaeology: The Southern Hebrides Mesolithic Project 1988-98*. McDonald Institute, Cambridge.



- Morris, R W B 1981 *The Prehistoric Rock Art of Southern Scotland*. BAR British Series 86, Oxford.
- Morrison, A 1978 'The Bronze Age in Ayrshire', *Ayrshire Archaeological and Natural History Collection*, 2nd Series 12(4), 125–53.
- Morrison, A 1995 'John Smith and the Earlier Prehistory of Ayrshire', in Reid, D & Mathews, T (eds) *John Smith of Dalry: Geologist, Antiquarian and Natural Historian*. Ayrshire Archaeological and Natural History Society, Ayr.
- Murphy, C P 1986 *Thin section preparation of soils and sediments*. AB Academic publishers, Berkhamstead.
- Neighbour, T 2003 'Excavations of a Bronze Age Kerbed Cairn at Olcote, Breasclote, Nr Calanis, Isle of Lewis', *Scottish Archaeological Internet Report* 13: <http://www.sair.org.uk/> [accessed 05.06]
- Parker Pearson, M 1993 *Bronze Age Britain*. Batsford, London.
- Pollard, T 1999 'The Drowned and the Saved: archaeological perspectives on the sea as grave', in Downes, J & Pollard, T (eds), *The Loved Body's Corruption*. Cruithine Press, Glasgow, 30–52.
- Ramsay, S & Dickson, J H 1997 'Vegetational History of Central Scotland', *Botanical Journal of Scotland* 49(2), 141–50.
- Richie, J N G 1974 'The Excavation of a Stone Circle and Cairn at Bilbirnie, Fife', *Archaeological Journal* 131, 1–32.
- RCAHMS 1985 *The archaeological sites and monuments of North Kyle, Kyle and Carrick District, Strathclyde Region*. RCAHMS, Edinburgh.
- RCAHMS 1988 *Argyll: an inventory of the ancient monuments, volume 6: Mid Argyll & Cowal, prehistoric & early historic monuments*. RCAHMS, Edinburgh.
- Ruggles, C L N & Martlew, R D 1989 'The North Mull Project (1): Excavations at Glengorm 1987–88' *Archaeoastronomy* 14, 137–49.
- Russell-White, C J, Lowe, C E & McCullagh, R P J 1992 'Excavations at three Early Bronze Age Monuments in Scotland', *Proceedings of the Prehistoric Society* 58, 285–325.
- Sheridan, J A 1993 'The manufacture, production and use of Irish Bowls and Vases', in Ó Ríordáin B & Waddell, J *The Funerary Bowls and Vases of the Irish Bronze Age*. Galway University Press, Galway, 45–75.
- Sheridan, J A 2004a 'Scottish Food Vessel chronology revisited', in Gibson, A M & Sheridan, J A (eds), *From Sickles to Circles: Britain & Ireland at the Time of Stonehenge*. Tempus, Stroud, 243–69.
- Sheridan, J A 2004b 'The pottery', in Lewis, J & Terry, J 'The excavation of an early Bronze Age cemetery at Holly Road, Leven, Fife', *Tayside & Fife Archaeological Journal* 10, 23–53.
- Sheridan, J A 2007 'Dating the Scottish Bronze Age: There is clearly much that the material can still tell us', in Burgess, C, Topping, P & Lynch, F (eds), *Beyond Stonehenge: Essays on the Bronze Age in Honour of Colin Burgess*. Oxbow, Oxford, 162–85.
- Simpson, D D A 1965 'Food Vessels in south-west Scotland', *Transactions of the Dumfriesshire & Galloway Natural History & Archaeology Society* 42, 25–50.
- Simpson, D D A 1968 'Food Vessels: associations and chronology', in J M Coles & D D A Simpson (eds), *Studies in Ancient Europe: Essays Presented to Stuart Piggott*. Leicester University Press, Leicester, 197–211.
- Simpson, D D A & Thawley, J E 1973 'Single grave art in Britain', *Scottish Archaeological Forum* 4.
- Smith, J 1895 *Prehistoric Man in Ayrshire*. Elliot Stock, London.
- Soil Survey of Scotland 1962 *Ayr sheet 14 and part of 13, 1:63,360*. The Macaulay Institute for Soil Research, Aberdeen.
- Stevenson, J B 1994 'Cup-and-ring markings at Ballochmyle, Ayrshire', *Glasgow Archaeological Journal* 18 (1993), 33–40.
- Stewart, M E C & Barclay, G 1997 'Excavations in burial and ceremonial sites of the Bronze Age in Tayside', *Tayside and Fife Archaeological Journal* 3, 22–54.
- Stoops, G 2003 *Guidelines for the analysis and description of soil and regolith thin sections*. Soil Science Society of America, Madison.
- Taylor, D B, Rideout, J S, Russel-White, C J & Cowie, T J 1998 'Prehistoric burials from Angus: some finds old and new', *Tayside and Fife Archaeological Journal* 4, 31–66.
- Thom, A 1971 *Megalithic Lunar Observatories*. Clarendon Press, Oxford.
- Tylecote, R F 1962 *Metallurgy in Archaeology*. Arnold, London.
- Watkins, T 1982 'The excavation of an Early Bronze Age cemetery at Barns Farm, Dalgety, Fife. *Proc Soc Antiq Scot* 112, 48–141.

Williams-Thorpe, O & Williams, R S 1984 'The distribution and sources of archaeological pitchstone in Britain', *Journal of Archaeological Science* 11, 1–34.

Wright, J 2004 'Baliscate, Mull (Kilninian & Kilmore parish), stone row', *Discovery and Excavation in Scotland* 5, 32.

Young, A 1951 'A Tripartite Bowl from Kintyre', *Proc Soc Antiq Scot* 85 (1950–1), 38–51.