Chapter 4 The Finds and Environmental Evidence

THE FINDS

by Angela Boyle

The quantity of finds from the site is limited, totalling about 262. The bulk of these were metal objects, 88 of iron (including 23 nails) and 50 of copper alloy. A small number of miscellaneous objects were not catalogued. The quantities of catalogued finds by phase are shown in Table 4.1. Of the finds, 61% were either unstratified (U/S) or from unphased contexts, and so it is impossible to carry out a detailed analysis of artefact patterns through time, especially given the high level of redeposition at the site (see Appendix 2). However, the apparently much higher number of finds from Periods D to F (*c* AD 50–120) does suggest that these may have been the period of most intense activity. Appendix 6 relates the context numbers given for the individual finds to their location within the site.

Coins

Iron Age coins

by Philip de Jersey

1 *U/S SF 494* Plated silver, Iron Age, Dobunnic C, Mack 1964, 378a/van Arsdell 1989, 1045–1.

2 *U/S SF 26* Plated silver, Iron Age, Dobunnic H, Mack 1964, 389/van Arsdell 1989, 1110–1 (AD 15–30).

Roman coins

3 *U/S SF 105* Silver Roman republican denarius, 46 BC, MN CORDIVSRVFVS III VIR;
obverse: jugate heads of Dioscun wearing laureate pilei around RVFVS III VIR
reverse: Venus stg l, holding scales on right hand, sceptre on left, cupid perched on shoulder, ? CORDIUS

4 *U/S SF 97* Silver Roman republican denarius, 157–156 BC;
obverse: helmeted head of ROMA, X behind
reverse: Victory in biga, Roma in exergue

Table 4.1 Quantification of finds by phase

	Phase									
	A	B	C	D	E	F	G	H	Unphased	Total
Coins									6	6
Cu al brooches			2	2	3	3			22	32
Cu al rings, bracelet, pins etc									5	5
Cu al misc.				5					8	13
Silver object									1	1
Iron brooches					1	1			7	9
Iron knives/tools				2	1	1			7	11
Iron fittings	1			1	2				5	9
Iron nails			1	3	4				15	23
Iron misc.	1			3	1	3	1		27	36
Lead weights									2	2
Lead misc.						1			11	12
Stone beads						1			1	2
Shale bracelets				1						1
Quernstones			1		3	4			7	15
Whetstones	1								5	6
Spindlewhorls					1				1	2
Other worked stone				1	2	5			10	18
Briquetage					1				1	2
Loomweights			1	1					7	9
Slingshot						1			2	3
Crucible?									1	1
Tile					1	4			7	12
Bone objects	2		1		1	2			2	8
Worked flint										24
Total	5	0	6	19	21	26	1	0	161	262

Post-Medieval and unknown coins

5 *U/S SF 27* Copper alloy, large, probably Victorian.

6 *U/S SF 29* Irregular round disc, flat with slightly off-centre perforation, max diameter 18 mm, width of perforation 3 mm, max thickness of disc 3 mm. Possible coin.

The Brooches

by Donald Mackreth

All are made from a copper alloy unless otherwise stated.

Late La Tène 1 (Fig. 4.1)

All have or had four-coil springs with internal chords.

7 *402 SF 85* Iron. The surviving part of the bow has a rectangular section, a fairly sharp bend in the profile at the top and two or three mouldings on the front at the top of the straight part.

8 *1088/A SF 251* The bow has a thick rectangular section and tapers to a pointed foot. On the front are two groups of cross-grooves, one near the top and the other in the middle.

9 *2011 SF 330* The bow, with a rectangular section, has an almost straight profile with a high 'kick' at the top. The only decoration consists of two vertical grooves at the very top stopped below by two cross-grooves.

These three brooches betray influences from the group dealt with by Stead in his discussion of the brooches from what he termed the Lexden and Welwyn phases of the Aylesford culture of the late pre-Roman Iron Age (Stead 1976). The chief feature shown on his figures 1–3 is the use of knops or mouldings near the top of the bow. These are conscious derivations from the knop or collar found on La Tène II brooches, and the decoration on the present brooches is also a reflection of this. However, they clearly are not in the mainstream and, typologically, fall between the Stead types and the ordinary ones generally grouped as Nauheim Derivatives.

The only sites which offer a good indication of date are the King Harry Lane cemetery (Stead and Rigby 1989) and the Westhampnett cemetery (Fitzpatrick 1997). The first only has g.270,4 from Phase 1, and g.124,4 from Phase 3, the latter being large and late, and surely an antique. Both have finely fretted catch-plates. The second site produced a very different spectrum of brooches, including many with external chords. Those with La Tène II influences are: g.20132 external chord; g.20169 reminiscent of Brooch 9 here, but with a framed catch-plate; g.20601 no spring but the catch-plate has one shaped bar; g.20622 chord unknown; g.20629 external chord; g.29675 x 2 external chord.

There is a marked difference between the two. The King Harry Lane cemetery is dated AD 1–60, although the initial date is admitted as having been possibly as early as 15 BC (Stead and Rigby 1989, 83–4), while the Westhampnett cemetery brooches are generally dated to 90–50 BC (Fitzpatrick 1997, 203–4). The King Harry Lane cemetery dating is certainly too late: there is only one Colchester Derivative and no real Hod Hills, inconceivable for a site lasting significantly beyond AD 40–45. As for Westhampnett, the evidence for its limited use is good, but the number of external chords may suggest that the dating could be taken 10 to 15 years further back without damaging the rest of the evidence. The presence of only one Nauheim, the rest not belonging to Stead's types, being *Drahtfibeln*, opens another dimension which is not relevant here but may weigh on the dating. In short, the present brooches, assuming all to have had solid catch-plates, should date after *c* 50–25 BC; the difficulty is deciding how late they may have run. Brooch 7 should be safely before the Roman conquest, and may be 1st century BC. Brooch 9 looks as though it ought to be tied to the end of the Nauheim proper, and the profiles of both of these brooches point to a date generally after 25 BC, save that some brooches in the Westhampnett cemetery have the same profile as Brooch 7. The slack profile of Brooch 8 might be before *c* 25 BC but little stress should be placed on this. In short, all three should be earlier than *c* AD 40–45.

10 *2374 SF 333* The bow has a thin rectangular section and tapers to a pointed foot. Down the centre of the broad part is a decorative stamped strip probably made by a narrow bar with notches cut across producing a line of square stamps. The catch-plate is fairly insignificant.

The distribution of brooches using lines of square stamps conforms fairly well with the area once occupied by the Atrebates, but there are examples from further afield; those from Wroxeter in the list below were almost certainly picked up by the Legio XIV Gemina on its way through the home territory.

The dating is: Fishbourne, AD 43–*c* 75, two examples (Cunliffe 1971, 100, fig. 36.6 and 13); Hod Hill, before AD 50 (Brailsford 1962, 7, fig. 7, C25); Wilcote, Claudian (Hands 1993, 31, fig. 24,14); Silchester, not after AD 60 (Boon 1969, 47, fig. 6,3); Wroxeter, after AD 55/60, two examples (Shrewsbury, Rowley's House 48); Harlow temple, before AD 80 (France and Gobel 1985, 75, fig. 39,1); Wilcote, mid 2nd century AD (Hands 1998, 53, fig. 19,42); Verulamium, AD 200–225, AD 350–375 (Frere 1984, 21, fig. 5,15–6); Shakenoak Farm, 4th century plus (Brodribb *et al.* 1972, 72, fig. 30,126).

11 *U/S SF 263* Iron. What is left of the thin rectangular-sectioned bow has a distorted profile.

Nothing of any distinction remains. Iron brooches are generally pre-conquest, but many made then

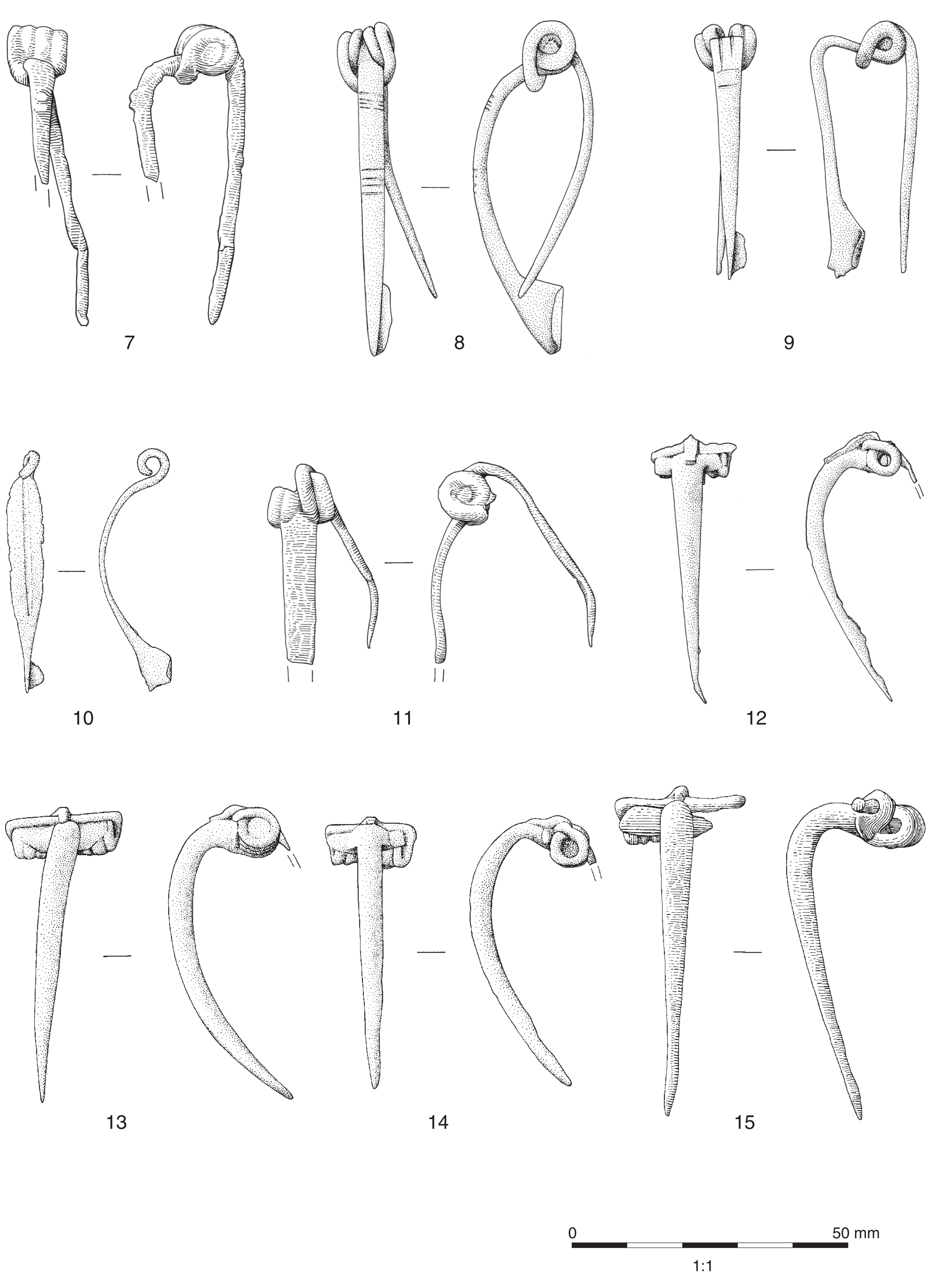

Fig. 4.1 Brooches (Nos 7–15)

survived in use long after. Apart from a simple strip type with a rolled-under head, such brooches should not be expected in the Roman period much after AD 50–60.

Colchesters (Figs 4.1–2)

The bilateral spring is integral with the bow and issues from the lower part immediately behind the head of the bow; from the upper part rises a shorter rod which was fashioned into a forward-facing hook to secure the chord. The condition of these is such that no decoration can be seen.

12 *U/S SF 72* The bow seems to have a rounded front and there are signs of facets on the rear corners. Only the stub of the catch-plate survives.
13 *U/S SF 266* Here the bow has a rounded front and there are facets on the rear corners. No trace of the catch-plate survives.
14 *3253/B SF 523* The bow section is possibly like that of Brooch 12 and the catch-plate is missing.
15 *U/S SF 497* Indeterminate bow section and the catch-plate is completely lost.
16 *313/A SF 63* Possibly has a hexagonal section, the catch-plate may have either had a single opening or, more likely, one divided by a cross bar.
17 *U/S SF 337* There are facets on the back corners, the rest is unclear and only the merest trace of the catch-plate is left.
18 *569 SF 116* Iron. Length cannot be determined due to fragmentary nature of brooch. Eight coils. The catch-plate does not appear to have survived (not illustrated).
19 *3215/B SF 511* Surviving length 39 mm. Six coils. The condition is very poor and all or most of the original surface is missing thus obscuring what the section of the bow had been and also removing traces of any decoration on the wings. The catch-plate is lost.

With so few proven diagnostic features, other than the defining ones which determine that these are Colchesters, there is little to provide a framework for discussion. None is of a great size which is, on the whole, one indicator of an early date. None has the distinctive almost straight profile with a marked bend at the head. None is so small that it could belong to any of the late Colchesters. Only Brooch 16 has enough to suggest that it had a completely faceted section, in this instance hexagonal, the possible rounded fronts of the others are not certain. Again, only Brooch 16 has enough to suggest the style of catch-plate.

Only a very general date range can be proposed: *c* AD 1–60, the latter being the end of the period of survival in use, manufacture having effectively ceased *c* AD 40.

20 *3004/A SF 502* Iron. The spring is lacking, but the form of the head only really suits the Colchester spring arrangement. The wings are damaged. The bow is apparently plain with a rounded section and tapers to what had probably been a pointed foot. The stub of the catch-plate may survive.

Iron brooches may have been more common than we suppose because many have not survived from past excavations and many have been reduced to masses of rust incapable of interpretation. Without the King Harry Lane cemetery (Stead and Rigby 1989), our knowledge of the *floruit* of brooches made in this material would be meagre.

The dating is as follows: King Harry Lane Phase 1, 7 or 8 graves; Skeleton Green, 15–25 (Partridge 1981, 37, fig. 66,5); King Harry Lane Phase 2, 8 graves; Boxford cemetery, pot 9, two examples (Owles and Smedley 1967, 92, fig. 14,c,d); King Harry Lane Phase 3, 5 graves; King Harry Lane Phase ?, 5 graves; Weekley, mid–late 1st century AD (Jackson and Dix 1987, M97, fig. 24,24); Colchester, AD 44–8 (Niblett 1985, 116, fig. 73,6); Longthorpe, AD 44–60 (Frere and St Joseph 1974, 44, fig. 23,3); Bagendon, AD 45–55 (Clifford 1961, fig. 29.6); Thetford, Fison Way, AD 45–61 (Gregory 1992, 120, fig. 112,5); Richborough, late 1st century AD (Bushe-Fox 1932, 77, pl. 9,9); Wall, late 1st century–early 2nd century AD (Jones 1998, 17, fig. 8,1); Alcester, early–mid 4th century (Cracknell and Mahany 1994, 162, fig. 75,1); Skeleton Green, late Roman and later (Partridge 1981, 140–2 f.67,7,8).

The emphasis is on an early date, even if the King Harry Lane cemetery were to be ignored. However, King Harry Lane may reveal a trend in the use of iron for brooches. The totals of graves are: Phase 1, 7 or 8; Phase 2, 8; Phase 3, 3; Phase 4, none. The absence of any graves with iron Colchesters in Phase 4 does not matter as only 14 graves were assigned to it. However, Phase 3 has the greatest number of graves of any phase, 149, and the drop in the incidence of iron Colchesters should mean that they were passing out of use during its life. The dating of the King Harry Lane cemetery is not yet fixed. The absence of any proper Hod Hill and the presence of only one Colchester Derivative should mean that the possible beginning of the cemetery *c* 15 BC (Stead and Rigby 1989, 83) should be invoked, and the phases moved back 15 years as a consequence.

Colchester Derivatives (Fig. 4.2)

Brooches 21 and 22 have or had their springs mounted in the Harlow manner: a plate behind the head of the bow has two holes, the lower one for the axis bar through the coils of the spring and the upper to hold the chord.

21 *569/B SF 10* Each wing has a vertical groove at its end. The plate behind the head of the bow is carried over the top as a ridge which runs down the upper half of the bow possibly to be stopped by two cross grooves. The bow is

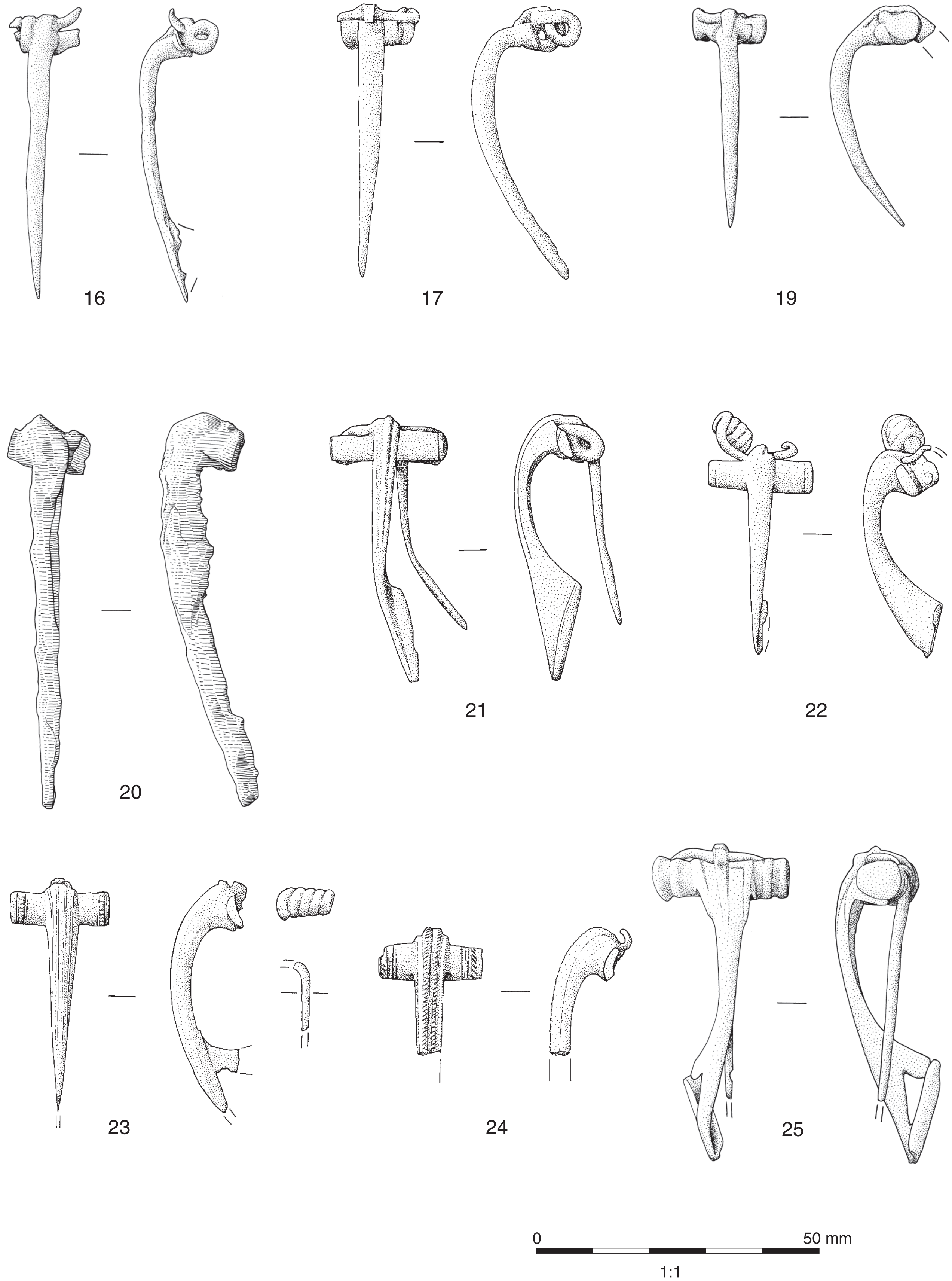

Fig. 4.2 Brooches (Nos 16–17, 19–25)

relatively narrow at the top and tapers to a pointed foot.

This brooch belongs to a distinct group which lies mainly in Wiltshire and southern Gloucestershire, with an extension into Hampshire. The features which mark it out are the overall proportions and the long ridge down the upper part of the bow. The main type often has one or more piercings in the catch-plate, but this variety almost always has a solid one.

The dating is: Kingscote, 1st century BC–AD 140 (Timby 1998, 117, not illustrated); Wilcote, 2nd century plus (Hands 1998, 51, fig. 18,31); Kingscote, late 3rd century ?plus (Timby 1998, 117, not illustrated); Wilcote, 300–360 (Hands 1998, 49, fig. 18,32); Brockworth, late 4th century (Rawes 1981, 65, fig. 8,1). Not a strong representation, the date almost certainly begins in the later 1st century and then runs into the 2nd. British bow brooches ceased to be made by AD 150–175, but many would have lasted in use a little later: effectively only two of the dated examples cover parts of their true *floruit*.

22 *322 SF 31* Like the last, except the bow here is plain and there is a groove at the end of each wing.

Plain brooches are seldom easy to deal with and it is a mark of those with the Harlow spring system that they are not numerous and, as a result, are poorly dated: Quinton, before AD 70–80? (Friendship-Taylor 1974, 49, fig. 18,br6); Verulamium, AD 75–125 (Wheeler and Wheeler 1936, 207, fig. 44,26); Verulamium, 2nd century AD (Stead and Rigby 1989, 17, fig. 10,16); Little Amwell, 2nd century–4th century (Partridge 1989, 133, fig. 76,9); Weldon, before AD 200 (Smith *et al.* 1989, 33, fig. 8,1); Baldock, 3rd century (Stead 1986, 112, fig. 43,68).

Brooches 23 and 24 are not standard, the first being fairly closely related to the Harlow spring system (see above), the second possibly to the Polden Hill system which follows it (see Brooch 25).

23 *620 SF 33* The remains of the spring system show that it had been unilateral, the left hand wing housing the axis bar having behind it a series of ridges simulating a spring. The front of each wing has a pair of vertical mouldings at its end, the inner one being beaded. The bow tapers to a pointed foot and has two grooves down its front. The remains of the catch-plate suggest that there had been at least one piercing.

Very difficult to place, but the indications are that this method of fixing the spring belongs to eastern England. Dating is equally difficult but, like many hybrids, this would have been more at home in the second half of the 1st century than later.

24 *U/S SF 96* The chord of the spring was held by a forward-facing hook tucked in behind the head of the bow which has two cross-cut ridges down it. Each wing has a bead and a reel at its end. The lower bow, with the catch-plate, is missing.

Another hybrid in the sense that it ought to be Polden Hill (see below) but with a forward-facing hook. The alternative version with the hook facing in the other direction is the Rearhook and, like that, the separately-made spring could have been soldered in position behind the left hand wing. The dating of the Rearhook is before AD 60–65 and in the present case, the date may be basically the same but may have run on a little.

25 *U/S SF 264* The spring was held in the Polden Hill manner: an axis bar through the coils is mounted in pierced plates at the ends of the wings; the chord is held by a pierced crest on the head. Each wing has two bold mouldings separated from each other and the bow by deep flutes. The bow has an extra moulding on each side of the head and the pierced crest is run down as a skeuomorph of the hook on a Colchester. The rest of the bow is plain and tapers to a pointed foot. The catch-plate has a large triangular piercing.

The style belongs to the south-west and with a hinged pin would lie further to the south-west than this variety. Large piercings in the catch-plate are frequent and the available dating for brooches such as this, with one or more mouldings added to the bow, is: Camerton, AD 65–85 (Wedlake 1958, 218, fig. 50,7); Broxtowe, before *c* AD 75 (Campion 1938, brooch 9); Verulamium, before late 1st century AD (Lowther 1937, 37, fig. 2,1); Wycomb, late 1st century–early 2nd century AD (Timby 1998, 323, fig. 135,9); Newstead, AD 80–*c* 200 (Curle 1911, 318, pl. 85,4); Verulamium, AD 85–105 (Frere 1972, 114, fig. 29,9); Wilcote, mid 2nd century AD? (Hands 1993, 29, fig. 23,7); Worcester, residual in earliest 3rd century AD dumps (Darlington and Evans 1992, 73, not illustrated). The message is fairly clear: from late Neronian to the earliest 2nd century AD should cover the period of common usage and the period during which survivors in use continued for a while. All later ones should have been residual.

Fragments (Fig. 4.3)

26 *722 SF 114* Only the lower bow with the catch-plate survives. The front of the bow appears to be plain; the catch-plate has in it three circular holes arranged more or less as a vertical line.

27 *U/S SF 495* All that is left is the very bottom of the bow with the catch-plate. The bow has cross grooves on the front above the level of the top of the catch-plate which, itself, is plain.

The holes in the catch-plate in the first might indicate a date before *c* AD 100–125. The second has little to recommend itself and a general date range running from the latter part of the 1st century AD to about AD 150–175 may be suggested.

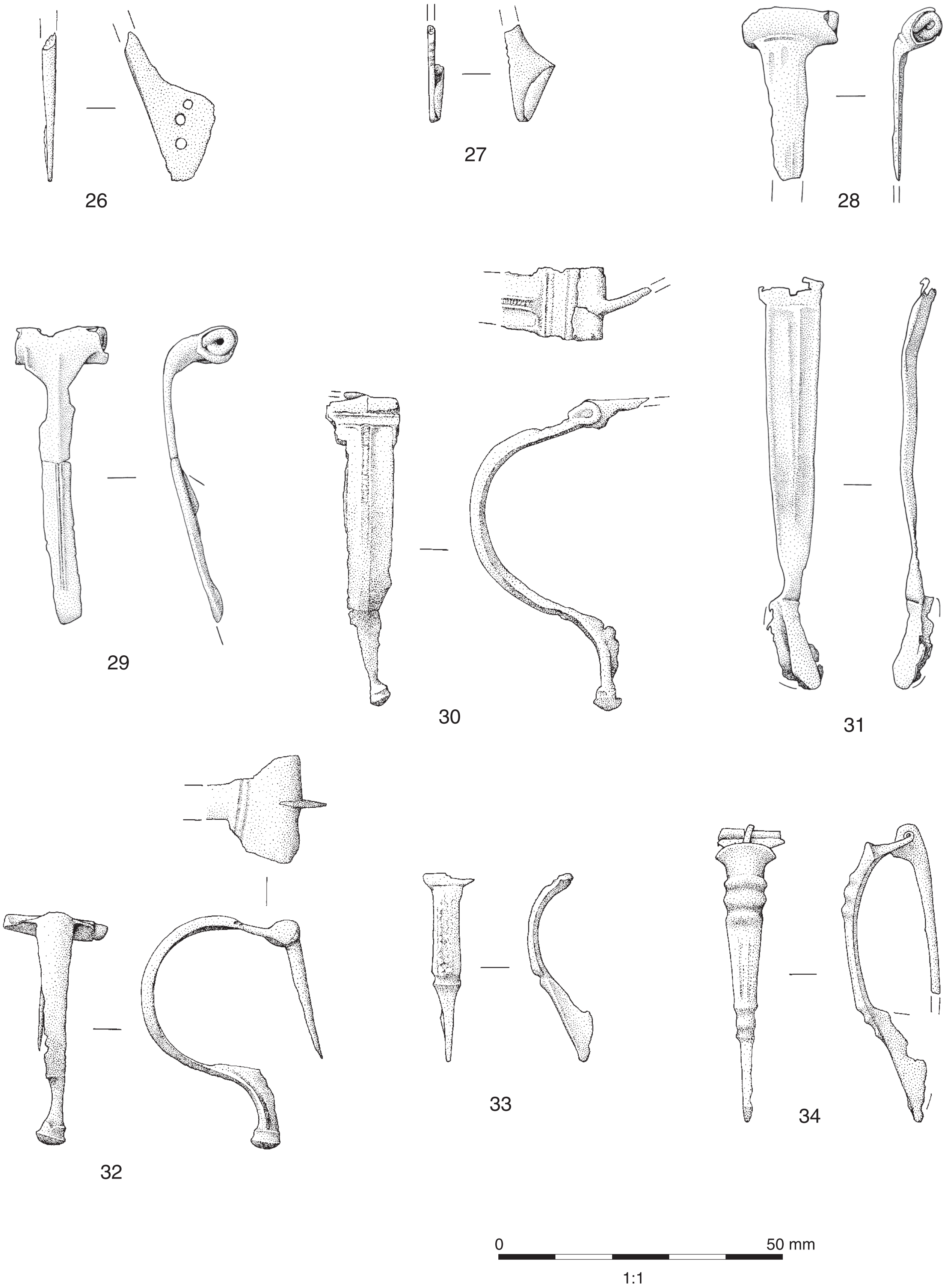

Fig. 4.3 Brooches (Nos 26–34)

Late La Tène 2, Langton Downs (Fig. 4.3)

The spring in each of these is separately made and housed in a case on the head of the bow formed by closing two cast flaps round it.

28 *110 SF 28* The eroded remains of the spring-case and the upper bow with the moulding separating the two.

29 *2396 SF 324* There is no sign of the cross-moulding dividing the spring-case from the bow which itself seems not to be the ordinary reeded type, but to have a ridge down the middle.

The condition is so appalling that there is little point in trying to discuss to which variety or what part of the overall floruit these two items belong. There is nothing to suggest that either is early (that is, the last two decades of the 1st century BC into the first or second decade of our era). The latest date at which any Langton Down could be expected to be seen is *c* AD 55–60.

Aucissa–Hod Hills (Fig. 4.3)

All these, where the evidence survives, have or had the axis bars of their hinged pins housed in the rolled-over heads of the bows.

30 *877/C SF 180* The head-plate seems to have a medial flute with what may have been bead-rows on each side. The bow has a bordering ridge on each side and a sunken bead-row down the middle of the swelled front. The foot has the usual cross-mouldings at the top and chamfered sides. The two part foot-knob is soldered or sweated on to a peg at the bottom of the bow.

31 *2042/B SF 301* The same as 30, but distorted and without the rolled over head and foot-knob.

These are Aucissas and in common with the majority are not inscribed with either the name of the most common manufacturer or of any other. No genuine Aucissa from a pre-conquest context has come to the attention of the writer. They arrive at the conquest in some numbers with their progeny, the Hod Hill, having probably ceased being made sometime in the ten years before the conquest. They survive in use for about fifteen years after AD 32, very few indeed occurring north-west of the Fosse Way. The large number from Wroxeter, seemingly not founded before *c* AD 55–60, contrasts with the relatively low number of Hod Hills in the overall collection, and is due to special factors (Webster 2002, 91). The end date for the Aucissa is roughly AD 60–65.

32 *3* Not well preserved, it is the width of the head which suggests that the bow is not particularly eroded on each side and, indeed, has a genuinely rounded front.

Other versions of the main type which gave rise to the Aucissa exist, but are hardly met in Britain. That being the case, when they do occur they can be difficult to place. However, a brooch whose bow resembles this came from the fort at Hod Hill. In which case such brooches are here before AD 50, possibly before the Roman army arrived (Richmond 1968, 39, fig. 31, hut 56; ibid., 117–9). Unfortunately, the head is largely missing so an exact parallelism is denied us.

33 *U/S SF 181* Poorly preserved, with traces of tinning, the upper bow has three vertical ridges which were probably cross-cut, and is separated from the lower bow by a cross-moulding. The lower bow has a flat front face and tapers towards the foot-knob which is now missing.

34 *389 SF 68* The upper bow has, between two sets of three cross-mouldings, the upper set being prominent, two sunken vertical bead-rows. The lower bow is narrow and tapers to the remains of the usual two part foot-knob. There are traces of tinning. The catch-plate has the remains of a circular hole.

Both fit into the Hod Hill category and both in their way show the range of designs to be found. The dating of the first is taken from those which more or less conform with the present example, there always being an element of doubt as to where the exact dividing line between one variety and another should fall: Whitwell, before AD 50 (Todd 1981, 38, fig. 19,2); Colchester, AD 49–61 (Hawkes and Hull 1947, 324, pl. 97,154); Camerton, Claudian-Neronian (Wedlake 1958, 226, fig. 53,32); Exeter, AD 50–80 (Fox 1952, 62, fig. 8,2); Gloucester, before AD 60–65 (Garrod and Heighway 1984, 93, fig. 64,16); Colchester, AD 61–*c* 65 (Hawkes and Hull 1947, 323, pl. 97,140); Broxtowe, before AD 70–5 (Campion 1938, brooches 7, 8); Harlow temple, before AD 80 (France and Gobel 1985, 77, fig. 40,27); Wroxeter, AD 80–120 (Bushe-Fox 1916, 22, pl. 15,3); Baldock, 1st century–3rd century AD (Stead 1986, 120, fig. 47,107); Dorchester, AD 75–120 (Woodward *et al.* 1993,123, fig. 62,39); Ilchester, before late 2nd century AD (Leach 1982, 245, fig. 116,18); Wilcote, before AD 200? (Hands 1993, 33, fig. 25,25); Leicester, late 2nd–early 3rd century AD (Connor and Buckley 1999, 253, fig. 119,26); Chichester, late 4th century (Down 1981, 257, fig. 10.2,17). The dating begins to break down at about AD 75, thereafter, despite the detail that the dating of archaeological artefacts is no longer so precise as it is before then, there is no real 2nd century presence, and this argues for a relatively sharp cut off as the last survivors in use pass into the archaeological record. The real period of last use should be AD 70–75 as there are so very few found in the lands taken into the province at that time.

As for Brooch 32, in its earlier manifestation (eg Clifford 1961, 182, fig. 35.2) it had iron bars driven through the bow on which were mounted knobs. One of the very few brooches which belonged in any way to the Alesia–Hod Hill sequence from the King Harry Lane cemetery was of the same type (Stead and Rigby 1989, grave 233, Phase 3) where it occurred with one of the very few late Colchesters on the site. Dating for those like the present is really nonexistent. The King Harry Lane brooch had what was effectively a framed catch-plate, a feature which is more frequently found before the conquest than afterwards and the absence of a strong follow up in the rest of the Hod Hills suggests that this brooch is earlier in the sequence than later, say before AD 55–60.

Trumpet (Fig. 4.4)

35 *U/S SF 130* The bilateral spring is mounted on an axis bar which runs through the pierced lug behind the head of the bow. The narrow trumpet head has a median ridge and at the head has an almost triangular shape resting against a semicircle. The knop is made up of a bulbous moulding with a narrow one on each side separated above and below from single ones each of which has a dip in the middle. The lower bow has a central arris and tapers to a two part foot-knob.

The chief characteristics here are the replacement of the petalled knop of the more standard forms with plain mouldings, and the use of small almost lenticular mouldings above and below that. The distribution is not only southern Britain but is specifically the lower Severn Valley with most being concentrated in Gloucestershire and spreading from there into South Wales and Wiltshire. There are occasional outliers. To some extent the picture is biased by the large number from Kingscote (Timby 1998, 134, Nos 102–7), but even without these, there is still the same emphasis. The dating, as ever, when it comes to specific varieties of Trumpet brooches is weak: Tewkesbury, AD 50–140 (Hannan 1993, 66–7, fig. 19,9); Whitton, AD 50–95 (Jarrett and Wrathmell 1981, 175, fig. 70,24); Usk, Flavian-Trajanic (Boon and Savory 1975, 54, fig. 2,9); Chilgrove, Sussex, late 3rd–early 4th century (Down 1979, 147, fig. 48,6); Nettleton, 4th century (Wedlake 1982, 127 fig. 53,53); Whittington Court, Glos., mid 4th century and later (O'Neil 1952, 77, fig. 12,1). As can be seen, the dating falls into two distinct groups and all in the latter were residual; the proper dating is from *c* AD 70 into the earlier 2nd century.

Unclassified (Fig. 4.4)

36 *214/a SF 22* The spring had been mounted in the Colchester manner (see Brooch 7). The wings are rudimentary. The bow has the appearance of a rounded central feature. A cross-moulding separates it from the broad and spatulate foot.

Derived from the *Augenfibel*, this type comes in two forms with the high probability that the second directly derives from the first. The earlier commonly has a bead-row down the middle of the bow and one or two inverted Vs on the end of the spatula-like foot. The second not only lacks these but has a bow which is narrow with a consequently narrow foot. In default of any evidence for decoration, the form alone suggests the first variety. The distribution is mainly in the modern counties of Hertfordshire, Cambridgeshire, Northamptonshire and Rutland, but they also occur in the lower Severn Valley and near the South coast.

The dating is: Rushden, AD 45–60 (Woods and Hastings 1984, 108, fig. 10.1,5); Colchester, AD 49–61 (Hawkes and Hull 1947, 321, pl. 96,120–1); Broxtowe, before AD 70–75 (Campion 1938, fig,4–5); Haddon, late 1st century–early 2nd century AD (French 1994, 133–4, fig. 72,7); Towcester, *c* AD 100 (Lambrick 1980, 60, fig. 12,3); Baldock, AD 180–200 (Stead 1986, 112, fig. 42, 47–8); Orton Hall Farm, AD 225–325 (Mackreth 1996, 95, fig. 61,13); Haddon 4th century (French 1994, 133–4, fig. 72,8). The probability is that all date essentially before AD 75–80 and, if Roman brooches were not generally to be seen in the lands of the Iceni before the suppression of the rebellion, then the virtually complete absence of this variety may be the best indication that it had ceased to be in use by AD 60. One may also note two examples, unpublished, from Kingsholm, Gloucester, which should also be early in date.

Plate (Fig. 4.4)

37 *U/S SF 92* The pin is hinged and mounted between two lugs. The circular plate has traces of annular grooves around the centre which is an equal armed figure defined by four vesicas.

The form is easily recognisable, but this example lacks the common feature of a circular recess in the middle with a central hole for a stud. While the latter is generally to be expected, it is not a prerequisite, the brooch being essentially allied to a family employing different shapes but having that feature in common. The family arrives with the army of conquest and continues to *c* AD 70, but the present form needs to be looked at separately.

The dating is: Colchester, 43–48 (Hawkes and Hull 1947, 326, pl. 98,177); Hod Hill, before AD 50 (Brailsford 1962, 12, fig. 11,F4); Lockleys, Welwyn, Claudian (Ward-Perkins 1938, 352, fig. 2,2); Longthorpe, Claudian-Neronian (Dannell and Wild 1987, 87, fig. 21,11); Waddon Hill, Stoke Abbot, Dorset, *c* AD 50–60 (Webster 1965, 144, fig. 6,5); Wroxeter, Flavian (D Atkinson 1942, 208 fig. 36,H86); Colchester, before AD 150 (Crummy 1983, 17, fig. 14,86). For the small number recorded by the writer a remarkably high proportion is dated and the message seems unequivocal: essentially pre-Flavian. However, an example from near Newcastle (Hattatt 1985, 151, fig. 63, 547) might have derived from a military site which could have been as early as AD 75–80, in which case it could have been a survivor in use.

Penannulars (Fig. 4.4)

38 *3235/F SF 510* The ring has a circular section. Each terminal is folded back along the top of the ring. One has two notches; the other had three. There is a suspicion that there may be a hollow between the main grooves. The pin is straight.

39 *U/S SF 129* The ring has a circular section. Each terminal is folded back along the top of the ring and each bears signs of cross-grooves.

40 *U/S SF 127* The ring has a lozenge section. The surviving terminal is folded back along the top of the ring and has a central cross-flute with a groove on each side. The top arris of the ring is cross-cut.

Penannulars can be divided into those with coiled or folded terminals as here, and those with knobs. As none is well enough preserved for any to be assigned positively to any of the subvarieties, only a general date range is offered here. Although one or two may occur before the conquest, the vast majority are post-conquest and run on to the middle of the 2nd century AD. However, a strand continues and becomes the zoomorphic and pseudozoomorphic varieties of the 4th century, mainly after 350 and later. There is no evidence here to think that any of these three ought to be placed so late.

Unclassified

41 *470/A SF 71* Iron. Head appears to be rolled over. Bow is quite flat and broad with a very rounded back. Brooch is very corroded (not illustrated).

42 *145/C SF 16* Iron. Very fragmented although bow, head and catch-plate are all represented, also spring fragments; small brooch with a heavy solid catch-plate; bow appears to have quite thick cross-section, it tapers towards foot and is quite curved (not illustrated).

43 *113/I SF 17* Iron. Bow and part of head of brooch, in very poor condition and much fragmented, bow tapers in towards its tip, no visible spring (not illustrated).

Fragments (Fig. 4.4)

44 *192/A SF 21* Iron fragments of probable spring, two coils almost discernible (not illustrated).

45 *528/C SF 115* A half spring with the pin and the distorted chord, probably from a Colchester Derivative.

46 *1158 SF 258* Pin with part of a spring; the type of brooch is indeterminate.

47 *537 SF 104* Pin with the typical hole and extension needed to bind on the body of a hinged-pin brooch when the pin is depressed.

The context and distribution of brooches

Of the 43 complete or near complete brooches at Thornhill Farm, 12 (28%) were unstratified, while the remainder were spread throughout the main excavation trenches (7, 8, 9 and 22; see Appendix 6 for relationship of brooch context numbers with trench, feature and phasing information.). The largest number (18) came from trench 7 (Cat nos 7, 8, 16, 18, 21–23, 26, 28, 34, 36, 41–47), mostly from the enclosure ditches of periods E and F, dating *c* AD 75 to 120. One example (cat no. 28) came from period G trackway 301 in this trench (early 2nd century AD). Two (cat nos 9, 10) of the five brooches from trench 9 came from period C enclosure ditches (*c* AD 1–50), with the other three (cat nos 29, 31, 54) being recovered from undated ditch features. Of the four (cat nos 14, 19, 20, 38) brooches from trench 22, two (cat nos 19, 38) came from period D and E enclosures (*c* AD 50–125). Only a single example (cat no. 30) was recovered from trench 8, but as this area produced little evidence for activity beyond the mid 1st century BC (period A), this is perhaps not too surprising. The overall distribution pattern of brooches suggests that they became increasingly common towards the end of the 1st and start of the 2nd century AD, when settlement activity was largely confined to the area of trench 7.

Copper alloy objects

by Angela Boyle

Of the 52 copper alloy objects from the site, 32 were brooches, and have been reported on separately (see above). The remaining 20 artefacts are catalogued below. A selection is illustrated in Figure 4.5.

Pins

48 *U/S SF 8* Round-headed pin, slightly bent at mid-shaft, max length 89.8 mm, max diameter of shaft 1.2 mm. Length of head 4.9 mm, width of head 5.8 mm. The decoration comprises a series of incised lines or grooves which radiate from a central point at the top of the pin head. Two regular ridges circumscribe the neck of the pin.

49 *U/S SF 82* Incomplete round-headed pin, max length 30.3 mm, max diameter of shaft 1.3 mm. Head of pin is circumscribed by an incised line near the neck. Length of head 1.9 mm, width of head 5.2 mm.

Bracelet

50 *U/S SF 12* Fragment of bracelet, ovoid cross-section, appears to be of 'segmented type', pointed extension at one end, hole at the other, it seems that at least two pieces were intended to slot together, max width 9.3 mm. Decoration comprises two incised lines running around the centre with a longitudinal moulding in between, this appears to have a series of 'nicks' or dots either side. Curve of fragment suggests bracelet originally had a circular form.

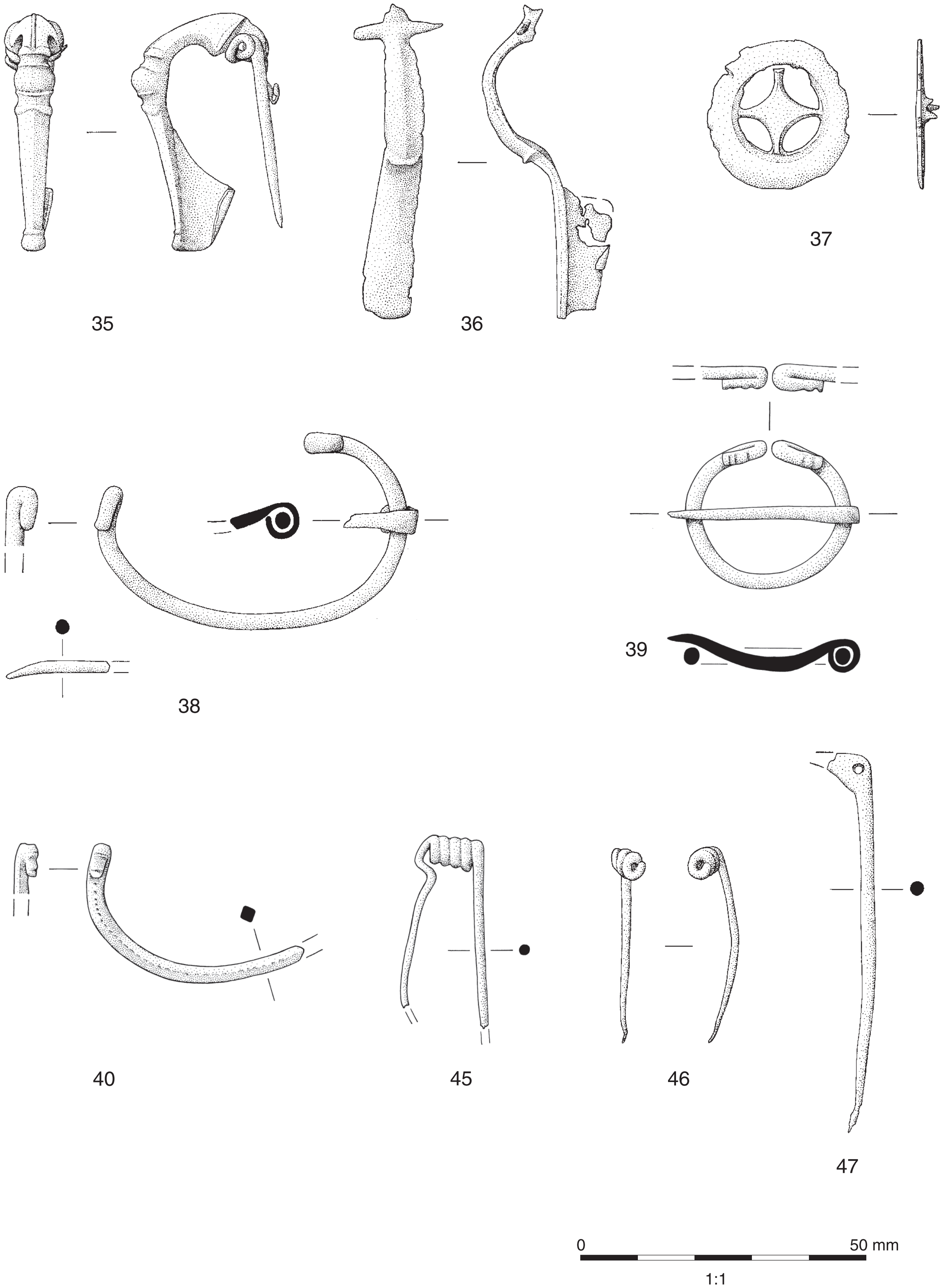

Fig. 4.4 Brooches (Nos 35–40, 45–7)

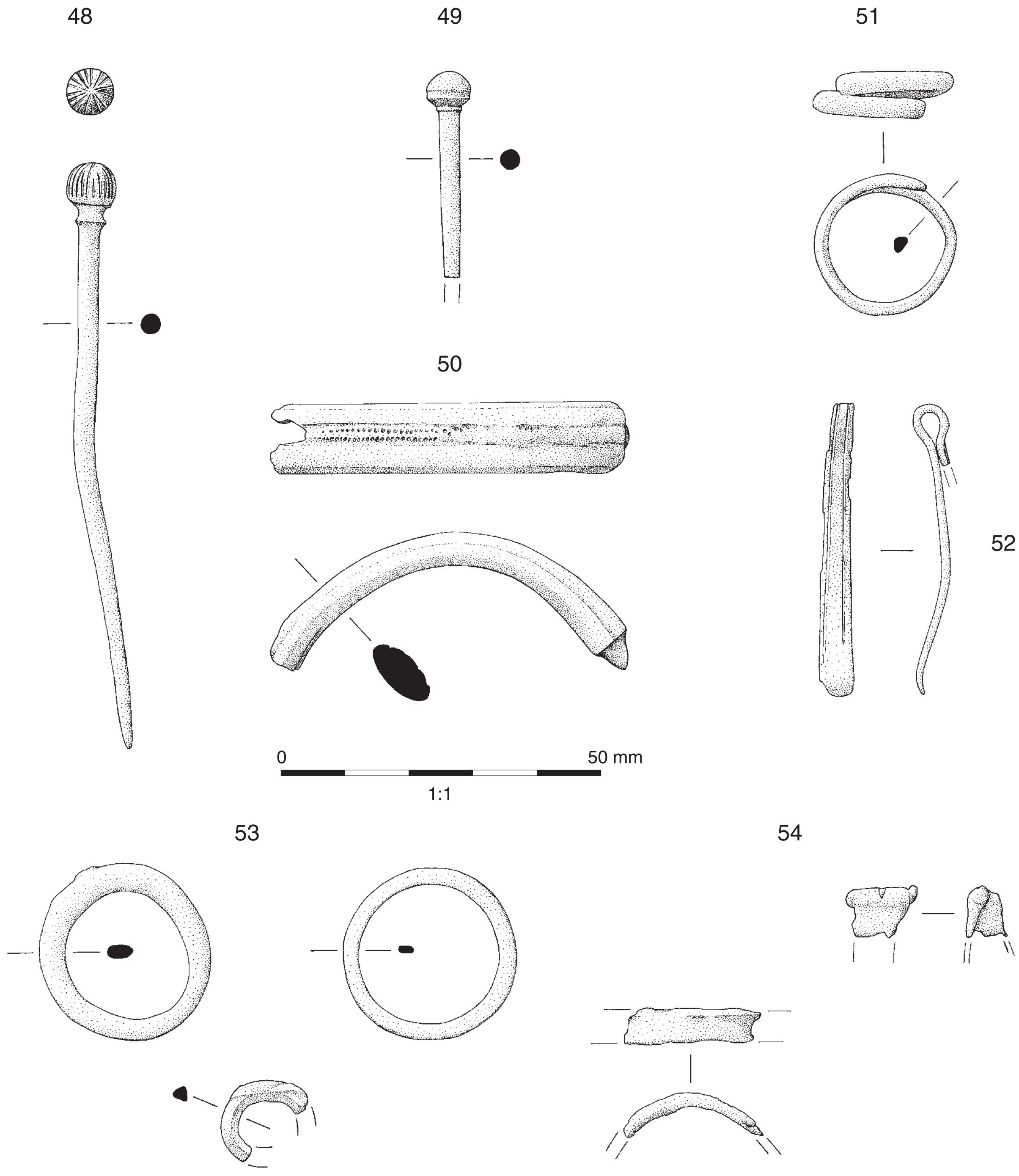

Fig. 4.5 Copper alloy objects (Nos 48–54)

Finger ring

51 *3106 SF 513* Expanding spiral ring, 1/4 turns, max diameter 19.8 mm, ring height 2.2 mm.

Tweezers

52 *U/S SF 271* Incomplete tweezers, rounded loop at head and one half of body survives, this bends outwards at shaft, which widens out towards bottom (ie expanded terminals), flat cross-section. Decoration comprises two longitudinal incised lines either side of body, they run from bottom of body, then up and over loop. Max length 43.6 mm, max diameter of loop 3.3 mm.

A parallel from the cemetery at Skeleton Green (Partridge 1981, 272, no. 14) was found in a grave fill and is probably residual. A further two examples derive from the latest Roman layers at this site (Partridge 1981, 105, nos 10 and 11) and one of them also has expanded terminals and longitudinal grooves which carry on over the hinge loop. Fifteen pairs of tweezers were recovered from the excavations at Baldock (Stead 1986, 130, nos 289–303, fig. 57), some of which had bordering grooves similar to the pair from Thornhill. The excavators remarked on their general absence from early levels (ie pre-Conquest), although rare examples are known from late Iron Age contexts.

Other copper alloy objects

53 *U/S SF 270* Three rings, two complete, one surviving as a fragment, although it was clearly much smaller than the others, and also irregular with one surface rounded and the other flat. Max surviving diameter 13.7 mm, ring thickness 2.2 mm. A second ring is complete and has a maximum diameter of 26 mm, max ring thickness 2.4 mm, though this is variable. The third example, also complete, is the most regular, maximum diameter 25.4 mm, ring thickness 1.4 mm.

54 *2516/A SF 487* A small fitting which may be part of the head of a hinged brooch and a length of curved copper alloy strip which is beaten flat and has a central groove.

55 *2071/B SF 305* Stud? Now in two pieces, max length 17.1 mm, stem of stud has rectangular cross-section, the outer edge of the head appears to have corroded and broken off (not illustrated).

56 *U/S SF 265* Irregular lump, max diameter 15 mm (not illustrated).

57 *U/S SF 267* Irregular lump, originally probably quite flat, *c* 0.5 mm thick, object has been squashed and distorted, *c* 27 mm across, evidence of a possible rim though this is far from clear (not illustrated).

58 *U/S SF 268* A twisted length of copper alloy with rounded cross-section, length 45.9 mm, 3.2 mm thick (not illustrated).

59 *2239/A SF 309* Two fragments (not illustrated).

60 *2284/A SF 314* Irregular fragment, beaten flat (not illustrated).

61 *U/S SF 508* Strip beaten flat, *c* 1 mm thick (not illustrated).

62 *2515/A SF 338* Three 'lumps' and one length of wire bent into a semicircle (not illustrated).

63 *U/S SF 332* Droplet (not illustrated).

64 *2268 SF 334* Droplet (not illustrated).

65 *2515/A SF 498* Three droplets (not illustrated).

Such droplets have been identified as the smooth-surfaced dribbles and blobs from spilt molten metal (Stead 1986), and presumably indicate that a small amount of metalworking was occurring on site.

Silver object (Fig. 4.6)

by Angela Boyle

66 *U/S SF 107* Cylindrical ring or collar, decoration comprises series of incised lines which encircle the body from top to bottom, height 15.2 mm, diameter 10 mm, thickness of metal 1 mm.

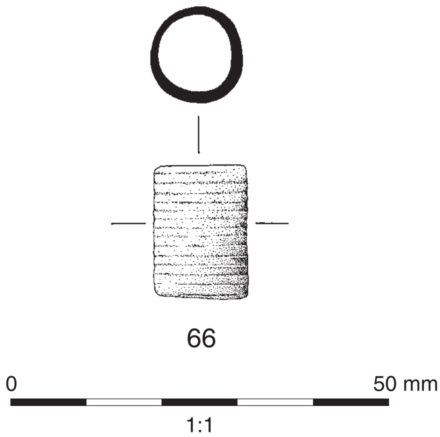

Fig. 4.6 Silver object (No. 66)

Iron objects (Fig. 4.7)

by Angela Boyle

67 *801/A SF 207* Incomplete pin, shaft only, much corroded, max length 33.5 mm.

68 *U/S SF 126* Rectangular fitting with two small rivets visible on underside (not illustrated).

69 *840/1 SF 193* Fitting or stud (not illustrated).

70 *937/A SF 190* Small knife, probably complete, little sign of break to blade, tip is very wide and slightly rounded, cutting edge curves upwards towards tip, back of blade is straight and continues into handle, max length 76.2 mm, max width of blade 24.3 mm.

71 *3 SF 1* Incomplete knife blade, in two pieces, nothing remains of cutting edge, back appears to have been straight, larger fragment measures 89.9 mm in length.

72 *2314 SF 336* Complete knife, largest of the assemblage, handle slightly obscured by corrosion (Manning's type 11a?), the back continues the line of the handle and is more or less straight, edge is convex and rises to the tip which is rounded. This example is tanged, max length 131 mm, max width 27.8 mm. Other examples within this general type have rod handles terminating in loops.
73 *761/B SF 246* Possible knife blade, incomplete, seems a little too thick, max length 53.7 mm.
74 *2020 SF 329* Complete knife, max length 92.8 mm, though some distortion caused by marked curve of the knife back, this continues the line of the handle. Blade edge is convex and rises to the tip which is rounded, max width of blade 22.1 mm.
75 *2426/B SF 327* Near complete knife, tip of blade is missing, handle is obscured by dirt and corrosion, cutting edge is straight, back is curved and carries through into handle (Manning type 13), max length 100 mm, width of blade 19.9 mm.
76 *3006/A SF 500* Probable extremely fragmented knife blade, only one substantial piece remains, length 24 mm, max width 11.5 (not illustrated).
77 *2064/D SF 315* Saw, a number of teeth are visible on one side, max length 81.1 mm, max width *c* 15 mm (not illustrated).
78 *2522 SF 491* Incomplete spearhead, little of blade survives, max surviving length 50.3 mm, no central rib. Socket is rounded, short and open, diameter 13.3 mm, undamaged. It tapers slightly towards the blade.
79 *3316/A SF 522* Incomplete reaping hook (Manning type 2), blade is damaged and incomplete, open socket with near rectangular profile, max diameter 27.6 mm.

Manning (1985) states 'as with type 1, type 2 is found on Iron Age sites but is equally common on Roman ones, though Roman examples are more often tanged than socketed and are somewhat better made than their predecessors'.

80 *722/D SF 231* Tang (not illustrated).
81 *3 SF 54* Horseshoe fragment (not illustrated).
82 *146 SF 15* Two very corroded fragments, when joined the two pieces have a hook-like appearance (not illustrated).
83 *3 SF 53* Hook, excellent preservation, complete, single spiked, shaped as a question mark (not illustrated).
84 *537/A SF 75* Flat strip, part of probable rivet hole is visible, max thickness 2.5 mm (not illustrated).
85 *1 SF 179* Spike (not illustrated).
86 *899/B SF 188* Long thin object in fragments, probable rectangular cross-section. Max length 30.1 mm, max width 3 mm (not illustrated).
87 *872/A SF 208* Ring or collar, probably originally rounded although some slight distortion has occurred, 'ring' is not completely enclosed. Max diameter 26.2 mm, max height 20.7 mm, max thickness 6.2 mm. Possible collar ferrule (not illustrated).
88 *802/A SF 235* Rectangular object, one end appears quite rounded, max length 62.1 mm, max width 18.3 mm, max thickness 7.4 mm (not illustrated).
89 *1037/A SF 250* Strip fragment, slight curve, max length 36.9 mm, max width 21.3 mm, max thickness 1.6 mm (not illustrated).
90 *1039/C SF 260* Possible rod or key, in two fragments, max length 98.8 mm (not illustrated).
91 *1046/E SF 262* Incomplete hook-like object, rounded end and flattened cross section (not illustrated).
92 *2020 SF 329* Strip which tapers inwards slightly at one end, both ends are damaged, also at both ends the incomplete outline of a probable rivet hole is visible, max length 105.3 mm, max width 31.2 mm, max thickness 4.1 mm (not illustrated).
93 *2325 SF 331* Object, two conjoining fragments, one has possible rivet hole, max length 110.1 mm (not illustrated).
94 *2515/A SF 489* Three flat fragments (not illustrated).
95 *3004/4A SF 501* Fitting, possibly decorative (not illustrated).
96 *U/S SF 506* Thin rectangular object, one end has a regular v-shaped point, the opposing end is broken, max length 55.3 mm, max width 15.2 mm, max thickness 5.2 mm (not illustrated).
97 *U/S SF 507* Hook like object (not illustrated).
98 *3286/B SF 525* Bar, rectangular, broken at one end, max length 55.2 mm, max width 19.1 mm, max thickness 5.7 mm (not illustrated).
99 *101/G SF 48* Two fragments with flattened cross-section, lengths 18 and 20 mm. Rivet traces on at least one of these (not illustrated).
100 *176/A/1 SF 47* One fragment with flattened cross-section, length 29 mm. Probable rivet at one end (not illustrated).
101 *235/C/3 SF 39* Strip fragment, length 45 mm (not illustrated).
102 *110/G SF 24* Extremely corroded cylindrical object which appears to be solid. Max diameter 19 mm, max length 34 mm (not illustrated).
103 *803/A/3 SF 172* Two conjoining fragments, possible knife blade. Combined length 54 mm (not illustrated).
104 *913/J SF 195* Two conjoining fragments, possible knife haft (not illustrated).
105 *192/B/1 SF 49* One fragment, 29 x 20 x 6 mm (not illustrated).
106 *913/J SF 196* Fragment, length 40 mm (not illustrated).
107 *2284/A SF 312* Fragment, shapeless lump with max diameter of 31 mm (waste?) (not illustrated).

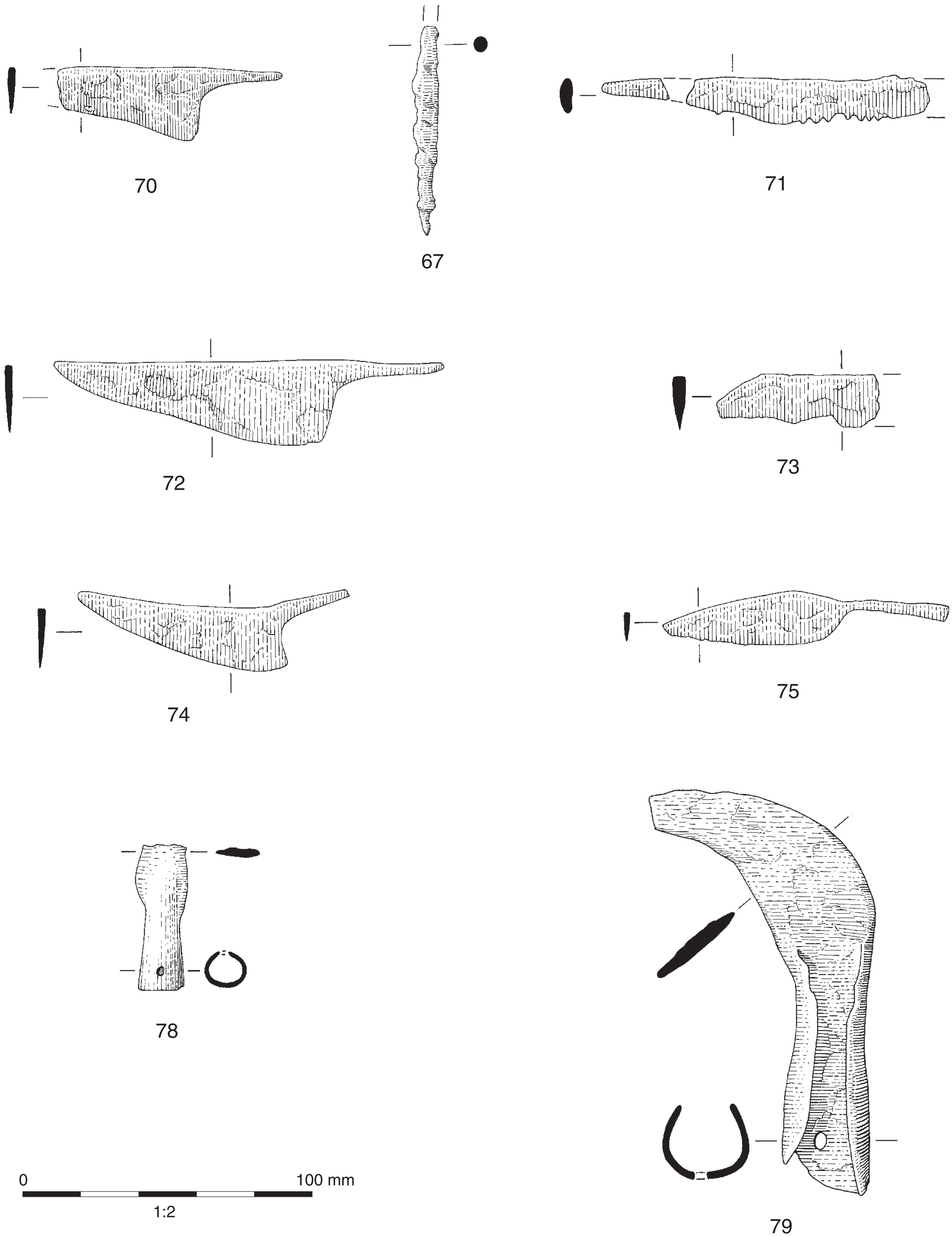

Fig. 4.7 Iron objects (Nos 67, 70–5, 78–9)

Iron nails (not illustrated)

108 *116/G SF 13* Nail, stem only, flattened cross-section, length 39.8 mm.
109 *176/A SF 18* Nail, possible stem, bent at right angle and much corroded, length 17.8 mm.
110 *179/A 19* Nail, fragmented nail stem only, probable rounded cross-section, length 34 mm.
111 *U/S SF 25* Nail, fragmentary stem only, possible square cross-section, length 32.4 mm.
112 *U/S SF 34* Nail? Possible stem only, bent at an angle of 45°, probable rectangular cross-section, max surviving length 45.4 mm.
113 *146/E SF 41* Nail, possible tack with wide disc shaped head, stem much obscured by corrosion, length 34.5 mm; iron fragments of a second unidentified object also present.
114 *166/A SF 46* Nail, stem only with circular cross-section, length 47.8 mm.
115 *3 SF 51* Nail, probable rectangular head, length 20.3 mm.
116 *311 SF 59* Nail, stem only, rounded cross-section, length 36.3 mm.
117 *323 SF 79* Nail, stem only, rectangular cross-section, length 48.3 mm.
118 *431/B SF 87* Nail, head is flat and rounded, stem much obscured by corrosion, length 38 mm.
119 *462/C SF 90* Nail, stem only, flattish cross-section, length 44.6 mm.
120 *431/A SF 159* Nail, very fragmented and much corroded, head circular and probably flat, length 57.1 mm.
121 *1 SF 177* Nail, stem only, probable rectangular cross-section, max surviving length 30.6 mm.
122 *1 SF 178* Short nail, stem probably incomplete, domed head, length 13.7 mm, Manning type 8?
123 *855/D SF 185* Two fragments, not clearly nails, lengths 13.1 and 17.5 mm.
124 *776/B SF 243* Nail, slightly bent stem only, length 50.6 mm. A second thinner fragment measures 13.9 mm in length and does not seem to be associated with nail.
125 *1073/D SF 256* Nail, stem bent at right-angle. length 37.7 mm.
126 *2052/A SF 302* Nail, incomplete stem only, length 27.6 mm.
127 *2214 SF 307* Nail, near complete, head appears rectangular, stem has rectangular cross-section, max length 41.9 mm.
128 *2292/A SF 316* Nail, stem only, length 31 mm.
129 *2295/A SF 317* Nail, stem only, length 51.5 mm.
130 *2371 SF 490* Nail, stem only, flat rectangular cross-section, length 32.8 mm.
131 *U/S SF 505* Nail, rounded head, stem has rectangular cross-section, length 17.4 mm.
132 *U/S SF 512* Nail, incomplete stem only, probable circular cross-section, length 26.2 mm.
133 *3195/A SF 520* Nail stem, length 38.5 mm.

Miscellaneous iron objects (not illustrated)

134 *U/S SF 30* Irregular fragment, length *c* 29.6 mm.
135 *U/S SF 35* Irregular fragment, length *c* 28.6 mm.
136 *U/S SF 36* Irregular fragment, length *c* 20.3 mm.
137 *U/S SF 37* Flat fragment, length *c* 23.8 mm.
138 *U/S SF 38* Irregular fragment, length *c* 14.2 mm.
139 *U/S SF 73* Irregular disc-shaped weight, diameter 21.7 mm, thickness 3.2 mm, width of perforation 5.3 mm.
140 *323 SF 86* Squashed object, originally probable circular collar or fitting, max diameter 22.3 mm, length 17.4 mm.
141 *U/S SF 106* Irregular fragment, *c* 10.4 mm across.
142 *U/S SF 108* Irregular fragment, *c* 15.7 mm across.
143 *U/S SF 113* Circular weight with dome-shaped profile, central perforation, max diameter 20.5 mm, thickness 7.5 mm, width of perforation 3.7 mm.
144 *U/S SF 274* Misc. fragments.
145 *U/S SF 335* Two fragments, lengths 30 and 27 mm.

Lead (not illustrated)

146 *U/S SF 73* Weight.
147 *U/S SF 113* Weight.
148 *323 SF 86* Sheet.
149 *U/S SF 29* Unidentified object.
150 *U/S SF 335* Strip, rolled.
151–159 Nine miscellaneous fragments.

Worked stone (Figs 4.8–4.9)

by Ruth Shaffrey (except where specified)

Beads

by Angela Boyle

160 *1051 SF 248* Fragment of melon bead, appears to be made of stone or other calcareous material, very worn although up to five segments can be distinguished. Max height 17.9 mm, grey in colour with traces of pale blue.
161 *U/S SF 64* Stone or coral, incomplete cylinder with slightly curved sides, off-white, diameter 5 mm, height 7 mm (not illustrated).

Shale bracelet

by Angela Boyle

162 *2016 SF 300* Fragment of shale bracelet, no visible decoration, max thickness 7.9 mm, height 12.5 mm. Curve of fragment suggests that bracelet originally had a circular form.

Quern fragments (not illustrated)

163 *458/F/2 SF 118* Fragment of saddle quern. Worked on opposite faces. Slightly burnt quartz sandstone.

164 *468/D/3 SF 88* Large fragment of lower stone of rotary quern. Very irregular shape. Base may have been reused as slightly dipped. Quartz Conglomerate of the Upper Old Red Sandstone.

165 *489/C/2 SF 89* Small fragment of upper stone of rotary quern. Pebbly Upper Old Red Sandstone.

166 *526/B/2 SF 95* Fragment of upper stone of rotary quern with approximate diameter of 450 mm. Extremely worn suggesting possible reuse in a floor. Quartz Conglomerate of the Upper Old Red Sandstone, Forest of Dean.

167 *528/F/- SF 94* Fragment of possible quern. One flat smooth surface and a few grooves suggesting use as a whetstone. Upper Old Red Sandstone.

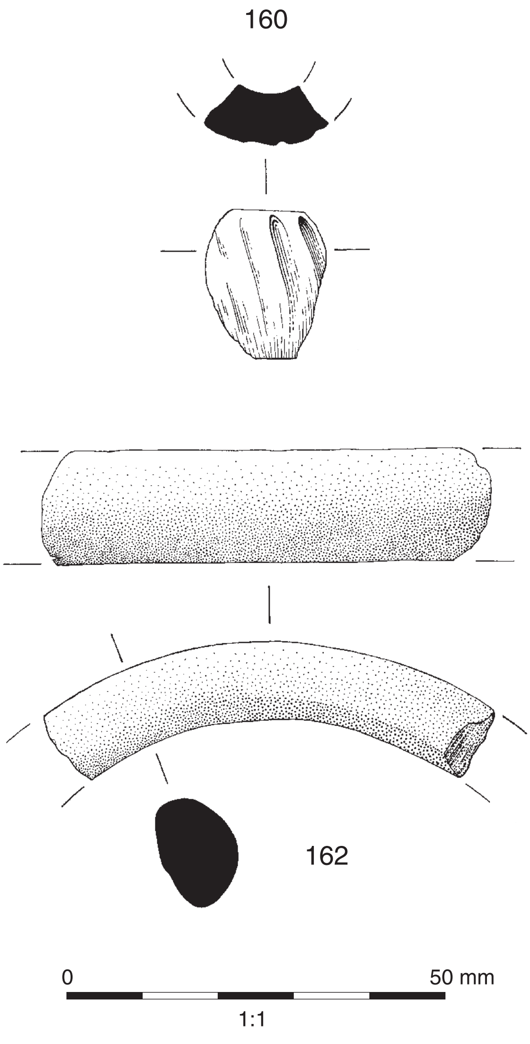

Fig. 4.8 Worked stone personal ornamentation (Nos 160, 162)

168 *536/I/- SF 117* Large disc which may have been a saddle quern. One obviously worked face. Grey coarse grained variety of the Old Red Sandstone. Measures 110 x 120 x 20 mm.

169 *643/A/1 SF 122* Fragment of probable saddle quern. Two worked surfaces. Burnt Greensand.

170 *689/D/- SF 197* Fragment of saddle quern worked on two faces, both very smooth and dipped. Measures 95 x 95 x 45 mm. Grey slightly glauconitic sandstone, probably Greensand.

171 *1123/A/1 SF 254* Possible rotary quern fragment with two worked surfaces. May Hill Sandstone. 55 mm thick.

172 *2085/A/1 SF 356* Possible rotary quern or rubber fragment with two convex surfaces, one of which is slightly polished. Sarsen.

173 *2274/A/- SF 311* Probable quern fragment. Quartz Conglomerate of the Old Red Sandstone.

174 *2471/A/- SF 339* Very small rotary quern fragment with one worked surface. May Hill Sandstone.

175 *3375/A/5 SF 524* Probable rotary quern fragment. Diameter 300 mm or less x 60 mm thick. Slightly curved upper surface and natural edges with smooth grinding surface. May Hill Sandstone.

176 *U/S SF 100* Fragment of upper stone of probable rotary quern, possibly a 'Beehive-style' quern. Pebbly Upper Old Red Sandstone, Forest of Dean.

177 *2352/A/- SF 319* Fragment of upper stone of rotary quern. Worn concave grinding surface. The very smooth upper surface has also been utilised. Curved thick edges. Approximately 300 mm diameter x 85 mm thick. Very coarse shelly limestone, possibly Forest Marble.

178 *U/S SF 1200* Probable rotary quern fragment although not perfectly round. Upper Old Red Sandstone.

179 *2396/A/- SF 328* Three fragments. Possible rotary quern with two worked faces: a smooth grinding surface and a slightly pecked upper surface. Orange/pink, fine grained slightly micaceous sandstone.

180 *221/I/- SF 44* Possible rubber. Roughly shaped rectilinear object, with two possible worn surfaces. Quartzite.

Mortars (not illustrated)

181 *465/-/- SF 128* Fragment of possible mortar or saddle quern. One surface very dipped and smoothed. Measures 270 x 170 x 50–90 mm thick. Very coarse shelly, light coloured limestone.

182 *U/S SF 101* Probable grinding stone. Broken cobble with one dipped surface and one very smoothed surface. Grey sandstone, possibly sarsen.

Whetstones (not illustrated)

183 *121/-/- SF 11* Very worn fragment of rectilinear whetstone. Very fine grained calcareous, quartzitic grey limestone.
184 *653/A/3 SF 123* Fragment of possible whetstone. Very fine grained quartzitic micaceous stone.
185 *670/A/3 SF 125* Long thin whetstone fragment, well-used along one side. Very fine grained micaceous pale grey sandstone.
186 *795/A/- or 942 SF 242* Possible whetstone. Small rectilinear slab showing signs of some use along one edge. Very fine grained, calcareous, slightly micaceous limestone.
187 *803/E/1 SF 173* Rectilinear whetstone fragment with smoothed sides. Very fine grained calcareous slightly micaceous limestone.
188 *3004/A/- SF 503* Possible whetstone with two dipped surfaces. Very fine grained micaceous grey sandstone.

Polishers (not illustrated)

189 *344/A/- SF 69* Polisher. Almost complete pebble with distinct traces of polish on one face, quartzite. Measures 90 x 70 x 30 mm.
190 *459/H/2 SF 217* Fragment of large pebble used as a polisher. One highly polished surface. Measures 80 x 60 x 50 mm. Burnt sarsen.
191 *3253/B/1 SF 530* Burnt polisher. Half large pebble with clear evidence for polishing on one side and slight on other sides. Measures 110 x 70 x 60 mm.

Pierced items (Fig. 4.9)

192 *176/A/- SF 20* Small fragment of flat spindle whorl measuring 34 mm diameter x 9 mm thick. Very fine grained calcareous quartzitic grey limestone (not illustrated).
193 *2708/A/- SF 325* Complete spindle whorl with round cylindrical hole. One face and all edges very smooth. 53 mm diameter.
194 *322/C/4 SF 81* Pierced irregular oval shaped object. Possibly a loomweight. One face slightly polished, possibly from rotating against another similar item if suspended. Coarse shelly oolitic limestone. Measures 110 x 85 x 30 mm.
195 *221/E/- SF 42* Irregular flat chunk pierced in the two top corners. Possible roof stone. Measures 140 x 80 x 15 mm. Shelly limestone.

Discs (Fig. 4.9)

196 *524/A/4 SF 93* Large flat disc. Possible counter or base or lid. Roughly shaped with one surface more worked than the other. Now blackened, light coloured slightly oolitic limestone. 125 x 120 x 20 mm.
197 *2284/A/- SF 313* Small flat, roughly circular disc, possible counter or base. Smoothed on one face. Very fine grained pale grey limestone. 64 x 70 x 10 mm (not illustrated).

Miscellaneous stone (not illustrated)

198 *2090/A/- SF 355* Probable paving stone. Measures 75 x 55 x 27 mm. Burnt. Probably pennant sandstone.
199 3213/E/2 SF 527 Probable roofing stone. Burnt, very fine grained calcareous micaceous grey sandstone.
200 3197/A/- SF 518 Possibly utilised fragment with one uneven dipped surface.
201 311/-/- SF 67 Probably utilised large chunk with dipped surfaces. White fine grained limestone.
202 1080/E/- SF 261 Possibly used chunk of stone. Measures 85 x 35 x 35 mm. Grey fine-grained micaceous sandstone.

Discussion

Of the eighteen quern fragments, eleven are from rotary querns, five are from saddle querns, one is from a rubber and one is of unknown form. The querns were largely from undated contexts but those which were phased were all from early Roman contexts. The presence of Old Red Sandstone is unsurprising as it was an almost ubiquitous material on Roman sites in Gloucestershire (Saunders 1998) and was present at the nearby sites of Claydon Pike (Roe forthcoming; Saunders 1998) and Roughground Farm (Saunders 1998). With the exception of Old Red Sandstone, however, the quern materials used here differ from those at Claydon Pike, where Millstone Grit dominates and where lava was also found. Neither sarsen nor Greensand, which occur here, have been identified among the quern materials at Claydon Pike, and the differing use of materials must reflect the different status or connections of the two sites.

The presence of two spindle whorls (SFs 20 and 325; Fig. 4.9, 193) and a probable loom weight (SF 81; Fig. 4.9, 194) is a clear indication that domestic activities such as spinning were taking place on the site, while other discs have a less obvious function. Small finds 93 (Fig. 4.9, 196) and 313 may have been large counters of some sort, but one of these (SF 93) was very blackened. The size and thickness suggests it may have been used as a base to place other, perhaps hot, items on, and the burning that it may have been used as a lid to a pan or oven. Similar objects found at Danebury were interpreted in this way and it was suggested that wear was present on only one face because the item lay flat on one side (Brown 1984, 419), although the item would have to have been in a static position to produce this wear pattern.

Other stone objects are useful indicators of activity taking place on site. Three large pebbles show distinct signs of polish on one or more surfaces, and would have been utilised as polishers,

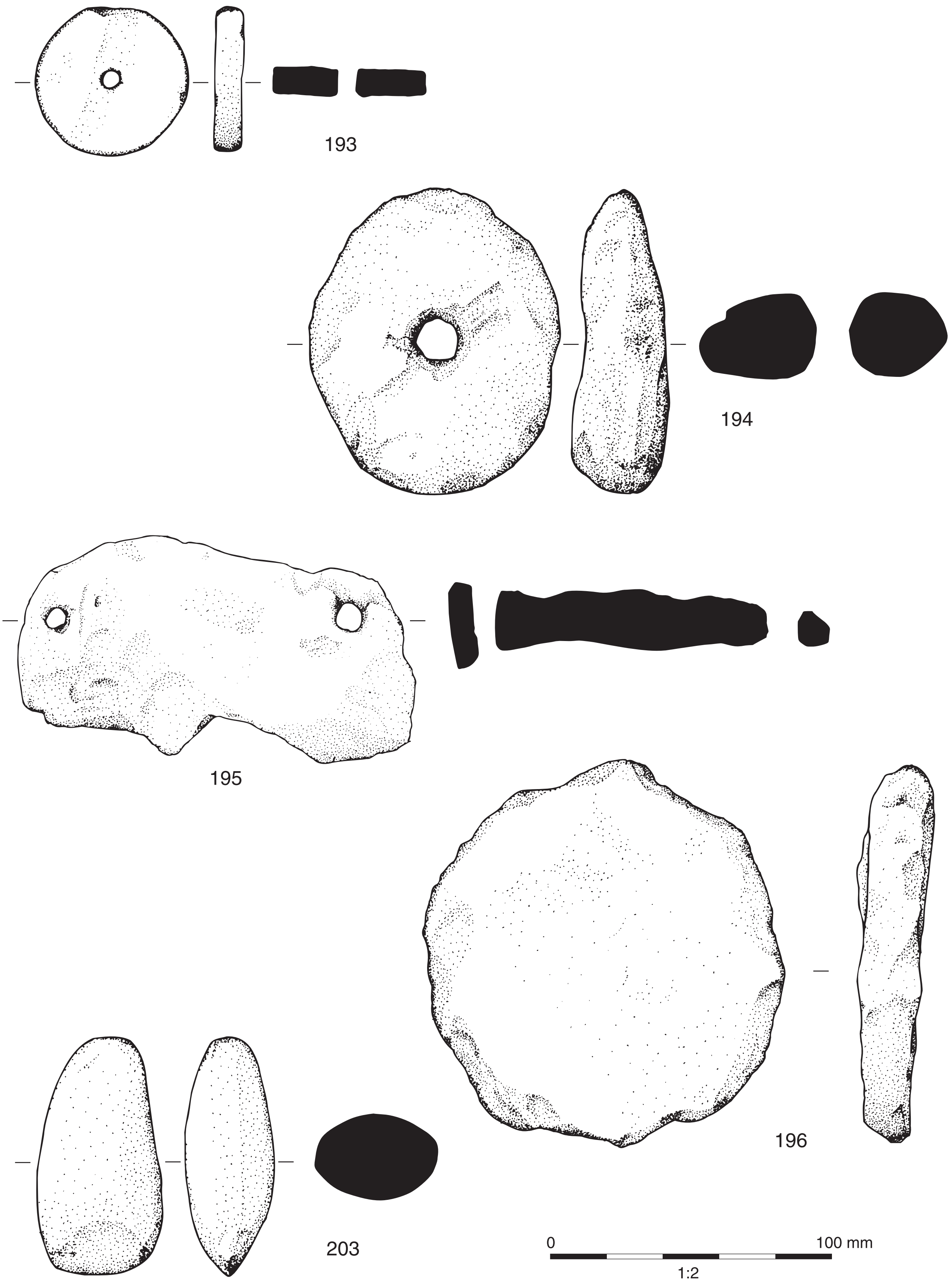

Fig. 4.9 Worked stone objects (Nos 193–6, 203)

although it is difficult to determine as part of what process. It seems unlikely that they were used as pot burnishers such as those found at Cowley (Atkinson 1941, 15), as there is no evidence for pottery production on the site. They were probably utilised in another industrial process such as metal working, which did take place nearby.

Polished Axe (Fig. 4.9)

by Fiona Roe

203 *847/C/1 SF 186* The axe is asymmetrical in length and on the small side, measuring 88 mm in length, 47 mm maximum breadth and 34 mm maximum depth. The rock shows traces of banding. Thin sectioning has demonstrated that the axe is made of greenstone, with a probable provenance in south-west England. Such greenstones were used quite extensively for stone axes in Oxfordshire and Gloucestershire. In these two counties, axes both of undifferentiated and Group I greenstone, when added together, come second in popularity, though by a small margin only, to the Group VI Langdale axes from Cumbria. The find from Thornhill Farm thus helps to demonstrate the importance of materials brought into the area from the south-west during the Neolithic period.

Fired clay

by Jane Timby

Approximately 28.5 kgs of fired clay were recovered from the site. This was examined for any distinguishing features and quantified by broad fabric type (see below). Most of the pieces were very fragmentary, abraded amorphous-shaped fragments of no discernible form or purpose, with an average weight of only 8 g. Some of these could tentatively be identified as pieces from poorly fired clay loomweights of a triangular type (contexts 17, 1046, 1081, 2084, 2506 and 3352). A few fragments are probably associated with metal working, either from moulds or crucibles. A number of pieces exhibited a flat upper surface and irregular underside suggesting linings or surfaces. Two fragments from 2372 and 2351 appeared to be formed around a circular opening, and possibly represent pit linings or something similar. A rounded lip fragment from 1039 may also be from a lining. One piece from 1155 shows an incomplete paw print, probably from a dog.

Fabrics (Table 4.2)

F1: A brownish-red, moderately hard clay with a smooth soapy feel and a generally laminated fracture. The clay contains rounded limestone fragments up to 3–4 mm. Surfaces when present often show organic impressions.

F2: A very sandy textured clay, soft with a scatter of rounded limestone. Easily abraded.

F3: A soft, very fine, dark orange, slightly micaceous clay with red iron and possible clay pellets.

F4: A sandy textured clay with abundant fine to coarse limestone and fossiliferous fragments.

F5: As F2 but with no discernible limestone component.

F6: Fine, soft clay with organic tempering.

Briquetage

204 *897/C SF 676* Fragment of Droitwich briquetage.

205 *113/D/3* Possible fragment of Droitwich briquetage.

Amongst the fired clay was at least one fragment of Droitwich briquetage (no. 204; identification by Dr E Morris). Another less certain fragment was no. 205. Droitwich briquetage is generally associated with Iron Age contexts, and was widely distributed across the West Midlands. Thornhill Farm appears at present to be on the extreme limit of its distribution.

Loomweights

206 *397/C/4 SF 84* Fragment of fired clay triangular loomweight, Fabric F1.

207 *612/A/2 SF 119* Fragment of fired clay triangular loomweight, Fabric F1.

208 *630//B/3 SF 120* Fragment of fired clay triangular loomweight, Fabric F1.

209 *776/B SF 233* Fragment of fired clay triangular loomweight, Fabric F1.

210 *927/C/1 SF 191* Fragment of fired clay triangular loomweight, Fabric F2.

211 *3173 SF 515* Large fragment of fired clay triangular loomweight, Fabric F2.

212 *3173* Fragment of fired clay triangular loomweight, with at least one extant perforation, Fabric F2.

213 *3200/A SF 519* Fragment of fired clay triangular loomweight, Fabric F2.

214 *2379/A SF 321* Fragment of fired clay triangular loomweight, Fabric F4

Table 4.2 Quantities of each fired clay fabric

Fabric	1	2	3	4	5	6
No.	334	747	357	135	1612	47
Weight (g)	3086	5569	2637	1005	15445	181

Sling shot

215 *1091/D SF 259* Oval slingshot, complete, fine sandy clay, 36 mm x 20 mm.
216 *2396/A SF 323* Oval slingshot, complete, fine sandy clay, 40 mm x 22 mm.
217 *3253 SF 526* Incomplete slingshot, with limestone tempering (making a heavier missile).

Crucible?

218 *1021/A* Handmade base, possibly of a crucible. Very fine, soft, slightly micaceous greyware. The fabric contains rare grog, oolitic limestone, shell and quartz. Unphased.

Tile

219–230 *Tile fragments* (see below)

Twelve fragments of Roman tile were recovered (1753 g). The majority of these appear to derive from the north-eastern area of Trench 7. Many of the pieces are fragments of flat tile with thicknesses ranging between 34 and 40 mm (contexts 214, 322, 334, 365, 372, 431 and 859). Fragments of thinner flat tile were recovered from contexts 192 and 197. A possible imbrex fragment came from 200. Post-Roman brick and tile was noted in contexts 3 and 8.

Bone objects

231 *456/C SF 149* An immature animal long bone, probably sheep metapodial, length 91.4 mm. A hole has been drilled through the centre of the shaft, max diameter of hole 1.7 mm.
232 *322/C/3 SF 78* Fragment of probable metapodial which has a hole drilled through the surviving articular surface; only a small part of the shaft survives.

Parallels are known from Gravelly Guy, Bagendon and Maiden Castle and are thought to be used in weaving (Clifford 1961) or as bobbins (Laws 1991). An example from Skeleton Green pit F.9, described as a sheep metacarpal, with a hole drilled through its centre, was possibly used as a toggle (Partridge 1981, 72, no. 15 and fig. 33).

233 *3046/C/1 SF 504* Burnt animal long bone shaft.
234 *3077/J/3 SF 514* Bone fragment, slight signs of polishing.
235 *322/C/1 SF 131* Animal bone with possible drilled hole.
236 *803/D/1 SF 170* Three long bone shaft fragments with polished broken edges.
237 *133 SF 43* Polished animal rib bone.
238 *803/D/1 SF 171* Animal bone fragment with polished surface.

Worked flint

by Hugo Lamdin-Whymark

A total of 24 worked flints were recovered from excavations during 1987 and 1988, comprising a mixed assemblage dating from the Mesolithic to the Bronze Age (Table 4.3). The assemblage would appear to be residual and represents general background activity throughout these periods rather than specific activity areas.

The raw material used was a variable quality gravel flint, available locally from the river gravels. The condition of the flintwork was variable, with the majority of pieces exhibiting a light white cortication. A few pieces were uncorticated, whilst a blade and flake bore a heavy white cortication (SFs 103 and 70). Two further blades were iron stained an orange brown colour (SFs 189 and 206).

The assemblage contains a mixture of core reduction techniques. Both broad hard hammer flakes and fine soft hammer blades were present. Three of the blades (the two iron stained pieces and heavily corticated SF 103) were the product of a blade based industry, exhibiting both platform abrasion and dorsal blade scars. One of the blades was struck from an opposed platform blade core. In addition, a fragment of an opposed platform core was recovered from context 2016/C/1 (enclosure 58 ditch). These pieces appear to be Mesolithic in date, although without a larger assemblage dating cannot be more precise.

The remaining part of the assemblage dates broadly to the Neolithic or Bronze Age; a date in the latter period is more probable given the generally low standard of technology employed on many of the pieces. Context 2016/C/1 contained seven flints, representing the largest concentration on site, and, with the exception of the fragment of opposed platform blade core, these pieces are all of a probable Bronze Age date.

The retouched pieces consist of two scrapers and a retouched flake. The side and end scraper (SF 150) is small and crudely retouched, whereas the end scraper (SF 80) was manufactured on a long blade-like flake with abrupt distal retouch, forming a fine edge although having numerous step fractures.

Table 4.3 The flint assemblage

Category type	*Total*
Flake	14
Blade	4
Bipolar (opposed platform) blade core	1
Tested nodule/bashed lump	1
Multiplatform flake core	1
End scraper	1
End and side scraper	1
Retouched flake	1
Total	24

THE POTTERY

by Jane Timby

The excavations at Thornhill Farm yielded in the region of 111 kg of pottery, approximately 11,450 sherds. Most of this appears to belong to one uninterrupted period of occupation dating from the middle Iron Age through to the early Roman period. Following comments on the methodology employed and the general condition of the material, this report first discusses the pottery in the context of the site and second considers the assemblage as a whole in its local and regional context. A brief description of the fabrics and associated forms can be found in Appendix 3.

Condition

Soil conditions on the site were not conducive to the preservation of pottery. Heavy clay conditions meant that whilst relatively large sherds were present *in situ*, and substantial parts of individual vessels appeared to be present, their removal upon excavation caused many of the sherds to fragment, creating new fractures and thus hampering an accurate sherd number count. This fragmentation was also aided by the nature of the material itself, which for the most part consisted of poorly fired handmade or slow wheelmade wares. The average sherd size is thus quite low at 9.7 g. A comparison of this figure with other contemporary assemblages shows this to be lower than most and that possibly other mechanisms need to be sought for explaining the higher fragmentation rate. This is explored in more detail in Appendix 2 which looks at site formation processes and redeposition. Many of the sherd surfaces were also poorly preserved. There were a few exceptions, with the preservation of some very sizeable pieces, particularly from storage vessels which tend to be physically more robust. Some of the storage vessels may also have been sunk into the ground as has been documented elsewhere (eg Frocester, Glos; Price 2000), which might have aided their preservation. The pre- and post-excavation fragmentation of sherds and subsequent crumbling and abrasion made it difficult to reconstruct vessel profiles.

Methodology

Preliminary recording work commenced in 1992 when the pottery was sorted into fabrics using a pre-existing recording system established for the OAU. Discrimination between fabrics is based on the relative size, density and type of inclusions macroscopically observable in the paste along with other distinctions such as firing colour and surface finish. Each fabric was recorded by weight, sherd number and estimated vessel equivalent (EVE) for every excavated context, and the data entered into a computer database. Following a hiatus, work resumed on the pottery report in 1998 when the original data was converted to Excel (archive). This formed the basis of the following report. A representative selection of forms, along with decorated or unusual sherds, have been illustrated (Figs 4.10–13). The vessels are arranged as they occurred on site as Period groups rather than as a chronological progression.

In total 752 contexts yielded pottery. Of these less than 2% produced more than 100 sherds, and only 12% produced in excess of 30 sherds. Work by De Roche on Iron Age assemblages from the Thames Valley considered 30 sherds to be the minimum viable size with which to ascribe a date to a context with any degree of confidence, and this figure was adopted here as a rule of thumb (De Roche 1977). Consequently the sample of well dated contexts from Thornhill is low.

As a result of the complexities of the site in terms of ascribing individual contexts to particular periods or phases of activity from the stratigraphic record, the pottery was divided into five broad Ceramic Groups. It was hoped that this might assist in deciphering the chronological development of the site (see Chapter 1 for discussion of post-excavation methodology). The five Ceramic Groups comprised several fabrics, but analytical work focused on just those highlighted in bold as these were perhaps the most diagnostic and more frequently occurring:

Group 1. (3rd–1st century BC): fabrics C15, **C24**, C29, R00, E63
Group 2. (1st century BC–AD): fabrics C21, **C22**, C23, C26, C32, E72
Group 3. (early 1st century AD onwards): fabrics E11, E62, **E83–85**, E92, R23, R24, R48, O41, O43, O47, O49
Group 4. (mid 1st century AD onwards): fabrics **E81–82**, E86, E88, **R33**, R26, R49
Group 5a. (later 1st century–early 2nd century): fabrics E87, E91, **R11–13**, R14, R22, R27, R34, R36, **R44**, **R46**, R47, O30, **O31**, O32–33, O35, O40, O46
Group 5b. Roman wares (late 1st–early 2nd century): fabrics **S**, **M11**, **A11**, **B10**, **W22**, **W24**

The groups cannot be totally prescriptive as certain fabrics have a longer lifespan than others (eg Malvernian wares span the mid–later Iron Age into the 2nd century AD). The starting points are thus more accurate than the finishing dates. Group 5 is subdivided into 5a and b to distinguish between local/indigenous wares and those imported to the site.

Discussion of fabrics and forms

The middle Iron Age through to the early 2nd century AD saw a number of changes and innovations in pottery technology and style resulting in a particularly diverse range of fabrics. As a result some 80 fabrics have been described, the details of which can be found in Appendix 3. Table 4.4 presents a summary quantification. The pre-Roman

Table 4.4 Quantities of individual pottery fabrics

Group	*Fabric*	*Description*	*No.*	*%*	*Wt (g)*	*%*	*EVE*	*%*
I CALCAREOUS	C14	wm sparse shell	74	+	740	+	134	1.5
	C15	coarse hm shell	34	+	316	+	0	0
	C20	general limestone	186	1.5	1202	1	0	0
	C21	Palaeozoic limestone	194	1.5	1393	1	32	+
	C22	Malvernian limestone	909	8	4637	4	636	8
	C23	Palaeozoic lime + grog	12	+	47	+	4	+
	C24	oolitic limestone+ shell	1840	16	14999	13.5	779	10
	C25	wm black with red core	84	+	540	+	90	1
	C26	Jurassic limestone + shell	139	1	1315	1	81	1
	C27	sparse oolitic limestone	39	+	258	+	42	+
	C28	sandy with sparse limest	5	+	38	+	6	+
	C29	coarse tempered	31	+	225	+	6	+
II CALCITE	C31	sparse calcite greyware	4	+	15	+	0	0
	C32	calcite-tempered	175	1.5	1021	1	50	+
III GROG	E80	general grog-tempered	147	1	1522	1.5	144	2
	E83	native grog-tempered	192	1.5	2287	2	91	1
	E84	native grog-tempered	298	2.6	3013	2.5	53	+
	E85	grog/organic/flint	1569	13.5	12416	11	1068	13.5
	E88	grog and fine sand	77	+	3157	3	43	+
	E89	grog and flint-tempered	3	+	17	+	0	0
	E90	grog and sand-tempered	1	+	20	+	0	0
IV ROCK	E71	coarse Malvernian rock	170	1.5	1591	1.5	0	0
	E72	Malvernian rock	5	+	20	+	0	0
V ORGANIC	E10	organic-tempered	13	+	59	+	15	+
	E11	fine organic	1	+	5	+	0	0
VI FLINT	E60	general flint	8	+	76	+	7	+
	E62	calcined flint	6	+	81	+	5	+
	E63	calcined flint	3	+	41	+	0	0
VII SANDY	R00	fine black hm sandy	98	+	703	+	32	+
VIII IMPORTS	A11	Dressel 20	9	+	308	+	21	+
	A30	coarse unassigned	9	+	296	+	0	0
	A35	Dressel 2-4	1	+	37	+	0	0
	M11	N Gaulish mortaria	1	+	25	+	7	+
	S	samian	14	+	94	+	31	+
IX REGIONAL	B10	Dorset black-burnished	9	+	128	+	55	+
X LOCAL	E81	hm Savernake ware	594	5	19458	17.5	480	6
Wiltshire	E82	sandy Savernake type	448	4	6722	6	407	5
	E86	Savernake variant	159	1	5020	4.5	134	1.5
	E87	Savernake variant	57	+	433	+	64	+
	E91	Savernake ware	431	3.5	4281	4	387	5
	R13	Wilts fine grey sandy	302	2.5	1763	1.5	330	4
	R44	Wilts medium sandy	94	+	687	+	117	1.5
	O30	Wilts oxidised	24	+	117	+	59	+
	O31	fine sandy ? Purton	15	+	87	+	1	+
	O32	fine sandy with iron	83	+	376	+	32	+
Wilts/Oxon?	R12	greyware with red core	220	2	1299	1	218	3
	R33	black burnished wm ware	225	2	766	+	95	1
	R34	black sandy with red core	53	+	363	+	65	+
	R36	hard fine greyware	9	+	98	+	32	+
	R46	sandy with flint/grog	141	1	2192	2	101	1.5
	R47	sandy with black iron	23	+	256	+	28	+
	O33	sparse coarse sand	31	+	298	+	8	+
	O35	red-brown sandy	2	+	15	+	0	0
Oxon	R11	Oxon fine greyware	299	2.5	1957	1.5	367	4.5
	W22	Oxon sandy whiteware	4	+	64	+	0	0
Severn Valley ware	R48	charcoal-tempered SVW	64	+	535	+	30	+
	R49	reduced SVW	6	+	69	+	11	+
	O40	early SVW variant	6	+	77	+	0	0

Table 4.4 Quantities of individual pottery fabrics (continued)

Group	Fabric	Description	No.	%	Wt (g)	%	EVE	%
	O41	organic-tempered oxidised	77	+	806	+	107	1.5
	O42	hm SVW storage jar	1	+	20	+	0	0
	O43	Severn Valley ware	1153	10	5712	5	843	11
	O47	early SVW variant	144	1	761	+	64	+
	O49	grogged early SVW	37	+	188	+	7	+
XI UNKNOWN	R10	misc fine grey sandy	24	+	114	+	6	+
	R20	misc medium grey sandy	14	+	48	+	10	+
	R22	sparse medium sand	25	+	178	+	46	+
	R23	medium sandy + quartzite	6	+	60	+	11	+
	R24	medium sandy with iron	48	+	345	+	33	+
	R26	medium black sandy	93	+	1558	1.5	110	1.5
	R27	sand with grog	61	+	560	+	17	+
	O10	misc fine orange sandy	2	+	7	+	0	0
	O12	fine micaceous sandy	20	+	163	+	0	0
	O20	misc medium sandy	4	+	27	+	0	0
	O28	ill-sorted sand and iron	2	+	49	+	0	0
	O44	fine sandy	1	+	4	+	0	0
	O45	fine with organic	3	+	41	+	0	0
	O46	sandy with calcareous	25	+	135	+	78	1
	O83	coarse sandy	13	+	55	+	0	0
	W20	misc sandy whiteware	2	+	9	+	0	0
	W24	misc sandy whiteware	12	+	175	+	0	0
XII UNCLASS	OO		33	+	471	+	24	+
TOTAL			11450	100	111061	100	7754	100

+ = Less than 1%

wares or native wares can be broadly divided into seven classes on the basis of the main tempering agents used: I calcareous; II calcite; III grog; IV rock; V organic; VI flint and VII sand. The Roman wares are divided into foreign imports, local wares (up to 40–50 km), regional wares (beyond 50 km) and source unknown.

The middle Iron Age (Group 1) assemblage is essentially characterised by calcareous wares, in particular coarse fossil shell (C15) and oolitic limestone and fossil shell tempered wares (C24). The sandy wares (fabric R00) may also date back to this period. Other sherds potentially dating to this period – for example, a calcined flint-tempered fabric (E60, E62, E63) – are too rare to date closely. Fabric C24 very much dominates the group, accounting for 13.5% by weight of the total site assemblage.

The vessels mainly comprise slack-sided jars with simple undifferentiated or curved rims (eg Fig. 4.10: 2–4, 9, 15–16; Fig. 4.13: 79, 88), ovoid or barrel-bodied jars with slightly beaded rims (Fig. 4.10: 7, 10; Fig. 4.13: 83), slightly everted rim jars (Fig 4.10: 8, 17; Fig. 4.13: 75) or globular bodied bowls or jars with beaded rims (Fig. 4.10: 13, 24; Fig. 4.12: 59, 60, 65; Fig. 4.13: 82). Less common forms include a small carinated cup with incised diagonal lines around the rim (Fig. 4.10: 6). Other Group 1 decorated vessels in the assemblage include a jar (C24) from enclosure 77 with diagonal incised lines (Fig. 4.11: 50), a small jar (C24) with parallel incised horizontal grooves on the upper body (Fig 4.10: 23), a sherd with a complex burnished line design (Fig. 4.11: 37) in fabric C28, and a sherd of fabric C26 decorated with an incised lattice (Fig. 4.10: 14). Other stratified wares in Group 1 include an ovoid-bodied, simple rim jar in a coarse limestone-tempered fabric (C29; Fig. 4.10: 5). Many of the vessels in fabric C24 show evidence of use in the form of sooted exterior or internal burnt residue.

During the 1st century BC the pottery assemblage becomes much more diverse with numerous new fabrics and the introduction of new forms. The rapid changes which manifested themselves during this period across Britain are not yet fully understood in the west. In the south-east, at sites like Silchester, grog-tempered wares appear in the later half of the 1st century BC, and wheelmade wares around the turn of the century BC/AD (Timby 2000b). In the west, evidence to date suggests that grog-tempered wares only perhaps became common from the early 1st century AD, preceded by the widespread occurrence of Malvernian limestone-tempered wares (fabric C22) which continue through into the 1st century AD. The frequent appearance of Malvernian wares is, therefore, taken to signify a date from the later Iron Age (Group 2) along with more diverse local limestone-tempered fabrics and a calcite-tempered ware (C32). This does not preclude the possibility of the presence of some middle Iron Age Malvernian limestone-tempered sherds such as the jar with a slightly thickened rim (Fig. 4.10: 1) from enclosure 120 (Period A). There are, however, no duck-stamped vessels characteristic of middle Iron Age Malvernian rock-tempered wares which tend to be concentrated nearer to the source area (Peacock 1968, figs 2–3).

Malvernian limestone-tempered ware most commonly occurs as cooking pots with short thickened rims, often with a burnished finish (Fig. 4.11: 26). Necked bowls such as Fig. 4.10: 22 are less common. Also present from Thornhill is a countersunk handle from a jar (Fig. 4.13: 86), and a sherd decorated with incised lines and oval stabs (Fig. 4.10: 21). Fabric C21, also of Malvernian origin, occurs almost exclusively as large diameter hammer-rim bowls (Fig. 4.11: 49). Other featured sherds include two bodysherds of calcite-tempered ware, both from 366 with curvilinear decoration. One sherd (Fig. 4.11: 43) is decorated with a raised applied ridge; the other (Fig. 4.11: 44) with a depressed dimple above which are incised curvilinear lines. The style is reminiscent of the Glastonbury style bowls (*cf* Cunliffe 1991, A:21) of which at least two others have been found in Gloucestershire, one in a gabbroic-tempered ware from Abbeydale (Timby unpubl. a), the other in a similar calcite-tempered ware from Frocester (Timby 2000a).

Other vessels which may have originally derived from pre-conquest levels include an everted rim Malvernian rock-tempered jar with incised chevron(?) decoration (Fig. 4.12: 66) and a beaded rim jar or bowl in a black sandy ware (R00; Fig. 4.13: 89).

The calcareous wares tend to decline in deference to grog-tempered fabrics in the early 1st century AD with the appearance of a mixture of handmade and wheelmade wares. This juxtaposition of technologies continues to feature up to the end of the 1st century AD. The appearance of the grog-tempered tradition is used to define ceramic Group 3 along with several mixed grog/organic/clay pellet type fabrics in forms linked with the early Severn Valley ware repertoire (Timby 1990).

The earliest grog-tempered vessels are the handmade jars (fabric E83–4) which occur in similar styles to the Malvernian limestone-tempered wares, even including elsewhere the large hammer-rim bowls. The vessels frequently have burnished line decoration. The most common form is again the cooking pot with a short everted or beaded rim (Fig. 4.13: 72). A less common form is a globular bowl with a slightly beaded rim (Fig. 4.12: 57). Other forms appearing towards the end of this group include necked bowls and jars, sometimes cordoned around the neck (Fig. 4.10: 12, 18, 25; Fig. 4.11: 27–8, 32–5; Fig. 4.12: 56, 63; Fig. 4.13: 69), other jars (Fig. 4.11: 30–1, 36, 45), and carinated bowls or cups, plain or cordoned (Fig. 4.10: 19; Fig. 4.13: 87).

Ceramic Group 4 is characterised by the appearance of products of the Savernake-Oare industry and a black-burnished wheelmade sandy ware (R33). Savernake ware occurs almost exclusively as large handmade storage jars with beaded (Fig. 4.11: 41; Fig. 4.12: 54), thickened finger-depressed (Fig. 4.12: 58) or everted rims (Fig. 4.11: 46; Fig. 4.13: 84), wheelmade jars (Fig. 4.11: 42) and rarely as lids (Fig. 4.12: 64). Traditionally, Savernake ware is thought to have been in production from the second half of the 1st century AD; its subsequent expansion and distribution being attributed to military movements (Swan 1975). It appears to occur on a large number of sites established in the pre-Roman period throughout Gloucestershire such as Frocester (Timby 2000a); below the Kingsholm fort (Timby 1999); at Bagendon (Clifford 1961, figs. 68–70) and The Ditches, North Cerney (Trow 1988, fabric 11). Although none of these sites can provide unequivocal dating for the pottery, its widespread circulation might suggest production was already underway prior to any Roman intervention. A date sometime in the mid 1st century may be appropriate on present evidence for its first appearance in the ceramic record. Vessels continue to be made well into the 2nd century AD.

Fabric R33 is also quite widespread and vessels are found on many 1st-century sites in Gloucestershire including both Cirencester (Rigby 1982, 153 fabric 5) and Gloucester (Ireland 1983, fabric 201). Evidence from Cirencester suggests it first appears in quantity from the Neronian period continuing to feature into the early–mid 2nd century.

The final ceramic phase, Group 5, is marked by the occurrence of more Romanised vessels, wheelmade more standardised forms including products of the early Oxfordshire and North Wiltshire industries and Severn Valley ware proper. Jars again dominate the repertoire, mainly in various grey sandy fabrics (eg Fig. 4.11: 51; Fig. 4.12: 52, 55, 62; Fig. 4.13: 67–8, 74, 80), lids (Fig. 4.13: 77), a small number of non-Severn Valley ware tankards (Fig. 4.13: 85) and beakers (Fig. 4.11: 47; Fig. 4.12: 53). Oxidised wares include dishes (Fig. 4.11: 48), jars (Fig. 4.13: 76) and, amongst the Severn Valley ware range, tankards (Fig. 4.13: 73, 78), small necked bowls (Fig. 4.11: 38; Fig. 4.13: 71, 81), jars (Fig. 4.13: 70) and carinated cups (Fig. 4.12: 39; Fig. 4.12: 61).

A small quantity of regional and foreign imports also appear in Group 5, including Dorset black burnished ware, samian, mortaria and amphorae. Many rural sites in the Thames Valley only seem to acquire such Roman fabrics along with an increased range of forms including mortaria and flagons towards the end of the 1st century AD into the early 2nd century AD.

Looking at the assemblage as a whole (Table 4.5), the three dominant groups are Roman local wares at 41% by count, 49% by weight, followed by the calcareous group at 31% (count) 23% weight and the pre-Roman grog-tempered wares at 20% (count and weight). Each group is effectively the dominant ware at different points in the site history. A lower percentage weight for the earliest group, namely the

Table 4.5 Proportions of different ware groups

Group	Ware	No.	%	Wt (g)	%	EVE	%
I	Calcareous	3547	31	25710	23	1810	23
II	Calcite	179	1.5	1036	1	50	+
III	Grog	2287	20	22432	20	1399	18
IV	Rock	175	1.5	1611	1.5	0	0
V	Organic	14	+	64	+	15	+
VI	Flint	17	+	198	+	12	+
VII	Sandy	98	+	703	+	32	+
VIII	Roman imports	34	+	760	+	59	+
IX	Roman regional	9	+	128	+	55	+
X	Roman local	4702	41	54420	49	3987	51.5
XI	Source unknown	388	3	3999	3.5	335	4
Total		11450	100	111061	100	7754	100

+ = Less than 1%

calcareous group, against the sherd number, is a reflection of the longer period of time the sherds have been in the soil, and of the increased likelihood of redeposition. The proportions are reversed for the Roman wares which are amongst the latest wares on the site.

Site discussion

The site has been divided into eight periods (Periods A–H), commencing in the middle Iron Age, with a further U category for contexts assigned to enclosures but whose position in the sequence is uncertain. Table 4.6 summarises the total amount of material from the defined chronological periods whilst Table 4.7 provides detailed information of the fabrics from each of the defined chronological periods only. Full details of the ceramic record can be found in the site archive.

Ceramic research subsequent to the initial pottery analysis has suggested that one feature (pit 3247) could well predate the rest of the site, although at present it is subsumed into Period A (see below).

Table 4.6 Quantity of sherds from each period

Period	No.	Wt (g)	EVE
A	699	7009	168
B	168	1266	27
C	1424	9736	729
C/D	39	190	1
C/E	4	37	0
D	1021	9419	750
E	1370	14153	1170
F	2124	21838	1769
G	264	1526	204
H	18	441	32
U	499	6695	273
Other	3820	38751	2631
Total	11450	111061	7754

Periods A–H account for 62% by count (59% by weight) of the total pottery assemblage. The remaining 38% is essentially unphased. Considerable use has been made of the pottery data to elucidate the site history which is discussed above (see Chapter 3). The following briefly summarises the pottery from the main defined structures and enclosures allocated to each period in terms of its composition.

Period A (middle Iron Age)

Period A is very much dominated by fabric C24, an oolitic limestone and fossil shell-tempered ware typical of the middle Iron Age in this region. Coarse shell-tempered wares (C15) more characteristic of the early Iron Age are extremely rare. There are relatively few featured sherds, and most come from slack-sided jars with no distinguishing characteristics.

An unusual and surprising element of the assemblage is the presence of approximately 166 sherds from a coarse Malvernian rock-tempered vessel (E71) all from one pit (3247) in Trench 22. The sherds are in very poor condition, many reduced to just crumbs. The vessel appears to be an urn with a flat base, a plain vertical rim and walls. The sherds have a red-brown exterior and brown core and interior surface. The vessel is poorly fired and the coarsely tempered fabric is particularly friable. This is a curious presence not only as the site is on the limits of the distribution of this ware, but also because its coarse nature suggests it may belong to an early facet of the Malvernian industry about which little is known. Recent identification of coarse Malvernian wares in mid–later Bronze Age deposits at Sandy Lane, Cheltenham (Timby 2001), Tewkesbury (Timby in prep.) and Much Marcle, Heref. (Darvill pers. comm.) demonstrates not only the exploitation of the Malvernian deposits earlier than perhaps has been hitherto acknowledged, but also the transportation of vessels away from the immediate source region. The date of the Thornhill

Farm vessel is unclear but may be earlier than previously thought, especially as the pit appears to be an isolated feature, and this ware was not recorded elsewhere on the site.

Other significant groups of pottery from Period A came from the roundhouse (structure 207) and associated enclosure (S120) in Trench 8. The roundhouse gully yielded 46 sherds of oolitic limestone and shell-tempered ware (C24) along with four later intrusive sherds. The assemblage from the enclosure ditch (803) is similarly dominated by fabric C24 with a small number of other wares including calcareous fabrics C14, C15 and C29 along with three sherds of Malvernian limestone-tempered ware (C22) and two very small sherds of Malvernian rock-tempered ware (E72). If these are not intrusive sherds they suggest relatively early links with the west.

The remaining pottery from Period A features comprises small groups from various pits and gullies. Nearly all these contained only fabric C24, the only exceptions being pits 916 and 924, and gully 917 which also contained handmade black sandy wares (fabric R00).

Period A illustrated sherds (Fig. 4.10)

1 Handmade bowl with thickened rim. Black in colour, originally with a burnished finish, since worn. Fabric C22. 803/E/4. Enclosure 120.
2 Handmade barrel-bodied jar. Fabric C24. Marked with a zone of sooting around the upper body. 803/G/3. Enclosure 120.
3 Handmade globular or barrel-bodied jar. Fabric C24. 803/C/2. Enclosure 120.
4 Handmade rim fragment from a jar or bowl. Fabric C24. 803/E/2. Enclosure 120.
5 Simple ovoid-bodied, simple rim jar. Grey exterior with a grey–brown interior and core. Fabric C29. 803/A/4. Enclosure 120.
6 Small carinated handmade cup. Decorated with lightly incised lines around the rim. Fabric C24. Pit 667/A/1.
7 Handmade, beaded rim wide-mouthed jar or bowl decorated with a single groove below the rim. Fabric C24. Pit 846/A/1.
8 Slack-shoulder handmade jar with finger depressions below the rim made in forming the vessel. Fabric C24. Pit 962/A.
9 Simple rim, handmade slack-sided jar. Fabric C24. Pit 962/A.

Period B (late Iron Age c 50 BC–AD 1)

Only a small number of features could be allocated to this period on the basis of the pottery. Although Malvernian limestone tempered ware was selected as a ceramic marker for this period in the absence of other easily identifiable types, only two Period B features yielded examples: pit 2392 and posthole 2117. Fabric C26, another Jurassic source ware, appears in the ceramic record at this point with 50 sherds coming from gully 882 and a further three from gully 925 alongside 56 sherds of sandy ware (R00).

Period B illustrated sherds (Fig. 4.10)

10 Handmade barrel-bodied jar. Dark grey with a red-brown interior. Fabric C24. Gully 925/A/1.
11 Handmade jar with a thickened rim. Red-brown to grey exterior with a lighter grey-brown interior and grey inner core. Fabric C26. Gully 925/A/1.

Period C (late Iron Age c AD 1–50)

Period C is distinguished principally on the basis of the widespread occurrence of grog-tempered wares (fabrics E83–5) in the ceramic record, accompanied, towards the end of the period, by proto-Severn Valley wares in the form of handmade and wheel-made carinated grog-tempered cups and necked bowls (fabrics E85, O41, O43) and handmade storage jars of Savernake ware (fabrics E81–2). An increased amount of pottery from this Period (Table 4.7) suggests renewed or more intensive activity in the early 1st century AD. It is unfortunate that the nature of the site does not permit a more refined ceramic sequence to be established from the stratigraphic record.

Of the buildings allocated to Period C, structure 200 produced relatively little pottery, sherds being confined to pits 3349 and 3353. Amongst these were several sherds from a Malvernian limestone cooking pot and a number of pieces of grog-tempered fabric E85, including a necked, cordoned jar and a storage jar. A much larger group of pottery, some 245 sherds, was recovered from features associated with structure 201. At least 11% (by count) are redeposited sherds of fabric C24, and 49% grog-tempered wares, fabrics E83–5. A single Savernake sherd (E91) came from gully 2084.

Grog-tempered fabrics E83–85 feature in many of the defined enclosures, and form the dominant wares in enclosures E5, E46, E48, E52, E61, E70, E74, E82, E90 and E112. In addition to the storage jars and necked cordoned jar noted above, forms include carinated cups, necked bowls, everted rim jars and carinated bowls.

Period C illustrated sherds (Fig. 4.10)

12 Wheelmade necked bowl with thickened rim. Fabric C14. Gully 120/F/3. Enclosure 5.
13 Handmade beaded rim bowl. Fabric C29. 230/A/1. Enclosure 5.
14 Handmade bodysherd with incised lattice decoration. Fabric C26. 724/A. Enclosure 23.
15 Handmade simple rim bowl. Fabric C24. 725/A. Enclosure 23.

Table 4.7 Quantities of individual fabrics from each period

Ceramic Group	Fabric	A No.	A Wt (g)	B No.	B Wt (g)	C No.	C Wt (g)	D No.	D Wt (g)	E No.	E Wt (g)	F No.	F Wt (g)	G No.	G Wt (g)	H No.	H Wt (g)
0	E71	166	1427	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	C24	506	4944	32	194	233	1725	89	668	146	831	138	1162	29	167	2	29
1	C15	2	134	0	0	3	3	7	33	3	30	0	0	5	15	0	0
1	C29	7	81	0	0	9	43	1	10	0	0	13	85	0	0	0	0
1	E60	0	0	0	0	0	0	0	0	0	0	2	23	0	0	0	0
1	R00	5	50	56	266	1	10	0	0	2	13	2	1	0	0	0	0
2	C21	0	0	7	16	7	37	51	227	36	439	1	16	0	0	0	0
2	C22	3	88	20	22	116	455	286	1396	87	362	46	157	0	0	0	0
2	C23	0	0	0	0	1	4	3	12	0	0	5	10	0	0	0	0
2	C26	0	0	53	768	11	53	7	65	1	4	4	57	0	0	0	0
2	C32	0	0	0	0	95	427	6	19	43	136	1	38	0	0	0	0
2	E72	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	C14	1	7	0	0	29	139	25	266	9	277	0	0	1	4	0	0
3	C20	0	0	0	0	1	1	0	0	0	0	1	3	0	0	0	0
3	C25	0	0	0	0	1	5	6	23	7	36	5	70	1	9	0	0
3	C27	0	0	0	0	5	19	8	30	5	26	12	139	0	0	0	0
3	C31	0	0	0	0	3	12	0	0	0	0	0	0	0	0	0	0
3	C00	0	0	0	0	1	3	0	0	1	4	0	0	0	0	0	0
3	E11	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0
3	E62	0	0	0	0	0	0	0	0	1	6	4	40	0	0	0	0
3	E83	0	0	0	0	39	295	24	2039	38	270	23	366	1	9	1	36
3	E84	0	0	0	0	33	500	17	975	6	129	225	558	2	31	0	0
3	E85	1	6	0	0	469	3481	298	2122	163	1501	86	612	24	100	0	0
3	O41	0	0	0	0	2	27	8	40	15	148	26	326	1	7	0	0
3	O43	0	0	0	0	243	643	78	317	102	469	217	1579	23	76	2	19
3	O47	0	0	0	0	2	26	0	0	24	104	35	218	5	25	0	0
3	O49	0	0	0	0	9	37	1	10	5	29	7	50	3	3	0	0
3	R23	0	0	0	0	0	0	2	33	0	0	1	10	0	0	0	0
3	R24	0	0	0	0	21	59	2	62	8	34	2	64	4	6	0	0
3	R48	1	15	0	0	15	35	1	24	20	142	12	166	5	41	0	0
4	E81	1	28	0	0	14	270	49	1692	101	3758	150	4419	25	375	3	241
4	E82	3	156	0	0	12	236	34	242	119	1821	114	1329	0	0	1	20
4	E86	0	0	0	0	10	60	10	386	9	561	44	1407	0	0	0	0
4	E88	1	72	0	0	8	823	5	224	8	232	6	228	0	0	0	0
4	R26	0	0	0	0	0	0	4	26	22	48	36	471	0	0	0	0
4	R33	0	0	0	0	0	0	5	16	33	165	63	220	4	16	0	0
4	R49	0	0	0	0	1	24	0	0	1	17	4	28	0	0	0	0
2/4	C20	0	0	0	0	1	1	0	0	0	0	1	3	0	0	0	0

2/4	C28	0	0	0	0	0	0	0	0	4	30	0	0	0	0	0	0
2/4	G10	0	0	0	0	0	0	14	250	3	46	16	158	0	0	0	0
2/4	E89	0	0	0	0	0	0	0	0	3	17	0	0	0	0	0	0
2/4	E90	0	0	0	0	0	0	0	0	0	0	1	13	0	0	0	0
2/4	G31	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0
2/4	O28	0	0	0	0	0	0	0	0	1	4	1	45	0	0	0	0
2/4	O45	0	0	0	0	0	0	0	0	1	4	2	37	0	0	0	0
4/5	O12	0	0	0	0	0	0	0	0	0	0	12	98	0	0	0	0
4/5	O20	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0
4/5	O44	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0
4/5	O83	0	0	0	0	0	0	0	0	1	3	12	52	0	0	0	0
4/5	R10	0	0	0	0	0	0	1	27	19	57	3	27	0	0	0	0
4/5	R22	0	0	0	0	1	13	1	4	3	8	16	101	1	2	0	0
4/5	R27	0	0	0	0	0	0	0	0	1	14	44	495	0	0	0	0
4/5	R34	0	0	0	0	4	8	3	17	5	25	14	80	2	7	0	0
5	E87	0	0	0	0	5	38	0	0	23	108	11	146	0	0	0	0
5	E91	0	0	0	0	11	156	10	175	43	545	192	2031	9	65	2	7
5	O30	0	0	0	0	0	0	0	0	15	83	4	11	0	0	1	2
5	O31	0	0	0	0	0	0	0	0	1	2	7	45	3	8	0	0
5	O32	0	0	0	0	0	0	0	0	15	88	17	84	0	0	0	0
5	O33	0	0	0	0	0	0	0	0	15	49	9	206	0	0	0	0
5	O35	0	0	0	0	0	0	0	0	0	0	2	15	0	0	0	0
5	O40	0	0	0	0	2	17	0	0	0	0	4	60	0	0	0	0
5	O46	0	0	0	0	0	0	0	0	0	0	11	97	0	0	0	0
5	R11	0	0	0	0	1	2	2	10	52	149	141	934	6	17	2	67
5	R12	0	0	0	0	0	0	2	6	19	186	37	231	80	264	0	0
5	R13	0	0	0	0	2	6	0	0	61	396	107	696	6	47	2	13
5	R14	0	0	0	0	0	0	1	2	15	84	18	139	7	74	0	0
5	R36	0	0	0	0	0	0	0	0	1	6	3	39	1	14	0	0
5	R44	0	0	0	0	0	0	1	17	5	47	34	271	2	9	2	7
5	R46	0	0	0	0	2	6	1	11	9	187	87	1210	6	72	0	0
5	R47	0	0	0	0	0	0	0	0	7	20	7	150	1	31	0	0
5	A11	0	0	0	0	0	0	0	0	1	18	4	244	0	0	0	0
5	A30	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0
5	A35	0	0	0	0	1	37	0	0	0	0	0	0	0	0	0	0
5	B10	0	0	0	0	0	0	0	0	3	81	3	34	3	13	0	0
5	M11	0	0	0	0	0	0	0	0	1	25	0	0	0	0	0	0
5	S	0	0	0	0	0	0	0	0	1	1	6	79	1	1	0	0
5	W20	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
5	W22	0	0	0	0	0	0	0	0	1	2	0	0	1	13	0	0
5	W24	0	0	0	0	0	0	0	0	12	175	0	0	0	0	0	0
	Unclass.	0	0	0	0	0	0	0	0	14	101	9	142	1	2	0	0
Total		699	7009	168	1266	1424	9736	1064	9646	1370	14153	2124	21838	264	1526	18	441

16 Slack-sided handmade jar. Blackened rim with exterior sooting, a light brown body and a grey interior. Fabric C24. 725/A. Enclosure 23.
17 Handmade everted rim jar. Fabric C24. 725/A. Enclosure 23.
18 Wheelmade necked, cordoned bowl. Black with a dark grey-brown interior. Fabric C14. Ditch 2353/A. Enclosure 90.
19 Handmade, wheel finished cordoned tankard. Black exterior, brown interior. Fabric E85. Ditch 2354/A. Enclosure 90.
20 Handmade thickened rim globular-bodied bowl. Fabric C24. Ditch 118/E/1. Enclosure 112.

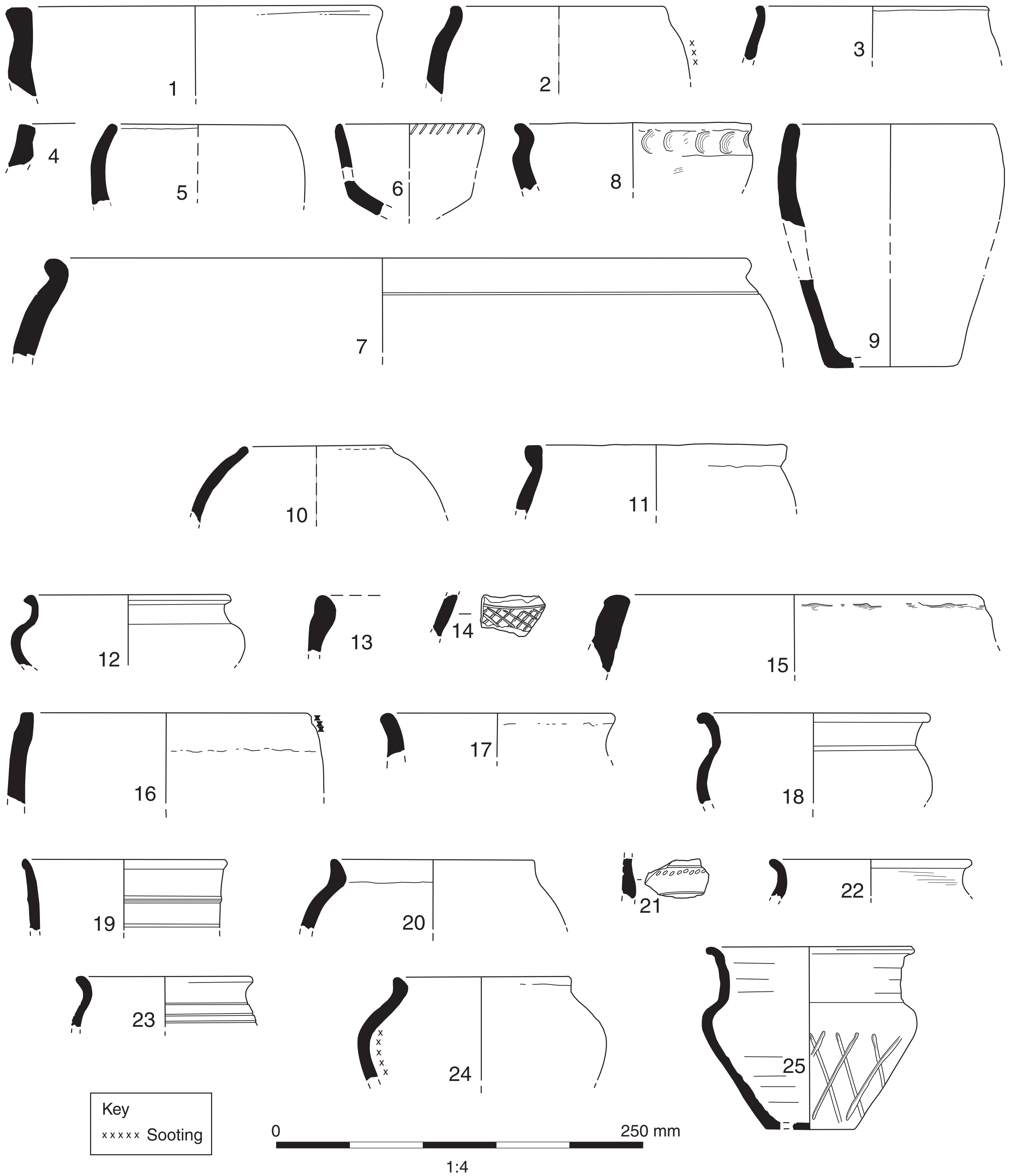

Fig. 4.10 Pottery periods A to C (Nos 1–25)

21 Bodysherd decorated with incised horizontal lines and a line of small oval impressions. Fabric C22. Ditch 118/C/2. Enclosure 112.
22 Possibly wheel-turned necked bowl. Fabric C22. Black burnished exterior and fabric. Ditch 118/C/2. Enclosure 112.
23 Possibly wheel-turned necked bowl decorated with spaced incised horizontal lines on the upper body. Fabric C24. Gully 118/E/2. Structure 112.
24. Globular bowl with short thickened rim. Fabric C24. Burnt residue in the interior surface. 118/E/3. Enclosure 112.
25 Wheelmade necked bowl decorated with slightly irregular burnished line lattice decoration on the body. The base has at least one perforation. Fabric E85. Ditch 412/D/2.

Period D (early Roman period c AD 50–100)

The Period D assemblage is very much dominated by two fabrics: Malvernian limestone-tempered ware (C22) and grog-tempered ware E85. Fabric C22 occurs almost exclusively as ovoid bodied jars or cooking pots with short everted rims, an everted necked example from ditch 44 being more unusual. Fabric E85 mainly features as necked cordoned bowls and jars. Several quite large assemblages were recovered from the fills of the enclosure ditches associated with this period of use, in particular enclosures 44, 45, 48, 49, 51, 54, 57, 58, 72 and 76 (Table 4.8). In every case sherds of middle Iron Age date were present, mixed in with the later material. A number of Roman wares start to appear alongside the native wares, notably various products of the Savernake industry in both handmade and wheelmade forms, and fine grey wares from the North Wiltshire and to a lesser extent the Oxfordshire industries. Various products akin to the Severn Valley industry also occur. Forms of note aside from the usual cooking and storage jars and necked bowls include carinated cups or bowls, straight-sided bowls (fabric R23) and two grey sandy ware beakers (fabrics R14 and R34).

Period D illustrated sherds (Fig. 4.11)

26 Handmade jar with a worn vertical exterior burnish. Black in colour. Fabric C22. Ditch 2284/A. Enclosure 48.
27 Wheelmade necked bowl. Fabric E85. Ditch 2317/A. Enclosure 48.
28 Wheelmade, necked, cordoned bowl. Black exterior with a mid brown interior and grey inner core. Fabric E85. Ditch 2317/E. Enclosure 48.
29 Handmade simple rim bowl. Black in colour with a brown interior and grey core. Fabric R23. Ditch 2317/F. Enclosure 48.
30 Beaded rim jar, dark grey in colour with a red–brown core. Fabric C25. Ditch 2317/F. Enclosure 48.
31 Beaded rim globular-bodied jar or bowl. Brownish-orange with a dark grey core. Fabric R24. Ditch 2317/F. Enclosure 48.
32 Wheelmade everted rim bowl. Fabric E85. Ditch 2355/A. Enclosure 48.
33 Handmade, wheel finished necked bowl. Black with a dark grey interior. Fabric E85. Ditch 2357/B. Enclosure 45.
34 Wheelmade, small, necked globular bowl with a burnished exterior. Post-fracture sooting on the interior and exterior surfaces and break. Fabric E85. 2071/F. Enclosure 76.
35 Wheelmade necked jar. Fabric E91. 877/C/1. Enclosure 125.
36 Handmade or wheel-turned jar. Fabric C26. Sooted on the exterior below the rim. Ditch 899/H. Enclosure 127.
37 Small bodysherd from a handmade bowl with incised decoration. Fabric C28. 899/B. Enclosure 127.

Periods E–F (early Roman period c AD 75–120+)

The large quantities of pottery recovered from Periods E and F, amounting to some 36 kg, suggest this was a particularly intensive phase of occupation, both in terms of the redistribution and redeposition of wares, and from the marked appearance of several new wares in the ceramic record. Tables 4.9–10 summarise the pottery from the main enclosures where the groups exceed 50 sherds. Taking the two periods together, at least 8% of the assemblage by sherd count comprises middle Iron Age fabric C24. Imported wares such as samian, amphorae and mortaria feature for the first time, albeit in very small amounts. The dominant fabrics continue to be the grog-tempered wares, in particular local E85 and Savernake wares (E81–2, E91) accompanied by a significantly greater number of Severn Valley type wares (O43). Other new products include six sherds of Dorset black-burnished ware (B10) including a straight-sided dish and jars, and a number of whitewares, some of which at least derive from the Oxfordshire industries. Jars continue to dominate the group along with bowls. New forms include a single mortaria, a small number of flagons, including ring-necked versions (fabrics O32, O46, O47), smaller flask types (O33, O47), plain walled tankards (O43, R48), platters (R26) and lids (R26, R34, R46). Further beakers occur in fabrics R11, R13 and R14, including a local example of a butt beaker in fabric R33 from ditch 30. Dishes include both straight-sided and curved wall forms (R11, C22, G15), along with a single squat-flanged bowl (R11). The only recorded rim fragment from one of the large hammer-rim bowls or jars in Malvernian limestone-tempered ware (C21) was recovered from ditch 33 (Period E).

Table 4.8 Period D enclosures

Enclos. *Fabric*	*Codes*	*44* *No.*	*44* *Wt (g)*	*45* *No.*	*45* *Wt (g)*	*48* *No.*	*48* *Wt (g)*	*49* *No.*	*49* *Wt (g)*	*51* *No.*	*51* *Wt (g)*	*54* *No.*	*54* *Wt (g)*	*57* *No.*	*57* *Wt (g)*	*58* *No.*	*58* *Wt (g)*	*72* *No.*	*72* *Wt (g)*	*76* *No.*	*76* *Wt (g)*	*127* *No.*	*127* *Wt (g)*
MIA calcar	C24	9	85	3	107	18	44	3	25	4	27	9	87	11	53	7	48	4	11	8	78	2	20
Palaeozoic lime	C21-23	35	246	7	12	88	477	7	44	20	96	46	187	11	72	36	113	10	49	29	111	28	152
Other calcar	C14-5, 25-7, 29	4	12	0	0	3	62	3	8	1	10	6	30	4	12	30	243	0	0	0	0	3	50
Calcite	C32	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0
Native grog	E80, 83-5, 88-9	36	429	14	128	79	370	22	244	12	135	26	676	26	220	27	229	30	236	33	621	9	26
Local, Wilts	E81-2, 86,91, O30	3	116	4	197	12	224	0	0	6	323	5	155	3	128	1	15	16	429	44	3	2	18
Local ?Wilts	R12,33,34, 44, O33	3	17	1	8	1	5	4	8	0	0	0	0	0	0	1	17	0	0	0	0	0	0
Oxon	R11, R44, W22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	0	0
Severn Valley	R46,48,O41, 43	0	0	1	11	19	50	6	35	2	4	0	0	0	0	9	43	34	155	1	24	0	0
Source unknown	R10, 23-4, 26	0	0	0	0	3	51	5	43	0	0	0	0	0	0	3	47	0	0	0	0	0	0
Total		81	820	27	356	208	1245	47	382	41	568	83	1048	44	432	107	707	92	879	68	804	44	266

Table 4.9 Period E enclosures

Fabric	*Enclos. Codes*	*2 No.*	*2 Wt (g)*	*9 No.*	*9 Wt (g)*	*15 No.*	*15 Wt (g)*	*24 No.*	*24 Wt (g)*	*26 No.*	*26 Wt (g)*	*27 No.*	*27 Wt (g)*	*33 No.*	*33 Wt (g)*	*50 No.*	*50 Wt (g)*	*64 No.*	*64 Wt (g)*	*75 No.*	*75 Wt (g)*
MIA calcar	C24	1	7	56	347	5	14	5	32	7	83	11	51	6	33	11	18	3	24	3	15
Palaeozoic lime	C21-23	2	22	13	56	0	0	1	20	1	7	0	0	8	110	24	97	51	211	10	34
Other calcar	C14-5, 25-7, 29	1	1	3	10	0	0	0	0	1	4	2	12	2	19	0	0	4	30	8	268
Calcite	C32	0	0	25	69	0	0	0	0	9	36	4	15	0	0	0	0	0	0	0	0
Native grog	E80, 83-5,88-9	4	55	43	240	0	0	34	175	0	0	2	10	9	161	11	86	31	378	20	164
Flint -tempered	E62	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IA sandy	R00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0
Roman imports	M11	0	0	0	0	0	0	0	0	1	25	0	0	0	0	0	0	0	0	0	0
Roman regional	B10	0	0	1	28	0	0	0	0	0	0	0	0	2	53	0	0	0	0	0	0
Local, Wilts	E81-2, 86,91, O30	8	252	70	2459	29	356	0	0	0	0	40	770	20	411	1	18	3	193	11	199
Local ?Wilts	R12,33,34,44, O33	1	4	24	255	22	138	4	19	8	30	37	256	3	25	0	0	0	0	1	4
Oxon	R11, R44, W22	2	10	37	79	1	11	0	0	1	90	6	24	5	15	0	0	0	0	0	0
Severn Valley	R46,48,O41, 43	13	90	69	348	6	81	6	39	7	53	15	88	26	55	0	0	0	0	6	35
Source unknown	R10, 23-4,26	0	0	11	36	4	64	20	66	1	3	4	33	4	18	1	6	4	19	0	0
Total		33	447	352	3927	67	664	70	351	36	331	121	1259	85	900	49	229	96	855	59	719

Table 4.10 Period F enclosures

Fabric	*Enclos. Codes*	*6 No.*	*6 Wt (g)*	*11 No.*	*11 Wt (g)*	*16 No.*	*16 Wt (g)*	*22 No.*	*22 Wt (g)*	*29 No.*	*29 Wt (g)*	*30 No.*	*30 Wt (g)*	*36 No.*	*36 Wt (g)*	*37 No.*	*37 Wt (g)*	*154 No.*	*154 Wt (g)*	*155 No.*	*155 Wt (g)*
MIA calcar	C24	14	80	4	23	8	71	8	52	20	147	21	343	18	104	5	86	29	167	2	33
Palaeozoic lime	C21-23	0	0	0	0	2	4	2	5	9	30	2	2	32	120	3	2	0	0	0	0
Other calcar	C14-5, 25-7, 29	0	0	3	7	4	55	1	3	2	10	1	31	2	38	5	113	9	30	5	53
Calcite	C32	0	0	0	0	0	0	0	0	0	0	0	0	1	38	0	0	0	0	0	0
Native grog	E80, 83-5,88-9	58	414	12	47	2	32	8	139	5	213	6	38	9	233	5	43	19	382	31	502
Organic	E11	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flint-tempered	E60, E62	0	0	1	6	0	0	0	0	0	0	0	0	1	18	1	5	3	17	0	0
IA sandy	R00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0
Roman imports	A11, A30	0	0	1	4	0	0	0	0	0	0	1	2	0	0	1	3	0	0	0	0
Roman imports	S	0	0	0	0	1	2	0	0	0	0	2	13	0	0	3	64	0	0	0	0
Roman regional	B10	0	0	0	0	0	0	0	0	0	0	0	0	3	34	0	0	0	0	0	0
Local, Wilts	E81-2,86,91, O30	52	617	109	1859	84	769	55	664	11	758	42	1136	51	810	86	1577	54	598	41	844
Local ?Wilts	R12,33,34,44, O33	24	60	17	227	59	803	8	67	9	78	27	96	2	7	23	290	40	356	16	1
Oxon	R11, R44, W22	16	42	15	100	8	60	8	65	1	10	5	16	1	13	37	253	0	0	1	3
Severn Valley	R46,48,O41,43	20	123	40	213	34	268	13	90	16	160	34	293	36	384	59	404	18	99	17	180
Source unknown	R10,23-24,26	18	140	27	170	37	464	7	86	13	111	4	17	5	75	6	136	13	100	6	57
Total		203	1481	229	2656	239	2528	110	1171	86	1517	145	1987	161	1874	234	2976	187	1750	119	1803

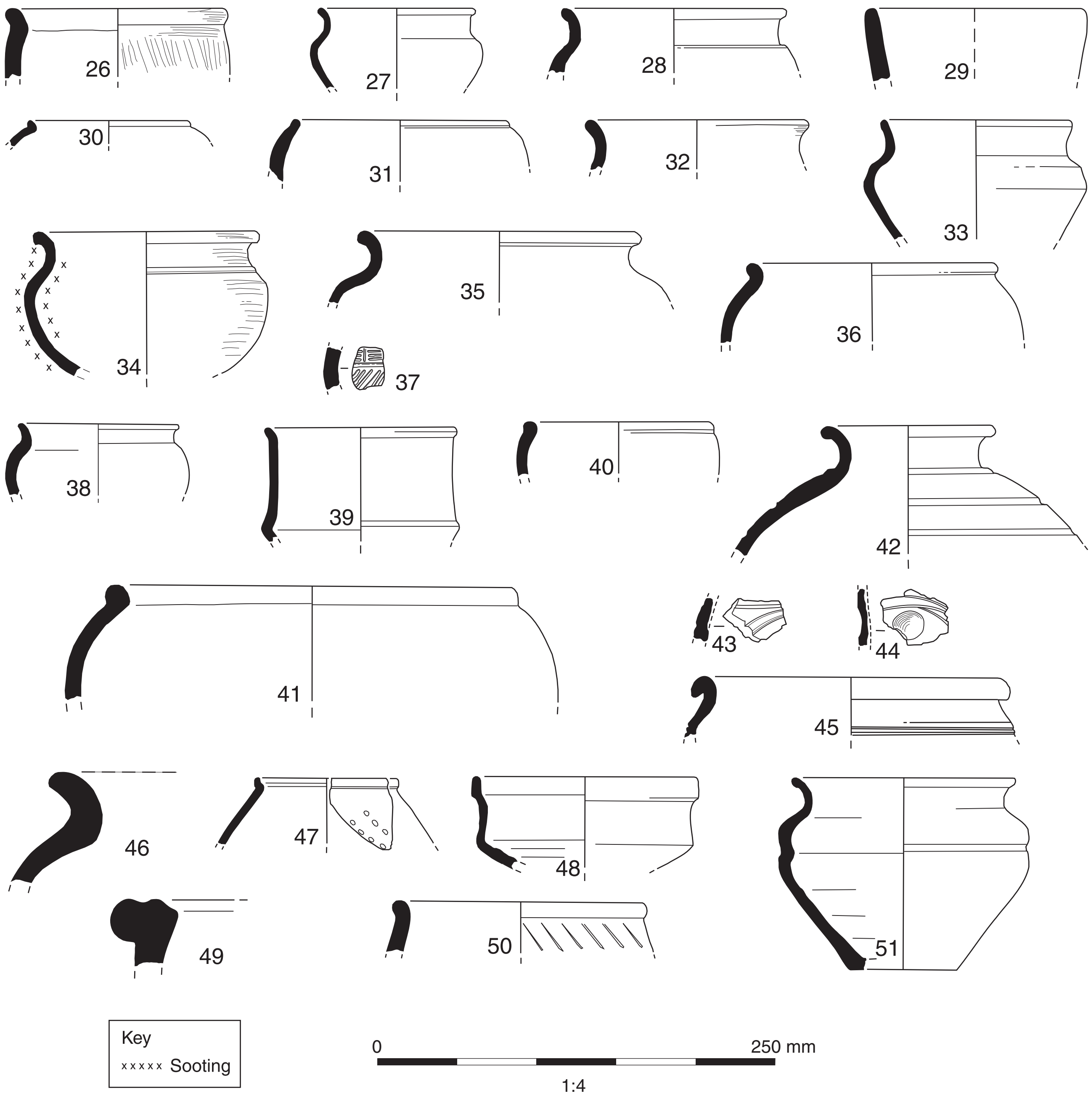

Fig. 4.11 Pottery periods D to E (Nos 26–51)

Period E illustrated sherds (Fig. 4.11)

38 Small wheel-made, necked bowl. Fabric O43. 250/C/3. Enclosure 1.

39 Wheelmade carinated bowl or cup. Fabric O43. Ditch 101/4. Enclosure 9.

40 Handmade, black, calcite-tempered beaded rim bowl. Fabric C32. 113/D/2. Enclosure 9.

41 Large, handmade beaded rim bowl. Fabric E81. 101/H/2. Enclosure 9.

42 Wheelmade narrow-necked jar decorated with horizontal spaced grooves. Fabric E91. 461/G/1. Enclosure 14.

43 Bodysherd decorated with a band of raised curvilinear decoration. Fabric C32. Ditch 366/H/1. Enclosure 26.

44 Bodysherd decorated with a depressed circular dimple and incised curvilinear lines. Fabric C32. Ditch 366/H/1. Enclosure 26.

45 Wheel-turned wide-mouthed jar. Fabric E88. 381/F. Enclosure 27.

46 Handmade everted rim storage jar. Fabric E81. 389/C/2. Enclosure 27.

47 Wheel-made, globular beaker with barbotine dot decoration. Fabric R17 with worn surfaces. 537/J/1. Enclosure 27.

48 Wheel-made carinated bowl. Patchy orange, brown and grey in colour. Fabric O30. 577/B. Enclosure 27.
49 Very large diameter, handmade bowl with a heavy finger-grooved rim. Diameter *c* 640 mm. Fabric C21. 695/A/3. Enclosure 33.
50 Handmade beaded rim jar decorated with incised diagonal lines. Fabric C24. 2338/A. Enclosure 77.
51 Wheel-made necked bowl with a girth constriction. Black in colour with a grey core and interior. Fabric E85. 578/J. Probably Period E.

Period F illustrated sherds (Fig. 4.12)

52 Everted rim necked bowl. Fabric R11. Dark grey exterior, lighter interior. Ditch 108/C/2. Enclosure 7.
53 Everted rim beaker. Fabric R13. Gully 111/F/1. Structure 6.
54 Handmade beaded rim jar with a wheel-finished rim. Horizontal smoothing lines on the interior. Fabric E81. Ditch 172/A/2. Enclosure 11.
55 Wheelmade, angular shouldered jar. Grey with traces of white slip on the exterior. Lightly incised decoration both on the upper shoulder as three-line chevrons and a single wavy line on the upper body. Fabric R26. 528/H. Enclosure 16.
56 Wheelmade, small necked bowl. Fabric E91. 698/E. Enclosure 22.
57 Handmade small globular bowl. Blackened residue on the exterior. Fabric E83. 698/E. Enclosure 22.
58 Large, handmade storage jar with finger-pressed decoration on the rim edge. Fabric E81. 601/A/2. Enclosure 29.
59 Handmade/wheel-turned beaded rim bowl. Grey-black exterior, brown-grey interior. Fabric C24. 454/N/2. Enclosure 29.
60 Handmade, beaded rim jar. Fabric C24. 322/C/3. Enclosure 30.
61 Wheelmade, carinated cup. Fabric O43. Ditch 1080/B/2. Enclosure 37.
62 Wheelmade globular jar with short everted rim. Black fabric R26. 740/A. Enclosure 104.
63 Handmade/wheel-turned necked jar. Black exterior with a light brown interior. Fabric E85. 722/F. Enclosure 155.

Period G (early Roman period* c *2nd century AD)

The ceramic record suggests a much reduced level of occupation on the site by the early–mid 2nd century either as a result of a shift in the focus of activity, or of alternative methods of rubbish disposal. Only 264 sherds (1526 g) sherds are attributable to Period G, and most of these came from ditch 301. The assemblage contains a higher proportion of Roman grey sandy wares than earlier phases, but the continued presence of middle Iron Age fabrics (C24) demonstrates the continued high level of redeposition. Other 2nd-century products include further sherds of Dorset black burnished ware and Oxfordshire whiteware (W22).

Period H (late Roman period)

This period is not well represented in the ceramic record, with only 18 sherds, all from linear gully 302. Most of the sherds appear to be redeposited.

Catalogue of illustrated sherds from unphased contexts (Fig. 4.12–13)

64 Small lid. Fabric E86. 2043/A. Enclosure 68.
65 Beaded-rim jar. Mid grey with brown patches. Fabric C24. 2241/B. Enclosure 97.
66 Wheel-turned everted rim necked jar. Dark brown–black with a burnished finish. The upper body is decorated with an incised chevron-style decoration. Malvernian rock-tempered fabric, E72. 623/A/1. Enclosure 34.
67 Wheelmade thickened rim jar. Dark grey surfaces with light grey core with red–brown margins. Fabric R34. 6/A/3.
68 Wheelmade necked cordoned jar with a moulded rim. Black exterior with a light grey core and interior surface. Fabric R46. 6/A/2.
69 Necked bowl with a brownish-black exterior, orange–brown interior and grey core. Fabric E85. 18/A/2.
70 Wheelmade everted rim jar or bowl. Fabric O43. Ditch 103/B/6.
71 Wheelmade necked bowl. Fabric O43. Ditch 124/C/2.
72 Crude, handmade slack-sided jar with a beaded rim. Blackened around the rim, with a light brown body. Fabric E83. Gully 160/B/1.
73 Handled tankard. The handle has been pegged in through the wall to the body. The base fracture, which shows score marks for keying, suggests that the base, now lost, was added separately. Fabric O43. Pit 219/A.
74 Wheelmade, sharply everted rim jar. Fabric R47. 321.
75 Handmade necked bowl. Fabric C24. Pit 388/A.
76 Wheelmade necked cordoned jar. The vessel has warped slightly in firing. Fabric O2. Pit 446/A/2.
77 Conical flat-topped lid. Fabric E91. Sooted around the interior rim area. Pit 485/A/4.
78 Wheelmade tankard. Fabric O43. Pit 541/A.
79 Handmade barrel-bodied jar. Fabric C24. Pit 884/A/2.
80 Wheelmade, beaded rim jar. Black in colour with slightly irregular horizontal burnishing or smoothing marks giving a slightly facetted finish. A hole has been drilled through the centre of the base. Fabric R26. Ditch 895/D.
81 Wheelmade, necked bowl with girth grooves.

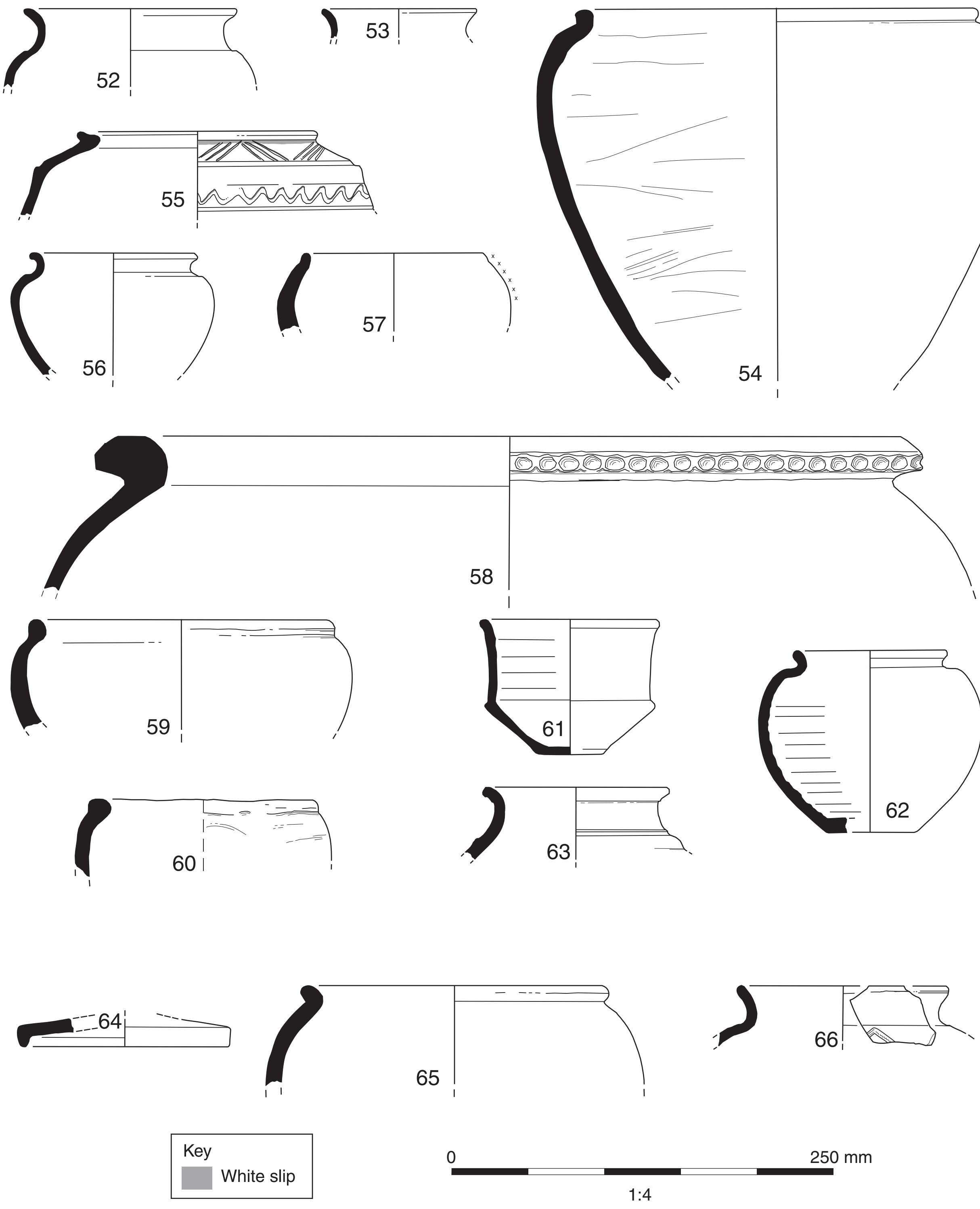

Fig. 4.12 Pottery periods F to G and unphased (Nos 52–66)

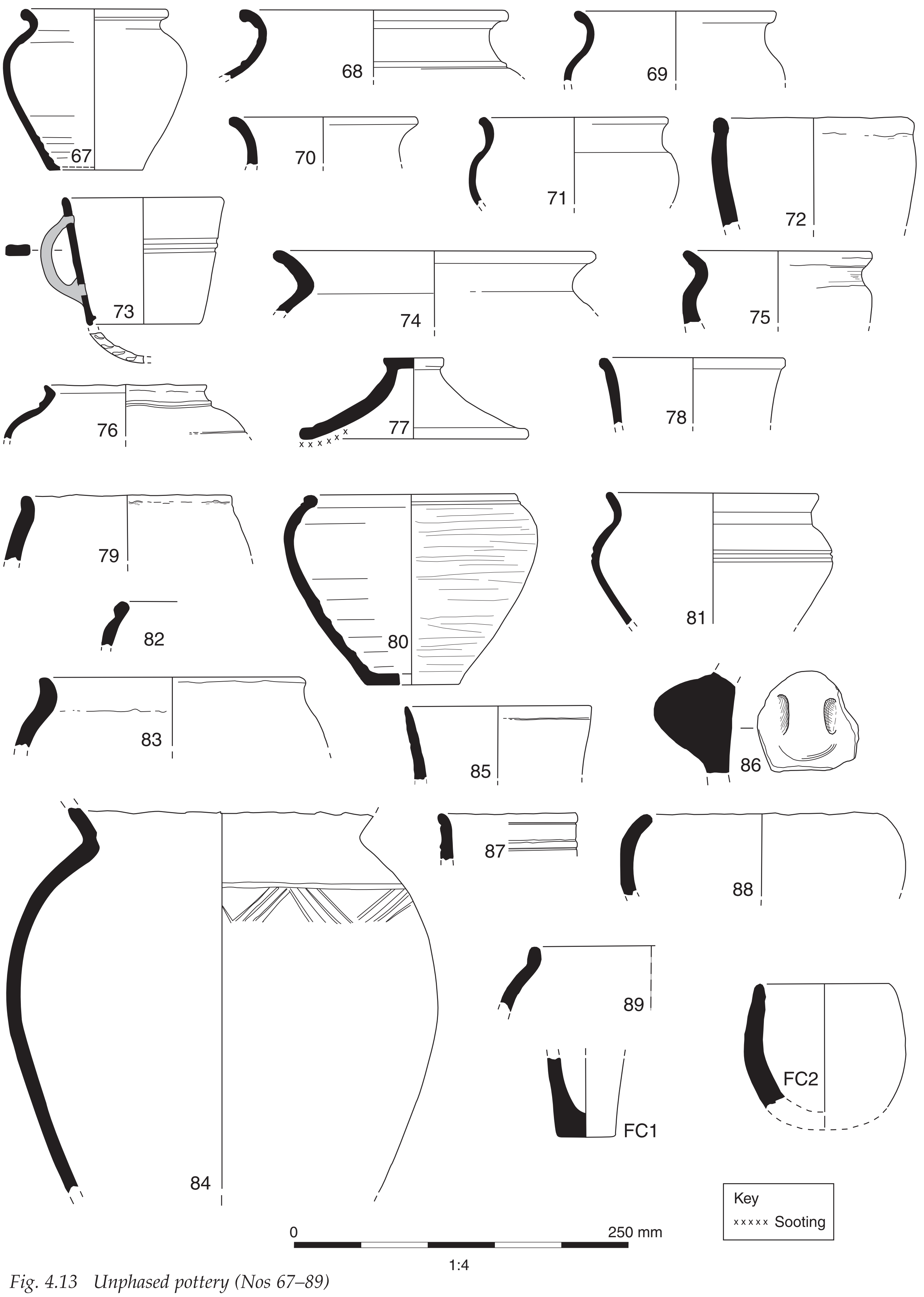

Fig. 4.13 Unphased pottery (Nos 67–89)

Fabric O43. Pit/ditch 1054/A.
82 Wheel-turned beaded rim bowl with a worn interior surface. Grey in colour. Fabric C24. Ditch 2295/A.
83 Handmade simple rim jar. Fabric C24. Pit 2450/A.
84 Handmade, everted rim storage jar. Upper rim edge worn. Decorated with a band of burnished line decoration on the shoulder above which the body is burnished. Fabric E86. Pit 3060/A/10.
85 Wheelmade tankard. Light grey sandy fabric, R44. Gully 3122/A/1.
86 Countersunk handle from a jar. Oxidised. Fabric C22. Ditch 3253/B/4.
87 Handmade cordoned tankard. Patchy dark brown/orange/grey in colour. Fabric O40. Layer 3259/C.
88 Crudely handmade simple curved rim jar. Dark grey to buff exterior with a dark grey interior. Fabric C24. Pit 3286B.
89 Beaded rim jar. Black, very friable fabric. Fabric R00. Pit 4023/A/1.

General discussion

The assemblage from Thornhill Farm presents a group of wares that are becoming increasingly familiar within a general region extending from the Upper Thames Valley across the Cotswolds and into the Severn Valley. Notable sites include Lechlade (Allen *et al*. 1993) and Claydon Pike in the Upper Thames Valley, settlements such as Bagendon (Clifford 1961) and The Ditches, North Cerney (Trow 1988) on the Cotswold ridge, and lowland rural settlement sites such as Frocester (Price 2000), Abbeydale (Timby unpubl. a), Kingsholm (pre-military levels; Timby unpubl. b) and Saintbridge (Timby unpubl. c) on the Severn Plain.

Early–middle Iron Age Jurassic fossiliferous shelly limestone wares (fabric C24) appear at present, superficially at least, to be fairly ubiquitous. Wares of apparently identical type occur either side of the Cotswolds although this may be a reflection of a similar tradition rather than the sharing of one or more sources. Published sites of middle Iron age date west of the Cotswold ridge are rare, and the absence of this type of ware on a number of other sites is likely to be a reflection of chronology. For example, the ware does not appear to feature in any significant quantity at Bagendon or The Ditches, North Cerney. It is similarly absent from the earliest excavated levels in both Cirencester and Gloucester and is only represented by small quantities from the Gloucester suburb sites such as Kingsholm. A slightly greater amount is present from Frocester indicating a middle Iron Age component to this multiperiod site. It does, however, dominate the assemblages from most of the upland early Iron Age hillfort sites such as Winson (unpubl. material Corinium Museum), Crickley Hill (Elsdon 1994), Shenberrow (Fell 1961a) and Uley Bury (Saville and Ellison 1983) and the middle Iron Age upland settlements at Huntsman Quarry, Naunton (Timby forthcoming) and Guiting Power (Saville 1979). Two new middle Iron Age sites, recently investigated as part of the Birdlip–Latton road improvement scheme, at Preston and Cowley have similarly produced several such wares (Timby 1999, 325, 339–65). By the same token, most of the early-middle Iron Age sites in the Upper Thames Valley feature similar wares, as, for example, at Farmoor (Lambrick and Robinson 1979), Watkins Farm (Allen 1990) and Gravelly Guy (Lambrick and Allen forthcoming). Its almost complete absence on sites like Old Shifford (Hey 1996), first occupied from the later Iron Age, is again chronological.

From the later part of the middle Iron Age Palaeozoic limestone-tempered wares from the Malvern region start to appear in some quantity across the region, continuing to occur well into the 1st century AD. These wares, first highlighted by Peacock (1968), have been taken to indicate semi-specialist production. Around this time briquetage (salt containers) from Droitwich begin to appear in assemblages, indicating the existence of exchange networks, the two commodities presumably using the same routes. Less common are the Malvernian rock-tempered wares which rarely penetrate this far east. Thornhill is at present one of the most easterly findspots for Droitwich briquetage.

Only three reasonably large groups of pottery dating to the later Iron Age and early Roman periods have been published from Gloucestershire: Salmonsbury (Dunning 1976), Bagendon (Fell 1961b) and The Ditches (Trow 1988). Several smaller groups have been noted, for example, Roughground Farm, Lechlade (Green and Booth 1993), Duntisbourne Abbots (Fell 1964), Wycomb (Timby 1998), Frocester Court (Timby 2000a) and Saintbridge on the outskirts of Gloucester (Parry 1998). Unpublished material can be added from Abbeydale (Timby unpubl. a), Coppice Corner, Kingsholm, Gloucester (Timby unpubl. b) and Claydon Pike (Booth forthcoming).

Palaeozoic limestone-tempered wares form a significant component of the later Iron Age assemblages from Highgate House, Cowley (Timby 1999, 327–9), Birdlip (Parry 1998, Period 2), The Ditches, North Cerney (Trow 1988, fabric 1), Coppice Corner, Kingsholm and Frocester. The large hammer-rim vessels have a much more limited distribution, but are well represented at Kingsholm (the pre-military levels), Frocester and less well at The Ditches (Trow 1988, fig 38.133). The Thornhill example is, like the briquetage, at the limit of the distribution.

In the early 1st century AD the limestone class of wares begin to be supplanted by grog-tempered wares, initially handmade and then in wheelmade forms. The transition can be seen at sites within the Bagendon complex including The Ditches and satellite sites at the Duntisbournes (Timby 1999, 329–35) as well as Kingsholm, Uley (Leach 1993) and Salmonsbury. By the second half of the 1st century AD handmade Savernake ware storage jars (fabrics E81–2) feature prominently in the ceramic record.

A comparison of the individual fabric components of assemblages spanning the later 1st century BC to later 1st century AD in Gloucestershire is beginning to show some localised regional differences, either in the presence or absence of certain fabrics, or the relative quantities of particular fabric types. For example, the products of the Savernake-Oare and related industries of North Wiltshire show a concomitant increase in presence on sites to the south-east of the Cotswolds compared to those sites on the north-west side. Savernake ware proper (fabric E81) at Thornhill Farm accounted for 18% by weight of the total assemblage compared to 5% at Frocester. A lower incidence of large storage jars in Savernake ware on sites north-west of the Cotswolds appears to be compensated by large jars in other fabrics, such as Severn Valley wares, which are only present in very minor amounts south-east of the Cotswolds. Other differences can be perceived between the east and west side of the Cotswolds. For example, the large hammer rim bowls in limestone or grog-tempered fabrics are very rare in the Upper Thames Valley, but are becoming quite familiar in the Gloucester area. At Kingsholm (non-military) they accounted for 31% by weight; at Frocester (1st–4th century) 8%.

The grog-tempered ware (fabric E85), which accounts for 11% of the Thornhill Farm material, does not seem to appear on sites west of the Cotswolds, suggesting a source within the Upper Thames Valley area. However, grog-tempered fabric E83, along with some of the earlier grog-tempered variants of the Severn Valley industry, does occur on both sides, with perhaps a higher incidence on the north-western side.

A comparison between Thornhill Farm and the adjacent site at Claydon Pike shows that the only overlap involves the area designated Trench 13 at Claydon Pike, dated to the late Iron Age-early Roman period (Phase 2), although Thornhill Farm does not share the more Romanised wares associated with the other site (Booth forthcoming). Thornhill Farm does not appear to have had any access to the luxury end of the market in terms of finer tablewares, platters, cups, flagons and mortaria. Samian, although present, is minimal and can only belong to the very last phases of occupation; only one sherd of mortaria was recovered and very little amphora. An absence of fineware table forms is also reflected in an absence of comparable forms in coarsewares; there are, for example, very few platters and negligible beakers, although the forms are known to exist within the fabrics present. Fabric R33, a wheelmade black-burnished ware which appears in post-conquest deposits across the region, frequently features as platters and dishes imitating imported moulded forms. Although the fabric is present at Thornhill, the platter forms are not. This also puts the site in direct contrast to Bagendon which, even putting aside the fact that a number of fineware imports were reaching the site certainly by the Claudian period, has a significant number of Roman forms amongst its coarseware component (Fell 1961b, figs 48–9). This might suggest first, that Thornhill was of a lower economic status, and second, that the occupants or users of the site were throughout indigenous natives, either not familiar with, or not prepared to adopt, new vessels or products such as oil and wine reflective of Roman cooking, eating and drinking habits. Although Thornhill was not receiving merchandise from abroad it does seems to have some quite strong regional trading links, particularly to the north-west which may have been connected with the movement of stock. As with many sites, just as the new Roman wares begin to manifest themselves, occupation ceases and the sites become abandoned or the focus shifts, reflecting, perhaps, a new generation with different ways of life and the wider adoption of Roman customs and products.

HUMAN REMAINS

by Angela Boyle

The assemblage comprised three inhumations (3106, 3145, 3363) which are summarised below, as well as four deposits of cremated bone (320/A, 800/A, 801/A, 3008/A) and five fragmentary unburnt deposits (110/L/2, 235/C/4, 324/B/2, 869/B, 935/A) which are summarised in Table 4.11. One deposit (3081/E) which was believed to be human consisted entirely of animal bone. Bone preservation was uniformly bad. All bones were fragmentary and surfaces extremely degraded. Estimation of sex was based on skull morphology (Workshop 1980). Estimation of adult age was based on dental attrition (Brothwell 1981, 72) and subadult age on dental root development and closure (van Beek 1983, 126). The dental notation used was as follows:

/ = post mortem loss
X = ante mortem loss
np = not present
c = caries
- = tooth and socket missing

Catalogue of inhumations

Skeleton 3106

18375.65 99851.45 0.80 x 0.50 x 0.30–0.34 m
Within grave which cuts 3080, associated with one sherd of Group 1 and one sherd of Group 4. An oval shaped grave with sharply sloping sides. Skeleton crouched with skull facing north-east.
Preservation poor; skeleton comprised skull, mandible, cervical vertebrae 1 and 2, left(?) and right(?) ulnae, radius, femora and fibulae, carpals, metapodials and phalanges.

Table 4.11 Human cremations and disarticulated deposits

Context	*Sample no.*	*Weight*	*Colour*	*Other inclusions*	*Fragment size*	*Comments*
110/L/2 Romano-British ditch, Group 1-5 pottery			unburnt			2 fragments of adult human skull
235/C/4 part of enclosure 2, G1-5 pottery associated, second half of 1st century AD			unburnt			mandible, possibly female, no surviving dentition
320/B possible pit	65	37 g	white, blue-grey	pottery, charcoal	1-3 cm;1 fragment measures 4.2 cm	long bone shaft fragments
324/B/2 part of enclosure 30, G3-5 pottery associated, second half of 1st century AD	8	< 1 g	unburnt	wood	*c* 2 cm	
800/A, within boundary ditch, 1 sherd G5 associated	61	< 1 g	white	pottery, charcoal, clinker	< 0.5 0.5-1 cm	
801/A within boundary ditch, 19 sherds G4 associated	62	4 g	white	pottery, charcoal	0.5-2 cm	
801/B within boundary ditch, 19 sherds G4 associated	66	< 1 g	white	pottery, charcoal	0.5-1 cm	skull vault fragment
869/B ditch, possibly late Iron Age	90	c 12 g	unburnt	pottery, charcoal	2-4 cm	possible femur
935/A ditch, post Middle Iron Age	84	< 1 g	unburnt	pottery, charcoal	1.5 cm	
3008/A part of enclosure 40, ?Group 4 pottery, second half of 1st century AD	167	< 1 g	white	pottery, charcoal, shell	1 cm	

Adult male (33–45 years). Marked wear affecting all teeth is possibly indicative of an edge-to-edge bite. Interstitial caries present between 1st and 2nd right mandibular incisors.

Dentition

-	-	6	5	4	-	2	1	1	-	-	4	5	-	-	-
np	7	6	5	4	3	2	1	/	/	3	4	X	X	7	np
				c	c										

Skeleton 3145 (Fig. 3.12)

18377 99860.60 1.04 x 0.87 x 0.26 m

Within grave 3144 which cuts 3080. Grave has a flat bottom and near vertical sides. Skeleton crouched and orientated NW–SE. Associated spiral finger ring (cat. no. 51).

Preservation poor; skull, femora and tibiae.

Probable adult. Three very badly degraded teeth are present; two premolars and a canine, probably maxillary. Canine wear is marked, other crowns destroyed.

Skeleton 3363

99895.85 18394.35 1.10 x 0.70 x 0.28 m

Within grave 3362 which is located outside S 200. An oval grave with irregular sides and bottom. Skeleton crouched and orientated NNE–SSW.

Preservation poor; skull, right arm and both legs.

Subadult 10–15 years.

Dentition

7	6	5	4	3	2	1	1	-	-	4	5	6	7
-	-	-	-	-	-	1	-	-	-	-	-	-	-

THE FAUNAL REMAINS

by Marsha Levine

A total of 24,853 fragments of bone was recovered by hand from Thornhill Farm. There was no sieving programme, which may have resulted in some loss of information, particularly in the loss of small anatomical elements (Payne 1972). The complete osteological record is with the site archives. This report is a summary of the data contained in the archive.

Quantification

The animal bone recovered from the site was divided into two categories: postcranial and cranial elements. Animal bone was quantified using Number of Identified Specimens (NISP), based upon a simple specimen frequency determination. For example, a piece of mandible with three teeth in it will count as four elements. In order to distinguish articulated from disarticulated anatomical elements, the coding system used here includes a variable for 'Group'. Postcranial and cranial elements identified as belonging to a single animal (for example, articulated bones or teeth from a single jaw) are referred to as belonging to an

Anatomical Element Group. Each such group is given a unique number. The group number for elements not belonging to a group is '0'. The identification of cranial and postcranial element groups is not always certain. Whether a group identification is certain is recorded in the database variable, 'Certainty'.

In order to account for associated and articulated material the 'Element Units' (ELUs) were calculated. An ungrouped bone equals 1 ELU, as does a group of bones or teeth belonging to one individual (a group). That is, 1 individual bone + 1 whole skeleton (group) = 2 ELU.

In general the MNI was not calculated at Thornhill Farm as a small proportion of the deposits was excavated and the sample was biased through the recovery methods used. However, it was calculated for horses, as indicated below.

The anatomical element representation for cattle and sheep was compared with Brain's data from Makapansgat in South Africa and the Kuiseb River in Namibia (Brain 1967, 1969, 1976, 1981). The equids are compared with the French cave site, Jaurens (radiocarbon date *c* 29, 300–32, 630 BP), in which a natural catastrophe concentrated a large assemblage of mammals (Debard 1979, 380; Guerin *et al.* 1979, 381). For Jaurens the anatomical element counts were used and the MNI as determined by C. Mourer-Chauviré (1980).

Methodology

Taphonomy

A variety of analytical methods were used to explore the assemblage formation processes and history. These include comparisons of bone surface condition, gnawing, bone part representation, anatomical element representation, butchery marks and evidence for tool manufacture. The surface condition of each bone recovered from the site was recorded and grades as:

'Slightly eroded' – some wear to the surface of the bone, but mainly confined to sharp edges, such as on spines and processes. Accurate measurements can be taken and butchery marks would be visible.
'Eroded' – a larger proportion of the surfaces have been damaged, but accurate measurements are still usually possible and some butchery marks will be visible.
'Very eroded' – almost the whole surface of the bone has been damaged. Any measurements taken will be minimum and most butchery marks will be obscured or destroyed.

Identification

Animal bone was identified using the reference collection at the Faunal Remains Unit at the University of Cambridge. Sheep and goat were distinguished using the criteria described in Boessneck (1969), Kratochvil (1969) and Payne (1969 and 1985). Where it was not possible to distinguish between the two species, fragments were classified under a single heading of sheep/goat. Since, however, no goat bones or teeth were found at the site, all *Ovis/Capra* (sheep/goat) elements were pooled with *Ovis aries* (domestic sheep). Rib and vertebral fragments, except the atlas and axis, were only assigned to size categories as either 'cattle-size' or 'sheep-size'.

Ageing

The ageing of the animals relies solely on tooth-wear analysis and crown height measurement as it was felt that this would provide a more accurate result than using bone fusion data. For cattle, Grant (1982), Ewbank *et al.* (1964), Legge (1992) and the author's coding methods were used for the eruption and wear. For sheep, the mandibular teeth were assigned to age stages according to the eruption-wear method formulated by Payne (1973) and Legge (1992), and modified by the author. The maxillary and mandibular pig teeth were aged according to Bull and Payne (1982), with further details from Sisson and Grossman (1953), Matschke (1967) and Wenham and Fowler (1973). It is assumed that the age system developed for horses is valid for all large equids (horse/mule size rather than mule/ass/hinnie size). The large equid teeth (that is, excluding mule/ass/hinnie) were aged according to Levine (1982, 1983) and from data on root development (see archive).

Each tooth and jaw was aged as closely as possible. Loose teeth were included. Tooth fragments (that is, where less than half the tooth is present), canines and incisors were excluded. To compensate for the under-representation of immature individuals, due to recovery, preservation and element abundance biases, hypothetical adjustment factors are used in calculating the mortality curves for each of the main taxa.

Cattle crown height measurements were not used as an independent source of ageing data as there is no standard reference collection available. Crown height was plotted against age as determined by tooth eruption and wear, and can be found in the archives. This demonstrates that the crown heights of mature teeth decrease with age.

Table 4.12 Surface condition of postcranial elements for all taxa

Condition	*No.*	*%*
Uneroded	18	1
Slightly eroded	381	1.8
Eroded	2464	12.1
Very eroded	17341	85.4
Other damage	83	0.4
Total	20287	
(including 6 human bone fragments)		

Table 4.13 Surface condition of cranial bone and teeth for all taxa

Surface Condition		Material		Total
		Bone	Tooth	
Indeterminate	No.		3	3
	% within material		0.2	0.1
Uneroded	No.		40	40
	% within material		2.3	0.9
Slightly Eroded	No.	131	368	499
	% within material	4.7	20.9	10.9
Eroded	No.	1541	868	2409
	% within material	54.7	49.3	52.6
Very eroded	No.	1138	478	1616
	% within material	40.5	27.2	35.3
other damage	No.	3	2	5
	% within material	0.1	0.1	0.1
Total	No.	2813	1759	4572

Measurements

Measurements are based upon von den Driesch (1976) for most taxa, and upon the methods of Prat for horses (see the archive). Relatively few anatomical elements could be accurately measured. The frequency (N), mean, minimum, maximum, standard deviation, skewness and kurtosis were calculated for those elements, and all measurements are included in the archive.

Sexing

Horses were sexed using the characteristics of the pelvis outlined in Sisson and Getty (1975) due to the low number of other indicative elements. Sexing was attempted for other species using morphological criteria but was not successful.

Results

Species represented

Bones from cattle, horse, sheep and pig were the main elements, in order of prevalence, recovered from the site, and represent the main domestic species that would have been present at the site. It is likely that sheep and pig are underrepresented due to the poor condition of many of the bones (see below). The pig teeth from Thornhill Farm are likely to be from domestic animals, but this cannot be determined with any certainty from the assemblage available for study (Payne and Bull 1988). It should, however, be noted that wild boar did not become extinct in England until the 13th century AD (Rackham 1980). Other species identified were ass, dog and a single heron carpo-metacarpus. The heron bone was found in the fill of gully 118 (Group 112). Most of the equids from Thornhill Farm were probably horses (*E. caballus*). There is good evidence for ass (*E. asinus*), and it seems likely that some of the large equids were, in fact, mules.

Taphonomy

The bone surface preservation is very poor. The cranial and postcranial data demonstrate that almost all bone surfaces have sustained some damage and many are very damaged.

Table 4.12 indicates that over 85.5% of the postcranial elements (including fragments unidentifiable to taxon) are ‘very eroded’. Even if bone unidentifiable to taxon is excluded, the proportion of ‘very eroded’ elements remains high at around 41–54%, except in the case of dog.

Table 4.13 demonstrates the poor condition of the cranial material. The surface condition of the teeth is, unsurprisingly, better than that of the cranial bone: 20.9% of the teeth are slightly eroded and 27.2% very eroded, as against respectively 4.7% and 40.5% for the cranial bone.

It is clear from this short analysis of surface condition that the bones and teeth from Thornhill Farm, with the notable exception of a dog skeleton (Context 716; Plate 4.1), are very eroded. For most bones little, if any of the original bone surface remains. As a result, many bones are unmeasurable, butchery marks would have abraded off and gnawing evidence is subsumed into the overall poor preservation state of the material. There are many possible causes for the surface erosion referred to here, such as trampling, exposure to the elements before burial and soil chemistry. No one agent can be assigned.

Gnawing

Because of the high level of bone surface damage, the proportion of gnawed bone at Thornhill Farm is certain to be underestimated. Gnawing is only detectable on 261 out of a total of 20,281 postcranial elements (1.3%). However, when only identifiable bones are considered, the proportion increases to 12.9% (Table 4.14).

It is noteworthy that the taxon with the smallest

Plate 4.1 Dog skeleton within pit 716 on the western edge of Trench 7

percentage of gnawed bone is sheep. Payne and Munson (1985) have shown that sheep bones gnawed by dogs could be entirely consumed. We know that there were dogs at this site, although humans, pigs and wild carnivores could also have chewed the bones from the Iron Age and Roman deposits. That such a relatively high proportion of pig bones show traces of gnawing is hard to explain, since their bones are usually even more vulnerable than those of sheep. The pig sample is, on the other hand, very small. Interestingly, the proportion of equid bones with gnawing marks is almost as great at that of cattle. This suggests that both equid and bos bones were not buried soon after death but were left exposed on or near the surface of the ground, where they would have been accessible to carnivores. The use of cattle for food will lead to their disarticulation and disposal as rubbish, and the high proportion of horse gnawing could be indicative of a similar fate for the horse bones.

Bone part representation

Fragmentation

Using the simplified quantification system, 89% of all elements recovered were fragments, while only 1.3% were whole or almost whole. While 'proximal', 'distal' and 'shaft', mainly refer to long bones, 'incomplete' is used for such elements as vertebrae, carpals, tarsals, sesamoids and so on. Aside from fragments, at 4%, shafts are the parts best represented. The poor preservation of faunal material is thus confirmed by part representation.

If unidentifiable and unimportant taxa (eg heron bones) are excluded from the calculations, the proportion of 'fragments' greatly decreases: shafts are best represented, proximal and distal similarly represented (Table 4.15).

If part representation is broken down by taxon, dog has the highest proportion of whole bones (28.8%), followed at some distance by horse and cow (15.8% and 13.7% respectively), and with sheep and pig trailing a long way behind (6.9% and 8.4% respectively). It is also perhaps noteworthy that equid and cattle are represented by higher percentages of proximal and distal ends and lower percent-

Table 4.15 Part representation: equid, cattle, sheep, pig, dog only

	No.	*%*
Fragment	171	9.4
Whole	260	14.3
Proximal	361	19.8
Distal	338	18.5
Shaft	440	24.1
Incomplete	254	13.9
Total	1824	100

Table 4.14 Incidence of gnawing in postcranial bone from identifiable taxa

		Gnawing		*Total*
		Present	*Undetectable*	
Equid	No.	43	261	304
	% within Taxon	14.1	85.9	100
Bos taurus	No.	172	855	1027
	% within Taxon	16.7	83.3	100
Ovis aries	No.	11	236	247
	% within Taxon	4.5	95.5	100
Sus scrofa	No.	10	73	83
	% within Taxon	12	88	100
Canis familiaris	No.	0	163	163
	% within Taxon	0	100	100
Ardea cinerea	No.	0	1	1
	% within Taxon	-	100	100
Homo sapiens	No.	0	6	6
	% within Taxon	0	100	100
Total	No.	296	1595	1831
	% within Taxon	12.9	87.1	100

ages of shaft pieces than sheep and pig. The dog is a special case: 148 out of a total of 163 dog postcranial elements came from a dog burial (Context 716; Plate 4.1) in which the preservation state was, by comparison with the rest of the assemblage, extraordinarily good, as has already been noted.

Because the breakage patterns of the different anatomical elements are not necessarily comparable – for example, carpals and long bones break differently and often have very different taphonomic histories – it is useful to compare the part representation solely of the long bones of the various taxa (excluding dog). Table 4.16 shows the part representation for humerus, radius, ulna, femur, tibia, and central metapodials. In this case, horse has by far the highest proportion of whole bones. Sheep and pig still have the lowest. The representation of shafts is much higher for sheep and pig than for cattle and equids. Moreover, the proportion of shafts is certainly under-represented for sheep and pig, since there are additionally 122 more shafts only identifiable as medium ungulate, while only 55 additional shafts are identifiable as large ungulate. It is difficult to explain this pattern except as further evidence of the poor preservation state of sheep and pig.

The general poor preservation of the whole assemblage, together with the great variety of potential agents involved in the destruction of the bones, means that it is not possible to say whether bones had been fragmented due to breakage – for example, for marrow, bone grease, gelatine – or due to being trampled, weathered, eroded, ploughed over and so on.

Table 4.16 Part representation by taxon: long bones only

		Taxon				*Total*
		Equid	Bos taurus	Ovis aries	Sus scrofa	
Fragment	No.	15	54	2	1	72
	% within taxon	8.9	8.4	1.1	2.3	6.9
Whole	No.	21	34	5	1	61
	% within taxon	12.4	5.3	2.7	2.3	5.8
Proximal	No.	46	214	38	7	305
	% within taxon	27.2	33.2	20.5	15.9	29.2
Distal	No.	46	166	28	10	250
	% within taxon	27.2	25.7	15.1	22.7	24
Shaft	No.	37	173	111	24	345
	% within taxon	21.9	26.8	60	54.5	33.1
Incomplete	No.	4	4	1	1	10
	% within taxon	2.4	0.6	0.5	2.3	1
Total	No.	169	645	185	44	1043

Table 4.17 Representation of taxon with loose teeth and teeth in bone

		Material		*Total*
		Loose teeth	*Teeth in bone*	
Equid	No.	198	10	208
	% within taxon	95.2	4.8	100
	% within material	15.2	3.5	13.1
Bos taurus	No.	624	133	757
	% within taxon	82.4	17.6	100
	% within material	47.9	46.3	47.6
Ovis aries	No.	414	74	488
	% within taxon	84.8	15.2	100
	% within material	31.8	25.8	30.7
Sus scrofa	No.	60	56	116
	% within taxon	51.7	48.3	100
	% within material	4.6	19.5	7.3
Canis familiaris	No.	7	14	21
	% within taxon	33.3	66.7	100
	% within material	0.5	4.9	1.3
Total	No.	1303	287	1590
	% within taxon	81.9	18.1	100
	% within material	100	100	100

Anatomical element groups

For cranial material it is obvious that many of the loose teeth derive from toothrows. 54.3% of the teeth (2481 elements), including loose ones, from all taxa could be identified (with varying but usually high degrees of certainty) as belonging together in Groups – for example, based upon the shape of the contact facets between adjacent teeth and their stratigraphic context (see the archive). At the same time, the proportion of teeth in bone for all taxa is only 18.1% with a total of 287 teeth (Table 4.17).

Only 4.7% of the total number of postcranial elements, identifiable and unidentifiable (that is, 957 elements, of which 148 were from one dog) can be assigned to Groups.

Species representation: postcranial material

The faunal assemblage from Thornhill Farm comprises a total of 20,281 postcranial anatomical elements out of which only 9.1% are identifiable to genus (Table 4.18). Almost 90% of all the phased postcranial material recovered came from contexts assigned to the late Iron Age–early Roman period.

Exclusion of uncertain identifications reduced the total percentage of taxa identifiable to the genus level to 8.9%. Considering the low species variability at this site, most uncertain identifications are probably correct at least to the genus level. Most other bones were from medium (sheep/pig size) or large (horse/cow size) taxa. A large proportion, if not the majority, of the postcranial elements were probably from cattle and horse.

Excluding taxa which cannot be identified to the genus level, the postcranial assemblage breaks down as in Table 4.19. Only 1825 postcranial elements are identifiable. 56.1% belong to cattle, the best represented taxon. The equids (mainly horse) are the next most numerous at 16.6%.

Table 4.19 Identifiable taxa

	No.	*%*
Equid	304	16.6
Cattle	1027	56.1
Sheep	247	13.5
Pig	83	4.5
Dog	163	8.9
Heron	1	0.1
Total	1825	100

Most of the dog postcranial elements (148 out of 163) from Thornhill Farm belonged to one skeleton. The dog skeleton, which was at least partially articulated, was buried in a shallow round pit (context 716) on the western edge of trench 7 (Plate 4.1). The feature could not be phased. However, it was cut by the late Roman trackway 301 (context 715) and situated in the middle of two successive subrectangular enclosures: E24 from Period E and E155 from Period F. It is unsure whether the burial was contemporary with any of those features.

Species representation: cranial material

Cranial elements (skull bones and teeth; Table 4.20) were requantified separately, and almost 96% of the phased cranial material was assigned to the late Iron Age–early Roman period. Only a small amount of material was identified to species from

Table 4.18 Taxon frequencies including uncertain identifications

Taxon		*Middle Iron Age*	*Late Iron Age-early Roman*	*Late Roman*	*Medieval*	*Unphased*	*Total*
Horse	No.	14	146	7	1	112	280
	%	1.8	1.3	1.4	7.6	1.4	1.3
Ass	No.	0	2	0	0	0	2
	%	0	0.01	0	0	0	0.01
Equid	No.	4	8	0	0	9	21
	%	0.5	0.1	0	0	0.1	0.1
Cattle	No.	41	540	11	0	433	1025
	%	5.3	4.8	2.3	0	5.4	5
Sheep	No.	1	16	0	0	15	32
	%	0.1	0.1	0	0	0.18	0.1
Sheep/goat	No.	8	125	2	0	80	215
	%	1	1.1	0.4	0	1	1
Pig	No.	4	41	0	0	37	82
	%	0.5	0.3	0	0	0.4	0.4
Dog	No.	1	5	0	0	157	163
	%	0.1	0.04	0	0	2	0.8
Heron	No.	0	1	0	0	0	1
	%	0	0.01	0	0	0	0.004
Medium animal	No.	38	296	8	0	215	557
	%	4.9	2.6	1.7	0	2.7	2.7
Large animal	No.	133	2057	99	2	1504	3795
	%	17.2	18.5	21	15.3	19	18.7
Medium/large animal	No.	525	7870	337	10	5205	13947
	%	68.2	70.8	72	77	65.7	68.7
Small animal	No.	0	1	0	0	0	1
	%	0	0.01	0	0	0	0.004
Total	No.	769	11108	464	13	7767	20121
	%	100	99.9	99	100	98	99.2
Indeterminate	No.	0	5	4	0	151	160
	%	0	0.04	0.8	0	2	0.7
Total	No.	769	11113	468	13	7918	20281

the other phases of occupation, limiting the interpretation of the animal bone assemblage from these phases.

This category of data is rather heterogeneous, including several kinds of material – cranial bone with teeth, cranial bone without teeth, loose teeth and teeth in bone – necessitating descriptive terms quite different than those used for postcranial material. As mentioned above, a large proportion of the teeth from Thornhill Farm are loose: that is, not embedded in bone. Table 4.21 shows that 11.5% of the loose teeth and 52.2% of the cranial bone were unidentifiable to genus. This is because of their very fragmentary state. That 55.8% of the cattle (*Bos)* elements are categorised as cranial bone, while the figure for *Equus* is only 36%, is probably down to the relatively greater ease with which cattle skull fragments – notably horncore – can be identified. That cranial bone identifiability drops even further with sheep and pig is most probably a direct reflection of their relative fragility. The under-representation of sheep and pig elements will be an ongoing refrain in this report.

The comparison of loose teeth with teeth in bone shows that of all the taxa, horse has the fewest teeth in bone 4.8% (Table 4.17). Cattle and sheep are almost equal at 17.6% and 15.2% respectively. Pig and dog have a higher proportion of teeth in bone than the rest, 48.3% and 66.7% respectively, but they are also represented by far fewer specimens. It is also possible that loose dog and pig teeth were simply under-collected by the inexperienced excavators, because many of them are relatively small. Perhaps the best explanation for the high representation of loose horse teeth is simply that they are larger and easier to see than those of the other taxa and thus more likely to be collected.

The Element Unit (ELU)

From the above, it is apparent that 163 postcranial and 71 cranial elements were identifiable as *Canis familiaris*. However, of those, 148 postcranial and 5 cranial elements, in fact, came from a single dog (ie a single group). Table 4.22 shows the number of post-cranial element groups. Overall there were

Table 4.20 Cranial material

Taxon		*Middle Iron Age*	*Late Iron Age -early Roman*	*Late Roman*	*Medieval*	*Unphased*	*Total*
Horse	No.	10	71	2	0	105	188
	%	10.5	2.5	10	0	6.2	0.16
Ass	No.	1	5	0	0	0	6
	%	1	0.1	0	0	0	0.13
Horse/mule	No.	0	12	0	0	3	15
	%	0	0.4	0	0	0.1	0.3
Mule/ass	No.	0	7	0	0	0	7
	%	0	0.2	0	0	0	0.1
Equid-small	No.	0	2	0	0	2	4
	%	0	.0	0	0	0.1	0.1
Equid	No.	1	55	0	0	52	108
	%	1	2	0	0	3	2.3
Cattle	No.	33	1266	8	3	503	1813
	%	34.7	45.7	40	100	29.8	39.6
Sheep	No.	7	22	0	0	29	58
	%	7.3	0.7		0	1.7	1.2
Sheep/goat	No.	9	279	3	0	267	558
	%	9.4	10	15	0	15.8	12.2
Pig	No.	10	87	1	0	61	159
	%	10.5	3.2	5	0	3.6	3.4
Dog	No.	0	55	0	0	17	72
	%	0	2	0	0	1	1.5
Medium animal	No.	0	25	0	0	11	36
	%	0	1	0	0	0.6	0.7
Medium/large animal	No.	9	240	0	0	360	609
	%	9.4	8.6	0	0	21.3	13.3
Large animal	No.	15	570	6	0	277	868
	%	15.7	20.5	30	0	16.4	19
Total	No.	95	2696	20	3	1687	4501
	%	100	97.4	100	100	100	98.4
Indeterminate	No.	0	71	0	0	0	71
	%	0	2.6	0	0	0	1.5
Total		95	2767	20	3	1687	4572

very few, and of all the taxa considered here, the equids are represented proportionally by more postcranial bone groups than the others. This suggests that their bones were less disarticulated and dispersed than those of other animals.

Table 4.23 demonstrates that a higher proportion of cranial elements are in groups. That is unsurprising, as many are simply teeth in jaws. Additionally, equids, cattle and sheep have rather similar proportions of loose teeth (77.8–80.7%). As mentioned previously, this probably relates to variation in recovery patterns.

Table 4.24 aggregates the cranial and postcranial data in order to obtain a better idea of the ratios of the main taxa to one another. It is first of all worth noting that, except for dog, the cranial representation of the smaller taxa (sheep and pig) is considerably greater than that for the larger taxa (horse and cattle; Figure 4.14). This disparity is likely to have taphonomic origins. Teeth are denser than bone and thus more likely to be preserved. It is worth remembering that the figures for dog are greatly influenced by the fact that most elements (5 cranial and 148 postcranial) came from one individual.

Given our admittedly inadequate data, the best estimate of the ratios of the main taxa to one another are in the last row of Table 4.24 and in the cranial + postcranial columns of Figure 4.14.

Anatomical element representation

Sheep bone survivorship

The sample of sheep is small, and of 197 anatomical elements only 114 were postcranial. Nevertheless, of the three taxa from Thornhill Farm for which the Brain (1981) method has been used, sheep best fit the expected pattern.

We can see in Table 4.25 and Figure 4.15 that while the percentage survival of teeth from Thornhill Farm is almost as high as that of the

Table 4.21 Representation of material by taxon (simplified)

		Material				
		Loose Teeth	Teeth in bone	Bone with teeth	Cranial bone	Total
Indeterminate	No.	169			1416	1585
	% within Taxon	10.7			89.3	100
	% within Material	11.5			52.2	34.7
Equid	No.	198	10	2	118	328
	% within Taxon	60.4	3	0.6	36	100
	% within Material	13.5	3.5	2	4.3	7.2
Cattle	No.	624	133	44	1012	1813
	% within Taxon	34.4	7.3	2.4	55.8	100
	% within Material	42.4	46.3	44	37.3	39.7
Sheep	No.	414	74	28	100	616
	% within Taxon	67.2	12	4.5	16.2	100
	% within Material	28.1	25.8	28	3.7	13.5
Pig	No.	60	56	23	20	157
	% within Taxon	37.7	35.2	14.5	12.6	100
	% within Material	4.1	19.5	23	0.7	3.5
Dog	No.	7	14	3	47	71
	% within Taxon	9.9	19.7	4.2	66.2	100
	% within Material	0.5	4.9	3	1.7	1.6
Total	No.	1472	287	100	2713	4572
	% within Taxon	32.2	6.3	2.2	59.3	100
	% within Material	100	100	100	100	100

Table 4.22 Quantification of grouped and ungrouped postcranial material

	Equid	Cattle	Sheep	Pig	Dog
Frequency: ungrouped elements	206	849	230	83	15
Frequency: groups	32	57	7	0	1
ELUs: ungrouped elements + groups	238	906	237	83	16
% ungrouped elements	86.6	93.7	97.0	100.0	93.8
% taxon ELUs	16.1	61.2	16.0	5.6	1.1

Table 4.23 Quantification of grouped and ungrouped cranial material

	Equid	Cattle	Sheep	Pig	Dog
Frequency: ungrouped elements	99	624	318	57	4
Frequency: groups	28	149	91	32	9
Total: ungrouped elements + groups	127	773	409	89	13
% ungrouped elements	78.0	80.7	77.8	64.0	30.8
% taxon ELUs	9.0	54.8	29.0	6.3	0.9

Table 4.24 Quantification of grouped and ungrouped cranial and postcranial material

	Equid	Cattle	Sheep	Pig	Dog	Total
Total cranial (loose + groups)	127	773	409	89	13	1411
Total postcranial (loose + groups)	238	906	237	83	16	1480
Total cranial + postcranial	365	1679	646	172	28	2890
% cranial elements	34.8	46.0	63.3	51.7	44.8	48.8
% taxon ELUs (cranial + postcranial)	12.6	58.1	22.4	6.0	1.0	

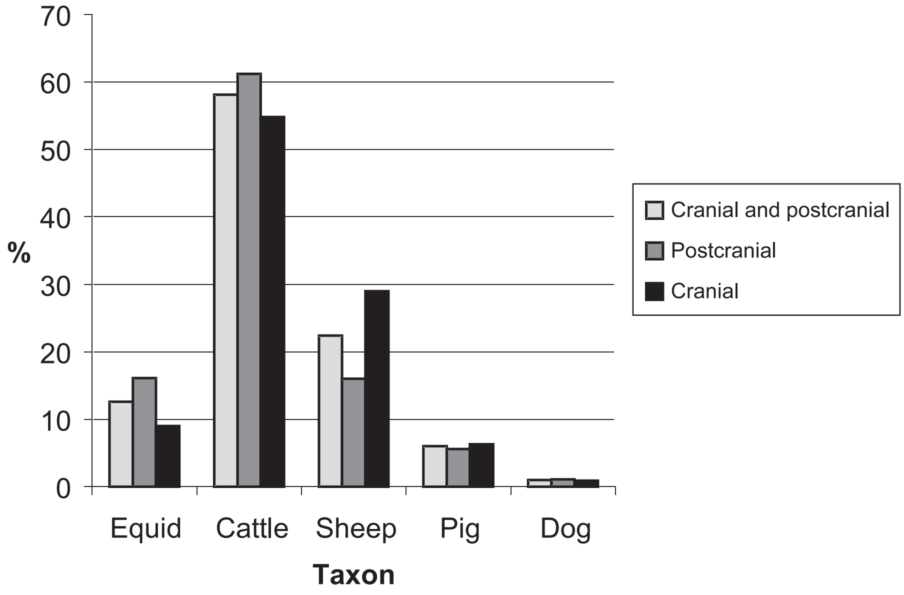

Fig. 4.14 Taxon element units

Table 4.25 Comparison of differential element representation: Kuiseb Bushman goats and Thornhill Farm sheep

Anatomical element	*Kuiseb goats (MNI = 64)*			*Thornhill Farm sheep (MNI = 47)*		
	Number found	*Original number*	*% survival*	*Number found*	*Original number*	*% survival*
Half-mandibles[1]	117	128	91.4	83	94	88.3
Humerus, distal	82	128	64.0	8	94	8.5
Tibia, distal	72	128	56.3	9	94	9.6
Radius and ulna, proximal	65	128	50.8	9	94	9.6
Metatarsal, proximal	39	128	30.4	12	94	12.8
Scapula	35	128	27.4	7	94	7.4
Pelvis, half	34	128	26.6	6	94	6.4
Metacarpal, proximal	32	128	25.0	8	94	8.5
Axis vertebrae	14	64	21.9	4	47	8.5
Atlas vertebrae	12	64	18.8	0	47	0.0
Metacarpal, distal	23	128	18.0	2	94	2.1
Radius and ulna, distal	22	128	17.2	3	94	3.2
Metatarsal, distal	20	128	15.6	3	94	3.2
Femur, proximal	18	128	14.1	6	94	6.4
Astragalus	16	128	12.5	3	94	3.2
Calcaneus	14	128	10.9	3	94	3.2
Tibia, proximal	13	128	10.1	4	94	4.3
Lumbar vertebrae	31	384	8.1	5	282	1.8
Femur, distal	9	128	7.0	3	94	3.2
Cervical 3-7 vertebrae	12	320	3.8	5	235	2.1
Thoracic vertebrae	21	832	2.5	5	611	0.8
Sacrum	1	64	1.6	0	47	0.0
Phalanges	21	1536	1.4	9	1128	0.8
Humerus, proximal	0	128	0.0	0	94	0.0

[1] There is no way to estimate with any pretence to accuracy how many half mandibles were originally present at Thornhill Farm. I have, therefore, decided to use the minimum number of animals represented by the teeth instead (36 left, 47 right). Ribs are excluded since they cannot be reliably identified at Thornhill Farm.

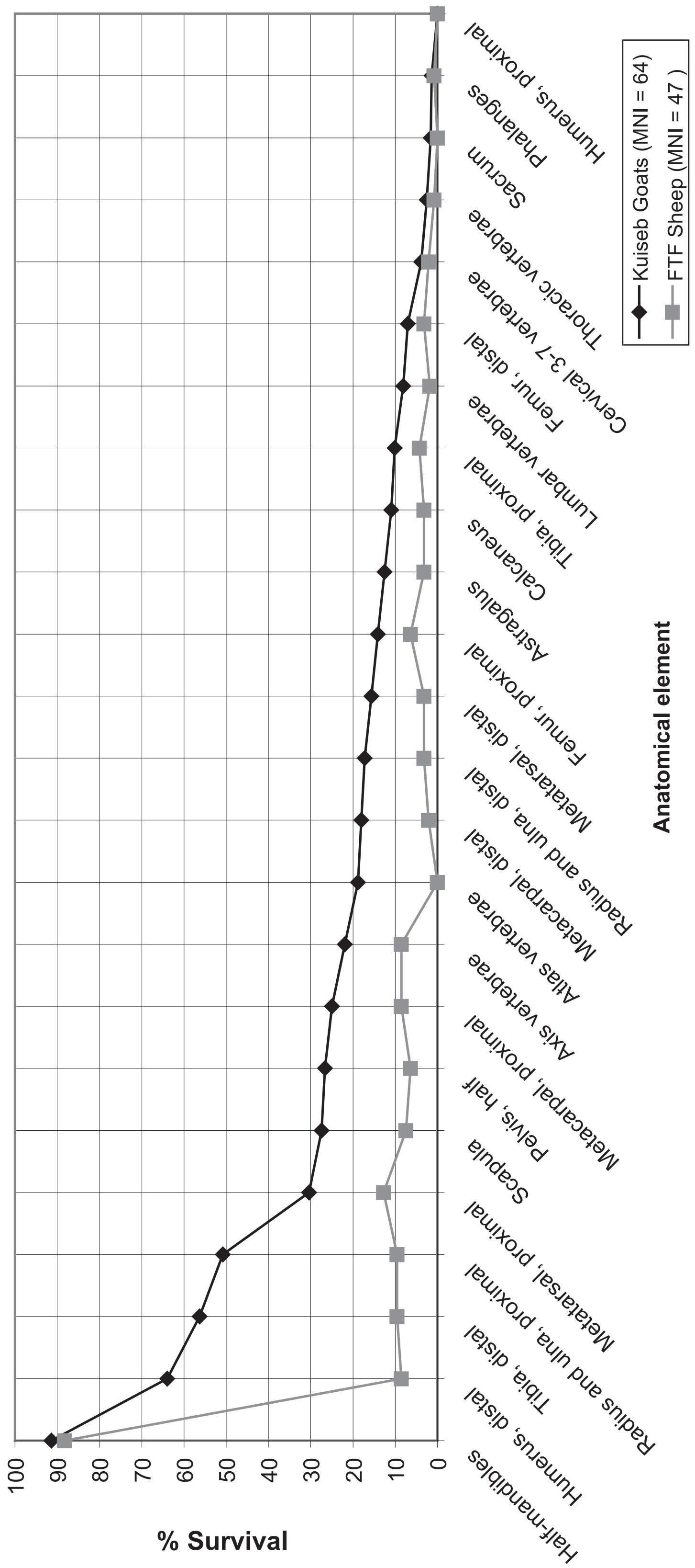

Fig. 4.15 Percentage survival of caprines from Thornhill Farm and Kuiseb

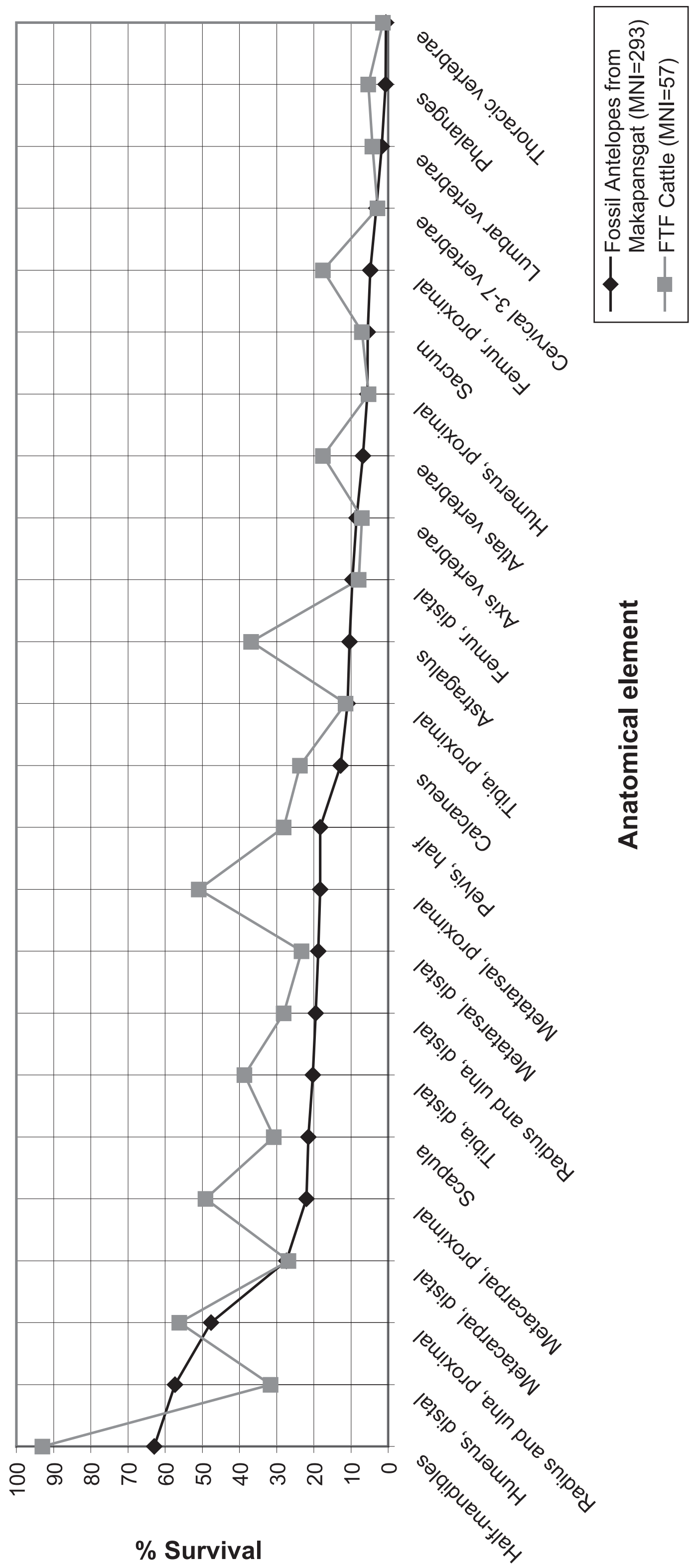

Fig. 4.16 Thornhill cattle survival compared with Makapansgat

Kuiseb jaws, the preservation state of all the other anatomical elements is consistently worse. However, the trend of the two samples is generally similar, suggesting that the Thornhill Farm material might well have had a taphonomic history not very different from that of the African material. On the one hand, the two taxa, sheep and goats, are anatomically very similar and, on the other hand, the evidence suggests that, as with the Kuiseb material, the Thornhill Farm sample came from animals which were butchered for human consumption, exposed to gnawing by dogs, and were probably trampled by both people and livestock. That the Thornhill Farm sheep were preserved at all is probably due to their eventual burial. The much greater age and poor preservation conditions would be enough to explain the much worse state of the material from Thornhill Farm.

Groups

Only relatively few sheep bones were found in groups. Some were reconstructed broken bones, but four probable groups apparently comprised butchery units: Group 25, a metapodial and two first phalanges of newborn or fetal lamb; Group 92, two thoracic vertebrae; Group 93, the axis and cervical vertebrae, and Group 94, the axis and two cervical vertebrae.

Butchery

It is worth keeping in mind the poor surface condition of the postcranial material from Thornhill Farm when discussing butchery marks. Many of the marks present at the time of their disposal would have been lost due to the poor preservational conditions.

Only six postcranial and one cranial sheep elements show any evidence of butchery marks. Knife cuts to the femur, metacarpal, metatarsal and astragalus are probably all associated with disarticulation. Two cervical vertebrae (3–7), which probably belonged in a group (94) with an axis, were both chopped across the transverse plane. Only one was chopped through. A third cervical vertebra was chopped through diagonally. The chop mark on the horncore could relate to the removal of the horn for working or access to the brain.

Cattle bone survivorship

As with sheep, the sample size for cattle is relatively small. By comparison with Brain's (1981) data (Fig. 4.16), certain anatomical elements are under-represented (for example, distal humerus, distal metacarpal and proximal tibia), while others are over-represented (perhaps proximal metatarsal, proximal femur and astragalus). There could be a number of noncultural explanations for these discrepancies: the palimpsest of activities which resulted in the Thornhill Farm assemblage (eg tool making), the heterogeneity of the comparative assemblage, or the differences in age structure of the two assemblages. For the latter, the young age of the Thornhill Farm cattle assemblage may have an effect (63% of the cattle were 2–3 years of age or less at their death). For a younger population, the later fusing bones may preserve less well and be under-represented.

These explanations do not account for all the differences in the pattern of element representation between the two assemblages, as, for example, there is a relative under-representation of the distal humerus.

In addition to the Brain method, it is useful to compare the ratios of various anatomical elements to one another, to see if any informative patterns manifest themselves (Table 4.26). As predicted by Brain, with one exception, there is a clear relationship between the proximal:distal frequency ratio and the age of epiphyseal fusion of the proximal and distal epiphyses. If the proximal fusion age is greater than the distal fusion age the ratio is less than 1.0, and if the proximal fusion age is smaller, the ratio is greater than 1.0, except for the femur. The proximal and distal fusion ages are about the same for the femur, but the ratio is 2.22, with the proximal end much better represented than the distal end. It is possible that the cattle proximal end of the femur, especially the head, is significantly denser than the distal end in spite of its late fusion date. There is some reason to believe that this is true for bison (Lyman 1994, 245).

By adding the humerus to the radius, and the femur to the tibia, we can see that the representation of proximal and distal ends for fore and hind limbs is not very different (Table 4.27). This table also

Table 4.26 Comparison of the proportions of proximal to distal ends of cattle long bones

Anatomical element	*Proximal end*	*Distal end*	*Prox/dist ratio*	*Age of proximal fusion*	*Age of distal fusion*
Humerus	6	36	0.17	3.5-4y	12-20m
Radius	64	32	2.00	12-18m	3.5-4y
Metacarpal	56	16 (30.5)	1.84	fetal	2-2.5y
Femur	20	9	2.22	3.5-4y	3.5-4y
Tibia	13	44	0.30	3.5-4y	2-2.5y
Metatarsal	58	12 (26.5)	2.19	fetal	2-2.5y

Fusion ages from Grigson 1982

indicates that the anterior limb is rather better represented than the posterior, a matter which might, however, be explained with reference to the relatively late fusion dates of the posterior limb bone epiphyses.

Table 4.27 Comparison of upper anterior and posterior cattle long bones

Upper limb bones	*Proximal end*	*Distal end*	*Total prox + dist*
Humerus + radius	70	68	138
Femur + tibia	33	53	86
Total	103	121	

There is no clear distribution pattern in the metapodials either. The proximal (early fusing) metacarpal and metatarsal are both well and almost equally represented (56:58). The distal ends (later fusing) are not so well represented (16:12), partly because fragmented distal ends may only be identifiable as metapodials. When the 29 distal metapodials are equally distributed between anterior and posterior limbs the ratio raises to 30.5:26.5.

There is no straightforward explanation for the small differences between Brain's distribution of antelope and the Thornhill Farm cattle. The data suggest that all anatomical elements were originally present and that all stages of carcass processing, consumption and disposal took place at the site. This

Table 4.28 Differential element representation: Jaurens horses and Thornhill Farm equids

	Fossil horses from Jaurens (MNI=46)[1]			*Thornhill Farm equids (MNI=18)[2]*		
Part[3]	*No. found*	*Original no.*	*% survival*	*No. found*	*Original no.*	*% survival*
3rd Metacarpal - proximal	39	92	42.4	13	36	36.1
3rd Metatarsal – distal	37	92	40.2	12	36	33.3
3rd Metacarpal – distal	36	92	39.1	12	36	33.3
Tibia – Distal	34	92	37.0	18	36	50.0
3rd Metatarsal – proximal	34	92	37.0	18	36	50.0
Phalanges	200	552	36.2	14	216	6.5
Astragalus	33	92	35.9	7	36	19.4
Calcaneum – proximal	33	92	35.9	5	36	13.9
Calcaneum – distal	33	92	35.9	7	36	19.4
Accessory metapodials	122	368	33.2	9	144	6.3
Radius – distal	27	92	29.3	6	36	16.7
Atlas	13	46	28.3	0	18	0.0
Axis	13	46	28.3	1	18	5.6
Tarsals[4]	97	368	26.4	13	144	9.0
Innominate[5]	23	92	25.0	26	36	72.2
Patella	23	92	25.0	0	36	0.0
Carpals	160	644	24.8	5	252	2.0
Radius – proximal	22	92	23.9	10	36	27.8
Humerus – distal	21	92	22.8	9	36	25.0
Sesamoids	113	552	20.5	0	216	0.0
Scapula – distal	18	92	19.6	7	36	19.4
Cervical vertebra[6]	45	230	19.6	2	90	2.2
Lumbar vertebra	39	276	14.1	1	108	0.9
Tibia – proximal	12	92	13.0	8	36	22.2
Ulna – proximal	11	92	12.0	9	36	25.0
Humerus – proximal	8	92	8.7	2	36	5.6
Femur – proximal	7	92	7.6	6	36	16.7
Thoracic vertebra	57	828	6.9	0	324	0.0
Femur – distal	6	92	6.5	7	36	19.4
Coccygeal vertebra	33	828	4.0	0	324	0.0
Sacrum	1	46	2.2	3	18	16.7
Fibula	1	92	1.1	0	36	0.0

1 Jaurens data and MNI from Mourer-Chauviré 1980
2 Includes mule/ass
3 Excludes shafts except more or less complete unfused diaphyses. Teeth and mandibles (upon which the MNIs are based) are not included because the number of teeth per individual varies by age and the population structures of the two sites are very different
4 Except astragalus and calcaneum which are recorded separately
5 Including at least part of the acetabulum
6 Except the atlas and axis, which are included separately

Table 4.29 Comparison of the proportions of proximal and distal ends of equid long bones

Anatomical element	*Proximal end*	*Distal end*	*Prox/dist ratio*	*Age of proximal fusion*[1]	*Age of distal fusion*
Humerus	2	9	0.22	3.5y	15-18m
Radius	10	6	1.67	15-18m	3.5y
Metacarpal	13	12	1.08	fetal	10-15m
Femur	6	7	0.86	3-3.5y	3.5y
Tibia	8	18	0.44	3.5y	2y
Metatarsal	18	12	1.50	fetal	10-15m

[1]Ages from Sisson and Getty 1975

is to be expected at a site where animal husbandry was a subsistence (rather than commercial) activity.

Groups
Only a relatively few cattle bones were found in groups (see archive). The vast majority comprised either broken bones, which could be reconstructed, or fused radii and ulnae. Only two groups included separate anatomical elements, which clearly belonged to a single individual. Both groups, consisting of lower limb bones, are likely to have been connected with the earliest stages of butchery or skinning (Halstead *et al.* 1978).

Butchery evidence
Only 47 cattle postcranial and 11 cranial elements have butchery marks, probably due to the poor surface condition of the bone.

The poor representation of the axis (4 bones) by comparison with the atlas (10 bones) could have a cultural explanation. If chopping through the axis were the way cattle were customarily decapitated, the resulting damage might have weakened the whole bone sufficiently to prejudice its preservation. In fact, no butchery marks are visible on any of the cattle axes. However two atlases do bear marks: one had been chopped through the median plane, cranio-caudally, as if for cutting into sides, rather than through the transverse plane for decapitation. The knife cuts on the ventral surface of the second atlas could have been related to the disarticulation of the skull.

Other butchery marks on postcranial cattle bone are, for the most part, the result of disarticulation, defleshing and skinning. Cut and chop marks on the horncores probably relate to the removal of the horncores, probably to utilise the horn. Cut marks on the mandibles mainly seem to result from skinning, but some may be connected to the disarticulation of the mandible from the maxilla or removal of the cheek flesh for consumption.

Equid bone survivorship

Comparison of Thornhill Farm with Jaurens suggests that the preservation conditions at the two sites were very different (Table 4.28 and Figure 4.17). These differences appear to be much greater than those found between sheep, cattle and their respective comparative populations described by Brain (1967, 1969, 1981). As noted for cattle, the different age structures of the two equid populations might be partly responsible, but other factors almost certainly play a more significant role.

The Thornhill Farm equid long bones (proximal radius, central metapodials, tibia, humerus, ulna and femur) have a similar representation to the Jaurens long bones, with the exception of the distal radius. The scapula are present in expected quantities, but the pelvis is very over-represented. It is difficult to account for this except perhaps to point out that there is a difference in the degree of fragmentation between the two sites, with the possibility that some Thornhill Farm elements are over-represented on account of their higher level of fragmentation. The low representation of vertebrae, accessory metapodials, patellae and fibulae at Thornhill Farm is not unexpected in an assemblage where the preservation state is so poor. There is also a low representation of relatively small, but very dense bones: phalanges (especially the first phalange), carpals and tarsals (especially the astragalus) and sesamoids. The phalange ratio – first : second : third – at 7 : 5 : 2 correlates with their relative sizes; that is, the first is largest and the third is smallest. This seems to indicate that some kind of taphonomic agent could be relevant.

As with cattle, there is a clear relationship between the proximal:distal frequency ratio and the age of epiphyseal fusion of the proximal and distal epiphyses (Table 4.29). If the proximal fusion age is greater than the distal fusion age, the ratio is less than 1.0, and if the proximal fusion age is smaller, the ratio is greater than 1.0. Except for the distal tibia (which will be discussed below), the best represented anatomical elements – the metapodials – are also the earliest fusing. This pattern is best explained by natural taphonomic agents, and cannot therefore be attributed to cultural activities.

Comparison of the anterior and posterior upper limb bones shows that the back leg posterior (39 elements) is better represented than the front (27 elements; Table 4.30). Further scrutiny shows that this is because of the high numbers of distal tibiae. For the lower leg the ratio of early fusing fore and hind metapodials is close to 1:1. This suggests that bone density was the most important determinant of bone preservation. The sample sizes involved

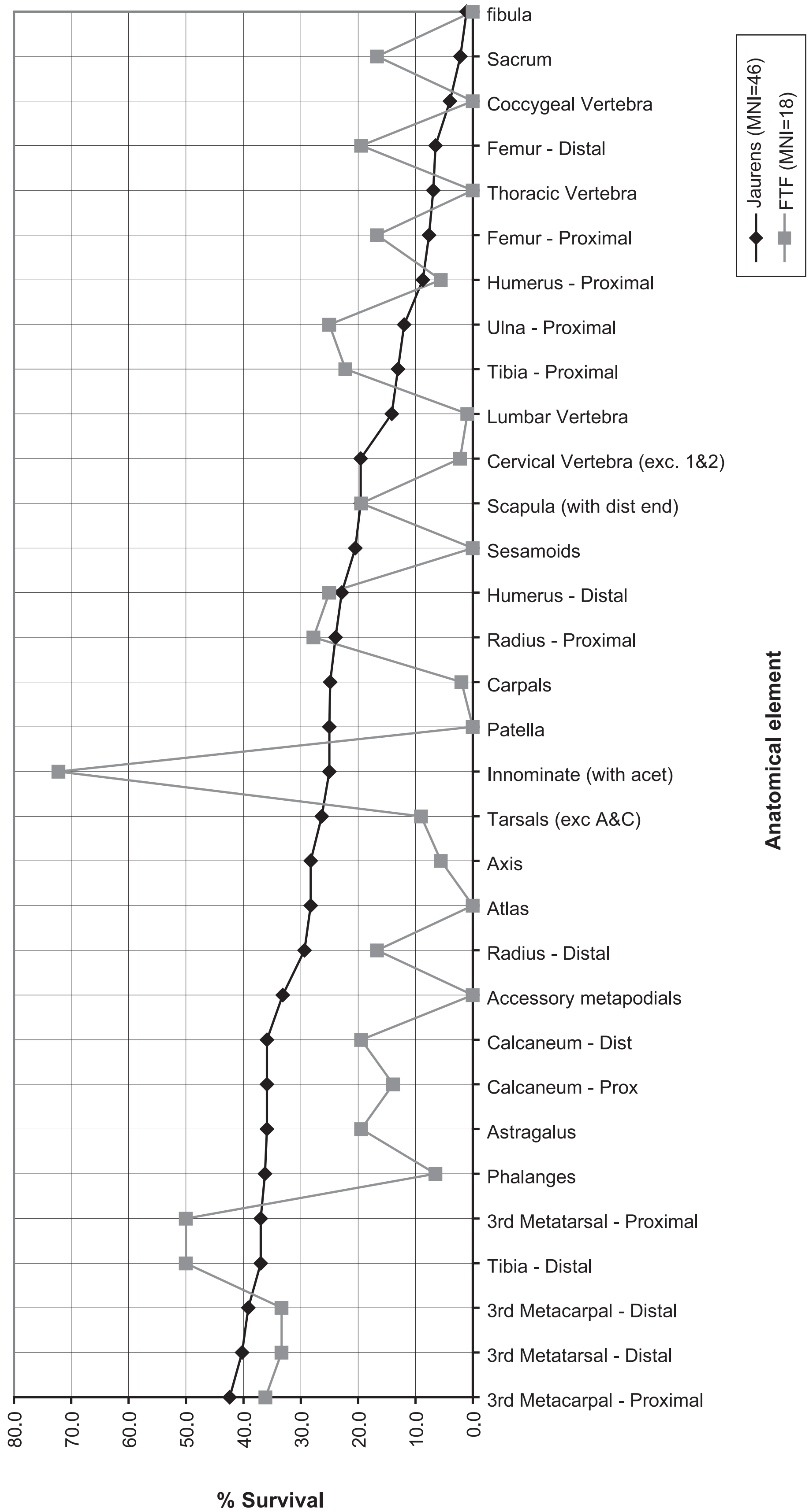

Fig. 4.17 Jaurens and Thornhill Farm equid percentage survival

Table 4.30 Comparison of anterior and posterior equid long bones

	Proximal end	*Distal end*	*Total prox + dist*
Humerus + radius	12	15	27
Femur + tibia	14	25	39
Total	26	40	-

here are not very large, but one could speculate that the over-representation of tibia could be connected with some sort of cultural behaviour. As we shall see later, tibiae were, in fact, worked at Thornhill Farm.

Groups

Few Thornhill Farm equid bones were found in articulation. Grouped elements were largely limited to metapodials, accessory metapodials and the radius and ulna. There were, however, four other more interesting groups which suggest that at least some of the equid skeletons could have been at least partially disarticulated before they were discarded. The lower limb bone groups could be associated with the initial stages of butchery for meat or with skinning (Halstead *et al.* 1978). The tibia groups could have more complex explanations, especially considering the fact that a relatively large proportion of them have evidence of butchery bone working.

Worked and butchered equid bones

Only a very small proportion (2%) of the equid bones have butchery marks. Of the six butchered equid bones, three tibiae showed chop, saw or drill marks. A fourth tibia had cut marks, as did an astragalus (which articulates with the distal tibia). It is possible that the fourth tibia had originally been destined for working, but was discarded instead. The cut marks on this bone could also relate to skinning, but meat preparation seems less likely. The only other equid elements with butchery marks were a first phalange and a partial pelvis. The first phalange, a non-meat bearing bone, seems to have been cut in the course of skinning. It is difficult, however, to think of any other explanation for the cut marks on the pelvis aside from butchery for meat.

Discussion of equid taphonomy

The Thornhill Farm equid bones are relatively less fragmented and more are complete than those of the cattle, and the vast majority of the bones show no evidence of having been worked or butchered. This suggests a lower utilisation of horse meat compared to cattle meat, for whatever purpose. We have no definite evidence that any of the horses were consumed by humans, although that cannot be ruled out. Nor is there any reason to believe that any horses were buried intact as they were in some Roman military sites in the Netherlands (Lauwerier and Robeerst 2001) and at Icklingham (late Roman, Suffolk; unpubl.), as no complete or partially articulated skeletons were recovered.

Some of the horses were partially butchered after death, almost certainly for hides and possibly for meat. Some of their bones were exposed to carnivore gnawing, and others used for tool fabrication. The long bones, in particular, were then disposed of more or less in the same way as the bones of other taxa. There is no evidence that horses received any special treatment after death at Thornhill Farm. The standard processing of horse carcasses after death for both the hides and meat appears consistent with Iron Age and early Roman sites such as Farmoor, Oxon. (Wilson 1979), Ashville Trading Estate (Wilson 1978) and Danebury (Grant 1991).

Pig bone survivorship

The pig assemblage at Thornhill Farm is very small with only 159 cranial elements (an ELU of 89) and 83 postcranial elements (an ELU also of 83), of which 32 are shaft pieces. No postcranial elements are in groups and none are worked. One scapula shows evidence of butchery, probably connected with disarticulation.

Population structure

One of the best ways of understanding past human-animal relationships is to study the population structure – that is, the age and sex structure – of the economically important animals in archaeological assemblages.

The ageing data for each of the main taxa are presented in the form of mortality distributions.

Large equids

The crown height measurements reveal that the Thornhill Farm material is similar in size to the New Forest and Pleistocene material; they are slighter larger than the Forest Pony teeth and rather smaller than the late Pleistocene teeth. The mule/ass teeth are excluded from this analysis because too little is known about their eruption/wear and crown-heights to age them with any degree of reliability.

Figure 4.18 shows the age structure of the teeth from Thornhill Farm when each tooth is plotted individually, while Figure 4.19 shows the age structure when the teeth are plotted as ELUs – that is, tooth rows are plotted as a unit rather than as individual teeth. The first method would suffice if we believed that every tooth from the site had an equal chance of being preserved and collected, which is not the case. Plotting teeth from jaws together has the advantage of more accurate ageing, and it is likely that jaws are more likely to be recovered than loose teeth. The number of tooth rows (or ELU) frequencies in any individual age class are very small, ranging from only 1 to 9.7 ELUs. Such a small sample size would certainly be an important factor in the jaggedness of the distribution.

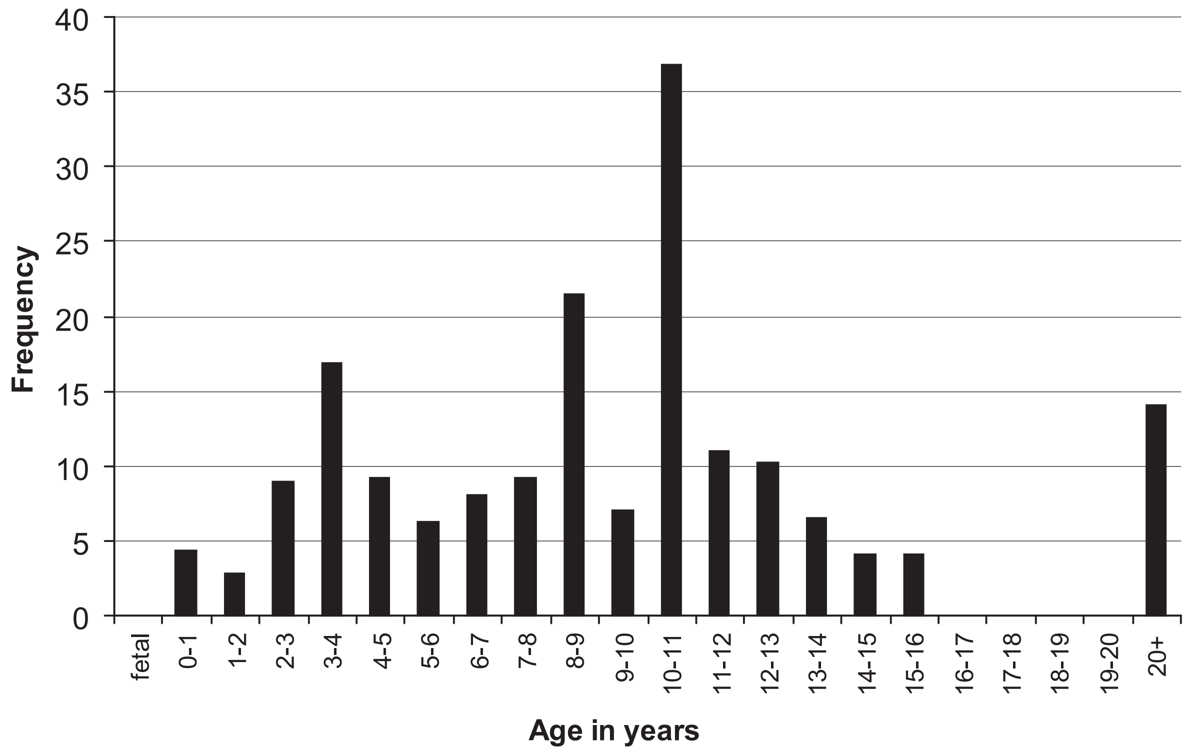

Fig. 4.18 Large equid mortality distribution (counting each tooth individually)

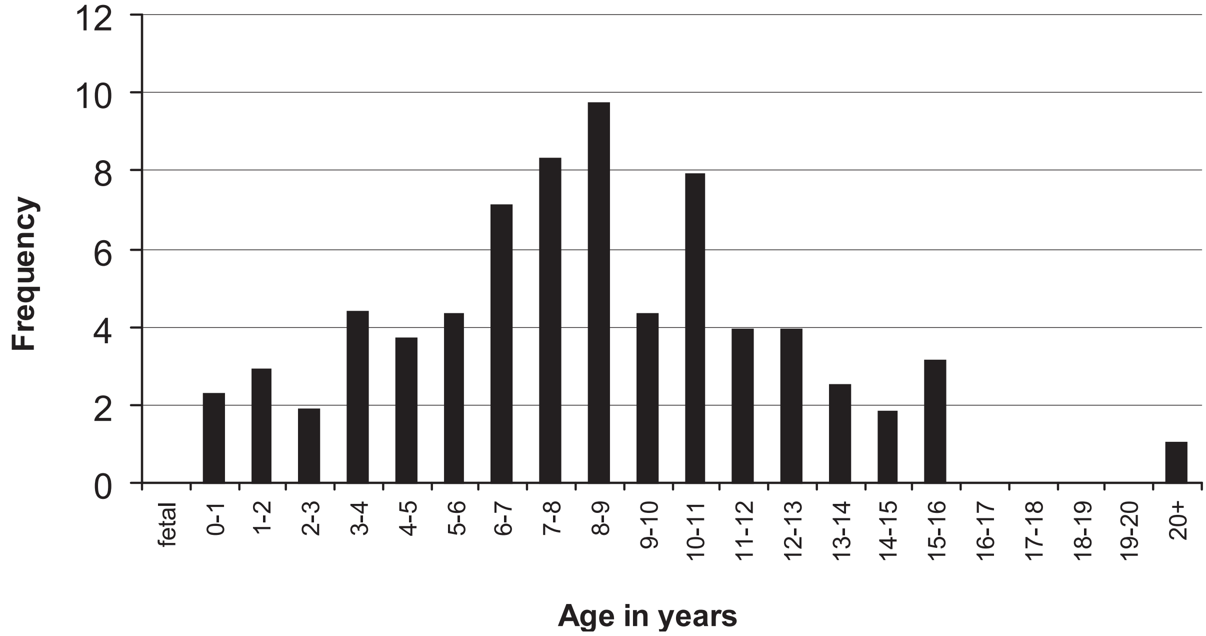

Fig. 4.19 Large equid mortality distribution (teeth aggregated by group)

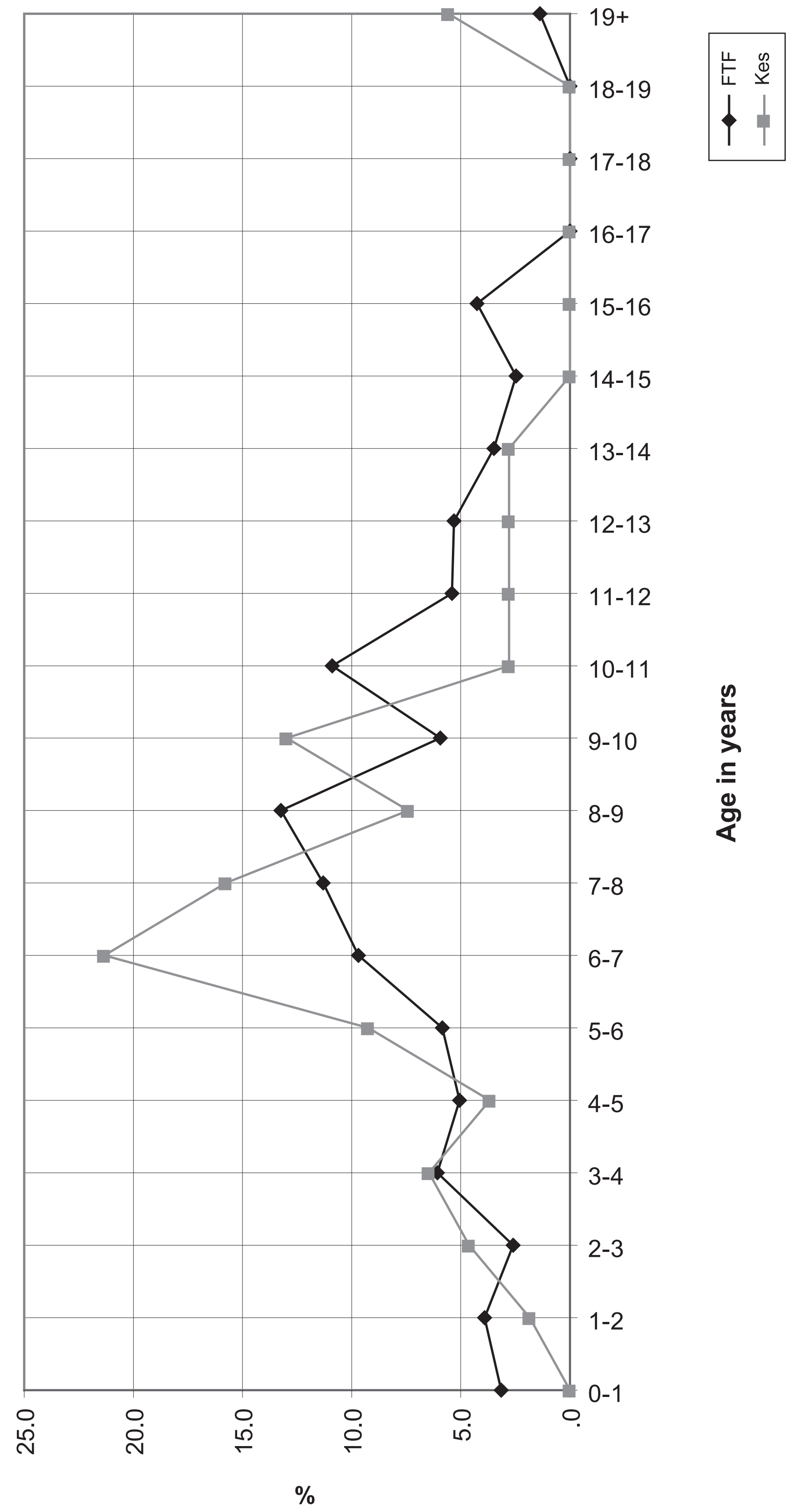

Fig. 4.20 Equid mortality distributions

The majority of the large equids (73.4%) died at an age expected for work animals, 6–7 years of age or older. If we compare age distribution to the available mortality models for equids (Figure 4.21; Levine 1983; 1999b), the Thornhill Farm data best fits the attritional model. In this the mortality is low for mature adults and high for juveniles and senescents (Caughley 1966). This kind of pattern is characteristic of natural attrition, scavenging, coursing on foot and livestock husbandry, where meat production is of secondary importance.

Due to the high number of horse bones in addition to the recovery of elements from immature animals there has been some speculation in the past that Thornhill Farm might have been a stud farm (Miles and Palmer 1990). There is, in fact, no evidence for this and much evidence against it. Had Thornhill Farm been used as a stud farm, the sex and age structure should have been quite different. There should be more evidence of infant and juvenile (0–2 years of age) mortality – even taking into account the poor preservation conditions – and the mortality rate for animals between the ages of 5 and 15 years should be very low indeed (Levine 1999a and b). This was not the case at Thornhill Farm. The sex ratio was calculated from the small number of sexable pelves, and suggested a male:female ratio of 3:4. Ethnographic evidence suggests that if horses are kept to provide meat and milk, the ratio of stallions to mares is around 1:50, thus Thornhill Farm has none of the characteristics of a stud farm.

Ann Hyland, in *Equus, the horse in the Roman world*, argues that Roman equids commonly sustained injuries that would have been caused by poor living conditions and gross overwork (1990, 59). She estimates that a horse was only expected to last about 3 years in active military service and on average 4 years as a post horse (*op cit.* 86, 88). Moreover, the breeding period was also comparatively abbreviated, with mares being considered past their prime at 10 years of age, though some did breed until 15 (*op cit.* 238). The relatively high incidence of pathology (see Appendix 4), as well as the population structure, seem to confirm this pattern both at Thornhill Farm and the Kesteren cemetery in the Netherlands (Fig. 4.20; Lauwerier and Hessing 1992).

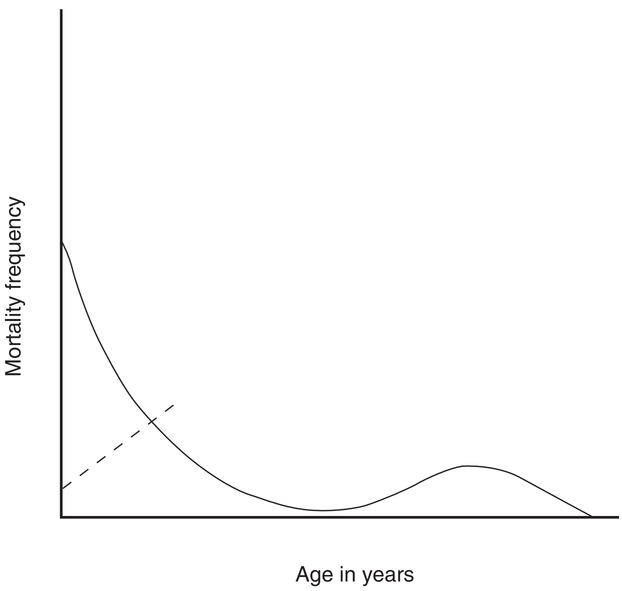

Fig. 4.21 Attritional model of age structure

In conclusion, the population structure at Thornhill Farm suggests that the large equids were used primarily as work animals. The taphonomic evidence suggests that after death some equid bone, hides and possibly meat were also used, but these uses were of secondary, and possibly, minor importance. There is no reason to believe that the site was ever used as a stud farm.

Equid identification

Equus caballus (the true horse) and *Equus asinus* (the ass) are both present at Thornhill Farm. Mules (male asses crossed with female horses) and/or hinnies (female asses crossed with male horses) might also be present. Positive identifications of the hybrids are exceedingly difficult to make at the best of times, since the differences between them and their progenitors are relatively subtle and overlap at both ends of their ranges of variation (for example, see Eisenmann and Beckouche 1986; Zeder 1986; Eisenmann and Baylac 2000). Very little research has been done on this problem and very few specimens are available for study.

The difficulties at Thornhill Farm are magnified by the small sample size and poor preservation of the material. In some cases *E. caballus* identifications can be made with considerable certainty, particularly in the case of cheekteeth. Tables 4.31 and 4.32 show the frequencies of records for cranial and postcranial material as assigned to taxon. Each anatomical element is counted separately whether or not it belongs to a group. A more detailed breakdown suggests that there is considerably more uncertainty with cranial than postcranial elements, but that is not entirely true: even the ‘Certainty’ variable is only relative.

The tables (4.31 and 4.32) suggest that *E. caballus* is likely to be by far the most important taxon, but we really do not know enough about the hybrids to judge the use and importance of mules and hinnies.

At the extreme ends of the range of variation it seems clear that both ass and horse were present. However, where sufficient data are available, the size range clines almost without interruption from one extreme to the other (taking into account the small sample sizes available). A series of photographs were taken to compare the Thornhill Farm equid bones (tibiae, metacarpals and metatarsals) with one another, and with an *Equus asinus* from the Department of Archaeology collections (specimen number 123, from Greece) and with two New Forest ponies (all data can be found in the archives).

Table 4.31 Breakdown of equid cranial elements

	No.	%
E. caballus	188	57.3
E. asinus	6	1.8
Horse/mule	15	4.6
Mule/ass	7	2.1
Equid-small	4	1.2
Equid	108	32.9
Total	328	100

Table 4.32 Breakdown of equid postcranial elements

	No.	%
E. caballus	281	92.4
E. asinus	2	0.7
Equid	21	6.9
Total	304	100

Like the long bones, the teeth of the various equids are very difficult to distinguish from one another. Attempts to do so have been described in considerable detail elsewhere, always with the caveat that the various species and their hybrids overlap in form (Eisenmann and Beckouche 1986; Zeder 1986; Eisenmann and Baylac 2000). It is significant that, as cheekteeth age, the pattern of enamel folds upon which the distinctions are based becomes progressively more simplified and less diagnostic. The teeth illustrated in the archive all seem to have at lease some noncaballine characteristics. Most significantly, while the caballine linguaflexid is usually U-shaped, some Thornhill Farm specimens are V-shaped like asses (Eisenmann 1986). The Thornhill Farm size range might indicate that some of those animals were hybrids.

Cattle

The cattle mortality distributions (Fig. 4.22) have been plotted using only mandibular ELUs. The ELU frequency at 210 is considerably greater than that for large equids. The category for fetal–0 does not, in fact, include any definitely fetal teeth, but only those which could be fetal (for example, fetal to one month old). As with equids, there is little doubt that immature individuals are under-represented at Thornhill Farm.

Figure 4.23 shows the adjusted and unadjusted mortality distributions (percentages) for the cattle at Thornhill Farm (see Appendix 5). It is interesting to compare this age distribution with mortality data derived from Dahl and Hjort's 'baseline herd model' (Fig. 4.24) where the population of a herd is stable and the age structure static. The examples they used in the development of the model are largely from African nomadic pastoralists, raising cattle primarily for milk and blood and secondarily for meat (Dahl and Hjort 1976). There is no discussion of their use as work animals, although the use of bullocks as pack animals is mentioned.

Both the Dahl and Hjort model and the Thornhill Farm distribution best fit an attritional mortality model (Figure 4.21; see Large equids). They differ from one another, however, in that the Thornhill Farm distribution suggests that a much higher proportion of animals were slaughtered before 4 years of age and a much lower proportion after 8 years of age. The low proportion of animals greater than 8–9 years of age suggests that meat production

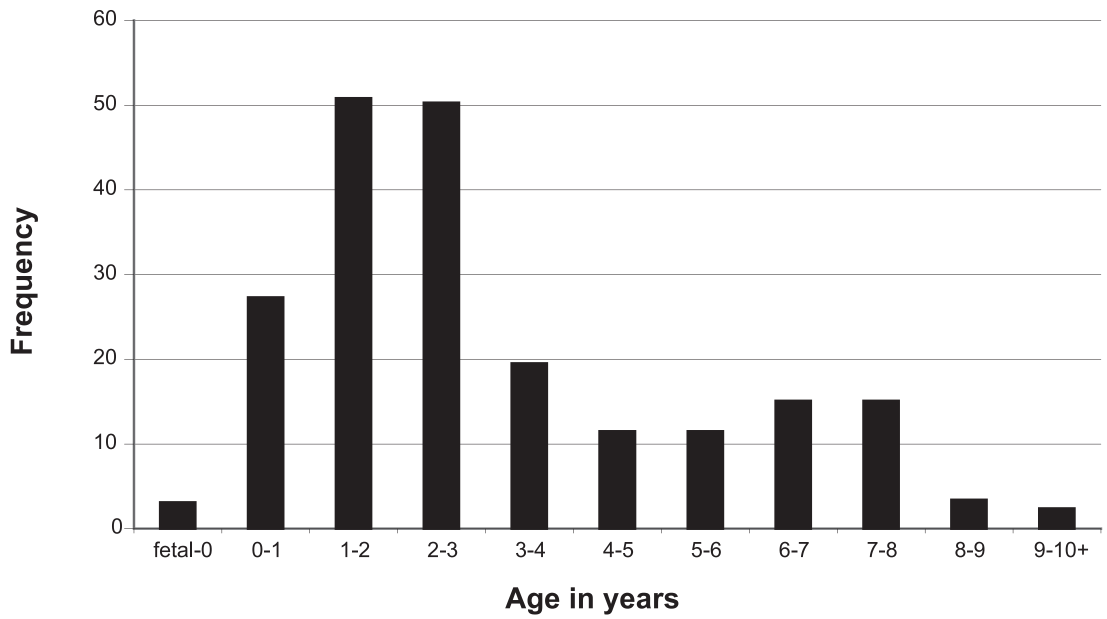

Fig. 4.22 Cattle mortality distribution – ELU frequencies

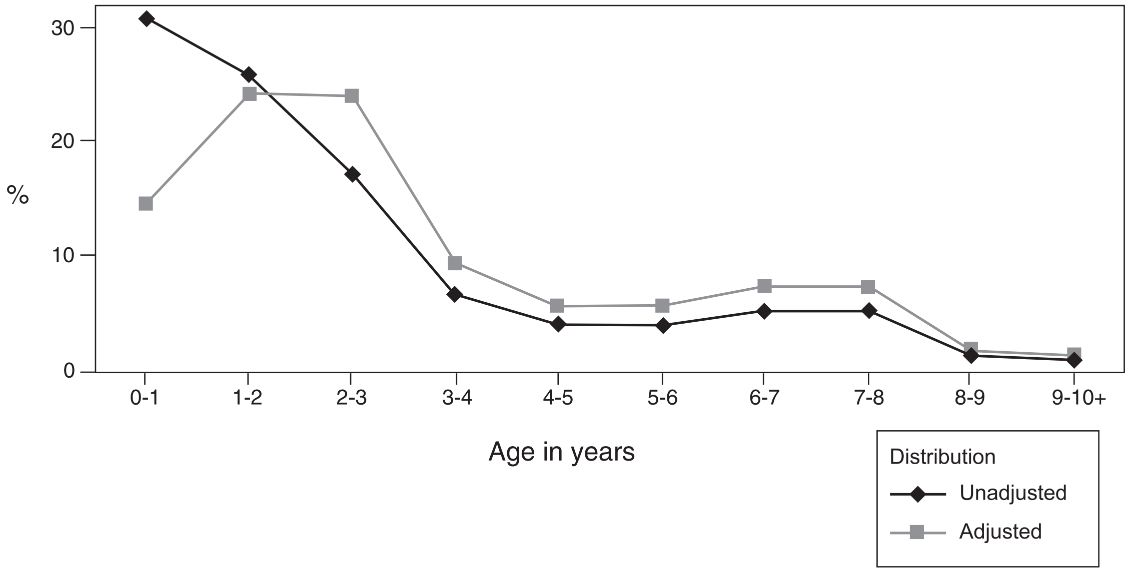

Fig. 4.23 Age structure of cattle from Thornhill Farm – unadjusted and adjusted for under-representation of immature animals

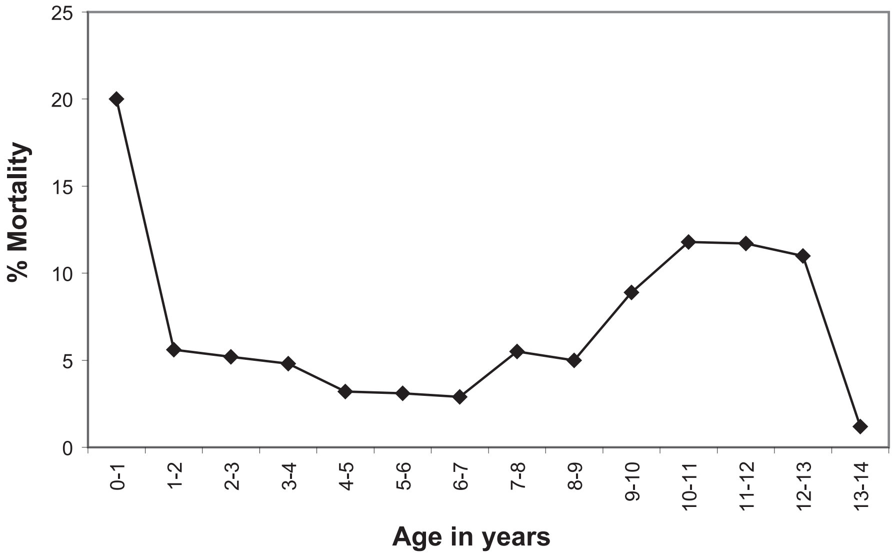

Fig. 4.24 Cattle mortality based upon Dahl and Hjort's 'base line herd model'

is of primary importance. Dahl and Hjort suggest that bullocks, raised for meat, would normally be slaughtered at around the age of 4–5 years, since they would, by that time, be fully grown (Dahl and Hjort 1976, 157).

According to Dahl and Hjort's baseline herd model, productive female cattle are rarely slaughtered. However, especially where herd growth is not desired, female as well as male young surplus to the maintenance requirements of the herd could be butchered. In the case of a fixed settlement, like Thornhill Farm, available grazing might not have been sufficient to allow a herd to grow at its maximum rate. The preservation state of the bones was such that no attempt was made to calculate the male:female ratio.

The presence of teeth from individuals 1–3 months of age, suggests that some cattle were bred on-site, although their remains are probably under-represented due to poor preservation. It is possible that some calves were brought to Thornhill Farm. The animals were fattened and butchered between the ages of 1–2 and 3–4 years, or a smaller number might have been kept on to be used for traction and were butchered mainly between the ages of 6–7 and 8–9 years. The cows would have been kept on until a decline in fertility, perhaps from the ages of 10 to 12 years or even earlier, depending upon their nutri-

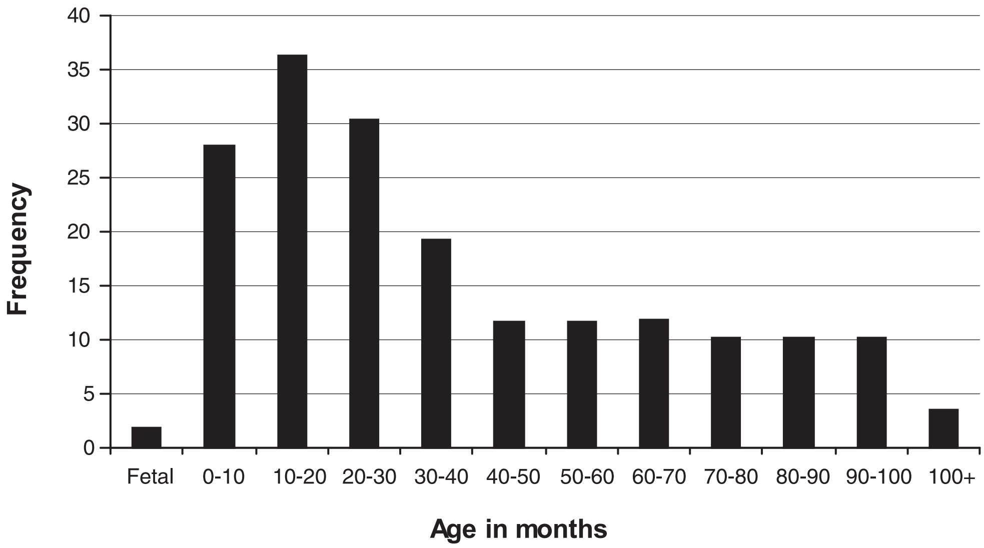

Fig. 4.25 Sheep mortality distribution: ELU frequencies

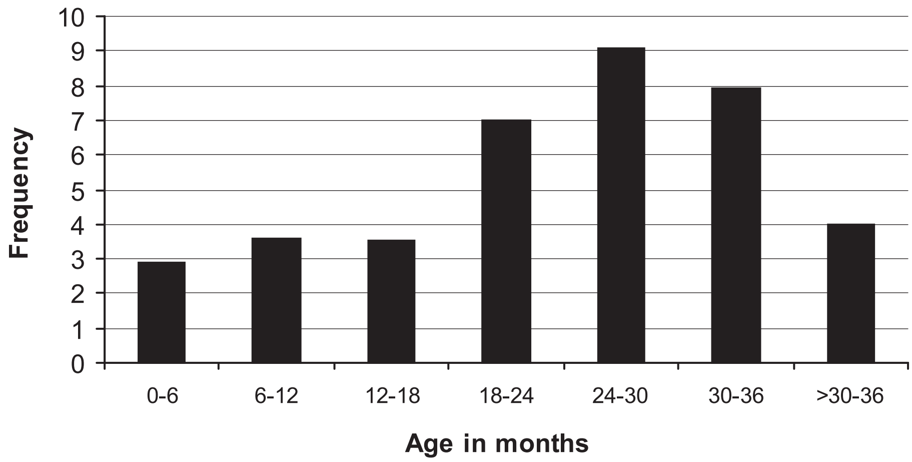

Fig. 4.26 Pig mortality distribution: ELU frequencies

tional status, and were then probably butchered for meat (Dahl and Hjort 1976). Draught cattle, which might have comprised cows, bulls and/or oxen could have been worked, as suggested by Stokes, till around the age of 6 to 8 and then butchered for meat.

That such a high proportion of cattle died, presumably slaughtered, between the ages of 1–2 and 3–4 years might suggest that relatively little surplus meat would have been available to sell. Unfortunately we do not have the means to investigate this question further.

Sheep

The sheep mortality distribution is shown in Figure 4.25. The mandibular ELU frequency is 185, less than the cattle but more than horse. The fetal category does not include any definitely fetal teeth, but only those which could be fetal (for example, fetal to 10 months of age). These teeth are grouped with teeth 0–10 months old.

As with the equids and cattle, there is little doubt that immature sheep are under-represented at Thornhill Farm. The age structure for Thornhill Farm best fits Payne's model for a mortality distribution in which meat production is the primary objective (Payne 1973), with the majority of animals dying between 10 and 40 months (about one to three years).

Pig

The pig ELU distribution has been plotted using the same method as for the other taxa (Fig. 4.26). With an ELU of 38, the maxillary and mandibular pig sample is very small indeed. The pigs at Thornhill Farm are relatively short-lived, as is usual for this species which is raised primarily for meat (Dobney *et al.* 1996). As with the other Thornhill Farm taxa, immature pigs are under-represented at this site, although the vast majority died by the age of 3 years. This seems to be a normal pattern for British Iron Age/Roman domesticated pig populations (Halstead 1985; Levine 1986; Levine 1995; Maltby 1996). Because they are usually used primarily for meat and hides, and because of their high fecundity by comparison with the rest of our taxa, there is usually no advantage in keeping pigs past their third year, and sometimes considerable advantage in butchering them earlier.

Discussion

by Bethan Charles

At Thornhill Farm, in order of importance, the animal bones consist of cattle (58%), sheep (22%), equids (13%), pig (6%) and dog (1%). After separating the identified material by phase the majority was assigned to the late Iron Age–early Roman period of occupation. As we have already seen, the preservation of the bones is generally very poor. It is likely that the small taxa are certainly disproportionately affected by all the taphonomic agents involved in the destruction of animal bone at this site: poor soil conditions, secondary or even tertiary redeposition in ditches and other recut features with pottery from mixed periods, and the presence of dogs at the site. The absence of sieving and the nonsystematic nature of the bone collection will also have led to the serious under-representation of small species, and small or immature bones of both large and small taxa (Payne 1972; Brain 1981; Payne and Munson 1985; Munson 2000). Therefore the ratio of horse/cow to sheep/pig should not be taken at face value.

Studies of the species proportions in late Iron Age–early Roman samples from the Upper Thames Valley by Ellen Hambleton (Hambleton 1999, 59) have demonstrated that there is a general increase in the number of cattle, possibly as a result of Romanisation. It is not possible to compare variations in animal husbandry techniques at this site during separate periods of occupation due to the predominance of material from one phase. However, other similar late Iron Age and early Roman sites in the region such as Ashville Trading Estate, Abingdon (Wilson 1978), Farmoor (Wilson 1979) and Bicester Fields Farm (Charles, in Cromarty *et al.* 1999) have shown an increase in the proportion of cattle being kept at sites during the late Iron Age and early Roman periods in comparison with earlier periods of occupation.

The location of Thornhill Farm close to the Upper Thames Valley floodplain indicates that whilst the settlement itself was on a well-drained gravel island, at least some of the land around the site may have been wet and marshy. This may not have provided ideal conditions for sheep, which are better suited to dryer conditions and are prone to suffer from foot rot on wet sites. The presence of the snail *Lymnea truncatula* which is the immediate host of sheep fluke in early Roman deposits (see below) may also have discouraged the large scale farming of sheep.

Horses and cattle are less susceptible to these diseases. Both require a good supply of water and do not like to feed on short turf, which implies that they would have been suited to the lower, wetter pastureland surrounding the settlement area. Additional environmental evidence indicating that much of the site was pastureland can be drawn from the remains of the coleoptera identified from the site. Scarabaeoid dung beetles which feed on the dung of large herbivores under pastureland conditions were found to be the most numerous identified from the site (see below).

The cattle age structure data from Thornhill Farm confirm the impression left by the taphonomic study that the site had, for the most part, a subsistence level of economy. Meat and possibly milk products surplus to the settlement's requirements could have been taken to market, but we have no evidence for this on-site. The cattle appear to have been bred on site, with a proportion being butchered between the ages of 1 and 4 years, and the remaining animals probably being kept for breeding or for work as draught cattle before being slaughtered at the end of their useful lives.

Oxen were the most important animals for ploughing and haulage (Langdon 1986). The Romanian draught oxen studied by Bartosiewicz and Van Neer (1997, 18) ranged in age from 6 to 19 years, with a mean age at death of 10.5 years. The training of oxen in Estonia and Lithuania usually started at 3 years of age, and in Finland by 1.5–2 years (*op cit*., 120). At the end of their working lives draught oxen were often fattened up and slaughtered for meat: 'traditions of exploitation at the beginning of the last century … dictated that Hungarian Grey oxen be regularly slaughtered before 10 years of age when the beef they provided was still of reasonably good quality' (*op cit*., 121).

The equids at the site appear to have been primarily used as work animals, although no associated horse trappings were found. According to Langdon (1986), until well after the collapse of the Western Roman Empire, for practical purposes, equid traction was limited to asses and mules. However, at Thornhill Farm the evidence is inconclusive. Evidence of partial disarticulation of the bones indicates that at least some of the horses may have been slaughtered for their meat and hides, although the ages of the horses, with few young animals recovered, does not indicate that the animals were being bred on the site.

It is probable that the sheep kept at the site were kept primarily for their secondary products (wool, milk and dung). However, the evidence available was not conclusive. The pigs at the site were clearly kept primarily for their meat.

It is evident that there were dogs kept at the site, even though the majority of the bones came from one animal. It is possible that the dog burial found at the site represents a ritual deposition, although there were no finds associated with the skeleton, and it was not clearly related to any surrounding features. As previously mentioned, the presence of dogs at the site will have affected the distribution and survival of many of the animal bones discarded across the site. It is likely that the dogs were working animals, kept for hunting, herding and to guard.

No wild mammals were identified from within the assemblage although this is not conclusive evidence that wild animals were not being eaten. Wild species have not been found in particularly high quantities at other late Iron Age and Early Roman sites in the region such as Gravelly Guy (Mulville and Levitan forthcoming), Farmoor (Wilson 1979), and Ashville, Abingdon (Wilson 1978). The lack of bird and fish remains is almost certainly a result of the poor bone preservation. It is possible that the single heron bone recovered from the site does not relate to human activity and may be the result of a natural fatality. However, heron bones have been found at a number of other Iron Age sites, including Gravelly Guy (Mulville and Levitan forthcoming), Danebury (Serjeantson 1991) and Gussage All Saints (Harcourt 1979).

The site appears to have been based around subsistence farming, although the relatively high number of horse bones recovered may indicate that the site was of some higher status, since the animals would have been expensive to keep, with little in return in terms of secondary products.

THE PLANT AND INVERTEBRATE REMAINS

by Mark Robinson

The Iron Age to early Roman settlement at Thornhill Farm was situated on the first gravel terrace of the Thames, above the confluence of the Rivers Thames and Coln and about 0.75 km upstream from a contemporaneous settlement at Claydon Pike. Although the settlement showed many similarities with Claydon Pike, the environs of Thornhill Farm were less low-lying. Whereas the late Iron Age settlement at Claydon Pike was on an island of first gravel terrace surrounded by broad late Glacial floodplain hollows, the area of uninterrupted gravel terrace at Thornhill Farm was more extensive. This late Glacial system of channels extended as far as Thornhill Farm, some channels containing humified peat, but its hollows of floodplain had become relatively narrow (Plate 4.2). As was the case at Claydon Pike, these channels had ceased to flow or even hold water long before the Iron Age.

Plate 4.2 Section through palaeochannel in Trench 22 showing layer of humified peat

The water table of the site was about 1.2 m below the surface of the gravel and many of the deeper Iron Age and Roman features contained moderately preserved organic remains. Extensive sampling took place throughout the duration of the excavation for waterlogged and carbonised plant and insect remains.

The samples

A total of 57 samples from phased contexts were floated for carbonised plant remains. Ten litres of each sample was floated onto a 0.5 mm mesh and the flots were dried. The flots were spread out, scanned under a binocular microscope and, if necessary, sorted in detail. The flots were also scanned for mollusc remains.

Subsamples of the 32 potentially waterlogged samples were investigated, and eight of the samples were found to contain reasonably well-preserved organic remains. 250 g of each sample was water-sieved down to 0.2 mm and sorted for noncarbonised macroscopic biological remains. In view of the abundance of *Juncus* seeds, which are very small, only a tenth subsample of the fraction between 0.5 mm and 0.2 mm was sorted for seeds and their number was then multiplied by ten for inclusion in the table of results. Insect remains were most abundant and best preserved in Sample 706/A. A further 2.75 kg of this sample was washed over a 0.2 mm sieve and then subjected to paraffin flotation. After washing with hot water and detergent, the flot was sorted for insect remains. Sorted waterlogged plant remains and insects were stored in 70% ethanol. Mollusc shells were dried to await identification. Specimens were identified with reference to the various collections housed in the University Museum, Oxford.

Details of those contexts for which sample results are individually listed are given in Table 4.33.

Results

The identifications from the samples have been listed in Tables 4.34–40.

Carbonised plant remains

The identifications of carbonised plant remains (excluding charcoal) for the six samples in which ten or more items were identified have been listed separately in Table 4.34. The results for all the remaining samples have been summed by period in Table 4.35. Nomenclature follows Clapham *et al.* (1987).

Waterlogged macroscopic plant remains

The results for the identification of waterlogged seeds are given in Table 4.36 and the identifications of other waterlogged plant remains are given in Table 4.37. Wood was absent from the samples. Nomenclature follows Clapham *et al.* (1987). All samples were of 250 g.

Coleoptera

Table 4.38 gives the minimum number of individuals represented by the fragments in Sample 706/A and the total number of individuals represented by the minimum number of individuals from Samples 101/D/4, 324/B/2, 473/A/4, 803/D, 2287/B and 2530/A. Nomenclature follows Kloet and Hincks (1977).

Table 4.33 Samples analysed for plant and invertebrate remains with results presented individually

Context	*Trench*	*Feature type*	*Enclosure/structure*	*Period*	
101/D/4	7	ditch	E9	E	Early Roman
101/Q/3	7	ditch	E9	E	Early Roman
108/C/3	7	ditch	E7	F*	Early Roman
110/H/8	7	roadside ditch	301	G	Early Roman
111/E/1	7	gully	E6	F*	Early Roman
189/1	7	hearth	-	C/D*	Late Iron Age-early Roman
206/B/3	7	pit/gulley	E8	?	Late Iron Age
324/B/2	7	ditch	E30	F	Early Roman
473/A/4	7	pit	-	A-B*	Middle-late Iron Age
706/A	7	pit	E23	C	Late Iron Age
803/D	8	ditch	E120	A	Middle Iron Age
2084/B	9	ditch	S201	C	Late Iron Age
2239/F	9	ditch	E49	D	Early Roman
2287/B	9	ditch	E48	D	Early Roman
2530/A	9	pit	-	C*	Late Iron Age
2620/A/11	south of 8	trackway ditch	trackway	D-F	Early Roman

*Phase uncertain

Table 4.34 Carbonised plant remains for samples in which ten or more items were identified (excluding charcoal)

		Late Iron Age				*Early Roman*	
Period		*C*	*?*	*C/D*	*D*	*E*	*F*
Context		*2084/B*	*206/B/3*	*189/1*	*2239/F*	*101/Q/3*	*111/E/1*
Sample Volume (litres)		*10*	*10*	*10*	*10*	*10*	*10*
CEREAL GRAIN							
Triticum spelta L.	Spelt Wheat	1	-	-	-	-	-
Triticum sp.	Wheat	1	-	-	-	-	1
cf. *Avena* sp.	Oats	-	-	-	-	-	1
cereal indet.		9	-	-	1	-	3
Total Cereal Grain		11.0	0.0	0.0	1.0	0.0	5.0
CHAFF							
Triticum spelta L. - glume base	Spelt Wheat	2	-	-	-	1	-
T. dicoccum Schübl. or *spelta* L. - glume base	Emmer or Spelt Wheat	2	1	-	3	2	1
Avena sp. - awn	Oats	-	-	-	-	-	1
Total Cereal Chaff (excluding awns)		4.0	1.0	0.0	3.0	3.0	1.0
WEED SEEDS							
cf. *Ranunculus* sp.	Buttercup	-	-	1	-	-	-
Barbarea vulgaris R. Br.	Yellow Rocket	2	-	-	-	-	-
Atriplex sp.	Orache	-	1	-	-	4	-
Medicago lupulina L.	Black Medick	-	-	-	1	-	-
Vicia or *Lathyrus* sp.	Vetch, Tare etc	1	-	-	-	-	-
Potentilla sp.	Cinquefoil	-	-	-	-	2	-
Polygonum aviculare agg.	Knotgrass	1	-	-	-	-	-
Fallopia convolvulus (L.) Löve	Black Bindweed	-	-	-	-	1	-
Rumex sp.	Dock	2	-	25	-	1	2
Sherardia arvensis L.	Field Madder	-	-	-	-	1	-
Galium aparine L.	Goosegrass	1	-	1	2	-	2
Centaurea sp.	Knapweed	-	-	-	1	-	-
Juncus effusus gp.	Tussock Rush	-	-	-	-	13	-
Eleocharis S. Palustres sp.	Spike-rush	1	1	-	-	-	-
Carex spp.	Sedge	41	8	5	-	52	-
Gramineae indet.	Grass	-	1	-	3	1	-
Weed Seed indet.		3	1	3	1	1	-
Total Weed Seeds		52.0	12.0	35.0	8.0	76.0	4.0
OTHER REMAINS							
Juncus inflexus L. - stem fragments	Hard Rush	-	-	-	-	+	-
No. of Items/Litre (excluding awns and *Juncus* stems)		6.7	1.3	3.5	1.2	7.9	1.0

+ present

Other insects

Table 4.39 gives the results for the identification of other insects following the arrangement used for Table 4.38.

Mollusca

The only waterlogged sample to contain a significant quantity of molluscan remains was Sample 324/B/2. The minimum numbers of individuals from this sample (of 250 g) are given in Table 4.40. Mollusc shells were abundant in some of the flots for carbonised plant remains, particularly the early Roman ditches of Trench 7. The presence of shells in a range of flots has also been given in Table 4.40. Nomenclature follows Kerney (1976) for freshwater molluscs and Waldén (1976) for land snails.

The origin of the assemblages

The survival of organic remains in the deeper features suggests that they would have held stagnant water when they were open. The seeds show that some of the ditches had developed an aquatic flora. Seeds of the water plant *Ranunculus S. Batrachium* (water crowfoot), *Nasturtium officinale* (watercress), *Apium nodiflorum* (fool's watercress) and *Glyceria* sp. (flote grass) were abundant in Sample 324/B/2 (Table 4.36). This sample contained a slum aquatic molluscan fauna (Table 4.40). Many

Table 4.35 Carbonised plant remains for samples in which less than ten items were identified (excluding charcoal)

		Iron Age				*Early Roman*			
Period		*Middle*	*Mid/Late*	*Late*	*Late*				
		A	*A/B*	*C*	*?*	*C/D, E*	*C/E, E*	*F*	*EG, G*
Total Number of Samples		*1*	*1*	*8*	*1*	*13*	*12*	*16*	*5*
Number of Samples with Items		*1*	*1*	*3*	*1*	*8*	*3*	*9*	*2*
Total Sample Volume (litres)		*10*	*10*	*80*	*10*	*130*	*120*	*160*	*50*
CEREAL GRAIN									
Triticum spelta L.	Spelt Wheat	-	-	1	-	-	-	-	-
Triticum sp.	Wheat	-	-	1	-	1	-	1	-
Hordeum sp.	Barley	-	-	-	-	1	-	1	-
cf. *Avena* sp.	Oats	-	-	-	-	2	-	1	-
cereal indet.		-	-	15	-	2	1	7	1
Total Cereal Grain		0	0	17	0	6	1	10	1
CHAFF									
Triticum spelta L. - glume base	Spelt Wheat	-	-	2	-	3	1	1	-
T. dicoccum Schübl. or *spelta* L. - glume base	Emmer or Spelt Wheat	-	-	2	1	-	2	-	-
Avena sp. - awn	Oats	-	-	-	-	-	-	1	-
Avena sp.	Oats	-	-	-	-	1	-	-	-
cereal indet. rachis fragment		-	-	-	-	1	-	-	-
Total Cereal Chaff (excluding awns)		0	0	4	1	5	3	1	0
WEED SEEDS									
cf. *Ranunculus* sp.	Buttercup	-	-	-	-	1	-	-	-
Barbarea vulgaris R. Br.	Yellow Rocket	-	-	2	-	-	-	-	-
Atriplex sp.	Orache	-	-	-	1	-	4	-	-
Chenopodiaceae gen. et sp. indet.		1	-	-	-	-	-	-	-
Medicago lupulina L.	Black Medick	-	-	-	-	1	-	-	-
Vicia or *Lathyrus* sp.	Vetch, Tare etc	-	-	1	-	-	-	-	-
Potentilla sp.	Cinquefoil	-	-	-	-	-	2	-	-
Polygonum aviculare agg.	Knotgrass	1	-	1	-	-	-	-	-
Fallopia convolvulus (L.) Löve	Black Bindweed	-	-	-	-	1	1	-	-
Rumex sp.	Dock	1	-	3	-	25	1	4	-
Hyoscyamus niger L.	Henbane	-	-	-	-	1	-	-	-
Glechoma hederacea L.	Ground-ivy	-	-	-	-	-	1	-	-
Sherardia arvensis L.	Field Madder	-	-	1	-	-	-	-	-
Galium aparine L.	Goosegrass	-	-	1	-	3	1	2	1
Carduus or *Cirsium* sp.	Thistle	-	-	-	-	-	-	1	-
Centaurea sp.	Knapweed	-	-	-	-	1	-	-	-
Juncus effusus gp.	Tussock Rush	-	-	-	-	-	13	-	-
Eleocharis S. *Palustres* sp.	Spike-rush	-	-	1	1	-	-	1	-
Carex spp.	Sedge	-	2	41	8	5	52	1	-
Gramineae indet.	Grass	-	-	-	1	3	1	3	-
Weed Seed indet.		1	-	3	1	4	1	4	-
Total Weed Seeds		4	2	54	12	45	77	16	1
OTHER REMAINS									
Juncus inflexus L. - stem fragments	Hard Rush	-	-	-	-	-	+	-	-
No. of Items/Litre (excluding awns and *Juncus* stems)		0.40	0.20	0.94	1.30	0.43	0.68	0.17	0.04

+ present

Table 4.36 Waterlogged seeds

		No. of Seeds							
		Iron Age				*Early Roman*			
Period		*Middle*	*Mid/Late*	*Late*	*Late*				
		A	*A/B*	*C*	*C*	*D*	*E*	*F*	*D/F*
Context		*803/D*	*473/A/4*	*706/A*	*2530/A*	*2287/B*	*101/D/4*	*324/B/2*	*2620/A/11*
Ranunculus cf. *acris* L.	Meadow Buttercup	2	-	-	-	1	-	-	1
R. cf. *repens* L	Creeping Buttercup	1	-	5	2	-	-	4	-
R. parviflorus L.	Small-flowered Buttercup	-	-	-	-	1	-	-	-
R. flammula L.	Lesser Spearwort	-	-	-	2	-	-	1	-
Ranunculus S. *Batrachium* sp.	Water Crowfoot	14	-	-	-	-	-	31	1
Papaver rhoeas L., *dubium* L., *lecoqii* Lam. or *hybridum* L.	Poppy	-	-	-	-	-	-	-	1
P. argemone L.	Poppy	-	-	3	1	-	1	1	-
Brassica rapa L. ssp. *sylvestris* (L.) Jan.	Wild Turnip	-	-	1	-	-	1	-	-
Coronopus squamatus (Forstr.) Asch.	Swine Cress	-	-	-	-	-	-	4	-
Thlaspi arvense L.	Field Penny-cress	-	-	1	-	-	-	-	-
Nasturtium officinale R. Br.	Water Cress	-	-	-	-	-	-	10	-
Viola S. *Viola* sp.	Violet	1	-	-	-	-	-	-	-
Hypericum sp.	St John's Wort	10	-	-	1	-	-	-	-
Cerastium cf. *fontanum* Baug.	Mouse-ear Chickweed	-	-	-	-	1	-	2	-
Stellaria media gp.	Chickweed	4	1	7	1	3	1	7	-
Sagina sp.	Pearlwort	-	-	10	10	-	-	-	-
Arenaria sp.	Sandwort	-	10	-	30	-	-	-	-
Montia fontana L. ssp. *chondrosperma* (Fenz.) Walt.	Blinks	-	-	-	-	-	-	1	-
Chenopodium polyspermum L.	All-seed	4	-	-	-	-	-	-	-
C. album L.	Fat Hen	-	1	1	-	1	-	1	-
C. cf. *rubrum* L.	Red Goosefoot	-	-	-	-	3	3	64	-
Atriplex sp.	Orache	-	1	1	-	3	1	2	4
Chenopodiaceae gen. et sp. indet.		-	-	-	-	1	-	-	1
Linum catharticum L.	Dwarf Flax	14	-	1	-	1	-	-	1
Medicago lupulina L.	Black Medick	-	-	2	-	-	-	-	-
Filipendula ulmaria (L.) Maxim.	Meadowsweet	-	-	-	-	-	-	-	2
Rubus fruticosus agg.	Blackberry	-	-	-	1	2	-	-	-
Potentilla anserina L.	Silverweed	1	-	11	-	-	1	2	-
P. cf. *reptans* L.	Creeping Cinquefoil	7	-	1	14	8	-	2	-
Potentilla sp.	Cinquefoil	-	-	-	-	-	-	-	1
Aphanes arvensis L.	Parsley-piert	-	-	-	-	1	-	-	-
Callitriche sp.	Starwort	-	-	-	-	-	-	1	-
Hydrocotyle vulgaris L.	Pennywort	-	-	-	-	3	-	-	-
Anthriscus caucalis Bieb.	Bur Chervil	-	-	1	-	1	3	9	-
Conium maculatum L.	Hemlock	-	-	-	-	-	-	1	-
Apium nodiflorum (L.) Lag.	Fool's Parsley	-	1	-	-	-	-	30	-
Polygonum aviculare agg.	Knotgrass	-	3	3	1	-	-	2	-
P. persicaria L.	Red Shank	-	-	-	-	1	-	5	-
Rumex conglomeratus Mur.	Sharp Dock	-	-	-	1	2	1	10	-
Rumex spp. (not maritimus)	Dock	1	1	-	1	6	-	8	1
Urtica urens L.	Small Nettle	4	11	2	3	12	2	1	1
U. dioica L.	Stinging Nettle	25	23	11	20	14	12	49	4
Anagallis sp.	Pimpernel	-	-	-	-	-	1	-	-
Hyoscyamus niger L.	Henbane	-	9	-	-	3	1	1	-
Solanum sp.	Nightshade	-	-	-	-	1	-	-	-
Rhinanthus sp.	Yellow Rattle	-	-	-	-	-	-	-	1
Odontites verna (Bell.) Dum.	Red Bartsia	1	-	1	-	-	-	-	-
Mentha cf. *aquatica* L.	Water Mint	2	-	1	-	1	-	-	-
Lycopus europaeus L.	Gipsywort	5	-	-	-	2	-	-	1
Prunella vulgaris L.	Selfheal	4	-	-	14	-	-	1	7

Table 4.36 Waterlogged seeds (continued)

		No. of Seeds							
		Iron Age				Early Roman			
Period		*Middle*	*Mid/Late*	*Late*	*Late*				
		A	*A/B*	*C*	*C*	*D*	*E*	*F*	*D/F*
Context		*803/D*	*473/A/4*	*706/A*	*2530/A*	*2287/B*	*101/D/4*	*324/B/2*	*2620/A/11*
Ballota nigra L.	Black horehound	2	-	-	-	-	-	2	-
Glechoma hederacea L.	Ground-ivy	-	-	-	-	-	-	1	-
Plantago major L.	Great Plantain	1	2	19	2	1	2	6	-
Galium aparine L.	Goosegrass	-	-	1	-	-	-	-	-
Valerianella dentata (L.) Pol.	Cornsalad	-	-	-	-	1	-	-	-
Tripleurospermum inodorum (L.) Sch.	Scentless Mayweed	-	-	-	-	2	-	-	-
Leucanthemum vulgare Lam.	Ox-eye Daisy	-	-	-	-	-	-	-	1
Carduus sp.	Thistle	4	-	3	1	-	1	1	1
cf. *Cirsium* sp.	Thistle	-	-	4	1	2	-	1	-
Onopordum acanthium L.	Cotton Thistle	-	1	-	-	-	-	-	-
Centaurea cf. *nigra* L.	Knapweed	-	-	-	-	-	-	-	4
Leontodon sp.	Hawkbit	-	-	-	2	1	-	1	-
Picris hieracioides L.	Hawkweed Ox-tongue	-	-	1	-	-	-	-	-
Sonchus asper L.	Sow-thistle	-	-	4	1	-	-	14	-
Potamogeton sp.	Pondweed	-	-	-	-	-	-	-	11
Juncus effusus gp.	Tussock Rush	30	200	60	570	80	40	150	20
J. bufonius gp.	Toad rush	30	-	20	20	30	-	20	30
J. articulatus gp.	Rush	20	30	10	40	40	70	-	50
Juncus spp.	Rush	10	40	10	60	10	20	-	10
Eleocharis S. *Palustres* sp.	Spike-rush	-	1	-	4	4	-	-	-
Isolepis setacea (L.) R. Br.	Bristle-rush	-	-	-	-	-	1	-	-
Carex spp.	Sedge	14	4	2	10	5	3	5	6
Glyceria sp.	Reed-grass	-	-	-	-	-	-	88	-
Gramineae gen. et sp. indet.	Grass	1	-	12	1	3	-	7	-
Totals		212	339	209	814	251	165	546	160

4.37 Other waterlogged items

			Presence or Number of Items							
			Iron Age				Early Roman			
Period			*Middle*	*Mid/Late*	*Late*	*Late*				
			A	*A/B*	*C*	*C*	*D*	*E*	*F*	*D/F*
Context			*803/D*	*473/A/4*	*706/A*	*2530/A*	*2287/B*	*101/D/4*	*324/B/2*	*620/A/11*
Bryophyta	(Moss)	leaves	-	-	+	+	-	+	+	-
Chara sp.	(Stonewort)	oospore	-	-	-	-	-	-	-	1
Pteridium aquilinum (L.) Kuhn	(Bracken)	frond fragment	-	-	1	-	-	-	-	-
Rumex sp.	(Dock)	stem with peduncles	-	-	-	-	-	-	5	-
Salix sp.	(Willow)	bud	-	-	-	-	1	-	-	-
Trifolium sp.	(Clover)	calyx and flower	-	-	-	-	-	-	-	1
Triticum spelta L.	(Spelt Wheat)	glume	-	-	2	-	-	-	-	-
T. dicoccum Schübl. or *spelta* L.	(Wheat)	glume base	-	-	4	-	-	-	-	-

+ present

Table 4.38 Coleoptera

Period	Minimum No. of Individuals: Late Iron Age C	Minimum No. of Individuals: Late Iron Age to Early Roman	
Context	706/A	Remaining Samples	Species Group
Sample Weight (kg)	3.0	1.5	
Trechus obtusus Er. or *quadristriatus* (Schr.)	3	2	
Bembidion properans Step.	-	1	
Pterostichus cf. *gracilis* (Dej.)	1	-	
P. melanarius (Ill.)	1	1	
P. cupreus (L.) or *versicolor* (Sturm)	-	1	
Calathus fuscipes (Gz.)	2	1	
C. melanocephalus (L.)	2	1	
Agonum muelleri (Hbst.)	1	-	
Amara aulica (Pz.)	-	1	
Amara sp.	1	-	
Harpalus rufipes (Deg.)	1	1	6a
Harpalus S. *Ophonus* sp.	-	2	
H. affinis (Schr.)	1	-	
Hydroporus sp.	1	1	1
Agabus bipustulatus (L.)	1	-	1
Helophorus grandis Ill.	1	1	1
H. aquaticus (L.) or *grandis* Ill.	-	1	1
H. nubilus F.	-	1	
H. rufipes (Bosc.)	1	-	
Helophorus sp. (brevipalpis size)	5	2	1
Sphaeridium bipustulatum F.	1	-	
S. lunatum F. or *scarabaeoides* (L.)	1	-	
Cercyon haemorrhoidalis (F.)	1	-	7
C. melanocephalus (L.)	1	-	7
Cercyon sp.	-	1	7
Megasternum obscurum (Marsh.)	5	3	7
Anacaena bipustulata (Marsh.) or *limbata* (F.)	-	1	1
Laccobius sp.	-	1	1
Histerinae gen. et sp. indet.	1	-	
Ochthebius bicolon Germ.	1	-	1
O. minimus (F.)	1	-	1
Ochthebius spp.	-	3	1
Hydraena testacea Curt.	-	1	1
Hydraena sp. (not *testacea*)	-	1	1
Ptenidium sp.	1	-	
Silpha atrata L.	-	1	
Lesteva longoelytrata (Gz.)	3	-	
Omalium sp.	1	-	
Bledius cf. *gallicus* (Grav.)	1	-	
Platystethus cornutus gp.	1	1	
P. nitens (Sahl.)	-	2	
Anotylus nitidulus (Grav.)	1	-	
A. rugosus (F.)	1	-	7
A. sculpturatus (Grav.)	4	-	7
Stenus spp.	2	1	
Lathrobium sp. (not longulum)	-	1	
Rugilus sp.	1	-	
Gyrohypnus angustatus Step.	-	1	
G. cf. *angustatus* Step.	1	-	
Xantholinus linearis (Ol.)	1	-	
Philonthus spp.	3	1	
Gabrius sp.	-	2	
Tachyporus sp.	-	1	
Aleocharinae gen. et sp. indet.	3	2	
Geotrupes sp.	1	1	2
Aphodius contaminatus (Hbst.)	7	-	2
A. foetidus (Hbst.)	2	3	2
A. granarius	7	3	2
A. rufipes (L.)	1	-	2
A. cf. *Sphacelatus* (Pz.)	2	2	2
Aphodius spp.	1	2	2
Oxyomus sylvestris (Scop.)	2	2	
Onthophagus sp. (not ovatus)	1	1	2
Phyllopertha horticola (L.)	1	-	11
Agrypnus murinus (L.)	1	1	11
Agriotes lineatus (L.)	1	1	11
A. obscurus (L.)	1	-	11
A. sputator (L.)	1	-	11
Agriotes sp.	-	1	11
Cantharis sp.	1	-	
Anobium punctatum (Deg.)	5	-	10
Brachypterus urticae (F.)	2	-	
Atomaria sp.	1	-	
Orthoperus sp.	1	2	
Propylea quattuordecimpunctata (L.)	1	-	
Lathridius minutus gp.	-	1	8
Enicmus transversus (Ol.)	-	1	8
Corticariinae gen. et sp. indet.	3	-	8
Gastrophysa polygoni (L.)	-	1	
G. viridula (Deg.)	1	1	
Phyllotreta vittula Redt.	1	-	
Longitarsus spp.	1	1	
Psylliodes sp.	1	1	
Apion aeneum (F.)	1	1	
A. urticarium (Hbst.)	1	1	
Apion sp. (not above)	2	-	3
Phyllobius cf. *roboretanus* Gred.	-	1	
Sitona hispidulus (F.)	2	-	3
Sitona sp.	-	2	3
Ceutorhynchus erysimi (F.)	1	-	
Total	112	71	

Table 4.39 Other waterlogged insects

Period	Late Iron Age C	Late Iron Age to Early Roman
	Minimum No. of Individuals	
Context	706/A	Remaining Samples
Sample Weight (kg)	3.0	1.5
Forficula auricularia L.	10	1
Heterogaster urticae (F.)	1	1
Aphrodes cf. *Fuscofasciatus* (Gz.)	1	-
Aphrodes sp.	1	1
Aphidoidea gen. et sp. indet.	2	-
Myrmica scabrinodis gp. worker	-	1
Lasius flavus gp. worker	1	-
L. niger gp. worker	2	-
Lasius sp.male	1	-
Hymenoptera gen. et sp. indet.	8	2
Chironomid larval head capsule	+	+
Bibionidae gen. et sp. indet.	1	-
Diptera adults (not Bibionidae)	6	-
Diptera puparia	2	1

+ present

of the flots from the nonwaterlogged ditches also included shells of some aquatic molluscs which probably lived in temporary bodies of water in these contexts (Table 4.40).

The majority of the waterlogged plant and insect remains had their origins in the terrestrial landscape beyond the features in which they were found, and they mostly seem to have entered them via natural agencies. The seeds and land snails are mostly likely to have had very local origins, whereas the insects would have been derived from a larger catchment. However, Sample 706/A, from a pit, contained significant quantities of imported plant material (Table 4.37). Some of the shells in Context 110, a Roman trackway ditch, might have been transported by flowing water (Table 4.40). The carbonised plant remains represented various categories of cultivated and collected material (Tables 4.34–5).

Middle Iron Age (Period A)

Environment and site activities

Only limited evidence was available for the middle Iron Age. A sample from 803/D, a ditch in Trench 8, contained seeds of *Ranunculus S. Batrachium* sp. (water crowfoot) likely to be from aquatic vegetation growing in the bottom of the ditch (Table 4.36). The majority of the seeds, however, were from terrestrial plants growing in or near the settlement. There was a strong element of seeds from plants of nutrient-rich waste or disturbed ground, such as *Urtica dioica* (stinging nettle), *Hyoscyamus niger* (henbane) and *Ballota nigra* (black horehound).

Table 4.40 Mollusca

	Late Iron Age		*Early Roman*				
Period	C	?	E	F	F	F	G
Context	2084/B	206/B/3	101/Q/3	324/B/2	108/C/3	111/E/1	110/H/8
Bithynia tentaculata (L.)	-	-	-	-	-	-	+
Aplexa hypnorum (L.)	-	-	-	9	-	-	+
Lymnaea truncatula (Müll.)	+	+	+	2	+	+	+
L. palustris (Müll.)	-	-	-	2	-	-	+
L. peregra (Müll.)	-	-	-	-	-	-	+
Planorbis planorbis (L.)	-	-	-	-	-	-	+
Anisus leucostoma (Müll.)	+	-	-	16	+	-	+
Bathyomphalus contortus (L.)	-	-	-	-	-	-	+
Gyraulus albus (Müll.)	-	-	-	-	-	-	+
Succinea or *Oxyloma* sp.	+	-	-	-	+	-	-
Cochlicopa sp.	-	-	-	-	+	-	-
Vertigo pygmaea (Drap.)	-	-	-	1	-	-	-
Pupilla muscorum (L.)	-	+	-	-	-	+	+
Vallonia costata (Müll.)	-	+	-	-	-	-	+
V. pulchella (Müll.)	-	+	-	1	-	-	-
V. excentrica Sterki	-	-	-	-	-	+	+
Vallonia sp.	-	+	-	-	-	+	+
Helicella itala (L.)	-	-	-	-	-	-	+
T. plebeia (Drap.) or *hispida* (L.)	-	-	-	-	+	-	+
Cepaea sp.	-	-	-	1	-	-	-
Pisidium sp.	-	-	-	3	-	-	-
Total				35			

+ present

Some of these plants are annuals, such as *Chenopodium polyspermum* (all-seed) and *Urtica urens* (small nettle), and they will also grow as weeds of cultivation. However, given the composition of the seeds assemblage, it is thought more likely that they were growing on dung-enriched, recently-disturbed ground in the settlement.

Seeds were also present of grassland plants including *Linum catharticum* (dwarf flax), *Potentilla* cf. *reptans* (creeping cinquefoil) and *Prunella vulgaris* (selfheal). In the absence of pollen or insect evidence, however, it is uncertain whether they reflected grassy areas within the settlement or the wider landscape. There was no indication from the waterlogged macroscopic plant remains for such scrub or woodland. Somewhat similar results were given by the waterlogged seeds from 473/A/4, a pit which belonged either to Period A or B (Table 4.36).

There was only a single sample for carbonised remains that could be attributed with certainty to the middle Iron Age (Table 4.35). Cereal remains were absent and the few weed seeds were not necessarily crop processing waste. Cereal remains were also absent from a second sample which belonged either to Period A or Period B.

Late Iron Age (Periods B and C)

Although no samples could be attributed with certainty to Period B, Period C was well-represented in samples for both waterlogged and carbonised remains. The occurrence of waterlogged insect remains enabled a wider picture to be obtained of the landscape, while there were sufficient charred remains to characterise the use of cereals.

Grassland and pasture

The most abundant group of Coleoptera from 706/A were scarabaeoid dung beetles (Species Group 2) which comprised 22% of the terrestrial Coleoptera (Fig. 4.27; Table 4.38). They feed on the dung of large herbivores under pastureland conditions. *Aphodius contaminatus* and *A. granarius* were both well represented. A similar percentage of dung beetles was recorded for the late Iron Age phase of Claydon Pike and *A. granarius* was again very numerous (Robinson forthcoming). Dung beetles were much more abundant than would be expected from ordinary pastureland, suggesting a particular concentration of domestic animals in the vicinity of the settlement.

Chafers and elaterids which feed on roots of grassland plants such as *Agriotes lineatus* (Species Group 11) formed 5% of the terrestrial Coleoptera confirming that there was extensive grassland in the vicinity of the site. Seeds of most species of grassland plants were not particularly abundant in the samples from 706/A and 2530/A (Table 4.36). This was probably a function of the fact that the catchment area from which the seeds derived was smaller than the catchment areas of the Coleoptera, and therefore mostly reflects disturbed ground around the settlement itself. This was in contrast to Claydon Pike, where the settlement area was much smaller, and a larger proportion of the waterlogged seeds were from the surrounding pastureland. However, the same grassland species were present including: *Ranunculus* cf. *repens* (creeping buttercup), *Potentilla anserina* (silverweed), *P.* cf. *reptans* (creeping cinquefoil) and *Prunella vulgaris* (selfheal).

There was also a wet pastureland element including *Carex* spp. (sedges) and *Juncus* spp. (rushes). Seeds of the tussock group of rushes, *Juncus effusus* group, were the most abundant seeds in most of the waterlogged samples (Table 4.36). Rush seeds are very small, prolifically produced and have good dispersive properties. It is probable that the heavily grazed pasture with ill-drained tussocky areas in the floodplain hollows extended on the river gravels from Claydon Pike at least as far as Thornhill Farm and possibly covered several square kilometres in the valley bottom.

Cereal remains were sparse in the samples processed for carbonised plant remains (Tables 4.34–5). Unusually for a site of this date, the great majority of the carbonised seeds were not of arable origin but appear to have been derived from coarse herbage. It seems unlikely that there were any arable plots breaking up this expanse of grassland.

Woodland and scrub

There were no wood or tree dependent beetles in the sample from 70–6/A (Table 4.38). Macroscopic remains of trees or shrubs were exceedingly sparse, with only a single seed of *Rubus fruticosus* agg. (blackberry) in the late Iron Age waterlogged samples (Table 4.36). Scrub seems to have been notably absent from the site, and there was certainly no evidence from which the presence of hedges around any of the enclosures could be inferred. Pollen analysis at Claydon Pike showed the presence of some trees, but macroscopic evidence of trees or shrubs was similarly sparse, and it was suggested that any areas of woodland were probably beyond the river gravels.

Disturbed ground and the environment of the settlement

The wet pasture around Claydon Pike seemed to have been churned in places into dung-enriched mud which supported annual weeds of the *Bidentetea Tripartitae* and the *Juncus bufonius* gp. rushes. There was much less evidence of such communities at Thornhill Farm. This was perhaps a reflection of somewhat better drainage on the gravels at Thornhill Farm, whereas Claydon Pike was surrounded on all sides by floodplain. The

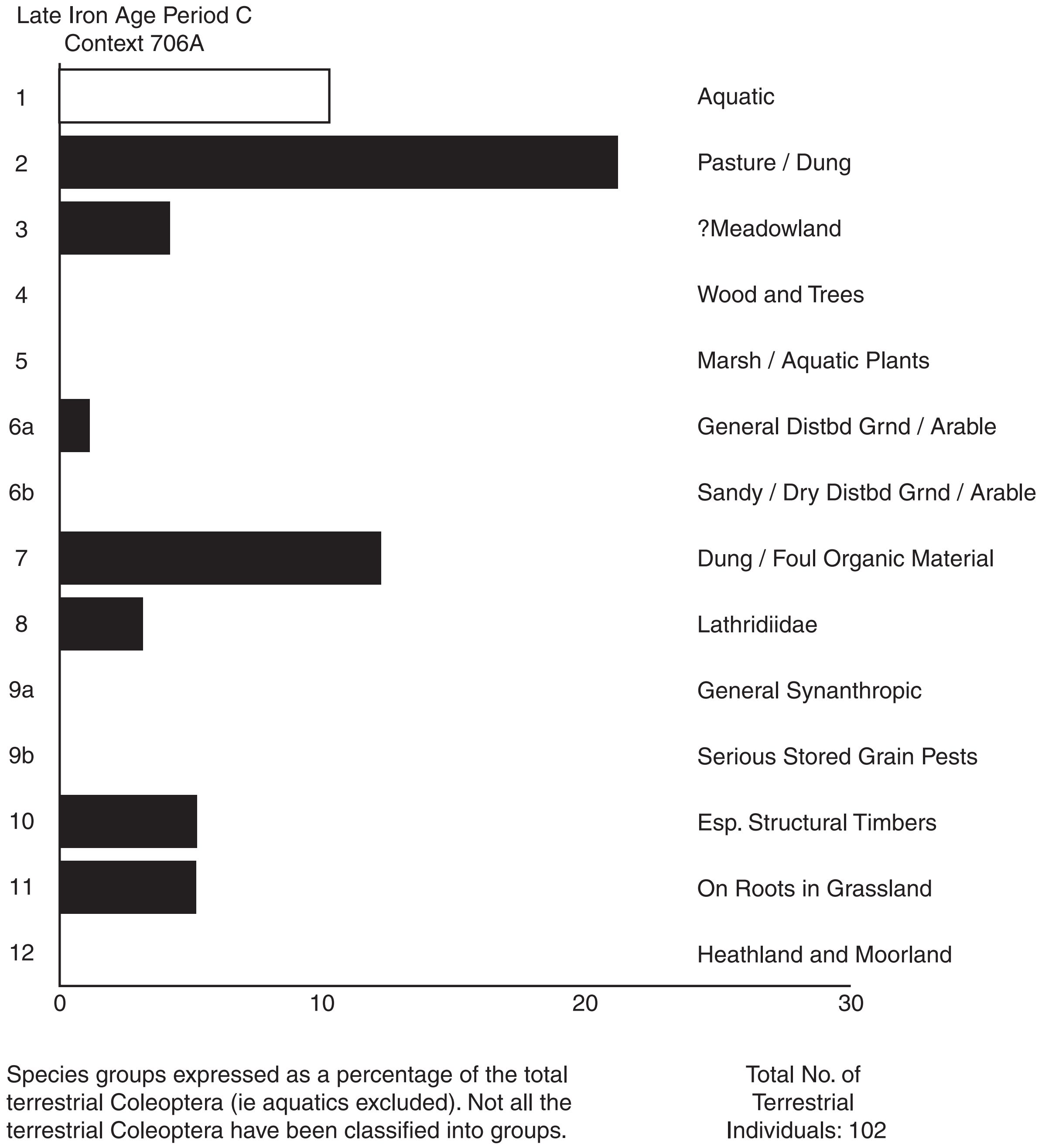

Fig. 4.27 Species Groups of Coleoptera from Thornhill Farm

molluscs from 206/B/3 included the dry-ground terrestrial species *Pupilla muscorum* and *Vallonia costata*, as well as aquatics (Table 4.40). The former species probably reflect conditions on the surface of the gravel terrace.

Various weed communities of somewhat drier habitats predominated throughout most of the settlement. Trampled areas were suggested by seeds of *Plantago major* (great plantain; Table 4.36). There were also seeds of annual plants of Chenopodietalia communities which grow on frequently disturbed, nitrogen-enriched soil around settlements. The most numerous weed seeds in the Iron Age samples were, however, from *Urtica dioica*, the perennial stinging nettle. They represented the next stage of vegetational succession on nutrient-rich neglected ground, and stinging nettle readily invades broken pasture in stock enclosures if grazing pressure is briefly relaxed. The nettle-feeding insects included the weevil *Apion urticarium* and the bug *Heterogaster urticae* (Table 4.38).

The occurrence of the snails *Lymnaea truncatula* and, in some instances *Anisus leucostoma*, in the late Iron Age enclosure ditches suggested that there were pools of stagnant water in the bottom of them (Table 4.40). Seeds of aquatic plants were, however, absent.

Accumulated organic material and structures

The percentage of various Sphaeridiinae and Oxytelinae in 706/A (Fig. 4.27, Species Group 7) which occur in other types of foul vegetable material as well as dung was, at 12% of the terrestrial Coleoptera, what would be expected at a pastoral settlement where there was much dung. Some plant material had been brought to the site and dumped in Pit 706, including *Pteridium aquilinum* (bracken) fronds and cereal debris (Tables 4.34 and 4.37). Members of the Lathridiidae (Species Group 8) which feed on moulds on accumulations of damp plant debris comprised 3% of the terrestrial Coleoptera.

Woodworm beetles (*Anobium punctatum*) were quite well represented for an Iron Age site, comprising 5% of the terrestrial Coleoptera (Fig. 4.27, Species Group 10), and it is likely that they had been derived from a timber structure in the vicinity of 706/A. (The pit itself did not contain any pieces of wood from which the beetles could have emerged.) Other possible indoor, synanthropic beetles were absent.

Site activities and the use of the site

The primary, possibly the sole, purpose of the late Iron Age settlement complex of Thornhill Farm and Claydon Pike appears to have been the management of grazing in the valley bottom. It was suggested in the original assessment of the bone evidence that there could have been an emphasis on the rearing of horses (Levitan 1990), and although the full analysis has since indicated otherwise (see above), the waterlogged plant and invertebrate evidence from the two sites is entirely consistent with this suggestion. Indeed, the selectivity shown by grazing horses tends to result in areas of their pasture becoming overgrazed and other areas very weedy. It has already been noted that the presence of the snail *Lymnaea truncatula*, the intermediate host of the sheep fluke, on the floodplain would have favoured cattle or horses as the main stock rather than sheep (Robinson 1992a). *L. truncatula* also occurred in some of the late Iron Age ditches at Thornhill Farm and Claydon Pike.

As at Claydon Pike, there was no evidence that the settlement at Thornhill Farm experienced flooding in the late Iron Age, and the settlement could have been permanently occupied. The flora of the site suggests that the enclosure ditches were not particularly long-lasting features, and it is uncertain how much of the complex was in use at any one time. It was not possible to determine from the plant and invertebrate remains any certain evidence for the centre of occupation, and it could have shifted with the frequent alterations to the layout of the site.

Carbonised cereal grains and chaff were present but sparse. There were also some waterlogged glumes of spelt wheat in Sample 706/A (Table 4.37). The only crop identified with certainty was *Triticum spelta* (spelt wheat). *Avena* sp. (oats) was also present, but it is uncertain whether it was a cultivated or a wild form (Tables 4.34–5). Spelt wheat along with barley seem to have been the major cereal crops grown in the region in the Iron Age. Only a few of the charred weed seeds, including *Sherardia arvensis* (field madder) and *Galium aparine* (goosegrass), were from species commonly associated with arable agriculture.

The concentration of cereal remains in the late Iron Age features at Thornhill Farm was very much lower than at Claydon Pike, with 0.24 items per litre at Thornhill Farm, compared with 0.82 items per litre at Claydon Pike (V. Straker pers. comm.). There were three times the number of weed seeds as cereal items at Thornhill Farm whereas cereal remains outnumbered weed seeds at Claydon Pike. The reasons for these differences are unclear, although there was probably some relationship between the concentration of cereal remains and the intensity of human occupation. It is thought unlikely that cereals were cultivated at the site. Cereals were probably imported in the ear as spikelets and dehusked prior to their use.

The majority of the charred seeds seem to have been derived from coarse herbage, particularly *Carex* spp. (sedge), unrelated to arable activity (Tables 4.34–5). A waterlogged frond fragment of *Pteridium aquilinum* (bracken) was found in Pit 706. Bracken was imported from the areas of acid soil on higher ground where it would have grown, by many Iron Age sites in the Upper Thames Valley, including Claydon Pike, perhaps for use as bedding. Coarse herbage or sedge hay seems also to have been cut perhaps for a similar purpose, or for use as fodder. As is usual for Iron Age sites in the region, there was evidence neither for the cultivation of horticultural crops nor the collection of wild food plants.

Early Roman (Periods D, E and F)

These early Roman periods were well-represented by samples. The results from samples from settlement features were very similar to those from the late Iron Age samples, so they will not be considered in so much detail. However, contrasting results were obtained from a trackway ditch belonging to Period D or F which was beyond the settlement area.

The environment of the early Roman settlement

Unfortunately the only insect evidence was from a combination of late Iron Age and early Roman samples (Table 4.38). However, they suggested an open landscape of pasture similar to that of the Iron Age. The waterlogged samples likewise contained seeds of the same grassland species (Table 4.36). Seeds from weeds likely to have been growing on nutrient-rich disturbed ground in the settlement were particularly abundant in the ditch 324/B/2. They ranged from *Urtica dioica* (stinging nettle) to *Chenopodium* cf. *rubrum* (red goosefoot), a plant of such habitats as dung-enriched mud. There were several seeds of *Anthriscus caucalis* (bur chervil), a plant which no longer occurs in the region but which is known from other Iron Age and early Roman settlements. This sample also contained water snails of stagnant water, such as *Aplexa hypnorum*, *Lymnaea truncatula* and *Anisus leucostoma*. Unlike the other early Roman ditches, seeds of *Ranunculus* S. *Batrachium* sp. (water crowfoot), *Nasturtium officinale* (water cress) and *Apium nodiflorum* (fool's water cress) suggested that this ditch supported dense aquatic vegetation.

The charred remains from the Period D and E samples were, as was the case with the late Iron Age samples, dominated by remains that were probably of cut coarse herbage rather than remains of cereal processing (Tables 4.34–5). They included seeds of *Rumex* sp. (dock), *Carex* spp. (sedge), a seed capsule of *Juncus effusus* gp. (tussock rush) and stem fragments of *Juncus inflexus* (hard rush). Cereal remains were not entirely absent, *Triticum spelta* (spelt wheat) and *Hordeum* sp. (barley) being identified. The samples from Period F did not contain the seeds from coarse herbage but charred cereal remains were no more abundant than in Periods D and E. *T. spelta* and *Hordeum* sp. were again present.

The results suggested that the primary purpose of the settlement at Thornhill Farm of raising domestic animals continued from the late Iron Age into the early Roman period. Many of the charred remains were perhaps from animal fodder or bedding. Cereals were probably just imported for consumption by the occupants of the settlement.

The environment around the early Roman trackway

The waterlogged seeds from Sample 2620/A/11, from an early Roman trackway ditch south of Trench 8, showed that there was a substantial difference in the flora of the site from that of the late Iron Age and early Roman settlement (Table 4.36). They included species which are characteristic of hay meadows: *Filipendula ulmaria* (meadowsweet), *Rhinanthus* sp. (yellow rattle), *Leucanthemum vulgare* (ox-eye daisy) and *Centaurea* cf. *nigra* (knapweed).

Seeds of the tussock rush (*Juncus effusus* gp.) were greatly reduced without any reduction in the *J. articulatus* group of rushes, which unlike the former, readily grow in wet hay meadows. The ditch belonged to Period D or F. It is possible that this hay meadow was contemporaneous with the early Roman settlement, but it is also possible that there was a general transition from pasture to hay meadow after the abandonment of the settlement.

There was strong evidence that the early Roman settlement at Claydon Pike was surrounded by hay meadows, and these results suggest that the meadowland could have extended as far as Thornhill Farm. This sample also contained a few seeds from annual weeds which perhaps grew along the edge of the ditch.

Middle Roman (Period G)

The evidence from Period G was limited to molluscs (Table 4.40) and charred plant remains from the ditches of the trackway system which replaced the settlement (Table 4.35).

The flots from Feature 110, the Roman roadside ditch which traversed Trench 7, contained rich aquatic mollusc faunas. Whereas the aquatic molluscs of the earlier ditches were all 'slum' species which can tolerate the extremes of stagnation and even temporary drying, the fauna of the Roman roadside ditch included species such as *Gyraulus albus* which require permanent water. There was even a specimen of the flowing water snail *Bithynia tentaculata*. It had perhaps been introduced by floodwater flushing the ditch or a stream diverted along it.

Charred remains were almost absent, with just an unidentifiable cereal grain and a seed of *Galium aparine* (goosegrass). They were perhaps residual from the earlier settlement.

Late Roman (Period H) and Medieval

No samples were available from late Roman (Period H) contexts. The occurrence of ridge and furrow showed that some medieval cultivation took place, but subsequent flooding deposited alluvium in the furrows. A sample of the alluvium was found to contain a molluscan assemblage characteristic of hay meadow (Robinson 1988). A similar fauna was recorded from alluvium overlying the Roman settlement at Claydon Pike, where there was other biological evidence for medieval meadowland. Such alluviation was extensive in the Upper Thames Valley during the early to mid medieval period (Robinson 1992b).

Conclusions

The results from both the late Iron Age and early Roman settlements emphasised their pastoral function. Such an interpretation would be consistent with the layout of the enclosure ditches. Cereals were certainly used but it is thought likely that they were imported rather than grown on the site. The charred plant assemblages were interesting because, unusually for settlements of these periods, they were dominated by remains of coarse herbage rather than cereals. The settlement at Thornhill Farm was likely to have been very similar to the nearby late Iron Age–earliest Roman settlement at Claydon Pike. During the early 2nd century AD, the Roman site at Claydon Pike was reorganised and the surrounding floodplain became hay meadow. It is possible that the hay meadow represented in Sample 2620/A/11, from an early Roman trackway ditch at Thornhill Farm, was a continuation of this meadowland. However, it is also possible that the Period G reorganisation at Thornhill Farm, when the settlement went out of use, was related to the early Roman landscape changes at Claydon Pike. This probably post-dated sample 2620/A/11. The limited details of the subsequent environmental history of Thornhill Farm were consistent with the sequence known from elsewhere in the Upper Thames Valley.