# EXCAVATIONS AT HAM HILL QUARRY, HAMDON HILL, MONTACUTE, 2002

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## INTRODUCTION AND ARCHAEOLOGICAL BACKGROUND

Hamdon or Ham Hill (ST 4829 1610) is the site of a large Iron Age hillfort (scheduled as Somerset No. 100), with defences enclosing an area of *c.* 85.2ha on an outcrop of Upper Liassic Ham Hill Stone and Yeovil Sands lying at approximately 120m above Ordnance Datum (OD). The site commands extensive views across the Somerset Levels to the north and west.

The hillfort comprises a large, roughly rectangular area enclosed by a bank, ditch and counterscarp bank, with a 'fan-tail' spur at the north-west corner enclosed by two major banks and ditches fronted by a counterscarp. Most of the interior of the spur and the adjacent western portion of the main enclosure have been destroyed by quarrying. Ham Stone has been removed since at least the Roman period, and quarrying continues at the present time in the south-west corner of the site at the Ham Hill Stone Quarry (Fig. 1). Quarrying since the 19th century has resulted in the recovery of evidence of human use of the hilltop since the Mesolithic period. Collections of material from the hill were begun in the late 19th century (Norris 1886; Gray 1906). Archaeological investigations began when Walter undertook limited excavations in the east of the fort and on the spur. Other than a summary account (Walter 1907), this work remains unpublished, as do the first systematic series of excavations carried out by St George Gray between 1923 and 1930 on and without the spur's defences (Gray 1924; 1925; 1926; 1930). Summaries of material are given by Seaby (1950a; 1950b) and Burrow (1981), and Morris produced an analytical catalogue of pottery (1988).

Modern investigations comprise a watching brief on the spur in 1975 (Ellison and Pearson 1977), a series of excavations in the south-west corner of the main enclosure (Smith 1991; Adkins and Adkins 1992; McKinley 1999; Wessex Archaeology 2001) and geophysical survey (by Geophysical Surveys of Bradford in 1992), shown on Fig. 2.

This material suggests periodic activity on the hilltop since the Mesolithic period, with most intensive settlement in the 1st century BC on the projecting spur. An early Roman fort has been suggested (Manning 1976), followed in the 2nd century AD by a villa in the east of the interior.

## THE 2002 EXCAVATIONS

A proposed eastwards extension of the Ham Hill Stone Company's existing quarry necessitated the investigation of a wedge-shaped area centred on NGR ST 4829 1610 (Figs 2 and 3). A geophysical survey was followed by excavation and evaluation in August and September 2002 on an area of approximately 0.23ha immediately east of the then-current face of Ham Hill quarry, bounded to the east and south by a large soil bund and to the west by a north–south aligned ruined drystone wall. In addition an evaluation was carried out on two narrow trenches immediately to the south of the main excavation. The excavation area comprised level ground around 120m above OD.

Archaeological deposits consisted entirely of


*Fig. 1 Site location*

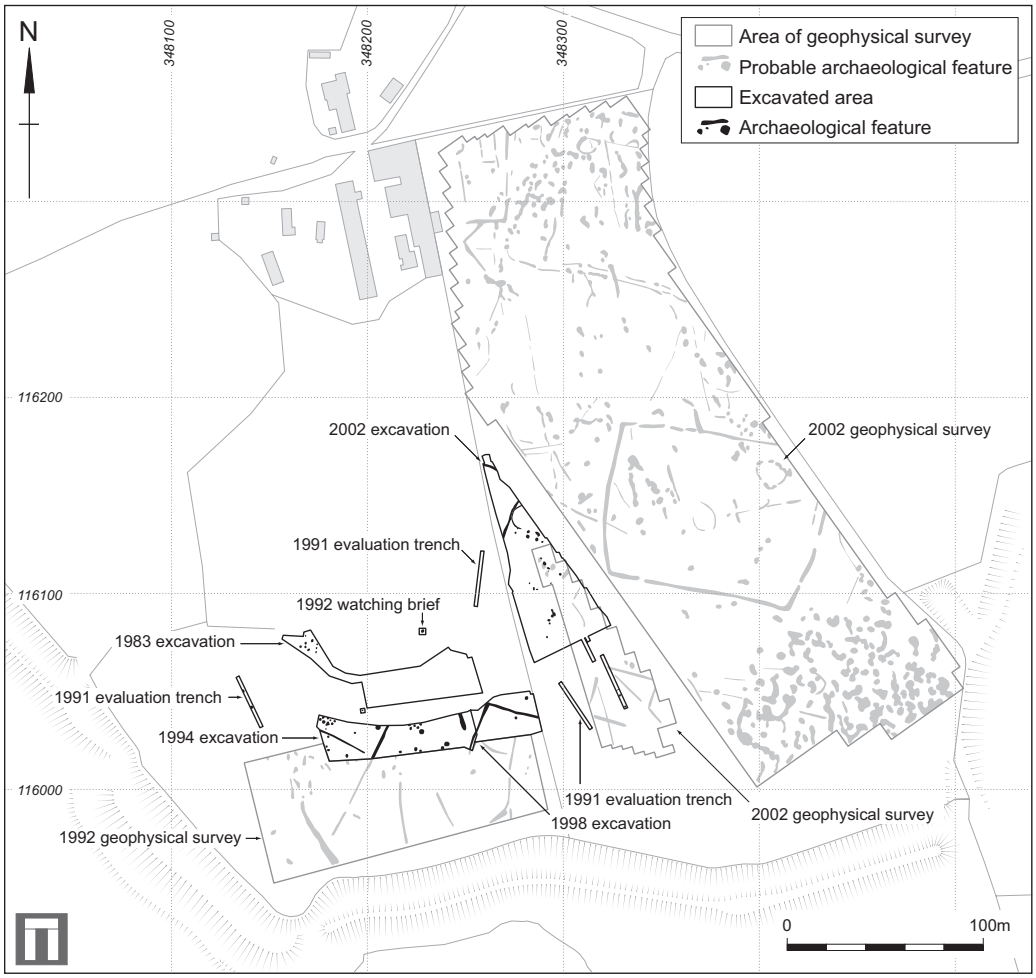


*Fig. 2 Excavation location and previous archaeological work in the area*

features cut into natural geological deposits. These consisted of Upper Liassic Ham Hill Stone and Yeovil Sands, characterised by thin limestones and sandy beds. In the north of the site the deposits were predominantly made up of broken thin beds of limestone crossed by numerous irregular and linear gullies aligned north-east–south-west. These features were interpreted as natural fissures in the Ham Hill Stone bedrock. To the south the deposits were characterised by a deep deposit of yellowish silty sand which overlay the thin beds of limestone to a depth of 2–3m.

Fieldwork was undertaken in accordance with an approved statement, a copy of which is in the project archive.

**Excavation**

The main excavation area, Trench 1 (Fig. 3), covered 0.23ha, with two additional trenches (Trenches 4 and 5: Fig. 3) machine excavated within its perimeter. Trench 4 measured 2m by 28m and Trench 5 measured 2m by 25m. These trenches were intended to test the depth of sand deposits encountered over the centre and south of Trench 1. It was observed that between the topsoil and natural sand and rock an eroded sand layer (a 'hillwash') had accumulated, causing some features to be masked. Although no archaeological features were found in Trenches 4 and 5, this hillwash was found to overlie features in the central part of Trench 1.

Following the identification of the 'hillwash' deposit in Trenches 4 and 5, a programme of archaeological monitoring of the machine stripping of these deposits was undertaken in the southern half of Trench 1. A further 14 features (mostly pits) were identified and a programme of additional excavation was undertaken, although some features may have escaped detection.

**Evaluation**

Two trenches (Figs 2 and 3) were excavated. Trench 2 measured 2m by 12.5m and Trench 3 measured 2m by 30m. Both were excavated to a depth of 0.2–0.3m.

The disposition of archaeological features is shown in Fig. 3. All pits were 100% excavated after half-sectioning, and a minimum 10% sample of all ditches was excavated.

THE SITE

The location of all recorded features is shown in Fig. 3. Full details are held in the project archive.

**Earlier prehistoric activity**

Pre-Iron Age human activity in the area was indicated by worked flint and chert recovered from the topsoil, subsoil and various later prehistoric pits and ditches. The lithics indicate a likely date range of Early Neolithic to Early Bronze Age for this activity.

**Iron Age activity**

Evidence of Iron Age activity consisted of 21 pits and a small number of other features. Ceramics suggest a date range of the 4th–1st centuries BC: two pits (155 and 167) date to the 4th–3rd centuries (McKinley 1999 Phase II), while a further four (108, 119, 136 and 185) are assignable to the 2nd–1st centuries (McKinley 1999 Phase III) on the basis of their ceramics. No features or finds belonged to McKinley's Phase I (7th–5th centuries). Other features belong within the broad date range. The lack of closely datable features renders discussion under chronological subdivisions redundant. Consequently, the narrative is arranged following the pit typology proposed in McKinley 1999.

TYPE 1 PITS

Only one feature belonged to this type (Fig. 4.3). Pit 149 was 1.87m in diameter and 1.26m deep. Although strictly undated, the feature is generally similar to Phase III pit 108 (below) and probably of the same period. The lowest fill (154) contained over 15kg of burnt Ham Stone in a mixed layer of charcoal and soil clearly burnt in situ. Below the stones were predominately large-seeded arable weeds and very large quantities of grains of emmer and spelt wheat and hulled barley. The grain appeared fully clean, as very few glume bases were present. Thousands of seeds of black mustard (*Brassica nigra*) were recovered from the basal layer. The presence of these seeds in such high numbers suggests that they represent a cultivated crop burnt in situ.

Previous analysis of pits at the hillfort (e.g. pit 73 on the 1994 excavations) has revealed the presence of whole ears of grain burnt in situ at the base of pits that also contained *Brassica* seeds. The presence of charred grain within the *Brassica* assemblages in 1994 pit 73 and 2002 pit 149 offers the potential to identify and understand the relationship between the two crops. Modern mustard, for example, is produced by mixing wheat and mustard flour. Alternatively, cereals may have been grown together with *Brassica* crops, hence the presence of whole ears in some pits. The 1994 pit 73 also contained a suite of unusual objects suggesting ritualised structured deposition (Ede 1999).

This may also be the case in pit 149, where a quern and the skull of a horse sat on the surface of (154) within layer (153). This layer also contained almost 4kg of burnt Ham Stone, and may have been a sealing layer. Layer (152) above it was almost sterile, and probably represents collapse of the pit sides. Above this, a sequence of slumped layers containing a generally low level of cultural debris (animal bone, pottery, fired clay (one piece with wattle impressions) slag and slingshots) filled the feature.

TYPE 2 PITS

The majority of pits are of this type, consisting of small to medium-sized features with one or two fills. Of the 15 pits of this type (110, 133, 136, 155, 165, 167, 173, 175, 177, 180, 183, 197, 199, 201, 203), 14 had only one fill, with the remaining ones having two. Most had only a small quantity of archaeological material (if any) scattered throughout the fill(s); this consisted mostly of pottery and animal bone, with occasional fragments of fired clay, iron nails, burnt

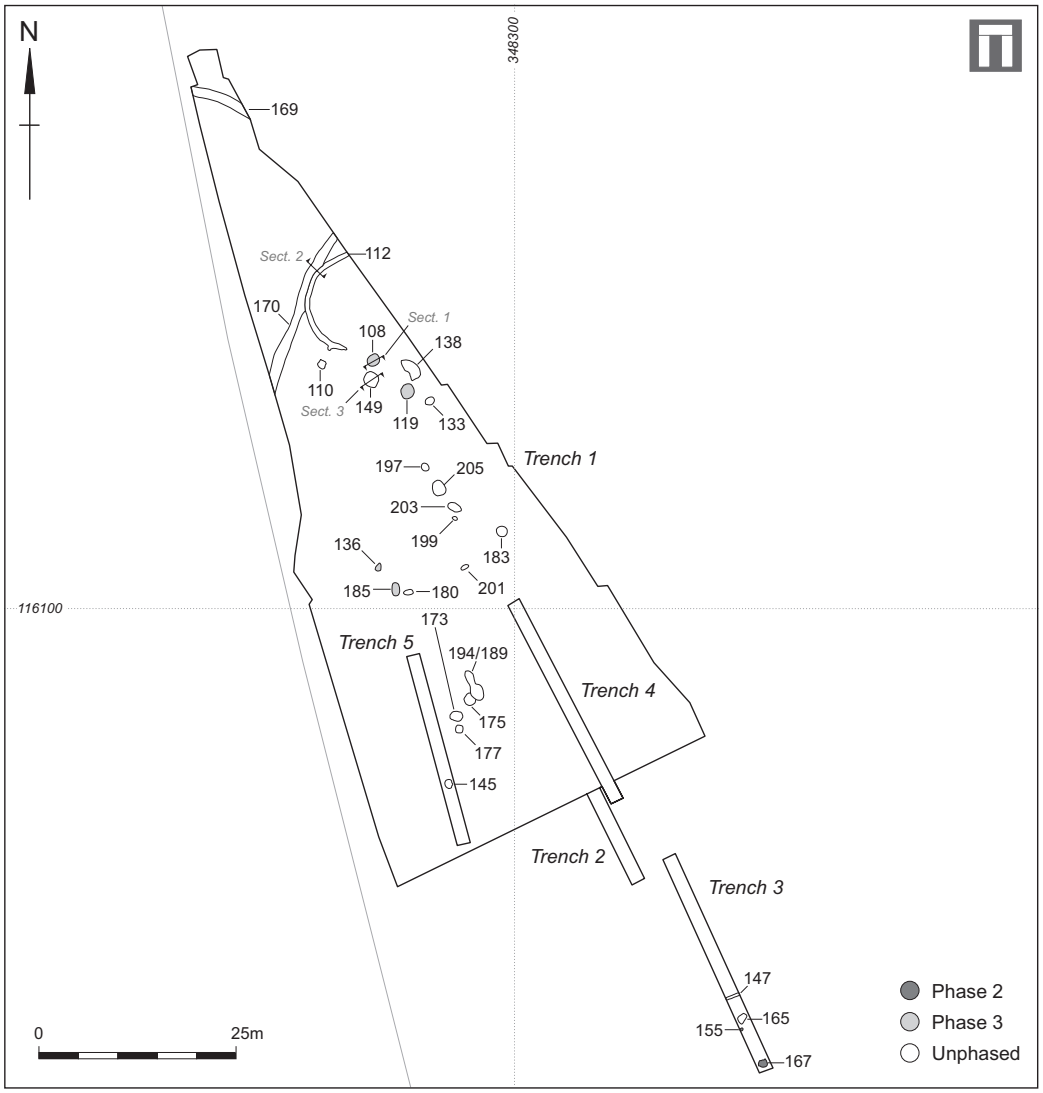


*Fig. 3 Phase plan – all archaeological features*

stone fragments and slingshots. Pit 175 had 395g of fired clay amongst an otherwise typical assemblage.

Three pits in this type were dated by their pottery assemblages. At the very southern end of Trench 3, pits 155 and 167 contained sizeable collections of ceramics dating to the 4th–3rd centuries BC (95 and 65 sherds respectively). As well as unusually large numbers of sherds, pit 155 also contained over 6kg of burnt Ham Stone.

Pit 136 dated to the 2nd–1st centuries BC. Highly disturbed by vehicular traffic, this feature was seen only in a box section, but a substantial assemblage was recovered from its single fill. Material included over 5kg of animal bone (including skulls from seven horses), Glastonbury and Durotrigian-type ceramics, an iron billhook, two querns and three slingshots. This feature forms a pair with pit 185 (below), and may in fact be a disturbed Type 3 pit. Regardless of its exact type, this pit and its contents are clearly exceptional, particularly in terms of the large number of horse heads included. The absence of post-cranial elements indicates a deliberate and very probably ceremonial selection. A further horse head was found in Type 2 pit 180 nearby, and these deposits form a

clear depositional link with Type 1 and 3 pits which also contained horse heads without other post-cranial elements.

### TYPE 3 PITS

Seven pits can be identified as belonging to this group, typified by medium to large features of some depth, with three to five fills, one of which (often but not always the lowest) was burnt. Type 3 pits tend to have larger artefact assemblages than Type 2 examples, and to show more complexity in their filling. The general sequence appears to involve an artefact-rich primary deposit, in some instances followed by some settling and collapse from the sides, with later episodes of backfilling following in quick succession. Pits 108, 119 and 185 are dated to Phase III by their ceramics. Pits 189, 194, 205 and 211 are undated.

Three of these features (119, 185 and 205) had relatively simple sequences of fills containing quantities of animal bone and pottery, together with burnt stone, querns, fired clay, a slingshot, and in 119 an iron rod. Pit 119 also contained a charred plant assemblage comparable to Type 1 pit 149 and Type 3 pit 108 (below). Pits 189, 194 and 211 were seen in machine sections and were not fully excavated for reasons of safety; 211 contained a horse head.

Pit 108 (Fig. 4.1) lay south of ring gully 112 (below), and would have been immediately outside any structure represented by that feature, north-east of Type 1 pit 149. The pit was 1.65m in diameter and 1.31m in depth, and contained a rich artefact assemblage. The lowest fill (109) contained 675g of animal bone (including 25 sheep vertebrae which had probably been deposited in articulation with the ribs, or directly after butchery or consumption of the meat), almost 23kg of burnt Ham Stone, 3.8kg of pottery (including a large perforated rim of a Glastonbury-style vessel, a sizeable portion of a bead-rimmed bowl, 178 sherds from a large jar which had apparently been burnt and some Durotrigian-type quartz-tempered sherds), an iron sickle, two complete quernstones (an upper stone and a lower stone from two different querns, both of which appeared to have been deliberately placed with the grinding surfaces inverted from their usual position), two whetstones and 528 slingshots, amongst lesser quantities of fired clay, worked flint and slag. Additionally, large quantities of charred spelt and emmer wheat and hulled barley, along with thousands of black mustard seeds were present in this fill. As in pit 149 the quantities and condition suggest that they represent deliberately burnt crops.

Fill (109) sloped from west to east, which may indicate that the material was thrown into the pit from the eastern side. Above it (158) lay on the eastern (lower) portion of (109): this was a very ashy burnt layer, interpreted as the deposited residues of a fire. Within the material were small quantities of animal bone and pottery, one sherd of which refitted to a sherd in (109). The uppermost fill (157) contained 178g of animal bone, 138g of pottery and four slingshots.

### OTHER FEATURES

Two ditches in the northern part of Trench 1 may be field boundaries or, alternatively, may represent the north-east corner of a rectilinear enclosure. Ditch 169 was aligned north-west to south-east; Ditch 170 (Fig. 4.2) was aligned north-east to south-west. Width varied between 0.85 and 1.7m. Both ditches had a similar profile with generally moderate concave sides and rounded bases, between 0.3 and 0.45m deep. A stony deposit within the fill of 170 suggested a bank which would have been an internal feature if the ditches formed an enclosure. A small typical finds assemblage indicates a date in the Middle to Late Iron Age, with a degree of disturbance and intrusion.

Ditch 170 was cut on its eastern edge by curvilinear gully 112 (Fig. 4.2). This feature was approximately 17m long with an average width of 0.6m and a projected diameter of *c*. 12–14m. Although definite evidence was lacking, it is possible that the gully was associated with a circular structure. Small quantities of animal bone, pottery, stone and fired clay (one piece with wattle impressions) were recovered, indicating general contemporaniety with the other features in the area.

Feature 138 lay south-east of ring ditch 112, amongst pits 108, 119, 133 and 149. This feature was shallow and amorphous, and may have simply been an undulation in the natural surface. Its contents, however, included a quantity of charcoal from at least five species (hazel, pomaceous fruit, blackthorn, ash and oak) as well as twigwood fragments and a burnt nutshell or fruit stone fragment. This assemblage suggests a domestic hearth clear-out.

At the south end of Trench 3 gully 147 ran east–west. To the south of the gully a wide shallow feature (125), possibly a terrace, appeared to cut into the natural slope. Both features were broadly dated to the Middle to Late Iron Age by their ceramics.

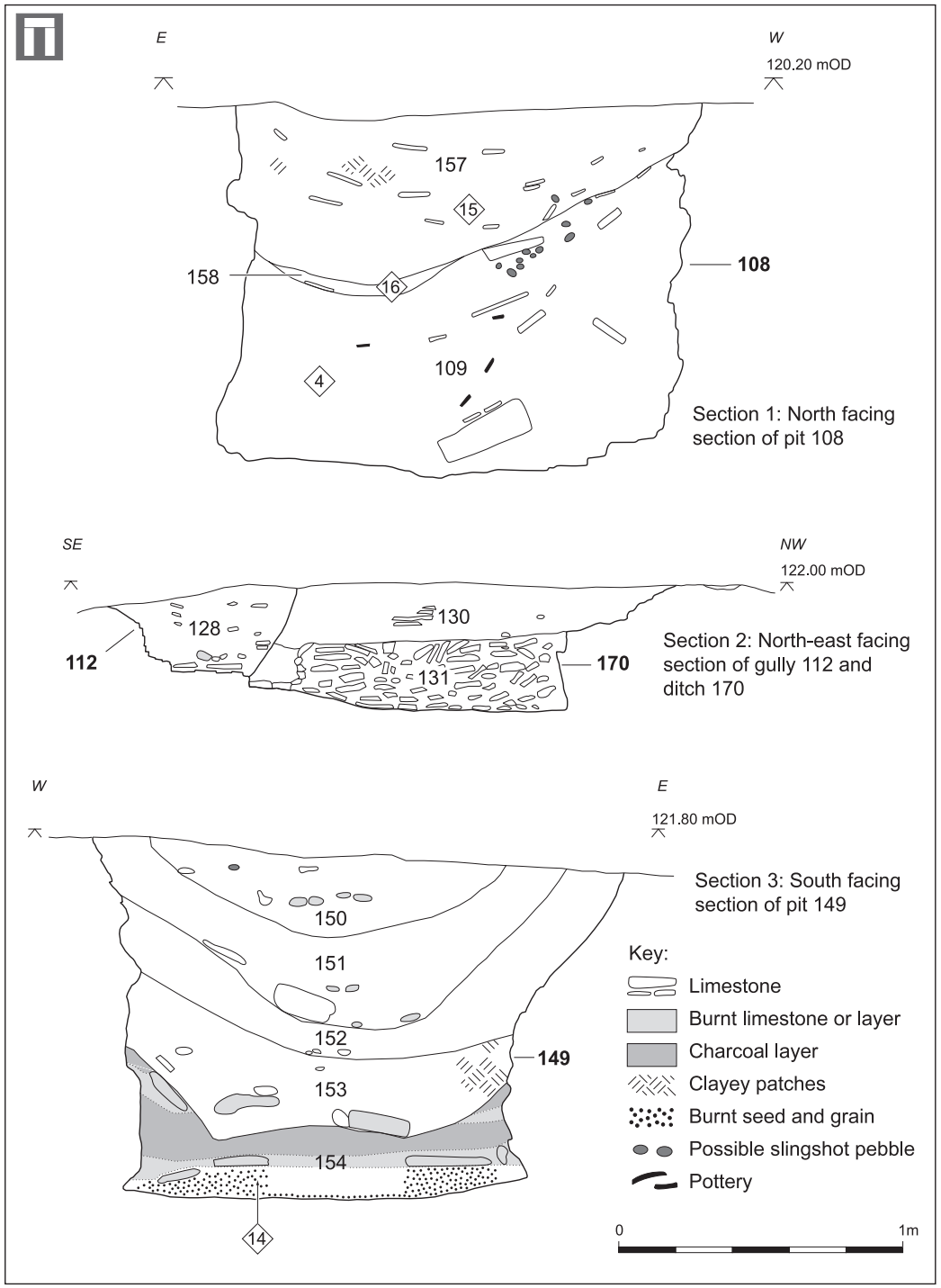


*Fig 4. Sections of selected features (Type 1 pit 149; Type 3 pit 108; ditch 170/gully 112)*

Two small features (104 and 163) were amorphous and could not be accurately identified; they may have been the bases of small pits or simply natural undulations in the subsoil. Feature 145 was a tree-throw, and 161 a shallow feature with a very high charcoal content. None was dated.

**Later activity**

Romano-British activity on the hilltop is indicated by a very small number of sherds of coarse greywares and oxidised wares. A 5th/6th century AD brooch found in the upper fills of Iron Age ditch 169 suggests a Saxon presence either of very limited extent or focused elsewhere on the hilltop. Post-medieval activity is indicated by intrusive finds in Iron Age pits: a copper-alloy button came from pit 177 and ceramic building material from pit 167.

## PREHISTORIC POTTERY

The prehistoric pottery assemblage studied here consists of 1094 sherds weighing 8,638g, consisting primarily of Iron Age material with a small number of Romano-British sherds. The material was analysed in accordance with Wessex Archaeology's recording system (Morris 1994), which follows the nationally recommended guidelines of the Prehistoric Ceramics Research Group (PCRG 1997). Sherds were examined using a x20 binocular microscope to identify clay matrices and tempers, and fabrics were defined on those bases. All data have been entered onto an Access database maintained in the site archive.

Condition varies from highly abraded to very fresh, with over half of one vessel surviving intact. As with previous assemblages (see Morris 1999 for a discussion) many sherds with calcareous temper have had inclusions leached out, resulting in a difficulty of accurately assigning them to fabric groups.

The prehistoric pottery derived from a total of 43 contexts, of which eight contexts contained more than 30 sherds (two contexts contained over 200), while 14 contexts produced five sherds or less.

**Fabrics**

A total of 16 fabric groups were defined, identified as Late Iron Age on the basis of similarity to previously excavated assemblages from the site and elsewhere (Morris 1988; 1999; and references therein). The breakdown of fabric group by number is given in Table 1. Fabric descriptions are given below.

TABLE 1: PREHISTORIC POTTERY FABRICS BY NUMBER AND WEIGHT

| *Fabric* | *No. sherds* | *Weight (g)* | *ASW (g)* |
|---|---|---|---|
| C1 | 4 | 34 | 17.00 |
| F1 | 2 | 6 | 3.00 |
| G1 | 1 | 4 | 4.00 |
| I1 | 94 | 571 | 57.10 |
| Q1 | 2 | 27 | 13.50 |
| Q2 | 3 | 8 | 4.00 |
| Q3 | 32 | 141 | 12.82 |
| Q5 | 18 | 107 | 11.89 |
| Q6 | 8 | 167 | 33.40 |
| Q7 | 2 | 14 | 7.00 |
| R1 | 207 | 2406 | 150.38 |
| R3 | 1 | 2 | 2.00 |
| R4 | 44 | 451 | 41.00 |
| R5 | 103 | 260 | 65.00 |
| S1 | 308 | 1,737 | 44.54 |
| S2 | 265 | 2,703 | 159.00 |
| Total | 1094 | 8638 | 7.89 |

C1 common to very common well-sorted sub-angular to angular coarse to very coarse calcite
F1 moderate to common well-sorted angular coarse to very coarse calcined flint in very fine sand/ micaceous clay matrix
G1 common moderately well-sorted sub-rounded very coarse grog
I1 moderate to common poorly sorted coarse to very coarse iron oxides in a quartz sand matrix
Q1 fine micaceous sand with some rare quartzite, shell and ?limestone
Q2 fine micaceous sand
Q3 common small quartz grains and sparse sub-angular to angular coarse to very coarse rock fragments in fine sandy matrix
Q5 common to abundant very coarse sub-rounded to rounded quartz sand in clay matrix
Q6 moderate to common extremely coarse quartz; some rare calcined flint
Q7 common well sorted sub-rounded to rounded coarse quartz; rare iron minerals
R1 common coarse sub-angular to angular rock fragments; rare iron ores; sandy matrix
R3 common coarse sub-angular to angular rock fragments

R4 common medium to coarse sub-angular to angular rock fragments; micaceous sandy matrix
R5 common very coarse sub-angular limestone, moderate fossil shell fragments
S1 common to abundant coarse to very coarse fossil shell or vesicles; fine clay matrix
S2 common to abundant fine to coarse fossil shell and limestone; sandy clay matrix

Morris (1988; 1999) has discussed the provenance of the Ham Hill fabrics, suggesting that those with shell, flint, grog, limestone and iron ore temper, along with quartz fabrics 1–3, 6 and 7, are likely to be local (on or within 10km of the site), with the calcite, igneous rock and quartz 5 tempered sherds being non-local.

**Forms**

The identifiable portion of the assemblage consists of jars and bowls, with one possible beaker or cup. Only one complete profile exists, and most vessels have not been classified as too little of the profiles were present to allow the form to be determined. In general, forms parallel those identified by Morris (1988). More identifiable profiles include ovoid and necked jars and round-bodied bowls.

Bases are in every instance flat; those with feet are slightly outnumbered by those without. Rims are rounded, flat-topped or beaded, sometimes beveled, sometimes everted, with closed, flaring and upright forms. One vessel has a handle.

**Decoration and surface treatment**

With the single exception of a bowl with fingertip impressions on the shoulder (Fig. 5.4), decoration consisted entirely of tooled and incised patterns (Fig. 5.3) of geometric and curvilinear lines. Surfaces were most commonly burnished, with some surface smoothing.

**Dating**

In terms of the three-phase division suggested by Morris (1988, 44–5; 1999, 97–101), phase 1 (7th–5th centuries BC) is not obviously present in this assemblage. Phase 2 (4th–3rd centuries) is represented largely by a small number of everted rims. The bulk of the identifiable assemblage belongs to Phase 3 (2nd–1st centuries BC), typified by South Western or Glastonbury-style vessels, bead-rim jars and Durotrigian vessels. Most datable features belong in this final phase.

**Deposition**

Most of the assemblage was recovered in small quantities from feature fills. Of the pits, only six (108, 119, 136, 155, 167 and 185) contained over 30 sherds, and of these 108 contained 348.

The majority of the assemblage from this feature came from the lower fill, and consisted of a substantial portion of a bead-rimmed bowl (Fig. 5.4) and 178 sherds from a large jar which had apparently been burnt. Both of these vessels are in local shelly wares, but a Phase 3 date for this pit is indicated by a large sherd of a Glastonbury-style jar (Fig. 5.3) and some Durotrigian-type quartz-tempered sherds. This pit also provided the only identified instance of joins between sherds in different layers, indicating a rapid infill of the feature.

FIRED CLAY

Only 48 pieces were recovered, consisting entirely of abraded, undiagnostic fragments, although two (from pit 149 and ditch 170) carry possible wattle impressions. All are probably structural, from wattle and daub structures or hearth linings.

WORKED/UTILISED AND BURNT STONE
Incorporating geological identifications by Kevin Hayward

The stone includes both worked stone objects (discussed below), unworked, potentially utilised stone and burnt, unworked pieces (51.7kg of Ham Stone). Associated finds would suggest an Iron Age date for this material.

**Querns**

Rotary querns or fragments were recovered from six pits and from unstratified locations. Two (from pit 108) are complete: one is a well-finished upper stone of 380mm diameter in breccia, with an ovate, slightly

concave upper surface with no hopper and a handle socket positioned halfway down the side terminating before reaching the central cavity (a second, very similar example of 340mm diameter in ferruginous gritstone was recovered in two halves from unstratified locations); the other is a lower stone in breccia. Three other near-complete lower stones were recovered in pits 136 and 211 and from an unstratified location, in ferruginous gritstone and lava.

Two joining fragments of an incomplete upper stone from pit 185 in ferruginous gritstone were generally similar to the other examples, except for a basin-shaped hopper with well-defined sides forming a ridge around the periphery of the stone. The final upper stone fragment (from pit 136) was too worn and fragmentary to have distinguishing features. It was made from ferruginous gritstone.

### Slingstones

The possible slingstones comprise smooth ovate flint or chert pebbles within a restricted size range averaging 50mm across; mean weight is about 40g. A large group of 528 was recovered from the lower fill of pit 108, with occasional examples scattered more widely. Pebbles of this sort have previously been found at Ham Hill (Smith 1991; Adkins and Adkins 1992; Laidlaw 1999), and large collections are known from Danebury and Maiden Castle (Brown 1984). A source on the south coast between Bridport and Weymouth has been suggested (Jefferson 1992), although a local river source is more likely.

### Whetstones

The three whetstones were glauconitic sandstone (two pieces) and calcareous mudstone (one piece). Two came from the basal fill of pit 108, with the third from ditch 170.

### Miscellaneous

Approximately two-thirds of a sub-circular piece of Ham Hill Stone with a central depression may be a rough-out for a mortar, or alternatively a post-pad. It was recovered from an unstratified location. Two joining fragments of an irregular chalk slab with an even perforation of 100m diameter were recovered from pit 189.

**Discussion** by Kevin Hayward

The site lies on an outcrop of hard Upper Liassic (Toarcian) Ham Hill Stone, capping the older Yeovil Sands at 120m above Ordnance Datum (OD). To the north a much flatter topography is represented by the softer clays and marls of the Lower Lias.

Within a 20km radius of the site the geology is complex and varied, consisting of younger Middle to Upper Jurassic clays (Oxford Clay and Fullers Earth) and limestones (Cornbrash, Forest Marble, Fullers Earth Rock and Inferior Oolite). Chalk and Upper Greensand from the Upper Cretaceous is represented along the Axe Valley to the south. Further afield, Devonian and Triassic sandstones outcrop to the north and west. The expectation is that the assemblage would reflect this variability. The Ham Hill outcrop forms a watershed, separating the north-flowing River Parrett and Yeo from the south-flowing Axe. These would have facilitated the transport of stone from much further afield.

Within this broad spectrum of availability, a number of exploitations can be observed. At the local level, the ferruginous bioclastic limestone (Ham Hill Stone) obtained within the site occurs mainly as unworked and/or burnt pieces. Slightly further afield (7–10km), glauconitic sandstones, chalk, flint/chert, calcareous mudstone and ferruginous gritstone were all utilised, most of which came from the Axe valley to the south. Raw materials obtained from a distance are indicated by the breccia, lava and intrusive igneous rocks, all of which belong to the Exeter volcanic series.

The variety of rock types identified reflects in part the geological complexity and variability of this part of Somerset. The fact that at least four (or maybe five) lithotypes were used in the production of beehive querns would also indicate the site was of some importance during the Iron Age. The distances travelled from Devon (40km) from the Crediton Trough or maybe from the Exeter region (70km) to transport large querns (up to 80kg) from the Permian trapstone (vesicular lava) and breccia is an indication of the influence that this site had in the region.

All of the clastic sedimentary and basaltic igneous rocks selected had hard minerals (quartz and feldspar) suitable for the grinding of foodstuffs. The possibility that the local Ham Hill Stone was also experimented with for this purpose should not be discounted. This early knowledge of the outcrop at Ham Hill would no doubt have been a factor in its later utilisation by the Romans for coffins at Dorchester (Farwell and Molleson 1993) and during

TABLE 2: THE COMPOSITION OF THE FLINT ASSEMBLAGE

| *Artefact type* | *Number* | *Group %* | *Total %* |
|---|---|---|---|
| Scrapers | 4 | 40 | 6.66 |
| Projectiles (arrowheads) | 1 | 10 | 1.67 |
| Other tools | 1 | 10 | 1.67 |
| Misc. retouch | 4 | 40 | 6.66 |
| (Tools sub-total) | 10 | 100 | 16.66 |
| Flake cores & core frags | 3 | 75 | 5 |
| Crested pieces | 1 | 25 | 1.67 |
| (Production sub-total) | 4 | 100 | 6.67 |
| Blades & bladelets (inc. no broken) | 1 | 2 | 1.67 |
| Flakes (inc. no. broken) | 45 | 98 | 75 |
| (Blades & flakes sub-total) | 46 | 100 | 76.67 |
| Total | 60 | | 100 |

the 1st century for the Temple of Claudius precinct at Colchester (Hull 1955).

Whetstones and slingshots on the other hand appear to have used local Cretaceous materials (flints and greensands). The possibility, however, remains that a vast quantity of the flint used in the slingshots may have derived from Chesil Bank (Jefferson 1992) rather from local river gravels.

## WORKED FLINT AND CHERT

The small assemblage consists of 60 pieces, which break down as in Table 2. Raw materials are predominantly flint pebbles conforming to Smith's (1991, 33) range, suggested by Harding (1999, 107) to originate in the clay loam with flints and gravel deposits within 3km of the site to the south-west. There are single instances of Portland and Greensand cherts, the former possibly indicating transport of materials or exchange over a distance of *c.* 50km, the latter from the Greensand outcrop 10km to the south. Condition varies from relatively fresh to slightly edge damaged; some pieces are patinated, and others are burnt.

Few pieces are distinctive, but there are a number which have some indicators of chronological provenance. A number of the broken flakes have parallel margins and dorsal flake scars that suggest that they are fragments of blades, suggesting a Mesolithic or more likely Neolithic component. The bulk of the debitage belongs in a period from the Early Neolithic to the Early Bronze Age.

Retouched tools include a pair of penannular scrapers that are probably Early Bronze Age; a large crude scraper which may be later; an edge-trimmed knife and a combination scraper/knife of Early Bronze Age date; and a Late Neolithic chisel arrowhead in Portland chert.

All pieces were residual in later features, and many have edge damage consistent with redeposition. The typological and chronological range concurs with that of the 1983 (Smith 1991), 1991 (Adkins and Adkins 1992), 1994 and 1998 (Harding 1999) excavations, although the sample is smaller.

## WORKED BONE

An antler comb (Fig. 5.1) came from the lower fill of pit 108. This example is complete along its length although only the upper surface survives, and comprises a tapering shaft with an integral, rounded, perforated butt and eight teeth (total length 226 mm). The shaft is decorated with elaborate incised cross-hatching within triangular zones. These items are generally described as 'weaving combs', although their precise function within the weaving process is uncertain. Large groups of such combs have been found on other Iron Age sites such as Danebury, Glastonbury and Meare Lake Village (Sellwood 1984).

## METALWORK

### Iron

Five iron objects were recovered. One is a sickle, measuring 190mm by 40mm with a maximum

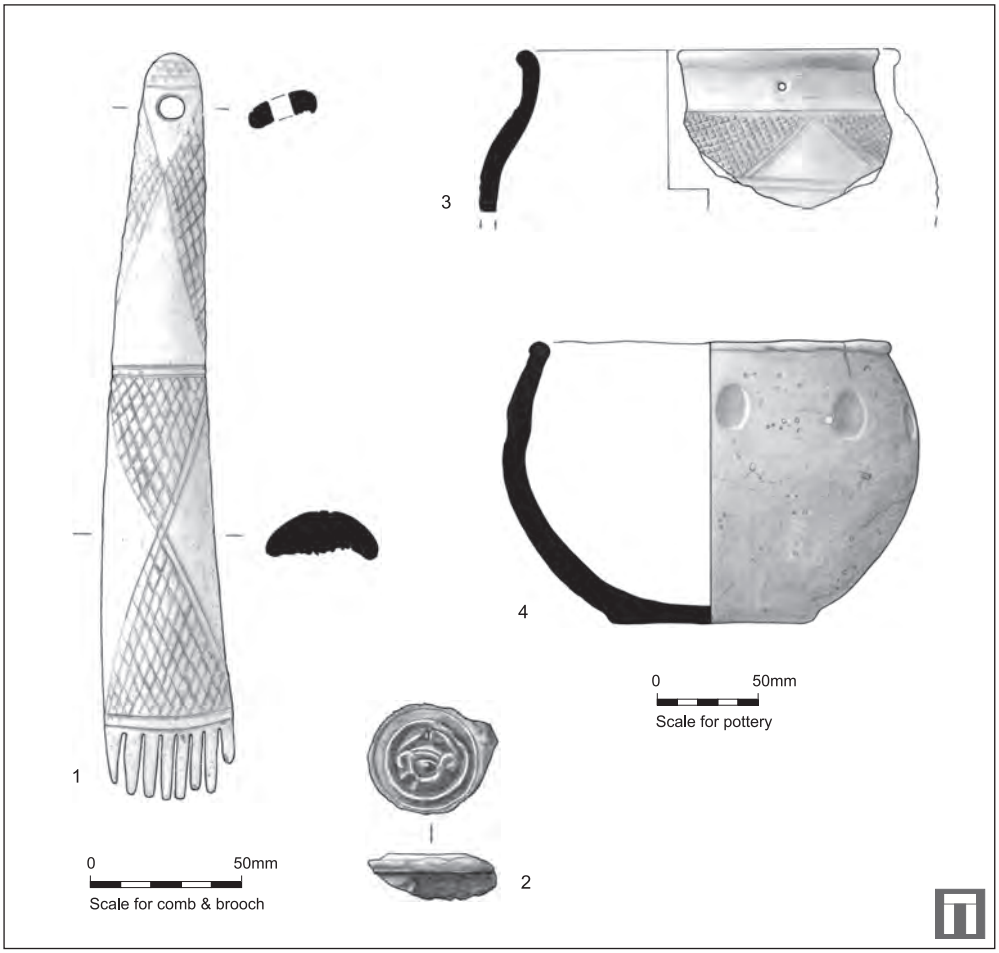


*Fig 5. Comb, Saxon brooch and selected material from pit 108 (bead-rim bowl; Glastonbury ware rim; comb)*

thickness of 3mm. The object may be complete, but if so it lacks any obvious means of attachment to a handle. The condition of the object precludes the identification of the cutting edge, but this may be assumed to be the concave inner side (Sellwood 1984). This object came from the basal fill of pit 108.

The second object is a billhook, measuring 122mm by 45mm with a maximum thickness of 4mm. This object is more complete, and has the remains of the tang which would have attached it to its handle. The object came from the single fill of pit 136.

The three remaining pieces are featureless linear objects. By their size and morphology two (from pits 189 and 197) are likely to be nails, while the third (from pit 119) is an indeterminate rod-shape.

**Copper alloy** Incorporating comments by Nick Stoodley

Three copper-alloy objects were found, including a post-medieval button and a waste droplet from pit 177. The third was an Anglo-Saxon button brooch from ditch 169 (Fig. 5.2). The object measures 18mm by 15mm, and has a diameter of 12mm. The body is copper alloy, with a surface of gold leaf. The reverse, bearing the catch and hinge, is of exposed copper alloy. Some wool adheres to this surface. While clearly a stylised human face, the design is not immediately classifiable in Avent and Evison's system (1982), but is perhaps best classified as their class L, with a distribution in Kent, the Isle of Wight and France, making the Ham Hill example the

westernmost instance of the class, of which there were six in 1982 (Nick Stoodley, pers. comm.). These objects are normally dated between the late 5th and mid 6th centuries AD (Welch 1985). Although scarce in the west of England, button brooches are known: one was found within the hillfort at South Cadbury.

ANIMAL BONE Stephanie Knight

**Methods**

For each securely dated animal bone fragment the following were recorded where applicable: species, bone element and side, fusion, mandible wear stages (following Grant 1982 and Levine 1982) and measurements (following von den Dreisch 1976). Zones present were recorded following Serjeantson (1996) with mandibles recorded as diastema (1, 2), toothrow (3, 4), angle (5, 6) and condyle/process (7, 8) with even numbers reflecting the right and odd the left hand side. The positions of butchery marks and burnt areas were sketched or described, and helical fractures were recorded (Outram 2002). Withers heights were calculated using von den Dreisch and Boessneck (1974) and ages estimated using Silver's (1969) modern figures, which probably under-estimate the age at death of archaeological individuals. Evidence of gnawing and condition (on a scale of 1 to 5) was also recorded.

Conjoining fragments were counted as one bone in order to minimise distortion, and therefore the numbers of bone specimens (NISP) given here will not match the absolute number of fragments recorded during processing, which is very much higher due to the large number of fragmented skulls. Fragments that could not be identified to species or family were recorded as unidentified rather than to size category because of time restraints. Full details of bone element representation, measurements, butchery marks and mortality profiles are available in the archive.

Bone was recovered mainly from pit deposits, with only small numbers of fragments from gully 112 and pieces scattered throughout the ditches, so this analysis concentrates on the pit material. Discussion will focus on pits dated as 2nd–1st century BC, as material of an earlier date was very scarce, and the faunal contents of pits 108, 119, 136, 149, 180, 185, 205 and 211 therefore form the basis of this report, comprising 1531 of the total 1665 fragments.

Bones from flots have been discussed but time constraints did not allow for full quantification of this portion of the assemblage.

**Condition, preservation and recovery**

Although some pits contained little bone, the condition of bone remaining in these features was not always worse than that in those pits with larger quantities. The bone from samples is more frequently in worse condition than the hand-recovered material, and pits 136 and 185 especially seem to contain only a little, often poorly preserved bone, perhaps because much of the osseous material had been eroded.

The proportion of identified bone correlates loosely with bone condition, with only 7% of that from pit 185 identified, compared to a third overall. Pits 136 and 211 contained the highest proportion of identified bone, but this has been biased by the unusual contents of these pits, which were dominated by horse maxillae.

Pits 136, 185 and 205 contained the largest proportions of bone in poor condition, and these are further to the south than pits 108, 149 and 119, which in general contain well preserved bone. However pit 180 is in the former cluster but contains well preserved bone, so this pattern cannot be extrapolated to include all features. There does not therefore seem to be a demonstrable spatial element to the quantity of bone in pits, but it appears that some pits simply did not receive as much bone as others.

Only one bone was observed to display gnaw marks from scavenger activity, which is therefore assumed to have been minimal on the bones from the pits at Ham Hill. Fragmentation however, in evidence from the proportion of loose teeth (19% of the identified elements) may have biased the assemblage. Such activity would favour larger elements or species, and it is notable that the denser elements such as toothrows (which may be recorded as maxillae, when they can be re-fitted, despite their loss from the bone) are common, as are tibia, humerus and metapodial shafts.

**Animal exploitation**

Overall, sheep/goat (four positive identifications of sheep and one of goat) was the most common, as is typical for Iron Age hillforts in this area of southern Britain. However an unusually large number of horse

bones were recovered, forming 17% of the assemblage, larger than cattle at 10%. However this cannot be taken as representative of the site as a whole, since they are heavily over-represented in pits 136 and 211, when compared to pits 108 and 205 for instance (and to the results of the earlier excavations where horse comprises less than 6% of the assemblage; Hamilton-Dyer 1999). However horse bones are relatively common and were recovered from most of the pits investigated, so their importance should not be overlooked.

Other species were in the minority, with small numbers of cattle and pig, and single examples of dog, mouse and bird. The latter was identified as raven, which is one of the more common bird species from Iron Age sites, especially in pits, and common in special deposits. While they may reflect the disposal of hunted pests, wild animals are rare on sites of this date, and they may therefore be important symbolically.

A total of 275 fragments were from sieved samples, and of the 19 identified, sheep/goat were most common at 13 specimens and horse, cattle, pig, dog and mouse comprised the remainder with one or two fragments each.

Small mammal bones were recovered from several flots, both from pits and ditches, although the most material was from a few pit fills. Some pits contained small mammal bones in most or many fills (205, 108), suggesting that these animals either burrowed in or were deposited with other fill contents (as they were in layers that would have been easy to escape from as well as the deeper fills). As some were burnt (particularly in pit 119) the latter is the most convincing explanation, and the deposits may include hearth refuse. However in other pits microfauna remains were found only in single fills, in some cases because there was only one fill in the pit (pits 177, 180, 183 and 197), but small mammals were recovered from fills near the base of pits 119, 149 and 185 for example, and these are more likely to have been pitfall victims that died after becoming trapped in the open feature.

**Animal husbandry**

A minimum of 13 horses were present, of a wide range of ages. In pit 149 the skull of an individual of approximately 9 years was recovered, and another of this age was found in pit 180. The four horse heads in pit 211 were from individuals varying in age from 3–4 years to 13–14 years, with two aged to approximately 10 and 11. However most were from pit 136, from which animals of the following ages were recovered: 2 years, 2–3 years, 6 years, 7 years, 8 years (2) and over 15 years. The absence of neonatal animals means that no evidence for breeding of horses is available, and it may be that these were from feral animals that were captured and trained, either at Ham Hill or perhaps the animals were brought in from elsewhere either to be killed or after they had died.

In contrast relatively few cattle were definitely represented, but they included a neonate, two immature individuals and one adult, and this does indicate on-site breeding and consumption of beef from horned cattle. Two pigs were also present, one immature male and an adult, presumably kept for meat. Horned sheep/goats were more numerous, and a minimum of nine animals were present. One neonate, three young animals (under 18 months using modern figures), three adult and two senile individuals testify to breeding, meat consumption and perhaps wool production. Seven withers heights could be calculated, suggesting animals of between 493 and 598mm at the shoulder and in between these extremes, one individual of approximately 537 and another of 560mm, a range that could be easily attributed to sexual and individual variation.

**Consumption of meat products**

As a result of the small numbers of horse post-cranial elements, and an apparent absence of deliberate processing marks on the head, very little can be said about the manipulation of horse carcasses, barring of course the removal of the skull from the rest of the animal. In two cases the occipitals are damaged, with old fractures which may have resulted during the decapitation, but this cannot be confirmed. The absence of most mandibles but presence of the teeth in the jaw (at least until post-excavation processing), indicates that lower jaws were probably deliberately removed, rather than becoming detached naturally as the soft tissue degraded. Targeted chops on a humerus shaft probably resulted from breakage of the bone for marrow.

A third of cattle bones had been marked during butchery, a large proportion when compared to the rest of the assemblage at 4%. This probably reflects their larger size, which would require more blows or cuts into portions. Skinning marks on one skull

demonstrate the removal of hide, followed by removal of the head at the base of the skull and the mandible disarticulated at the condyle, although in at least one case the brain case was intact, so the brain was not always utilised. Cuts to remove the feet were seen at the hock and the limbs were further divided at the knee and the meat on the pelvis was filleted after portioning this piece by chopping. Further processing in the form of splitting bone for marrow extraction was observed on a metacarpal.

As is typical for the Iron Age, most marks were fine, careful knife cuts, and this is especially true of the marks on sheep/goat bones. Less than a tenth of these bones were marked during butchery, and the majority of cuts resulted from disarticulating at joints to remove the head or feet, take the limbs from the torso and separate the ribs from the spine. One mandible was cut probably during skinning, and a long bone fragment had been chopped, perhaps to break it open for its marrow. Only one cut, on a disarticulated radius, was visible on pig remains.

**Deposition patterns**

With the exception of the horse skulls, a range of elements was represented, as would be expected from a settlement where animals were raised, slaughtered and consumed on site. While the horse skulls may have been deposited as a single particular event, much of the rest of the bone appears not to have been selected for bone element or side. A deposit of at least 25 sheep vertebrae from one very young and a mature individual in the lower fill of pit 108 may have been deposited in articulation with ribs, or directly after butchery or consumption of the meat on the ribcage and spine.

Several burnt (and a few unburnt) bones in pit 119 (context 123) were stained red, perhaps during burning in an iron-rich environment. Burning was relatively common, seen on 23% of bones, but many of these were small fragments from samples and may have been hearth waste, and do not inform about cooking techniques.

Pit contents vary, and it appears that some (particularly type 2 pits) were the recipients of large deposits of animal bone from particular activity (e.g. 136 and 211), while others (type 3 pits especially) contained a faunal component more typical of Iron Age assemblages in general, dominated by sheep/goat (108, 119 and 205).

**Discussion**

Despite some post-depositional bias from erosion, there are some interesting patterns. It seems that different pits (and pits of different type) often contained very different faunal remains, both in terms of quantity and species, with some acting as receptacles for horses' heads and others for more general waste. Direct deposition was frequent and gnawing had not affected the assemblage to any significant degree, although some pits seem to have been left open for long enough for small animals to have become accidentally incorporated into the fills as well as some that had been burnt and, if not burnt in situ, presumably deliberately deposited.

Carcasses were carefully divided prior to deposition, but not all nutritional parts were utilised, perhaps indicating a cultural avoidance of certain types of animal products or a plentiful food supply. The unusual depositional context of some of the bone implies that specific activities, not simple rubbish disposal, were occurring. Little can therefore be interpreted about domestic animal husbandry, beyond noting that a fairly self-sufficient method was followed, and that all stages in animals lifespan from birth, maturation, slaughter and butchery to deposition of their cooked remains was represented. Cattle were not numerous but would have provided most of the meat consumed, while both cattle and sheep may have been utilised for their secondary products. Wild animals do not seem to have been exploited, although a raven bone could signify special deposition.

The unusually abundant horse remains are a puzzle, as the wide age range does not allow them to be easily categorised as working animals or those being trained, and the selection of the skulls only indicates a particular practice was being followed. A range of horse ages, again mainly from heads, was also calculated from earlier excavations, although the number of individuals was fewer. Unlike Bury Hill, Hampshire, where a large proportion of horses were male, only one male was identified at Ham Hill. The age of individuals was also lower, with a peak of animals aged to 3–5 years, which Hamilton (2000, 62) suggests is indicative of feral horses rounded up for training. If this is so, many of the animals at Ham Hill may have been such trained individuals, used and perhaps killed during another process. The predominance of prime animals may be significant, and one explanation for their presence is their use in warfare.

## PALAEO-ENVIRONMENTAL ANALYSIS

**Charcoal** Catherine Chisham

Five charcoal samples from pits, a spread and a ditch were selected for analysis following assessment of processed flots and residues. Of note was a sample from pit 149 that was found to contain large numbers of cereal grains and *Brassica* seeds, with burnt Ham Hill Stone, perhaps associated with oil extraction or cooking. It is of interest to establish whether the fuel used in this pit differs from other contexts. It is suggested that the sample from ditch 115 might have resulted from the burning of a hedge and vegetation on the bank rather than cereal waste in the hearth.

Fragments were prepared for identification according to the standard methods of Leney and Casteel (1975, see also Gale and Cutler 2000). Identification was undertaken according to the anatomical characteristics described by Schweingruber (1990) and Butterfield and Meylan (1980). Identification was to the highest taxonomic level possible, usually that of genus, and nomenclature is according to Stace (1997). Details of the samples examined are contained in the site archive and identifications in Table 3.

Four of the five samples examined contained <100 fragments of wood charcoal with a total weight of 2g while that from context 126 in ditch 115 was richer, with 17g of wood charcoal recovered. All samples proved to be highly fragmentary but the charcoal was firm and fresh. Only a few fragments were glassy and vitrified, but included a proportion of the oak (*Quercus* sp.) charcoal recovered from ditch 115. Mature wood dominated all samples, with only occasional fragments of roundwood or twigwood generally noted. However the assemblage from context 154 in pit 149 comprised *c*. 35% juvenile oak (roundwood) and ditch 115 contained a number of unidentifiable twisted and hazel (*Corylus avellana*) roundwood fragments.

The three samples from pits all contained a restricted range of taxa but differed somewhat in composition. Context 153 in pit 149 contained only two species, being dominated by oak (*Quercus* sp.), with *c*. 25% ash (*Fraxinus excelsior*), all being

TABLE 3 WOOD CHARCOAL IDENTIFICATIONS

| *Feature* | *Pit 149* | *Pit 149* | *Ditch 115* | *Spread 138* | *Pit 108* |
|---|---|---|---|---|---|
| *Context* | *153* | *154* | *126* | *139* | *157* |
| *Sample no* | *25* | *29* | *9* | *6* | *15* |
| *Identification* | | | | | |
| *Acer campestre* | – | – | 2 | – | – |
| *Betula pendula/pubescens* | – | – | 3 | – | – |
| *Corylus avellana* | – | – | 14[c] | 1 | 1 |
| cf. *Corylus avellana* (mineral dep and vitrified) | – | – | 2 | – | – |
| *Fraxinus excelsior* | 9[a] | 2 | 8 | 1 | – |
| *Frangula alnus* | – | 2 | – | – | – |
| Pomoideae | – | – | 8 | – | – |
| Pomoideae (*Crataegus/Pirus/ Malus* type) | – | – | – | 2 | 1 |
| *Prunus* sp. | – | – | 1 | – | – |
| *Prunus spinosa* | – | – | 4 | 2 | – |
| *Quercus* sp. | 30 | 9 | 30[d] | 8 | 30 |
| *Quercus* sp. juvenile | – | 9[b] | – | 1 | – |
| *Parenchyma*, poss nutshell/fruit stone | – | – | – | 1 | – |
| Unidentifiable vitrified | 1 | – | – | – | 1 |
| Unidentifiable branching/ twisted roundwood/ twigwood | – | 4 | 4 | 1[e] | 1 |
| Total no. | 40 (1/2 sample) | 26 (>1/2 sample) | 76 (1/4 sample) | 18 (whole sample) | 34 (1/2 sample) |

[a] 1 frag. incl pith; [b] 5 = 3 yrs, 1 = 6–8 yrs. Rest of sample fragmented, dom. by *Quercus* and incl twisted roundwood; [c] 1 branching roundwood; [d] 8 vitrified, 1 fissured; [e] 1 yr twigwood

mature wood. Context 154 in pit 149 though also dominated by oak with ash, also contained two fragments of alder buckthorn (*Frangula alnus*) and contained a substantial proportion of juvenile/ roundwood, including 50% of the oak fragments, which were dominated by 3-year-old wood. The assemblage from context 157 in pit 108 was heavily dominated by mature oak with single fragments of pomaceous fruit (Pomoideae) and hazel (*Corylus avellana*) wood charcoal.

Context 139 in spread 138 provided the smallest sample, with only 18 fragments of identifiable size. However at least five species were represented, including hazel, pomaceous fruit (Pomoideae, *Crataegus/ Pirus/ Malus* type, likely *Crataegus monogyna*) and blackthorn (*Prunus spinosa*) a well as ash and oak. The sample also included two twigwood fragments and a charred piece of possible nutshell or fruit stone.

Context 126 in ditch 115 provided by far the largest wood charcoal sample and a minimum of eight taxa. 40% of the assemblage was of mature oak but hazel formed 20%, ash and pomaceous fruits each 10% and there were lesser quantities of blackthorn, birch (*Betula pendula/pubescens*) and field maple (*Acer campestre*), the latter two not found in any of the other samples from the site. Occasional (unidentifiable) twisted roundwood was noted.

That few fragments were vitrified indicates that intense heat did not occur in burning except perhaps among the assemblage from ditch 115. A lack of puffing and fissuring suggests much of the wood was burnt dry or slowly rather than being freshly cut or burnt rapidly. Overall, although the assemblages examined were generally small they seemingly differ substantially according to the nature of the features they derive from.

Charcoal analysis previously undertaken at Ham Hill (Gale 1999) identified a broadly similar range of taxa (though with rather less differentiation between features) and also identified possible narrow roundwood of oak in two Iron Age pits. However, alder (*Alnus glutinosa*) roundwood proved important in a single feature (1999 feature 75, context 77, IA Phase 3), its presence indicating that damp conditions existed in the area. Analysis of the wood charcoal from Danebury hillfort, Hampshire, indicates that mature oak was the dominant fuel type in the Iron Age but that ash, cherry/blackthorn types (*Prunus* sp.) and pomaceous fruits (including hawthorn, *Crataegus monogyna*) were important, as found here; however elm (*Ulmus* sp.) was also utilised at Danebury (Poole 1984).

**Charred plant remains** Chris Stevens

A total of 47 samples were taken. After assessment 20 were chosen for full analysis, all of which came from Iron Age pits, with the exception of one from ditch 125. In total samples from 13 pits were examined with multiple samples from three.

The samples were processed by flotation with the flots collected onto a 500µm mesh. The residues were fractionated into 10, 4, 2 and 0.5mm mesh sizes. The flot was dried and the residue sorted by eye, while a low-powered binocular microscope was used for sorting the flot. Plant macrofossils were then extracted, identified and quantified. The plant taxa identified from each sample follow the nomenclature of Stace (1997). Details are contained in the site archive.

In the case of seeds of black mustard (*Brassica nigra*) identification was undertaken at the Institute of Archaeology, London (with the aid of Dr Dorian Fuller) using a scanning electron microscope. For the purpose of identification a number of modern specimens were chosen for comparison of the testa (seed coat) and internal embryo scar. Comparative modern material included crop plants: Chinese mustard (*Brassica juncea*), rape (*Brassica napus*), cabbage (*Brassica oleracea*), turnip (*Brassica rapa*), white mustard (*Sinapis alba*), black mustard (*Brassica nigra*); and arable weeds which also include the latter species as well as runch (*Raphanus raphanistrum*) and charlock (*Sinapis arvensis*). The material from Ham Hill showed a similar cell pattern to that of black mustard (*Brassica nigra*) with a smaller cell pattern contained within a clearly defined larger cell pattern. For reasons outlined below it is thought that these seeds represented a cultivated crop rather than the wild variety.

For three exceptionally rich samples estimates, rather than accurate counts, were produced. For pit 119 estimates were produced for mustard seeds (*Brassica* cf. *nigra*) and cereal grains (from fragments) from an approximate count. Pit 108 also produced high numbers of mustard seeds. An estimate was produced after counting some 2000 seeds from about 6.67% of the 0.5mm to 2mm fractions. One sample from the base of pit 149 (context 154) contained exceptionally high numbers of grains and mustard seeds. Grains were estimated from counting a tenth of the >1.4mm fractions. Seeds of wild species were extracted and counted in full from these fractions. The fractions between 0.5mm and 1.4mm produced vast numbers of mustard seeds and broken fragments of grain. For this reason only

10ml was examined in full of 370ml. The counts were multiplied by 37 to produce approximate estimates of actual numbers within the original sample.

Cereal remains (especially grains) were extremely well represented within several of the samples, most notably those from pits 108, 119 and 149. These features produced proportionally little chaff while, in the remainder of the samples and features, chaff was generally better represented than cereal grains.

There is good evidence for the presence of emmer wheat (*Triticum dicoccum*) and, to a slightly lesser degree, spelt wheat (*Triticum spelta*). Hulled barley (*Hordeum vulgare* sl) is also well represented in several of the richer samples from the three pits listed above. These same features also contained evidence for broad or celtic bean (*Vicia faba* var. *minor*). While not uncommon, broad bean is not always found upon Iron Age sites and it is therefore notable that it occurs in some eight features at Ham Hill. Quite large quantities of broad bean were also recovered from Meare Lake Village (Helbaek 1952).

Of more significance were thousands of seeds of black mustard type seeds (*Brassica nigra*) within these features. While such plants can grow as arable weeds, the extremely high numbers of seeds suggest that at Ham Hill they represent deliberately gathered seeds from a crop.

No other crop species were recovered, although a possible immature apple pip (*Malus* sp.) and several fragments of hazelnut (*Corylus avellana*) were recovered. Both of these may represent the utilisation of wild varieties, although it is unknown when the apple was first cultivated in Britain.

Weed seeds were relatively scarce in the samples and only a limited number of species were represented. In the main these were typical large-seeded arable weed species: redshank (*Persicaria maculosa/lapathifolia*), black bindweed (*Fallopia convolvulus*), knotgrass (*Polygonum aviculare*), cleavers (*Galium aparine*), and brome grass (*Bromus* sp.). Several seeds of oats (*Avena* sp.) were also recovered. While these could not be identified as cultivated or wild, floret bases with 'horseshoe scars' characteristic of the wild variety were present.

Very few ecologically distinct species were present. Field madder (*Sherardia arvensis*) is commoner on drier more calcareous soils, while a single seed of spikerush (*Eleocharis palustris*) may be associated with the bringing in of some crops grown upon the floodplain valley soils.

## DISCUSSION

Based upon their composition the material from the pits can be divided into two categories. Those from pits 108, 119 and 149 all contained high numbers of black mustard seeds (*Brassica nigra*) and high numbers of grains with relatively little to no chaff. The remaining samples contained higher numbers of glume bases and few to no seeds of black mustard.

This latter group, high in chaff, with some grain and seeds of predominately larger seeded species is typical of some hillfort sites and sites seen in southern England in general (e.g. Danebury, Jones 1984). Such assemblages can be taken to represent waste from the processing of hulled wheat, emmer or spelt (*Triticum dicoccum/spelta*) stored as semi-clean spikelets and hulled barley stored as semi-clean grain (cf. Stevens 2003a). The charred assemblages are then created as crops are routinely taken from storage and processed to obtain clean grain, the waste from these pounding, sieving, and hand-sorting stages often being thrown straight onto the hearth (Hillman 1981).

Turning to the other group, the composition of the assemblage – with very few glume bases – suggests the burning of clean dehusked grain (cf. van der Veen 1992). It is notable that some appear to have been burnt within the spikelet despite the absence of chaff around them. Previous work at Ham Hill uncovered whole charred ears that were visible during excavation. Yet samples from such deposits and the micro-excavation of sediment blocks containing these ears indicated that the survival of glumes was next to nothing (Ede 1999). These samples of burnt ears, like the deposits examined here, also produced high numbers of *Brassica* seeds.

This previous work raises the strong possibility that the assemblages of almost clean grain recovered from the most recent excavations also represent the burning of whole ears. No indication was seen of germination or deterioration of the grain that might provide an explanation as to its charring. Indeed it appears to have been in relatively prime condition prior to charring.

While crops are often dried prior to storage or parched prior to dehusking, both operations are usually conducted after threshing has broken the ears up (Hillman 1981; 1982). Indeed as seen above the other assemblages at Ham Hill suggest that crops were stored in the spikelet not the ear.

This then raises the question of whether such

material represents stored crops that had been burnt in situ. A number of similar deposits have been recovered from storage pits upon prehistoric sites in southern England; those from Ham Hill however differ in several significant aspects. Comparatively, the proportion of chaff is very low compared to assemblages studied from Danebury (Jones 1984), Wandlebury (Ballantyne 2004) and Lechlade (Stevens 2003b), while Fifield Bavant, Wiltshire, also produced evidence for whole spikelets of spelt with glumes still present (Biffen 1924; Helbaek 1952). At both Danebury and Wandlebury micro-excavation of blocks of charred grain demonstrated that grain stored as disarticulated spikelets rather than whole ears had been burnt. It is probable that at both sites grain stored within pits had combusted in situ.

Experiments show that chaff is easily destroyed within charring and is best preserved where it is exposed to a slow heat with relatively little available oxygen. For many such deposits the outstanding preservation may be explained in part by their having been charred within sealed or semi-sealed pits. The poorer preservation at Ham Hill (at a rough estimate approximately one glume base survived for every eight to ten grains burnt) may suggest that they were burnt in more open conditions.

A further difference relates to the proportion of barley and wheat within the Ham Hill deposit. At Wandlebury and Danebury, as well as Twywell, Northamptonshire, (Arthur 1975; Robinson and Wilson 1987) hulled wheats dominated the assemblage, while at Gravelly Guy (Moffett 2004) and Itford Hill (Helbaek 1957) hulled barley predominated, although at the latter whole ears may be represented. This suggests that crops were stored relatively pure and burnt in situ. At Ham Hill both this and the previous study (Ede 1999) show that grains of hulled barley form a significant proportion of the assemblage. That broad bean is also found within this assemblage, suggests some considerable mixing of crops is present within this context.

Two final observations are worth making at all the above sites. Firstly, at Ham Hill it is notable that two pits (119 and 149) produced high numbers of grains as well as seeds of *Brassica* which are likely to all be of black mustard (*Brassica nigra*). A further pit (108) produced high numbers of mustard seeds, but relatively little grain. In the previous excavations at Ham Hill, at least two features contained high numbers of mustard seeds and grain (Ede 1999, table 11, pits 16, 73), while two further features produced high numbers of mustard seeds (table 11, pits 47 and 115). Such finds of quantities of mustard seed are rare and indeed only one other such deposit is known to the author, from Balksbury where some 500 seeds of probable black mustard were recovered (de Moulins 1995).

This degree of variation suggests that the seven features containing such deposits represent separate events rather than a single event in which all the pits were simultaneously infilled. It is notable that upon all the other sites discussed such deposits would seem to represent single isolated events, consistent with occasional accidents.

The unusual nature of the deposits at Ham Hill points to the deliberate burning of whole ears of wheat. Although it is possible that whole sheaves were burnt not a single culm node was recovered. Ede (1999) noted that there appears to be a general absence of smaller weed seeds suggesting that whole ears may have been deliberately separated. However, in comparison with the sites listed above, weed seeds (and in particular smaller weed seeds) are far better represented at Ham Hill than at the other sites. This might then suggest that whole sheaves rather than separated ears were indeed burnt.

In terms of quantities of material, each ear produces approximately 40 grains, working with the ratio of two grains per spikelet and 20 spikelets per ear. While pit 119 produced evidence for the burning of only some 20 ears, pit 149 with close to 13,000 grains must represent some 300 ears. Taking into account the fact that the pit was not 100% sampled and the existence of other similar sized flots, it can be estimated that probably over 1000 ears survived in charred form. In addition to this it must also be considered, especially in light of the fact that no glumes survived, that probably a greater number of grains were destroyed during charring than were preserved. From this perspective it can be concluded that more than 3000 ears were originally burnt. Even at an estimate of 300 ears to a large-sized sheaf, this indicates that a significant number of sheaves were burnt within this event.

### THE CULTIVATION OF MUSTARD

The presence of mustard seeds in such high quantities has already been noted to be of some interest. While such numbers could possibly represent a highly prolific weed infestation, seeds of *Brassica* are rarely recorded in more than single figures in archaeobotanical reports in comparison to other species such as fat hen (*Chenopodium album*) that

regularly occur in high numbers. Indeed they are almost entirely absent from the remainder of the samples. This would suggest that the seeds come from deliberately cultivated plants.

As seeds from such plants would often be processed in small numbers they are not usually recovered archaeologically, suggesting that like the wheat sheaves they too were deliberately destroyed. Black mustard was cultivated in Greek and Roman times and today is most commonly used as a spice in parts of India (Sauer 1993). Their presence in later Iron Age deposits is of some interest and may suggest they played a role in the changes in culinary practices that have been associated with changes in pottery styles during this period (Meadows 1994; 1997).

DISCUSSION by Matt Leivers, Catherine Chisham, Stephanie Knight and Chris Stevens

In general, the 2002 excavations have corroborated the evidence for generally sparse occupation of this part of the hillfort observed in earlier phases of investigation in the south-western area of Ham Hill (Smith 1991; Adkins and Adkins 1992; McKinley 1999).

Stone tool evidence indicates a sporadic human use of the hilltop from the Early Neolithic to Early Bronze Age periods, although no features of these dates were encountered. Middle and Late Bronze Age and Early Iron Age occupation was not encountered in 2002, although occupation in these periods is attested on earlier sites. Instead, occupation in this small area appears to begin again in the 4th century BC with most intensive activity from the 1st century BC.

Although the majority of features are undated within this broad period, those that are more closely dated by their ceramics fall into two distinct groups, with the earlier phase (4th–3rd centuries) at the extreme south of the excavation in Trench 3, while the later phase (2nd–1st centuries) are concentrated to the north, in Trench 1.

In Trench 1, two short lengths of ditch may have formed parts of field boundaries or an enclosure. Ditch 115 contained a large and varied charcoal assemblage, the taxa from which (notably including ash, and blackthorn), their relative proportions and the fact that the sample contained the only representations of birch and field maple, support the observation that the charcoal may have derived from the burning of a hedge adjacent to the ditch. The plant macrofossil evidence is complementary in showing a range of herbaceous plant types including taxa of disturbed open ground and hedgerows e.g. vetch, spurrey, fat hen and bedstraw. Given the large quantity of charcoal from this context, it is presumed that burning of this possible hedge material was deliberate.

One ditch was cut by a portion of a ring gully. It is tempting to interpret this as the vestigial traces of a structure, all other evidence of which has been removed by deep ploughing. Projecting the surviving portion gives a radius of 12–14m, a dimension shared by the post-hole arc revealed in 1983 and proposed as a roundhouse (Smith 1991). Spread 138 contained charcoal from a wide range of wood types from both tree and shrubs, consistent with an interpretation of a domestic hearth.

Iron Age occupation survives otherwise in the form of pits, commonly supposed to be initially for grain storage. The same three-fold typology as proposed in 1999 again adequately accounts for the variety of pit types. Only one Type 1 pit (pit 149) was present (two in 1999), with a thick basal burnt deposit containing grain, mustard and other 'special deposits'. Types 2 and 3 were represented by 16 and four pits respectively (25 and four in 1999), generally containing smaller quantities of less notable refuse; they did not appear to have been dedicated to the disposal of domestic rubbish, and their final function – if any – is unclear.

The exceptions to this general rule are pits 108, 119 and 136 which, along with the Type 1 pit 149, contain suites of artefacts and environmental material suggesting that they were foci for rather different activities. In the case of 149, the evidence for in situ burning of grain and mustard seeds is taken to indicate the deliberate destruction of foodstuffs.

Fuel was predominantly mature oak and ash, although the assemblages from the two sampled contexts contrast somewhat, with juvenile wood and alder buckthorn included in the lower fill containing large volumes of grain and *Brassica* seeds. The substantial presence of oak cut at three years old is suggestive of deliberate woodland management to provide the fuel. Alder buckthorn is an uncommon shrub that favours open woodland, scrub and bogs (Stace 1997). It is rarely found in archaeological assemblages, but Edlin (1949) notes the wood burns slowly and evenly and makes the best charcoal. Such steady, even heat may have been sought for the processing of the grain and *Brassica* seeds and, given its relative rarity, the species was probably deliberately targeted here.

Later depositional events in the same feature (involving a horse skull and a quern) suggest some activity possibly involving ceremonial closure of the feature. Similarly, pit 108 contained complete upper and lower stones from two querns in its basal fill, along with the only near-complete pot (probably complete at the time of its deposition) from the site and a sizable assemblage of other ceramics, a sickle, 528 slingstones and a very considerable quantity of black mustard seed (but no significant quantity of grain). None of this material can be regarded as rubbish, and significant activities were clearly taking place. The restricted charcoal assemblage from context 157 (>90% oak sp.) may indicate burning of a structural timber or simply selection of oak as fuel for an industrial/economic activity. Pit 119 contained very abundant grain and black mustard seeds, but was not otherwise marked out by its contents.

Pit 136 on the other hand contained seven horses heads. The absence of neonatal animals means that no evidence for breeding of horses is available, and it may be that these (and other examples in other pits) were from feral animals that were captured and trained, or killed. As heads were so over-abundant, it is possible to suggest that only horse heads were imported, and their concentration in particular pits could indicate that these represented particular periods of activity. One explanation could be that these parts were brought into the site as spoils or even commemorations of battles where horses had been killed, which could account for the prime age of many of the animals.

Such a scenario is perhaps accounted for by the location of Ham Hill on the tribal boundary between the *Durotriges* and *Dumnonii*. Given that spelt wheat is the predominant crop over much of the Wessex region (Campbell 2000), the high representation of emmer at Ham Hill during the Middle to Late Iron Age is of some interest. Certainly sites around Dorchester appear to be dominated to a much greater extent by spelt during the Iron Age (e.g. Dorchester, Monk 1987; Maiden Castle, Palmer and Jones 1991), while this predominance appears to extend into Dorset (e.g. Gussage-All-Saints, Evans and Jones 1979). Of the sites closer to Ham Hill, lying to the north-east, Glastonbury too appears to be dominated by spelt wheat (Housley 1987), as was the smaller assemblage from Cannards Grave, Shepton Mallet (Hinton 2002). Helbaek (1952) however does list Meare Village Lake as having substantial quantities of emmer wheat, although less than spelt. Further to the west, emmer is more prevalent on sites around Honiton, and is found in similar quantities to spelt wheat (e.g. Blackhorse Road and Long Range, Clapham 1999a).

Although data is only available for a few sites in south-west England, the emerging division is an interesting one, as it broadly follows the tribal boundary of the *Durotriges* and *Dumnonii*, the sites within the territory of the former being dominated by spelt alone, the latter by emmer and spelt. While Ham Hill falls on the boundary of these two tribal divisions, the predominance of emmer seen within both the 2002 excavations and previous work (Ede 1991; 1999) indicates a close affinity with those sites to the west lying within the territory of the *Dumnonii*.

Within the following centuries emmer appears to have been gradually replaced by spelt in south-west Roman Britain (e.g. Pomeroy Wood, Clapham 1999b; Ilchester, Stevens 1999; and Catsgore, Hillman 1982), although emmer wheat is still more prevalent upon these sites than generally seen within many areas during the Roman period.

Deposits such as those in pits 108, 119 and 149 are a common feature of Iron Age sites (Hill 1993; Cunliffe 1983). That they are often associated with storage pits has led Cunliffe (1992) to suggest an association with harvest rites. The deliberate destruction of wheat sheaves by fire is recorded within several ancient harvest customs within England that continued into the 18th and 19th centuries, associated with the killing and re-birth of the corn spirit, the most notable being the *Crying of the Neck* performed in Devon and Cornwall (Hone 1838) and the *Burning of the Witch* recorded from East Yorkshire (Frazier 1922, 42:2). However, in both these cases it is usually single sheaves that are burnt as representations of the corn spirit in order to reassure the crop cycle, rather than a considerable portion of the harvest from a single field. In this respect the activity seen at Ham Hill is more in line with the fire festivals of China and India and the burning of votive offerings (cf. Wilkinson and Stevens 2003).

Some of Smith's 1983 pits (Smith 1991) compare directly with the Phase III pits here (and are dated to the same period by their ceramics and a radiocarbon date of 2160±90 BP (HAR-6653: Smith 1991, 43); these lie at the northern limit of his excavations, in or close to a structure, and separated from earlier occupation to the south by a generally unoccupied area. McKinley's excavations of 1994 and 1998 however indicate that this featureless area may be due to poor survival, rather than reflecting a real absence of Iron Age activity. The analysis of the

carbonised cereal grain, chaff and weed seeds from Smith's pits suggested a rather more limited range of activities than are attested in the pits of the 1994, 1998 and 2002 excavations, with repeated dumpings of already burnt materials and the limited in situ burning of waste, not all of which originated within the hillfort (Ede 1991).

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The project archive (Wessex Archaeology site code 51679) will be deposited with the County Museum, Taunton, under the accession number TTNCM\116\2002.

The full specialist reports upon which this report draws are held in the site archive. They are:

Ham Hill: Animal Bone Report (51678). Stephanie Knight

Stone Report Ham Hill Yeovil Somerset (51679). Kevin Hayward

51679 Ham Hill, Somerset, Charcoal Analysis. Catherine Chisham

Charred plant remains from Ham Hill. Chris Stevens

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