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Long cist burials at Four Winds, Longniddry, East Lothian

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with a contribution by Daphne Home Lorimer

ABSTRACT

Describes the excavation in 1989 of part of a long cist cemetery. The radiocarbon dates from the site are compared with dates from major Scottish long cist cemeteries and seen in relation to the traditional chronological framework for these sites.

INTRODUCTION

The site lies on the northern outskirts of Longniddry in a private garden at the east end of a golf course (NT 4424 7700; illus 1). The burials were discovered in May 1989 while a foundation trench, 0.65 m wide and 0.6 m deep, was being dug for a house extension measuring 8.5 x 7 m. The trench had been dug by hand, but several burials had been damaged before their significance was realized. It was decided to excavate fully those cists that were affected by the trench but not to excavate the interior of the extension, as this area would not be disturbed.

THE SITE (illus 2)

The site lies c 200 m south-east of the beach in an area covered by windblown sand. The ground surface is level at 10.25–10.3 m OD and was formed probably when the present garden was landscaped. The sharp interface between the grey clayey garden soil and the underlying windblown sand, with no trace of buried soils sandwiched between the two, indicates that the ground level has been lowered. The base of the highest grave lay only 0.25 m below the surface of the garden.

At the east corner of the site a feature was cut into natural sand. There was not time to investigate this feature further, but it appeared to be a pit measuring more than 2 m across and c 0.8 m deep. It was filled with sand and shale stones. All graves in this area were cut into the fill of the pit, indicating that it is an early feature not necessarily related to the cemetery.

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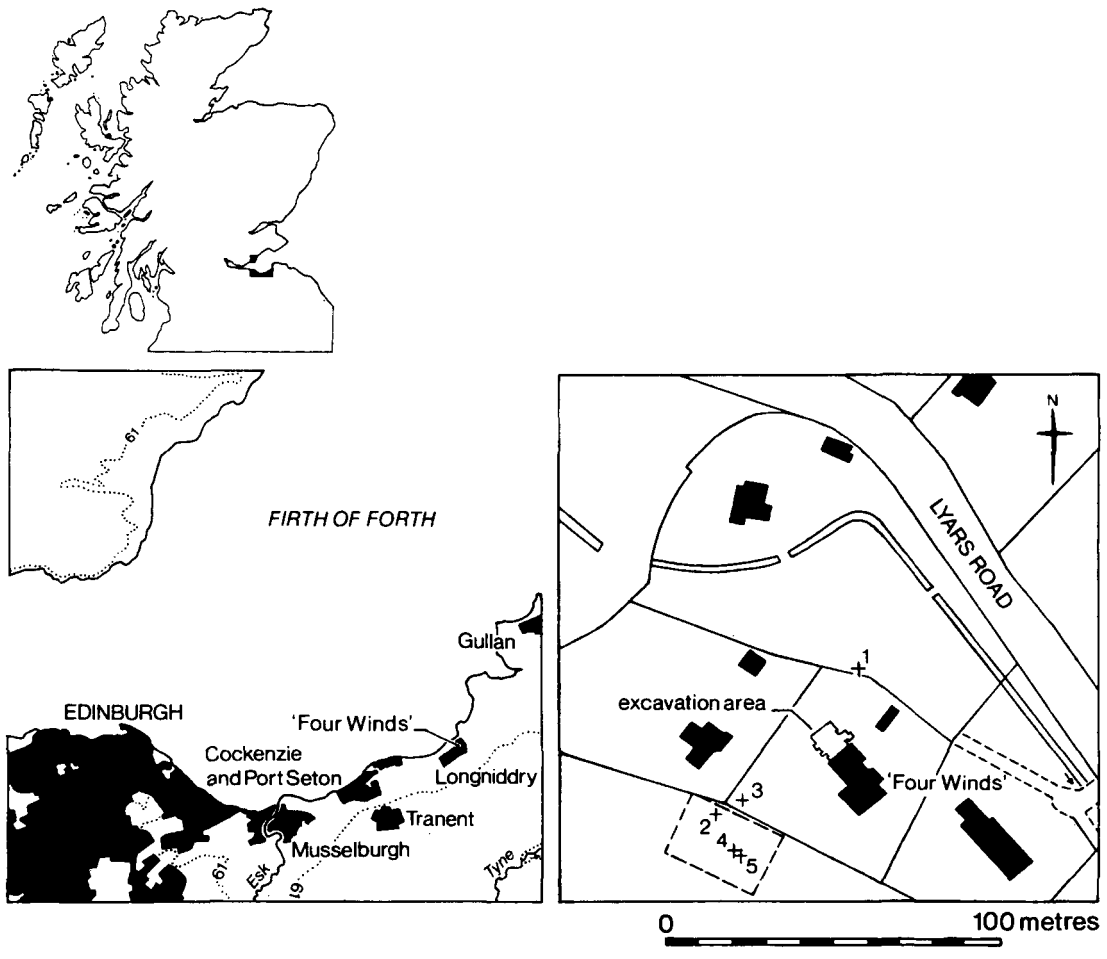
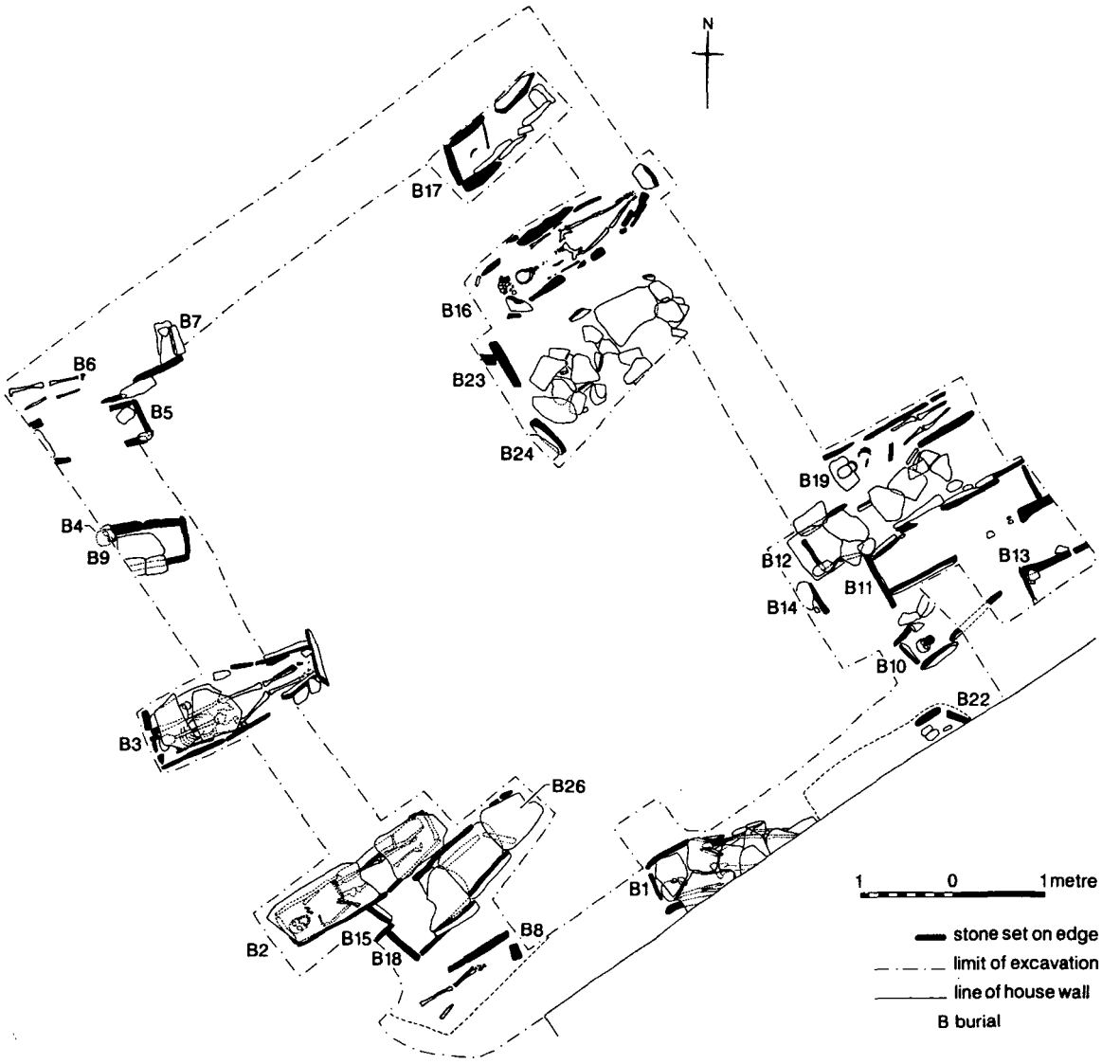


ILLUS 1 Location plan showing the site of a long cist excavated in 1952–3 by R B K Stevenson and that for two Bronze Age cists discovered in the vicinity of Four Winds. It also shows the area covered by the 1990 resistivity survey and the location of two anomalies within it. *Based upon the Ordnance Survey map © Crown copyright*

THE CEMETERY

A total of 25 graves were discovered during the excavation, 21 of which lay partly within the trench. A further four graves were found outside the trench while uncovering the full extent of those discerned within it. Eighteen graves were examined, four of which were only partly excavated. The relative stratigraphy of the different burials, and their contents, are shown in Table 1. It should be noted that the skeleton numbers are different from the burial numbers.



ILLUS 2 Plan of excavation trench

None of the fully excavated graves was undisturbed. Some had been damaged in antiquity by the insertion of new graves, others had been disturbed during the digging of the foundation trench. The shallow cists that protruded into the garden topsoil had all been damaged, probably during landscaping and later gardening activity.

CIST CONSTRUCTION

All but Burial 6 were in cists. In general, the cists were made of stone slabs and consisted of

TABLE 1
Four Winds: Burial data

Burial no	Skel. no	Wt(g)	Comments	Alignment	Stratigraphy of burials
1	1	1992		76°	
2	2	1460		54°	B2/B15
3	3	3578		62°	
4	4	62		54°	B4/B9
5	5	205	Partly excavated	73°	
6	6	12		66°	
7	7	362	Partly excavated	76°	
8	8	268		57°	
9	9	181	Partly excavated	80°	B4/B9
10	10	304		49°	B13/B10
11	11	1369		59°	B11/B12
12	12	961		57°	B11/B12, B19/B
13			Not excavated	69°	B13/B10
14			Not excavated	59°	
15			Not excavated	52°	B2/B15, B15/B
16A	13	918		53°	
16B	14	266			
17	15	258		47°	
18	16	149		42°	B15/B18, B26/B
18	19	15			
18	20	7	Mixed bones		
19	17a–b*	851	Mixed bones	59°	B19/B12
20	18	11		52°	
21			Not excavated		
22			Not excavated	57°	
23			Not excavated	59°	
24			Not excavated	45°	
25			Not excavated	54°	
26	21	8		45°	B26/B18
27			Not excavated		

* The presence of two individuals was noted only during post-excavation analysis of the skeletal material

a base, sides made from slabs set on edge, and a lid made out of a single layer of capstones. Several cists appeared to differ from this pattern, but missing capstones and sidestones are more likely to reflect difference in disturbance rather than a different cist morphology. The only exception from this construction was Burial 8, which contained a disturbed cist with no basal slab(s). Articulated leg bones at the base of the grave indicated that the missing base was part of the original design, rather than a result of the later disturbance.

There was a slight variation in shape amongst the best-preserved cists: some were roughly rectangular, while others tapered from the head to the foot end. A couple of cists were coffin shaped, i.e. the upper third to a quarter of the cist expanded slightly, before tapering towards the foot end. Judging from the best preserved graves, the cist bases consisted of two or three slabs, while each side contained two to five slabs, usually butted against each other. The side-stones varied between 0.25 m and 0.30 m in height. There was one slab at each end of the cists which often extended beyond the side stones. The burials were covered with two or three capstones, some of which had cracked into several smaller fragments. All of the cists were made out of local sandstone or, occasionally, oil-shale slabs which also occur locally. The bedrock is exposed on the shore, at present c 200 m to the north-west of the site. In two instances, barnacles still adhering to the cist slabs indicated their source.

CIST CONTENTS

The cists were filled with fine sand, similar to, but less compact than the natural subsoil. It is not clear at which stage the sand had entered the cists, but the fact that it was homogenous and stonefree may indicate that it had filtered into the cists after the grave was backfilled.

All cists contained skeletal remains which are discussed in detail on the microfiche (2: D1–E4). The preservation conditions for the bones varied, and differential preservation was observed within some graves. In Burial 18 careful excavation revealed a stain in the sandy fill of the cist which indicated the original outline of the pelvis and leg bones. At the west end of the cist, parts of the skull were recovered in a quite good state of preservation. Those cists that still had sufficient skeletal material to reveal the position of the body had all contained fully extended inhumations lying on their backs with heads to the south-west. Of the two best-preserved skeletons, one had the arms crossed over the chest (Burial 2), while the other had the arms lying straight along side the body (Burial 3).

In two instances, cists contained two individuals. In Burial 16 fragments of a second skull were found south-west of a fully extended and articulated skeleton. The fragmented skull appeared to belong to a primary burial in the cist which later was replaced. However, this cist lay near the surface and was badly damaged; it is therefore possible that the skull fragments had entered the cist at a later stage. Burial 17 also contained two individuals: a child aged 10–11 years, and a female between 21 and 25 years of age. The grave had suffered similar disturbance to that seen in Burial 16, and bones from both skeletons were mixed together. However, the two individuals were evenly represented in the surviving bone material from the cist, which could indicate that the two bodies were buried at the same time.

No objects were found in the cists, although fragments of shell were found amongst the bones from Burials 11 and 17. As there are indications that the slabs of the cists were quarried on the shore, it is likely that these shell fragments entered the cists accidentally.

CEMETERY LAYOUT AND SIZE

The graves were laid out in an irregular pattern. Three areas contained clusters of graves cut into each other, with a slight variation in orientation and a clear shift to east-west of the position of the graves within the cluster. The remaining graves were located at variable intervals over the area. The azimuth of the graves varied between 42° (east) and 80° (east), with an average value of 57°. Details of the orientation of individual graves are given in Table 1. The graves were cut to variable depths, from 0.25 m to 0.75 m below the present ground level.

As the excavation was limited to the threatened area, the extent of the cemetery is unknown. It seems likely, however, that a long cist excavated in 1952 by R B K Stevenson (illus 1; M Douglas pers comm; NMRS NT 47 NW no.7) and located c 30 m south-west of the site, also belongs to the cemetery. In an attempt to define the limits of the cemetery, a resistivity survey was undertaken. Unfortunately, due to obstructions in the gardens surrounding the site, only an area 20 m by 30 m on the golf course immediately south of the cist found in 1952 was surveyed (illus 1). The survey revealed two features, c 1 m apart, about 15 m south of the 1952 cist (illus 1; Gater & Gaffney 1990); they measured c 1 m by 2 m and were both aligned NE/SW. It seems likely that these two areas of high resistivity reflect the position of stone cists. As the two features appeared to be isolated, however, they cannot be assumed to be part of the cemetery. The survey failed to produce clear evidence of the south-west limits of the cemetery. Bronze Age short cists have been found in the area (illus 1; NMRS NT 47 NW no.7), and it is possible that the features seen on the survey are not related to the long cist cemetery.

As a minimum assessment, including the cist excavated in 1952, the cemetery covers an area of c 10 m x 40 m. Based on the number of graves found in the north-east and south-west foundation trenches, the excavated area contained roughly one grave per 2 sq m. Assuming the same average density for whole area, the long cist cemetery may have contained up to 200 graves.

DATE AND DURATION OF THE CEMETERY

The dating programme was primarily aimed at providing a general date for the burials as well as trying to ascertain the duration of the use of the cemetery. Five samples were submitted for dating, but only three contained sufficient collagen to be dated:

TABLE 2
Radiocarbon dates of skeletons

Lab No	Burial	Skeleton	Years BP (uncal)
GU-2730	19	17	1390±50
GU-2732	11	11	1460±160
GU-2733	2	2	1570±50

Of the three samples dated, GU-2732 contained very little collagen, resulting in a relative imprecise date. However, calibrating the dates using the Belfast calibration curve (Pearson *et al* 1986), shows that all three dates fall within AD 400 to AD 700 at one sigma level of probability:

TABLE 3
Calibrated radiocarbon dates, based on Table 2 (after Pearson *et al* 1986).

Lab no	Burial	Skeleton	One sigma range	Two sigma range
GU-2730	19	17	AD 615 – AD 670	AD 565 – AD 705
GU-2732	11	11	AD 420 – AD 685	AD 230 – AD 895
GU-2733	2	2	AD 410 – AD 540	AD 395 – AD 615

Based on the three dates available, an estimate of the period in which the cemetery was in use is provided by the calculation of the floruit (Ottaway 1972), the period over which the middle 50% of all datable artefacts are produced. According to this method, the cemetery was in use from AD 480 to AD 650, a period of 170 years. As an alternative, the probability distribution of the age difference between the oldest and youngest date, GU-2733 and GU-2730, was calculated based on the calibrated probability distribution curves of the two dates (Dalland forthcoming). At the one sigma level, the age difference is 165±70 years. Both methods predict roughly the same time span for the dated skeletons: 165–170 years. The uncertainty linked to these figures are indicated by the sigma value ±70 years.

The time span calculated above is based on the dates of only three skeletons and may not represent the full duration of the use of the cemetery. Skeleton 2, the one that provided the earliest date, lay in cist B2 which cut into cist B15 which, in turn, cut cist B18, indicating that the cemetery was well established by the time cist B2 was inserted. It is also likely that the cemetery was used after the insertion of the cist providing the youngest date. Taking this into consideration it is likely that the cemetery was in use from the first half of the fifth to the beginning of the eighth century AD.

DISCUSSION

In her publication of the long cist cemetery at Parkburn, Audrey Henshall compiled a comprehensive list of long cist cemeteries in Scotland (Henshall 1956). Most of these sites are found in south-east Scotland, and Henshall's distribution map indicated a concentration of long cist cemeteries in Lothian. Sites discovered since the map was compiled confirm this pattern. Two major long cist cemeteries have been excavated since 1955: Hallowhill, St Andrews (Proudfoot 1976, 1977, 1985) and the Catstane, Midlothian (Cowie 1978).

The excavation of the Parkburn cemetery in 1955 revealed 111 cists, with an estimated total of 150–200 burials. The cists were aligned mainly NE/SW and appeared to be in three groups. The south-east area contained 45 well-spaced cists, which seemed to be less disturbed than cists in other parts of the cemetery. The north area contained 51 cists; most of these were disturbed and several were cut into earlier burials. The south-west area contained 16 widely spaced graves.

The Hallowhill cemetery contained some hundred long cists and several graves not in cists. There seems to have been a chronological difference in the orientation of the cists, as most were aligned east/west, while several of the later cists were orientated northeast-southwest. The area of the cemetery also contained two pagan cists containing a variety of grave goods (Proudfoot 1976). Twenty radiocarbon samples from bone collagen have been dated and range from 1490±55 BP to 1155±70 BP (AD 460±55 uncal to AD 795±70 uncal: Proudfoot 1985).

The cemetery around the Catstane had, like Hallowhill, been partly excavated in the 1860s. During the excavation in 1977, 42 cists were uncovered, mainly laid out side by side in parallel rows and aligned within 10° of east/west. On the east, the outer ends of the cists formed an arc suggesting a well-defined limit of the cemetery. Radiocarbon samples of human bone from five cists were dated, producing dates ranging from 1585±85 BP to 1335±120 BP (AD 365±85 uncal to AD 615±120 uncal: Cowie 1978).

DATES OF LONG CIST CEMETERIES

Although extended inhumation burial in stone cists was practised from the Bronze Age up to the 17th–18th centuries, it is generally believed that most long cist cemeteries date to the Early Christian period from the fifth to the eighth or ninth centuries AD (Henshall 1956).

The two major long cist cemeteries excavated most recently have both produced radiocarbon dates that, by and large, fall within this period:

TABLE 4
Calibration of dates from Hallowhill and the Catstane after Pearson *et al* (1986)

	Uncalibrated BP	Calibrated 1 sigma range	Calibrated 2 sigma range
Hallowhill:			
Youngest date:	1155±70	AD 815–975	AD 705–1025
Oldest date:	1490±55	AD 530–635	AD 445–660
Catstane:			
GU-1159, F13	1335±120	AD 595–795	AD 495–975
GU-1157, F16	1365±80	AD 605–690	AD 550–850
GU-1155, F14	1520±70	AD 475–630	AD 405–665
GU-1158, F12	1550±70	AD 415–590	AD 380–660
GU-1156, F7	1585±85	AD 390–585	AD 250–635

The dated bone from the Hallowhill cemetery indicate that the long cist cemetery was in use from the sixth to the ninth century. Calculation of the probability distribution of the difference between the oldest and youngest bone collagen date suggests a span of 310±100 years.

The Catstane dates (Cowie 1978, 199) were originally calibrated after Clark (1975, 251–66). By using the Belfast calibration curve however, the three oldest dates appear to be 70–100 years younger than was first assumed. This places all Catstane dates within the anticipated chronological framework for the longcist cemeteries. An estimate of the duration of the Catstane cemetery, based on the floruit of the five dates, indicates that the cemetery was in use from AD 485 to AD 660, a period of 175 years. Calculation of probability distribution of the difference between the oldest and youngest date from the Catstane suggest a span of 175±140 years.

TABLE 5
Summary of the dating evidence for long cist cemeteries

Cemetery	Floruit span	Duration	*Difference between oldest and youngest date:*
Hallowhill:		6th–9th AD	310±100 years
Catstane:	AD 485–660	175 years	175±140 years
Four Winds:	AD 480–650	170 years	165±70 years

As shown in the table above, the floruit spans for the Catstane and Four Winds are almost identical. Although this evidence is based on relatively few radiocarbon dates, it is reasonable to assume that parts of the two cemeteries were in use at the same time. Hallowhill seems to come into use slightly later but was in use over a longer period, probably up to the ninth century or possibly the first half of the tenth century AD.

LAYOUT OF THE LONG CIST CEMETERIES

In her survey of the Scottish long cist cemeteries, Henshall observes differences in their layout. In many cases the regular layout of the cists are noted, while elsewhere the cemeteries are described as irregular. Henshall suggests that this difference is real and that the layout may have some chronological significance, with regular layout predating a more disordered pattern. This trend was supported by the evidence from Parkburn where the areas of regular layout seemed to be the earliest parts of the cemetery (Henshall 1956, 260).

Of the cemeteries described above, the Catstane would clearly fall within the regular category, while the layout of the cists excavated at Four Winds is best described as irregular. However, the radiocarbon dates from the Catstane and Four Winds indicate that the two sites are contemporary, suggesting that their differences in layout may be due to local factors rather than to a general chronological trend. Nevertheless, it seems reasonable to assume that within a cemetery there would be a general trend, over time, from a regular to a more congested, and therefore more irregular, layout .

CONCLUSION

The radiocarbon dates indicate that the three cemeteries came into use in the mid-fifth century AD, a short time after Ninian had begun his mission to Whithorn. At the Catstane the bodies were oriented (ie lying east–west) in the Christian manner and accompanied by the eponymous stone with its cross and inscription: all evidence for the Christian nature of this long

cist cemetery. The other sites, although contemporaneous, lack clear evidence of Christianity. The bodies are not oriented and Hallowhill contained pagan graves. While the evidence at present does not refute their interpretation as Christian burial places, it allows for the possibility that long cist cemeteries were used by non-Christians either before the local advent of Christianity or in a transitional period when pagan burials were also interred in long cists.

THE SKELETONS FROM FOUR WINDS

Daphne Home Lorimer

(The complete report is presented on fiche 2: D2–E4)

The bones from the cist burials at Four Winds were very fragmented and friable. Abrasion inhibited the determination of side and reconstruction for measurement. Using the sciatic notch of the right os innominatum as a marker, the bones from the seven graves studied could be shown to represent eight individuals, with Burial 17 containing both juvenile and adult bones. There were one male and five female adults, one adult of indeterminate gender (possibly male) and one child. Two males and one female were in the 35–45-year range at the time of death; one male was between 25 and 35, one female and the skeleton of indeterminate sex were over 45 years of age, and one individual was a young female of about 18–21 years. The child, in the same grave as the latter, was about 10 or 11. The determination of sex and age was based primarily on Bass 1987, Stewart 1968 and Brothwell 1981.

From the length of the right humerus, a height of about 1.68 m was determined for female Skeleton 2, and from the length of the right femur, humerus and radius, a height of 1.76 m was determined for male Skeleton 3 (Trotter & Gleser, in Brothwell 1981, 100–3). Mean heights of 1.52 m and 1.55 m, however, were determined for female Skeletons 13 and 17b by using metatarsal length (Byers *et al* 1989). The skeleton of indeterminate sex was 1.65 m in height if male, but 1.6 m if female.

Non-metrical variations were few (see fiche) but in three skulls, lambdoid ossicles were present on the right side in two and on both sides in one, while the supra-orbital foramen was complete on both sides in two and on the right side on the third. A slight auditory torus was present in Skeleton 1, where slight ridging was noted within the external auditory meatus on both sides. The cause of this variant is not fully known; at first it was thought to be due to mechanical irritation such as diving. It has been suggested (Brothwell 1981, 95) that it might be associated with a neurovascular derangement. A metopic suture was present in Skeleton 3.

Skeleton 3 showed evidence of disc lesions in the lower thoracic and upper lumbar regions while many small changes in the region of the hip, knee and foot might indicate the early stages of degenerative arthritis. Evidence of disease, however, was slight in remaining burials: there was osteophytic lipping of the eighth and ninth thoracic vertebrae and two rib heads in Skeleton 12, and round the odontoid peg of the second cervical vertebra in Skeleton 13; cribra orbitalia in the orbits of Skeletons 2 and 17b; a possible healed greenstick fracture of the lower end of the right radius of Skeleton 17b, and a small amount of periostosis and small lytic lesions in the left hip region of Skeleton 1.

With the exception of those of Skeleton 17b, the associated teeth of these skeletons were found mostly loose and were exceptionally small. Dental health was poor: attrition heavy with exposure of pulp and loss of the crown in teeth from Skeletons 1, 12 and 13; abrasion was seen on the occlusal surface of upper right first molar of skeleton 12; root resorption was noted in teeth from Skeletons 12 and 13 together with hypercementosis in Skeletons 13 (four teeth), 12 (one

tooth) and 1 (one tooth). This indicated probable periodontitis in the absent alveolar margin – confirmed in Skeleton 13 by the shallow, enlarged sockets in the extant fragment of mandibular margin. Hypoplasia was also noted on the right upper canine of 13, indicating systemic disturbance during childhood. Caries was found in only six teeth out of 152. Variations in the number of roots was noted in teeth from Skeleton 1 (Ortner & Putschar 1987).

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