

A Bronze Age cemetery at Aberdour Road, Dunfermline, Fife

by Joanna Close-Brooks, M Norgate and J N Graham Ritchie

INTRODUCTION

On 31st March 1972 a short cist was uncovered during earth-moving work on the Scottish Special Housing Association building site, Aberdour Road East, approximately 2.6 km SE of Dunfermline, Fife (NT 11738637). In the immediately surrounding area five further burials were discovered, two short cists, an urn containing cremated bone, and two isolated patches of cremated bone (fig 1).

The first cist was found by Mr M Miller, when the earth-moving machine that he was driving dislodged the capstone. Mr Miller then began to remove the contents with a shovel and discovered a skull. The discovery was reported to staff on the site who informed the police and the press. Martin Norgate, museum assistant in charge of Dunfermline Museum, was called in by a reporter on the staff of the *Dunfermline Press* and in turn reported the site to the National Museum of Antiquities of Scotland. We are grateful to the Scottish Special Housing Association for permission to investigate the site and for the co-operation of Mr Parry, their clerk of works, Trojan Plant Hire, and Alexander Hall and Son, contractors, Fife Constabulary (Dunfermline Station) and the *Dunfermline Press*. We are also grateful to Miss E H Jackson, who prepared the illustrations, Mr G Collins, Mr K Reedie, Mr T Robertson and to the writers of the various appendices. Excavation of five graves was completed on 1st April with no serious loss of contractors' time. A sixth grave was discovered and excavated on 11th April. It is possible that the SSHA may replace the stones of the cists as a feature of interest to the local population. The standing stone near Easter Pitcorthie (RCAMS 1933, 127, no. 208) has already been treated as such a feature in an earlier phase of the same development.

The original levels of the surrounding land had been disturbed during the building operations but from a site plan kindly made available by the SSHA it would appear that the group of burials was situated at a high point of a low ridge about 73 m OD on the S side of the burn running from Calais Muir Wood to join the Lyne Burn near Dunfermline. Previously the land had been arable farmland and there is no evidence of any earlier discovery on the site. (MN)

EXCAVATION

The cists were situated to the NE of Mathieson Place (fig 1, 3); three of them lay approximately in a straight line and a stone setting with an enlarged food vessel was found a little to the W of the first cist. The two cremation deposits were some 5.5 m SSW of cist 1 and 16 m SW of cist 1 respectively. The cists were made of rectangular slabs of a local carboniferous sandstone.

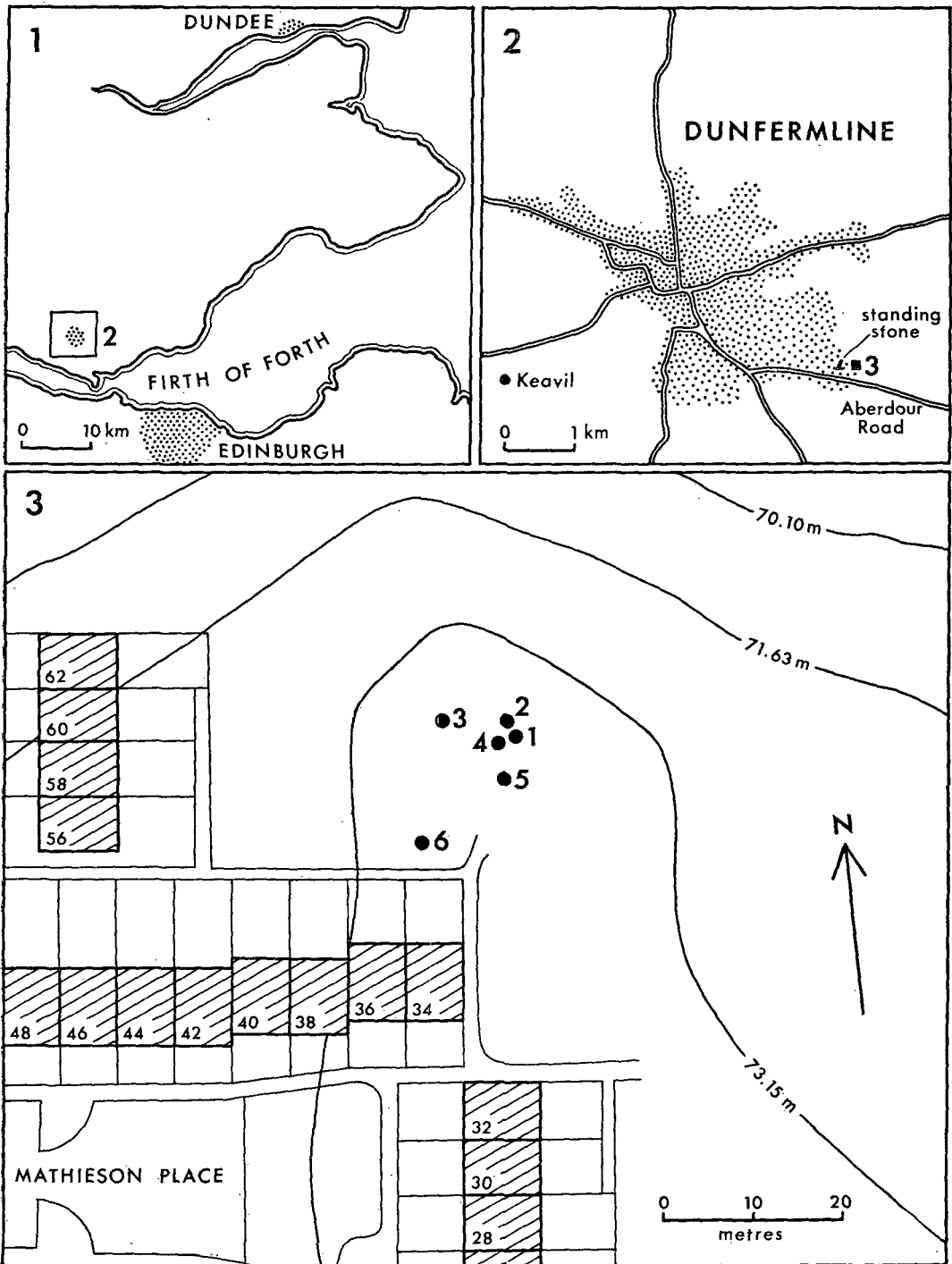


FIG 1 Location map and site plan for Aberdour Road and Keavil, Dunfermline, Fife

Cist 1, aligned ENE and WSW, was composed of four slabs and measured 0.8 m by 0.46 m internally and about 0.45 m in depth (fig 2; pl 13). It had been built in a pit dug into the natural gravel and the level on which the skeleton rested was slightly higher than the bases of the slabs. The capstone, which had been dislodged by a bulldozer, was a substantial slab measuring 1.1 m by 0.8 m and between 0.27 m and 0.14 m in thickness. This cist contained a crouched inhumation lying on its side with its back to the N; the burial is probably that of an adolescent female and is described in detail in Appendices 2 and 3. Fore-limb bones of young pigs were discovered about the knees of the skeleton.

The second cist had been disturbed by a bulldozer and the capstone lay broken some distance from it; one of the end slabs had also been dislodged (fig 2). The cist, which was aligned NE and SW, had measured about 0.6 m by 0.38 m internally and 0.3 m in depth. It was constructed of four rectangular slabs with the side slabs inserted between the end slabs, in contrast to the construction of cist 1. There were two wedge stones in the cist pit supporting the NE end-slab and one behind the NW side-slab, but, apart from these, the pits of both cist 1 and 2 had been backfilled with sand and gravel with few stones inserted to provide support. The capstone of cist 2 measured 1.25 m by 0.8 m and between 0.25 m and 0.3 m in thickness. There were no signs of a burial in the cist but phosphate analysis tentatively indicated that an inhumation had been present (Appendix 5). An unusual feature of the two cists is shown in the section A-B, fig 2; cist 2 had been constructed at a higher level than cist 1, which must have been built in quite a steep pit dug into the gravel. The ground level at the time of excavation bears no relationship to a second-millennium land surface, but the depth of the slabs of cist 1 suggests that the capstone too would have been completely contained within the pit. The ground level close to cist 2 suggests that the capstone would also be below the land surface at the time of construction. There is thus no reason to suppose the presence of a covering mound of any sort.

About a week after the discovery of these cists, further digging revealed the outline of an apparently roofless cist (no. 3) a little to the NW of no. 2, which had by this stage been removed, and it was unfortunately not possible to relate their depths into the gravel. Composed of four large slabs and aligned NE and SW, it measured 1.02 m by 0.54 m internally and about 0.5 m in depth. Although a number of stones survived around the mouth of the cist, there was no sign of the capstone. The cist had been built in a pit, measuring about 1.75 m by 1.55 m, dug into the natural sand, and stones had been used to support the back of the S side-slab, although the backs of the others had merely been supported by sand. In three of the corners of the cist wedge-shaped stones had been inserted to prevent any sand from trickling into the centre and also to consolidate the structure. The cist contained the remains of a crouched inhumation, a food vessel, a slug-knife, a strike-a-light and a piece of iron ore (figs 3 and 4). The body, which is discussed in detail in Appendices 2 and 3, was that of an adolescent; it had lain with the skull at the centre of the W end, where the teeth survived virtually intact, the back along the N side of the cist and the legs drawn up to the S. The pot lay in the S corner next to the skull, and the flint objects and the iron ore were discovered in the pelvic area. After the deposition of the body, the cist had been filled partly at least with clean sand; the upper third of the filling, however, was earthier, and it is possible that this was disturbed when the capstone, of which there was no trace, was removed. A radiocarbon date of 1631 ± 40 bc (SRR-292) was obtained from analysis of the femur; see Appendix 6.

A stone setting round an enlarged food vessel (no. 4) containing a cremation was discovered, and two other cremation deposits were excavated and recorded during these operations. The cist-like setting round the enlarged food vessel was rectangular on plan, aligned E and W, measuring 0.4 m by 0.35 m and approximately 0.2 m in depth. The pot (fig 5) had been filled

with the cremated remains of an adult female and inverted over the floor slab. As there was no bone on the floor slab outside the rim of the vessel, it is likely either that the cremation was within a bag or some other container which no longer survived, or that the rim of the vessel was covered in some way. The cremated bones had been carefully separated from the remains of the pyre, none of which had been deposited in the vessel (Appendix 4). The protective setting had been constructed in a pit dug into the natural gravel, measuring 0.9 m by 0.8 m and 0.4 m in depth. Five flat slabs had been placed round the basal slab and had been chocked into position by small stones and gravel. The space between the outside of the pot and the inside of the setting was filled with small stones, and the deposit was sealed by a small capstone (0.38 m by 0.36 m and 0.05 m in thickness) and by several other small slabs. The capstone must have rested on the base of the vessel as the imprint of the damp clay was clearly visible. When this comparatively fragile structure was hit by a bulldozer, the base of the vessel was smashed inwards with the impact.

Two deposits of unaccompanied cremated bones were also discovered (nos 5 and 6 on fig 1, 3); one (no. 5) appeared to have been inserted into a shallow depression (0.4 m in diameter) lined with stones, of which only three survived in approximately their original positions, and covered by a flat slab measuring 0.35 m by 0.28 m and 0.05 m in thickness. The cremation deposit, possibly of two individuals (Appendix 4), included a fragment of a bone pin (fig 4, 4). The other deposit (no. 6; Appendix 4) was rescued from redeposited sand. (JNGR)

DISCUSSION

The small cemetery at Aberdour Road is one of a group of sites lying S and E of Dunfermline. Within 3 km of Aberdour Road are the following sites: Pitreavie (Beveridge 1886); Calais Muir (Beveridge 1886); Ferniehill (Callander 1923); Masterton (Henshall and Wallace 1963) and possibly North Wood, Masterton (*DES (1971)*, 20). Another Bronze Age cemetery may be indicated by a record in the Ordnance Survey Name Book no. 74 (1854), 4, of 'Roman Urns' found in the 1840's under a large rough stone at Middlebank House, Masterton, Dunfermline. A recent discovery of a food vessel in a short cist at Keavil, Crossford, Dunfermline, is described in Appendix 1. Short cists or cremation urns, or often both, have been found on these sites. The short cists are sometimes isolated, generally in small groups of three to six. The urned cremations are often isolated deposits perhaps inserted in a mound over the cists, though at Calais Muir some ten cinerary urns were found (Beveridge 1886, 246). The large-scale destruction by earth-moving machinery at Aberdour Road had removed any evidence for the relationship between the cists, the urn and the cremation deposits. It is probable that all the cists present were recorded, but other unurned cremation deposits could have been destroyed unnoticed. Similar deposits of cremated bone were apparently found at Calais Muir (Beveridge 1886, 246).

The stone setting round the enlarged food vessel urn at Aberdour Road is a more unusual feature. It is not a true cist, in the sense of a four-sided box standing open to receive its contents, but a rather crude setting perhaps placed round the urn when already in position inverted on the basal slab. The side slabs are not as tall as the urn, so it is uncertain how the cover slab was originally supported. It appears to have rested on the base of the urn itself. When found, the grave had been crushed by the weight of machinery passing over it, the base of the urn smashed and the cover slab pressed down on to it, as shown in the section (fig 2).

Cinerary urns are normally buried in holes in the ground with no further protection, or with simple basal slabs and occasionally top slabs. However, there are a few close parallels to the Aberdour Road find, particularly a grave at Aberlemno, Angus (Childe 1943, pls 28-9). This contained an inverted encrusted urn resting on a basal slab, with stones packed round it in a pit.

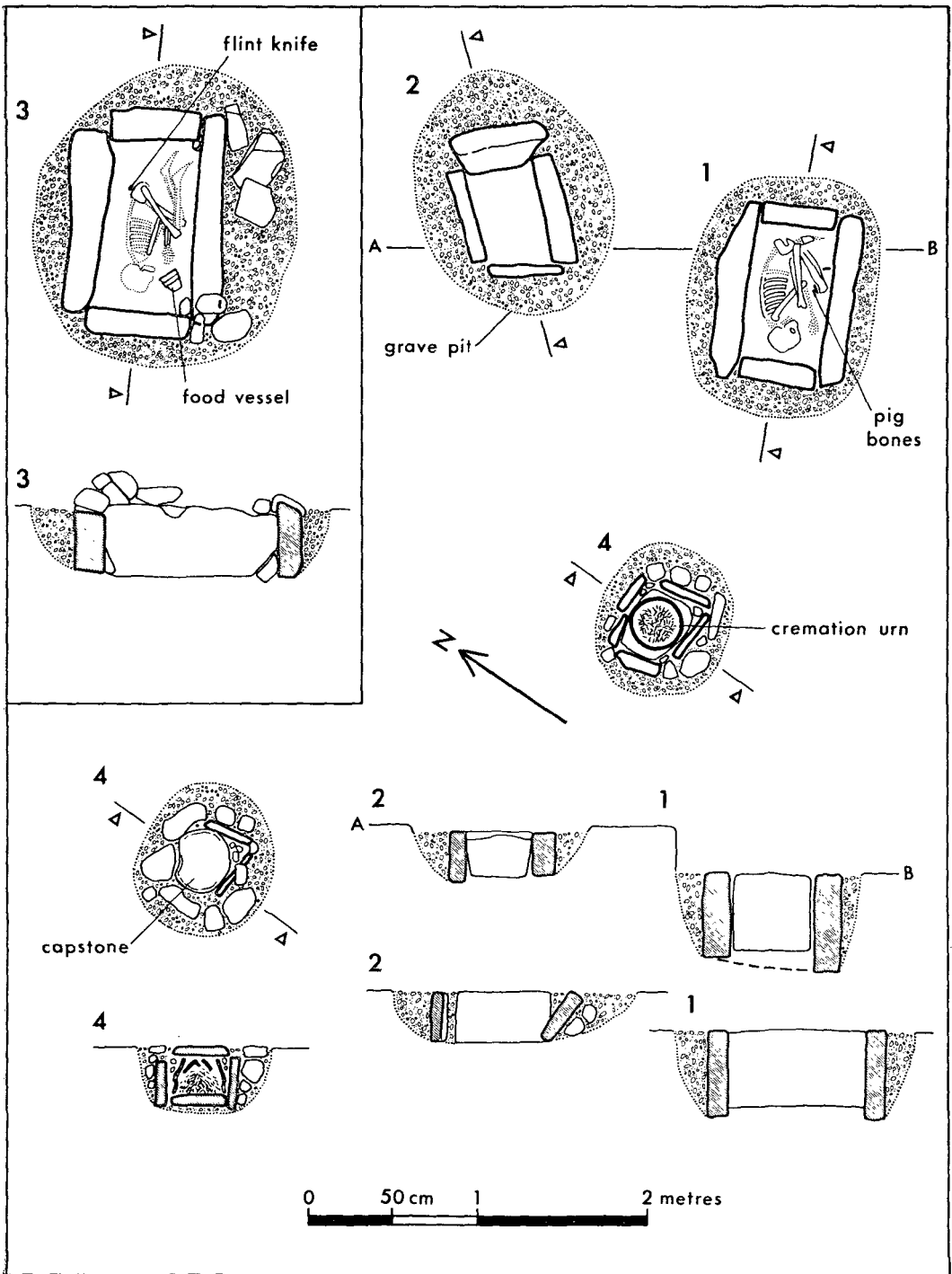


FIG 2 Plans and sections of graves, Aberdour Road, Dunfermline

Only two of the side slabs were as tall as the urn, and these supported the small capstone. Again the impression is that the urn was inserted first and the side slabs arranged round it. Apparently similar structures have been discovered at Seamill, Ayrshire, with a collared urn (Callander 1927, 249), at Seggiecrook, Aberdeenshire, with a cordoned urn (Callander 1908, 213) and at Lyne, Peeblesshire, with an enlarged food vessel (Stevenson 1949). Others are known from Ireland, for instance an enlarged food vessel from Ballinchalla, Co. Mayo (Raftery 1943). These stone settings packed round cinerary urns should be distinguished from miniature true cists often found to contain cremations but no pots. Such box-cists, measuring only 0.4 m by 0.5 m or so, have been found on sites with normal short cists, for instance Cist 1 at Kirkburn, Lockerbie, Dumfriesshire (Cormack 1963, 115) and Pitreavie, Fife (Beveridge 1886, 242).

Of the finds, the most interesting are probably the iron ore nodule and flint striker from cist 3. The sex of the associated skeleton is uncertain. There seem to be few authentic records of the association of iron ore nodules and flint strike-a-lights in Scotland, though they are not uncommon in England.

Two occurrences are certain:

Flowerburn, Ross-shire (Mackenzie 1885); half an iron pyrites nodule and a flint striker, both burnt, found with pieces of a cordoned cinerary urn (NMAS EQ 190-1).

Hoprig, Cockburnspath, Berwickshire (Hardy 1889); grooved iron pyrites nodule and fabricator-shaped flint striker, from a cist with a crouched inhumation (NMAS EQ 597-8).

Three possible occurrences may also be noted:

Freefield, Aberdeenshire (Clarke 1970, no. 1543; Leith 1881). 'A dreadfully rusted piece of iron, somewhat in the form of a chisel, a piece of stone, smoothish and having the appearance of a whetstone' found in the centre of a cairn. A beaker was found in a different part of the mound (whereabouts unknown).

Lesmurdie, Banffshire (Clarke 1970, no. 1586; Robertson 1854); three flints and 'some minute fragments of a dark brown oxide of iron' in a cist with a beaker (NMAS EQ 30, 33, 34). One tiny fragment of the iron deposit survives. Dr Macpherson of the Royal Scottish Museum kindly examined this and reports that it is indeed iron oxide. It cannot therefore be the remains of a nodule of iron pyrites which is most suitable for striking a spark, although one of the flints is a scraper with a worn edge which may have been used as a striker.

Teinside, near Hawick, Roxburghshire (Rosehill 1870); a rounded piece of 'radiated iron pyrites', and a flint flake (found at the other end of the cist) in a cist with a cremation and part of a pot. The pyrites and the flake are lost; sherds from the site now in Hawick Museum comprise three sherds of food vessels, possibly all different pots, and a large portion of an encrusted urn. It is not possible to decide which came from the cist in question.

The Teinside discovery sounds authentic, and it is interesting that Lord Rosehill (1870, 137) speaks of 'radiated iron pyrites, which I have myself discovered in several interments'. The other two finds seem doubtful.

One other reputed find of a strike-a-light can be eliminated. An association of 'a nodule of ferruginous matter, and flint flakes' has been reported from a cist at Townhead, Stevenston, Ayrshire, most recently by Morrison (1971, 16). Through the kindness of Mr J G Scott the nodule now in Kelvingrove Museum, Glasgow, has been examined; it is clay ironstone, a low-grade iron ore which is useless for the purpose of striking a spark. The same is true of a finger-shaped piece of ironstone found in Cist 3 at Patrickholm Sand Quarry, Larkhall, Lanarkshire (Maxwell 1949, 210). Some authentic-looking flint strikers have been found on occasions without an associated ore nodule, and there is an intriguing report that fragments of iron pyrites were found in the barrow at Calais Muir, Dunfermline (Beveridge 1881, 251) but these have not survived.

A number of associated finds of flint strikers and iron ore nodules have been reported from outside Scotland. Clarke (1970) lists some eight finds with his beakers nos 129, 800, 1131, 1210, 1296, 1347, 1390, 1854; and finds of the ore nodules alone with beakers nos 4, 115, 823, 1367. Six other finds of iron pyrites from graves under round barrows usually with flint strikers, and in three cases associated with bronze daggers, are mentioned by Evans (1897, 313-17). Another good example was found at Simondston, Coity, Glamorgan, in a cist with two enlarged food vessels (Fox 1959, 82). Combining the lists, there are five finds from Yorkshire, three from Derbyshire, two from Wiltshire, and one each from Westmorland, Denbighshire, Glamorgan, Staffordshire, Berkshire, Bedfordshire, Hampshire, Somerset and Cornwall; a distribution with a strong northern bias. This is not a comprehensive list; no doubt there are more examples in other publications. On several other occasions either the flint striker or the iron ore have been recorded alone. Where the iron ore nodule is defined, it is usually said to be of marcasite or pyrites, and is often described as grooved.

To complete the fire-making kit, it would have been necessary to have tinder. Dried fungus and dried sphagnum moss were two substances used in tinder boxes of the eighteenth and nineteenth centuries. Smith and Rowlands (1972, 8) draw attention to the presence of sphagnum moss with a flint striker and organic material (perhaps a leather bag) in the primary grave under Barrow 85 at Amesbury. Something of this nature must have accompanied the strike-a-light at Aberdour Road, and the complete kit may have been kept in a leather bag suspended from a waist belt. Indeed the position of the finds in the grave might indicate that it was so worn for burial (Clarke 1970, 184).

The discovery of pig bones in cist 1 is unusual, though such bones have been noted elsewhere. Mr D V Clarke will discuss finds of pig bones in cists in the forthcoming report on the excavations at Gairneybank, Kinross.

The fragments of bone pin found with the cremation deposit 5 can be paralleled by others found in Bronze Age contexts, generally with cinerary urns, but occasionally with cremations alone. Pins were found with cinerary urns at Cairnpapple Hill, West Lothian (Piggott 1948, 110) and at Kirkburn, Dumfriesshire, where another bone pin was found with a cremation in Pit 41 (Cormack 1963, 126-7). (JC-B)

THE FINDS

CIST 3

Food vessel (fig 3). Height 11 cm; rim diameter varies from 13.1 to 13.7 cm. Brown ware with much stone grit of various sizes up to 7 mm showing on the interior surface; the exterior covered with a light reddish-brown slip through which few grits show. Vase-shaped body with two ribs, decorated with finger-nail impressions in horizontal lines on the body, and a single line on the internally bevelled rim. Experiment showed that a woman's little finger-nail, inserted and twisted slightly, fitted the impressions best; a man's finger-nail was generally too large. The pot is now complete. It broke into two halves horizontally on drying, probably along building rings, but has been restored. The base is much worn, and the interior blackened at the base. (Dunfermline Museum inventory no. 1972. 413)

Flint knife (fig 4, 2). Length 4.8 cm, width 1.6 cm. Dark grey flint with lighter mottled patches. Made on a flake of steep triangular section, retouched on the dorsal side to form jagged, almost saw edges. The tip is broken off; it was searched for in the grave but not found, so the knife was probably buried in this condition. (1972. 416)

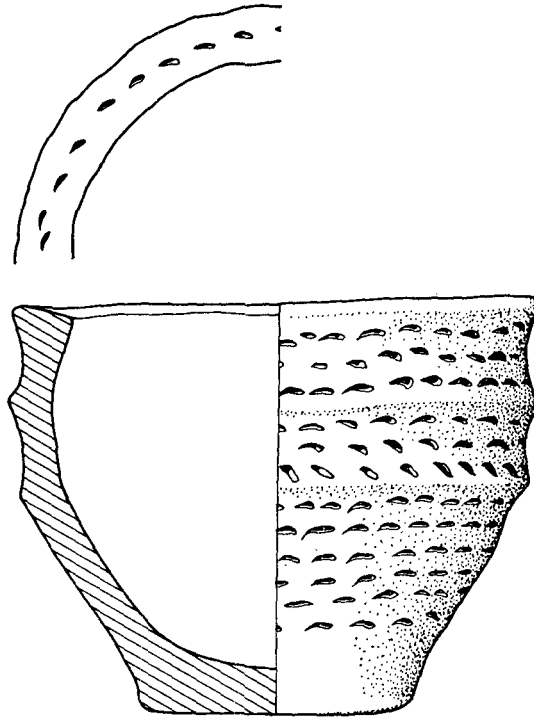


FIG 3 Food vessel from cist 3, Aberdour Road, Dunfermline (1:2)

Flint strike-a-light (fig 4, 3). Length 4.3 cm, width 2.3 cm. Made on a thick piece of light grey cherty flint, worked on one side only. The edges, steeply retouched almost all round, are much worn especially at the wider end, where the edge is so worn as to be undercut and almost smooth. (1972. 417b)

Nodule of iron ore (fig 4, 1). Length 2.5 cm, width 2.5 cm. Half a natural nodule of iron pyrites with a glossy black-brown surface. The broken face has been worn into a hollow and a groove rubbed on one side, presumably by the action of the flint striker. Dr Macpherson of the Royal Scottish Museum kindly reports that visual inspection, and a test for specific gravity, indicate that this is a nodule of iron pyrites. The dark brown surface, which gives a misleading impression of haematite (iron oxide ore) is heavily weathered and oxidised. (1972. 417a)

CINERARY URN IN STONE SETTING 4

Enlarged food vessel urn (fig 5). Height 34 cm, overall rim diameter 29.5 cm. Coarse brown ware with much stone grit, the exterior smoothed and in places reddened, the interior sooted towards the base. The urn is the shape of an enlarged vase-shaped food vessel. The rim is splayed out slightly, the neck concave. Two raised horizontal mouldings are set above and below the shoulder, and these are joined at intervals by vertical straps. The upper part of the urn is decorated with rows of stabbed lines arranged herring-bone fashion. There are two rows of similar lines inside the rim, and a single row on the flat top of the rim. The urn has been reconstructed from fragments. About two-thirds is now extant, including most of the rim, but only a small portion

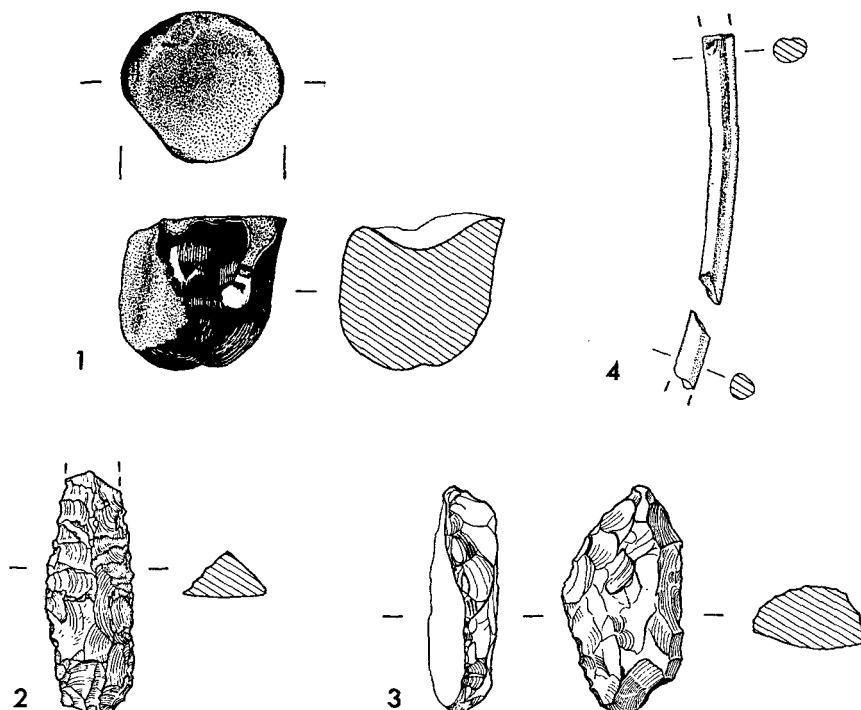


FIG 4 Aberdour Road, Dunfermline. Cist 3: 1 iron ore, 2 flint knife, 3 flint striker. Cremation deposit 5: 4 bone pin. (2:3)

of the base, which had been badly damaged by the earth-moving machinery. Building-rings are visible in most of the breaks. (1972. 415)

CREMATION DEPOSIT 5

Bone pin (fig 4, 4). Two fragments of a burnt bone pin, 5.3 cm and 1.5 cm long, were recovered by sieving this disturbed deposit. The larger fragment has a groove on one side, and both ends of each fragment are damaged. (1972. 414)

Dr A S Clarke of the Royal Scottish Museum has kindly commented on the pieces. 'There are two fragments which can just be shown to be contiguous while a further section is missing which would have extended the pin a further 20–25 mm at its narrow end if the taper continued unchanged. The broad end of the pin, though damaged, had been trimmed flat transversely to a plane surface. Longitudinal splitting along the outer curve of the main piece, and minor cracking perpendicular to this probably represent heat effects, but not intense heat. The groove running along one broad side of the main piece is difficult to interpret. It is an artefact, but I am inclined to think it due to the splitting away of a sliver of bone subsequent to manufacture rather than a groove incised by human agency. No surface seems to be natural, i.e. the pin is entirely formed from a bigger piece of bone, though the curve may reflect that of the original. Because of this lack of external features I cannot say what bone the pin was made from other than that it is mammalian.' (JC-B)

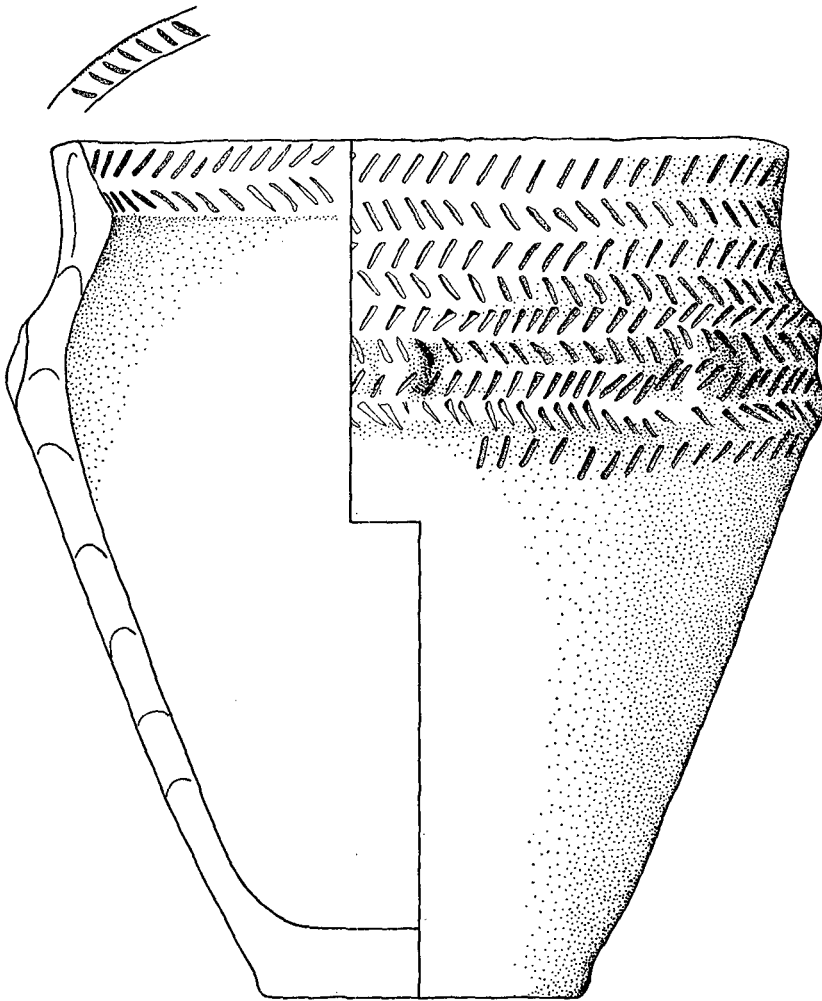


FIG 5 Enlarged food vessel urn from stone setting 4, Aberdour Road, Dunfermline (1:3)

APPENDIX 1

A Food Vessel from a Short Cist at Keavil, Crossford, Fife

by Joanna Close-Brooks

A short cist was found on the Keavil housing estate, Crossford, near Dunfermline, Fife (NT 06738623) on 13th November 1973, and destroyed the next day (fig 1, 2). Unfortunately it was not reported until a week later, by which time it was buried under the foundations of a new road. Martin Norgate of Dunfermline Museum kindly visited the site and gathered the following information from the workmen. The site was at the junction of Morar Road and Affric Way. The structure, which the workmen had thought to be some sort of old land drain, appears to have been a stone-lined cist, about 1.0 m by 0.7 m, with a capstone about 0.1 m thick. It was dug into sandy gravel about 1.0 m below the new road level, and thus some 2.5 m to 3 m below the old ground surface. No bones were noticed, but Mr A Hall recovered a food vessel. This has now been presented by the contractors, George Wimpey and Co, to Dunfermline Museum (Inventory no. 1973.354).

The food vessel (fig 6). Average height 14.2 cm; rim diameter 14.8 cm. Buff to light brown ware, the outer surface smoothed with some reddish patches, the interior surface grey. Some large stone grits are incorporated in the fabric. The pot is complete, though parts of the surface are worn, and it is cracking along the building rings in places. The body is vase-shaped, with a short concave neck, and the shoulder is defined by a slight raised moulding. The uneven rim is internally bevelled.

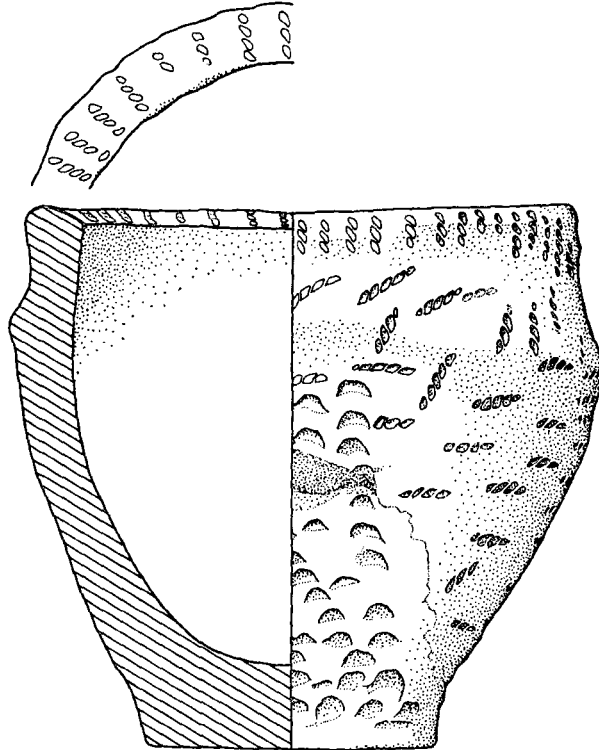


FIG 6 Food vessel from Keavil, Dunfermline (1:2)

The exterior is decorated all over, mostly with short impressions of a piece of twisted cord applied at random but mainly horizontally on the body, in various directions often vertically on the neck, and as regularly spaced radial impressions on the rim. On one side of the body the twisted cord decoration is replaced by an area about 10 cm wide from base to shoulder filled with a series of crescent-shaped stamped impressions arranged in oblique lines. The stamp used appears to have been much the shape of the end of a pencil, probably a rod of bone or wood cut off straight at the end. The curious parallel grooves noticeable on the lower surfaces of all the impressions could be due to grooves and ridges on the end of the rod when it was cut off with a slightly jagged-edged flint knife.

APPENDIX 2

The Human and Animal Bones from Aberdour Road, Dunfermline

by Archibald Young, MA, MB, CHB, FRCS(G)

Department of Anatomy, University of Glasgow

CIST 1

Human bones

The human bones present are those of an individual – probably female – in the age group 12–16 years. There is nothing to suggest they represent more than one individual. From the degree of

epiphyseal formation and fusion I incline to an age of 12-14 years rather than the higher figure of 16 arrived at by Dr Lunt from her study of the skull and dentition (Appendix 3). Using Dupertuis and Hadden's formula, from a reconstruction of the left femur the height would appear to have been approximately 1.61 m if male and 1.54 m if female.

The following human bones were identified - *Vertebrae*: parts of 24 and some epiphyseal bony rings for vertebral bodies; these vertebral remnants consist almost entirely of neural arches and the left side of the vertebral bodies. *Sacral segments*: 1-4. *Ribs*: 1-11 of the L side and two other fragments - no obvious R side fragments were identified; again loose epiphyses (for the heads of the ribs) were present. *Scapula*: L with separate epiphysis for the coracoid process. *Clavicles*: L and a fragment of R. *Humeri*: lower two-thirds of L and a portion of the R shaft (?). *Radius and ulna*: both of R side with lower epiphyses separated. Several *carpal* bones and some *metacarpal* fragments. *Innominate (pelvic) bone*: L side only - in three pieces - the Y-shaped cartilage of hip joint had not yet ossified to join them. *Femora*: L in four pieces; R represented by medial condyle and a (?) portion of shaft. *Tibiae*: both shafts (R and L) with their proximal epiphyses. *Fibula*: part of one shaft. *Foot bones*: two tarsal bones (L), some metatarsal fragments and a phalanx.

Animal bones

The animal bones identified mainly comprise fore-limb bones - almost certainly of pig - and at least four fore-limbs from three individuals are represented. They are all from young animals of under two years of age (judging by the unfused lower metacarpal epiphyses). In contrast to Bronze Age cists at Gairneybank, Kinross, and Muirhall, Perthshire (unpublished), where the young pig bones (R side only) included radius and ulna and even the distal end of humerus (R) (Gairneybank cist 3), here the recognisable bones are carpals, metacarpals and phalanges from both sides; some fragments may be from the distal ends of the radius and ulna. There is also a fragment of skull - probably also of pig.

CIST 3

Human bones

These remains are relatively scanty and poorly preserved. What there is appears to be from a young individual of 12-14 years of age. One piece of innominate (hip) bone is duplicated, however, thus indicating at least a part of a second individual of about the same size.

The following bones were identified: Part of a L petrous temporal bone and two ear bones (malleus and incus). Parts of the sacrum. Parts of two L innominate bones. Most of the L femur and neck of the R. Parts of the shafts of L humerus, ulna and radius. Some unidentifiable fragments.

No animal bone was identified from this cist.

APPENDIX 3

The Dentitions from Aberdour Road, Dunfermline

by *Dorothy A Lunt, MDS, PHD, HDD*

Department of Oral Biology, University of Glasgow Dental School

CIST 1

Half the maxilla and almost half the mandible have survived virtually intact. The maxilla has four permanent teeth and the mandible six permanent teeth *in situ*. A further nine maxillary and six mandibular teeth were found loose in the soil. Altogether 25 permanent teeth have been recovered. The second permanent molars have erupted into a fully functional position, but a radiograph of the mandible shows that the root apices of these teeth are just closing. This stage of development occurs between the ages of 14 and 16. The average age at which it occurs and therefore the most likely age of this individual is 15 years. The mandibular right third molar was only partially formed at death. The exact state of development of the tooth is uncertain as the thin rim of enamel was chipped and probably some dentine had also been lost due to *post mortem* destruction. It seems most likely that the crown had been completed but little of the root had formed. This stage of development is usually reached between 13 and 16 years, with a peak at 14 years. The evidence from this tooth therefore supports the deduction of age made from the rest of the dentition. This estimate of age is borne out by the small amount of attrition of the teeth:

dentine has just been exposed at the incisal edges of the first permanent incisors, but no exposure of dentine has yet occurred in the first molars, though in these teeth large facets can be seen in the enamel.

The third permanent molars have failed to develop in the left maxilla and in the left mandible. There is no trace of the third permanent molar from the right side of the maxilla and it is possible, though not certain, that it was also congenitally absent. There is no evidence of caries in any tooth. The mandibular left first permanent molar shows some evidence of periodontal disease on the buccal aspect of the mesial root, with loss of some alveolar bone. It is unusual to find evidence of periodontal disease in such a young individual in the Bronze Age. The teeth are small, and the mandible is so small and delicately built as to suggest that it may be that of a female.

CIST 3

The jaw bones of this individual have largely perished, but in three areas several permanent teeth have remained in their correct relative positions in the soil. Altogether 22 recognisable permanent teeth have been recovered. Only one of these is an incisor; the remaining incisors had already been shattered into fragments within the mass of soil.

The best preserved region is from the posterior part of the left maxilla where the second premolar and all three permanent molars are *in situ*. The third molar has not yet erupted. A radiograph of this area shows that the apices of the second permanent molar have closed, while the root of the unerupted third molar is incomplete. The third molar usually reaches this stage of development between the ages of 15 and 17, while the average age at which this stage is reached is 16, which is therefore the most probable age of the individual. The third molar is more variable than the other permanent teeth in the chronology of its development and an age range of 15–17 is suggested. The radiographic evidence, however, indicates that the individual from cist 3 is slightly older than the individual from cist 1.

Again, the evidence of age deduced from developmental features is supported by the evidence of attrition. Dentine has been exposed at the incisal edge of the only recognisable incisor, while a very small area of dentine has also been exposed on one cusp of each of the first permanent molars. There is no sign of caries in this dentition. No assessment of periodontal health can be made because of the extent of *post mortem* destruction of alveolar bone.

DISCUSSION

In determining the ages of these Bronze Age adolescents, it has been assumed that the chronology of tooth development in the Bronze Age population was the same as that obtaining today in Caucasoid populations, e.g. Swedes (Johanson 1971). It has been shown that permanent third molars erupt earlier in some Negroid races and in Australian aborigines than they do in modern Caucasoids, but Fanning and Moorrees (1969) have pointed out that the difference lies not in the chronology of development of the first and second permanent molars but in a relative delay in third molar development in Caucasoid populations when compared to Australian aborigines. The individual from cist 3 shows stages of development of the second and third permanent molars relative to one another which are exactly comparable to the situation obtaining in modern Swedes (Johanson 1971). It therefore seems probable that the chronology of tooth development in the British Bronze Age population was much the same as it is today. The estimate of the age of the individual in cist 1 made from the bones is some two years younger than that from the teeth. This is further evidence that the individual was female ('dental' and 'bone' age correspond in males, but bone age is earlier than dental age in females). According to Hunt and Gleiser 1955, the dental age is nearer than the bone age to the true chronological age.

APPENDIX 4

The Cremations from Aberdour Road, Dunfermline

by C B Denston

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GRAVE 4

An examination of the remains revealed no evidence other than they were human, and of one individual. No duplicate portions of bone were found which would have indicated more than one individual. The colour of the fragments was light brown, and the total weight of the remains came to 1406.0 gm.

The proportions of this total, consisting of the larger amounts of recognisable bones, were as follows: long bone 437.5 gm; skull 179.0 gm; vertebrae and pelvis 41.5 gm; metacarpals, metatarsals, phalanges 8.0 gm. Miscellaneous fragments amounted to 740.0 gm, though in this category were a few small recognisable fragments of postcranial bones other than those mentioned. Among the long bone fragments were recognisable portions of femur, tibia, fibula, humerus, radius and ulna. Most parts of the cranium were represented by fragments. The lack of robustness of all the remains, and the smallness of two distal articular extremities of tibiae, metacarpals, metatarsals, phalanges and mandibular condyles, suggested the individual was a female. The individual was an adult, and the extent of suture closure of the cranium would possibly have indicated an age of over thirty years at time of death. The size of the remains was from minute fragments to 90.0 mm, this largest portion being of a long bone. A lot of the long bone fragments averaged a length from 50 to 90 mm.

GRAVE 5

Total weight of the remains 1100.0 gm. Colour of the fragments light brown, and overall size from minute fragments to 70.0 mm. Generally these fragments were smaller than those of grave 4. The total weight was made up of 662.0 gm of miscellaneous fragments; 262.0 gm of long bone; 162.0 gm of skull; 8.5 gm of vertebrae; and 5.5 gm of metatarsals, etc.

The remains were possibly a mixture of two individuals, a male and a female, both adults. The evidence for the existence of two individuals was in the form of two fragmentary left mandibular condyles, one smaller than the other, and most likely one of a male and the other of a female mandible. A mastoid area of a left temporal bone of the cranium was preserved, but minus part of the mastoid process. The formation of this bone overwhelmingly suggested it was from a male cranium. A fragment of the alveolus of a mandible was delicate in form so suggesting the opposite; part of a female mandible. A feature of this bone suggested an adult individual, with a molar tooth lost ante-mortem. In favour of a male individual was also preserved the proximal articular extremity of a radius, this was quite large. Features of the cranial sutures suggested adulthood.

GRAVE 6

A diligent search was made of these remains to try to establish if they were associated with those of grave 5. Though the fragments were of the same colour and on par in size, the examination proved negative in this respect. The search was not in vain though as it produced fragments of skull and remains of five phalanges from which some information could be gleaned. The information was such that these remains could have been of a separate adult individual, possibly female. A further left mandibular condyle was preserved, this would be an additional one to the two such left condyles found among the remains from grave 5. Also, one of the remains of the five phalanges was complete, suggesting it was representative of an adult (complete fusion of the epiphysis to the shaft) and a portion of either the frontal bone or parietal bone displayed a patent suture, which suggested a young adult. These fragments weighed 180.5 gm, of which 60.0 gm was a combination of long bone fragments, skull, and phalanges.

APPENDIX 5

Soil Samples from Aberdour Road, Dunfermline

by *J C McCawley*, MSC, BSC

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Soil samples were taken from cist 2 in an attempt to identify any inhumed burial of which no traces could be seen in excavation. Further samples were taken from cist 3 as a direct comparison. A small sample of each soil was dried before analysis. The phosphorus content was determined by the colorimetric measurement of a yellow phosphomolybdovanadic acid. The soil pH was determined to ascertain whether the soil was sufficiently acidic to dissolve bone.

		pH	Phosphorus (ppm)
<i>Cist 2</i>			
1	Inside cist, centre	5.0-5.5	700
2	Inside cist, S	5.0-5.5	900
3	Inside cist, N	5.0-5.5	900
4	Outside cist E, 0.8 m	5.0-5.5	300
5	Outside cist W, 0.8 m	5.0-5.5	300
6	Outside cist, 1 m	5.0-5.5	400
7	Outside cist, 1 m	5.0-5.5	300
8	Outside cist, 1 m	5.0-5.5	200
<i>Cist 3</i>			
9	Dark material under pelvis	5.0-5.5	600
10	Cist floor centre, below body	5.0-5.5	1000
11	Cist centre, body level	5.0-5.5	5000
12	Natural, outside cist, 5 m	5.0-5.5	100

All pH values were in the same range (5.0-5.5) and indicate sufficient acidity to dissolve uncremated bone.

The phosphorus contents of the soils from cist 3 are consistent with inhumation having taken place. The phosphorus level for the control sample being quite normal for the type of soil (100-200 parts of phosphorus in one million parts soil). Samples 9, 10 and 11 from cist 3 are considerably higher in phosphorus content than the control. This is due almost certainly to the bone phosphorus of the partially decomposed body present.

The results from cist 2 are not so conclusive. The control samples are slightly higher (average 300 ppm). The phosphorus levels inside the cist are on average three times higher than the control samples. The appearance of some of the soil samples from cist 2 suggests that some disturbance of the soil layers might have taken place (light and dark layers in the same sample). The phosphorus content would seem to be consistent with this mixing of soil layers. It would be reasonable to conclude that inhumation had in fact taken place in cist 2.

Because the results from cist 2 were inconclusive, samples for comparison were taken from cist 3, in which an inhumed skeleton was present though badly preserved. In this case, samples were taken at two levels in the cist, and it is noticeable that sample 11, taken at the level of the bones, has considerably higher phosphate content than sample 12 taken just below the bones. This suggests that the cist 2 samples were probably taken at too low a level, and that a series of three or four samples taken at different levels near the supposed base of the cist would be a sensible precaution on a future occasion. It is also apparent that the control samples for cist 2, taken from about a metre away, were too close to the cist, and that control samples should preferably be taken 5-10 m away.

APPENDIX 6

Radiocarbon Date from Cist 3, Aberdour Road, Dunfermline

by *J Close-Brooks and J N Graham Ritchie*

A radiocarbon date from collagen isolated from the femur of the inhumation in cist 3 was received after submission of this paper. The measurement was made by Dr D D Harkness of the Scottish Universities Research and Reactor Centre, East Kilbride, Glasgow, to whom we are greatly indebted.

SRR-292 femur 1631 ± 40 bc

This date agrees well with archaeological estimates for the dates of food vessels. Too few radiocarbon dates, however, have yet been published for food vessels to make comparisons useful.

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Cist 1, Aberdour Road, Dunfermline (Photo: by courtesy of *The Scotsman*)