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BEECH HILL HOUSE: Microfiche report

Catalogue of pottery, bone and bronze artefacts
by A MacSween

Neolithic Pottery

SF1. Decorated body sherd, 10 mm thick, grey with a red exterior margin.The fabric is a fine micaceous clay with 20% of rock inclusions, up to 5 mm in length. The exterior surface has been slipped and bears the faint traces of an incised line. The exterior and interior of the sherd are sooted. (F40).

SF2. Undecorated body sherd, 12 mm thick and grey with red surfaces. The fabric is a fine micaceous clay tempered with 10% of rock fragments up to 5 mm in diameter. The sherd is from a coil-built vessel and bears a diagonal coil junction. (F1)

SF3. Decorated body sherd, 9 mm thick, grey with red surfaces. The exterior is decorated with two deeply incised parallel grooves. The fabric is a fine micaceous clay tempered with 5% crushed quartzite. (F7).

SF4, 5, 6. Three decorated body sherds, 9 mm thick and grey with red surfaces. On the exterior surface are faint traces of decoration - lines incised into the vessel surface. The fabric is a sandy clay with 20% of mixed rock fragments, up to 8 mm in length. (F11).

SF7. One body sherd, 14 mm thick and grey with red surfaces. The fabric is a micaceous clay with 30% of angular rock inclusions measuring up to 8 mm in length. The interior of the sherd is sooted. (F11).

SF8. One body sherd plus two fragments, 15 mm thick. The fabric is a coarse sandy clay tempered with 20% of angular rock fragments up to 8 mm in length. On the exterior of the sherd are faint traces of incised or impressed decoration. The interior of the sherd is sooted. (F11).

SF9. Decorated body sherd, from the shoulder of a coil-constructed vessel. The sherd is 9 mm thick. The fabric is a micaceous sandy clay containing 10% of rock inclusions up to 6 mm long. The exterior has been slipped and various incised lines were made in the wet clay, by at least two different implements, one a twig or stem, the other a sharper implement, probably some kind of knife. The exterior of the sherd also exhibits traces of two perforations which do not extend fully through the vessel wall. (F11).

SF10, 11. Two body sherds, one with a faintly incised line in its interior. The sherds are 8 mm thick and black with a brown exterior surface. They are made from a micaceous sandy clay tempered with 40% of angular rock fragments up to 6 mm in length. The interior of the sherd is sooted. (F11).

SF12. One body sherd, bearing the faint traces of two incised lines on its exterior surface. The sherd was from a coil-constructed vessel and has a diagonal coil junction. It is red throughout its section and was made from a micaceous sandy clay with 20% of angular and rounded rock inclusions measuring up to 10 mm in length. (F11).

SF13. Undecorated body sherd 6 mm thick and grey with brown surfaces. The fabric is a rough clay containing 30% of angular rock inclusions up to 4 mm in length. (F11).

SF14. Abraded body sherd, brown in colour and made from sandy clay with 10% of mixed rock inclusions, both round and angular and up to 5 mm in length. (F11).

SF15, 16, 17. Three body sherds (one sherd and two surface flakes), brown with a grey core and 1.2 mm thick. The sherds are from a coil-constructed vessel with diagonal coil-junctions. The fabric is a micaceous sandy clay with 5% of angular mixed rock inclusions up to 6 mm in length. The exterior of the vessel has been slipped, and there are faint traces of stabbed decoration on one sherd. The exterior of the sherd is sooted. (F11).

SF18. Decorated body sherd 7 mm in thickness and grey with a red core. The exterior is decorated with possible herringbone decoration. The fabric is a fine micaceous clay with 20% of finely crushed black igneous rock inclusions, up to 3 mm in diameter. (F31).

SF19. Part of the rim and upper part of a large decorated urn, 15 mm thick and with an external diameter of 300 mm. The sherds are red on the exterior and brown on the interior. The rim is decorated with pinching. The profile is tapered with an internal bevel. From one of the peaks a pinched-up strip runs vertically down the vessel exterior. It joins a similar but horizontal strip 50 mm below the rim. Below this strip are two perforations and there are traces of four more on other sherds. Over the raised decoration a thick line has been incised. The line was incised into the wet clay using a blunt-pointed implement 3 mm thick. It has followed the horizontal raised strip and then angled up towards the rim, being crossed by a line in the opposite direction. Around the body of the urn is a band of raised decoration probably forming an elongated chevron pattern and possibly mirroring the incised decoration around the rim. The area below this band of decoration is covered in grass impressions, although whether this was a deliberate texturing effect or the result of using a support to build up the wall of the vessel is not clear. Below the horizontal strip are two perforations and there are traces of four more on

other sherds. The interior and exterior of the vessel are sooted. The fabric is a micaceous sandy clay with rock inclusions up to 14 mm in length, comprising 20% of the whole. (F40).

SF20. Decorated body sherd, 9 mm thick and red with grey surfaces. The exterior is decorated with incised lines, a pair of deep parallel lines, a pair of shallow parallel lines, and a wide shallow incised line. The shallow lines have vertical lines crossing them, probably incised with a knife. The fabric is a micaceous clay containing around 5% of mixed gravel inclusions up to 5 mm in length. The interior of the sherds are sooted. (F50).

SF21, 22. Two outer flakes of pottery, one possibly decorated. The sherds are grey with a red outer surface. One of the sherds bears the traces of an incised chevron. The fabric is a micaceous sandy clay containing around 5% of rock inclusions up to 6 mm in length. (F53).

SF23, 24. Three fragments of pottery, 10 mm thick. The sherds are grey in colour and are made from micaceous sandy clay with 20% of added rock inclusions up to 10 mm in length. The exterior and interior of the sherds are sooted. (F53).

SF25. Undecorated body sherd, 9 mm thick and grey with red surface margins. The fabric is a micaceous sandy clay tempered with 20% of angular mixed rock inclusions, up to 10 mm in length. (F53).

Bronze Age Pottery

SF26. Complete food vessel bowl with a smooth, rounded profile and a flat base. It has a short neck and an inward-sloping rim decorated on the interior with two incised lines, one just above the point of inflection of the rim and the body, the other just below the lip. The bowl is 100 mm in height, 120 mm in external diameter, and its walls are a uniform 6 mm thick. The exterior is decorated all over with zones of incised and comb-impressed decoration.

The vessel was made from untempered sandy clay, by the coil construction method. The fabric is hard and well fired, the vessel having fired brown throughout its section. There is no indication that the vessel was used for cooking; it is very clean and was probably made especially for the grave.

The neck of the vessel is decorated with comb-impressed vertical lines, below which are two incised parallel lines. The body of the vessel is encircled by three bands of parallel chevrons executed by comb-impression, one just below the neck of the vessel, one around the middle of the vessel, and the third just above the base. The upper band comprises four elements, and the middle and bottom bands vary between three and four elements. The triangular areas between the horizontal lines around the neck

and the upper chevron band are infilled with cross-hatching executed by comb-impression, apart from one triangle which has diagonal lines only. Between the upper two bands of chevrons are comb-impressed diagonals sloping upwards to the right, and between the bottom two bands of chevrons are diagonals sloping in the opposite direction. Between the bottom chevron band and the base the triangular areas are, like those beneath the neck, infilled with comb-impressed cross-hatching, apart from two adjacent panels which have diagonals only. Two further incised encircle the base of the vessel. From the 'stratigraphy' of the decoration, it appears that the horizontal bands and chevron bands were executed first. (Cist 2: F49).

SF27. *Rim, wall and basal sherds comprising most of a food vessel having height 145 mm, rim diameter 150 mm, basal diameter 80 mm and wall thickness 11 mm.* The vessel has a plain rim and base. From the rim the vessel walls drop to a shoulder 75 mm below the rim where the diameter increases slightly before narrowing to the base. The vessel was coil-constructed, and there are traces of diagonal (N-shaped) junctions. The fabric is a fine micaceous clay tempered with about 10% of rock inclusions up to 5 mm in length (perhaps mixed gravel) which fired red with a grey core. In certain areas the surface of the vessel is flaking off.

The exterior of the vessel is decorated all over with diagonal rows of finger-nail impressions. The rows are parallel but alternate between nail impressions sloping upwards from right to left to impressions sloping in the opposite direction. On one side of the vessel the decoration is more random than on the other. (Cist 4: F25).

SF28. *Complete food vessel 124 mm in height, 135 mm in diameter at the rim and 80 mm in diameter at the base, with walls 14 mm thick.* The vessel has an inward-bevelled, slightly everted lip and two carinations, one just below the lip, the other approximately half way down the vessel. The food vessel is consistent in diameter from the neck to the lower carination below which it narrows to the base. The fabric is a coarse sandy clay tempered with around 10% of angular rock fragments up to 6 mm in length. A slip appears to have been applied to the exterior surface of the vessel, and the outer layer is crumbling off in places. The vessel surfaces are red, while the core is grey.

The exterior of the vessel is decorated with 'maggot' impressions (cord twisted round the finger and impressed into the slip). On the neck above the upper cordon are two rows of diagonal maggot impressions sloping upwards from left to right. The remainder of the exterior is covered with vertical rows of impressions, about 10 mm in length above the carination and 15 mm in length, and less densely spaced below. (Cist 5: F78).

SF29, 30. Two surface flakes of pottery, brown in colour and made from a fine micaceous clay. One of the sherds (10) has two twisted cord impressions on the exterior. (F11).

SF31, 32. Two body sherds, 8 mm thick, grey with red surfaces, and made from a fine micaceous clay tempered with 10% of angular rock fragments up to 5 mm in length. The exterior of one sherd (12) bears traces of three rows of ?twisted cord impressed decoration. (F11).

The bone artefacts

SF33. Bone toggle (burnt) made from an oblong of bone 26 mm long, 14 mm wide and 5 mm thick, in which two opposing semi-circles of bone have been carved from the centres of the long sides, the effect being a bow-shape. At its narrowest point the toggle is only 3 mm wide and is pierced by an oblong hole measuring 3 mm by 5 mm. (Cist 1: F23).

SF34. Bone pommel (burnt) carved from a single piece of bone. It has a solid top 38 mm by 8 mm which protrudes over the hilt edge. In each of the long sides of the hilt receptacle are two rivet holes 2 mm in diameter. (Cist 1: F23).

SF35. End fragment of a polished bone pin, 10 mm long and 1 mm in diameter. (Cist 5: F78).

The bronze artefacts

SF36. Bronze pin fragment 20 mm long and 1 mm in diameter. (Cist 2: F44).

SF37. Fragment of a bronze pin, 10 mm long and 1 mm in diameter. (Cist 5: F78).

SF38. Bronze awl fragment 22 mm in length and 3 mm wide at its square cross-section, tapering to a flat point. (Cist 4: F25).

Catalogue of Chipped Stone
by B Finlayson

SF39. Burnt spherical pebble, with 'dimple' on one face, material unclear because of glazed and abraded burnt surface, possibly agate like the broken spherical pebble also found in this context, 18 x 19 x 19 mm (F23).

SF40. Honey brown, secondary regular flint flake (30 x 28 x 6 mm). One side is abruptly retouched, opposed by inverse shallow retouch (possibly related to bulb thinning). The distal end is scarred, probably by use, which would suggest that the secondary modification is "retouch of accommodation" for hafting or holding rather than to provide a functional shape (F7).

SF41. Red flint secondary flake, 35 x 28 x 10 mm (F11).

SF42. Translucent grey flint inner regular flake (19 x 17 x 4 mm), possibly a blade segment (F7).

SF43. Honey brown, inner irregular flint flake, 18 x 12 x 5 mm (F11).

SF44. Translucent grey secondary flake, 33 x 31 x 12 mm (F2).

SF45. Translucent grey flint flake (27 x 21 x 4 mm). Barbed and tanged arrowhead, because of concavity of ventral surface, retouch is mostly restricted to the margins of the piece on the ventral. Barbs and tang all the same length, tang square, barbs rounded (F11).

SF46. Honey brown flint flake (28 x 15 x 5). Hollow based arrowhead, with minimal retouch on the dorsal surface so that the dorsal ridge is still clear (F31).

SF47. Burnt broken flint flake, 19 x 10 x 5 mm (F40).

SF48 (F49):
1) honey brown flint blade, 36 x 17 x 4 mm.
2) honey brown flint secondary flake, clear hard hammer evidence, 22 x 28 x 6 mm.
3) grey flint secondary flake, 13 x 14 x 6 mm.
4) grey flint, secondary flake, hard hammer, dorsal surface scars indicate that this is part of initial platform working, 17 x 17 x 5 mm.
5) mottled brown/grey flint, inner regular flake, 15 x 11 x 5 mm.
6) grey flint, inner irregular flake, 7 x 13 x 3 mm.

SF42. Large burnt flint fragment (39 x 50 x 14 mm). The piece is very badly burnt, but it appears that both faces had invasive retouch over most of their surfaces. The burnt surface also appears to have traces of polished areas on it. This piece must be derived from a large flaked and polished tool (F50).

SF50. Translucent light grey flint flake (28 x 18 x 6 mm). There are several isolated areas of secondary modification, both sides have stretches of inverse, light retouch. At the proximal end is an area of inverse retouch, truncated by the removal of a flake on the dorsal surface, which suggests that the piece may have been an end scraper at one stage during its use (F50).

SF51. Translucent grey flint flake (24 x 14 x 5 mm), fragment of a retouched tool. Retouch is shallow invasive, probably at least in part the result of pressure flaking. Not a scraper fragment (F53).

SF52. Honey brown, inner regular flint flake, 12 x 12 x 3 mm (F36).

SF53. Grey flint, chunk, 26 x 9 x 8 mm (F36).

SF54. Translucent grey flint flake (33 x 28 x 5 mm). Barbed and tanged arrowhead, very regular and well made. The tang is broken off at the base. Barbs squared at ends (F8).

Material from retents

SF55. Milky quartz flake, <10 mm max dia (F11).

SF56 (F19). Flint inner blade, burnt, 15 x 5 x 3 mm, retouched abruptly along one lateral margin, burning makes identification difficult, but probably the remains of a microlith.

Flint, inner regular flake, 10 x 6 x 1 mm.

Flint, inner regular flint flake, 17 x 13 x 3 mm, hard hammer, inducing a siret type fracture on detachment. Terminates with step fracture, inverse abrupt retouch on siret burin lateral margin.

Quartz primary flake, 11 x 5 x 2 mm.

Flint secondary flake, 8 x 13 x 3 mm.

Flint secondary flake, 11 x 6 x 2 mm.

Flint secondary flake, 12 x 9 x 4 mm.

Flint, inner regular flake, 11 x 8 x 2 mm.

Flint, inner regular flake, 12 x 6 x 2 mm.

Flint, inner irregular, broken flake, 20 x 10 x 4 mm.

Quartz flake, 11 x 5 x 2 mm.

Quartz blade, 12 x 3 x 2 mm.

25 inner flint flakes, <10mm max dia.

1 secondary flint flake

2 flint chunks

9 quartz flakes

1 quartz chunk

Natural flake of siltstone

SF57. Heavily burnt flint flake, possibly produced as a thermal fracture itself, <10 mm max dia (F20).

SF58 (F23). 5 burnt pieces from dry sieve:

1: Chacedony, with nice agate banding, colour probably lost by burning (piece has heat induced fissures running through it). Secondary flake, retouched by pressure flaking to form a short convex end scraper. 19 x 20 x 7 mm.

2: Probably flint, but very difficult to identify due to extreme alteration of the surface caused by burning. It is impossible to see the original surface, so the retouch scars are very indistinct, but when examined from the ventral face it is clear from the curvature of the edge and scalloped appearance that the piece was modified to form a convex end scraper. 24 x 21 x 6 mm.

3: Flint or chalcedony flake. As with (2) the burning makes identification difficult, but one side of the piece has clearly been retouched. The piece was probably originally a side scraper.

4: Flat nature of dorsal surface suggests this piece is not flint, so it is probably chalcedony. Fragment of a flake, 24 x 19 x 5 mm.

5: Shattered agate pebble, banding just visible beneath cortex. 16 x 20 x 19 mm.

SF59 (F23): Six smaller pieces from the same context as above, again material identification is hampered by degree of burning:

1: Burnt chalcedony chunk with some cortex remaining, 14 x 9 x 8 mm.

2: Inner regular burnt chalcedony flake, 10 x 11 x 3 mm.

3: Translucent quartz flake, 13 x 13 x 3 mm.

4: Inner regular burnt chalcedony flake, probably a heat spall off a larger piece, 16 x 12 x 2 mm.

5: Translucent quartz flake, 10 x 7 x 2 mm

6: Translucent quartz flake, <10 mm max dia

SF60. Two translucent quartz flakes <10 mm (F25A).

SF61. One grey flint inner flake, <10 mm max dia. One honey brown flint primary flake, 10 x 6 x 2 (F31A).

SF62.Translucent quartz flake, <10 mm (F31A).

SF63. Light brown regular flint blade, snapped at both proximal and distal ends, this piece is clearly produced by a deliberate blade technique. 27 x 11 x 3 mm (F56).

SF64. Light brown flint inner flake, <10 mm (F57).

SF65. Red flint inner irregular flake, 10 x 9 x 3, dorsal shows numerous p[illegible]ious small removals, flake is from platform preparation process (F65).

SF66. Light brown, inner, regular flint flake, 11 x 14 x 3 (F65B)

2: D10

SF67. Purple/red Ordovician chert, similar to material from the Southern Uplands, flake that has subsequently been rolled and battered, <10 mm max dia, all inner (F66).

SF68. Three pale grey flint flakes, one red brown, all < 10 mm max dia, all inner (F67)

SF69. Burnt secondary flint flake, 16 x 11 x 4 mm (F67)

SF70. Crystal quartz flake, despite grainy nature probably deliberately knapped, 12 x 8 x 4 mm (F73).

SF71. Milky quartz, primary flake, 14 x 8 x 4 mm (F73).

SF72. Translucent quartz flake, 26 x 14 x 3 mm (F79).

SF73. Light brown flint inner flake fragment, <10 mm max dia (F86)

The Human Bone
by J I McKinley

Human bone was recovered from three of the five cists excavated. Cists 1 and 2, situated just outside the kerbed cairn/ring-ditch, contained cremated remains. Cist 5, cutting the ring-ditch, contained *fragmentary remains of an inhumation*.

Method

Each cremation was passed through a stack of sieves, 10, 5 and 2 mm mesh size. The weight of bone from each sieve gives the degree of fragmentation. The weight of bone dust was also noted. The total weight and maximum size of skull and long bones fragments was recorded. The identifiable bone was then separated out for further examination, being divided into the categories of skull, axial, upper and lower limb (see Tables 1 and 2).

Age of immature individuals was assessed from the stage of tooth development and eruption (van Beek 1983), the stage of epiphyseal fusion (McMinn and Hutchings 1985) and the length of long bones (Bass 1987). The age of adults was assessed from the degree of epiphyseal fusion (McMinn and Hutchings 1985, Webb *et al* 1985); pattern of degenerative changes in the pubic symphyses (Brooks 1955); tooth wear patterns (Brothwell 1972); and the general degree of cranial suture fusion and degenerative changes to the bone.

Age categories, rather than age in years, are used in view of the difficulties surrounding the accurate assessment of age for adult individuals over 25/30yrs (that is following final epiphyseal fusion). The categories used are:

foetus/neonate
infant - 0-5yrs
sub-adult - 13-18yrs
young adult - 18-25yrs
mature adult - 25-40yrs
older adult - 40yrs+

It was occasionally possible to subdivide the categories if adequate evidence survived, or groups may be linked where insufficient recovery reduced evidence of age.

The sex of the adults was assessed from the sexually dimorphic traits of the skeleton (Bass 1987). Three levels of reliability are used; ?? for possible, ? for probable and unquestioned sexing. These levels are necessary because of the paucity of information in some cases.

Pathological lesions and morphological variations were recorded. Variations in burning (i.e. other than the white/buff of full reduction) were noted and any other unusual elements possibly associated with the cremation process.

Results

See Tables 1 and 2 for fragment sizes and weights.

Cist 1

Total weight – 2742.7 g

Weight identifiable material = 639.1 g (23.3%)

No. Individuals: Two.

a) AGE: ?Young adult.

SEX: male.

b) AGE: Sub-adult.

COMMENT: *The bone is slightly worn due to passage of water through the cist. The right patella, one* metatarsal and one foot phalanx show grey colouration.

GRAVE-GOODS:

1) Fragments worked antler/bone object(s);

2) at least has bronze staining on fragments of mandible and thoracic vertebra.

Cist 2

Total weight = 3348.9 g

Weight identifiable material = 865.8 g (25.8% of total).

No. Individuals: Minimum 3, probably 4.

AGE: 1) Neonate/young infant.

2) Young adult.

3) Mature/older adult.

?4) Adult.

SEX: Minimum one female and one male.

PATHOLOGY:

1) Medium periodontal disease in mandibular alveolus.

2) Destructive lesion at apex of ?left, maxillary ?canine tooth socket.

3) Osteoarthritis: Slight lesions in thoracic vertebra articular process; Gross lesions in rib tuberosity.

4) Slight pitting in radial tuberosity.

5) Exostoses 'collar' around femur proximal notch.

GRAVE-GOODS:

1) Fragment worked antler object.

2) *Bronze staining noted on one mandible and several fragments of vault*

Cist 5

The majority of the bone has been lost due to soil acidity. The enamel from tooth crowns did survive, however. Tooth enamel has a higher mineral and lower organic content than bone which is why it survives better that the rest of the skeleton in acid soils.

AGE: Older sub-adult/young adult.

Comment

The sizes of the cremation collections (remembering they are multiples) are about average, each representing between 45-60% of the total weight expected of adult cremated remains.

The bone was well reduced, being almost universally buff/white in colour except for a few foot bones in cist 2 and a patella, which were slightly grey. The bone was also fairly well fragmented with the majority of fragments being less than 10 mm. These two factors suggest that the cremations were well tended ensuring full reduction of the bone and increasing fragmentation by movement of the hot brittle bone in the pyre (McKinley, forthcoming).

It would appear that the remains were fairly carefully recovered. Although the entire cremated remains of each individual were not collected, the occurrence of such a large amount of the heat- shattered tooth enamel, particularly in Cist 1, is an unusual feature. The enamel of erupted teeth expands rapidly in the intense heat of the pyre and shatters into many fragments. These fragments are rarely recovered in cremations, presumably because they elude collection from the pyre being so small. Tooth crowns are generally only recovered when they are unerupted and protected from the full force of the pyre, in which case they often remain whole. In both these cists, there are also an unusual number of the very smallest bones from the hands and feet. To find these bones in cremations is not unusual, but to find

quite so many is. The large number of small fragments may be related to the mode of collection of remains from the pyre and/or the care and time taken by the collectors. The cremations are typically clean and free from other pyre debris.

It is impossible to judge from the bone whether the cremations in each cist represent dual cremations (i.e. two or more on the same pyre) or the repeated use of the cist for the deposition of separate cremations.

The occurrence of animal bone in Bronze Age cremations is not unusual although it is relatively infrequent; animal bone, where present, is usually in small quantities, as here. The delicacy of fish bones may be responsible for them not often being recovered in cremations, a factor which must be at least borne in mind.

Catalogue of the cremated bone

Cist 1.

Includes Fragments worked antler/bone object(s).
Total weight = 2742.7 g
Weight identifiable material = 639.1 g (23.3%)
See Tables 1 and 2.

SKULL:

33 fragments tooth enamel from erupted teeth; a minimum of 4 molars including distal and lingual cusps of right mandibular 1st molar with polished occlusal surface, not flat and no dentine exposed. Two maxillary and one mandibular premolars apparently unworn.

Tooth roots; eight incisors, apecies closed. 2 mandibular and 1 maxillary canine, apecies just open. 2 1st maxillary premolars & 3 other premolar roots, apecies closed. 3 maxillary molar roots and fragments minumum 4 mandibular and 3 other maxillary molar roots, apecies open on some.

Mandible - right and left condyles with necks, slightly spongy. Left coronoid process and anterior ramus border, matching right with 2 molar sockets. Right condyle and neck with posterior ramus border, joins anterior ramus border with molar socket. Left anterior ramus border. Left angle and fragments inferior border. 2 anterior bodies with incisor sockets (one both sides one inner only). 3 fragments body with canine/premolar sockets.

Maxilla - left with incisor and canine sockets (bronze stains). Fragment with premolar and molar sockets (bronze stains).

Pair of malar bones - small and gracile. Pair of malar processes - fairly large and robust. 2 right and 1 left petrous temporals and fragments. Fragment nasal process. Basal portion of occipital. Occipital condyle. Fragments sphenoid and temporal base. Left lateral supra-orbit - broad. Fragments 2 glabellae, one with prominent brow ridge other flat. Fragment posterior margin of foramen magnum. Fragments 2 right temporals with zygomatic arches and tubercles, postglenoid and articular tubercles and external auditory meati - one very small and gracile. Fragment left zygomatic arch, two postglenoids with external auditory meati and one articular tubercle. Fragments mastoid processes.

Vault, 191 mostly small fragments. Upper sutures mostly open. Small wormian bone - 12.0 x 9.0 mm.

AXIAL:

Atlas, 2 anterior facets, 2 right and 2 left posterior arches. Axis, odontoid process, 2 pairs superior articular surfaces and fragments posterior arch. Cervical, 8 bodies - none of plates appear to be fused. 4 pair articular processes and 1 neural arch.

Thoracic, fragments minimum 7 bodies (one with Ae stains). 4 transverse, 1 spinal and 43 articular processes (one Ae stained).
Lumbar, minimum 2 bodies. 18 articular processes.

Sacral, fragments minimum 1 body and superior articular process. 2 lowest body segments.
Ribs, 99 fragments shaft, 8 tuberosities, 1 head and fragments four first rib shafts.

Innominate: fragments ilium, greater sciatic notch, pubic crest, acetabulum, right ischial crest, left *auricular surface and right iliac tuberosity*.

UPPER LIMB:

Clavicle, medial end - metaphysis unfused.
Scapula, fragment glenoid and neck. 3 neck fragments. Right coracoid process.
Humerus, fragment proximal head epiphysis. 16 fragments shaft including 4 proximal shafts.
Fragments distal shafts with depressions. Fragments left distal articular surface.
Radius, fragments minimum 2 heads, one with neck. 9 fragments shaft. Fragment distal epiphysis.
Ulna, fragments 2 olecranons. Fragment sigmoid. Left proximal shaft with fragment articular surface.
6 fragments shaft. left distal epiphysis.
Small capitate. Pair of hamate hooks and a second larger right one. Left and right scaphoids, fragment of a third. Fragment small left lunate. Pisiform. Left trapezoid and fragment trapezium.
6 metacarpals heads and large 1st. 6 shafts. Fragments 4 bases with shafts including 3rd.
Proximal phalanx proximal epiphysis. Fragments minimum 5 proximal phalanges bases. 4 middle phalanges, 9 bases. 23 proximal/middle phalanges heads with shafts = minimum total 27 proximal and middle phalanges. 8 distal phalanges.
Very small sesamoid bone - 4.5 x 3.0 x 2.0 mm.

LOWER LIMB:

Femur, 4 fragments shaft, 2 fragments distal articular surface.
Fragments minimum 2 patellae (right grey).
8 fragments tibia and 12 of fibula.
Fragment left calcaneum. Fragments talus and intermediate cuneiform.

2 1st metatarsal heads with shafts. 2 metatarsal shaft fragments. 4 heads with shafts (one grey). 2 distal epiphyses.
2 1st proximal phalanges bases with shafts (one grey) and head fragment. 4 proximal phalanges shafts, 2 heads with shafts. Middle phalanx fragment. 3 distal phalanges.
4 sesamoid bones - max. 9.0 x 5.0 x 4.0 mm.

No. Individuals: Two.
a) AGE: ?Young adult.
SEX: male.
b) AGE: Sub-adult.

COMMENT:

Individual b) at least has bronze staining on several bones.
Bone is slightly worn due to passage of water through the burial medium.

Cist 2.

Includes fragment worked antler object.
Total weight = 3348.9 g
Weight identifiable material = 865.8 g (25.8% of total).
See Tables 1 and 2.

SKULL:

Fragments minimum one ?deciduous, unerupted molar tooth crown in early stages of development.
Fragments enamel from minimum 2 erupted molar teeth, one showing flat occlusal wear, other with little wear.
Fragments minimum 13 incisor/canine/premolar tooth roots. 6 maxillary and 4 mandibular molar tooth roots and mandibular 3rd molar roots.
Body fragments of 2 hyoid bones.

Mandible - Fragments pair rami with anterior borders and 3rd molar sockets, gracile processes, condyles and necks, right joins with posterior body with two molar sockets. Fragments second pair of rami including left condyle and neck, anterior border and coronoid process; right condyle neck and anterior border with bronze staining. 4 angles. Anterior body with pointed mental protuberance, right 1st incisor-canine and left 1st incisor-1st premolar sockets. Anterior body fragment with mental spines.

2 posterior body fragments with molar sockets. Body fragments with sockets. Left posterior body fragment with 2 molar sockets and periodontal disease.

Maxilla - small fragment anterior maxilla with two small crown crypts. Anterior fragment with destructive lesion at apex of one tooth socket - ?left canine? 3 other fragments, one with sockets.

Right malar bone. Fragments second right malar bone including process and? a ?third right process. Left malar process.

Fragments 2 right lateral supra-orbits, one very gracile. 3 other supra-orbital fragments - one narrow, 2 broad margins. Fragment chunky glabella.
Pair nasal processes, fragment of a second right and one other.
2 right, 1 left and fragments minimum one more left petrous temporals.

Left zygomatic arch & fragment large right arch. Fragment zygomatic tubercle.
Fragment foramen magnum border.
Pair large, robust articular tubercles. 2 other left articular tubercles, one fairly small. Right articular tubercle and fragment one other.

3 right and 2 left postglenoid tubercles with external auditory meati. 2 fragments external auditory meatus (i)
Fragments 6 of same temporal base area with auricular fissure. 9 fragments sphenoid bone. Fragments minimum 3 mastoid processes and 4 mastoid bones.
Occipital fragment with no external protuberance.
Vault, 280 fragments (several have bronze staining). Upper sutures and some lower open. (no infant vault). Small wormian bone.

AXIAL:
Atlas, fragments 2 anterior arches with facets. Robust posterior arch fragment. Fragments 4 lateral/neural arches (i.e.either side). Axis, body with superior articular surfaces and odontoid process. Fragment second odontoid process.

Cervical, fragments minimum 7 bodies and 11 articular processes.
Thoracic, fragments minimum 7 bodies. 4 spinal, 4 transverse and 79 articular processes - one inferior process has very slight pitting in the centre. 3 neural arches.
Lumbar, fragments 2 bodies. 2 spinal and 8 articular processes.
Sacral, fragments 2 superior articular processes.
Sternal body fragment.

Rib: 59 fragments shaft. 14 shafts with tuberosities, one with gross eburnation and up to 6 mm osteophytosis on margins.
Innominate: fragments ilium including border, crest, crest metaphysis, tuberosity and right auricular surface. Fragments 2 greater sciatic notches - left fairly sharp. Fragments 2 ischial tuberosities. Fragments acetabulum including one young immature.

UPPER LIMB:

Clavicle, medial articular surface metaphysis.
Scapula, right glenoid & fragments one right and one left. Fragments minimum 2 left and 1 right necks. 2 fragments lateral border.
Humerus, 17 fragments shaft. 9 fragments (= minimum of 2) distal articular surfaces.
Radius, large head & fragments minimum 1 other head. Fragments 2 proximal shafts with tuberosities, one with slight pitting. 14 fragments shaft. Left distal shaft with articular surface. Fragments right distal articular surface.
Ulna, fragments 2 proximal articular surfaces. Left and right radial notches, right with proximal shaft and tuberosity. 6 fragments shaft. 2 small left distal heads with styloid processes. Fragment small right distal head 2 styloid processes, one left.
Carpals: Large right capitate. Large left and right scaphoids and fragment of a third. Large left lunate. Fragments 3 pisiforms. Large right hook of hamate. Trapezoid and trapezium.
Metacarpals: large 1st head and shaft & fragment head. 8 fragments head. Head with shaft. 9 fragments shaft. Fragments 3rd-5th bases with shafts.
Phalanges: 2 proximal phalanges. Fragment 1st proximal head. Minimum 6 proximal bases. Minimum 23 proximal/middle phalanges heads with shafts, 7 fragments shaft. 4 middle phalanges, 5 bases. 18 distal phalanges including 2 1sts.
Small sesamoid bone - 5.5 x 4.0 x 3.0 mm.

LOWER LIMB:

Femur, fragments head with distinct 'collar' of bone around the rim of the notch - 3.0 mm across, 1.5 mm high. Fragment left neck. 10 fragments shaft, 6 fragments distal articular surface.
5 fragments = minimum 1 patella.
Tibia, fragments minimum 3 proximal condyles (= 2 proximal ends). 2 anterior proximal tuberosities (minimum 1 right). 37 fragments shaft. Fragments left distal articular surface.
Fibula, 12 fragments shaft.
Tarsals: fragments minimum 2 tali. Fragments calcaneum. Fragments cuboid, intermediate cuneiform & large navicular.
Metatarsals: Fragments 1st head and shaft. 4 shaft fragments.

Phalanges: Fragments minimum 9 proximal phalanges including 1st. 1 middle phalanx. 6 distal phalanges including 1st left and tiny 5th.
Sesamoid bone - 9.0 x 4.0 mm.
Immature - pair very small femur shafts. Fragment tibia shaft & fibula shaft.

No. Individuals: Minimum 3, probably 4.

AGE: 1) Neonate/young infant.
2) Young adult.
3) Mature/older adult.
?4) Adult.

SEX: Minimum one female and one male.

PATHOLOGY:
1) Medium periodontal disease in mandibular alveolus.
2) Destructive lesion at apex of ?left, maxillary ?canine tooth socket.
3) Osteoarthritis: Slight lesions in thoracic vertebra articular process; Gross lesions in rib tuberosity.
4) Slight pitting in radial tuberosity.
5) Exostoses 'collar' around femur proximal notch.

COMMENT: Bronze staining noted on one mandible and several fragments of vault.

Cist 5.

This was an inhumation but the majority of the bone has been lost due to soil acidity. A few fragments of very fragile long bone shaft (minus the cortex) and spongiosa from articular surfaces was all that remained of the bone. Several tooth crowns did survive however (tooth enamel has a higher mineral and lower organic content than bone which is why it survives better than the rest of the skeleton).

SKULL:

Although recovery was good, the crowns being only of enamel were very fragile and often shattered into very small fragments. This made identification of individual teeth difficult in some instances.
Fragments both 1st and 2nd maxillary incisors and a minimum of one mandibular incisor - flat occlusal wear with slight exposure of dentine.
Fragments minimum 4 canines - large with occlusal wear.

Large 1st left maxillary premolar - light occlusal wear with exposure of dentine in buccal cusps. Both 1st mandibular premolars, wear as maxillary.
Fragments minimum 6 molars including at least one 1st maxillary and mandibular - none show more than fairly light occlusal wear or polish.

AGE: Older sub-adult/young adult.

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TABLE 1: (NB. Cist 2 also had 335.1 g of 2 mm bone/fine gravel mix, but weight was not included due to contamination).

Cremation	Weight of bone in sieves (g)				Max. fragment (mm)	
	10 mm	*5 mm*	*2 mm*	*dust*		
					skull	long bone
Cist 1	1188.1	1121.6	315.8	117.2	41	67
	43.30%	40.90%	11.50%	4.30%		
Cist 2	1325.1	1501.8	407.6	114.1	45	69
	39.60%	44.80%	12.20%	3.40%		

TABLE 2

Cremation	Weight (g) and percentage of identifiable bone in each skeletal area			
	skull	axial	upper limb	lower limb
Cist 1	274.4	147.1	133	84.6
	42.90%	23.00%	20.80%	13.20%
Cist 2	361.3	140.7	161.6	202.2
	41.70%	16.20%	18.70%	23.30%

The palynological sub-samples

by R Tipping

Introduction

Only three of the fourteen contexts subsampled for palynological analysis proved polleniferous (see Appendix). The three contexts are:

F78 : natural sand and gravel forming floor of Cist 5;
F79 : cone of sand seeping into chamber of Cist 5;
F80 : sand immediately beneath the food vessel SF52 on floor of Cist 5.

These are derived from the one cist, which suggests that preferential pollen preservation conditions existed within this part of the kerb cairn.

Pollen sources

Cist 5 is a voided chamber containing badly preserved inhumed bone and a food vessel. The burial was made directly onto fluvioglacial sand and gravel. There was a faint brown stain in the sand, presumed to represent a 'body stain' (*pers comm* S Stevenson). The stained sand was not carefully subsampled, F78 being part of a routine bulk sample of the natural sand containing the stain. It can be compared with F80, a similar deposit but away from the stained area, preserved beneath the food vessel. A sample of natural sand into which Cist 5 had been cut (F81) was examined, but this proved totally non-pollen iferous; since the density of exotic grains per traverse in this subsample was closely comparable to those in the relatively pollen-rich subsamples F78 and F80; this result is not likely to be due to preparation-induced low pollen 'density' (e.g., a low ratio of pollen to the embedding medium, silicone oil). This is taken to imply that the fluvioglacial sand and gravel is truly non-pollen iferous, and that the thermophilous pollen reported below is the result of incorporation during or following grave construction. Similarly, the parent material of the buried soil (F19:S004), also fluvioglacial sand, was totally non-pollen iferous.

The non-pollen iferous character of the natural sands (F81; above), together with that of the relatively organic-rich buried soil (F19), suggests that little contamination from natural sediments has occurred to affect subsamples F78 and F80. Substantial disturbance of the archaeological levels by burrowing animals, tree roots and human agency is reported by Stevenson (main text), but to what extent this contamination has affected these subsamples is unclear. In the 'Discussion', it is assumed that the pollen floras present in F78 and F80 are contemporaneous with the use of the cist.

The cones of sand (F79) at each corner were thought to have filtered between the side slabs and the cover slab after the grave had been sealed (Stevenson: main text). Immediately above the cover slab (F76) is the fill of the pit of Cist 5, yellow sand and gravel (F75) probably derived from the fluvioglacial deposits. These are non-pollen-iferous (above), which might suggest that F75 itself contained no pollen, but this material may have been exposed to the air for some time before being covered by the cairn. This introduces an additional potential source of pollen to subsample F79.

Methods

The subsamples were treated by conventional chemical techniques (Moore and Webb 1978), with hydrofluoric acid being used to remove siliceous material, stained with safranin and counted on a Prior microscope at mag. x400, and mag. x1000 for problematic grains and all size measurements. Standard keys and type-slide collections were referred to; particular pollen types are considered in the 'Discussion'.

Results

The percentage-based results of the three analyses are provided in Table 1 (main text).

Discussion

The three subsamples are quite similar in the pollen types represented, their relative proportions, state of preservation and microscopic charcoal contents. Major differences are seen only in the over-representation of Quercus and Compositae Liguliflorae pollen in F78; the low values of Corylus/Myrica pollen and the higher values of Filipendula in F80, and the occurrence in this subsample only of Umbelliferae pollen. Subsample F79 shows a close comparability with the other subsamples, only differing in the inflated values of Saxifraga granulata type pollen. These limited differences suggest a common source for their contained pollen, which is surprising since F79 has been inferred (Stevenson: main text) to post-date the sealing of the grave, and therefore to have formed at a time after contexts F78 and F80 had been isolated from pollen sources.

Two principal possibilities exist to explain the similarities in pollen contents. One is that the cones of sand (F79) contained material from the cist floor, introduced either before sealing of the grave, by subsequent disturbance or by poor field sampling of the context. The alternative is that the cist floor was initially non-polleniferous, and that the later deposited and polleniferous cones of sand extended across the cist floor, contaminating the sediments forming the floor. This latter interpretation is rejected however, since F80 represents sediment from beneath the protective cover of the food vessel SF52. Accordingly, it is assumed that the pollen floras in F78 and F80 are *in situ*, and date to the period of grave use. The deposits forming F79 must therefore either be contemporaneous with grave use, in which case they are not related to seepage through cracks, or be contaminated at some time after deposition; the latter is perhaps the easiest proposal to accept. In view of this possibility, F79 is not considered further, since the immediate source of pollen in this sediment is represented with fewer uncertainties in the remaining subsamples.

Pollen preservation in the cist floor subsamples is not good, and around 20% of pollen grains could not be determined through extreme deterioration. Of the determinable grains, between 39 and 47% were crumpled or broken, possibly as a result of post-depositional abrasion in the sandy sediment. Preferential losses of thinner-walled pollen types is possible in such conditions, though the representation in the counts of several such types (e.g., Spergula type, Filipendula, Umbelliferae) and the only low representation of types resistant to mechanical deterioration (Compositae, Polypodium vulgare) tend to indicate that such losses are minimal. More encouraging are the low percentages of corroded and degraded grains, implying no preferential losses through biochemical decay.

The pollen counts from F78 and F80 can probably be regarded as one assemblage, given their similarities. Several aspects of the two counts suggest that what is represented is not solely the product of subaerial pollen 'fallout' from the region surrounding the site. Firstly, the representation of several pollen types (Spergula type, Filipendula) in percentages far higher than would be expected from

wind-blown transport suggests the artificial (anthropic) concentration of their pollen. The observation that the latter pollen type is represented by clumps of pollen, groups of three or more attached grains, can be used to suggest that flowers of this plant (cf. dropwort) were present on the cist floor. Differences in representation of Filipendula pollen, although percentage-based, are considered significant in this respect, as is the presence only in F80 of Umbelliferae pollen, and these are interpreted as being the result of spatial differences in the deposit over the cist floor. There are also marked differences in total pollen concentration, but this is an unreliable guide in this case, since the differences could be induced by increased amounts of non-pollen ferous fluvioglacial sands in F78.

Accordingly, the pollen assemblage cannot be interpreted as 'natural', and percentages do not represent the relative proportions of different plant communities, such as woodland, pasture or arable. Elements of all three communities are apparent in the analyses, but the artificial concentration of particular pollen types means that the relative importance of each cannot be distinguished. An aerial component to the pollen assemblage almost certainly exists, recognized most easily by the presence of pollen of plants which flower at different times of the year. Many of the herbs are most commonly associated with cereal cultivation (e.g., Caryophyllaceae, Spergula, several of the Compositae, Cruciferae, Ranunculus and Rumex). Crumpled Gramineae grains with annulus diameters (anl-D) >8.0um probably represent cereals, but these could not be identified further.

The principal interest in the counts is in the unusually high representation of the pollen taxon provisionally identified as Filipendula cf. F. vulgaris (dropwort). There is some evidence that flowers of this plant were present, certainly prior to the covering of the cist, and probably prior to the deposition of the food vessel (since one clump of pollen was found in F80). Flowers of other plants (Spergula type, Umbelliferae) might be suspected to have been similarly present, given their high representation, but this cannot be established. More significant is the recognition that at several eastern Scottish sites, pollen analyses from either cist floors or associated food vessels of Bronze Age burials have produced unusually high values of Filipendula pollen: at Ashgrove, Methilhill (Lambert 1964, Dickson 1978), North Mains, Strathallan (Bohncke 1983), Loanleven, near Perth (Tipping 1992) and Sketewan, near Aberfeldy (Tipping 1994). Interpretations of this phenomenon range from the deposition of a floral tribute (Lambert 1964, Tipping 1994), or the provision of a covering mat of flowers (Tipping 1992), to the presence within food vessels of a cereal porridge (Bohncke 1983) or fermented drink (Dickson 1978, Bohncke 1983).

Unlike the Ashgrove analyses, where very high values of lime (Tilia) led Dickson (1978) to propose a mead based on lime honey, there are no major pollen taxa at Beech Hill House which are common ingredients of honey. Bohncke's data from North Mains are comparable in this, as are Tipping's at both Loanleven and Sketewan. However, the predominance among the herb pollen taxa of arable weeds, and particularly the abundance of Spergula type, is suggestive of a food. Spergula type pollen includes both

Spergula (corn spurrey) and Spergularia (sea spurreys) (Moore and Webb 1978), but the latter are confined to coastal locations. Corn spurrey, as its name suggests, is a common arable weed, and is well known as a famine food, being used instead of cereals in bread making (Fenton 1978). The low values of cereal pollen (Gramineae anl-D <8.0um, above) are not supportive of such an interpretation, however, unless corn spurrey be regarded as a substitute for cereals. In this regard, the pollen contents of the stomachs of both Lindow Man and Grauballe Man reported by Scaife (1986) show Spergula type pollen to comprise 3.2% total pollen in the antrum of Lindow Man (cereals comprised 85.5%), and 14.0% in Grauballe Man (cereals here totalled only 1.8% total pollen). What is not well explained by this interpretation is the spatial distribution of the pollen assemblage across the floor of Cist 5, unless the food was in viscous form (capable of flowing), as in a porridge.

Lambert's original interpretation at Ashgrove linked the pollen assemblage to a well-preserved organic deposit covering the chest of a skeleton. The pollen spectra at Beech Hill House could equally represent such a mat. The uncertainty over distinguishing between anthropically deposited and naturally wind-blown pollen taxa makes it difficult to detect unifying characteristics in the assemblage, and thus whether the plants represent more than just a covering for the inhumed body. At Leanleven and Sketewan putative 'body stains' were examined and re-interpreted as the humified remains of vegetation, either a floral tribute or covering mat. At Beech Hill House, context F78 represented a similar dark stain, presumed to be a 'body stain' (Stevenson: main text). The palynological furdings suggest that, as at other sites, the organic staining is vegetational in composition. The pollen assemblage is recognized from a context separate from the stained area (F80, beneath the food vessel), but this difference may simply relate to different concentrations of organic deposits across the cist floor.

Conclusions

The pollen spectra from Cist 5 at Beech Hill House are interpreted as being contemporaneous with the use of the grave. There is little evidence from surrounding sediments for contamination. The pollen assemblage is unusual, and is not the product of natural pollen-depositional processes. The artificially high concentrations of particular taxa imply an anthropogenic origin for several of the pollen taxa. It is not clear whether a foodstuff is represented, or whether a floral tribute or covering mat was the source of pollen. The results accord with recent palynological investigations of comparable contexts in eastern Scotland. It remains unclear at present as to the reasons for the consistent abundance at these sites of the pollen of Filipendula.

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APPENDIX : Contexts examined for their pollen content.

F5: *light brown sandy loam from stone cairn - countable but deposit described as badly disturbed, not analysed.*

F19 (S003): buried soil - virtually non-polleniferous; not analysed.

F19 (S004): " " - totally non-polleniferous; not analysed.

F19 (S005): " " - " " " ; " "

F19 (S006): " " - " " " ; " "

F49: light brown loamy sand, lower fill of cut 024 (Cist 3) - countable, but deposit badly disturbed, not analysed.

F53: rooted dark brown sandy loam in pockets around 006 - non-polleniferous; not analysed.

F78: analysed.

F79: "

F80: "

F81: natural sand into which Cist 5 was made - non-polleniferous; not analysed.

SF40A: exterior of potsherd - non-polleniferous; not analysed.

SF40B: *interior of potsherd* - " " ; " "

SF40C: rim of potsherd - " " ; " "

Report on the micromorphology of two soil thin sections from the excavations at Beech Hill House
by S Carter

1. DESCRIPTION OF THE THIN SECTIONS.

These follow the descriptive scheme of Bullock *et al* (1985). The following abbreviations have been used:

PPL Plain polarised light

XPL Cross polarised light

OIL Oblique incident light

DESCRIPTIONS

1. Upper horizon

Basic mineral components

Coarse/Fine limit: 20um. Coarse/Fine ratio: 90:10 for most of slide but 70:30 in areas of denser fabric.

Coarse material:

Quartz. Frequent silt to fine sand sized subhedral, equidimensional, subrounded to subangular grains. Most have shadowy extinction. Poorly sorted.

Feldspar, Micas, Hornblende, Garnet, etc. Very few silt to medium sand sized subhedral to euhedral, equidimensional to elongate (mica), subrounded to subangular grains. Poorly sorted.

Compound quartz. Frequent very fine to very coarse sand sized (up to 8 mm), equidimensional, subangular to rounded (larger fragments are rounded) rock fragments. Poorly sorted.

Acid metamorphic. Common very fine to very coarse sand sized (up to 1.6 mm), equidimensional to elongate, subrounded to angular rock fragments. Poorly sorted.

Sedimentary. Very few very fine to very coarse sand sized (up to 1.4 mm), equidimensional, subrounded to subangular fragments of ferruginous coarse siltstone/fine sandstone.

Fine material:

Organo-mineral composition. Yellowish brown in P.P.L. and O.I.L.. Speckled appearance. Composed of clay and silt sized material with dominantly 1st order interference colours from quartz.

Basic organic components

Coarse/Fine limit: 20um. Coarse/Fine ratio: 80:20.

Coarse material:

Organ residues.

Very few medium meso root fragments. Internal structure intact. Highly birefringant. Modern roots.

Tissue residues.

Very few coarse micro to medium macro fragments of wood charcoal (with pieces up to 8 mm). Equidimensional to elongate, subrounded (smaller) to angular (larger). Random distribution. Dominant as a proportion of coarse organics.

Amorphous.

Very few coarse micro to fine meso polymorphic amorphous fragments. Subrounded and equidimensional. Reddish brown in O.I.L., isotropic in X.P.L.. Random distribution. Frequent as a proportion of coarse organics.

Fine material:

Amorphous.

As above but smaller fragments.

Organic pigment.

Some masking of interference colours in X.P.L. indicates some organic pigment.

Punctations.

Frequent subrounded equidimensional fine silt sized particles. Black in P.P.L and X.P.L. May be charcoal, opaque minerals or dirt in mount.

Groundmass

Fabric of coarse material: random.

Fabric of fine material: Transition between undifferentiated and crystallitic b-fabric.

Related distribution: Generally chitonic but tending to gefuric in areas with little fine mineral material. Few areas (c.3-4 mm diameter) of close porphyric where fine material is common. Fabric tends to be denser towards base of horizon.

Microstructure

Very complex. Approaches pellicular grain structure in places, then varies through an intergrain microaggregate to a crumb structure. This follow the related c/f distributions closely. The assessment of the abundance of these structures is not easy as the boundaries between them are not clear.

Types of peds:
Fine to medium crumbs, unaccommodating with rough walls. These are probably fragments strictly.

Types of voids: (Voids form 30% in porphyric areas up to 60% in gefuric areas of total section)
Inter-aggregate.
Very dominant complex packing voids. Coarse micro to fine macro in size with rough walls. Unrelated random distribution.
Intra-aggregate.
Very dominant compound packing voids. Coarse micro to medium meso in size with rough walls. Unrelated random distribution.
Very few channels. Fine to medium meso in size, not clearly separated from compound packing voids so details of abundance, size and shape are uncertain.

Pedofeatures
Textural:
Cresentic coatings, typic coatings and infillings of impure clay and fine silt. Coarse micro to medium meso infillings of compound packing voids and channels in crumbs, cresentic coatings in compound and complex packing voids and typic coatings on mineral grains, and crumb/fragment surfaces. Very dominantly non-laminated; few cresentic coatings are laminated parallel to void surface with layers 50-100um thick. Extinction zones are diffuse and the basic orientation is random.They are rare at the top of the horizon and occasional towards the base where they overlie the intact and fragmented dusty clay coatings in the transition to the lower horizon. Some impure clay/silt cresentic coatings are clearly fragmented and many of the typic coatings may also be.

Cresentic coatings and infillings of dusty clay, microlaminated with limpid and speckled clay. Rare subangular coarse micro to fine meso fragments embedded in the groundmass. Sharp extinction zones. *These are fragments of the clay coatings and infillings found in the lower horizon and up into the* transition zone.

2. Lower horizon

Basic mineral components
Coarse/Fine limit: 20um. Coarse/Fine ratio: 70:30

Coarse material:
As for upper horizon except that the coarse fraction is better sorted. It is moderately well sorted into the medium and fine sand categories.

Fine material:

As for upper horizon.

Basic organic components

Coarse/Fine limit: 20um. Coarse/Fine ration: uncertain

Coarse material:

Organ residues.

Very few spherical multicellular spores, c.60um in diameter, dark brown in P.P.L. and black in X.P.L..

Very few as a proportion of coarse organics.

Tissue residues.

Very few coarse micro to coarse macro wood charcoal fragments. Equidimensional to elongate, subrounded to angular (larger fragments). Dominant as a proportion of coarse organics.

Amorphous residues.

As for upper horizon. May be more abundant but they are hard to separate from the limpid clay coatings.

Fine material:

Amorphous

See comment above.

Organic pigment

Very little present (less than in upper layer), little masking of mineral interference colours in X.P.L..

Punctuations

As for upper horizon.

Groundmass

Fabric of coarse fraction: random.

Fabric of fine fraction: Crystallitic b-fabric.

Related distribution: Generally chitonic tending to porphyric.

Microstructure

Spongy structure. Apedal soil material.

Types of void:

Very dominant coarse micro to coarse meso (few fine macro) complex packing voids. Smooth walls at x200 and rough (digitate) at x50. 100% of voids, 20-30% of total section. Random orientation and distribution.

Pedofeatures

Textural:

Many crescentic coatings and infillings of dusty clay, microlaminated with limpid and speckled clay. Medium micro to medium meso thickness on almost all void surfaces. Sharp extinction zones. Largely undisturbed with fragmentation limited to cracking which may have occurred during thin section preparation.

3. Transition zone between upper and lower horizons.

This zone is structurally similar to the upper horizon but contains fragmented and embedded dusty clay coatings from the lower horizon overlain by impure clay/silt coatings of upper horizon.

See Main text - for sampling methods, summary of micromorphology, interpretation, discussion and references.

The charred plant remains from Beech Hill House
by Sheila Boardman (see also Main text)

Introduction

Bulk samples from 30 contexts were processed (see Appendix 1) for the recovery of dating material, bone and artefacts. Of the 22 samples which produced plant material, 3 have been discarded as insecurely stratified contexts. The remaining 19 samples produced few remains, and most of these are likely to be related to former and subsequent uses of the site.

The remains

These are presented in Tables 3-6 (below). The figures refer to individual grains and seeds. Hazelnut (Corylus avellana) shell fragments have not been included in the sample totals.

Barley (Hordeum sp.) was best represented among the cultivated plants. The occurrence of twisted grains suggests that the six-row variety (Hordeum vulgare) is present. Most grains were indeterminable to species. Pit 2 produced the only occurrences of wheat (Triticum sp.) and oats (Avena sp.). The single wheat grain (F36) resembled emmer (T. dicoccum) but preservation condition prevented a positive identification. The oat grains (F52) were only identifiable to genus (Avena sp.) so it is unclear whether cultivated and/or wild types were present. There was also a range of wild taxa.

Discussion

Contexts containing cultivated plant remains include the old ground surface below and around the cairn, the ring-ditch, pits/possible pits and the cists themselves. The dominant cultivated species, (six-row) barley, could be representative of any period from the Neolithic onwards. Emmer wheat is also known from the Neolithic period in Scotland (Fairweather and Ralston 1993). Cultivated oats are rare prior to the Roman period although the genus seems to have existed before this as a cultivation weed (Boyd 1988).

Some of the wild taxa have a preference for damp ground, eg. persicaria Polygonum persicaria/lapathifolium. Most are general herbs, such as ribwort plantain (Plantago lanceolata), or common cultivation weeds which survive under a range of soil types and moisture conditions: chickweed (Stellaria media), fat hen/orache (Chenopodium/Atriplex) and bedstraw (Galium sp.).

It is unclear from the deposits and from the composition of the samples how the plant remains arrived at the site. Most of the wild taxa occur today as cultivation weeds so they could have been derived from

cereal crops grown locally. In samples with weed seeds only, this relationship is less clear. In general however, there was a high degree of homogeneity between samples. For the most part, these contained a few poorly preserved cereals and weed seeds, plus more general refuse by way of hazelnut (Corylus avellana) shells.

Analysis of soil thin sections (F19; F26) suggests that the area was considerably disturbed prior to the construction of the cairn, initially through cultivation and then as a likely result of the digging of Cists 3 and 4 or the ring-ditch (see Carter: main text and above). One possibility is that the plant remains came from middened material dumped onto the field or plot. These then became incorporated into later deposits eg. Cist 5. This would explain the frequent inclusion of nutshells, and the bad preservation and low numbers of remains in general.

The site had also been disturbed by more recent activity: burrowing animals, tree roots and landscaping. Much of the overlying soil was loosely packed and a general down movement of botanical remains across the site seems likely.

Conclusions

In summary, the cereal species are not very informative about the deposits in which they were found. All seem to be intrusive. Crop plants do appear to have been handled prior to the construction of the cairn complex; however, the type of agriculture that these represent is impossible to extract from later activity at the site.

TABLE 3: The plant remains from Beech Hill House - old ground surface(s) (OGS) and the ring-ditch -

FEATURE NO.	F19	F20	F53	F47	F56	F73
FEATURE TYPE	OGS	?OGS	OGS	ring-ditch	ring-ditch	ring-ditch
SPECIES						
Hordeum L.						1
H. sp. (hulled, twisted)						
Cereal indet.	1					
Carex L. (trigonous)	1					
Chenopodium L./Atriplex L.	1					
Corylus avellana L.	11F		4F		4F	1F
Plantago lancoolata L.				1		
P. persicara/lapathifolium L.	3					
Rosaceae undiff.	1					
Stellaria media (L.) Vill.		1				
Veronica cf. hederifolia L.	2					
Weeds indet.	4	1		2		1
Quantifiable fragments	13	2		3		2
Volume of soil (litres)	164	12	0.25	14	10	12

TABLE 4: The plant remains from Beech Hill House - pits and possible pits

FEATURE NO.	F86	F88	F36	F52
FEATURE TYPE	?Pit F85	?Pit F85	Pit 2	Pit 2
SPECIES				
Hordeum L.				
H. sp. cf. twisted			1	
H. sp.			1	
cf. H. sp.			1	
Triticum L.				
T. cf. dicoccum			1	
Avena L.				
A. sp.				1
cf. A. sp.				1
Cereal indet.			1	
Corylus avellana L.	1F			4F
P. persicaria/lapathifolium L.				1
Rosaceae undiff.				1
Veronica cf. hederifolia L.		1		
Weeds indet.		1		1
Quantifiable fragments		2	5	5
Volume of soil (litres)	3	10	14	13

TABLE 5: The plant remains from Beech Hill House - the cists

CONTEXT NO.	F18	F17	F44	F39	F49
FEATURE	Cist 1	Cist 2	Cist 2	Cist 3	Cist 3
SPECIES					
Calluna vulgaris (L.) Hull					
(fruit)	1				
Corylus avellana L.					1F
Plantago lanceolata L.		1			
Rumex crispus/obtusifolius L.					1
Weeds indet.			1	1	
Quantifiable fragments	1	1	1	1	1
Volume of soil (litres)	14	4	37	14	6

TABLE 6: The plant remains from Beech Hill House - the cists

CONTEXT NO.	F26	F70	F78	F79
FEATURE	Cist 4	Cist 5	Cist 5	Cist 5
SPECIES				
Hordeum L.				
H. sp. hulled, twisted			1	
H. sp. hulled				1
H. sp. cf. hulled		1		
H. sp.			1	
Corylus avellana L.	1F			
Gramineae undiff. (small)				1
Weeds Indet.			1	
Quantifiable fragments		1	3	2
Volume of soil (litres)	14.5	10	14	28

Appendix 1

Processing

The samples were processed in the standard AOC manner using a water separation machine (Kenward *et al* 1980). The flots were collected in sieves with mesh sizes of 1 mm and 300 microns, and the retent in a 1 mm mesh.

Sorting

The 1 mm flots were sorted completely. The quantity of remains did not warrant the sorting of the 300 micron flots. Small retents and those containing bone and artefacts were sorted totally. For other retents, a fraction only was sorted. In the case of the latter, botanical remains (only ever hazelnut shell fragments) have been multiplied to represent total samples.

Reference

Kenward, H K, Hall, A R and Jones, A K G 1980 'A tested set of techniques for the extraction of plant and animal macrofossils from waterlogged deposits', Science and Archaeology, 1980, 2-15.