

An Early Bronze Age multiple burial cist from Mill Road Industrial Estate, Linlithgow, West Lothian

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with contributions by C Ellis, K McSweeney, C Mills & T Rees

ABSTRACT

Excavation of a short cist discovered during construction works at Mill Road, Linlithgow, in 1997 revealed five inhumations and a cremation. The burial group consisted of a minimum of five children and an adult with a misshapen skull. Four of the burials have been dated to the Early Bronze Age. The burials were accompanied by a piece of flint debitage and a retouched flint tool. The cist had been placed in a substantial pit and constructed in such a way that it could be reopened. It is argued that the cist was the focus of complex burial rituals that took place periodically and involved the specific selection of individuals for insertion in the cist. The project was funded by Historic Scotland.

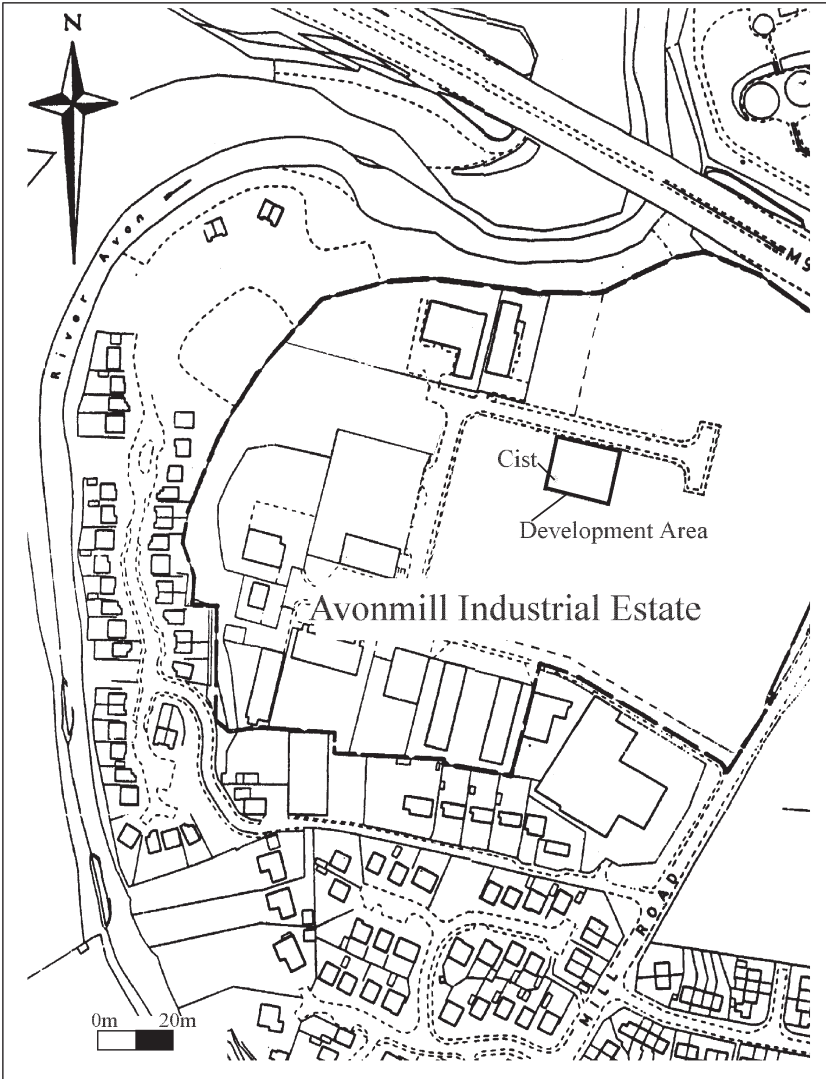
INTRODUCTION

A short cist was discovered by building contractors during levelling works prior to the construction of an industrial unit at Mill Road Industrial Estate, Linlithgow, West Lothian. Approximately 1.4 m of topsoil and subsoil had been removed by machine from above the cist, prior to its discovery. The machine driver, Mr Colin Graham, removed the capstone, initially considering it part of a field drain. The south-west corner of the capstone had been broken off during its removal. Mr Graham reported that some subsoil had fallen into the cist during this process and one of the crania within the cist had been broken. On discovery of the human remains, the development was halted and the police were alerted. The police suspected that the remains were prehistoric and contacted Historic Scotland. AOC Archaeology was commissioned by Historic Scotland to conduct a rapid salvage excavation of the cist and its contents and to supervise the machine stripping of the remaining area. This work was conducted between 31 October and 1 November 1997.

SITE LOCATION

The site is located approximately 450 m NNE of Linlithgow Bridge, Linlithgow, West Lothian (NGR: NS 9851 7771; illus 1) in an industrial estate which continues to be developed. Prior to development the general topography of the area consisted of a low lying grass field at around 40 m OD within the upper fringes of the River Avon's floodplain. In general the wider landscape

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

of the area comprises gently undulating hill forms. The area has not been cultivated in recent memory and was used in recent decades as a recreation ground for one of the local mills.

ARCHAEOLOGICAL BACKGROUND

Prior to the discovery of the cist there were no known archaeological remains in the immediate area. However, a possible cist with human bones and possible axe-head were reported during the operations of a mechanical digger in 1959 (NMRS no NS97NE 27). Although the precise location of the site is unknown it does appear to be well to the south-east of the Mill Road cist.

In 1990 construction works associated with a housing estate on Avonmill Road (some 200 m to the south) uncovered the remains of four long cists dated to the fifth or sixth century AD (Dalland 1993).

A review of the available cartographic sources for the area indicates that the site was previously agricultural land. There are no records of any mounds or cairns being destroyed in this area.

EXCAVATION METHODS

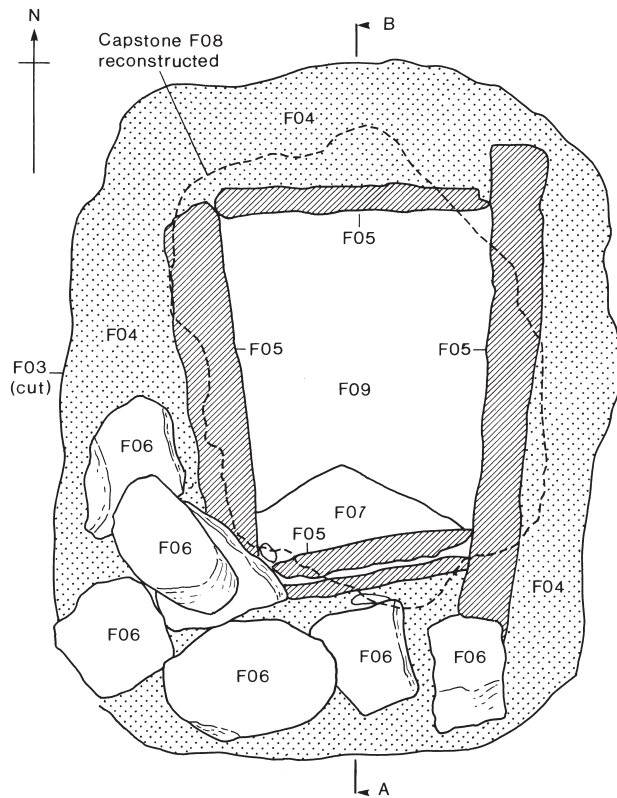
Due to the salvage nature of the excavation and following the advice of the local police, the primary aim of the operation was to remove the human remains as quickly as possible to prevent interference by local youths. This was completed on the Friday night. On the following day, the remainder of the plot (some 100 sq m) was machine stripped under archaeological supervision and was inspected for further archaeological features. No other archaeological remains were found. The area immediately around the cist was cleaned by hand in order to trace any cut associated with the cist's construction. A strip 4 m long and 0.5 m wide running north-east from the cist's edge was cleaned in order to trace any possible remnants of an enclosing bank or ditch. The cist, its contents and the foundation pit were then planned and half-sectioned and the side slabs inspected on both sides for any markings. Due to the size of the eastern slab of the cist it was broken into four pieces to facilitate its removal from the construction pit. A sample of the capstone was retrieved for geological inspection and the remainder of the cist slabs were left on site. Soil samples were taken from the cist fill and the surrounding contexts. These were fully processed and the results are presented below.

EXCAVATION RESULTS

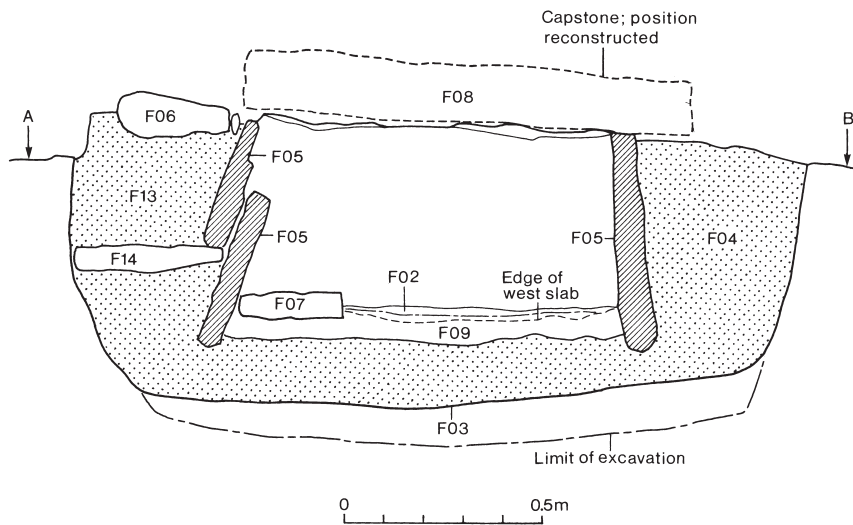
The cist and associated features are discussed in order of their construction and deposition.

FOUNDATION PIT

The foundation pit for the cist (Feature 3) (illus 2 & 3) had been dug into the gravel subsoil, to a depth of approximately 2.1 m below the upper surface of the present topsoil. In its surviving form the pit cut was sub-rectangular in plan, measuring 1.34 m wide by 1.70 m long, and up to 0.70 m deep. The fill of the pit (Feature 4) which surrounded the cist was a dark, red brown gritty sand. This was slightly darker in colour than the surrounding gravel.



ILLUS 2 Plan (above) and section of the cist (note the smaller, loose slabs used to form the south end)



THE CIST

The cist was formed of five edge-set slabs forming a rectangular group, orientated north/south, and measuring roughly 0.94 m by 1.44 m (illus 2). The slabs were up to 0.48 m wide by 1.48 m long and 0.14 m thick. The east and west slabs both enclosed the north and south ends. The upper edges of the cist slabs were all smooth and regular while the lower surfaces were coarse and irregular. The capstone was sub-rectangular and measured 0.68 m wide by 1.18 m long and up to 0.14 m thick. It was part of a rounded schist boulder, probably of fluvio-glacial origin. The



ILLUS 3 A view of the mixed, disarticulated and incomplete skeletal remains within the cist (from north)

southern end of the cist was constructed with three separate slabs. These would not have been capable of supporting the weight of the capstone and it appears instead that this was supported entirely by the edge-set stones forming the remaining three sides. None of the edge-set stones nor the cover slab showed any evidence of being shaped in any way.

The interior of the cist measured 0.95 m long by 0.66 m wide and up to 0.45 m deep. There was no evidence of clay luting. No base paving was present other than a single triangular slab (Feature 7) at the southern end of the cist, measuring 0.51 m long by 0.25 m wide and 0.07 m thick. The floor layer within the cist was approximately 0.10 m thick and comprised a loose, purple brown stoney soil.

CONTENTS OF THE CIST

Artefacts

During the course of the excavation no artefacts were retrieved. However, subsequent sieving of the floor of the cist recovered two pieces of flint (see Rees below).

Burials

At the time of excavation the human remains within the cist were mixed and disarticulated and there was no obvious patterning (illus 3). The bones were largely unburnt, but included a few fragments of cremated bone, including three teeth. The presence of two skulls indicated that at

least two individuals were present, though subsequent analysis would identify remains of one adult and five children (McSweeney, below).

SPECIALISTS' REPORTS

More detailed versions of the following contributions have been deposited with the archive of the project records at the National Monuments Record of Scotland (RCAHMS).

RADIOCARBON DATING

Murray Cook

Bones from four of the individuals were submitted for radiocarbon dating in order to determine whether the burials were contemporary or deposited sequentially over a long period. The radiocarbon dates were obtained from the Oxford Radiocarbon Accelerator Unit and were calibrated using Stuiver & Kra's (1986) calibration curve. The results are listed in Table 1.

The uncalibrated dates are within 35 years of each other and according to procedures outlined by Long & Rippeteau (1974) are not significantly different. It is impossible, therefore, to determine whether the dated bones represent simultaneous interment or successive burial over a relatively short period of time.

Given that the dates of the deaths are so close to each other it is also possible that the dates derive from a single contamination event after burial. However, the cist's capstone was apparently *in situ* and had been buried below at least 1.4 m of soil, so a single subsequent episode of contamination seems improbable.

TABLE 1

Radiocarbon dates

| Lab no | Sample | Sample material | Yrs BP | $\delta^{13}\text{C} \text{‰}$ | Calibrated ranges | |
|----------|---------|----------------------|-----------|--------------------------------|---------------------|---------------------|
| | | | | | 2 sigma | 1 sigma |
| OxA-8305 | Bone 7 | Juvenile human femur | 3720 ± 45 | -21.2 | 2200–2030 BC | (0.98) 2290–2020 BC |
| OxA-8156 | Bone 13 | Juvenile human femur | 3755 ± 40 | -21.5 | (0.63) 2210–2130 BC | (0.87) 2330–2110 BC |
| OxA-8157 | Bone 17 | Juvenile human femur | 3735 ± 40 | -21.7 | (0.60) 2210–2120 BC | 2290–2030 BC |
| OxA-8158 | Bone 23 | Adult human femur | 3740 ± 45 | -20.9 | (0.60) 2210–2120 BC | 2320–2030 BC |

LITHICS

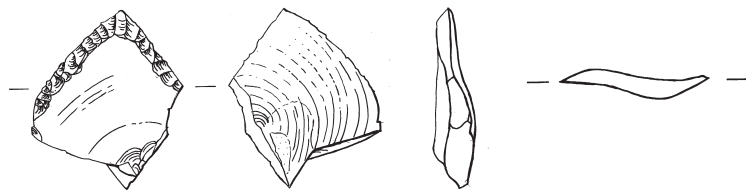
Thomas Rees

No lithics were identified during the excavations at Linlithgow but two pieces were recovered from soil samples from the cist fill during subsequent flotation sieving. Where adhering soil was noted, the pieces were gently washed and air dried. Methods of description are broadly based upon those outlined by Wickham-Jones (1990) and Inizan *et al* (1992).

Only one of the two pieces was retouched. The form of this piece is suggestive of an angled scraper with two adjoining edges. This form could be late Mesolithic to Bronze Age in date, although even this broad date range is not definitive as angled scrapers have a long period of use.

Catalogue (illus 4)

- 1 Flint, inner material, irregular flake, diffuse bulb, dimensions 24 mm by 12 mm by 2 mm. No patina, edge damage or retouch visible.



ILLUS 4 Two worked flint pieces (scale 1:2)

- 2 Flint, inner material, regular flake, diffuse bulb, dimensions 30 mm by 36 mm by 7 mm. No patina, semi-abrupt non invasive retouch along distal and semi-abrupt retouch distal right forming point between edges. Distal retouch having truncated distal portion to be broad edge perpendicular to axis of piece. Angled scraper.

HUMAN BONE

Kath McSweeney

Methodology

The human remains contained at least one adult and five children. No obvious spatial distribution of the bones was evident when the cist was excavated. The remains may have become intermingled either before, during or after deposition but it is not possible on the available evidence to determine when the event, or events, took place. Even where the bones of several bodies are mixed, it is often possible to separate them into individuals by taking into account relative age, size, morphology, bone colour, and condition. Apart from the adult remains, the homogenous nature of the immature bones, which were of similar colour, size, texture, and age, meant that it was not possible to sort the Mill Road remains into individual skeletons.

Each fragment was examined and classified according to anatomical area. Where anatomical provenance could not be established, fragments were classified as 'unidentified' because of the size of the fragment or condition of the bone. In the case of longbone shaft fragments where the specific arm or leg bone could not be distinguished, these have been simply classified as 'longbone'. Unless otherwise indicated, general methods of ageing and sexing used are those outlined in Bass (1987), Brothwell (1981) and, for dentition, van Beek (1983).

Condition of the remains

The only surviving adult remains were a skull — in good condition apart from damage to the right side — and a fragment of femur. In general, the immature bones were in good condition with many surviving intact. Even soft cancellous bone, such as vertebrae and pelvis, which tend to degrade more quickly than other more dense bones, had survived well. In contrast, some of the childrens' teeth were in poor condition. All that remained of several was the enamel shells of the crowns, the softer dentine and cement having completely disappeared.

In addition to unburnt bone there were a few fragments of cremated or partly burnt bone, including three childrens' teeth.

The remains

Adult bones Only a cranium with a partly intact maxilla and a length of femoral shaft were present. It cannot be ascertained with any degree of certainty that these belonged to the same individual.

The cranium was in fairly good condition although the right side was missing and there had been some damage to the right alveolar part of the upper jaw. The skull was not strongly sexually diagnostic, although moderately large mastoid processes and fairly prominent brow ridges suggest that it was probably male. The external occipital protuberance was exceptionally prominent and, while this would normally be taken to signify male sex, in this case it may be consequential to an unusual skull morphology.

Cranial measurements (length 187 mm, height 125 mm, and an estimated breadth of 160 mm) confirm the visual impression of a very broad, exceptionally low, and long skull. In addition the upper part of the occipital bone projects markedly, to form a 'shelf' and numerous wormian bones are present in the depressed lamboid suture. The external occipital protuberance is exceptionally well developed, as is the internal occipital crest. The front of the skull appears normal, although there may have been some facial asymmetry. This appears to be an advanced case of a condition known as bathrocephaly, as described by Miles (1989, 44) and Brothwell (1981, 169). Miles (1989) found a high incidence among the Early Christian population of Ensay and concluded that this was either a genetic condition or the result of a nutritional deficiency.

The skull had a very enlarged external occipital protuberance, a marked external occipital crest and a very markedly prominent internal occipital crest. The significance of these manifestations is not clear. They are not described by either Miles or Brothwell in association with bathrocephaly. However, the Mill Road skull does appear to be a very advanced case of the condition when compared with the sketches provided by both Miles and Brothwell. It is probable that these are physiological adaptations, externally to support the head and internally to support the brain, to compensate for the abnormal skull morphology. It is quite possible that this condition was not an obvious feature of the individual's appearance during their lifetime.

Evidence from sutures and tooth wear suggests an age of around 45 years, ie the upper end of Brothwell's (1981, 72) 35–45 phase.

Apical abscesses were present at the bases of both upper lateral incisors and healed edges around two holes in the maxillary bone confirm that fistulae had developed into the external surface of the jaw, and also medially through to the socket for the left central incisor. The cause of these abscesses is not clear. Dental abscesses can result from caries, heavy calculus deposits, periodontal disease or severe attrition.

The fragment of femur yielded little information apart from indicating that it was almost certainly from an adult.

Immature remains The vast majority (207 out of 209) of the bones from the Mill Road cist were from immature individuals. Most skeletal elements were represented although hand and foot bones were relatively few in number.

The presence of four left femurs confirmed that at least four children were present. Only one of these bones was complete and fully measurable. Its length (298 mm) indicated an age of about nine years (Saunders *et al* 1993, 265; Bass 1987, 216; Miles 1994, 121). Despite being incomplete, it was clear that the other femurs were of a similar size and age. All other measurable long bones had dimensions which indicated a similar age range. It is clear that all the other long bones, although too incomplete to be measured, were from children of similar size and age.

In all 58 loose teeth were identified. The majority of these gave ages, based on the state of development, which were again consistent with the findings from the bones. A few teeth appeared to be from a child aged about five to six. Two of these were deciduous molars, a lower second molar and a damaged upper molar. Both had advanced wear on the occlusal surfaces and roots which had not yet started to resorb. Root resorption of deciduous teeth normally commences between four and six years of age (Hillson 1996, 140). A further six deciduous teeth and several permanent teeth found with the sieved material from the cist floor also provided an age at death of around five to six years.

Two matching unerupted teeth, either upper second or upper third molars, had been burnt a greyish colour. The degree of development indicated that these teeth could have been from either a child aged five to six years, if they are second molars, or a child of about ten years, if third molars. One other tooth was

blackened, possibly as a result of burning. This was the partly developed crown of a lower first molar, aged about five to six, from the cist floor.

Very little disease was identified on the children's remains. Slight but extensive pitting was visible on the external surface of the parietal bones of a juvenile skull. Such bony changes can be characteristic of iron deficiency anaemia, although as they are normally seen in conjunction with associated cribra orbitalia (pitting in the orbits) (Roberts & Manchester 1995, 167) and as the orbits have not survived in this case, the cause of the pitting on this skull must remain speculative.

Bands of hypoplasia, a disruption of tooth enamel due to periods of illness or malnutrition occurring at the time the tooth is developing, were noted on only five teeth. All five teeth came from the sieved material from the cist floor. Two of these, matching lower first molars from the same individual, aged about five to six, had two bands with the disruptions occurring at about two and three years of age. An upper central incisor, from a child aged nine to ten years, also had two bands, the periods of disruption occurring at about three and four years. Two further incomplete teeth had single bands occurring at about the ages of four and six. Therefore, at least two of the five children had suffered periods of malnutrition or illness during childhood.

Summary

The human bone assemblage contained both burnt and unburnt bone, although the former represents a tiny proportion of the whole. Six individuals have been identified, but as all of the remains could not be assigned to an individual this should be considered a minimum number. The assemblage comprised one adult — possibly a male around 45 years old — and five children or juveniles. On dental evidence four of the juveniles were around nine or ten years old when they died, while the fifth was aged between four and six years at death. Two or three of the children suffered from periods of malnutrition. Iron deficiency anaemia indicators were present on a juvenile skull.

The adult skull was abnormally shaped. Although the individual was facially asymmetric and also bore a substantial deformation at the rear of the skull, it is not clear whether this would have been expressed as a noticeable deformity during life.

POLLEN

Coralie Mills

Studies elsewhere in Scotland have revealed palynological evidence of floral remains deliberately placed in cist burials (eg Tipping 1994). For this reason, an assessment of the pollen content of key contexts from the cist was undertaken. Five samples were assessed using standard pollen preparation techniques (Moore *et al* 1991), including hydrofluoric acid treatment to remove silica.

All five samples contained some microfossils, and included the following taxa: Gramineae (grasses), *Alnus* (alder), Compositae (daisy family), *Corylus/Myrica* (hazel/bog myrtle), *Pinus* (pine) and *Salix* (willow) as well as fern and moss spores. However, the pollen was too scarce and too degraded to warrant further analysis or interpretation.

Pollen of *Filipendula* (meadowsweet or dropwort), the taxon representative of deliberate floral inclusions elsewhere, was not observed.

ROUTINE SOIL ANALYSES

Clare Ellis

Methods

Seven sampled contexts were analysed, three ‘natural’ sediments and four archaeological contexts associated with the cist. All samples were subjected to four analyses, using soil in a field moist condition. pH was determined in a 1:2.5 soil to distilled water mixture. Loss on ignition used c 10 g oven dry soil ignited to 400°C for four hours. Determination of phosphate used a spot test for easily available phosphate (Hamond 1983). Samples were rated on a three-point scale using the time taken for a blue colour to develop following the addition of the two reagents to the sample. The scale was high (0–30 seconds), medium (30–90 seconds) and low (more than 90 seconds). Calcium carbonate content was assessed semi-quantitatively using a simple field test and the samples assigned to the following classes (Based on Hodgson 1976, 57).

| Test rating | CaCO ₃ (%) | Description |
|-------------|-----------------------|---------------------------------|
| 0 | 0.1 | Non-calcareous |
| 1 | 0.1–1 | Non to very slightly calcareous |
| 2 | 1–5 | Slightly calcareous |
| 3 | 5–10 | Calcareous |
| 4 | 10+ | Very calcareous |

Results

The results are given in Table 2. The pH values demonstrate that the soils were acid, falling in a range from a minimum of 4.5 to a maximum of 5.7. The organic content of the samples range from 2.35% to 9.13%, with a mean of 3.71%. The levels of easily available phosphate ranges from low to high and there is no detectable calcium carbonate in any of the analysed samples.

TABLE 2
Routine soils chemistry results

| Feature | F. no | pH | W1 | W2 | W3 | LOI | Phos. | CaCo3 |
|----------------|-------|-----|-------|-------|-------|------|-------|-------|
| Intrusive sand | 1 | 5.3 | 12.26 | 28.33 | 27.76 | 3.55 | H | 0 |
| Cist floor | 2 | 5.7 | 15.26 | 25.65 | 25.38 | 2.60 | H | 0 |
| Pit fill | 4 | 5.6 | 15.65 | 26.28 | 26.03 | 2.35 | L | 0 |
| Cist floor | 9 | 5.7 | 14.02 | 27.69 | 27.36 | 2.41 | H | 0 |
| Subsoil | 11 | 5.4 | 15.98 | 30.74 | 30.33 | 2.78 | H | 0 |
| Topsoil | 12 | 4.5 | 12.53 | 20.31 | 19.6 | 9.13 | M | 0 |
| Pit fill | 13 | 5.4 | 12.94 | 24.8 | 24.43 | 3.12 | L | 0 |

Discussion

The acid nature of all the analysed samples is consistent with the fluvio-glacial nature of the underlying drift. The acidic nature of the sediment may also account for the lack of calcium carbonate from those contexts from which inhumation material was recovered. The slightly less acidic nature of sediments from the cist floor (Features 2 & 9) can be attributed to the neutralizing effect of human bone.

The organic content of all but one sample is relatively low, a reflection of the grit-rich sandy gravel matrix of the sampled sediments. The one sample with a significant organic content was from the topsoil (Feature 12); this may be described as a non-humose mineral soil.

The results of the easily available phosphate are interesting in as much as the subsoil (Feature 11) has a high level. It is possible that the high level of phosphate is due to the presence of translocated silt/clay from enriched horizons above. However, when considering the phosphate levels of the other sampled sediments, for example the modern sand infill (Feature 1), it is also possible that what is being observed are naturally high levels. Contexts from which human bone was recovered — or to which bone was in close proximity — also have high levels of phosphate. On sites where the natural levels of phosphate are low such results would be interpreted as mixing and dissolution of bone material into the matrix of these sediments, but at the Mill Road site these results may reflect naturally high levels. The low level of phosphate in the fill of the pit cut (Features 4 & 13) is not surprising given the absence of bone material within these sediments. However, if the natural levels of easily available phosphate are high then the lack of phosphate in these samples is intriguing.

DISCUSSION

PIT AND CIST

The original depth of the pit is unknown because much of its upper portion was completely destroyed during the course of the cist's discovery. There are two possibilities regarding the original depth of the pit. It is possible that originally it was only deep enough to cover the cist but became more deeply buried by fluvial deposits from the flooding of the nearby River Avon (illus 1). Although there was no indication of a buried soil in the gravel section, the general volume and velocity of water associated with the deposition of gravel within a floodplain environment can be of sufficient force to erode and remove any recognizable soil horizons (C Ellis, pers comm). However, as the cist was inserted into a pit longer and wider than the method of construction required, it may also have been much deeper, and was probably dug from at least the present ground surface. This would mean that at least 4.78 m³ of soil was removed in digging the foundation pit, assuming that it had been straight-sided.

Large foundation pits for cists have occasionally been found in Scotland, as at Barnyards in Angus (Taylor *et al* 1998, 45–6), and Burials B and C at North Mains, Strathallan, Perthshire (Barclay 1983, 138–9, 184, lists more examples). These large pits often appear either to be stepped or to contain paving, perhaps to facilitate ritual activities within the pit (Barclay 1983, 184).

The southern end of the cist was constructed with three stones, which do not appear to have supported the capstone. The use of three smaller stones rather than another large edge-set slab at this end may be due simply to a lack of suitable stones at the time of construction. However, given the effort required both to dig the foundation pit and manoeuvre the large capstone into the pit, it seems unlikely that the builders would have lacked the ability to procure the desired materials. In fact the effort involved suggests that the design of the cist was entirely deliberate. If the weight of the capstone was carried by the three edge-set slabs alone, then the arrangement of three smaller slabs at the southern end could be dismantled to gain entrance to the cist without destabilizing the structure. If the structure was designed to be reopened after a period of years then the site of the cist must have been marked in some manner, perhaps with a wooden post or a series of stones resting on the ground surface.

The only other known examples of cists with structural features which suggest that they may have been designed to be reopened have been found in Orkney. These are all substantial cists in rock cut pits, at Sand Field, Tormiston Farm and Moan Farm (Dalland 1999; NMRS HY31SW 26; Richards & Stuart 1994).

DATING

Radiocarbon dates (see Cook, above) were obtained from samples of four of the six individuals with the cist. These dates were statistically inseparable and indicate that the individuals died perhaps within a generation of each other, during the Early Bronze Age. In analysing the radiocarbon dates it is worth noting that the dates refer to when the individuals died and not when they were inserted in the cist. Thus they do not necessarily reflect either the construction of the cist or its final use. These considerations are important given the structural evidence presented above for the potential reopening the cist. If the cist was intended to be reopened, then presumably this was either to remove or deposit material. Multiple burials in Bronze Age cists, either as contemporary or successive interments, are relatively common (Ritchie & Stevenson 1982 and Barber 1982 for examples). Few successive burials from the Bronze Age have been dated, although where they have they indicate a considerable lapse of time between deposits, for example around 200–300 years at Traigh Bhan, Islay (Ritchie & Stevenson 1982) and as much as 1000 years at Sand Fiold, Orkney (Dalland 1999). It seems likely that these examples represent exceptions and that the majority of undated examples, like Mill Road, may have been used and reused over a generation or so.

BURIAL RITES

The adult was represented only by a skull and femur, the youngest child by a handful of teeth, and four other children by a few bones from the hands and feet. Three different processes may explain the absence of other skeletal parts: (a) differential decay by either microclimatic variation or different interment dates; (b) deliberate removal of human remains from the cist; (c) token or partial deposition.

Differential decay within cists due to microclimatic variations has been identified in Burial B at North Mains, Strathallan, where the feet and lower limbs of an individual had completely decayed (Barclay 1983, 136). Differential decay may also be caused by contact with different materials within a cist (Ashmore *et al* 1982). This factor might explain the absence of hand and foot bones from the juveniles in the Mill Road cist but would not the incomplete adult remains.

The second possible factor is repositioning or moving of the bone. The deliberate movement of unarticulated human bone both within and between burials has been identified as a feature of mortuary practice in Neolithic chambered tombs (Bradley 1998, 53–4; Richards 1988, 49–50). This has been recently criticized, however, following the excavation an entire chambered tomb at Point of Cott, on Westray, Orkney (Barber 1997, 68–9). Repositioning or movement is not considered a likely factor in the present instance, however, as this practice has not been positively identified in Bronze Age cist burials elsewhere in Britain, despite the very large number of recorded examples.

The third possible factor to consider in relation to the incomplete skeletons in the cist found at Mill Road is partial deposition. This may arise from two mechanisms: cremation and excarnation (Barrett 1988, 32; Petersen *et al* 1974, 48–51). Both processes involve the removal of flesh from the bones, followed by burial of whatever is left of the skeleton, or by a token deposit of part of this. Cremation was certainly the preferred preparatory rite for at least one of the present burials as a few fragments of burnt human bone, including three juvenile teeth, were recovered from the cist. In contrast, excarnation is a more likely explanation for the mixed, disarticulated adult bones and for the absence of many body parts. This practice has been observed in many modern societies and is also thought to have been relatively commonplace in

the Bronze Age (Petersen *et al* 1974, 53 and App 3; Barber 1982). It involves leaving the corpse to decay, usually until it is reduced to dry bones. During this phase the person may be perceived as neither alive nor finally dead. This interval may be prolonged by the need to accumulate a surplus of food for a great feast which marked the end of the period. During the feast the person's remains would be retrieved and moved to a new final location. Only at this point was the person seen as having arrived in the land of the ancestors. In some cases secondary burial is postponed by as much as 50 years while the necessary wealth is amassed for the ceremony (Miles 1965).

If some of the individuals represented by incomplete skeletal remains at Mill Road were excarnated, the adult bones were probably stored for longer before burial than those of the juveniles. This would have allowed them time to reach a considerably more skeletal state than those of the juveniles, thus permitting the loss of many bones simply with the passage of time. Alternatively, the adult bones may have been disturbed by an animal; though the absence of any teeth marks on the adult bones makes this explanation unlikely.

The combination of inhumation and cremation within a single cist is rare in Scotland, although examples do exist, for example at Meikle Kenny, Kingoldrum (Taylor *et al* 1998, 40–1), Burial D at North Mains, Strathallan (Barclay 1983, 140), and Barns Farm, Dalgety (Watkins 1982, 124–5 for other examples). While the cremation from Mill Road was undated, there is no reason to think that it is not roughly contemporary with the other burials. Inhumation and cremation do represent radically different treatments of the dead — especially if preceded by excarnation — and have been interpreted as relating to differences in the status of the individual rather than in the chronology of the burials (Barrett 1988, 32; Mount 1995, 107–8).

The very act of burial may itself have been a significant rite. On the basis of the skeletal remains from the hillfort at Danebury, Hampshire, Wait (1985) has estimated that only 5% of the Iron Age population may have entered the archaeological record. If one assumes that this was also the case during the Bronze Age and combine this with the considerable effort required to construct a cist, then it must be assumed that the people awarded this rite were either themselves of some status or that their remains had some status attached to them. Possibly the individuals within the cist represented members of a family or relatives of an individual who could command the substantial resources required to construct and reopen the cist. Alternatively, the individuals themselves — five children and an adult with a misshapen skull — may have been considered sufficiently distinct or significant to warrant an elaborate burial. It is not known at present how common skull deformities were in the past or even whether they were considered significant. In contrast, it is possible to comment on the incidence of children in cists. In general, the most common form of multiple burial during the Bronze Age was that of an adult female (probably the mother) with a newly born child (Ritchie & Stevenson 1982, 552). There are examples of cists containing more children. A review of Irish Bronze Age cemeteries records a maximum of three children present in a single grave (Mount 1995, 110), but a late Neolithic/Early Bronze Age cist at Sumburgh, Shetland, contained four juveniles and four infants, as well as 10 adults (Hedges & Parry 1980). Whatever the reason for their sharing one cist, the presence of five children in a single cist, with only one adult, could represent something other than a routine family burial.

CONCLUSION

Four of the inhumations present within the cist found at Mill Road have been radiocarbon dated to the Early Bronze Age. The site contains a number of features found in other Bronze Age cists, for example multiple inhumations, the mixture of cremation and inhumation, the presence of a substantial pit, and the possibility of excarnation. This combination of features — and

particularly the multiple burials — harks back to earlier cists from the late Neolithic, for example Sand Fiold on Orkney (Dalland 1999) and Sumburgh on Shetland (Hedges & Parry 1980). When all these features are combined in one cist, however, with the added distinction of five children's burials, the site becomes without parallel in the record of the Scottish Bronze Age.

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