

CHAPTER 3

The Emergence of the Agricultural Landscape and its Development *(2nd and 1st millennia BC)*

by Matt Leivers

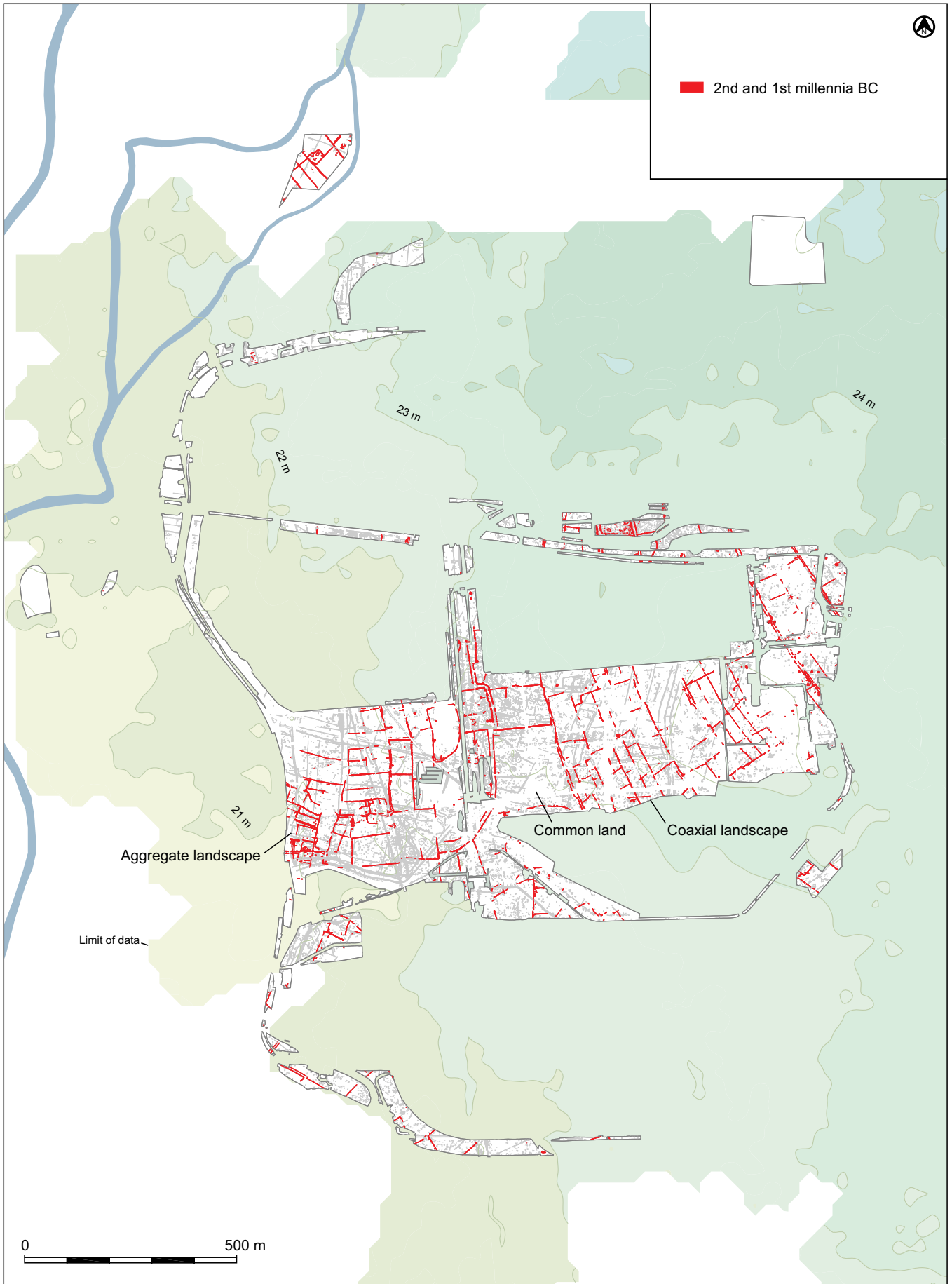


Figure 3.1: Bronze Age landscape at Terminal 5

Introduction

At some point after the end of the 3rd millennium BC, the ways in which the social organisation of the landscape was made manifest underwent a very marked change. Previous analyses of the Heathrow evidence typified this change as 'from one dominated by the monuments and practices of the preceding two millennia to a landscape of fields, hedgerows, settlements and trackways' (Framework Archaeology 2006, 95), and while this remains an accurate broad-brush summation of the transformed landscape, the detail of these changes can now be much more fully understood, thanks to the increased proportion of the resulting field systems and settlements that have been excavated.

The available evidence now comprises portions of at least seven (but perhaps as many as nine) settlements of varying sizes, each set within its own system of fields and enclosures (such groupings of a settlement within its system of fields and enclosures form the basic analytical units of this chapter, and are referred to as *Farmsteads*; see Fig. 3.9 and Table 3.3 below), connected by double ditched trackways flanked by embanked hedgerows. Pits, wells, fences and other more ephemeral features are scattered throughout the landscape, as are ramped waterholes which provided sources of water for herds of cattle.

The trackways and farmsteads have undergone varying degrees of recent truncation. In general, the eastern farmsteads and trackways have been subject to most destruction but others (especially parts of Farmstead 3) have also undergone severe truncation. This variability in survival has affected analysis, with, for example, very few of the field or trackway ditches retaining any stratigraphic relationships. This has proved a major obstacle in understanding the history of the field systems' development. Even from an incomplete plan, however, it is clear that the fields within each landholding maintained a general coherence in size, shape and orientation, although these properties can differ markedly between each farmstead.

On the western side of the excavations—in what will be referred to as the aggregate landscape (Fig. 3.1)—fields tend to be either square (in proximity to settlements), to have no apparent dominant orientation (towards the southern edge of the excavated area), or to be aligned broadly east-west (running down into the valley of the Colne), even though the dominant alignment of the trackways is north-south. On the eastern side of the excavations—in what will be referred to as the coaxial landscape—the pattern is very much more regular, with the long axis of the fields following the dominant trend of the trackways from south-east to north-west, swinging more generally northwards towards the northern edge of the excavated area. Whether this difference is due to topography, chronology, social organisation, or some mixture of factors will be explored throughout this chapter. Between the boundaries of the two identified landscapes is a three hectare plot of land which seems to have belonged to neither, but to have been accessible from both—this has been termed Common land (discussed below).

Earlier accounts of the changes taking place throughout the 2nd millennium, both at the local (Framework Archaeology 2006; Yates 1999), and regional (Yates 2001; 2007) levels, have accepted the assumption that the changes in landscape organisation visible at the beginning of the Middle Bronze Age reflected a shift in social organisation from egalitarian, communal and cooperative to divided and competitive. Such suggestions rely on the notion that access to resources became increasingly pressured throughout the early 2nd millennium, to the point at which the existing social systems could no longer be made to mediate between conflicting claims and a new system was consequently required to solve the resulting conflicts. However, the creation of a pattern of field systems and settlements need not imply such a disjunctive or revolutionary change, and could instead indicate the continuation of successful social practices. While it

may be that some elements of Enclosure in the 18th and 19th century AD English sense may apply (the replacement of open fields by smaller plots for instance) a uniformitarian understanding of the entire process may not be appropriate, particularly in terms of literal readings of the relationships between social organisation and its physical representation. There is little indication of—for instance—the privatisation of common ground. Indeed, it can be suggested that pains were taken to avoid the partitioning of the landscape into privately-held units to the exclusion of the common.

What is beyond doubt is that the ways in which people chose to construct physically their environments altered dramatically. Why those choices were made and what the results of those choices might have been are the basic questions this chapter attempts to address.

Chronological framework

As previously, the chronology outlined by Needham (1996) provides the basic framework for the period under discussion in this chapter (Fig. 3.2), within which finer resolution can sometimes be provided by radiocarbon dates, supported by ceramic and metalwork assemblages.

A series of 67 radiocarbon determinations was obtained, the majority from waterholes, which fall within Needham's periods 4, 5, 6 and 7 and in the succeeding Early Iron Age (Figs 3.3 and 3.5). In addition, one early determination was returned from a feature apparently belonging to the 2nd millennium field system.

The inception of the agricultural landscape

At some time around the middle of the 2nd millennium BC the Heathrow Terrace began to be divided into a series of interlocking and interconnected farmsteads (see Fig. 3.7 below). The best preserved of these suggest a basic unit consisting of an enclosed settlement with a single north-south trackway leading into a system of

smaller and larger fields and enclosures. Within the fields and settlements, wells, waterholes and other features recur.

The picture revealed by excavation is necessarily of this farmed landscape in its abandoned form, once it had been lived in and altered for centuries: a developed system representing the culmination of the activity of generations of inhabitants of the Heathrow Terrace. Identifying earlier states of the farmed landscape is not easy, but there are a number of clues to suggest how it began and how it altered.

Period 3: pre-1700 cal BC

The single radiocarbon determination associated with the 2nd millennium field systems (SUERC-11569: 3520±35 BP, 1940–1740 BC) comes from waterhole 510047, which contained Deverel-Rimbury ceramics throughout its fills (above, below and within the dated deposit). The result can most certainly be discounted as accurately dating its context: it was obtained from a measurement made on humic acid from a bulk organic sample, and it is unclear if the date is on reworked earlier material (eg eroded from an existing land surface at the side of the feature).

There is then no reliable absolute evidence dating the beginning of the agricultural landscape to earlier than

1700 BC. Given this lack of dateable material and the general low-density scatter of diagnostic late 3rd and early 2nd millennium artefacts (primarily Beaker and Collared Urn ceramics, but including a limited number of lithics and fauna), it is very difficult to identify the beginnings of this new agricultural system. The only indications of an early 2nd millennium date for its inception are circumstantial, and come from palaeoenvironmental material preserved in later features belonging to the developed field systems, primarily waterholes.

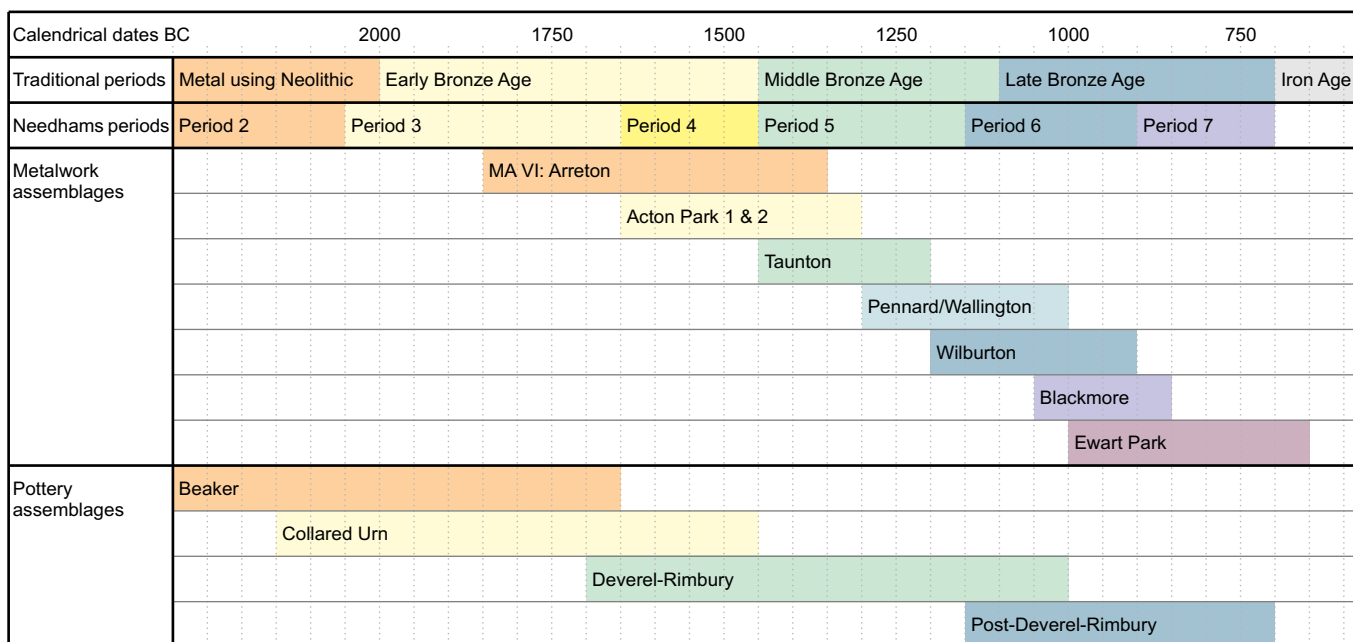
These waterholes were set in a landscape defined by a series of ditches and embanked hedgerows of considerable antiquity, perhaps as much as 500 years old. This conclusion is based on the pollen spectra within the waterholes, which contained strong indicators of ancient woodland (Wiltshire in Framework Archaeology 2006, CD Section 11).

Given the impossibility that the hedges could have been formed from ancient woodland through assarting, the presence of these indicators in the pollen spectra was taken to mean that the hedges were themselves ancient. In a number of instances the occurrence of a relatively large number of woody taxa with characteristically poor pollen production and dispersal (especially maple, hawthorn, elder, purging

buckthorn) does suggest the proximity of certain features (mainly waterholes) to an old woodland-edge environment, but there is no means of assessing whether these ancient woodland indicators derive from well-established hedgerows, from long-lived stands of trees, or indeed whether they were confined to any one microhabitat. Another possibility is that the hedges, although themselves not ancient, derived from ancient woodland not through assarting, but from selection. Francis Pryor has suggested that winter hardwood cuttings may have been taken from local woodland and planted to form hedges, in very much the same way as the post-medieval enclosure divisions of the English landscape (Pryor 1999, 87). Although this is entirely speculative, in the absence of *any* supporting stratigraphic or material evidence for anything other than a rather fleeting and transitory Early Bronze Age presence on the Heathrow Terrace, it does provide a plausible alternative for the rich species diversity present in the pollen record.

Consequently, it is perhaps now unwise to insist too strongly on the ‘ancient hedgerow’ argument and to return the inception of the agricultural landscape to the second quarter of the 2nd millennium BC.

Figure 3.2: Chronological framework



Period 4: 1700–1500 cal BC

Five determinations (Fig. 3.3) lie slightly earlier than the majority from dated Middle Bronze Age contexts, and as such are worth considering individually.

Wk-10031 (3260±57 BP; 1690–1420 cal BC) dated *Quercus* sp. sapwood chips interpreted as woodworking debris within the shaft of well 156031 in the fields of Farmstead 3 (for descriptions and locations of the various farmsteads see below and Fig. 3.7). This woodworking was considered to be an *in situ* manufacture of a timber revetment to strengthen collapsing wattle well-shaft lining. However, this determination cannot date the activity, since a second determination on another *Quercus* sp. sapwood chip in this context gave 1400–1230 cal BC (Wk-10028: 2942±59 BP). Additionally, wooden objects (a *Pomoideae* sp. ard spike and a *Quercus* sp. handle of a socketed axe) from deposits earlier than the well shaft gave 1440–1290 cal BC and 1460–1300 cal BC respectively (NZA14905: 3019±65 BP and NZA14904: 3103±65 BP). The early date of Wk10031 is therefore considered a *terminus post quem* for an event dated more accurately by Wk10028 (see below).

Wk-21695 (3270±33 BP; 1630–1450 cal BC) dated *Prunus* roundwood charcoal from a pit (142010) not observed during excavation, but which was identified during post-excavation analysis on the basis of a very dense concentration of burnt flint and other finds. The putative feature cut the uppermost fill of the Neolithic HE1 Enclosure. All of the associated ceramics are likely to be post-Deverel-Rimbury (28 sherds weighing only 28 g; three are large enough to date with certainty), while the lithics include diagnostic Mesolithic, Neolithic and Bronze Age types. The uncertainties regarding the feature's extent and the chronological mixing of its contents mean that the charcoal is not certainly associated with any of it. At best, it provides a *terminus post quem* for the Late Bronze Age ceramics.

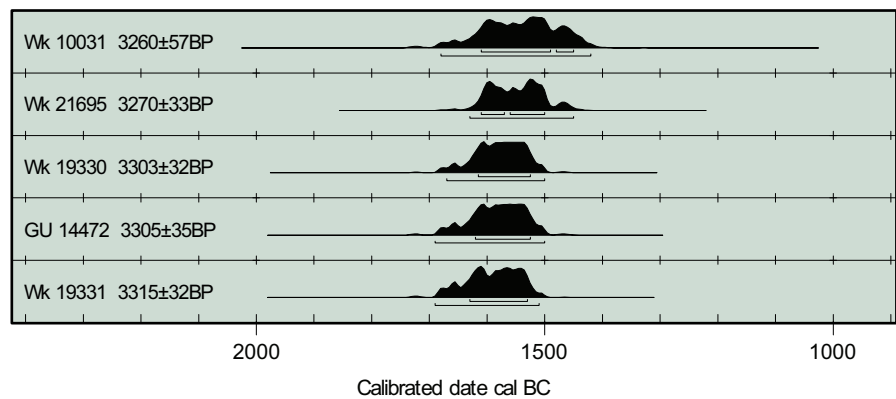


Figure 3.3: Radiocarbon dates predating 1500 cal BC

Wk-19330 (3303±32 BP; 1670–1500 cal BC) dated a charred grain of indeterminate *Triticum* sp. from a fill of waterhole 693006 in Farmstead 8. Only two such grains were recovered, in poor condition, from amongst an apparently dumped lens of oak charcoal. If the charcoal and seeds are contemporary then the determination seems to indicate some process resulting in burnt grain in this period, and provides a reliable date for this feature. Alternatively, the seeds may be an accidental inclusion, and the date a *terminus post quem*.

SUERC-11570 (3305±35 BP; 1690–1500 cal BC) dated humic acid from sediments in well/pit 557027 in Farmstead 2. That the true date of this feature lies at the younger end of the distribution is suggested by the presence in the deposit immediately below of a large assemblage of animal bones, one of which gave a determination of 1510–1390 (Wk 19326: 3176±33 BP).

Wk-19331 (3315±32 BP; 1690–1510 cal BC) dated *Rosa* sp. (rose hip) seeds from the lowest fill of pit 646068 in the outer 'D'-shaped enclosure of Farmstead 3. Although the date has a low index of agreement when modelled as contemporary with its context (Healey, CD Section 20) and is possibly a *terminus post quem* as a result, the frequency of rose hips and seeds in this deposit (along with blackberry, hawthorn and elderberry seeds, and a sloe stone amongst a larger assemblage of woody taxa, woodland herbs, nitrophilous and grassland taxa) suggests that the date of the seed may in fact be that of the feature.

What then do these dates suggest of activity on the Heathrow Terrace during the second quarter of the 2nd millennium? Given that there are very few reliable dates, a degree of caution is necessary in making any strong claims for the establishment of the agricultural landscape in this period. Both Wk-10031 and Wk-21695 could belong in Needham's Period 5 (1500–1150 cal BC) depending on where along the distributions their true dates lie, but regardless the activity they indicate is somewhat ambiguous. The occurrence of Wk-21695, Wk-10031 and Wk-19931 (which is highly unlikely to lie later than 1500 cal BC at its upper extremity) in Farmstead 3 does suggest that the establishment of the Farmstead may lie in this period. As we will see, the majority of the earliest possible dates in Period 5 are also from Farmstead 3. On balance then, given that the majority of these dates derive from deposits in waterholes and pits, which are likely to be slightly later than the establishment of the field systems, it seems probable that at least Farmsteads 3 and 8 were laid out in the period 1700–1600 cal BC.

In the case of Farmstead 3 (the large 'D'-shaped enclosure in the western central portion of the excavations, the settlement within the inner enclosure, and associated field systems), there is a good claim to primacy. Not only does this farmstead contain some of the earliest dated features (a well located in the corner of a field and a waterhole within the settlement area), but it is also qualitatively different to the other settlements in terms of its morphology. It appears to be at the heart of the

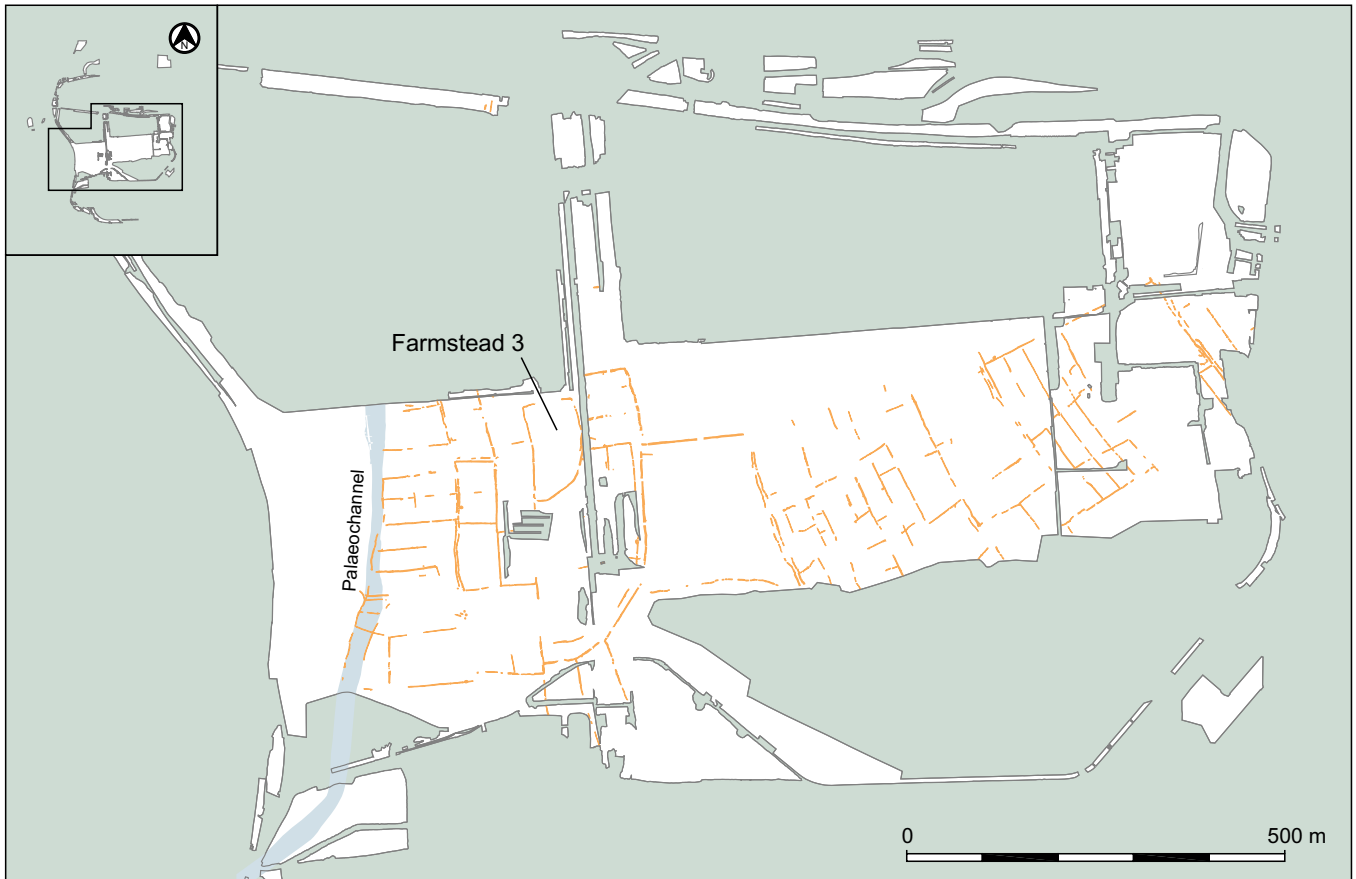


Figure 3.4: The earliest visible form of the Bronze Age agricultural landscape

aggregate landscape; it can be suggested to be earlier than some of the later elements of that landscape (perhaps earlier than Farmstead 2; likely to pre-date the northern part of Trackway 2, which turns around the outer 'D'-shaped enclosure's north-eastern corner, suggesting that the enclosure was already in existence when Trackway 2 was formalised); and it remained as a focus for depositional practice and other activity longer than any other farmstead (for at least 800 years). The evidence for an early establishment for Farmstead 8 is far more equivocal, relying on a single radiocarbon date.

Building the system – the development of farmsteads

Studies of 2nd and 1st millennium BC field systems elsewhere in southern Britain have identified two main forms of physical landscape organisation. Aggregate systems of fields are added together on a piecemeal basis (Bradley 1978, 268–9) and have no necessary dominant axis (Yates 2007, 15). Coaxial systems however have a prevailing

orientation and appear to be laid out in a single operation (Fleming 1988).

At Heathrow, both of these types are present: on the western side, in Farmsteads 1, 2, 3, 5 and 12 (see Fig. 3.8), there is an aggregate arrangement: the fields are generally rectilinear but without a shared dominant axis, and blocks are clearly added piecemeal rather than in adherence to a pattern. However, on the eastern side the system is coaxial. David Thomas Yates typifies such systems as

...marked out by unswerving linear boundaries seldom allowing variation for topographical obstructions. They take no account of existing land division, nor do they normally take account of established monuments in their path... Integrated droveways, marked by paired ditches or other divisions, may be incorporated to ensure controlled movement...

(Yates 2007, 15)

This is a description which applies very precisely to the eastern portion

of the excavated Heathrow landscape. Richard Bradley notes that coaxial and aggregate systems can represent stages in settlement expansion (1978, 269), and if this were the case at Heathrow, the question then becomes which is earlier, the aggregate or coaxial system?

Internal chronology of the early field systems

As discussed above, although there are no determinations from field boundaries, the available radiocarbon evidence can be read to suggest a chronological primacy for Farmstead 3, with an equivalently early date for some form of activity in Farmstead 8. The feature in this farmstead containing the early material lies at its southern end (see below). This is revealing since—as will be seen once the coaxial farmsteads are considered—these were not laid out wholesale, as Fleming (1988) suggested such systems tend to be. While there is no apparent chronological sequence from west to east across the Heathrow Terrace, we will suggest that the coaxial systems

developed from south to north in a series of three expansions. It may then be the case that the southern ends of the coaxial farmsteads are contemporary with Farmstead 3.

Period 5 and 6 developments in the aggregate farmsteads are likely to have involved some reduction of the original extent of Farmstead 3 (discussed further below), but it is possible to hypothesise that in its earliest visible form the agricultural landscape—dating to Period 4—appeared as in Figure 3.4.

The most important feature to note about this arrangement is that the sole location of settlement is in the 'D'-shaped enclosure of Farmstead 3. This reconstruction suggests a single, relatively large, centralised dwelling place, set within extensive field systems which—as we shall see—became increasingly fragmented throughout the 2nd millennium.

The social context of landscape division

The creation of the first land boundaries in the second quarter of the 2nd millennium BC marks a very visible change in the archaeology of Heathrow, from an open landscape containing a few earthworks and pits but no signs of any permanent or even semi-permanent settlement, to one that was densely organised and occupied. We may then pose the following question: what factors led to this very radical change in the material expression of social organisation? Does the establishment of a 'divided' landscape equate with an increasingly divided society, with the community fragmenting into smaller constituent groups? This is most often assumed to be the case, but we need to ask why the division of land would equal the division of society. Indeed, at the outset this does not appear to have been the case, although it is quite possible to read the evidence in this way at a slightly later point in the landscape's history. In addition, one would perhaps expect to see other forms of evidence for resource stress, increased competition or the fragmentation of society alongside the establishment of field systems.

From an alternative perspective, it is possible to interpret the construction of field systems on the scale of those at Heathrow as a massive communal effort requiring the input and co-operation of people on a scale far in excess of that involved in the building of the major ceremonial earthworks of the Neolithic period. Andrew Fleming argues along these lines in his discussion of contemporary field systems on Dartmoor, suggesting that individual farms were not 'small-scale unit[s] of heritable private property', but rather elements of

'neighbourhood groups'...possibly based on extended families, living in particular districts within field systems and themselves owing greater loyalties to the larger 'communities' which may have been the sovereign land-holding bodies.

(Fleming 1988, 120)

The position taken at the outset here then is that the establishment of field systems need not necessarily equate with either societal fragmentation or cohesiveness: it is as easy to envisage an agrarian golden age as suggested by the palaeobotanical evidence as it is a series of bickering kin groups packed cheek-by-jowl across the Heathrow Terrace, which the division of the fields into farmsteads can be taken to imply.

Instead, the establishment of these field systems can more usefully be read as one element of a series of material changes which make the Middle Bronze Age more than an abstract chronological division. The adoption of a suite of new materials—Deverel-Rimbury and associated ceramics, new and more widespread forms of metalwork, field systems, permanent settlements and an altered economic base with the adoption of large-scale agriculture for the very first time in southern England—mark a radically different material culture for the period after perhaps 1700 cal BC. These changes would undoubtedly and inevitably have led to social pressures (which, it should be remembered, can be positive as well as negative), and these would have been played out in turn against the backdrop of the dynamic material

world which gave rise to them and to which they gave rise.

These considerations still leave unaddressed the question of why divide the landscape at all. What impetus can there have been for such a mammoth undertaking? The Bronze Age agricultural landscape around Terminal 5 potentially encompasses upwards of 4000 hectares (on the basis of archaeological investigations on the Heathrow Terrace east of the Colne which have encountered 2nd and 1st millennium field systems, discussed in more detail towards the end of this chapter), and although it is unlikely that all these formed part of a single 'system' or were exactly contemporary, the vast scale of the undertaking in creating such an expanse of enclosed land cannot be overestimated.

Ostensibly, the field systems appeared from out of nowhere. There are no convincing contenders for Early Bronze Age precursors anywhere within the Terminal 5 excavations, and although it could be argued that continued cleaning of ditches would remove evidence of earlier phases of use, the same cannot be true of other sorts of negative feature. Where then are the other types of evidence that would be expected to accompany an earlier phase of enclosed mixed farming? They are simply not there, and this is the strongest suggestion we have that the Middle Bronze Age field systems were entirely new.

Still, why build them? One possible answer is that, while the fields themselves were new, the processes of which they were a part were not. Francis Pryor has argued that 'animals only have to be kept in fields when their population... reaches a point where the available grazing needs to be managed with greater control' (1999, 82) and this may be one clue to the apparently sudden emergence of a new economic system. Earlier, less intensive periods of stock rearing may have involved smaller flocks wandering more-or-less freely through woodland clearings or largely open ground.

These questions might be addressed through studying the ways in which

the landscape changed throughout the 2nd millennium BC. By seeking to understand these physical developments, we can attempt to interpret the social dynamics to which they gave rise and that drove them.

Period 5: 1500–1150 cal BC

The majority of the available radiocarbon determinations lie in this period (Fig. 3.5). There is no indication of separate phases of activity corresponding to Needham’s division between periods 5 and 6 at 1150 cal BC, although far fewer dates centre on 1300–1200 cal BC than fall either side of it, perhaps indicating that two main phases of occupation did occur, separated by a short period of retrenchment after 1300 cal BC. This period (1300–1200 cal BC) corresponds approximately with the date of the only Bronze Age metalwork found during the Terminal 5 excavations (see below).

In terms of their physical distribution, a broad pattern exists in the locations of the radiocarbon samples. No dates relate to features of the coaxial system prior to the determination (Wk-18459; 3215±31 BP; 1530–1420 cal BC) on a wooden stake driven into the base of freshly-dug waterhole 510047 at the southern end of Farmstead 8, and a pair from Farmstead 6 (Wk-10033; 3097±74 BP; 1510–1190 cal BC (93%) and 1180–1130 cal BC (2%) and Wk-10034; 3091±57 BP; 1500–1210 cal BC). The 21 determinations lying between Wk-18459 and Wk-10033 all relate to features of the aggregate landscape, in Farmsteads 1, 2, 3 and 5.

The earliest determinations for Farmsteads 4, 10 11 lie post-retrenchment (Farmstead 4: Wk-18456; 2871±29 BP; 1190–1170 (2%) and 1160–980 (93%) cal BC; Farmstead 10: OxA-18031; 2906±30 BP; 1260–1240 cal BC (5%) and 1220–1040 cal BC (90%); Farmstead 11: Wk-18463; 2989±28 BP; 1300–1110 cal BC).

The available radiocarbon dates are somewhat equivocal, but there is a broad indication that elements of the western aggregate system predate elements of the eastern coaxial system.

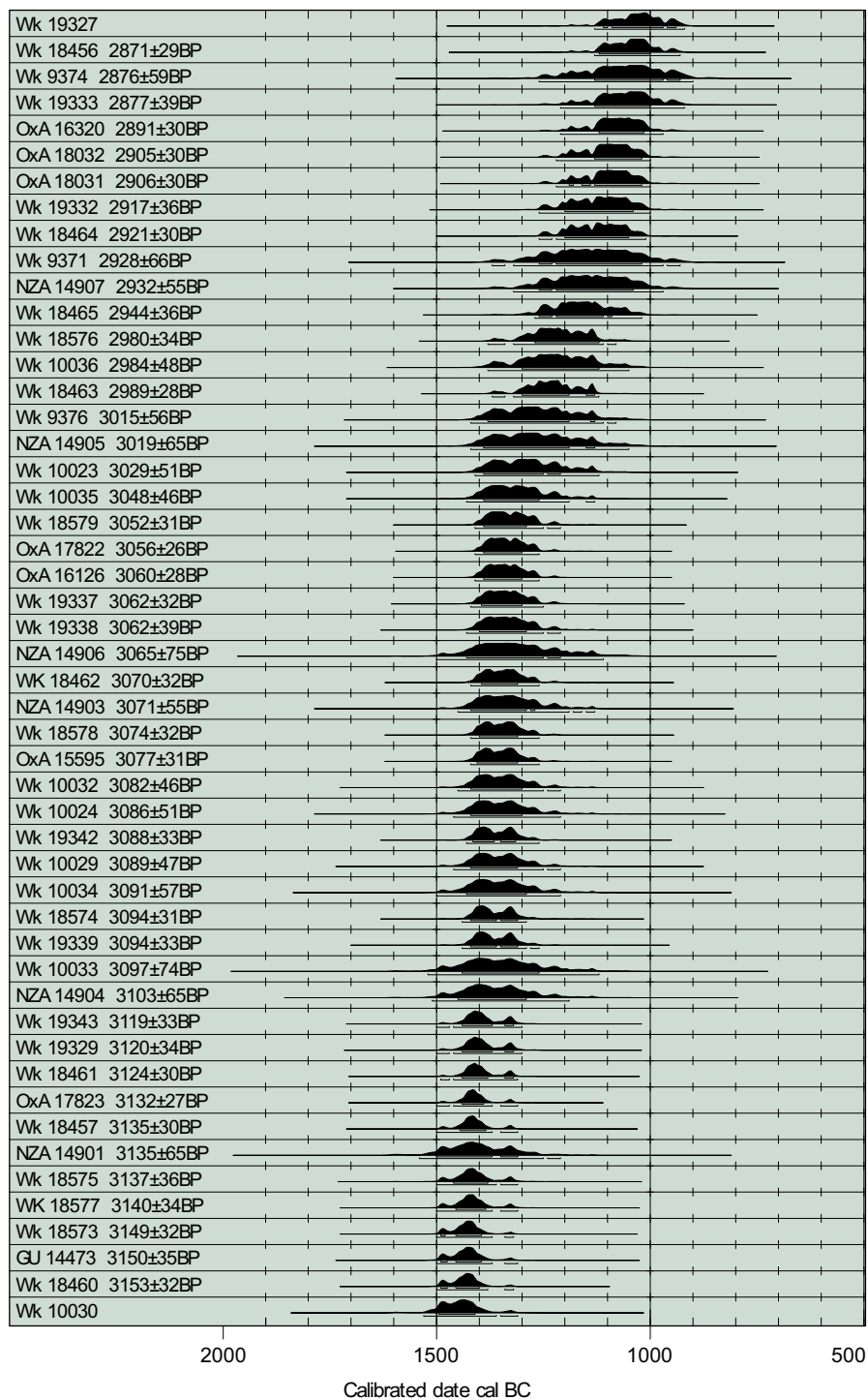


Figure 3.5: Radiocarbon dates 1500–950 cal BC

Elements of the modelled chronology, and possible ranges of occupancy for the better-dated farmsteads, are shown in Table 3.1.

On the basis of these dates it is not unreasonable to suggest that settlement within the aggregate system predated settlement within the coaxial. The scheme adopted here is that—at some point around 1400 cal BC—the large landholding of Farmstead 3 was

subdivided, with Farmstead 2 established in its former south-western corner. Farmstead 1 may have been established at this time, and it seems likely that at least the initial phase of expansion of the coaxial farmsteads was broadly contemporary.

Determining the order of establishment of the individual settlements is difficult, because the majority of the radiocarbon determinations derive

	1700	1600	1500	1400	1300	1200	1100	1000	900	800	700	600	500
Farmstead 3	1700	1600						910					
Farmstead 8	1700	1600						920					
Farmstead 6		1600	1520					940					
Farmstead 7		1600	1500			1100							
Farmstead 5		1600?	1530	1380									
Farmstead 1			1520	1400	1250								
Farmstead 2			1510	1400	1260								
Farmstead 4				1400			1130						410
Farmstead 11					1320			800					
Farmstead 10						1220	1000						

Table 3.1: Proposed date ranges for farmsteads

from materials preserved within waterholes which are not directly associated with the settlements themselves. If the proposed model of an initial, centralised phase is correct, then dated waterholes lying within—for instance—Farmstead 2 may in fact belong to earlier activity within Farmstead 3. This problem can only be usefully addressed once the evidence of the individual settlements has been considered.

Bronze Age Metalwork

A spiral finger ring and two spearheads were the only copper alloy objects recovered dating to the 2nd millennium BC (Fig. 3.6). All provide some evidence that contributes to an understanding of the chronology of land enclosure during this period. The objects are typologically assigned to the Taunton phases of the Middle Bronze Age (c 1300–1200 cal BC).

The ring is formed from a stout, coiled rod of oval section with smoothly rounded ends (Fig. 3.6, 3). Objects of this type are normally regarded as personal ornaments on the basis of continental parallels, but they may have served other functions. The diameter of the ring is more consistent with an interpretation as a thumb rather than a finger ring, although a toe ring is also a possibility. The ring was recovered from the central part of an upper fill (125004) within a well (157243) which cut an earlier waterhole (see Fig. 3.13).

One spearhead is a Taunton phase Middle Bronze Age type, cast with a hollow socket and side loops (Fig. 3.6, 1). The chronology of this type has been discussed at length (eg Ehrenburg 1977, 7–9; Rowlands 1976, Ch. II 3), while associated radiocarbon dates have been assessed by Needham *et al.* (1997). A radiocarbon date from wood (ash) preserved in the haft of the spearhead confirmed the Bronze Age date (NZA14907; 2932±55 BP) of 1310–1000 cal BC. Although Needham *et al.* (*ibid.*,

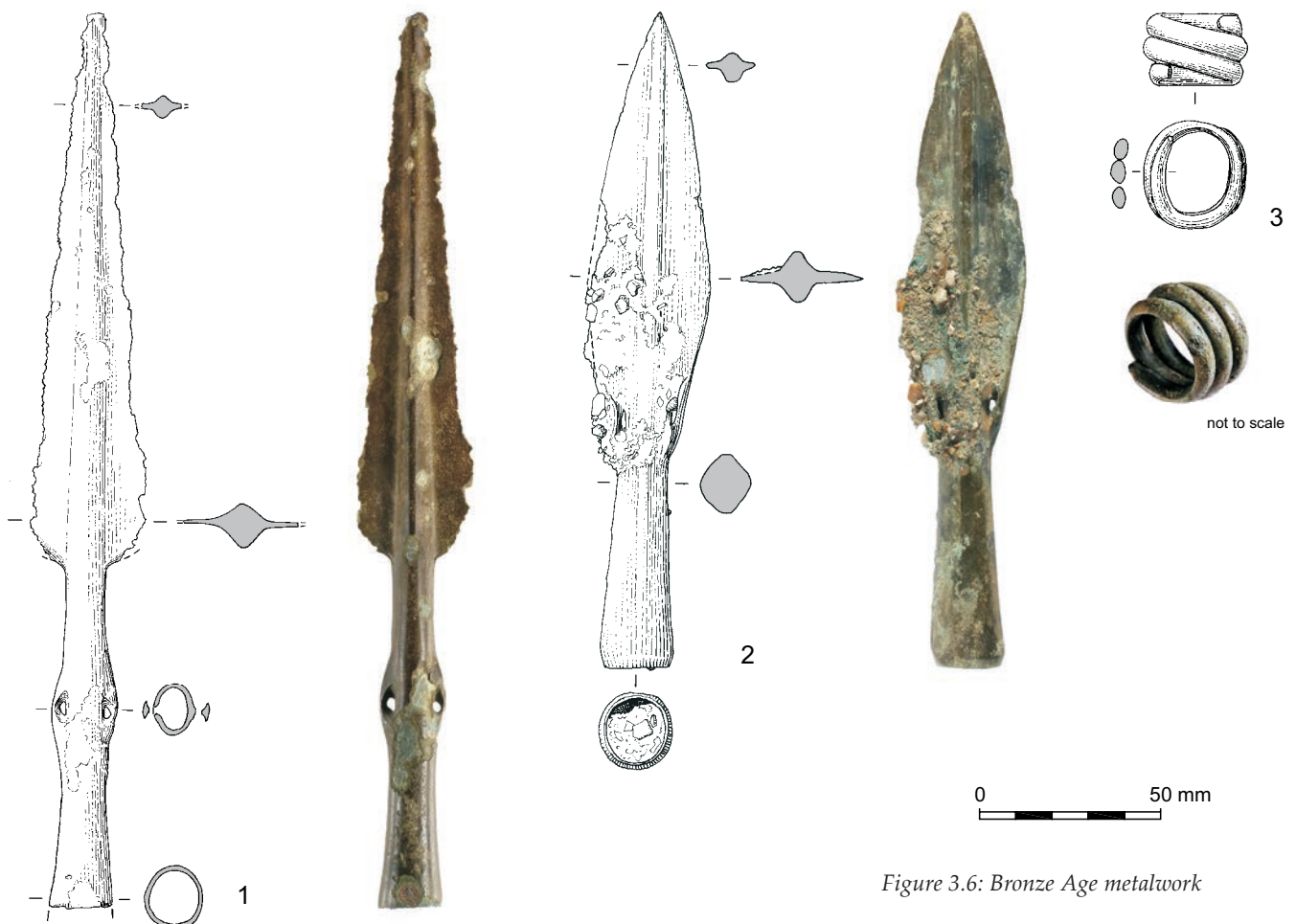


Figure 3.6: Bronze Age metalwork

85) admit to some imprecision in the dating of metalwork of the Taunton phase, as a result of the re-use and long functional life of spearheads, a date between 1450 and 1250 cal BC would seem appropriate.

The spearhead was located within a shallow recut (feature 149099) of a Bronze Age field ditch (111069) in Farmstead 6. If the spearhead had been deposited in the recut sometime between 1310 and 1000 cal BC, the construction of the original ditch and associated field bank could have preceded this event by several centuries.

The second basal-looped spearhead (Fig. 3.6, 2), recovered from the fill of a waterhole 641097 (see Fig. 3.10), also belongs to the Taunton phase of Middle Bronze Age metalwork. A radiocarbon date of 1450–1370 cal BC (Wk-19329; 3120±34 BP) came from the basal fill of the feature.

What did the landscape look like during the latter half of the 2nd millennium BC?

The 2nd millennium BC agricultural landscape was established on a terrain largely cleared of woodland. Clearance had occurred since the Neolithic period, but we should not imagine the Heathrow Terrace as prairie-like: there were certainly trees in the landscape, with alder carr and willow growing along the western edge in the damp low-lying palaeochannels of the Colne and with isolated trees or small stands of birch, pine, lime and elm dotted quite widely. Although the removal of many trees is attested by the hollows left by their roots, many were left growing in hedgerows and even within the lines of trackways, which sometimes zig-zagged around them.

Following its inception, the pattern of agricultural settlement was lived in, added to and altered over perhaps a thousand years, and resulted in a patchwork of fields, lanes, and hedgerows with periodically larger and smaller settlements set within them. These settlements varied in form and age, and are on the whole difficult to reconstruct, having suffered from



Plate 3.1: Artist's interpretation of cereal harvesting in the Bronze Age Farmsteads at Terminal 5

extensive truncation which has destroyed building plans and layouts. However, most seem to have taken the form of a square or sub-square ditched enclosure set amongst the fields and containing a small number of buildings. Each may represent a single farm with dwelling and outbuildings. The most obvious exception to this pattern is Farmstead 4, which seems to have been a considerably larger (and probably higher status) enclosure.

There is little doubt that people were engaged in mixed farming, with cereal crops grown and presumably quite large herds of livestock maintained. The ditches (and associated banks)

of the field boundaries, as well as functioning as land divisions, could also provide drainage for the brickearth-derived soils overlying the Thames gravels. Although these banks could have become colonised by vegetation and eventually by shrubs and even trees, it seems more likely that they were deliberately planted with hedge-forming species. In themselves, the ditches and banks were probably too slight to form effective barriers to livestock, and the hedgerows would have constituted much more substantial controls. In addition, the hedgerows would have been most productive in terms of food and other resources.

The palynological evidence suggests that the shrubs in the hedgerows were allowed to grow tall enough to produce flowers rather than being maintained by regular severe cutting (as is characteristic of the modern British landscape). The base of the hedgebank would have provided a haven for many herbs, grasses and flowering plants, and been home to small mammals, birds, invertebrates and reptiles. In short, the hedgerows will have provided a rich, diverse habitat for plants and animals, any or all of which could have played a part in the daily lives of the inhabitants of Heathrow.

The hedges and banks marked out a pattern of fields and enclosures. These enclosures, pastures and hedges seem to have provided pens and grazing primarily for herds of cattle, but also for flocks of sheep. All could have grazed, browsed and foraged from the hedgerows and woodland edges. Other fields would have been given over to arable agriculture: crop plants include emmer and spelt wheat, barley, and flax, alongside numerous foraged species, especially fruits (see artist's reconstruction in Plate 3.1). The hedges and woodland edges were rich in berries and nuts, and there is ample evidence for the availability of bramble, hazel, sloe, and elder. Red and Roe deer are attested, as is wild boar. The wider landscape would also have provided a broad range of materials including wood, fibre, fodder, medicines, and dye plants.

The environmental evidence from Terminal 5 presents a picture of the modern concept of a rural idyll. Hedges full of spring flowering shrubs, of honeysuckle in summer, and the rich autumn colour from berries and foliage, which must have been exceedingly attractive. Verdant pastures offered herb-rich grassland, with buttercups, daisies, flowering grasses, and milkwort. Even the trampled areas under herds and flocks and around the settlements supported diverse herb-rich ground and pretty grassy edges. Some of the waterholes must have been very attractive with meadowsweet, loosestrife, watermint, crowfoot, pondweed and iris.

It would be mistaken to think of the Middle Bronze Age at Heathrow as a manifestation of a pastoral golden age, however. Livestock, crops and people were—as ever—susceptible to disease, injury and mischance, and there are suggestions that at some point shortly before 1200 cal BC the Heathrow settlements went through a period of considerable turmoil. Features lying in the period 1300–1200 cal BC tend to be associated with a dearth of agricultural remains, occurrences of wild plant resources of marginal value, and a general impression of economic impoverishment. It is possible that some climatic change or widespread outbreak of disease struck: other settlements of this period in the south of England ceased to exist at about this time (Brown and Leivers 2008), and it is intriguing that at Heathrow, the only pieces of deposited metalwork occur at this period (see above).

Movement

One implication of the creation of a series of field systems is the imposition on the land of a network of physical boundaries constraining movement. Clearly, if one intention behind the laying-out of fields was containing and controlling groups of animals then these constraints would not have been accidental, but the effect they would have had on human movement may have been as far-reaching.

We should not imagine that the establishment of the field systems involved a change from a landscape through which people could move at random, as their whims directed, to one through which people could only move in rigidly defined ways. The landscape prior to the creation of the farmsteads would have contained conceptual and physical boundaries (some natural, some built, some metaphysical) resulting from a history of inhabitation over millennia. Some of these boundaries may very well have been incorporated into the geography of the field systems, both at the point of their creation and when later subdivisions became desirable.

Figure 3.7 shows the Heathrow Terrace divided into a series of farmsteads

separated for the most part by double-ditched trackways. The most immediately noticeable feature of these trackways is that they almost exclusively allow for movement between the northern and southern parts of the landscape but not between the east and west. There is no immediately apparent reason for this arrangement: the topography does not dictate it, and indeed similar field systems elsewhere in southern England might lead one to expect the dominant alignment to be at ninety degrees, with the trackways at right angles to the Colne and leading down to it, as indeed some of the fields on the very western edge of the excavated areas seem to do.

It is this relationship to major natural water sources (or, rather, the apparent lack of any such relationship) that highlights one of the unanswered questions concerning the establishment of the field systems: namely, what factors influenced their builders to align them roughly north-south? Possible answers to this question do not seem to lie within the Terminal 5 excavations (hints from further afield are considered later), but the consequences of the decision to align the trackways parallel to the Colne are everywhere to be seen: nowhere is this more true than in the case of the wells and waterholes which pepper the Heathrow Terrace.

The trackways and their development

The stratigraphic relationships between trackway ditches and field boundaries identified in *Volume 1: Perry Oaks* (Framework Archaeology 2006) are now complemented by a greater number from across the excavations and the picture is now more complex than proposed initially. It is not possible to argue any longer that the trackways all began as field boundaries which were later elaborated, or that they necessarily predate the east-west field boundaries: although several trackway ditches are cut by field boundaries, there is no straightforward or universal chronological relationship between them. Instead, it seems that the farmed landscape resulted from a dynamic process of creation, maintenance and

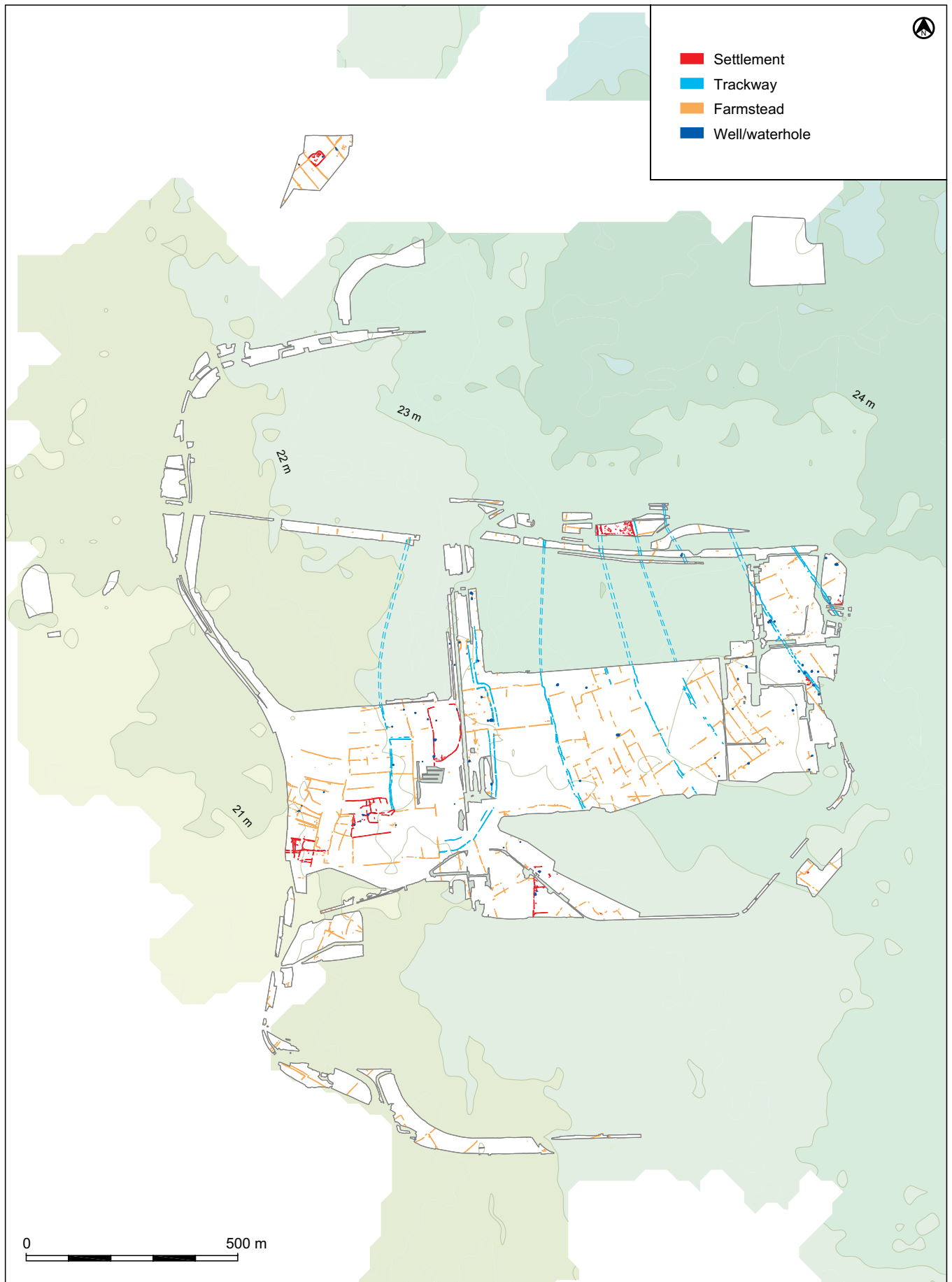


Figure 3.7: The Bronze Age landscape showing settlements, trackways, wells/waterholes and farmsteads

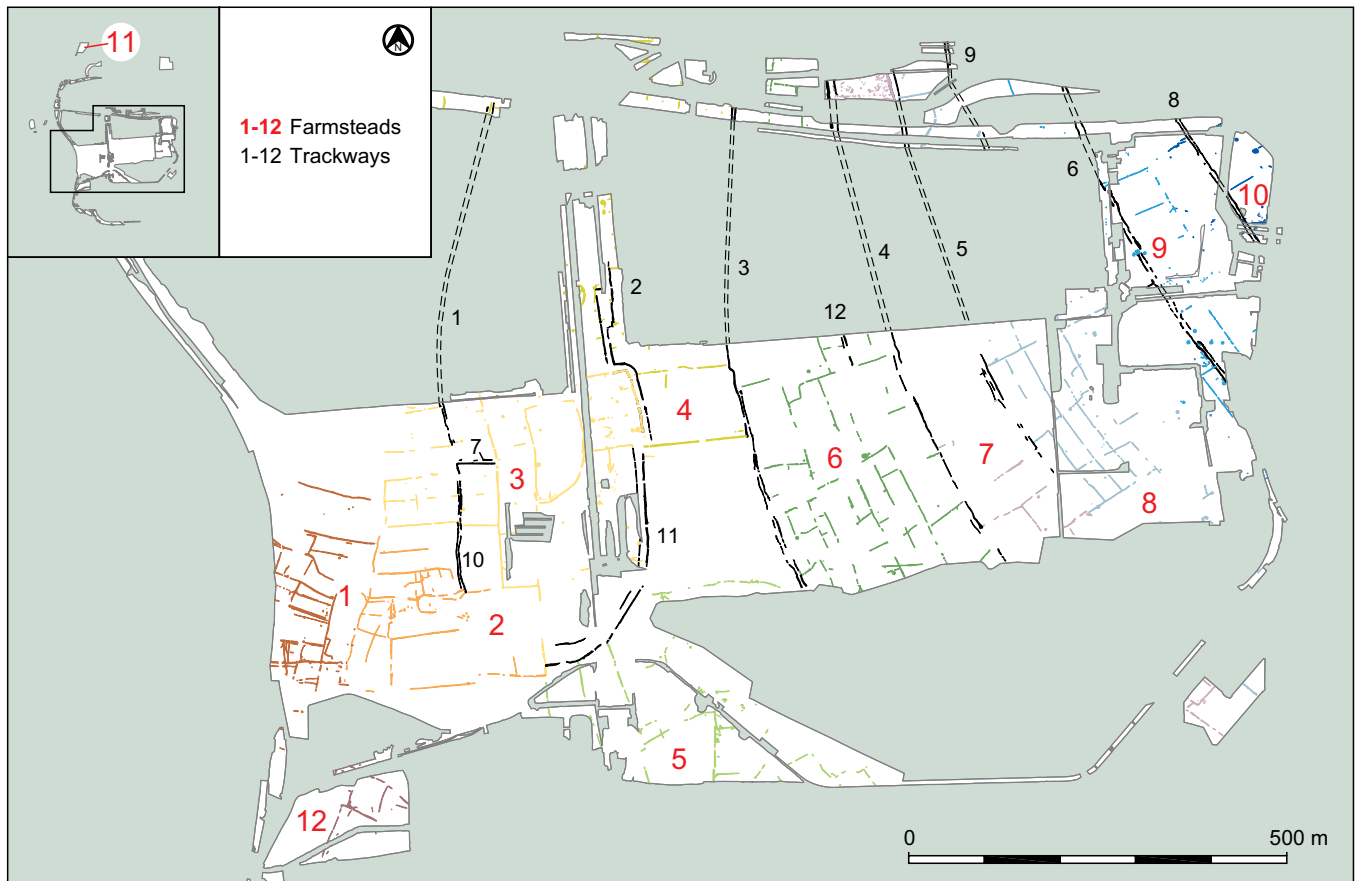


Figure 3.8: Bronze Age trackways and farmsteads

alteration of trackways, boundaries, entrances and fields, which were added to and altered throughout the 2nd millennium.

Ten major north-south routes (Trackways 1–6, 8–11) and one shorter east-west track (Trackway 7) have been identified (Fig. 3.8), seven of which were first discussed in *Volume 1: Perry Oaks*. However, subsequent excavation and analysis has revealed that not all of these trackways were single routes along the entirety of their lengths throughout all of their existence, and that—especially in the western aggregate landscape—‘stops’ occurred at varying points effectively blocking movement up and down the tracks. Obviously this is of considerable significance in terms of the chronology of the landscape and how different parts of it articulated: as far as this publication is concerned it has necessitated some changes in nomenclature, as in Table 3.2.

In addition to these eleven major trackways, there are a number of other short

sections of double ditch which may represent further routes (including Trackway 12). These are all too fragmentary to add to any understanding of the arrangement of the landscape, and all of them conform to the alignments of the eleven major examples. The only notable exception to this consists of a number of small lengths of double ditch at the south-western corner of the excavations in Farmstead 12 (Fig. 3.8). These are aligned roughly NW-SE, entirely at odds with the other examples, but at right angles to the

major axial trackways running through the fields identified at Stanwell (O’Connell 1990). These are discussed in more detail below.

Although broadly similar in their morphology, there are a number of features of trackway construction which warrant discussion. Foremost amongst these is the division between segmented and continuous construction. This is not a distinction *between* trackways, but *along* trackways. Especially in the farmsteads of the

Volume 1 name	Entity	Volume 2 name	Entity
Trackway 1	524	Trackways 1 and 10	524 and 2829
Trackway 2	740	Trackways 2 and 11	740 and 2831
Trackway 3	739	Trackway 3	739
Trackway 4	2828	Trackway 4	2828
Trackway 5	53	Trackway 5	53
Trackway 6	397	Trackway 6	397
Trackway 7	742	Trackway 7	742
		Trackway 8	320
		Trackway 9	2848
		Trackway 10	2829
		Trackway 11	2831
		Trackway 12	2852

Table 3.2: Trackway concordance



Plate 3.2: Artist's representation of Bronze Age settlement construction within the landscape

coaxial landscape, a repeated division can be seen between the southern ends of the trackways (which tend to consist of short, sometimes intersecting or overlapping segments) and the northern portions (which tend to consist of much longer, uninterrupted ditches).

Among the possible explanations for this phenomenon, two seem to be the most probable. Firstly, the difference may be one of chronology: in Trackway 3 particularly there are strong indications that the segmented (southern) section is earlier than the more continuous (northern) part, and this may well be true for other trackways as well. However, the evidence of Trackways 4 and 5 suggest that these differences may also be to do with *proximity to settlement*, with ditches becoming more continuous and substantial towards settlement enclosures. Both suggestions are probably true. What is interesting is that—if the proposed chronological significance is correct—the relationship between segmented and cohesive appears to be an inverse one between trackways on the one hand, and the social milieux within which they were created. The earlier, segmented, sections of trackway were constructed at a time when the agricultural landscape was a single unit, lived in and farmed by a single (larger) group of people inhabiting Farmstead 3. The later, continuous, sections of trackway were constructed when the landscape was parcelled up and divided into a number of smaller farmsteads.

Is this fact at all significant? It is possible to read the relationship between trackways and settlements in a number of ways which suggest that the relationship was not simply coincidental, and that trackway construction was in fact used as a means of expressing either an underlying truth (or at least perceived truth) about the nature of society, or as a physical manifestation of an ideological convenience. The segmented trackways could work in much the same way as—for instance—Early Neolithic causewayed enclosure ditches, where conceptually separate (ie gendered; differently initiated; totemic; family) but politically united (ie clan) groups expressed both their

unity and separateness architecturally (a number of smaller units forming a whole). In this example, the later continuous trackway sections—constructed at time when society was fragmenting into a series of smaller units—would emphasise cohesiveness, completeness and singularity.

This rather unsophisticated reading of the evidence is of course only one possible explanation of the change in trackway construction. The reality may be far more complex, or utterly prosaic. However, the repetition of this pattern does suggest that it (if not the explanation of it) is real, as does its occurrence in both the coaxial and aggregate portions of the landscape.

In the western fields, the situation is somewhat different, since only Trackways 1 and 10 show the distinction, and here the Trackway 1 ditches consist of numerous short and longer segments, whereas Trackway 10 is marked by very long continuous ditches. It is possible to argue (although by no means certain) that Trackway 1 is earlier than Trackway 10, and it is also the case that Trackway 10 is closer to a settlement than Trackway 1, so here as well the same guiding principles may be at work.

Activity and Settlement within the landscape

Size of trackway ditches may be one indication for the presence of settlements, which can otherwise be very difficult to identify with any certainty. The term *settlement* in this chapter is defined as a place of human occupation, incorporating domestic buildings (see Plate 3.2 for artist's representation of Bronze Age settlement within the landscape). Unfortunately, structural evidence for buildings is almost entirely lacking, so with very few exceptions settlements have to be identified on the basis of coincidence of poor structural traces, unusual boundary ditch arrangements, concentrations of material, and predicted locations within the postulated system of fields and trackways. As outlined at the start of this chapter, a *settlement* has been defined as one element within a

	Size (m)	Entity	Farmstead
Settlement 1	72 x ?	778	7
Settlement 2	80 x 80	720	2
Settlement 3	?	558	8
Settlement 4	128 x 66	998	3
Settlement 5	-	10	4
Settlement 6	-	2832	n/a
Settlement 7	50 x 50	722	1
Settlement 8	25 x ?	61	10
Settlement 9	?	5	5
Settlement 10	30 x 26	2833	11

Table 3.3: Settlement size and entity number

Farmstead, which also includes its associated system of fields, trackways and enclosures.

Six possible Middle and Late Bronze Age settlements were identified in *Volume 1: Perry Oaks*. Of these, Settlement 6 was suggested on the basis of field system patterning and finds distributions. This settlement has now been discounted, as wider excavation has demonstrated that neither of these suggested characteristics is unusual, but a further four settlement locations have been identified, bringing the total to nine (1–5 and 7–10; Fig. 3.9; Table 3.3). The settlements will now be discussed within the context of their associated Farmsteads, as part of the wider agricultural landscape.

Settlement genesis

In most instances there is very little to indicate any pre-existing influence on the location of the emergent Middle Bronze Age settlements: with the exception of Settlements 1 and 4, none coincide with concentrations of earlier material which could suggest continuation or re-occupation of earlier settlement sites. Settlement 1 (in the north of Farmstead 7) is situated immediately south of the interrupted ring-ditches excavated in 1969 (Canham 1978), in an area containing Grooved Ware pits (see Chapter 2). While the presence of these pits does hint at an earlier human presence in this area, the ring-ditches need not pre-date the Middle Bronze Age settlements by very much, if at all. At Stansted Airport, a similar ring ditch

was broadly contemporary with enclosed Middle Bronze Age settlement (Brown and Leivers 2008).

The case of Settlement 4 (in Farmstead 3) is somewhat different, as it is located within a large double-ditched enclosure, the location of which clearly has very close relationships with a pair of Neolithic earthworks: the HE1 Enclosure (which marks the entrance to the outer of the two 'D'-shaped enclosures), and the C2 Cursus (see below). Farmstead 3 can be argued to be earlier than at least some elements of the Middle Bronze Age landscape, suggesting that Settlement 4 in its 'D'-shaped enclosure was the earliest part of the Middle Bronze Age system, established first and drawing on existing landscape elements to 'legitimise' its newness. This is discussed further below.

Farmsteads

The relationships between the individual settlements and trackways and the presumed farmsteads within which

they were situated are not always obvious. The series of seven landholdings proposed in *Volume 1: Perry Oaks* (Framework Archaeology 2006) can now be seen to over-simplify a situation in which the Heathrow Terrace was not simply divided by trackways into a series of strips running north-south, but rather into a series of irregular blocks on the west (the aggregate landscape) and a more regular system to the east (the coaxial landscape). North and south of these blocks, further field systems on different alignments suggest even more complexity, but these are for the most part too fragmentary to reconstruct with any certainty. The arrangement of the landscape was clearly dynamic; maintained, altered and extended, with at least one major revision or redesign (when Farmstead 3 was divided, and the coaxial landscape extended, sometime after 1400 cal BC), apparently for more than a millennium. It has proved very difficult to untangle the chronology of both the farmsteads and the settlements located within them. Nonetheless, several different strands

of evidence (primarily stratigraphy, morphology, possibilities for access, material remains and proximity) have been used to suggest how the field systems, settlements and trackways may have been divided, and how the different blocks may have articulated.

The resulting farmsteads are discussed below. The basic divisions of the landscape are shown in Fig. 3.9.

The Aggregate Landscape

The aggregate landscape consists of Farmsteads 1, 2, 3, 4 and perhaps 5, 11 and 12 (the difficulties of assigning the latter three are discussed below).

Farmstead 3

There are a number of reasons to suppose that Farmstead 3 (the large 'D'-shaped enclosure in the western central portion of the excavations, the settlement within the inner enclosure, and associated field systems) has a good claim to primacy, as outlined above (Fig. 3.10). In addition to the already-

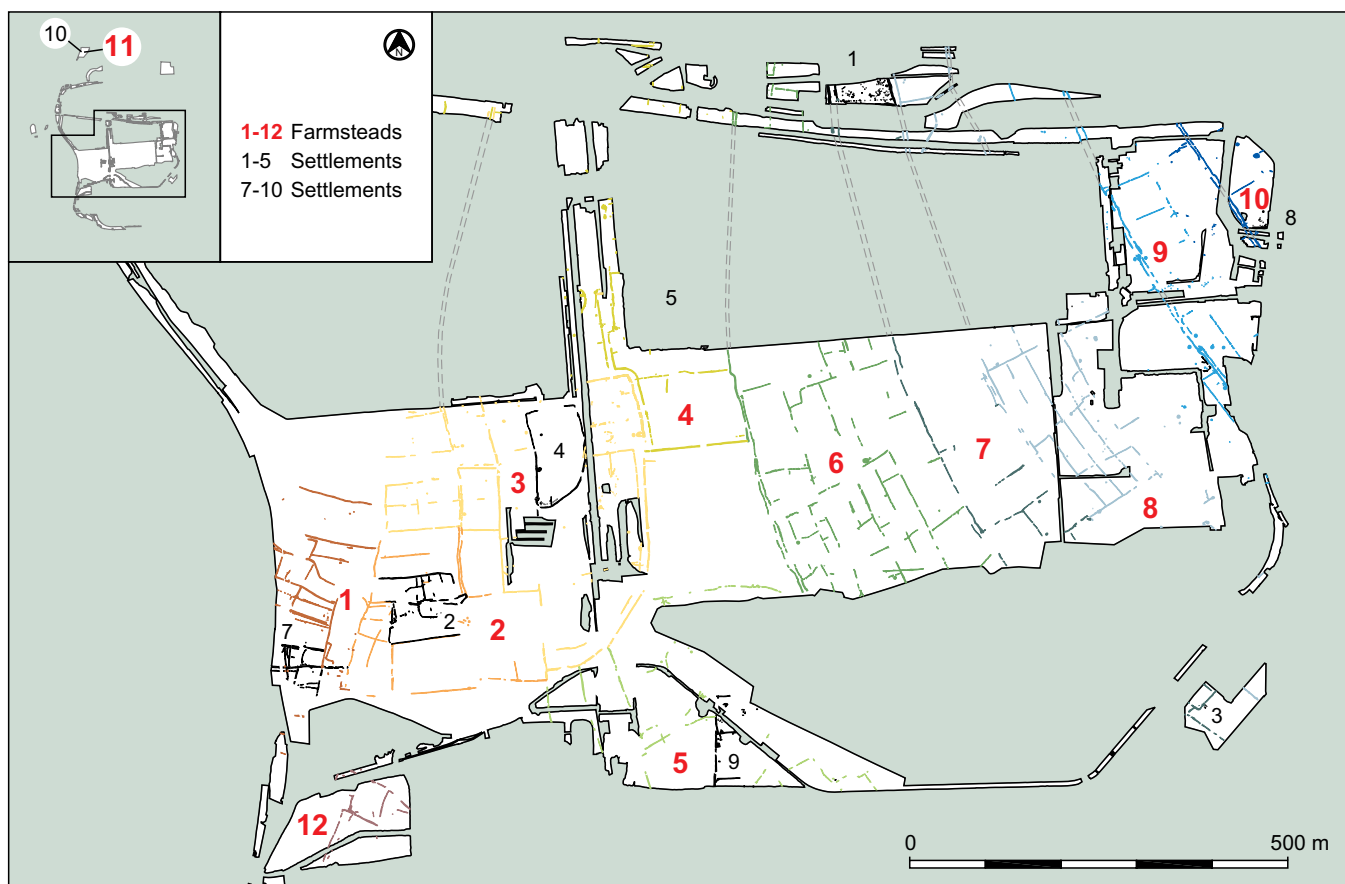


Figure 3.9: Bronze Age settlements and farmsteads

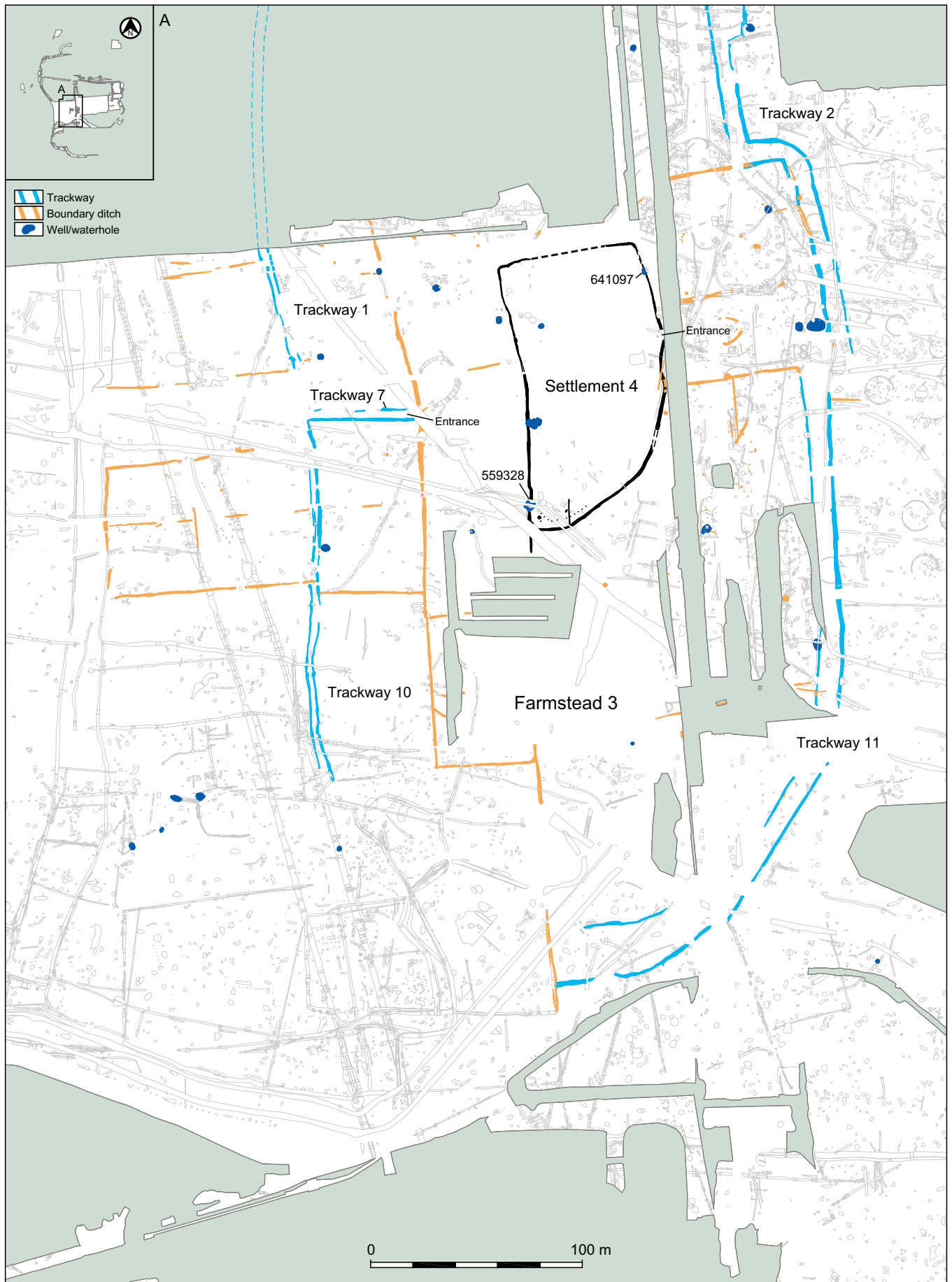


Figure 3.10: Farmstead 3 and Settlement 4

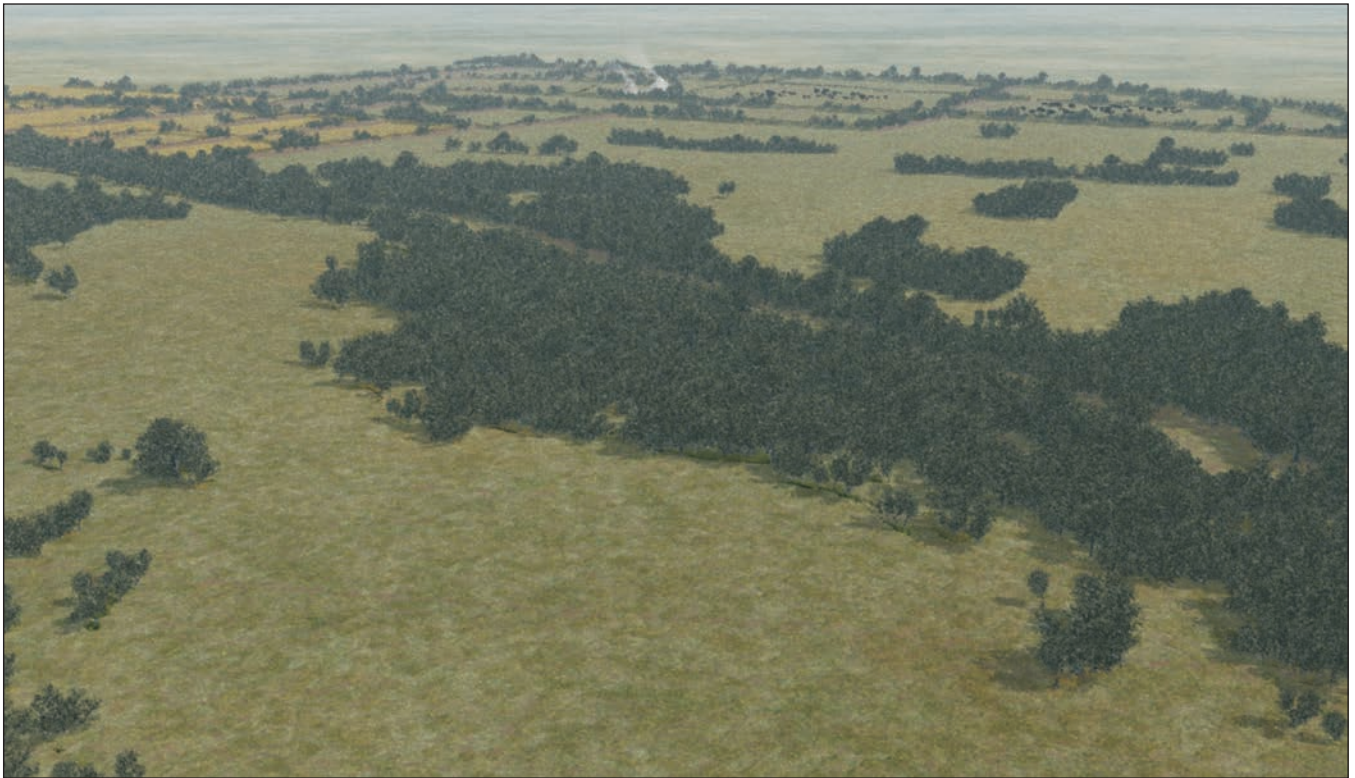


Plate 3.3: Artist's reconstruction of Farmstead 3, Phase 1

stated reasons (and perhaps most convincingly) it is the only farmstead to have any convincing relationship with the pre-agricultural landscape. The ways in which parts of the farmstead reference and are enhanced by Neolithic earthworks, which are either ignored or slighted everywhere else that they occur in the 2nd millennium BC landscape, might be indications of chronological and social primacy for Farmstead 3, and are worth examining in some detail (Fig. 3.11; (see also artist's reconstruction in Plate 3.3).

Towards the northern end of Trackway 1, the line of both flanking ditches curves to pass very neatly through an existing gap in the north-western side of the C2 Cursus. This suggests that—rather than developing out of an axial field boundary—Trackway 1 was always a trackway, and also that the C2 Cursus survived into the Middle and Late Bronze Age in substantial enough form (as either bank or ditch or both) for a thoroughfare to need to pass through it, rather than just go over it. Rather than the line of the trackway being maintained south of the gap in the C2 Cursus, the ditches swing back south to coincide with the

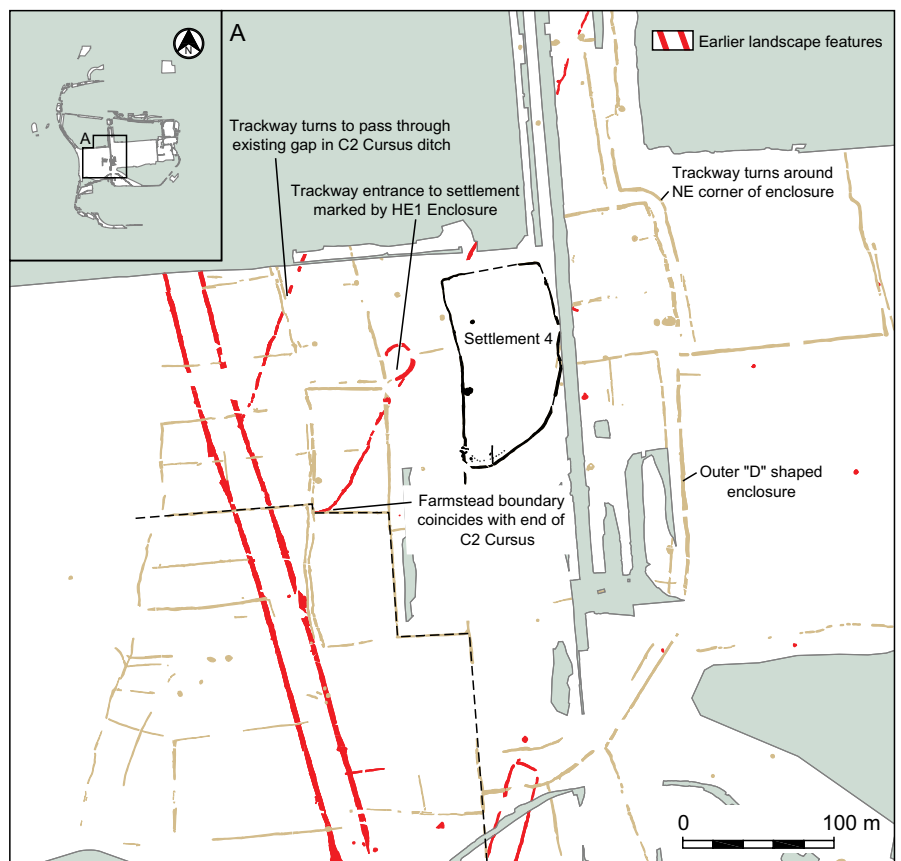


Figure 3.11: Farmstead 3's relations to the earlier landscape

southern terminal of the south-eastern cursus ditch, at a point at which Trackway 1 is blocked. This bend in Trackway 1 is paralleled exactly by the lines of both the axial field boundary to the east, and by the western boundary

of the Inner 'D'-shaped enclosure, suggesting that these two features were offset from (and therefore post-date) Trackway 1. The primacy of Trackway 1 seems incontrovertible given its physical relationships with points on

the C2 Cursus, but it remains unclear just how much older than the field system and enclosures of Farmstead 3 it is.

Two possibilities arise: either the trackway, field boundaries and enclosure are all parts of a single process of laying-out, with the trackway laid down first with reference to the C2 Cursus; or Trackway 1 (or at least the route it came to mark) was of some antiquity when Farmstead 3 was laid out, and was used as a base-line for the later features. Although the first possibility is perhaps the most likely, the presence of small amounts of Early Neolithic Plain Bowl, Late Neolithic Grooved Ware and Early Bronze Age Beaker or Collared Urn ceramics in the trackway ditches is suggestive of a longer history, and the very close relationships between Trackway 1 and both the C1 and C2 Cursus should not be ignored.

The second set of relationships between Farmstead 3 and the pre-agricultural landscape involve Trackway 7, which runs eastwards from Trackway 1 to a gap in the axial field boundary adjacent to the HE1 Enclosure and what seems likely to be the entrance to/exit from the outer 'D'-shaped enclosure. A radiocarbon date from pit 142010 cut into the top of the HE1 ditch suggests that the enclosure was still in use in some way in the 2nd millennium, and its location at one of the entrances to the large 'D'-shaped enclosure suggests that it was probably a structure of some importance.

It is therefore possible that Farmstead 3 had a chronological primacy within the agricultural landscape. Unlike some of the other farmsteads, which appear to have evidence of episodic activity (perhaps of the establishment of relatively short-lived settlements within field systems already more than a century old), Farmstead 3 appears to remain occupied and in use for an unbroken span of at the least 400 years, but perhaps as much as 800 (Fig. 3.12).

Settlement 4

The core of Farmstead 3 appears to have been Settlement 4 (Fig. 3.10), which was defined by the inner D-shaped enclosure. Severe truncation

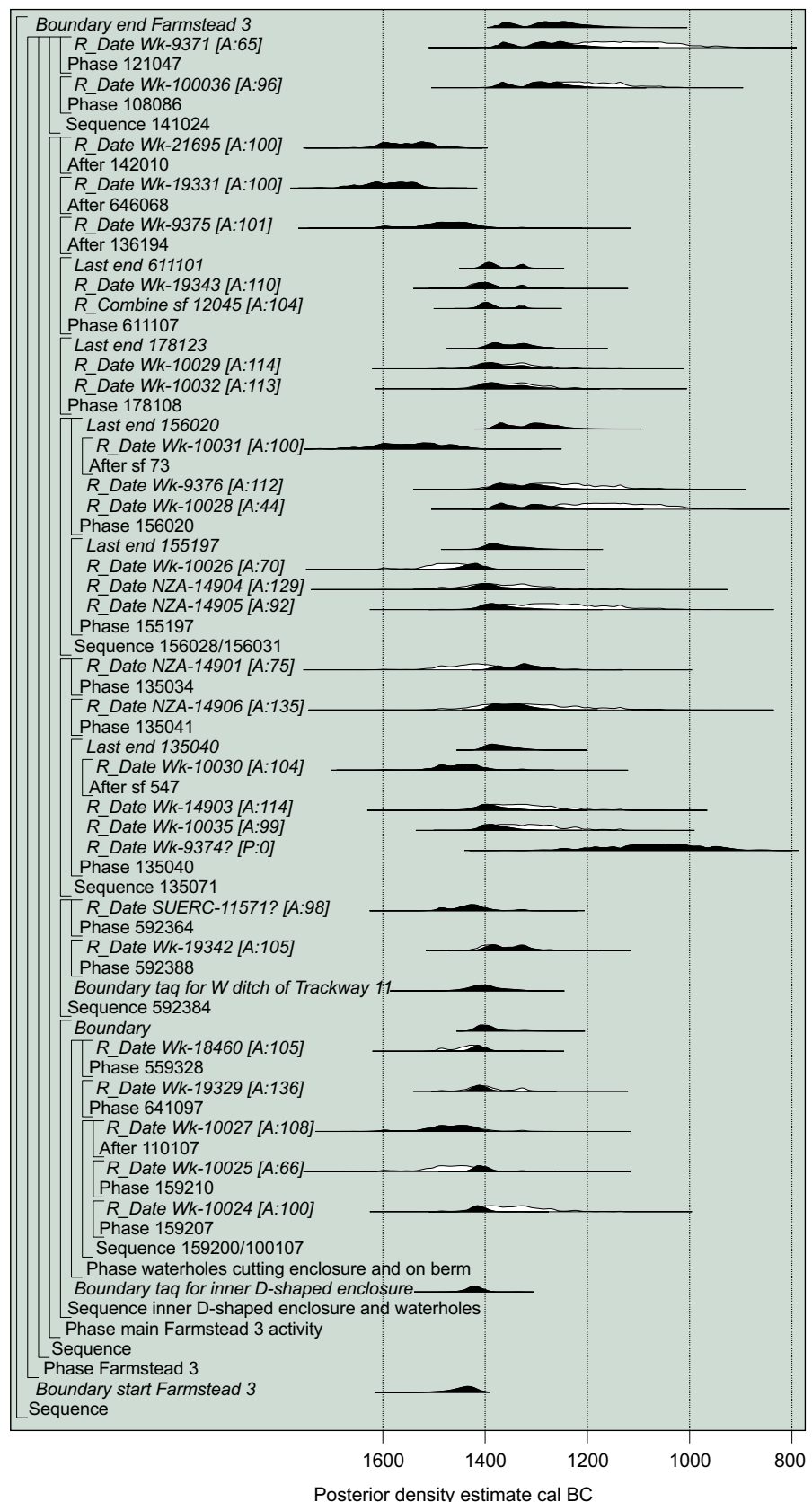


Figure 3.12: Radiocarbon dates for Farmstead 3

in this part of the site (see Chapter 1, Fig. 1.5 – truncation model) has removed a great deal of the evidence for the form of this settlement, but what survives suggests a ditched,

embanked enclosure of approximately three-quarters of a hectare marked at least in places by a timber palisade and with a single entrance on the east side. As with the majority of structural

features of the enclosure, all detail of the entrance has been lost to truncation, and all that can be said is that the boundary ditches turn outwards slightly and terminate leaving a gap of approximately 3.8 m.

The palisade survives only at the southern end of the enclosure, where it consists of an approximately 24 m long run of eleven postholes set on average 2.1 m apart. The form and extent of this structure are consequently very difficult to reconstruct, but the most likely possibility is that the palisade replaced an earlier earthen bank inside the enclosure ditch. The ditch itself is scarcely better preserved than the palisade, but there are some indications of an internal bank, and perhaps of further posts set within the ditch.

This arrangement has certain similarities with other Bronze Age enclosures such as Rams Hill, where the timbered rampart was a replacement for (or rather refurbishment of) an earlier, earthen bank (Bradley and Ellison 1975; Needham and Ambers 1994). Although the Heathrow enclosure is considerably earlier than Rams Hill, the same general sequence may be visible: some portions of the silted enclosure ditch were certainly recut, and its effectiveness as a boundary by 1400 cal BC must have been considerably reduced, given the number of wells and waterholes which were cut through its line around that time (below).

It is then possible to envisage an initial enclosure defined by a bank inside a ditch, replaced by a timber palisade once the ditch had at least partially silted. The creation of the enclosure is essentially undated; only the ditch can be confidently assigned to this first phase, and the internal bank postulated from fill patterns. There are almost no features surviving within the enclosed area, and of these few none can be confidently claimed as early. Only intersecting pits/wells 146043/146039 lay in the interior, but contained neither artefactual or palaeoenvironmental material. The ditch is likely to have been silted and the bank at least partially denuded

before the last half of the 15th century BC since wells and waterholes were cut through the line of both primarily between 1440 and 1370 cal BC (see below).

All of the reliably dated examples of such features in Settlement 4 date to the second phase, assumed to be the point at which the boundary was renewed by the construction of the palisade. Although wells and waterholes are the only surviving features, they provide a suite of artefactual and palaeoenvironmental evidence which allow the reconstruction of conditions around the enclosure. In short, the area was dominated by grassland, with cereal crops grown further away. Each of the features seems to have been situated adjacent to an established hedgerow, so it seems highly likely that this grew atop the bank of the original enclosure. In this case, it may be that the palisade was not continuous, but only stood at places where the bank had been more than usually denuded, or where greater stability, security or imposing appearance was desired.

The following features can be associated with Settlement 4:

- Well 559328: this feature was located at the southern end of the palisade enclosure, and cut the north-south aligned ditch (Fig. 3.10). Its profile and fills indicate a well rather than a stock watering hole. A radiocarbon determination from organic material in a lower fill of the well-shaft dated to 1450–1380 cal BC (Wk-18460; 3153±32 BP). Domestic activity is suggested by a cylindrical loomweight fragment. Ceramics from the lower fills were entirely of Deverel-Rimbury type, while higher fills contained Deverel-Rimbury, post-Deverel-Rimbury and one intrusive crumb of Romano-British pottery (the feature had been much disturbed in its central portion by a modern wall).
- Waterhole 641097 was similarly located cutting the enclosure ditch, this time towards the north-east corner of the circuit (Fig. 3.10). The basal fill dated to 1450–1370 cal BC (Wk-19329;

3120±34 BP), indicating contemporaneity with well 559328. The most notable feature of this waterhole was the spearhead from fill 641043 (Fig. 3.6.2).

Palaeoenvironmental evidence from this pair of features (559328 and 641097) is relatively uniform, with woody hedgerow taxa and preserved leaves, thorns and twigs. Species included field maple, willow, sloe, blackberry, hawthorn, elderberry, *rosa* sp., alder, buckthorn and dogwood. Grassland taxa, hedgerow/wayside herbs and weeds of disturbed places were common. Both had only very scarce true aquatic plants, although for 641097 several sedge, rush and spike-rush remains indicated damp margins. Unlike most other similar features, 641097 contained abundant stinging nettles and other nitrophilous taxa, suggesting that livestock had access to the feature.

- Well and waterhole group 159200, 110107, 157243 and 125034 (Fig. 3.13). These four features intercut on the western perimeter of the enclosure. The earliest of the three (well 159200) lay inside the ditch on what would probably have been the berm between it and its bank. The lack of any material in the well indicative of collapse of bank material suggests that the bank was denuded by the time the well was dug. When dug, the well was lined with a cylindrical wattle work. Elements of this structure gave a radiocarbon determination of 1450–1370 cal BC (Wk-10024; 3086±51 BP). After the collapse of the wattle lining the feature was remodelled as a waterhole, with a timber post revetment inserted to enable ramped access to the water from the eastern side. This revetment gave an identical date range of 1450–1370 cal BC (Wk-10025; 3187±54 BP).

Artefactual evidence from 159200 was limited to a single withy tie and large portions of a Deverel-Rimbury jar. The feature seems to have been backfilled relatively quickly, and then cut through by a series of other features. Pit 125034 was small and contained nothing beyond a handful of pot sherds and animal bones. Both it and 159200 were then cut by well 157243.

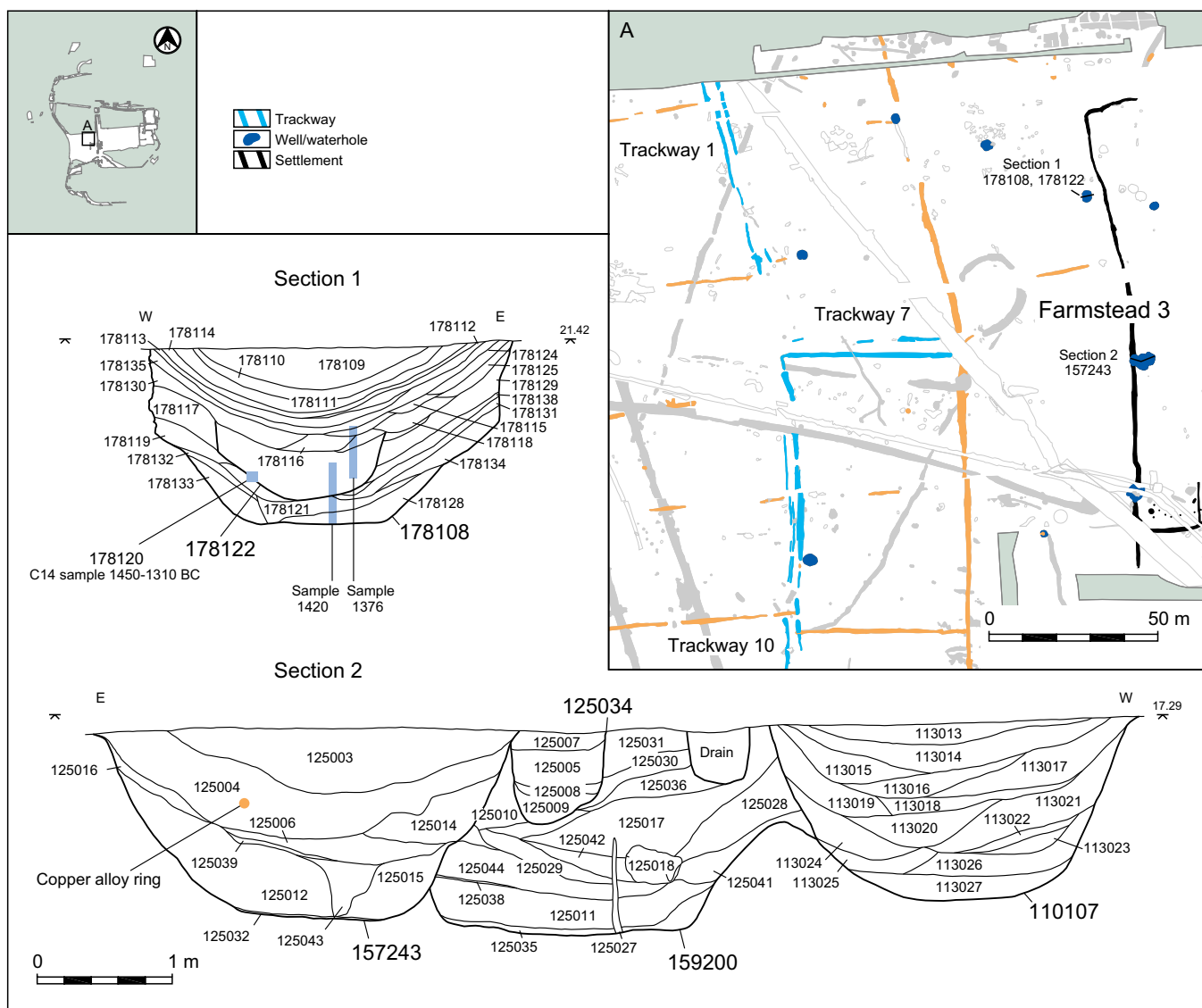


Figure 3.13: Wells and waterholes associated with Settlement 4

Palaeoenvironmental evidence for well 157243 demonstrates some change in conditions throughout the life of the feature. Pollen from the lowest levels indicates that the area supported wet, acidic soils with *Sphagnum* moss, sedges and bog plants growing in the very soggy, waterlogged ground at the edges of the feature.

Oak, alder, birch, lime, elm, and ash were growing in the catchment (some possibly as components of a hedge) but *elder, maple, hazel, purging buckthorn, ivy, willow, Prunus* type (sloe), and other members of the *Rosaceae*, seem to have dominated the woody plants in the immediate locality. Apart from *hazel*, most of these are insect-pollinated and produce very small amounts of poorly dispersed pollen so they are likely to have been growing very close the feature. *Cannabis* type was also recorded but

it is likely that this represents male hops scrambling through a hedgerow.

Cereals were being grown in the vicinity but probably in areas situated a little distance away; the abundance of ruderals such as members of the goosefoot family (Chenopodiaceae), nettle, and knotweed suggest that there were open, bare soils available locally.

The herbaceous flora was dominated by dandelion-like plants, plantains, ragwort/daisy, goosefoot, hogweed/fool's parsley, mugwort, nettle, Potentilla type (tormentil/silverweed), and bracken. Grass pollen did not exceed 20% and this suggests that grazing pressures were fairly high. There is little doubt that the area was dominated by pasture and open, trampled soils. However, many of the herbs could have been growing under the protection of a hedge or ditch.

The local landscape seems to have changed very little throughout the rest of the life of the feature. Higher levels were characterised by a drop in maple (ultimately to extinction) and oak and a by marked rise in rosaceous pollen (probably bramble and/or hawthorn), and nettle and a temporary increase in elder. Elder grows and matures very quickly indeed, and its expansion might have been due to the removal of other woody taxa locally. The low percentages for grass pollen and the relatively low record for cereal type pollen indicates that the area was being subjected to fairly high grazing intensity. The relatively high values for Stachys type (eg hedge woundwort), nettle, plantain, dandelion-like plants, campion, mugwort and ragwort/daisy might suggest that these were protected from grazing either by their lack of palatability, or by growing in protection of the ditch. Others such as

Potentilla type (silverweed/tormentil), Lotus type (bird's foot trefoil), and goosefoot could probably cope with trampling and were growing in less protected areas of the local grassland.

The hedge seems to have continued to grow but the area seems to have been somewhat neglected towards the end of the life of the feature. The increase in grasses and ruderals, and the low record for cereals, suggests that there was less agricultural pressure on the land around this feature during the later period of sediment accumulation. The decline of some of elder and the increase in 'wasteland' ruderals seems to have been gradual.

(Peglar et al., CD Section 16)

The upper portions of the environmental sequence are contemporary with the deposition in this feature of a copper alloy ring (Fig. 3.6, 3). As reported above, the ring is formed from a stout, coiled rod of oval section with smoothly rounded ends, and is probably a personal ornament.

Two interpretations for the deposition of the ring can be suggested. It may have been redeposited from the earlier waterhole (radiocarbon dated to 1450–1370 cal BC), or else it could have been deposited as a curated, significant votive object.

Well 159200 was also cut by well 110107, which also cut the silted ditch of the enclosure. Very little artefactual of palaeoenvironmental material was recovered, but a single tangentially faced *Quercus* board gave a radiocarbon determination of 1610–1310 cal BC (Wk-10027; 3184±55 BP). This date should be treated with some caution however, since it does not derive from round- or sapwood and could consequently be inaccurate by several centuries.

The outer 'D'-shaped enclosure

The enclosure defining Settlement 4 was set off-centre within a second enclosed area which mimicked its shape but which was considerably larger, taking in 6.35 hectares (Fig. 3.10). The boundaries of this enclosure were defined by ditches, the southern

and eastern portions of which also formed the eastern edge of Trackway 11. The western side of this trackway seems to have widened out at its southern end to form a feature which may have served as a stock funnel.

Breaks only appear in the outer trackway ditch in the area of the field system of Farmstead 5 (see below), although it is not entirely clear whether these are an effect of truncation, or whether communication into these fields was intended from Trackway 11.

The northern portion of the outer D-shaped enclosure on the eastern side came to serve as the western boundary of Trackway 2 (Fig. 3.10). Samples from the lowest fills of the enclosure ditch towards the north-east corner were dominated by...

*...fragments of wood and twigs, with abundant stinging nettle (*Urtica dioica*) and blackberry seeds (*Rubus sect. Glandulosus*). Both rose/blackberry-type thorns and sloe/hawthorn-type thorns were frequent, and sloe stones, immature hawthorn fruits (*Crataegus monogyna*) and rose (*Rosa sp.*) seeds were recorded. Because of the abundance of these remains, it would appear that a thorn hedge had been growing along the ditch, or very close to it. Since, in addition to stinging nettle seeds, other indicators of nutrient-rich soils were frequent, eg common chickweed (*Stellaria media*), black nightshade (*Solanum nigrum*), greater burdock (*Arctium lappa*) and upright hedge-parsley (*Torilis japonica*), it is likely that the ditch and thorn hedge had been used as a stock-proof barrier. Very few wet/damp ground taxa were recorded (only a few sedge nutlets and rush (*Juncus sp.*) seeds), so the ditch was probably fairly dry at the time of silting, but damp enough for organic material to have become preserved. The surrounding vegetation was probably grassland, as a few buttercup (*Ranunculus repens/acris/bulbosus*), plantain (*Plantago major*) and thistle (*Cirsium/Carduus sp.*) seeds were present. Thistles often become abundant in well-grazed pastures. No charred plant remains indicative of manuring or the proximity of domestic activities were recovered from this sample.*

(Carruthers, CD Section 14)

A naturally deposited sediment within a re-cut (615051) of the northern portion of this ditch contained a suite of environmental evidence very similar to that from the lowest fills.

Activity within the outer enclosure

No direct structural evidence was identified, and the only indications of any were provided by insect assemblages from well or pit 178108 and its recut, 178122, c 3.6 m west of Settlement 4 (Fig. 3.13). Samples from fills low in the sequences of both produced evidence of woodworm beetles. The species (*Anobium punctatum* and *Lyctus linearis*) are rare under natural conditions because their habitat of dry dead wood is uncommon, but they thrive in timber structures, suggesting the presence of buildings in the vicinity. What this structure may have been is uncertain, but it is at least possible that it was the palisade of Settlement 4 which may have stood no more than 10 m to the east. A radiocarbon date of 1410–1270 cal BC (Wk-10029; 3089±47 BP) was obtained on *Salix sp.* roundwood, placing this fill firmly in the third quarter of the 2nd millennium. Other insect remains from this feature gave some indication of nettle-covered disturbed ground, but nothing that would indicate high concentrations of organic refuse associated with any settlement (see Framework Archaeology 2006, 126, Robinson CD Section 12 for further details).

The pollen record for this feature can be read to indicate something of the two phases of construction of the adjacent settlement enclosure. In the first phase (that of the enclosure ditch and bank), the feature was overhung by a hedgerow which included elder bushes:

*It must be noted that throughout much of the history of the feature, the immediate vicinity must have been dominated by *Sambucus nigra* (elder). It is so overwhelmingly over-represented that it has had to be removed from the pollen sum so that the relative importance of other taxa could be evaluated. Elder is insect-pollinated and produces relatively little pollen and, its over-representation indicates that the plant's branches overhung the feature directly. The close correlation between the abundances*



Plate 3.4: Artist's reconstruction of deposition within Bronze Age waterhole

for fungal remains and elder also suggests that the fruits were falling directly into the well. There would have been high concentrations of carbohydrates being incorporated into the sediment and these would have provided an excellent substrate for microfungus growth and sporulation.

Whereas there appears to be a positive correlation between fungal remains and elder pollen abundance, there seems to be a negative one with microscopic charcoal. This implies that the elder bush(es) were being checked by fire in some way, and the observed relationship might be a function of management of the area around the pit.

The low levels for grass pollen and relatively low levels of ruderals and pasture herbs might indicate fairly high grazing pressure in the environs of the feature. However, cereals were well represented throughout and these indicate the importance of arable farming in this area of the site. Cannabis type (hop/hemp) pollen was also found.

Oak, alder, and ash were growing in the catchment along with hazel, pine, lime, and elm. However, they were either being very intensively managed, were growing some distance away, or were present as few individuals. Maple and rosaceous pollen was relatively abundant and, indeed, hazel, ash, elm, and lime could all have been growing in a nearby hedgerow. For them to be able to flower, however, their management must have been fairly lax. The presence of *Hedera* (ivy) indicates that it was growing well above the ground and might have been exploiting the taller woody plants in a hedge.

In summary, the feature was set in an open, agricultural landscape, very close to a mixed hedge, and overhung by the branches of elder bushes. The base of the hedgerow probably supported a fairly rich mixture of herbs and ferns; the ground around the feature was a little soggy, and there were probably compacted, trampled, and broken soils nearby. Cereal fields were situated in the vicinity.

(Wiltshire in *Framework Archaeology* 2006, CD Section 11)

Following this phase of activity, changes in the local landscape seem to have involved the repeated removal or at least reduction in the overhanging hedge, punctuated by episodes of regrowth, and (although undated) it is at least possible that this activity was associated with the remodelling of the enclosure and the construction of the palisade.

There appears to have been more intensive activity in the vicinity of the feature. *Mentha*-type diminished and there was a very marked decline in elder which was correlated with a decline in fungal spores and a marked increase in microscopic charcoal. Maple, ash, and oak also declined while there were slight increases in other woody plants, and birch and *Prunus* type (eg sloe) were recorded for the first time. Grasses and ribwort plantain increased

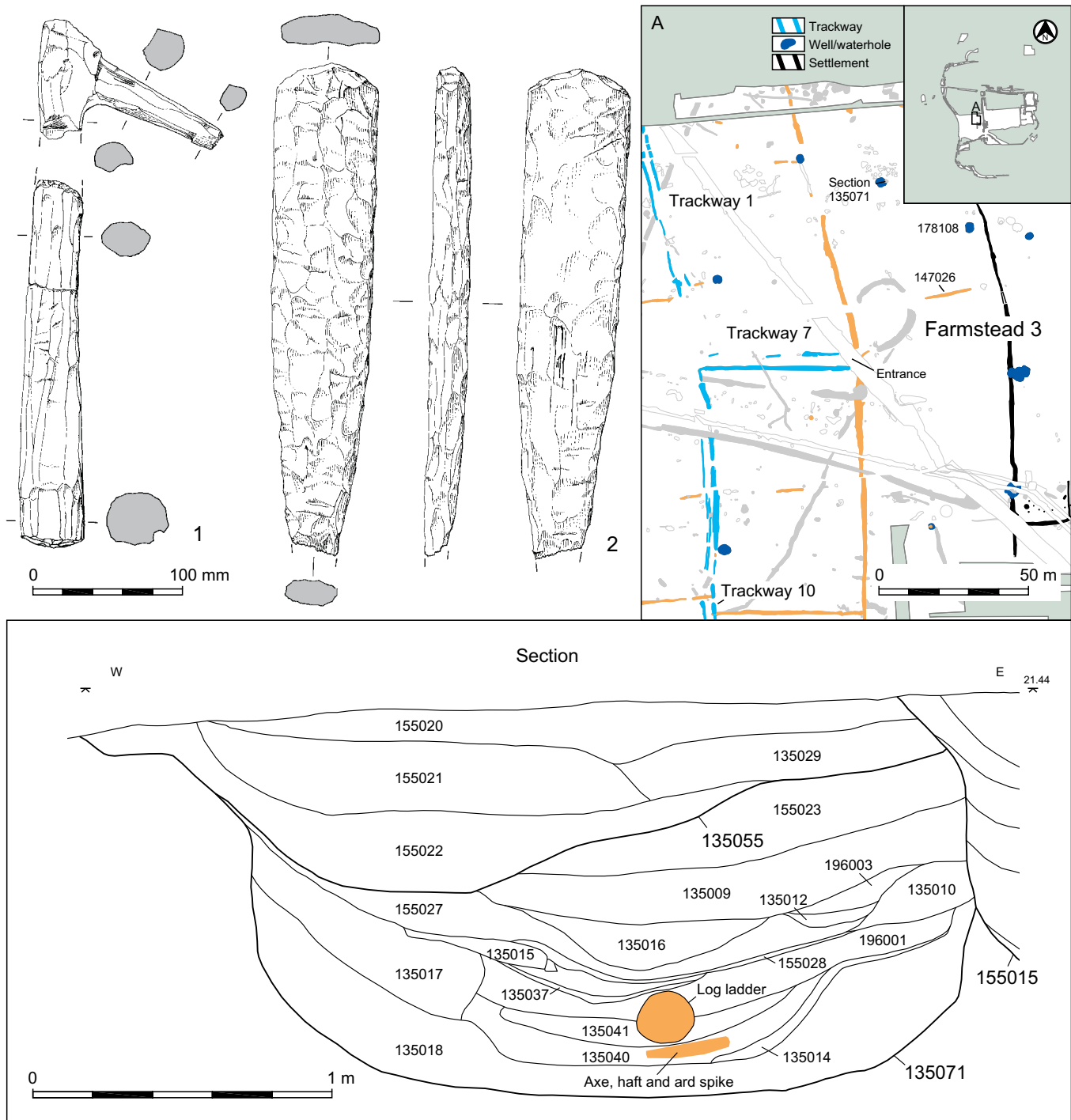


Figure 3.14: Waterhole 135071 and wooden objects (1. Axe haft; 2. Ard spike)

slightly while plants such as *Senecio/Bellis* type (eg ragwort/daisy) and ferns (undifferentiated) declined and there was very little change in other taxa.

These changes suggest that a local fire had affected some of the hedgerow plants so that their flowering was reduced, but that this had had the effect of allowing the pollen of other plants to be recorded. There seems little doubt that the pollen diagram is recording some small-scale local distur-

bance, probably caused by the fire. The hedge itself might have been burned or it might have been coppiced with the wood loppings being burned close by.

It is clear from the pollen diagram that the effects of the perturbation soon diminished and the elder quickly re-established its dominant effect in the pollen record. Other woody plants also recovered, and there is little doubt that the effects of fire had allowed a better representation of

Prunus-type (eg sloe) and other rosaceous plants such as bramble and hawthorn...

The local burning event did not affect local cereal growing and these crops actually seem to have increased throughout the zone. All other taxa exhibit relatively minor fluctuations and these are probably functions of variable taphonomy rather than any meaningful management of the site.



Plate 3.5: Wooden axe haft from waterhole 135071



Plate 3.6: Wooden ard spike from waterhole 135071

Another decline in elder and fungal remains, and increase in microscopic charcoal followed. Again, the local woody plants (possibly those in the hedge) were adversely affected by the fire. Maple, *Crataegus* type (hawthorn), and *Prunus* type (sloe) also declined but *Viburnum* (another shrub commonly found in hedgerows today) was recorded for the first time. *Cannabis* type pollen also failed to be recorded and this gives added weight to the contention that it had been growing as a hedgerow climber.

Even greater impact on the hedgerow and any other trees and shrubs growing in the catchment occurred subsequently. Most either declined or were not represented. Values for cereal type pollen also dropped while grasses and some other herbs seem to have been enhanced by events. Certainly *Silene* type (campion), and *Succisa* (devil's bit scabious) were better represented along with the grasses, although bracken declined. The pollen spectra in this zone are probably reflecting the effects of small scale management although there is little doubt that cereal production had either moved away slightly, or had declined in a real extent in the immediate locality.

This process seems to have culminated in the severe cutting/burning of the elder bushes. Cereal production also declined in the vicinity of the feature. The increase in herbaceous pollen, particularly that of plantain, campions, dandelion-like plants and, eventually, bracken and hogweed/fool's parsley suggest that the sward at the base of the hedge remained lush. It is possible that they were actually growing in the ditch and out of reach of stock animals. There is little doubt that there were small-scale changes in the area but it is doubtful that there were meaningful alterations in the landscape further afield.

(Wiltshire in Framework Archaeology 2006, CD Section 11)

Located 30 m west of the proposed palisade, waterhole 135071 (Fig. 3.14) provided no indication of the presence of settlement or buildings. Robinson (Framework Archaeology 2006, 128) observed that the high levels of scarabaeoid dung beetles indicated that domestic animals were concentrated in the vicinity, suggesting that the enclosure in which this pit was situated was used for management of stock which grazed over a much wider area.

This, however, is contradicted by the pollen and insect record for pit 178108, 30 m to the south-east, which indicates arable land from which stock had been excluded. It is then perhaps the case that dung was deposited into the pit deliberately, adding to the impression that this area in the north-west corner of the enclosure was a space set aside, separated from grazing land to the

south by east-west ditch 147026 (Fig. 3.14).

Waterhole 135071 seems to have been a focus for deposition (see artist's reconstruction in Plate 3.4). The sequence is as follows:

1. The lowest fills (eg 135018) were deliberate deposits to provide a more solid platform for drawing water, and may have been revetted: although there was no conclusive evidence of wattle, the lack of primary erosion from the sides of the waterhole suggests some level of maintenance during the initial use of the feature.
2. The next phase appears to represent a time when the waterhole was going out of use. Waterlogged organic-rich deposits 135040 and 135041 produced wooden artefacts, including:

...a deposit of bark (*Alnus* sp.), a log ladder [Fig. 3.15] and artefacts (basketry, an axe haft and ard spike [Fig. 3.14, 1 and 2 respectively]). 106 other loose pieces of wood were recovered including wood chippings (*Prunus*, *Populus*, *Fraxinus*, *Quercus*, *Salix* and *Alnus* spp.), bark chippings (*Salix* and *Fraxinus*), sections of roundwood (*Frangula*, *Fraxinus*, *Alnus*, *Quercus*, *Prunus* and *Salix* spp.) and stake points (*Salix* and *Quercus* spp.)... the diverse composition and the fact that much of the roundwood consists of twig-type material suggests that this is a casually derived assemblage.

(Allen in Framework Archaeology 2006, CD Section 6)

Several pieces were radiocarbon dated. In 135040 an oak heartwood stake provides a *terminus post quem* for the deposit of 1530–1310 cal BC (Wk-10030; 3168±46 BP), while a willow stake off-cut which is unlikely to have survived long unburied (and consequently to be contemporary with its context) gave 1430–1310 cal BC (Wk-10035; 3048±46 BP). The axe haft (presumably for an early socketed axe) dated to 1440–1310 cal BC (NZA14903; 3071±55 BP), while the ard tip gave a date of 1410–1280 cal BC (NZA14906; 3065±75 BP). Overlying these, in 135041, waterlogged chaff dated to 1400–1260 cal BC. Taken as a

whole, the date of deposit 135040 is estimated as 1420–1310 cal BC (Healey, CD Section 20), indicating that the deposition of these objects and the change in use of the feature was broadly contemporary with the remodelling of the settlement enclosure.

The log ladder (Fig. 3.15) had probably been partially sunk into the basal deposits to provide a firmer seating. During excavation it was suggested that a deposit of bark was the remains of a container but specialist examination cast doubt on this interpretation.

What seems likely is that a wooden haft (Fig. 3.14, 1; Plate 3.5) for a socketed axe and a Neolithic ground stone axe were deliberately placed on the surface of deposit 135040. This was then covered by a deposit of wooden material (135041) which contained an ard spike (Fig. 3.14, 2; Plate 3.6).

The axe is complete and in good condition, with much of the original polished surface surviving. It is somewhat plump in appearance, with a rounded butt and sides and a blade that is not particularly sharp. Macroscopic examination with a hand lens

showed that the axe probably belongs to petrological Group I, an uralitised gabbro or greenstone likely to come from the Penzance area of Cornwall...

A Neolithic stone axe in a 'placed' deposit of Middle Bronze Age date is unusual though not entirely without precedent. Complete stone axes found in particular post-Neolithic contexts are especially suggestive of intentional deposition. One such axe, identified petrologically as Group XX, came from the Bronze Age enclosure at Rams Hill, Berkshire (Bradley & Ellison 1975, 86; BER 70), where its position in



Figure 3.15: Log ladder from waterhole 135071

a foundation trench for the rampart at the southern entrance may be of some significance (Bradley 2002, 54)...

There are more instances of stone axes which, although not complete, were found in specified Bronze Age contexts. One such fragment came from one of the central postholes belonging to a house at Thorney Down, Wiltshire, where it was associated with Deverel-Rimbury pottery. J.F.S. Stone wrote at the time that 'its occurrence here can hardly be fortuitous' (1941, 132; WI 48) and referred to another axe fragment found in the ditch of the Bronze Age enclosure at Boscombe Down East (Stone 1936, 479; WI 189). Both these fragments belong within petrological Group I...

The waterhole at Terminal 5 is in an area of Bronze Age fields where there had been previous specific Neolithic activity, being sited in the centre of the smaller (C2) cur-sus. The axe could have been a casual find, picked up as a curiosity. However this particular axe is in good condition, suggesting that it may have remained all along in personal possession, perhaps even being cared for as an heirloom. The conclusion may be that by the Bronze Age stone axes had not entirely lost their former value.

(Roe in Framework Archaeology 2006, CD Section 5)

The pollen record indicates that,

...the landscape was extensively open during this phase of the site's development... Cereals were probably being grown fairly close by and open soils are evidenced by the frequent representation of ruderals such as *Chenopodiaceae*, *Rumex* (docks), *Polygonum aviculare* (knotweed), and *Apiaceae* (hogweed family). However, pasture also seems to have been very important in this area and herb-rich grassland dominated the site. *Pteridium* appears to have infested the well-drained, more acidic areas and the presence of *Calluna* (heather) hints at a degree of soil impoverishment locally.

(Wiltshire in Framework Archaeology 2006, CD Section 11)

3. The deposition of the artefact assemblage seemed to signal a change in the history of the waterhole, which

was allowed to silt slowly with material derived mainly from the erosion of the surrounding ground surface.

During the next phase of sediment accumulation, the marginal soils had become wetter and there were floating aquatics in the feature. *Cyperaceae*, *Filipendula*, *Lythrum portula* (water purslane), *Mentha* type, *Sphagnum* moss, *Lemna* (duckweed), and algae were all recorded. Their presence indicates that the waterhole might have been somewhat neglected. *Glomus* type indicates that soils were eroding into the feature. These fungal bodies are found associated with living plant roots.

There are marked changes in the pollen spectra of dryland plants which might indicate human impact. Although *Alnus* was at a very low level in the basal level in this zone, it seems to have flowered very prolifically and its pollen accounted for nearly 40% of TLPS. *Tilia* declined to extinction but other woody plants seem to have been little affected. There was certainly a large increase in microscopic charcoal concentrations and whatever the nature of the change in land use in the locality, fire might have played a role in it. The herbaceous flora was also affected with some herbs like *Plantago lanceolata* being enhanced while others such as *Potentilla* type (eg silver weed), *Senecio*/*Bellis* (ragwort/daisy), and *Pteridium* declining. The marked increase in *Ranunculus* type (buttercups) could be related to the increased wetness around the waterhole since *R. lingua* and *R. flammula* are commonly found growing on wet soils.

Although these changes appear fairly dramatic in the pollen spectra, they might only represent a fairly short period of different land management. For example, there might have been some attempt to burn off dead biomass in the winter and active removal of bracken and ragwort from pasture. A release of nutrients from the burnt dead sward could result in enhancement of growth of other herb species. Interpretation of these events is certainly not easy. As regards the dramatic increase in *Alnus*, it might simply reflect a relaxation of the local cutting regime so that pollarded trees were able to flower prolifically. *Tilia* seems to have been

adversely affected and *Quercus* and *Pinus* were less well represented. But, their values were so small in the previous zone that it is difficult to know whether these changes are meaningful.

There is little doubt that herb-rich pasture continued to dominate the area around the feature, and that the nature of the hedgerow seemed to have been little affected by any of the land use changes. Cereals were a little less well represented but this might simply mean that crops were being grown slightly further away. Crop weeds such as *Centaurea cyanus* (cornflower), and *Anthemis* type (eg mayweed) and plants characteristic of open soils were certainly growing locally.

(Wiltshire in Framework Archaeology 2006, CD Section 11)

4. The waterhole was finally deliberately backfilled, possibly to level the ground.

The ard spike from this feature is one of a number of such objects recovered from waterholes within the large 'D'-shaped enclosure (and more widely). Although somewhat enigmatic, the interpretation of these objects (formerly referred to as 'beaters') is at least plausible (see discussion in *Farmstead 1* below), in which case their careful deposition in significant locations and associated with other notable objects highlights the importance of agricultural processes in the lives of the inhabitants of Bronze Age Heathrow.

A second ard spike came from well 592384 which recut an earlier pit (located on Fig. 3.16). This example had been cut from tangentially-faced *Acer campestre* L. timber, worked on all surfaces, and tapering evenly along its length. The thinner end was worn and abraded to an approximate oval cross section, while the thicker end was less worn and polygonal in cross section.

This pattern of a large pit recut by a smaller waterhole is repeated in features 611100 and 611107 (Fig. 3.16) situated towards the north-east corner of the enclosure. The pollen assemblage from the lower fills of 611100, referred to as a pit, was dominated by

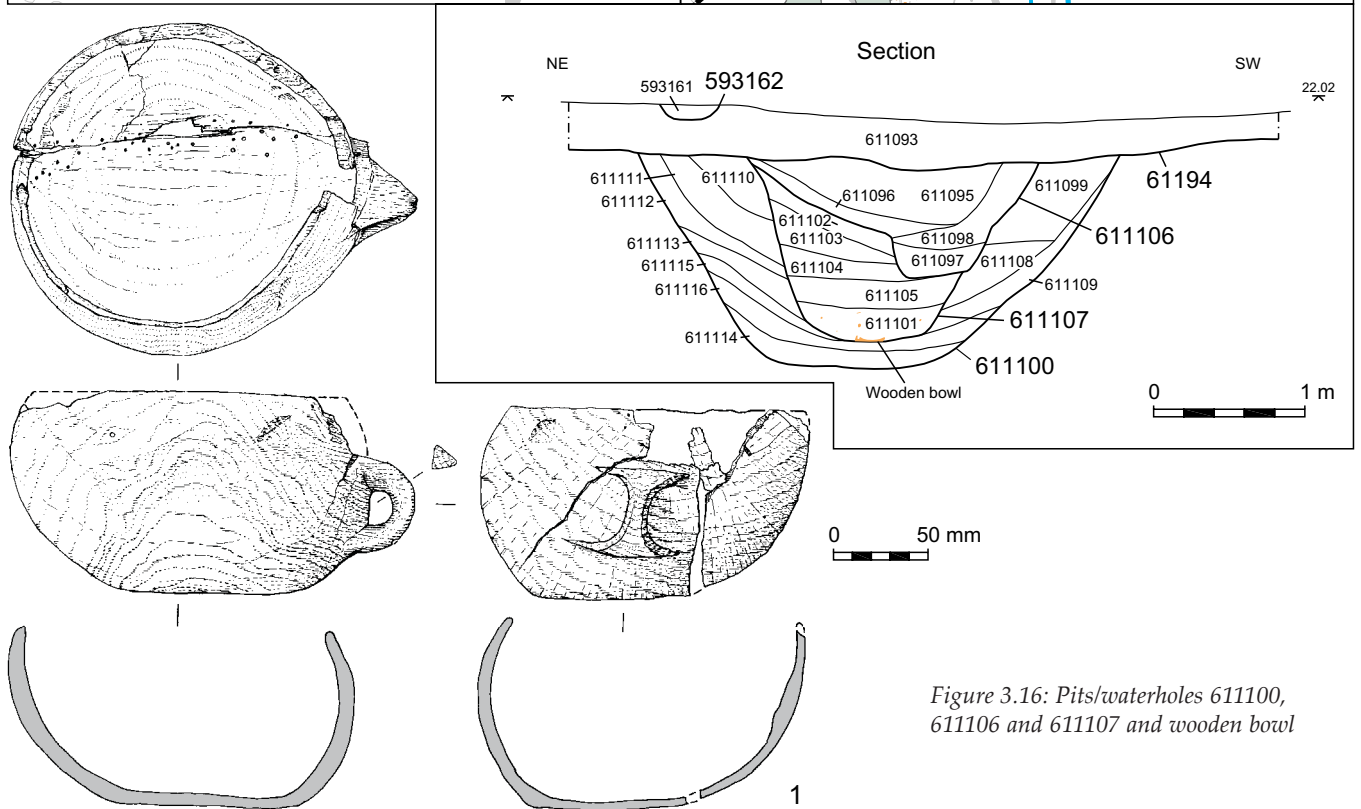
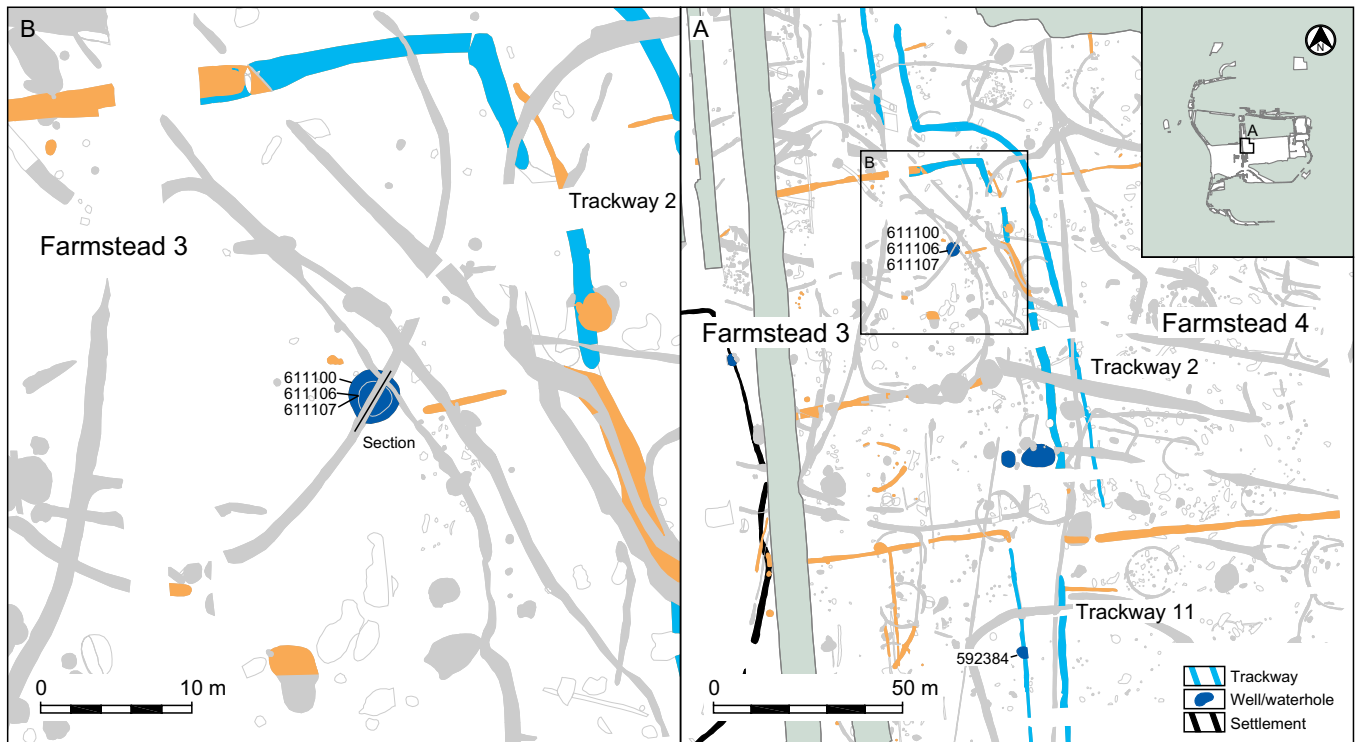


Figure 3.16: Pits/waterholes 611100, 611106 and 611107 and wooden bowl

grasses, with many grassland herbs, although ribwort plantain had a rather low value suggesting that grazed grassland was limited or at a distance. Quite high values of cereal crops, including emmer/spelt, barley and possibly oats, and the weeds associated with arable fields suggest that cereals were being grown nearby. Taxa which

are characteristic of hedgerows were also well represented with the occurrence of the pollen of many rosaceous taxa, ivy, ash and maple (*Acer*). There was also 5% oak pollen which may represent oaks growing as standards in the hedgerows, or may be from woodland further away. Hazel and alder pollen were also present.

The lower fills of the recut, referred to as a waterhole (611107), contained a rather different pollen assemblage. Duckweed was quite common, suggesting that the feature held standing water but was perhaps not being kept clear of weeds. Grass pollen was dominant, and several clumps of grass pollen were found, suggesting that

either grass was hanging over or was being introduced into the waterhole. *Glomus* spores were also common in all levels, and several eggs of the parasitic intestinal nematode *Trichuris* were also present. Nettle values were also quite high, a plant of nitrogen-enriched soils often linked to areas with defecation. This suggests that the feature served as a 'wallow' and waterhole for animals.

Again, as in the pit 611100, taxa associated with arable fields (cereal cultivation), pastures and meadows, and open waste and disturbed ground were present, and hedgerow taxa were common.

Higher fills contained many herbs characteristic of cereal crops and arable fields, trackways and waste and open ground. There was some evidence for less pasture, with characteristic taxa having only low values or being absent (eg ribwort plantain, buttercups, sorrel, and greater/hoary plantain), and a slight increase in cereals. The three basal subsamples contained high values of bracken, which may be associated with a drop in grazing pressure, or may have been dumped into the pit as household waste. There were also slight increases in some other taxa which may be associated with derelict or open ground (eg goosefoots, dandelion-type, and possibly cleavers (*Galium aparine*) (Rubiaceae)). Plants associated with hedgerows or scrub were also at lower values. As with the lower fills, *Glomus* spores and *Trichuris* eggs were common. Duckweed pollen was absent suggesting that either the pit was dry at this time, or that it was being cleared and kept open. The upper two subsamples had high values of duckweed pollen, and spores of the green alga *Spirogyra* were also present, suggesting that the pit then had standing water, was not being cleared, and possibly was no longer in use. No parasitic eggs were found, suggesting it was no longer being used as a cesspit or animal wallow. Taxa characteristic of hedgerows or scrub were particularly well represented and could represent a cessation of hedgerow maintenance allowing increased flowering or the development of scrub on abandoned land. Bracken spore values were much lower in these upper subsamples.



Plate 3.7: Wooden bowl from waterhole 611107

Certainly there seems to have been some local change in landuse.

Lower fills 611101 and 611105 of waterhole 611107 contained a range of wood and wooden objects including sections of *Corylus avellana* L. and *Quercus* spp. roundwood, a *Quercus* spp. heartwood chipping, part of an *Alnus* spp. board, some unidentified fibrous material, and a remarkable carved bowl (Fig. 3.16; Plate 3.7).

Cut from a halved *Populus* spp. blank, the rim is towards the inside of the parent log. The vessel has a single integral carved loop handle, a flat base and no decoration. The surfaces are worn and the bowl was found split in two along an old break which has pairs of stitch holes (with *in situ* fibrous material) either side of the break forming a repair. Three dates were obtained on this vessel, all statistically consistent and giving a weighted mean of 1430–1370 cal BC (72%) or 1350–1310 cal BC (23%). Healey notes that this

...weighted mean is statistically consistent... with the date of a chip of 10- to 15-year-old oak branchwood from the same deposit... Since the bowl was not freshly made when deposited, the age of the oak may give some indication of the age of the vessel when placed in the waterhole.

(Healey, CD Section 20)

A low density scatter of pits, gullies, postholes and other features occur within the large 'D'-shaped enclosure, but very few resolve into meaningful patterns. Fewer still contain any significant artefactual or palaeoenvironmental assemblages, and those that do generally date to the Late Bronze Age. More evidence of Middle Bronze Age activity however occurs outside the enclosure, in the western field system.

The western fields

Trackway 7 lead westwards out of the large 'D'-shaped enclosure to join Trackway 1, which provided access into a system of regular rectilinear fields (see Fig. 3.10 above). The fields east of Trackway 1 had their long axes aligned north-south, while those on the other side of the trackway were aligned east-west.

As noted previously, Trackway 1's southern end is formed by the intersection of two east-west field boundaries with the trackway ditches, and by a posthole set between the ditches of Trackway 10 (Fig. 3.17). Although there are no stratigraphic relationships to prove it, it is at least possible that this 'stop' between Trackways 1 and 10 is a later insertion, and that the trackway was originally continuous. If this is the case, then Farmstead 3 would initially have been considerably larger, and would have

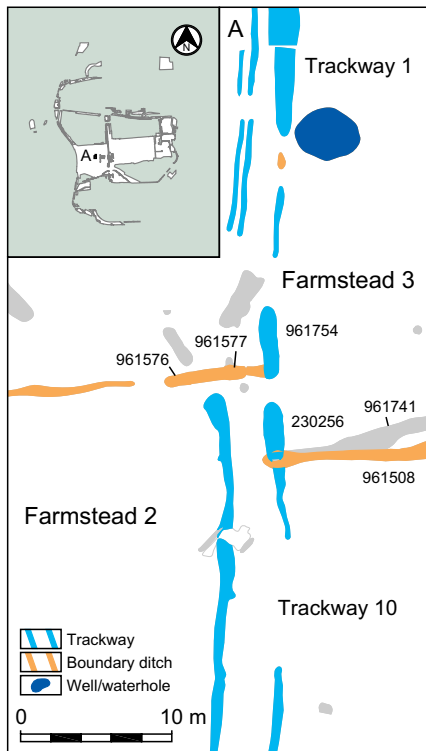


Figure 3.17: Junction between Trackways 1 and 10

included the area designated as Farmstead 2. As the radiocarbon determinations from Farmsteads 1 and 2 suggest (see below), it seems possible that this division of the farmsteads was at least broadly contemporary with the remodelling of the Settlement 4 enclosure, around 1400 cal BC.

As in Settlement 4 and the outer 'D'-shaped enclosure, the majority of evidence for activity in the western fields of Farmstead 3 was retrieved from a series of wells, waterholes and large pits scattered throughout them, most of which lie on or adjacent to field boundaries.

For instance, well 156028 (Fig. 3.18) lay in the south-east corner of a field, and its creation must have predated at least some portion of the east-west ditch forming that field's southern boundary, since ditch 156029 cuts the fills surrounding the well shaft (but not the shaft itself). Field recording and *Volume 1: Perry Oaks* (Framework Archaeology 2006) present this feature as a waterhole (156028) later cut by a well (156031). A re-examination of the sequence however suggests that the feature was always a well and that—

rather than being recut—the well shaft was a part of the original use of the feature.

The primary fills were caused by rapid slumping of the sides of the feature. A column of wattle panelling was then constructed to form a cylindrical well shaft against the outsides of which the larger pit was backfilled. An ard spike (See Allen below for discussion) and wooden haft for a socketed axe (Fig. 3.18; Plate 3.8) were placed on the base of the vertical shaft. Radiocarbon determinations of 1440–1290 cal BC (NZA14905; 3019±65 BP) and 1460–1300 cal BC (NZA14904; 3103±65 BP) respectively were obtained, and the date of the deposit containing the artefacts is modelled as 1420–1290 cal BC probably 1410–1340 cal BC.

Anobium punctatum (woodworm) and the synanthropic beetle *Ptinus fur*, which tends to occur inside buildings, raised the possibility that there was a settlement, or at least a timber building, close to Feature 156028. However, members of the *Lathridiidae* (Species Group 8) and insects of foul organic refuse were not particularly high. There was no strong evidence of any waste-ground type habitat.

(Robinson in Framework Archaeology 2006, CD Section 12)

The well seems to have been situated close to a woodland edge environment (possibly a hedgerow) with maple, *Prunus* type (cf sloe), *Sorbus* type (eg rowan), willow, and *Viburnum* (guelder rose) growing with hawthorn, and possibly bramble. The values for *Hedera* (ivy) were particularly high and this suggests that the climber was growing very close to the well and supported by the hedge shrubs.

The relatively high levels of microscopic charcoal indicate that people were active close to the feature but, in addition to the woody taxa, the herbaceous pollen spectra also suggest a relaxation in activity in the vicinity of the waterhole. Grass pollen was relatively high and reached values of 40% in the middle and towards the end of the zone. Grazing pressure seems have been reduced so that herbs such as *Hypericum perforatum* type (St. John's wort), *Polygala* (milkwort), *Potentilla* type (tormentil/



Plate 3.8: Wooden objects from well 156028

silverweed, *Prunella* type (self heal), buttercups, ribwort plantain, *Trifolium* type (clover), *Lotus* type (bird's foot trefoil) and others were able to flower. Ruderals such as goosefoot, docks, dandelion-like plants, hogweed/fool's parsley, and *Sinapis* type (eg charlock), and *Artemisia* (mugwort), were very well represented and this suggests that open ground was infested with these waste ground weeds. *Centaurea cyanus* (corn flower), a plant associated with cereal crops, was also growing locally and many of the herbs could have been growing at the margins of (or even within) crop fields. Cereals were certainly being grown and/or processed in the vicinity although they declined towards the end of the zone.

(Wiltshire in Framework Archaeology 2006, CD Section 11)

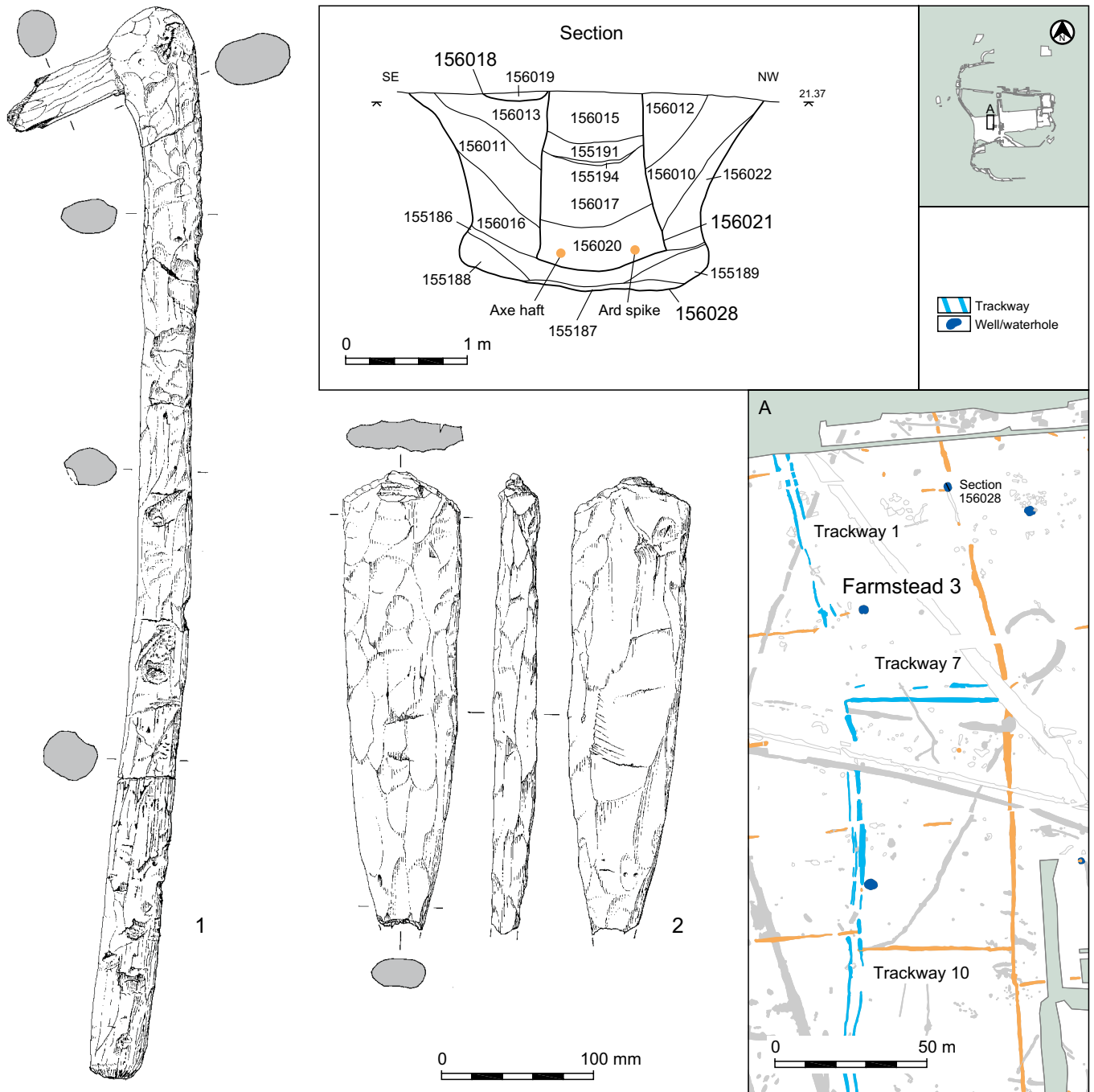


Figure 3.18: Well 156028 and wooden objects

At some point, the wattle lining collapsed (or began to collapse) and a timber revetment was constructed to strengthen the well shaft. Radiocarbon determinations from wooden chips derived from the manufacture of the revetment provided a *terminus post quem* of 1620–1460 cal BC (Wk-10031; 3260±57 BP), and a date of 1400–1230 cal BC (Wk-10028; 2942±59 BP) which is more likely to relate directly to the activity. This is supported by a date of 1400–1240 cal BC (Wk-9376; 3015±56 BP) on waterlogged seeds from the first organic silting of the shaft.

The soils around the feature continued to be wet and the presence of *Lythrum portula* (water purslane) might indicate standing water, although this plant can also grow on waterlogged soils. There are very marked changes in the pollen spectra between this zone and the lower one. Woody taxa continued to be well represented although alder and hazel declined slightly the middle of the zone. The hedge seems to have continued to flourish although the fall in ivy pollen suggests that some shrubs had been cut. Certainly *Prunus* type (eg sloe) disappeared from the record and *Rosaceae* (hawthorn/bramble) was diminished.

Cereal pollen was less frequent, grass pollen percentages dropped, and other herbs such as *Ranunculus* type (buttercups), mugwort, and ribwort plantain declined. These changes were reflected in a marked increase in dandelion-like plants, bracken and other ferns and suggest that animals had been brought in again to graze the local pasture. There are many dandelion-like plants included in the pollen taxon 'Lactuceae' and a great number have a flowering peak early in the season. Dandelion (*Taraxacum officinale*) starts flowering in April while grasses reach their peak in June. It is possible, therefore, that



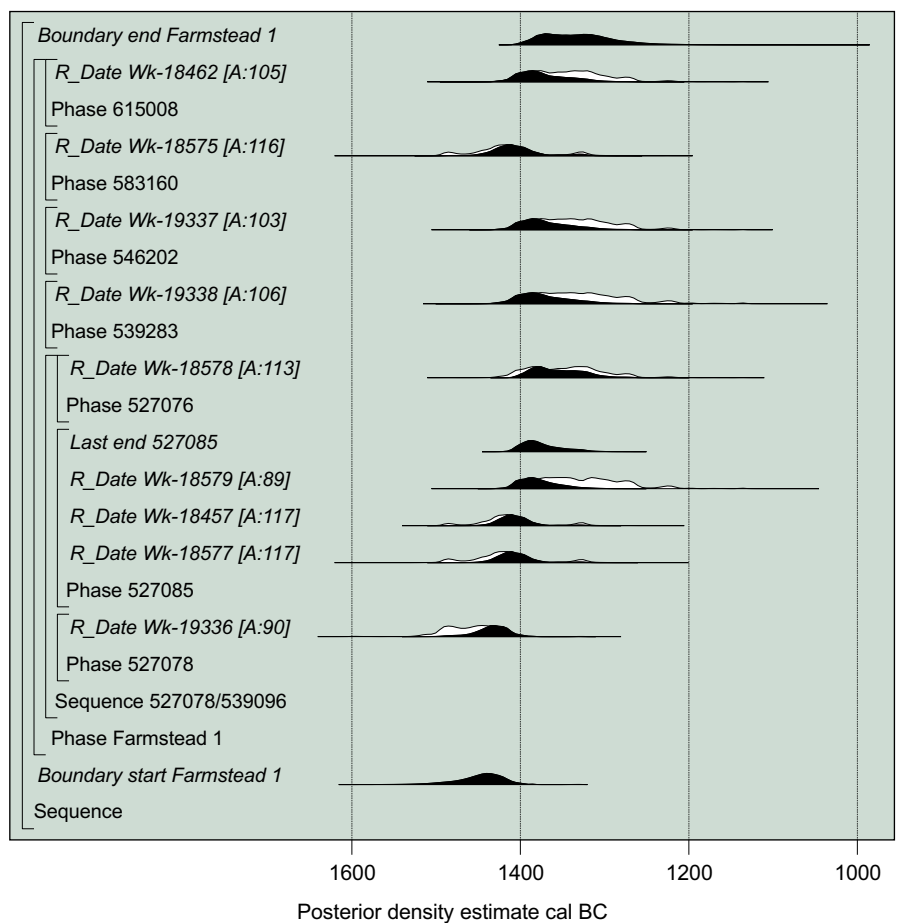
Above. Plate 3.9: Artist's reconstruction of Farmsteads 1 to 3, Phase 2

Right. Figure 3.19: Radiocarbon dates for Farmstead 1

animals were being brought into these pastures after the main flowering peak of the Lactuceae but before the main flowering peak of grasses. The high levels of bracken might indicate preferential grazing since sheep have little effect on this fern. They tend to avoid it and so it would not even get trampled.

Higher levels were characterised by a significant drop in woody plants and bracken, an increase in cereal type, dandelion-like plants, ribwort plantain, and buttercups, followed by a marked decrease in cereal pollen... The hedge seems to have been intensively exploited and finally removed (or at least heavily cut). Grazing still seems to have been important and grass pollen percentage changed very little. Microscopic charcoal levels increased markedly and there might have been some burning close to the feature. Indeed, the hedge itself might have suffered fire damage since the drop in hedgerow taxa was significant.

(Wiltshire in Framework Archaeology 2006, CD Section 11)



Post-Deverel-Rimbury pottery from the upper fills of the well shaft indicated that it continued to fill during the period 1150–750 BC (see below).

South and west of Farmstead 3, a number of fragmentary field systems hint at the existence of more and less regularly arranged sets of enclosures, trackways,



Figure 3.20: Farmstead 1 and Settlement 7

fields and settlements (see artist's reconstruction in Plate 3.9). These (consisting of Farmsteads 1, 2, 5 and 12) make up the aggregate landscape in the sense that they share no necessary dominant alignment, and appear to have accreted rather than been laid out according to a dominant plan. Indeed, one of them (Farmstead 12) has an arrangement so at odds with the others that it may represent the northernmost element of an entirely separate set of landscape divisions.

Farmstead 1

This farmstead lay at the western extreme of the excavated areas. Unlike the majority of the other farmsteads the excavated portion contained no double-ditched trackway, and its boundary with Farmsteads 2 and 3 on the east was instead marked by a

segmented ditch following the line of a palaeochannel. This channel seems to have been silted for 5000 years when Farmstead 1 was laid out, but environmental evidence shows that the area had stayed wet at least into the Late Neolithic, and the line of the channel would appear to have existed in the Middle Bronze Age as a boggy linear hollow.

The exact layout of fields in this farmstead is difficult to reconstruct, due to the remarkable persistence of some land divisions and boundaries into the post-medieval period. However, concentrations of Deverel-Rimbury and post-Deverel-Rimbury ceramics in some ditches indicate the usual divisions into small fields, generally aligned with their long axis east-west, more rarely north-south. A small number of pits scattered amongst the fields tended to contain a little Middle Bronze Age pottery along with occasional burnt flints and pieces of fired clay. Wells and waterholes are also present. An almost-square arrangement of ditches and gullies may mark the location of a settlement enclosure. It is far from certain what form any buildings here may have taken—or indeed if there were any present at all. The few surviving pits and postholes form no coherent

patterns, and a settlement is only really suggested by the arrangement of ditches and the slightly higher concentrations of Deverel-Rimbury and post-Deverel-Rimbury ceramics within the area they demarcate. On the southern edge of the settlement, pit 615008 had a log ladder against its northern side, and contained fragments of a Deverel-Rimbury bucket-shaped jar and a cylindrical loomweight.

Radiocarbon dates for features within this Farmstead (Fig. 3.19) suggest occupancy over two centuries following 1500 cal BC. Two main periods of activity seem likely, with the first falling 1500–1400 cal BC and the second 1400–1300 cal BC.

1500–1400 cal BC

The earlier group of determinations probably relate to agricultural activity prior to the establishment of the farmstead, when the site lay within the wider landscape of Farmstead 3. They date a pit cut by later field boundary ditches, and an east-west ditch (Fig. 3.20). The lowest fill of this early pit (527078: 1490–1390 cal BC; Wk-19336; 3185±33 BP) contained a rich assemblage of plant species (twigs and wood fragments, charcoal, blackberry and three-nerved sandwort seeds, rough chervil, and *Rubus/Rosa*-type thorns).

These taxa suggest the presence of a shaded, hedgerow-type vegetation very close to the pit. Larger trees, however, were not represented. Weeds of nutrient-rich soils were common but not abundant. Grassland taxa were present, particularly those of damp soils. Some of these may represent the vegetation growing around the pit, such as gypsywort and mint. The presence of water plantain seeds suggests standing water was present in the feature.

The charred plant remains consisted of several hulled barley grains, a possible bread-type wheat grain, some emmer and spelt chaff (both cereal confirmed through the presence of well-preserved glume bases) and several barley rachis fragments. Weed taxa consisted primarily of several cleavers nutlets and vetch/tare seeds.

(Carruthers, CD Section 14)

The evidence for this feature being set by a hedgerow adjacent to damp grasslands suggests that it may have been located at the boundary between an agricultural field and grazing or waste land. This suggestion fits very well with its location beneath a later field boundary and close to the line of the palaeochannel. Insect evidence further adds to this picture, being...

*...characterised by the recovery of large numbers of Scarabaeidae or 'dung beetles' and taxa associated with open grassland. The 'dung beetles' include *Onthophagus similis* and *O. ovatus*, *Colobopterus erraticus*, *Aphodius rufipes* and *Aphodius coenosus* all of which are found in dung, on open and sandy ground (Jessop 1986). Many of the Carabidae or 'ground beetles' from these samples are also found on open sandy grassland including *Amara aenea*, *Asaphidion pallipes* and *Anisodactylus nemorivagus* (Hyman 1992, Lindroth 1974, 1985, 1986), the elaterid *Agrypnus murina* is also found in sandy, dry meadows and heath (Koch 1989b). Several of the taxa recovered are associated with open grassland (ecological group 3). Typical of this type of landscape are the *Sitona* spp. 'clover weevil', *Mecinus pyraister* which is associated with plantain (*Plantago* spp.) and the *Apion* spp. which are often found on a range of leguminous plants. The presence of disturbed ground is also suggested by *Brachypterus urticae* which feed upon nettle (*Urtica* spp.).*

*In contrast, other carabids recovered such as *Pterostichus cupreus* and *Pterostichus nigrita*, are associated with damper meadows and moist clay soils (Lindroth 1974, 1985, 1986)*

(Tetlow, CD Section 17)

Clearly the pit was in proximity to a dung heap derived from more than one area, perhaps suggesting a dump at the edge of a field. The presence of dung and charred grains indicate a mixed economy, with both arable and pastoral farming. The possibility of occasional flooding again fits very well with the proximity of the feature to the palaeochannel. Taken together, these indicators are all of a feature located at the edge of a field, on perhaps marginal land in an area used for the storage of dung and disposal of waste.

A second feature is likely to be broadly contemporary on the basis of radiocarbon determinations. This ditch (583160: 1460–1370 cal BC (89%) or 1360–1320 cal BC (6%); Wk-18575; 3137±36 BP) has environmental evidence entirely in keeping with that from pit 527078:

*Alder, elderberry and blackberry seeds were frequent, and stinging nettles and other weeds of disturbed, nutrient-enriched soils were again dominant. Some grassland taxa and wet-ground weeds (duckweed, spike-rush (*Eleocharis* subg. *Palustres*) were also recorded. The insect assemblage indicated that a high dung input had occurred in the area, so it is likely that livestock were grazing close to the ditch... the woody taxa could have come from material washed in from the alder-enshrouded palaeochannel nearby, or a hedge may have existed along the ditch and organic decay had caused the loss of leaf fragments, thorns and twigs. Charred plant remains were sparse in this sample, with just a few chaff fragments from emmer and barley being identified. Weedy vetches were again present.*

(Carruthers, CD Section 14)

1400–1300 cal BC

The second phase (1400–1300 cal BC) is likely to date the establishment of the farmstead. The determinations come from north-south and east-west aligned field boundary ditches, and from pits

within the suggested settlement. This phasing of the radiocarbon determinations suggests that Settlement 7 was established some centuries after the first field systems had been laid out. The possibility is therefore that Settlement 7 was established in an existing field system. If so, these fields may have belonged originally to Farmstead 3. As will be seen, Farmstead 2 was also probably established in what had been fields of Farmstead 3, and consequently it may be possible to detect the fragmentation of an initial large establishment into a number of smaller units. Although the available dating places this division at around 1400 cal BC it may not have been a single event, but rather spread out.

Some remodelling of boundaries and access would have been likely if this scenario has any validity. Ditches 539096 (modelled as dating to 1420–1320 cal BC; Wk-18457; Wk-18577–9) and 539283 (1430–1300 cal BC; Wk-19338; 3062±39 BP) date to this period, and were in very close proximity to the earlier dated features, allowing close comparison of temporally separate environmental assemblages.

Ditch 539096 (which cut pit 527078) contained well-preserved samples in two of the lower fills which were rich in cereal processing waste of several types: the coarse material such as straw and weed seed heads removed early in the processing; and the finer chaff fragments and weeds removed at later stages. It is possible that the material represents uprooted burnt sheaves rather than processing waste, since weed seeds and cereal grains were frequent.

Differences in the quantities of different weed taxa and between oats (a few grains only, present in two of the samples), spelt (only present in small quantities), emmer (the dominant cereal in five of the six samples) and hulled barley (dominant in the sixth) suggest a series of dumps from different crops rather than one single uniform deposit.

Only a few waterlogged seeds were present in the samples, primarily

thick-coated seeds indicating that waterlogged conditions had not been maintained throughout the deposit's history. Taxa such as blackberry, fool's parsley and spike-rush indicate that a disturbed, damp habitat existed around the feature.

Ditch 539283 lay immediately north of ditch 538160. A sample from its lower fill...

...contained frequent fragments of wood, twigs and bark. Alder (*Alnus glutinosa*) seeds were common and several other woody taxa were represented, including willow (*Salix* sp.), blackberry (*Rubus* sect. *Glandulosus*), cf. sloe (*Prunus* sp. fragment), elderberry (*Sambucus nigra*), and the woodland herb three-nerved sandwort (*Moehringia trinervia*). These remains were not abundant, there were some signs of decay, and thorns and leaf fragments were not present. It is likely, therefore, that this material may have washed into the bottom of the ditch during flooding episodes of the adjacent palaeochannel, or have been blown in from nearby hedges or scrub.

Most of the other waterlogged plant remains came from common weeds of cultivated and waste ground, particularly from soils with some nutrient enrichment, eg stinging nettles (*Urtica dioica*). Grazed grassland was also represented (eg thistles (*Cirsium/Carduus* sp., greater plantain (*Plantago major*)). A few duckweed (*Lemna* sp.) fruits indicated that the ditch had held water long enough for this free-floating plant to become established, although very few other marsh or wet-ground remains were present.

The charred plant remains were frequent and well preserved, having been protected by the damp, organic conditions. They comprised mainly wheat chaff fragments, with frequent emmer/spelt grains and some hulled barley. The predominant cereal represented by the chaff was emmer wheat (*Triticum dicoccum*), but small quantities of spelt chaff were present (ratio 15:1, emmer: spelt). A few cereal-sized straw nodes and stem bases (culm nodes and culm bases) were present to indicate that crops had been harvested by uprooting rather than using a sickle, but much more substantial evidence of this was found in

pit 527078. The few weed seeds present were common weeds of cultivated and disturbed ground, several of which were also present as waterlogged remains. The most significant of these were orache (*Atriplex patula/prostrata*) which was the most frequent taxon and which indicates soil enrichment (perhaps manuring of fields), and a few small-seeded weed vetches (*Vicia/Lathyrus* sp.). This type of waste was very similar to that recovered in much greater concentrations from pit 527078 c 100 m south-east of ditch 539283. The dominance of chaff fragments indicates that it derives primarily from cereal processing waste, although some accidentally burnt whole spikelets may have been included.

(Carruthers, CD Section 14)

Charcoal from both ditches contained a mixed range of species, the most common being:

Quercus (oak) and *Maloideae* (hawthorn type). The condition of the charcoal was too poor to distinguish between *Alnus/Corylus* (alder/hazel) and either or both species could be present. The presence of species such as *Alnus glutinosa* (alder) and *Populus/Salix* (poplar/willow) indicates that wetland resources were also being exploited, since these taxa prefer damp soil conditions. None of these species burn very well, at least not unless well seasoned (Edlin 1949), so it perhaps not surprising that they are not better represented in the charcoal record. It may be significant that the ditch with the largest wetland assemblage (539283) was in the western edge of the site, on the lower lying levels. This suggests that the gathering of fuelwood was very local. In general, there is a strong presence of scrub/hedgerow species such as *Prunus*, *Maloideae*, and *Rhamnus* which supports the evidence from the pollen that the area was well cleared.

(Challinor, CD Section 15)

The environmental evidence then suggests no great change between the earlier and later periods. Some additional information is however provided by an assemblage of animal bones from ditch 539283.

Most bones from this feature were in moderate condition and a small proportion

in good condition. Apart from most fragments being unidentifiable, some bones of sheep/goat (only sheep identified), pig, medium mammal and small mammal were found. Bones from large mammals like horse and cattle are absent. The only elements present were: skull, horn core, mandible, vertebra, tarsals, metapodials and phalanges. The assemblage thus likely resembles primary butchery waste (O'Connor 1993). A high proportion of the bones show different stages of burning (charred, calcined), as the assemblage consists of butchery waste; they cannot originate from the sweeping of hearths. It is more likely that waste was burnt to reduce the amount and subsequently buried in disused features.

(Knight and Grimm, CD Section 13)

Evidence of the range of activities undertaken within Settlement 7 itself comes from the contents of several pits. Pit 546202 (1420–1300 cal BC; Wk-19337; 3062±32 BP) near the southern boundary of the enclosure had a rich organic assemblage, assumed to derive from domestic hearths.

... an organic fill at the base of the pit contained no artefacts, so it does not appear to have functioned as a rubbish pit. It did produce quite a few charred cereal remains, but it would appear to have been much too wet to have functioned as a storage pit.

The waterlogged remains consisted primarily of twigs and wood fragments...abundant stinging nettle seeds with a range of other weeds of disturbed places. Blackberry seeds were also frequent, and alder seeds and catkins were common. Elderberry and rose were the other woody taxa present. Damp ground taxa were scarce, but gypsywort, sedges and mint (*Mentha* sp.) were probably growing around the margins of the feature. No true aquatics were present. Grassland (*Ranunculus* spp.) was also represented.

The charred plant remains consisted of primarily chaff fragments from (in order of predominance), emmer wheat, hulled barley and just a trace of spelt wheat. The cereal grains comprised mainly hulled barley, with emmer/spelt and one possible bread-type wheat grain. Since chaff is more likely than grain to have been differentially destroyed during charring and redeposition,

the original composition of the assemblage was probably much more chaff-rich. The deposit may represent cereal processing waste, perhaps with some spoilt grain or unprocessed spikelets mixed in. The weeds included docks, chickweed, frequent vetch/tare and clover-sized legumes, cleavers, scentless mayweed and several chess (*Bromus* sect. *Bromus*) caryopses. The latter is of note since chess tends to increase with the increased cultivation of spelt wheat, and Helbaek (1953) suggested it was an introduced weed of spelt. The only two other occurrences of chess in the MBA samples were in two other features that were rich in charred cereal processing waste (samples 17524 and 24051), both of which produced at least some evidence for spelt wheat. Several charred straw nodes and cereal-sized culm bases were recovered, suggesting either that whole, uprooted cereal plants had been burnt, or that mixed burnt waste from both the early stages (straw and weed head removal) and later stages (fine chaff and weed seed removal) of cereal processing were dumped in the feature.

(Carruthers, CD Section 14)

Adjacent to this pit, a second (546171) was undated, but is likely to be contemporary. It contained:

A 'beater' cut from halved Field Maple timber with one tapered and rounded end and other end roughly hewn. No evidence for mounting or hafting. The narrower end is quite worn to a rounded near oval cross section devoid of tool marks whilst the wider end still exhibits rough axe hewn facets from shaping. Though slightly abraded, the facets are still clear and fairly sharp. No fixings or fittings are present.

It was previously considered (Allen 2001) that these artefacts might have had a symbolic use as wooden axe head substitutes for missing metal examples, based on their form, wear pattern and association with used axe handles with missing blades. The examples from T5 show more clearly that differential wear is present. One end—in each case the narrower end—is worn while the thicker end is not. In the light of this and of further research, it is now possible to offer a more convincing identification of these 'beaters'. Early forms of tillage utilise an Ard. At their simplest, these consist of a beam or bow, used to tow and/or push, and

to steer, into which is fitted a share. The share is housed in a socket cut through the bow and wedged in place, leaving the share projecting down from the bow, cutting the furrow as the assembly is pushed or pulled along. The most basic form of share is known as a 'Bar Share', a simple length of wood, stone or metal wedged into the bow.

If one of these 'beaters' were fitted into such a socket and wedged in place it could

easily act as a 'Bar-Share'. The woods from which these beaters are cut (*Acer campestre* L and *Pomoideae* spp.) are fine grained and relatively hard wearing and would be quite suitable for such a purpose. The differential wear is very similar to that exhibited by stone examples described from Shetland and Orkney (Fenton 1964, 265-7) and on Romano-British iron examples from Silchester, Hampshire and Great Chesterford, Essex. These have tips worn

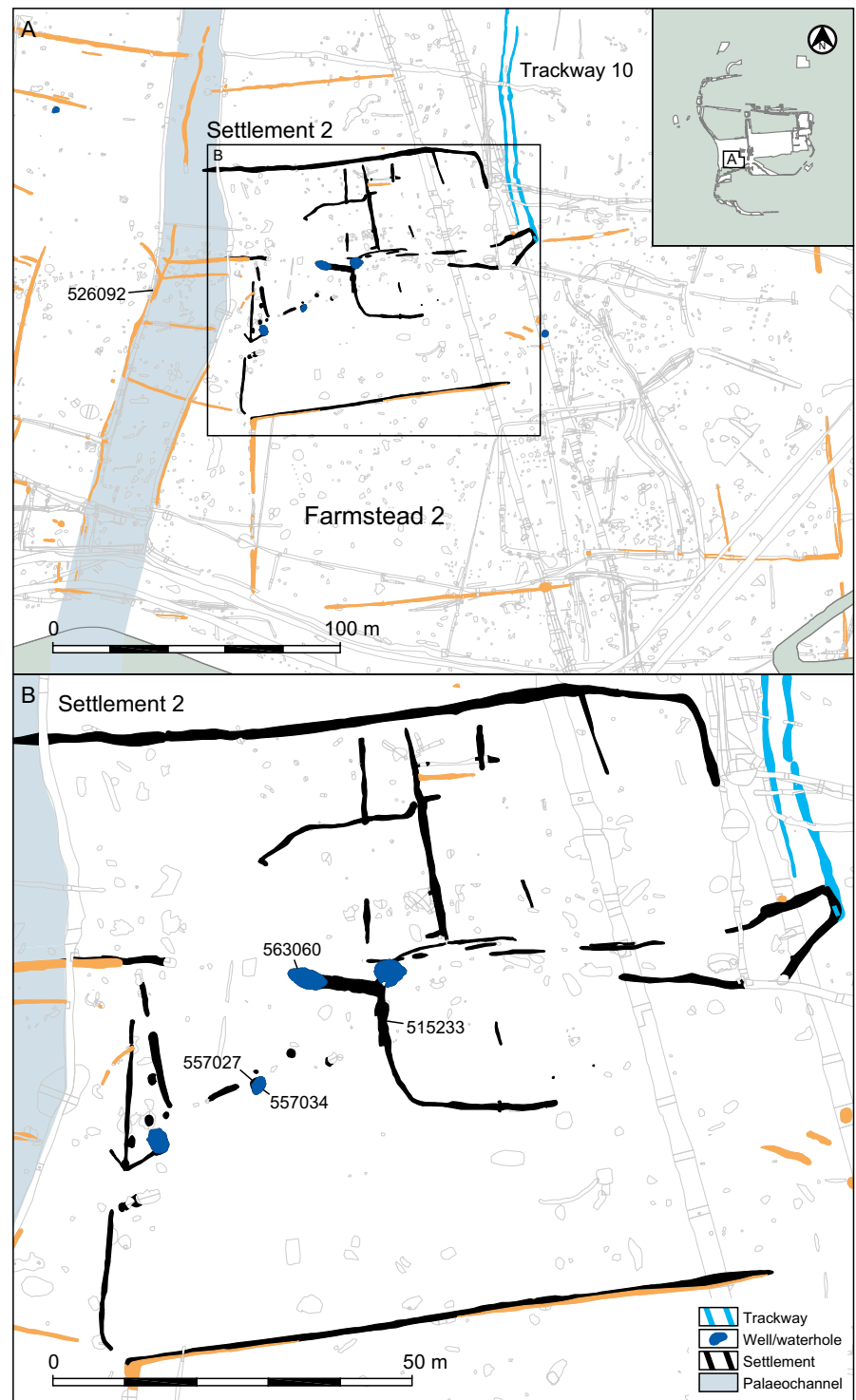


Figure 3.21: Farmstead 2 and Settlement 2

to a tapering oval cross section over some 100-150mm of their narrow ends, but are otherwise undamaged. The 'beaters' from T5 exhibit very similar wear patterns and are of similar size to the majority of the stone and both of the iron examples. It seems inescapable that these 'Beaters' are Bar Shares - the discarded working tips of an early form of plough.

(Allen, CD Section 11)

On the settlement's southern border, well 615008 contained fragments of a Deverel-Rimbury bucket-shaped jar, a cylindrical loomweight, a *Fraxinus excelsior* L. stake point, two *Quercus* spp. heartwood chippings, which might once have been a stake, and an *Alnus* spp. log ladder from the lower fill (1430–1310 cal BC; Wk-18462; 3070±32 BP).

The picture of activity in Settlement 7 and Farmstead 1 is very scanty, due largely to the small fragment which was excavated. It seems probable however that the settlement was established around 1400 cal BC in an area which had been occupied by fields for around a century. Some rearrangement of land divisions is attested. A very similar situation is evident in Farmstead 2.

Farmstead 2

Farmstead 2 (Fig. 3.21) lay to the south-west of Farmstead 3 and east of Farmstead 1. The palaeochannel seems to have formed its western boundary, and boundary ditches divide it from Farmstead 3. There are some indications (mainly morphological) that this area too may have initially been a part of Farmstead 3.

Settlement 2 lay at the core of this farmstead. It was defined to the north and south by existing east-west field boundary ditches, both of which seem to have been modified following the construction of the settlement. The northern ditch was extended eastwards over the central bank of the Stanwell Cursus, while a recut of the southern boundary ditch contained significantly more Middle Bronze Age pottery than the original fills, suggesting that the

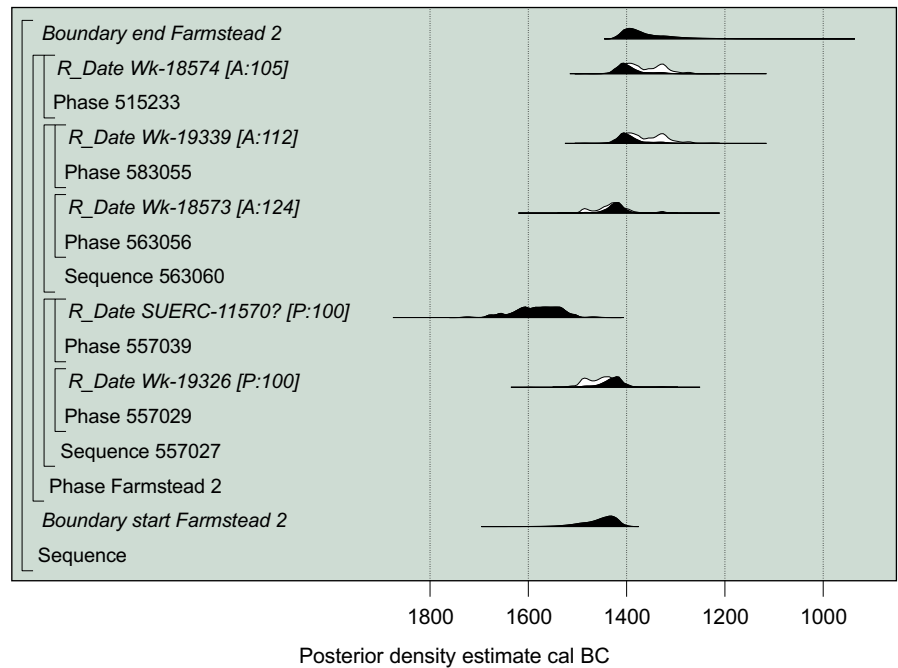


Figure 3.22: Radiocarbon dates for Farmstead 2

recut was contemporary with the settlement. To the west, the boundary of the settlement was formed by a series of shallow north-south aligned ditches and the palaeochannel, by now a low-lying boggy area. On the other side of the palaeochannel, ditch 526092 formed the western boundary between Farmsteads 1 and 2, and was characterised by large numbers of dung beetles and taxa associated with open grassland. The species encountered in these features match those from pit 527078 in Farmstead 1 (see Fig. 3.20).

Trackway 10 formed the northern end of the eastern settlement boundary; the southern portion *may* have utilised the central bank of the Stanwell Cursus, although it is only the absence of other features that suggests this.

No internal building plans survived. The only indications of any structure consist of a relatively substantial double palisade trench which enclosed three sides of an area 23 metres square in the centre of the settlement. Whether this enclosure contained buildings or was somehow related to stock control cannot be ascertained. South and north of this small central enclosure were areas which differed in character from each other: to the south a single open area, to the north a series of smaller subdivisions.

Only four radiocarbon determinations were obtained (Fig 3.22) but these at least suggest the same two-period division as Farmstead 1; that is, before and after approximately 1400 BC. The earliest date (Wk-19326: 3176±33 BP; 1490–1390 cal BC) came from well/pit 557027 on the boundary between the northern and southern areas (located on Fig. 3.21), the earliest of a sequence of pits within Settlement 2. Together with the well which later cuts it (557034) these features provided a detailed sequence of environmental data for a large portion of the settlement's period of occupancy.

Pit 557027 began life as a well (or at the very least as water-filled) in an environment of damp meadows and pastures. Pollen attests to some nearby arable cultivation (crops including oats/wheat, barley type and flax) and the presence of trackways and open ground as found around habitations. Elder, willow and alder indicate damp habitats, probably the nearby palaeochannel, and abundant charcoal attests to many local fires.

Charred and waterlogged plant remains suggest that both fills of this feature included deliberate dumps of domestic waste, including typical weeds of cultivation, or of open habitats that are frequently disturbed, perhaps deposited amongst cereal

processing waste (a little waterlogged chaff was present). Grassland was also much in evidence, particularly open, grazed pastures.

The floral assemblages from 557027 are characteristic of a pastoral landscape with some crop growth, hedgerows, and open waste ground. Insects indicate open grassland, grazed by large herbivores, and also the proximity of human habitation.

The landscape around the pit seems to have been open grassland grazed by large herbivores. This is suggested by the relatively large proportion of 'dung beetles' ... such as Geotrupes, Onthophagus and Aphodius species. Indicators for the nature of the surrounding vegetation again indicate disturbed ground. This includes insects such as the 'leaf beetles' Chrysolina fastuosa, which is found on dead and hemp nettles (Lamium and Galeopsis spp.) and Hydrothassa spp. which is found on buttercups (Ranunculaceae) (Koch 1992). The weevil Ceutorhynchus pervicax is found on cuckoo flower (Cardamine pratensis) (Koch 1992) a species of plant with is particularly associated with damp pasture (Stace 1991). Sitona spp. are normally found on clover (Trifolium spp.), vetches (Vicia spp.) and wild pea (Lathyrus spp.) (Koch 1992).

A number of taxa recovered, such as the histerial 'pill beetles', Ceryon spp and a range of small staphylinids such as Anotylus rugosus, A. nitidulus and A. sculpturatus are all associated with decaying settlement waste and materials but can also be found in animal dung (Hansen 1987; Tottenham 1971). Similarly, a single individual of the 'common woodworm,' Anobium punctatum also was recovered, but this species is not restricted to human settlement and can occur in the dry dead-wood of isolated trees in the countryside.

(Tetlow, CD Section 17)

Both fills also contained dense animal bone, most in good or fair condition. Only cattle and sheep/goat (no positive goat) were identified, a narrow range of species for the size of this assemblage which is larger than that from the periods immediately earlier and later which may therefore originate from a limited scope of activity, perhaps purely

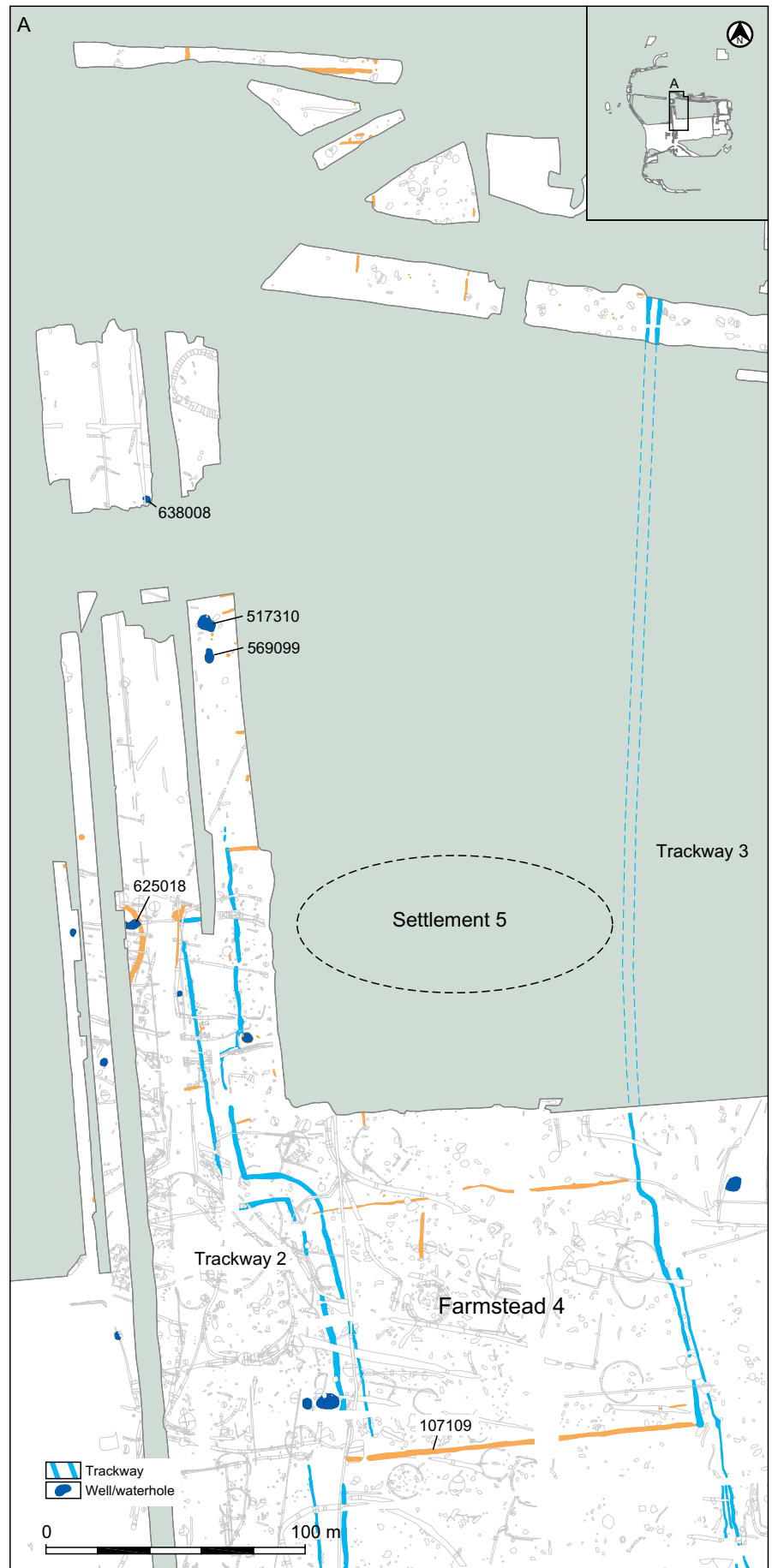


Figure 3.23: Farmstead 4 and Settlement 5

domestic/consumption. In both deposits neonatal individuals and porous bones from young animals were recovered; elements of the young animal(s) are not replicated between contexts and may signify the deposition in consecutive deposits of remains from the same carcass(es), or that the two contexts may not be strictly separate.

(Knight and Grimm, CD Section 13)

Pit 557034 cut into the top of 557027. The lowest fill again contained pollen assemblages indicative of nearby pasture, although there was evidence of decreased grazing pressure and an increase in arable cultivation (or the inclusion of cereal processing waste).

The uppermost fill contained large quantities of burnt flint and some Middle Bronze Age pottery, suggestive of a backfill of household debris. Pollen assemblages from this level are dominated by types...

...characteristic of open, waste land, trackways and ruderal communities. Evidence of pastures and crops is less than in previous fills, and the biodiversity has decreased. This suggests that although some pasture and arable fields were still in the area, they may have been further away or less than in the time of previous fills. Higher spore values of ferns and bracken may be further evidence of increased dereliction. However, as the fill was probably household detritus, coming from open, waste ground around habitations, this may account for the change in pollen assemblages.

(Peglar et al., CD Section 16)

Barley grains from waterhole 563060, one of a series of features which cut a subdivision of the northern area, returned a date of 1470–1380 cal BC (94%) or 1490–1480 (1%) (Wk-18573; 3149±32 BP); barley from a higher fill of this same feature dated to 1440–1320 cal BC (Wk-19339; 3094±33 BP), as did a determination on charred barley grains from ditch 515233 which formed an element of the central enclosure (Wk-18574; 3094±31 BP).

What the dates from these features suggest is that—as in the case of Settlement 1—Settlement 2 was a later

establishment, with activity belonging in the period 1500–1400 cal BC restricted to agriculture within what would at that time have been the south-west corner of Farmstead 3. Settlement 2 was constructed in an existing field, the boundaries of which were modified accordingly. Domestic activity within the settlement area is indicated by a near-complete cylindrical loomweight from the palisade ditch.

Farmstead 4

This farmstead is very poorly represented, to the point that it is almost impossible to date its establishment or discern its form (Fig. 3.23). Given its near-invisibility, it is perhaps worthwhile rehearsing the evidence for its existence.

Trackway 2 provides some of the most compelling evidence for a 2nd millennium farmstead in this area. The northern-most sections of this trackway are short narrow gullies suggesting areas of fences or gates, or perhaps moveable panels across openings. Access is provided into fields to the east and west. Ditches are often recut, but no stratigraphic relationships with field boundaries are available. The northern end of the trackway appears to form some kind of stock-holding area perhaps designed to temporarily pen animals as large flocks were separated into the smaller fields into which Trackway 2 feeds.

South of this area the trackway narrows and turns east and then south around the already existing corner of the large 'D'-shaped enclosure of

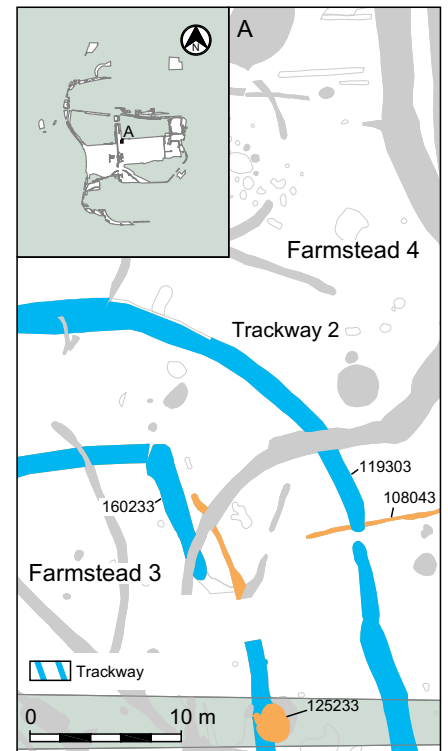


Figure 3.24: Stratigraphy of Trackway 2 and intersecting boundaries

Farmstead 3, into which it does not provide access. From this point on, the eastern boundary of the 'D'-shaped enclosure forms the western side of Trackway 2. No stratigraphy demonstrates the relationship between the two, but radiocarbon dates for the two farmsteads show that Farmstead 3 is earlier, and the opposite sequence would make little sense, requiring an invisible reason for Trackway 2 to turn to form a corner into which the 'D'-shaped enclosure was built. Dating evidence for Trackway 2 is provided by over 6 kg of Deverel-Rimbury pottery (two bucket-shaped jars and a globular vessel) in its western ditch, north of Farmstead 3. Clearly then, although

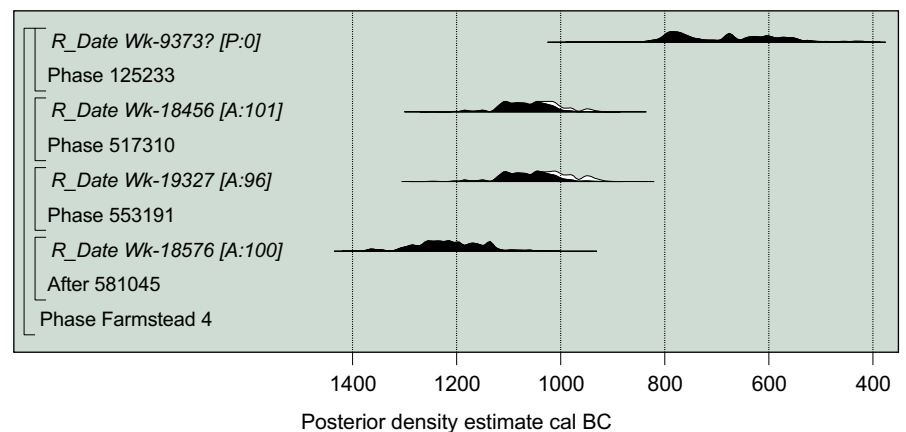


Figure 3.25: Radiocarbon dates for Farmstead 4



Plate 3.10: Artist's reconstruction of Farmstead 5

later than Farmstead 3, Trackway 2 is definitely dated to the Middle Bronze Age, and may belong to the post-1400 cal BC phase of settlement.

Where Trackway 2 turns back south its eastern side cuts east-west field boundary ditch 108043, south of which is a short section of trackway ditch which may block an earlier access east into the field (Fig. 3.24). Trackway 2 terminates immediately north of east-west field boundary ditch 107109 which crosses its line to cut the eastern side of the large 'D'-shaped enclosure boundary (Fig. 3.23).

Such were the distributions of the excavated areas that the northern part of Farmstead 4 was almost uninvestigated: portions of ditches lay on the same alignments as others of this phase (and in some cases were more securely dated by Deverel-Rimbury and post-Deverel-Rimbury ceramics). Charred grain from a secondary fill of one such ditch produced a radiocarbon determination of 1380–1050 cal BC (Wk-18576; 2980±34BP; 581045), but this date only provides a *terminus ante quem* for the feature. Radiocarbon determinations for this farmstead are given in Figure 3.25.

More certain evidence consisted of pits, wells and waterholes of the same types as encountered in the other farmsteads. For instance, 625018 was a well or waterhole with Deverel-Rimbury ceramics in the lower fill and post-Deverel-Rimbury higher up; 569099 was a ramped waterhole of 2nd millennium date. Upper fills of this feature contained small amounts of post-Deverel-Rimbury ceramics, and it is to this period that most of the surviving evidence of activity in Farmstead 4 belongs. For the earlier parts of the 2nd millennium, however, there is virtually no other securely-dated evidence.

Farmstead 5

This farmstead lay south-east of (and partially adjacent to) the large 'D'-shaped enclosure of Farmstead 3 (see Fig. 3.26 and artist's reconstruction in Plate 3.10). Only small portions lay within the limits of excavation, and its form is consequently not easy to reconstruct. Indeed, it is not entirely clear how this farmstead fits into the pattern of the aggregate and coaxial systems: in places, the alignment of the field boundary ditches has more in common with the farmsteads of the coaxial system. Only two radiocarbon

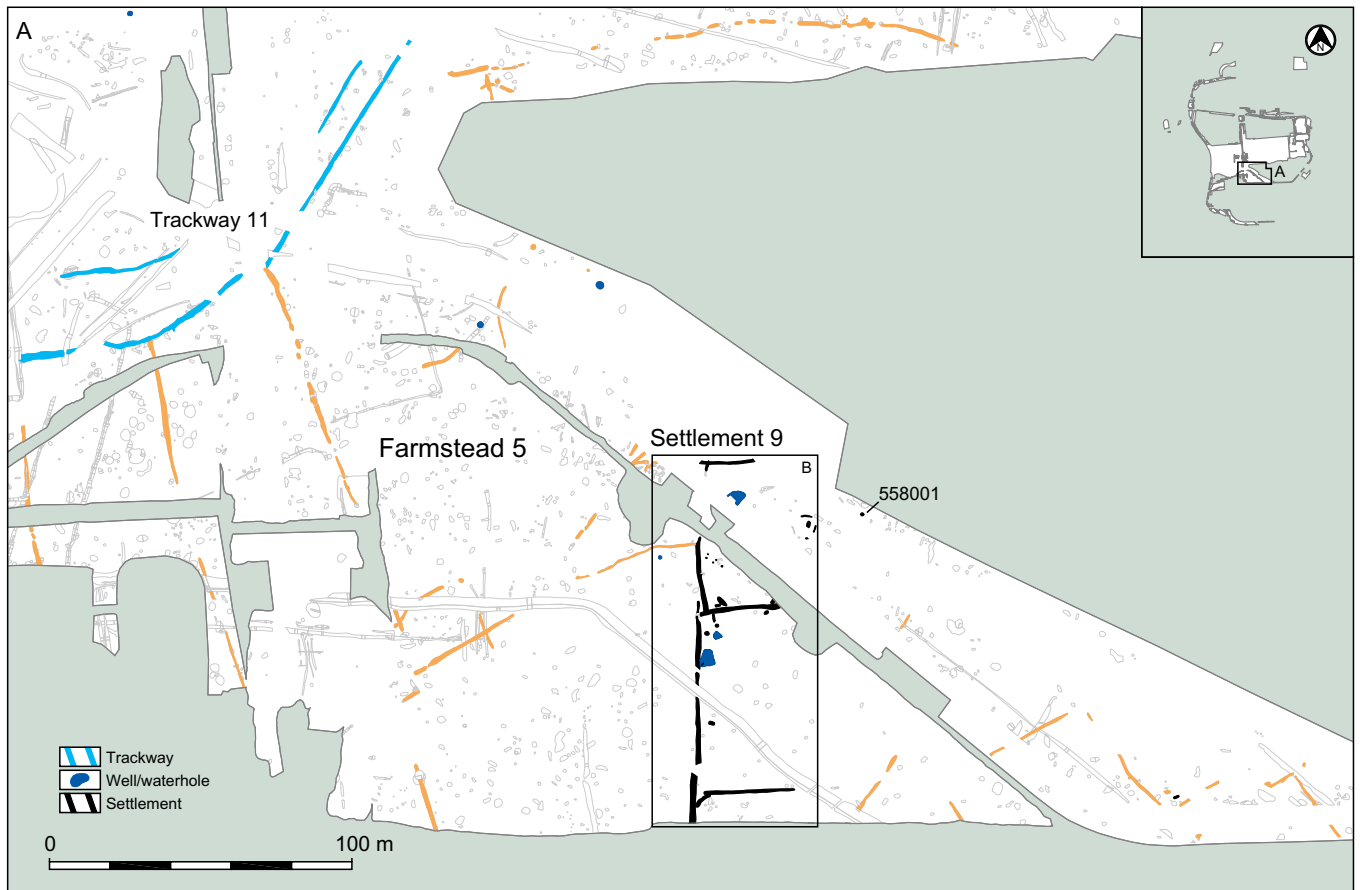
determinations were obtained (from a pair of intercutting features), given in Figure 3.27.

The northern boundary of this farmstead was formed by a meandering interrupted ditch which ran between (but did not intersect with) Trackways 11 and 3. This ditch separated Farmstead 5 from a sub-square block of land of approximately three hectares which cannot be satisfactorily assigned to any of the farmsteads, and which may have been common land. This plot is discussed further below.

This boundary ditch is dated to the 2nd millennium by Deverel-Rimbury ceramics in its fills, and also in small features which cut it. The same is true of some of the field boundaries, although the numbers and weights of recovered ceramics are very low, and the ceramics in the recuts sometimes belong to post-Deverel-Rimbury traditions.

Settlement 9

Situated in the centre of Farmstead 5, Settlement 9 consisted of a number of trenches and gullies apparently forming and sub-dividing a large square enclosure similar to Settlements 2 and 7.



As with the fields within which it was situated, the ditches defining this settlement contained a ceramic sequence of Deverel-Rimbury in the lower fills and post-Deverel-Rimbury in the upper fills and recuts.

Within the settlement, a large well (551006) and a possible waterhole (528154) contained a limited range of objects by now familiar from other such features: the basal fills of the former contained wooden objects (sharpened stakes, board fragments) which had probably originally revetted the sides. Waterhole 528154 had Deverel-Rimbury ceramics throughout most of the sequence and small quantities of post-Deverel-Rimbury ceramics

in the upper fills. An adjacent small pit (544061) had portions of a Deverel-Rimbury jar on its base.

This waterhole and pit lay in a small group of four features in the north-west corner of the southern subdivision of Settlement 9. Completing the group were pit 579172 and waterhole 544093. The latter contained quantities of Deverel-Rimbury pottery throughout its fills, along with other material suggestive of domestic waste.

Pit 579172 (Fig. 3.28) contained a suite of material which appeared to be deliberately deposited. The lowest fill contained a complete knobbed cup (Fig. 3.28, 1), unusual in terms of its

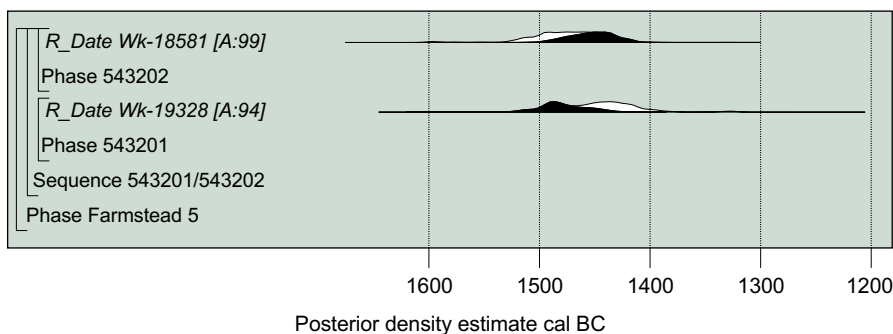


Figure 3.27: Radiocarbon dates for Farmstead 5

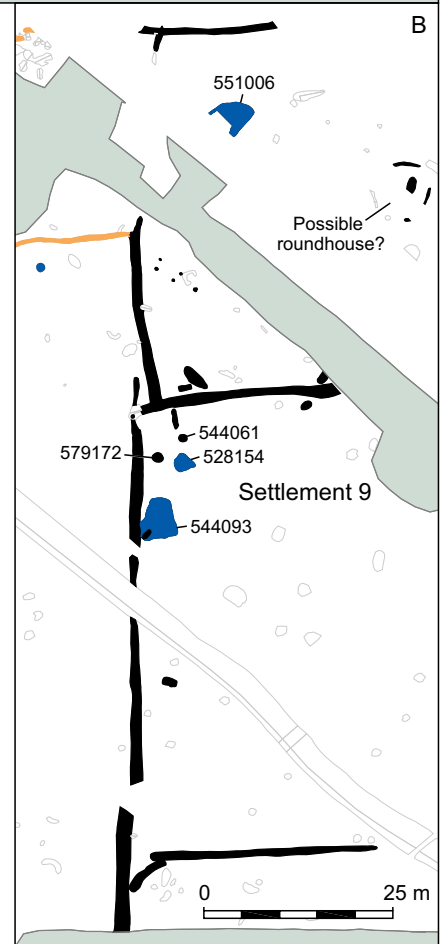


Figure 3.26: Farmstead 5 and Settlement 9

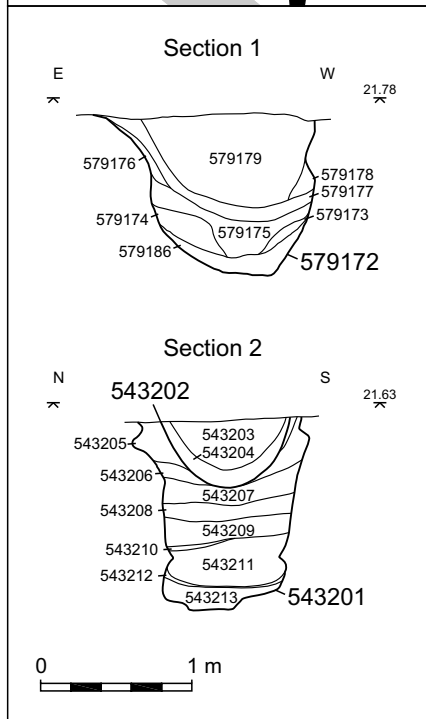
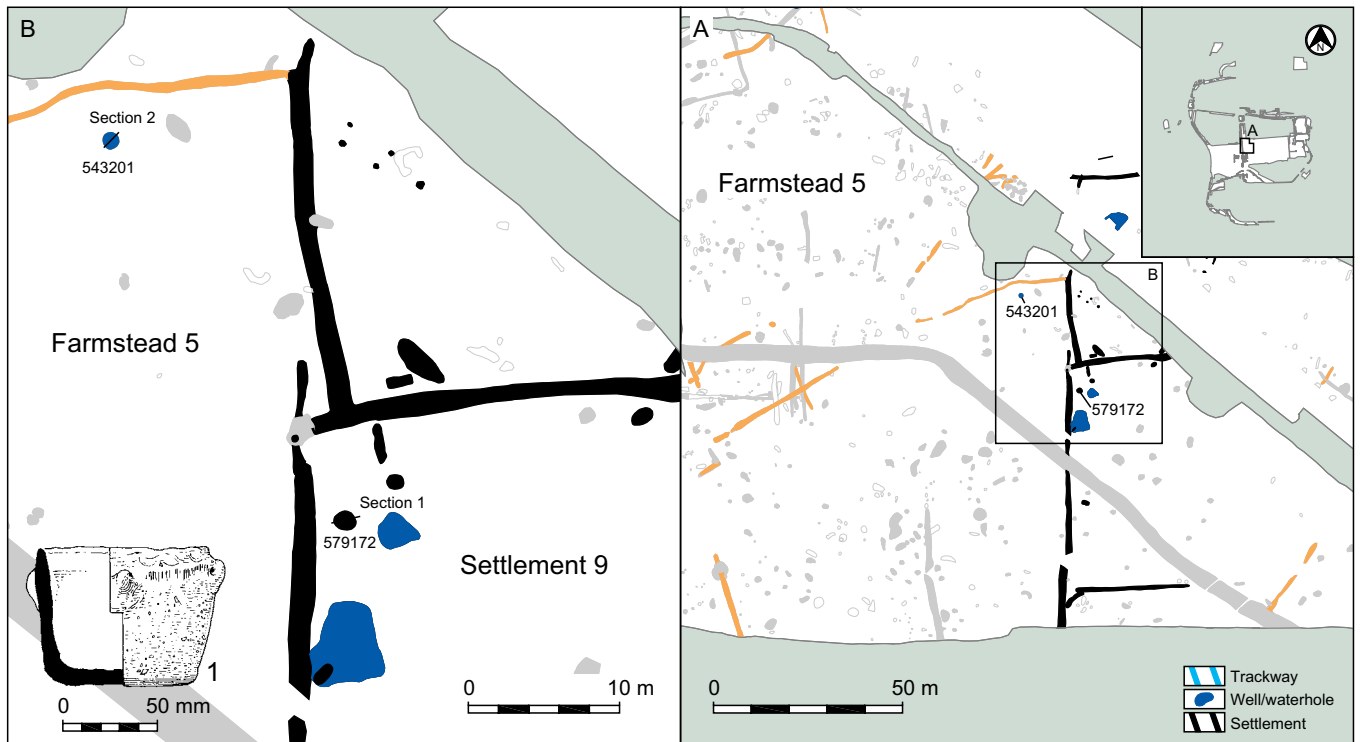


Figure 3.28: Pit 579172 and well 543201 with illustration of knobbed cup

Following some weathering of the sides of the feature, a broken saddle quern was placed into the pit, and higher layers contained fired clay (possibly fragments of hearth lining) and more pottery (predominantly Deverel-Rimbury). The material from the higher layers has the appearance of domestic refuse, and this is perhaps borne out by the lithic assemblage from this feature.

A total of 67 struck flints was recovered from three deposits, most from 579177. The flintwork forms a fresh, uncorticated, technologically-coherent assemblage, and can be dated through its association with Deverel-Rimbury pottery to the Middle Bronze Age.

The assemblage predominantly consists of squat, angular, hard-hammer flakes with no platform preparation. The collection includes two cores, one tested nodule, one flake from a hammerstone and a small number of chips (nine pieces). Several flakes of the same flint type were noted, suggesting that the assemblage derives from a very limited number of cores, although fewer refits were identified than expected.

Retouched pieces include a serrated blade and a scraper. These pieces seem to have been more carefully worked than other

pieces in the assemblage and are manufactured from a seemingly better quality flint, perhaps indicating a different origin to the rest of the assemblage.

(Cramp and Leivers, CD Section 4)

Well 543201 (Fig. 3.28) lay approximately 13 m outside the settlement enclosure ditch. However, it contained a range of material in its fills that complemented that from features within Settlement 9, and it seems likely to represent similar activity. The lowest fill contained the sherd of Deverel-Rimbury matching the knobbed cup from 579172, while a sample from a thin layer of gravel immediately above it contained several charred emmer/spelt wheat grains, barley grains, a little emmer/spelt chaff (including some possible spelt glume bases) and a few weed seeds. The weeds included the usual taxa (scentless mayweed, cleavers, vetch) as well as black bindweed (*Fallopia convolvulus*) and ribwort plantain (*Plantago lanceolata*). Charred grain from this sample gave a radiocarbon determination of 1530–1430 cal BC (Wk-19328; 3171±39 BP; 543212).

No further material was recovered from this well, which seems to have

form, fabric and decoration, each of which is matched only by a single sherd from well 543201, 29 m to the north-west (see below). Pit 579172 appears to have been newly-dug when the cup was placed upright on its base, in a gravelly backfill. It is difficult to interpret this as anything other than an intentional placement—it is highly improbable that a complete vessel would be casually discarded, and chance loss does not seem likely.

filled naturally. It is possible that the material from the two lower fills represent some kind of token foundation deposit, although it is as likely that they were merely casual discards.

The upper fills of the well were cut through by a slightly smaller pit (543202). A sample from the two fills of this feature:

...contained frequent large charcoal and cereal remains. Emmer/spelt wheat was well represented by both grains and chaff fragments. Both emmer and spelt were positively identified from the chaff fragments, but for the first time spelt was present in significant numbers, exceeding emmer by a small margin. Weeds included black bindweed, dock, vetches, cleavers, scentless mayweed and chess. A few hazelnut shell fragments were also recovered. Although this assemblage appears to be slightly more advanced than the other Middle Bronze Age cereal assemblages, due to the increased spelt content, a radiocarbon date on an emmer/spelt grain produced a date of 1500–1410 cal BC (Wk-18581; 3207±32 BP3204).

(Carruthers, CD Section 14)

These fills contained a range of materials which are suggestive of some light industrial process. Quantities of burnt flint and fired clay were recovered, and the cut was lined with a thick band of charcoal, containing some substantial pieces of charred wood. Above this, an ashy grey fill contained more burnt flint, charcoal and fired clay. The layers beneath the charcoal were unaffected by heat, however, so the material must be dumped rather than result from *in situ* burning.

Within Settlement 9 there are some slight hints of buildings and other structures. These occur in the northernmost section, where the bulk of the dated evidence is Late Bronze Age, with which the structures may be contemporary (although none is dated by any material association).

A double line of postholes only 1.3 m apart and adjacent to the enclosure ditch opposite pit 543201 may form one side of a small building. The longest side is only 6 m long, and not quite

straight, so certainty is impossible. Located 30 m to the east, an interrupted ring of ditches may be a drip gully marking the location of a roundhouse (Fig. 3.26). The diameter of the ring is 7.5 m, which would place any structure within the range of better-attested Bronze Age buildings: at Stansted for instance, the Bronze Age round-houses were between 5.5 and 7.6 m in diameter (Brown and Leivers 2008). Off centre within this possible structure on the north-east side was a rectangular pit. No material was recovered.

The Coaxial Landscape

The farmsteads yet to be discussed are for the most part very different in nature to Farmsteads 1–5. Farmstead 3 provided a core around which others

accrued or from which they were divided over time. In the coaxial landscape however there is no obvious chronological priority to any particular farmstead and all share a basic alignment and are demarcated by trackways. Given the lack of any chronology between different farmsteads in the coaxial landscape, they will simply be described in order from west to east.

Farmstead 6

The northern half of this farmstead was separated from Farmstead 4 to the west by the double ditches of Trackway 3 (Fig. 3.29). The southern half borders the putative Common land (see below). Four radiocarbon determinations were obtained, placing activity throughout the second half of the 2nd millennium

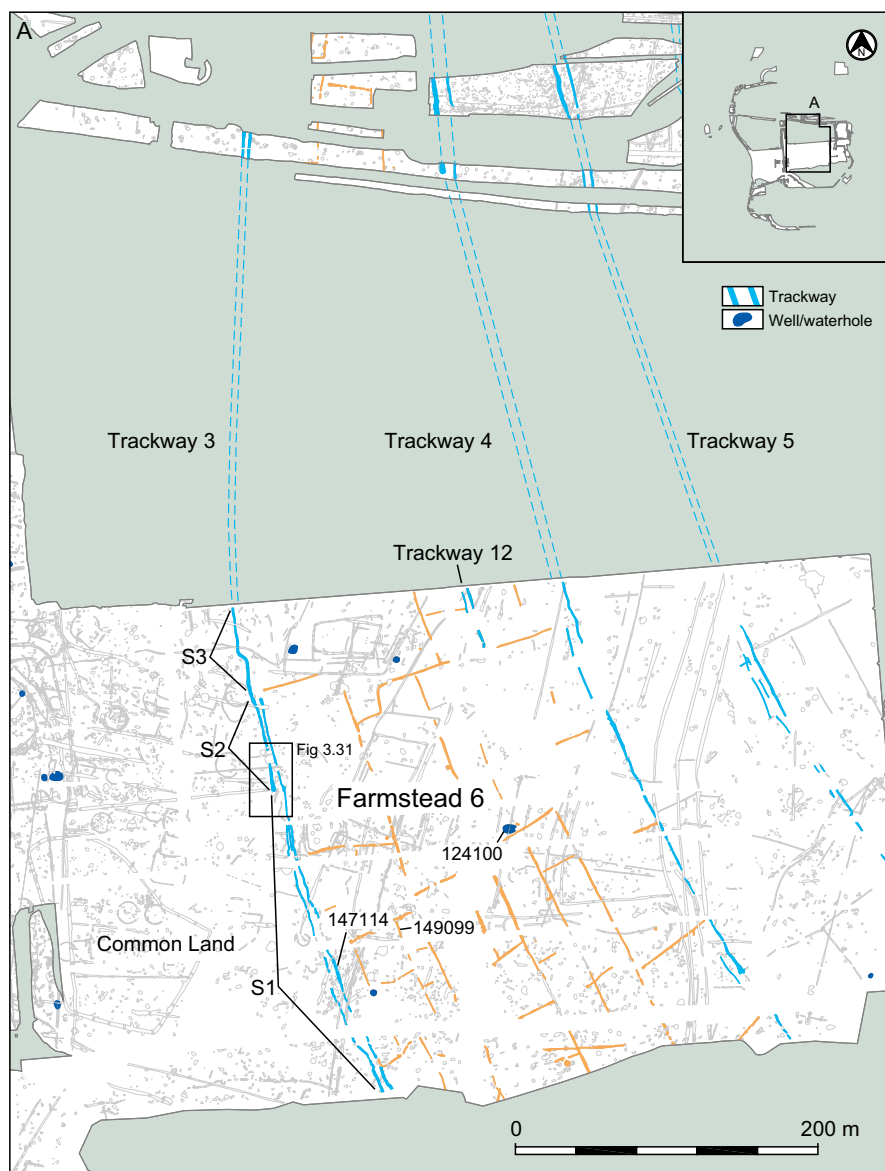


Figure 3.29: Farmstead 6

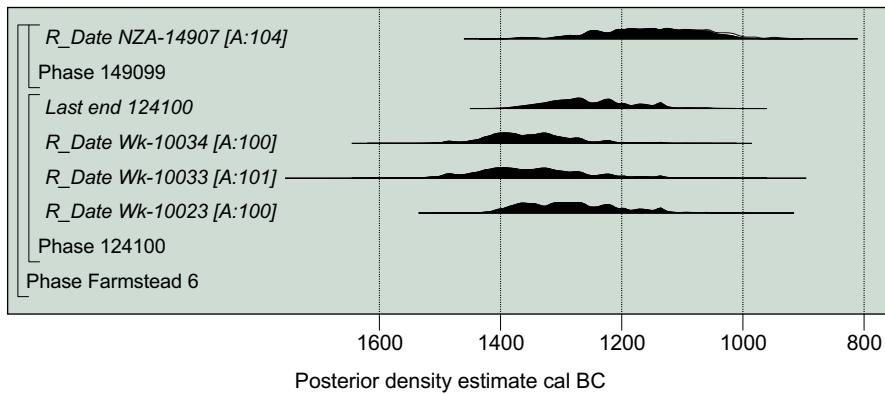


Figure 3.30: Radiocarbon dates for Farmstead 6

(Fig. 3.30). The earliest three date large waterhole 124100; NZA 14907 relates to recut field boundary ditch 149099.

Trackway 3

This trackway provides some of the strongest indications of the chronological expansion of the field systems from south to north across the landscape. The first section of Trackway 3 runs from the southern end of the excavations as far north as the northern end of the Common. Access is to both the Common on the west, through a series of features which look very much like some sort of stock control gate, and to the fields of Farmstead 6 on the east. Ditch segments are recut and there are minor shifts in alignments on occasion. Further south there is much truncation, but segments seem to be recut, to intersect, and there are real termini at various points on both sides and a pair of later 'gap blocking' insertions at the south end. The east and west sides of this part of the ditch clearly develop in concert—the type and technique are mirrored exactly on either side and seem to relate in some way to the size of the adjacent field enclosures and the provision of watering. There is very little dating, but one section (147114, which may be a recut segment) has more Deverel-Rimbury than post-Deverel-Rimbury, and lower down.

The second section runs from the northern end of the Common to the northern end of the rectilinear fields on the east. The apparent differences between this section and the first and third may not be chronological, but may be due to the different nature of the adjacent field enclosures. North

of these fields, there is no ditch on the eastern side, and the western ditch originally terminated at this point (although it was later re-cut).

The southern terminal of the second section of the western trackway segment cuts a very short east-west ditch segment (137244) which is also cut by the main east-west field boundary (107109; northern Common boundary) here (Fig. 3.31). The ditch segments on both sides originally terminated at this same point. This phase is undated.

The third section extends the western side of the second phase ditch through a marked 'dog leg' where the trackway turns to avoid a tree. The ditch cuts the northern terminal of the section 2 ditch, and there are post-Deverel-Rimbury ceramics in a fill low in the sequence (but only two sherds weighing five grams). The double-ditched trackway was encountered again in a very short section some 295 m further north.

There are three possibilities for phasing this trackway:

i) Phase 1 runs to the northern end of the Common; Phase 2 extends the line to the northern end of the rectilinear fields on the east; Phase 3 extends the western side of the trackway. In favour of this option is the fact that there are very definite (or morphologically very likely although unrecorded) breaks and intersections of characteristically different ditches at the identified points. Phase 2 cuts a gully on the line of the north Common boundary.

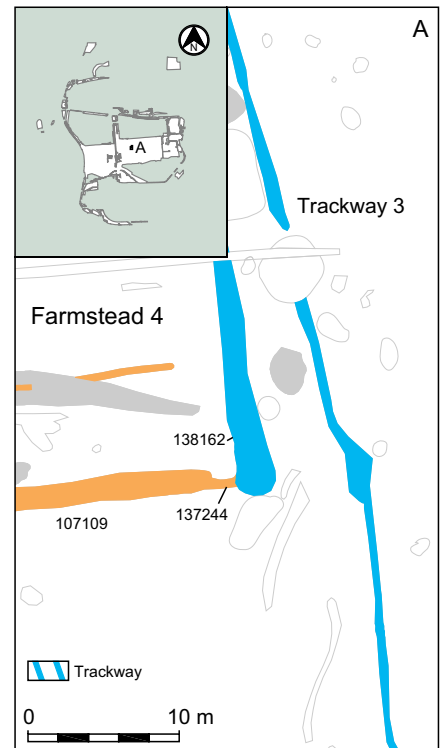


Figure 3.31: Stratigraphic relationships in Trackway 3

ii) Phase 1 runs to the northern end of the rectilinear fields on the east; Phase 2 extends the western side of the trackway. In favour of this option is the fact that this extension would only become necessary once Trackway 2 had been inserted, requiring definition of the boundaries of new fields between Trackways 2 and 3.

iii) Phase 1 runs to the northern end of the Common; Phase 2 extends the line to the northern end of the rectilinear fields on the east and to the limit of excavation on the west. In favour of this option is the uniform nature of the ditches north of the Common.

Whatever the exact sequence, it seems beyond doubt that Farmstead 6 underwent expansion northwards at some point or points throughout its existence. More extensive excavation has allowed a reassessment of the evidence for the area presented in *Volume 1: Perry Oaks* (Framework Archaeology 2006), and the tentative identification of a settlement here (*Volume 1's* Settlement 6) is now discounted. There is, in fact, no sign of a settlement anywhere within Farmstead 6, although the likelihood is that one existed. Given the evidence of

other Farmsteads and Settlements discussed below, any settlement is most likely to have been located outside the area of excavation, either to the south or (more probably) to the north.

In the absence of any settlement, evidence of use is once again limited to the pits, wells, waterholes and other features scattered throughout the fields. Most contained a background scatter of material that is most probably simply discarded rubbish (struck and burnt flint, small amounts of animal bone, Deverel-Rimbury and post-Deverel-Rimbury pottery, fired clay), but some were more revealing.

At the base of ramped waterhole 124100 a timber and wattle revetment separated gravelly material on the

ramp from the shallow pool (Fig 3.32). The revetment produced three radiocarbon determinations (WK10023, 3029±51 BP; WK10033, 3097±74 BP; and WK10034, 3091±57 BP) giving modelled dates for its construction of 1390–1120 cal BC.

After an unknown period of time, the pool was deliberately filled with dumped material including a large amount burnt flint. Subsequent fills contained varying quantities of burnt flint, as did a shallow rectangular feature (124085) 1.6 m to the north-west, which may have been a water trough.

It is possible that these two features were used in some process involving the heating of water. There are no indications of what this process might

have been, but the large quantities of burnt flint recovered from the features (together with the higher than normal densities from nearby field boundary ditches and other features) suggests that the burnt flint debris was probably strewn over a wide area following successive episodes of heating and boiling.

It can therefore be postulated that a burnt mound existed adjacent to the waterhole. The activities leading to the creation of such features remain ambiguous, despite continued investigation, but the most usual interpretations are as cooking sites (eg Buckley 1990), breweries (Pitts 2009) or as steam baths (eg Barfield and Hodder 1987). It is unlikely that the heating of stones (whether or not for the subsequent heating of water) served

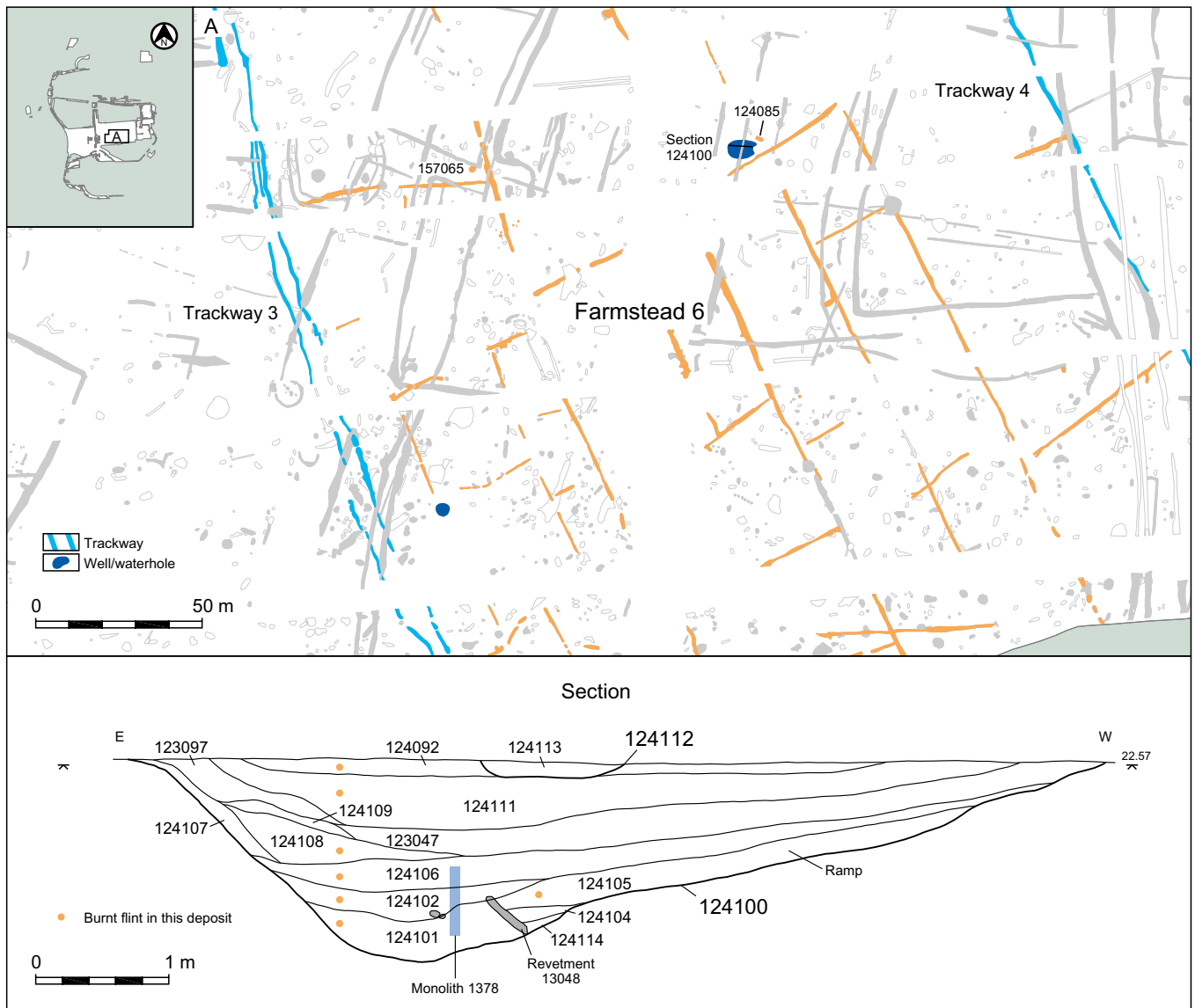


Figure 3.32: Waterhole 124100

a single purpose universally, and even less likely that the sites divide neatly into cooking and bathing locations. As Keith Ray notes, the mounds will have been ‘...one locus of mediation of interests and strategies among several others’ (1990, 10).

The putative Terminal 5 burnt mound complex was located amidst the fields of Farmstead 6, some distance away from any settlement. The exact nature and purpose of the complex will probably remain uncertain but the depositional sequences in waterhole 124100 and possible trough 124085 suggest that people periodically gathered at this location to take part in activities that may have involved feasting, cleansing or other things. None of these activities is necessarily unusual in itself—the Bronze Age inhabitants of Heathrow undoubtedly ate cooked food, and presumably bathed—but the setting for these activities, and the scale of them in this location, suggestive of communal activity, provides an indication of formal and symbolically-charged aspects to these undertakings. It could then be that this waterhole was involved in the performance of ritual acts.

One reason for the importance of ritual in small-scale societies lies in the absence of an elaborate state apparatus. In state societies, the reproduction of authority is secured by the persistence of a whole series of institutions across the generations—in ours by parliaments, police forces, the judiciary, social security, the health service, and so on. All of these institutions guarantee that from one generation to the next there will be some degree of stability: that authority will be acknowledged and respected, that laws will be upheld, and that norms and values will be maintained. In the absence of these agencies, authority often tends to be maintained through other strategies: perhaps some kind of orientation towards the frequent repetition of particular activities in specific ways, placing tradition at the centre of social order. So at a very basic level, one of the key roles of ritual lies in the performance of traditions, customs, and beliefs, manifesting order in the present.

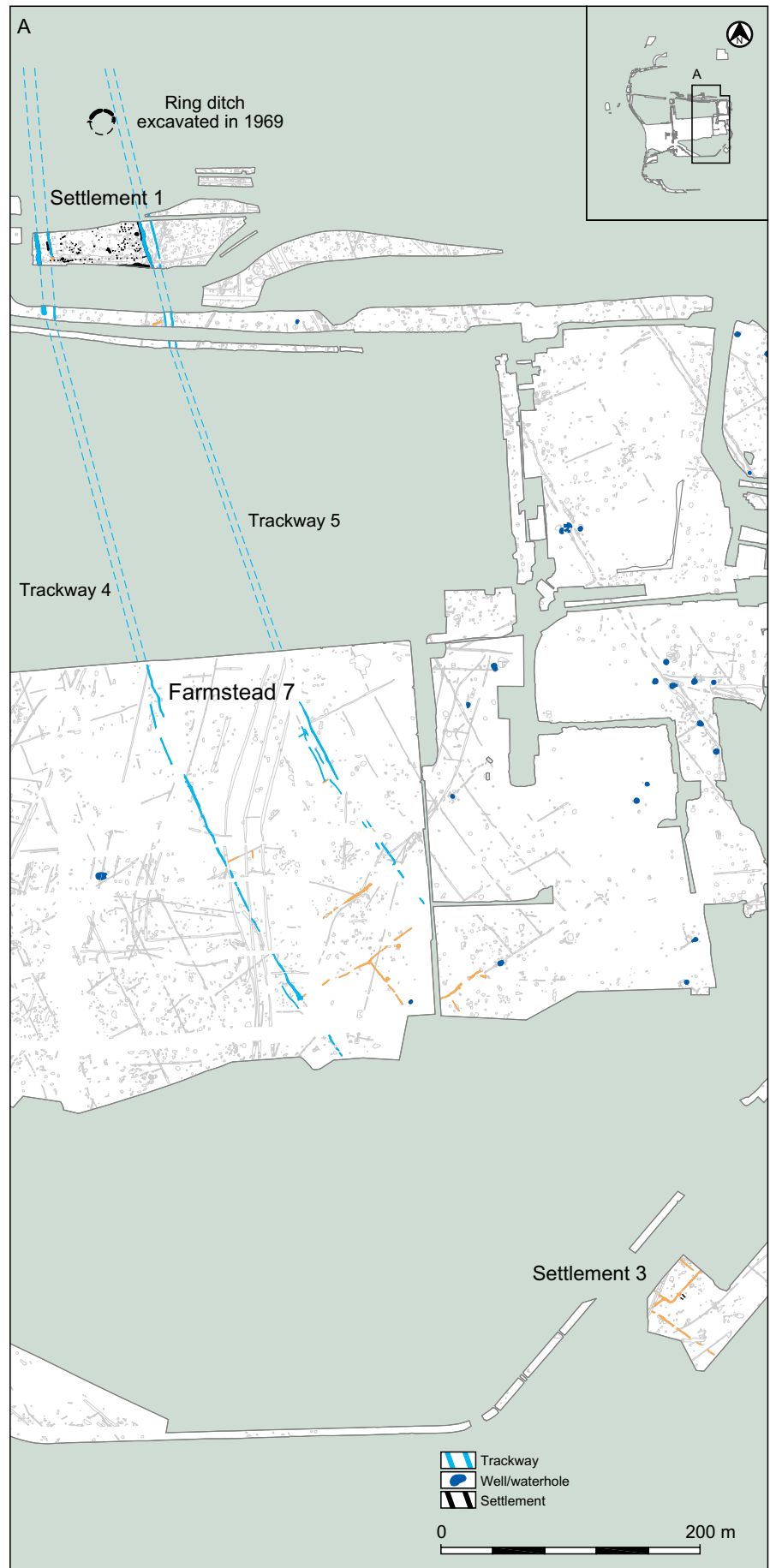


Figure 3.33: Farmstead 7



Plate 3.11: Artist's reconstruction of Farmstead 7

Rituals tend to be sets of actions which are played out (or performed) rather than just abstract beliefs. These actions tend to derive from the past, or to be thought to derive from the past, so that ritual is sanctioned by tradition. Ritual tends to be highly symbolic in character: all of the actions, gestures and utterances involved tend to have a greater significance, and most of the material objects used can be considered as material symbols, even when (as they often are) these objects are also normal day-to-day items, like pots, or heated stone. Finally, ritual is often in some way distinguished from normal day-to-day life, and demands different modes of conduct, even if this is in the midst of one's everyday activities.

Such rituals act as collective representation; as a means by which the group as a whole communally expressed its most deeply-held values. By performing these values together, communities are able both to reaffirm their commitment to a particular moral code, and to create a sense of unity, of integration, and social well-being.

Ritual also allows communities to come to terms with changes in their own make-up. Two basic ritual forms are often identified, known as

calendrical and life-crisis rituals. Calendrical rituals, like harvest celebrations or solstices, allow societies to mark off time and its passing, while at the same while imposing on time a formal structure. Life-crisis rituals, by contrast, are concerned with particular individuals and their change in status from one class of person to another. What this does is to give an impression that life, death, ageing and reproduction are things which can be controlled or sanctioned by society, rather than simply inevitable processes.

These life-crisis rituals—commonly referred to as rites of passage—tend to have a particular structure to them, consisting of three phases. In the first the existing order of the world is acknowledged; in the second that order is dissolved or inverted; and in the third a new order is created. In this new order, people have been re-classified: they have moved from child to adult, from unmarried to married, from alive to dead, or any of a whole range of other possibilities. Rites of passage tend to make use of a spatial symbolism, involving passing through portals, or going off to secluded places and coming back. So the removal of people from the community and their return is used as a metaphor for their re-classification

as a new kind of person. In the process of re-incorporating people into society, the solidarity of the community as a whole is re-created. In this sense, the setting of the Farmstead 6 waterhole in the middle of the fields and away from any settlement may be significant.

The importance of this kind of ritual is as a re-definition or re-classification of the world. And this points to the significance of material objects in ritual: its use, location and deposition can be deeply bound up with the classification of the things of the world. In this sense, the repeated deposition of ard spikes, whole or broken pots, scarce and valuable metal objects, wooden bowls and so on in waterholes points to the continued importance of these locations in the creation and maintenance of the Bronze Age world at Heathrow, and in this light something as seemingly mundane as a dump of burnt flint may be understood as equally significant.

Farmstead 7

Farmsteads 6 and 7 were separated by Trackway 4 (see Fig. 3.33 and artist's reconstruction in Plate 3.11). At its northern end, the western side of this trackway is in fact the western boundary ditch of Settlement 1 (it is wider,

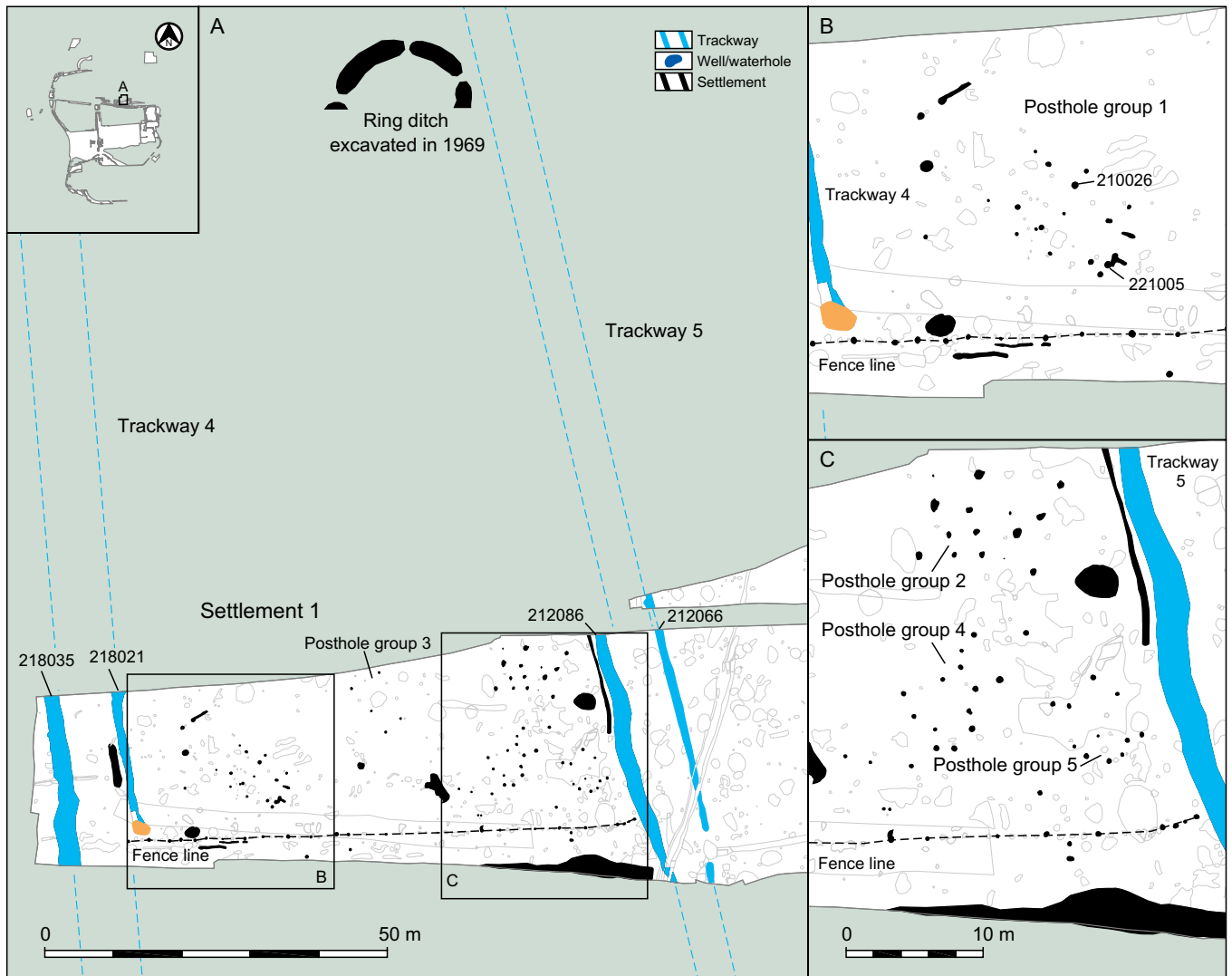


Figure 3.34: Settlement 1 in Farmstead 7

deeper, much more substantial and defensive than any of the trackway ditches elsewhere), so it is arguable that the trackway lies *within* the settlement at this point. This ditch has post-Deverel-Rimbury and Deverel-Rimbury ceramics in the middle fills and post-Deverel-Rimbury in the upper, and cuts an east-west field boundary containing Globular and Early Bronze Age pottery. The eastern ditch is much less substantial and has predominantly Deverel-Rimbury ceramics (there is only a very little post-Deverel-Rimbury).

South of the settlement, the trackway is of more normal form, shallow, with external banks. Survival is very poor, and dating evidence is limited to a single sherd of post-Deverel-Rimbury pottery for the entire surviving length, although there are a number of observable parallels between this trackway

and Trackway 3. Both seem to consist of a series of shorter inter-cutting segments at their southern ends and longer, more continuous sections further north. Similarly, while the northern-most portion of Trackway 3 has no eastern side, the northern-most portion of Trackway 4 south of Settlement 1 has no western side. Other surviving features in these areas suggest that the ditches here need not have been truncated away, and that this may have been the original morphology, even though both trackways are present as double-ditched further north.

No radiocarbon determinations were obtained from features belonging to Farmstead 7, so relative dating from ceramics has to be relied on to provide a broad sequence. For the most part, these ceramics were recovered from features within Settlement 1, at the northern end of the farmstead.

Settlement 1

This was the best-preserved of all the settlements excavated at Terminal 5 (Fig. 3.34). Situated at the northern end of Trackway 4, it lay c 60 m and 300 m south of a pair of undated, interrupted ring ditches partially excavated in 1969 (Canham 1978).



Plate 3.12: Complete pot placed on the base of 210026

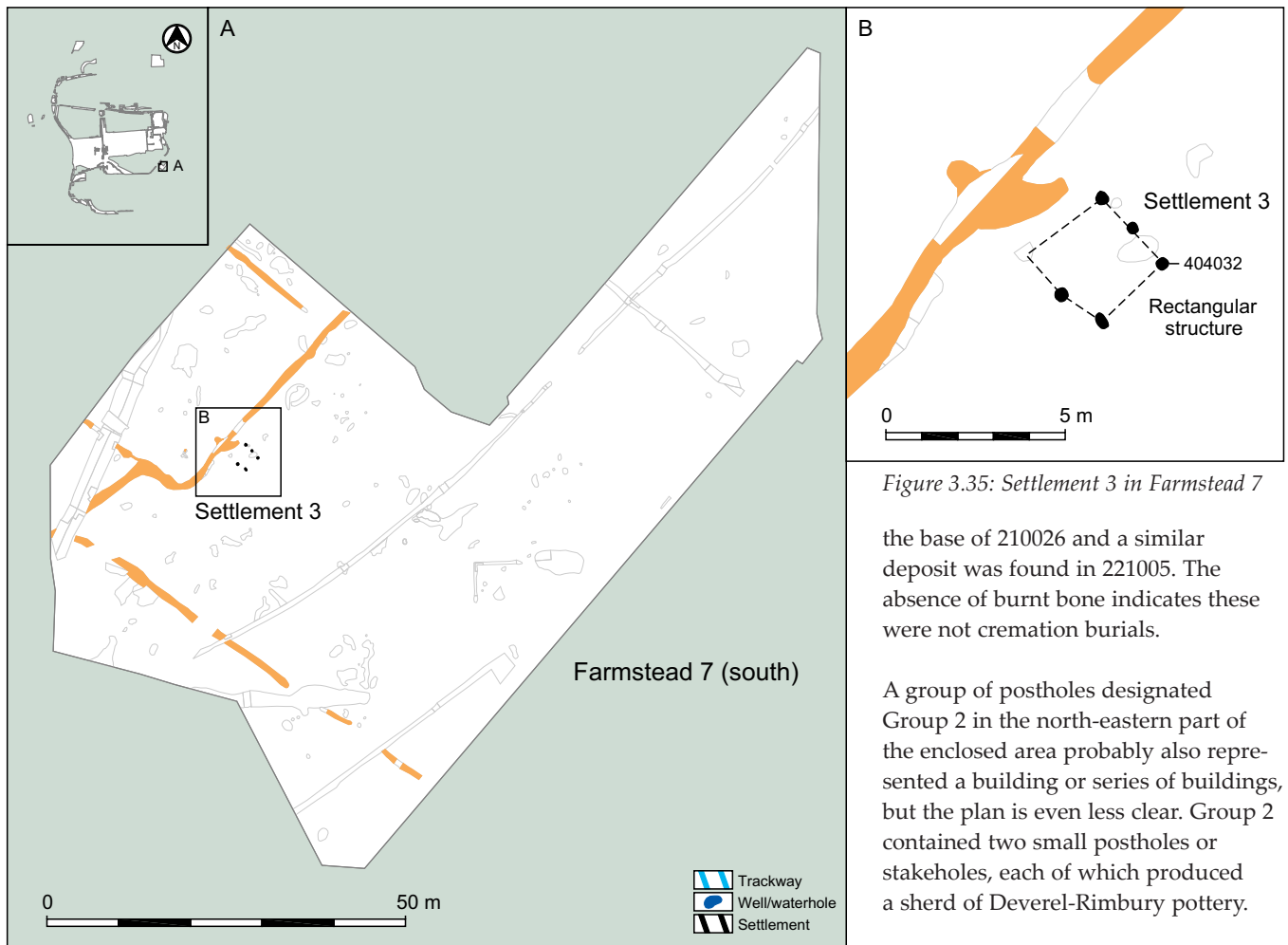


Figure 3.35: Settlement 3 in Farmstead 7

the base of 210026 and a similar deposit was found in 221005. The absence of burnt bone indicates these were not cremation burials.

A group of postholes designated Group 2 in the north-eastern part of the enclosed area probably also represented a building or series of buildings, but the plan is even less clear. Group 2 contained two small postholes or stakeholes, each of which produced a sherd of Deverel-Rimbury pottery.

Three other posthole groups (Group 3–5) were recognised within the enclosed area, all of which probably made up at least one building. The proximity of Posthole Group 5 to the bank associated with the settlement's eastern boundary ditch 212086 indicates that the building must have either have gone out of use before the bank was constructed or have been built partially on the decaying earthwork, but there is insufficient evidence to clarify which. None of the features produced any datable finds.

Settlement 3

At the south-eastern extreme of the excavated areas, a limited portion of Farmstead 7 was encountered, containing a small post-built structure (Fig. 3.35). This area has been identified as Settlement 3 with some reservations, since evidence for settlement here is at best tenuous.

Five or six postholes belonging to a rectangular structure measuring 2.73 m x 2.27 m were the only settlement

The 2nd millennium settlement was defined to the west and east by substantial boundary ditches, which formed parts of Trackways 4 and 5. Trackway 4 lay within the area of the settlement, and provided access to it, while Trackway 5 lay outside the boundary ditch, within Farmstead 8, and did not provide access to the settlement. Both trackways had internal banks, which is again in contrast to the trackways elsewhere that generally had banks outside the ditches.

The northern extent of the settlement remains unexcavated below the airport operational area; the southern boundary was defined by a post-built fence which ran from the eastern boundary ditch towards the eastern side of Trackway 4. These two features did not intersect, there being a gap of approximately 2 m between them, presumably allowing access to and from the settlement area. Beyond the fence line to the south a large linear pit or ditch may have been a further boundary marker,

or perhaps a quarry, although this seems to belong to a later phase of use of the enclosure (see below).

Within this area a number of post settings were identified which probably represent buildings of various sorts. The plans of these are at best partial and interpretation is further hampered by the scarcity of stratigraphic relationships between the features, but some at least formed reasonably convincing building plans.

For example, Posthole Group 1 covered an area c 10 m long and 5–6 m wide. The postholes appear to have made up a substantial structure (although the exact form remains uncertain), with two intercutting postholes indicating a phase of repair. Perhaps the most interesting aspect of this structure was the 274 sherds (8041 g) from at least two Deverel-Rimbury bucket-shaped jars deliberately placed in two postholes or pits, 210026 and 221005. Plate 3.12 shows a complete pot placed on

features identified. The only dating evidence was a single small sherd of Deverel-Rimbury pottery from post-hole 404032. The building was situated immediately adjacent to field boundary ditches, which had been recut several times. These contained both Deverel-Rimbury and post-Deverel-Rimbury ceramics. They also contained large quantities of burnt flint, which had apparently derived from the rectangular building. Analysis of the charcoal from the postholes suggested that it came from the remains of domestic fires associated with the building (Challinor in Framework Archaeology 2006, CD Section 10).

Interpretation of this structure is difficult. It somewhat resembles the four or five structures identified at Settlement 1, but is distinct in that it is apparently isolated among fields. It is possible that the structure may have been an agricultural building rather than a dwelling.

Farmstead 8

Farmstead 8 was located in the eastern half of the coaxial landscape, defined to the west by Trackway 5 (Fig. 3.36). Its eastern limits were defined to the north by Trackway 9, though this was not traced into the main excavation area. Features belonging to this farmstead produced three radiocarbon determinations (Fig. 3.37). Wk-19330 (3303±32 BP; 1670–1500 cal BC) dated a charred grain of indeterminate *Triticum* sp. from a fill of waterhole 693006 in Farmstead 8. The early date has been discussed previously, but it is worth noting here that—if the true date were to lie at the younger end of the distribution—this determination could overlap with Wk-18549, suggesting that this pair of dates accurately reflect the beginnings of activity at the southern end of this farmstead. Wk-18459 (3215±31 BP; 1530–1420 cal BC) dated a wooden stake driven into the base of freshly-dug waterhole 510047, and is the earliest entirely reliable date relating to the coherent system. Wk-19333 (2877±39 BP; 1210–980 cal BC) dates waterlogged buttercup seeds from the base of waterhole 685032 (see below).

Trackway 5

Trackway 5 forms the eastern boundary of Settlement 1 in Farmstead 7, but provides no visible access to it. To the south it leads through Farmstead 8 (forming its western boundary), while only 70 m beyond its known northern extent lies a ring ditch (Site A: Canham 1978). Like Trackway 4, the western ditch adjacent to Settlement 1 is much larger than is normal for the other trackways, and shallows away from

the enclosure. There is Deverel-Rimbury in the upper fill here. On the east there is access into fields. These segments are also dated by Deverel-Rimbury pottery.

Some 290 m south of the settlement the trackway consists of segments showing re-alignments, which also typified the southern parts of Trackways 3 and 4. Much is lost to truncation, but surviving stratigraphic relationships

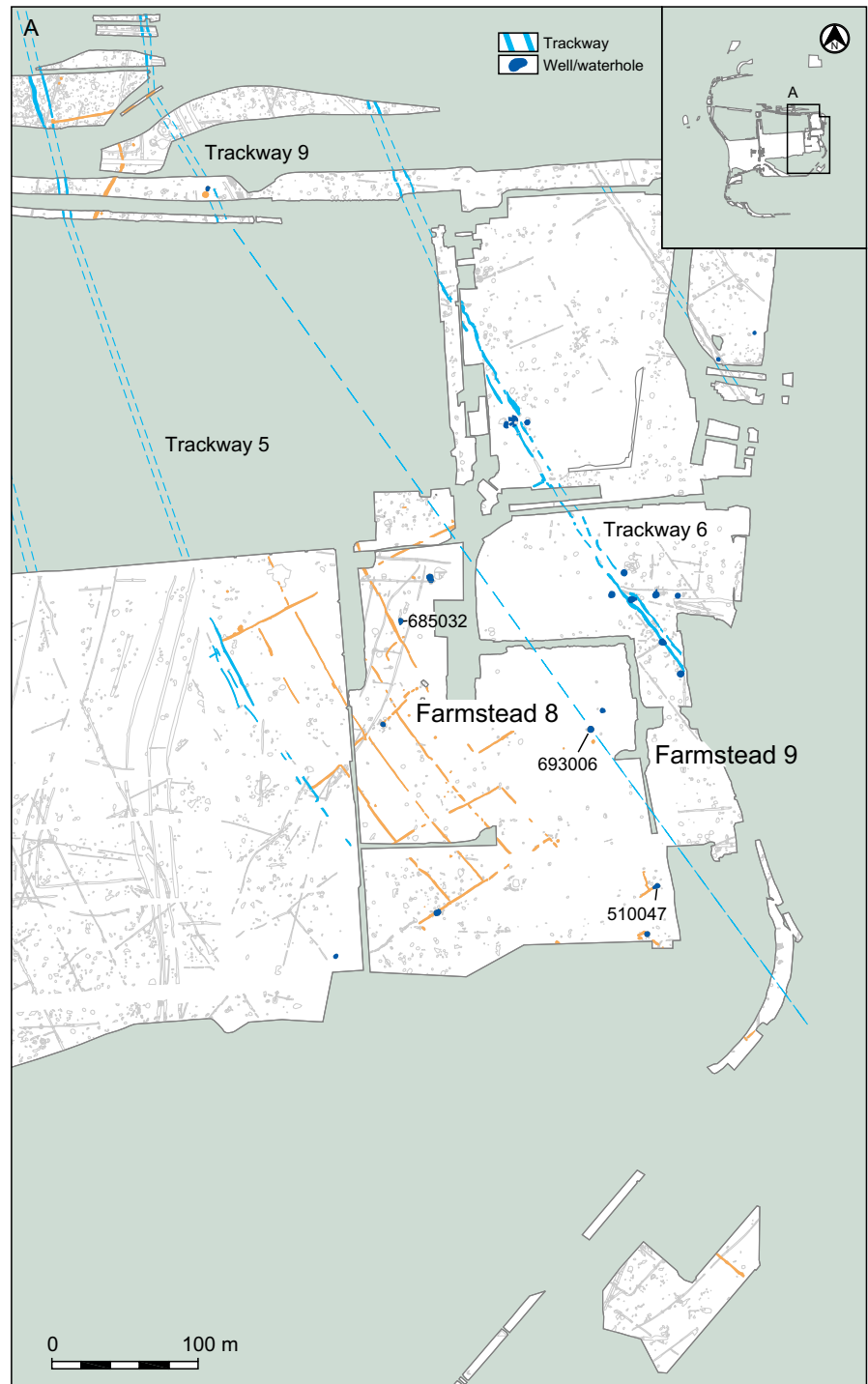


Figure 3.36: Farmstead 8

show that it is cut by at least two east-west field boundaries of fields belonging to Farmstead 8.

The usual range of pits, wells and waterholes was encountered, dating to both the Middle and Late Bronze Age. Reliably dated earlier features were mostly at the southern end of the excavated area.

Waterhole 510047 originally lay very close to a hedgerow of field maple, willow, blackberry and hawthorn and/or sloe. The absence of stinging nettle seeds suggests that vegetation around the waterhole was being cut down, presumably to facilitate access. The water surface appears to have been kept clear (no aquatic weeds had become established and marginals and wet-ground plants were not represented). Pollen is indicative of pasture and meadow, with arable fields in the vicinity (cereals included emmer/spelt, barley, possibly oats, and a little flax).

Waterhole 693006 was located on the eastern edge of the farmstead, only 11 m from waterhole 687011 in Farmstead 9 (see below).

A sample from a lower backfill (but not from the base of the waterhole) produced an abundance of seeds from wasteground weeds such as stinging nettles and pale persicaria (Persicaria lapathifolia), suggesting that the sample may represent a period of abandonment. There was some evidence for the dumping of waste, in that small fragments of charcoal were frequent in the sample. Domestic charred waste, however, was not abundant, as only two poorly preserved charred cereal grains (including an indeterminate wheat grain (Triticum sp.)) and one or two weed seeds that may have been deposited amongst cereal processing waste (eg poppy (Papaver cf. dubium, parsley piert (Aphanes arvensis)) were recorded. The arable weeds, however, can also grow in waste places so they may have been growing locally on disturbed areas of soil.

Further evidence suggesting some degree of abandonment of the waterhole was the frequency of fruits of the free-floating aquatic plant, duckweed (Lemna sp.). Most of the waterhole fills from Terminal 5 contained

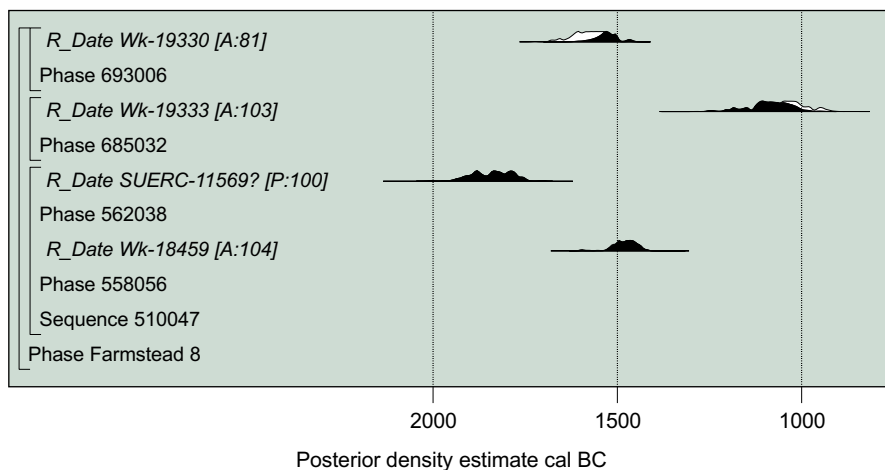


Figure 3.37: Radiocarbon dates for Farmstead 8

very few aquatic plant remains, suggesting that they had been well-used and possibly deliberately kept free of aquatic weeds. Duckweed can rapidly colonise an abandoned pond or ditch, particularly if it is eutrophic. The high nutrient status of waterhole 693006 and its surrounding vegetation was confirmed by the abundance of seeds from stinging nettles and members of the Chenopodiaceae family (including fat hen, orache and many-seeded goosefoot (Chenopodium polyspermum)). Other nitrophilous plants such as chickweed and black nightshade (Solanum nigrum) were also common.

(Carruthers, CD Section 14)

Charcoal from the feature consisted entirely of *Quercus*, with fragments of roundwood, heartwood and sapwood. The dominance of oak in this sample is unusual since all other samples from Terminal 5 produced mixed assemblages. It is likely that either the assemblage relates to the function of the fire, or that structural timbers had been used.

Farmstead 9

At this point, there may be a change in the layout of the farmsteads of the coaxial landscape (Fig. 3.38). Whereas Farmsteads 6, 7 and 8 are all bounded on the western side by a double ditched trackway which separated them from their neighbours, Farmstead 9 does not have such a feature forming its western boundary (unless Trackway 9 were to have continued southward in the manner of the other trackways: there is no evidence for this, however).

Instead, the double-ditched trackway (6) of Farmstead 9 runs through the approximate centre of the field system.

Trackway 6

At the northern limit of excavation, Trackway 6 provided access into fields to the west. The ditches here were segmented, with a series of intercutting terminals suggesting that the segments were a series of cleaning re-cuts.

A little further south, the western ditch was cut by a pair of east-west field boundary ditches which run east. There is no surviving eastern ditch to the trackway at this point, and two possibilities arise:

- i) this is another 'blocking' point in the trackway system, perhaps here suggesting a later division into northern and southern parts
- ii) there is an east-west trackway here linking Trackways 6 and 8

Perhaps it is more likely that both of these are true, ie that Trackway 6 is blocked at this point by an east-west trackway which links it and Trackway 8, and that this 'blocking' represents a later sub-division of the landscape into north-south blocks.

Although the evidence is not entirely convincing, it is also possible that north of this point Trackway 6 communicated with fields to the west only; while south of this point access was to fields to the east and west. There was access to the east immediately south of the east-west boundary/trackway.

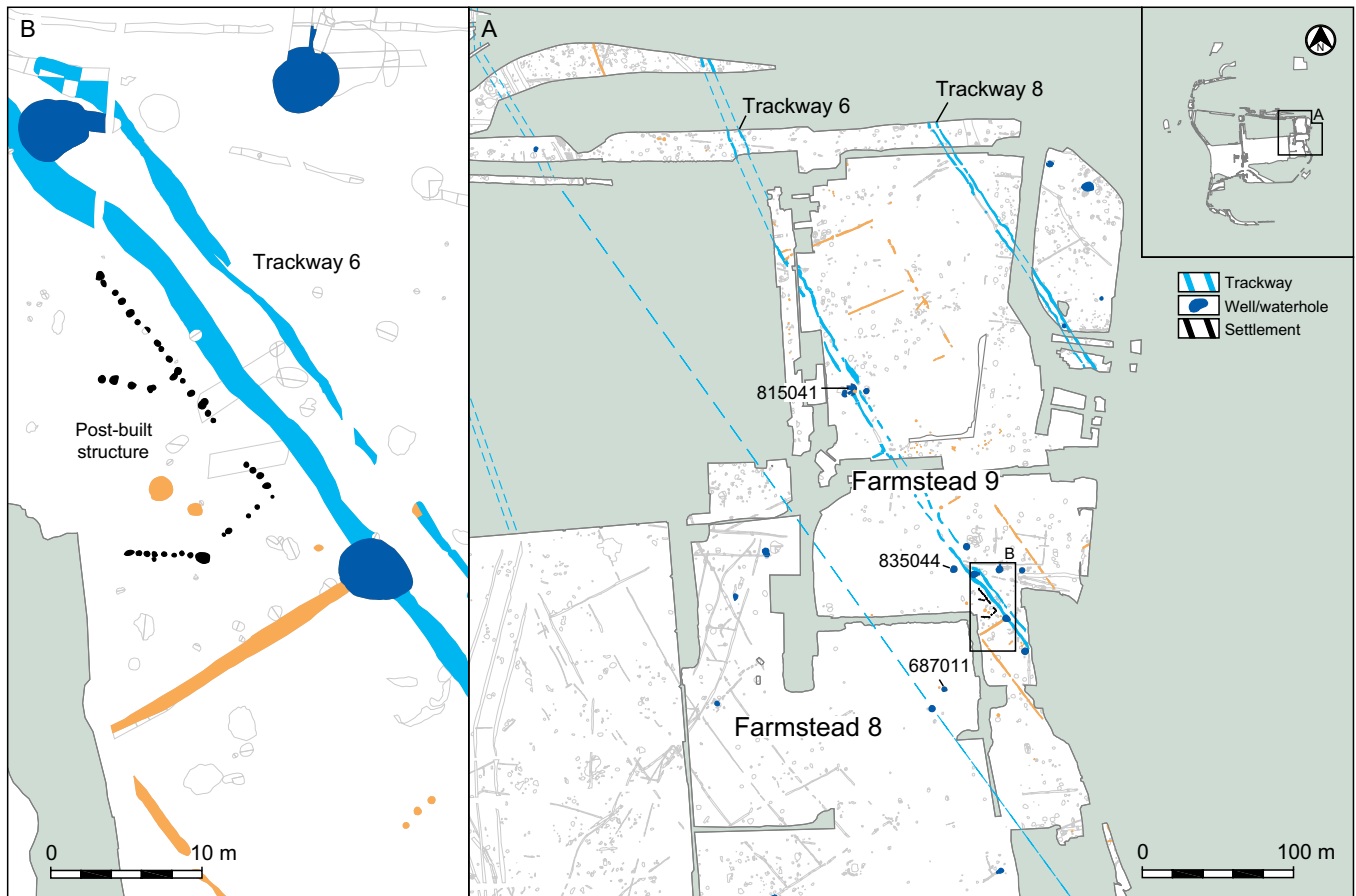


Figure 3.38: Farmstead 9 and post-built structure

Some more segments south of here on the west side of the trackway had 'scouring' recuts, while on the east the re-cuts were more like re-alignments of the ditch. The eastern side also kinked around a tree which was growing *within* the trackway. Gaps in the western side communicated with fields to the west. Dating is limited to a single sherd of post-Deverel-Rimbury pottery from a point high up in the fills.

A Middle Bronze Age waterhole (815041) sits in the line of the trackway. This feature contained Deverel-Rimbury ceramics and one and a half kilos of burnt flint. There do not seem to be any stratigraphic relationships between the waterhole and the ditches, which terminate a short way from it (giving access west) or continue past it (a gap here gives access east). It seems possible that north-south access was possible past this waterhole as there was 1.5 m of space between the feature and the eastern trackway ditch, but it is debateable whether this would have provided a functional thoroughfare for people and livestock, given that the

space may have been narrower prior to truncation of the ground surface.

Charred and waterlogged plant remains from the primary fill of this feature included woodland or hedgerow taxa and aquatic or marshy plants.

The remains from these groups were from a wider range of taxa and more frequent than in any of the other waterholes in the area. Woods/hedgerow plants included blackberries, rose, sloes, hazelnut, hawthorn, dogwood, possible alder buckthorn and the herb, three-nerved sandwort. This range of small trees and shrubs includes several thorny species that are useful for hedging. Since few thorns or leaf fragments were present it is likely that a hedge was located close to the waterhole but not directly adjacent to it.

Both rooted marginals (such as crowfoot, water-pepper, spike-rush) and free-floating true aquatics (eg duckweed) were common throughout the sample column, indicating that the feature had retained water to this level for the whole period of formation of context 827096. There was no obvious

evidence for the deposition of waste or the eutrophication of this waterhole, although a modest number of nitrophilous weeds (eg nettles, chickweed, fat hen) were present. It is possible that the feature was not so heavily used by livestock and/or humans as some of the other, weed-free waterholes...

(Carruthers, CD Section 14)

Adjacent waterholes indicate the growth of scrub around the features as they were abandoned. Other Middle Bronze Age waterholes occur further south, but none contain any notable palaeoenvironmental or material assemblages, with the exception of 687011. The primary fill of this feature produced an assemblage of wooden objects (Plate 3.13) consisting of 38 unidentifiable bark chippings, six stake points, seven sections of roundwood, three board fragments and 23 non-refitting fragments of a ?*Salix* spp. 'bark container' with no working marks, cut edges or features.

South of the waterhole there was more access to the west, and the trackway

ditch was cut by a pit with 16 sherds of Deverel-Rimbury pottery, demonstrating that here at least, dating is solidly Middle Bronze Age. Another access point to the west lay where the trackway and a field boundary met: the access south of this field boundary seems to have been closed by a short ditch segment at some point.

To the south there were more scouring re-cuts and gaps affording access to the west and east, but truncation from this point is severe on both sides. Importantly, the trackway kinked around the Farmstead 9 post-built structure on western side (only the western side kinks, narrowing the trackway).

This structure (Fig. 3.38) consisted of an 18.5 m long row of 23 posts running parallel to the western ditch of Trackway 6, with a 3 m long row of four posts at a right angle to the southern end, and a 3.5 m long northern row of five posts and a 5 m long southern row of ten posts aligned east-west. There is no independent dating evidence for this structure, and a Middle Bronze Age date is inferred from the fact that the western ditch of Trackway 6 diverts around it, suggesting that the structure was standing when the Trackway was laid out. This is another hint that the southern ends of the coaxial field systems are amongst the earliest parts of agricultural landscape, and an indication that there was some activity prior to the establishment of the first field systems.

The nature of this structure is very difficult to determine. It seems unlikely to have been a domestic building, and it is in fact not certain that it was a building—in the sense of a roofed structure enclosed on at least three sides. A number of possibilities arise:

i) the posts may have formed fences which marked field boundaries or other enclosures. In this instance the assumption would be that this was an earlier phase of field boundary creation than the ditched embanked hedgerows of the main Middle and Late Bronze Age system. This is perhaps unlikely since two of the four elements of the



Plate 3.13: Wooden objects in waterhole 687011

structure do not lie on any alignment followed by any other physical landscape division.

ii) The posts form some manner of enclosure within a field, probably related to stock control; they may be fragments of a system of collecting pens, crushes and drafting races and gates (as, for instance, at Storey's Bar Road, Cambs.—see Pryor 2001, 417–8), or they may be part of a farm stockyard (as, for instance, at West Deeping, Lincs.—see Hunn 1993), in which case a nearby settlement is implied.

Only 15 m north of this structure was waterhole 835044, which;

...produced some evidence for the deposition of domestic waste, and possibly occasional use of the waterhole for retting (flax processing). The sample came from the primary sediment, and some of the twigs were straight and of the dimension to suggest a wattled lining may have existed.

The traces of domestic waste included a charred chess seed (Bromus sect. Bromus), a fragment of flax capsule (Linum sp.), several stinking mayweed seeds (Anthemis cotula), and some fragments of possible corn cockle seed (cf. Agrostemma githago). Although stinking mayweed can grow as a weed of damp, disturbed clay soils, by the LIA/ERB period at T5 it was growing as an arable weed, i.e. charred seeds were present amongst charred grain. In this

instance, only waterlogged seeds were present, so this may represent a stage at which the weed had been introduced amongst imported grain, but it had only become established as a ruderal weed of heavy damp soils, prior to the wider ploughing up of heavy soils for arable in the Iron Age. Corn cockle is also an introduced arable weed that became a common crop contaminant by the early Medieval period. In the British Isles its earliest published records are Iron Age in date (e.g. Silchester (Jones, 2000; Collfryn, Jones & Milles, 1989), although a few Neolithic and Bronze Age records exist for other parts of Europe. When present as small waterlogged fragments of seed, it often indicates the presence of human sewage, since the large seeds of corn cockle become ground up with the corn in flour. Although the black, spiny fragments are very distinctive, it is unfortunately not possible to confirm the identification from incomplete seeds.

Nitrophilous weeds (mostly stinging nettle) were present but not abundant, so the dumping of domestic waste was not excessive at this time. A few wet/damp ground plants that may have been growing around the waterhole were represented, including water pepper (Polygonum hydropiper), clustered dock (Rumex conglomeratus) and gypsywort (Lycopus europaeus), but no free-floating aquatics were present. The only woody taxon was a few blackberry seeds.

(Carruthers, CD Section 14)



Plate 3.14: Artist's reconstruction of Farmstead 10

Farmstead 10

Farmstead 10 lay at the north-eastern limit of the main excavations, and as such was not subject to extensive area excavation (Fig. 3.39). However, enough of the farmstead was encountered to determine the normal pattern of double-ditched trackway passing—as in Farmstead 9—through the approximate centre of fields, with wells, waterholes and associated features (see artist's reconstruction in Plate 3.14). Indeed, in Farmstead 10 there are relatively good indications of sequence and subdivision.

Three radiocarbon determinations were obtained, all on cremation burials (Figs 3.39–40). OxA-16126 (3060±28 BP) dates 554566 to 1410–1210 cal BC, while OxA-18031 (2906±30 BP) dates 827119 and OxA-18032 (2905±30 BP) dates 830083, both to 1220–1040 cal BC. The latter two cremation burials are both probably Late Bronze Age in date, associated with Settlement 8 to the south-east (see below).

Trackway 8

The western side of this trackway was of segmented construction, but some of the resultant gaps were too narrow to have been functional and result in an almost continuous western side for the entire length. The only possible access to the west was at the very southern end by a field boundary. This

is probably for the suggested east-west trackway joining Trackways 6 and 8. As with the trackway ditches in other farmsteads, the southern portions are more segmented than the northern (on both sides).

A further indication of the longevity of Trackway 8 consists of the gravel

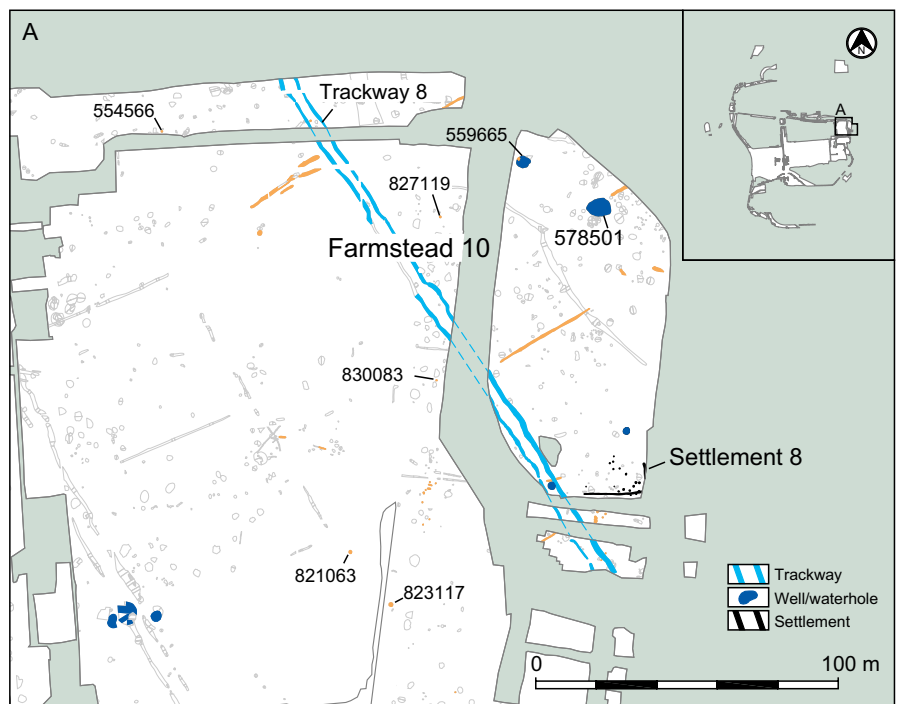


Figure 3.39: Farmstead 10

surfacing and resurfacings which survive at various points (Plate 3.15). These have a series of relationships with the trackway ditches and recuts which demonstrate maintenance of both the trackway surface and flanking ditches over a long period.

Aside from the trackway, features of this farmstead dating to the Middle Bronze Age (on the basis of ceramic associations or radiocarbon determinations) consist of a pair of waterholes, a pair of pits and a cremation burial. The radiocarbon determination of 1410–1210 cal BC (OxA-16126; 3060±28 BP) for the unurned cremation burial in pit 544566 at the northern end of the farmstead confirms activity in this period, but there is no visible associated settlement, and indeed it may be the case that such burials would have been made away from any dwellings. The location of agricultural features in the northern fields (waterholes 549272/559665 and 578501) and what may be more ‘domestic’ features at the southern end of the farmstead (for instance pits 821063 and 823117—the latter had a substantially complete Deverel-Rimbury jar at its base) may support this contention.

The primary fill of pit 821063 contained much larger concentrations of charred cereal remains than the waterholes in the vicinity, indicating that domestic waste had been deposited in the feature.

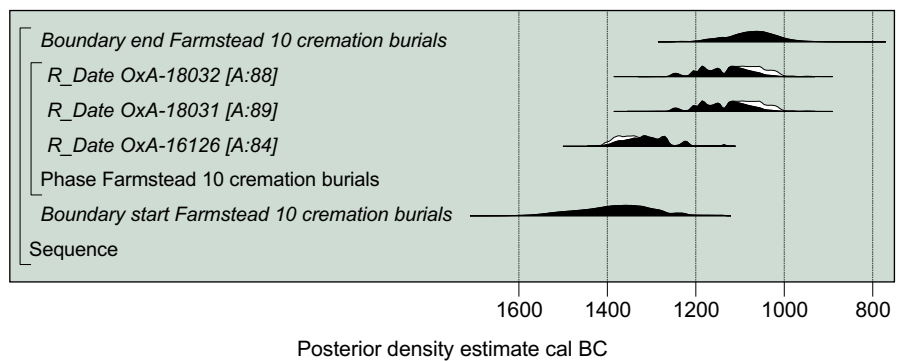


Figure 3.40: Radiocarbon dates for Farmstead 10

Periods 6, 7 and Early Iron Age: 1150–400 cal BC

Many of the Middle Bronze Age farmsteads discussed above contain evidence of some survival into the 1st millennium BC. This consists primarily of post-Deverel-Rimbury pottery incorporated in ditch fills of the field systems; recutting of the Middle Bronze Age pits and waterholes scattered throughout the fields and settlements; the digging of new features of this type; and the extension of the system through the foundation of new settlements.

Two different trajectories of settlement are apparent within the very late 2nd and early 1st millennium BC evidence. On the one hand, settlement within the aggregate landscape appears to coalesce: in a reversal of the tendency towards fragmentation visible after around 1400 cal BC, in the Late Bronze Age and Early Iron Age periods

settlement seems to have been concentrated in the eastern half of Farmstead 3 and in Farmstead 4. On the other hand, in the coaxial landscape and further afield to the north and south, the tendency seems to have been towards sub-division and the creation of new, smaller farmsteads.

Farmstead 3

There is a dearth of radiocarbon determinations to place features within this period, but ceramic associations indicate that Farmstead 3 continued to be occupied into the 1st millennium BC (Fig. 3.41).

The upper fills of many of the wells, pits and waterholes dating to the Middle Bronze Age contain post-Deverel-Rimbury ceramics (for instance in 141024 and 156028), while others were recut. These recut examples include 135055, which was cut into to top of 135071.



Plate 3.15: Surfaces of Trackway 8

Sometime between 1150 and 750 BC, the location of waterhole 135071 became a focus of activity again when ramped-access waterhole (135055) was dug into the top of the original feature (see Fig. 3.14 above). A small pottery vessel was placed in the uppermost fill of the new waterhole, echoing the deposits of artefacts in the base of the original feature.

Assessment of sediments gave an impression of fairly dry conditions around the feature early in its history. It was situated in an open landscape, dominated by weedy pasture. *Tilia* and *Rosaceae* (cf hawthorn) were growing near the feature and, although there was a mixture of trees growing in the catchment, *Alnus* being the most frequently recorded, they were either intensively managed, or growing some distance away. No arable activity was recorded but local soils were bioactive and eroding into the hole, as evidenced by *Glomus* type fungal remains.

Later in the sequence, local soils appear to have been much wetter, and *Cyperaceae* and *Filipendula* (meadowsweet) were recorded. However, there was no direct palynological evidence for standing water in the feature. Grazing intensity was reduced, and cereal pollen was frequent, indicating that cereal growing became more important close by.

It is unclear whether the later re-working of existing Middle Bronze Age features represents a continuing concern with supplying water to animals. However, the shallow depth of many of the later cuts suggests they were associated with settlement rather than an attempt to reach the water table, as was the case with many of the earlier pits.

A number of other features can be dated to the Late Bronze Age, including a cremation burial, pits and a well (Fig. 3.41).

Cremation burial 106013

Pit 106013 contained cremated human bone. Ceramic associations indicate a Late Bronze Age date for the deposit. The majority (55%) of the bone was

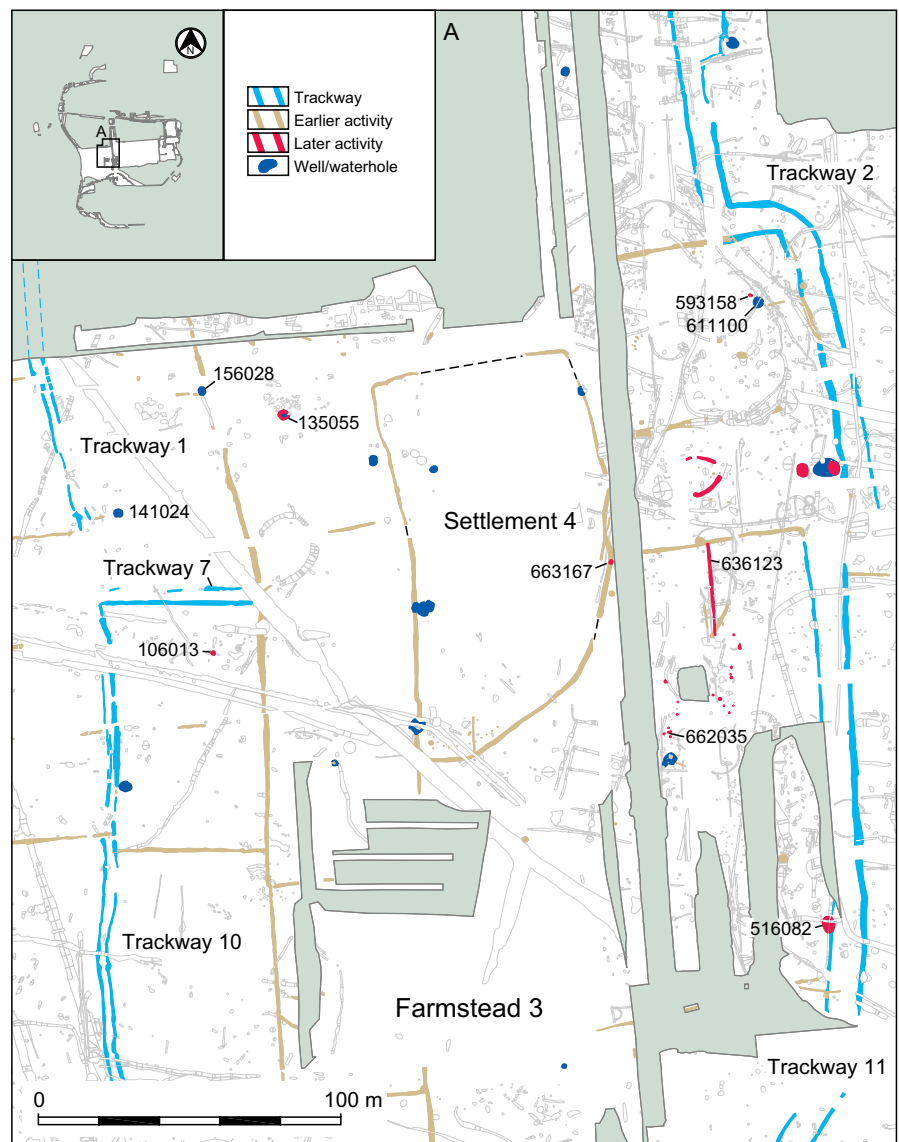


Figure 3.41: Late Bronze Age activity in Farmstead 3

recovered from the primary fill, with only 10.6% from the narrow middle lens of material, and 34.4% from the third, final fill. The greater proportions were in the south-west (54.4%) and north-east (30.7%) quadrants, with only 0.5% deriving from the south-east quadrant. The absence of a mass of fuel ash and the concentration of bone in parts of the fill suggests this deposit, or contemporary series of deposits, represent the remains of an unurned cremation burial, largely deposited within a limited 'strip' extending NE-SW across the 1.2 m diameter pit. The precise sequence of events is unclear, but may have included the main 'burial' deposit followed by scattering of the remaining bone collected from the pyre site for burial within the grave as it was being backfilled, and/or some

exchange of material between the fills as a result of bioturbation. The small amount of pyre debris recovered may have been an incidental inclusion of material collected with the bone from the pyre site, rather than one of the deliberate deposits of pyre debris, in which case one would expect to see a greater mass of fuel ash.

That the remains recovered from the three different layers all derived from the cremation of the same adult (probable female) was indicated by the lack of duplication of discrete skeletal elements, the commonality in indications of age, sex and in pathological lesions between bone from all levels and quadrants, and the direct joins between bone fragments from the primary and tertiary fills.

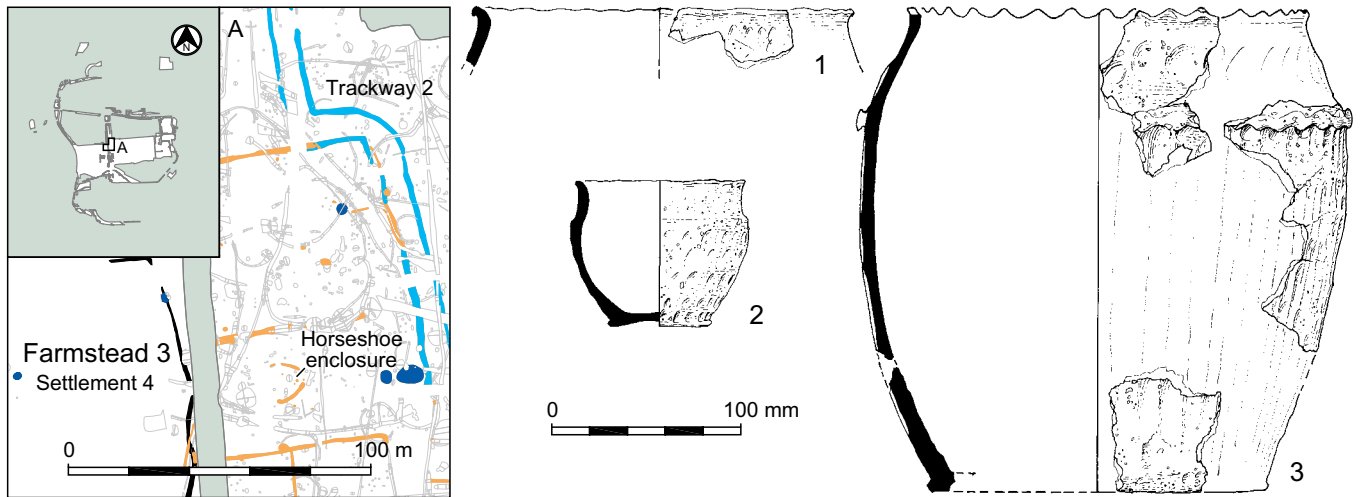


Figure 3.42: Ceramics from the Late Bronze Age horseshoe enclosure in Farmstead 3

The deposit appears completely isolated from any other contemporary burial. Similarly isolated or small groups of Bronze Age cremation burials are not uncommon, with several from the general vicinity including two urned burials from Prospect Park (McKinley 1996), and up to 14 urned and unurned Middle and Late Bronze Age examples from Imperial College, forming small groups or being deposited in isolation (Crockett pers. comm.). Several features containing what may prove to be deliberate deposits of pyre debris were identified at Imperial College in association with one small group of burials (*ibid.*), and pyre debris was recovered in the backfills of the graves at Prospect Park (McKinley 1996). The form of the burial at Terminal 5 is slightly unusual, the bone apparently being deposited as a spread on the base of the grave cut, but some such deposits have been observed in the Bronze Age (eg Downes 1995).

Other Late Bronze Age features

Other deposits indicative of continued settlement in Farmstead 3 and especially around Settlement 4 include pit 593158, adjacent to well 611100/611107, which contained post-Deverel-Rimbury ceramics including portions of a decorated bowl. Other features dated to the 1st millennium include waterhole 516082 (which cuts the western ditch of Trackway 11).

The majority of the material evidence for 1st millennium activity within Farmstead 3 comes from within and around the rectangular area

immediately outside the entrance to Settlement 4 (Fig. 3.41). In the centre of this area, and facing the entrance, was a small horseshoe-shaped enclosure. Soil micromorphology suggests that the surrounding area was given over to arable land with local animal activity, perhaps stock management. However, this feature was also the location of some noteworthy deposits, including fragments of perforated clay slab and more particularly a sizeable assemblage of pottery.

Although perhaps simple domestic rubbish, the scarcity of perforated clay slabs at Terminal 5 and their ambiguity may suggest some significance. One terminal of this enclosure ditch also contained substantial portions of three very different vessels: a coarse jar of unusual form (Fig. 3.42, 3); a fine biconical bowl (Fig. 3.42, 1); and a substantially complete small short-necked jar (Fig. 3.42, 2) with a rim diameter of only 85 mm.

East of the horseshoe enclosure, waterhole and well complex 103040, 103038, 136194 (Fig. 3.43) contained another ceramic assemblage which was very obviously a deliberate and significant deposit. The earliest feature in this group was a ramped waterhole, 103040. This feature is undated, but could belong in either of the two phases of 2nd millennium activity postulated above. At some point, well 103038 was cut through its fills. The excavator believed that 103038 was in turn cut by shaft 136194 to form a well, but, due to extremely difficult

excavation conditions, precise interpretation of this complex sequence is not possible. Nevertheless, the original interpretation is described here, with the shaft shown on the section in Figure 3.43 as cut 136194. The base of well 103038 was revetted to retain the soft, unconsolidated fills of the earlier ramped waterhole, 103040.

A significant artefact assemblage was recovered from the basal fills of both well 103038 and shaft 136194. Well 103038 contained an almost complete post-Deverel-Rimbury bipartite jar (Fig. 3.44, 1) and a decorated bowl (Fig. 3.44, 5); the jar had an external burnt residue over the rim and upper part of the vessel. Shaft 136194 contained a carinated bowl (Fig. 3.44, 4) along with two carinated drinking vessels (Fig. 3.44, 2–3; Plate 3.16). The latter have no known direct parallels in Thames Valley assemblages, although the profile of the form echoes exactly that of the accompanying bowl form—both forms have convex neck profiles and omphalos bases, and these three vessels were almost certainly made at the same time as a ‘matching set’. The two drinking vessels both have simple linear decoration around the neck and carination. All three of the vessels within this deposit and been partially burnt, with localised ‘blistering’ and refiring of exterior surfaces in each case, and the bowl has what appears to be a large post-firing perforation in the base (perhaps a deliberate ‘killing’ of the vessel). This group is likely to belong to the Early Iron Age.



Plate 3.16: Ceramics from well 103038 and shaft 136194

areas of heath. These remains could represent locally growing vegetation, in which case they indicate that the local soils had deteriorated following the clearance of scrub and/or woodlands. However, the presence of cereal waste also suggests that it could have been deposited in domestic waste, fodder or dung. The only woodland/scrub/hedgerow seed found in this feature was a single bramble seed, so some changes in the landscape appear to be taking place.

(Carruthers in Framework Archaeology 2006, CD Section 9)

Another pit/well (663167) cut the Settlement 4 enclosure ditch immediately south of the entrance (see Fig. 3.41). A fill low in the sequence contained a small flat-based high

shouldered bi-partite jar with a simple impressed finger nail pattern on the shoulder. This vessel was not complete when deposited—the centre of the base was missing, as was over half of the wall/rim above the shoulder. This is probably an Early Iron Age vessel, a date also suggested by a fragment of an omphalos base and a flaring outwardly burnished lower wall from a bowl in the same deposit. The outside of the jar is sooted and the inside has very heavy burnt residues on the upper two thirds; portions of the outer surface have spalled away. In all, this looks like a cooking accident—the jar left in the fire and allowed to boil dry.

A well preserved but extremely limited insect assemblage was recovered, restricted to species of the Scarabaeidae family. Meaningful interpretation is virtually precluded, although nearby grazing animals are clearly suggested.

A deliberate dump of midden material overlying the pottery produced well-preserved waterlogged and charred plant remains, a large proportion of which comprised twigs, wood fragments and decaying wood fibres.

The dumped waste consisted of abundant burnt fine cereal processing waste, such as awn fragments, barley rachis fragments

*and emmer/spelt glume bases. A few cereal grains (hulled barley and emmer/spelt wheat) were present, but not enough to suggest that whole ears or spikelets of cereals had been burnt as offerings. The ratio of barley grains to rachis segments was roughly one to ten, as opposed to the three to one that would have been present with whole ears. The emmer/spelt ratios were also one to ten where they would have been two to one. The few arable weed seeds present included corn spurrey (*Spergula arvensis*), a weed of acidic, sandy soils. The recovery of an oat rachilla demonstrated that wild oat (*Avena fatua*) had been growing as a weed amongst the cereals.*

*The waterlogged plant macrofossils comprised a range of weeds of damp grasslands (including ragged robin (*Lychnis flos-cuculi*), blinks (*Montia fontana* ssp. *chondrosperma*) frequent rush seeds (*Juncus* sp.) and disturbed places, with just a trace of woodland taxa (one rose seed and a thorn). Nettle seeds were scarce but other high-nutrient indicators such as fat hen (*Chenopodium album*) and many-seeded goosefoot (*C. polyspermum*) were well-represented. Damp ground taxa (eg sedges, (*Carex* spp.), spike-rush (*Eleocharis* subg. *Palustres*)) were more common than in other waterholes, but true aquatics were again not present. Once again, a trace of waterlogged cereal chaff was present (one cf. spelt glume base).*

(Carruthers, CD Section 14)

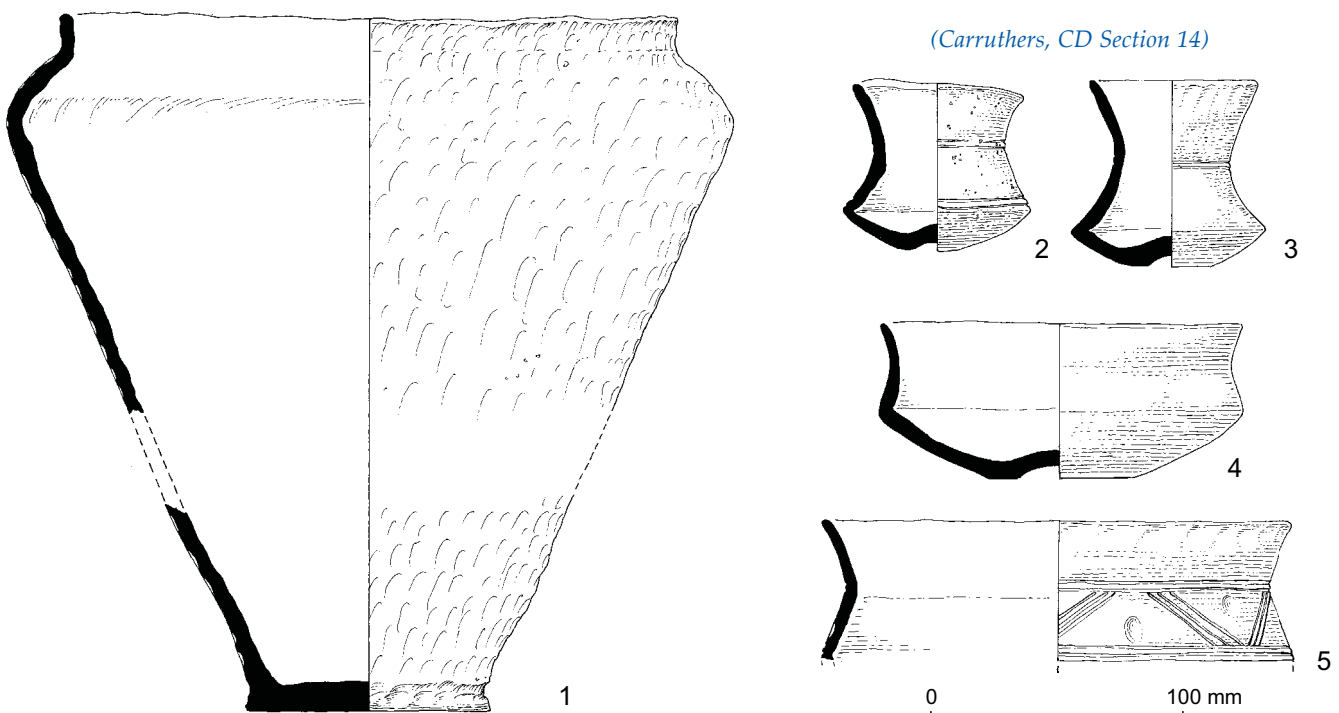


Figure 3.44: Ceramics from well 103038 and shaft 136194



Plate 3.17: Perforated clay slab from pit/waterhole 638008

Immediately south of the entrance enclosure, ditch 636123 (Fig. 3.41) contained 95 sherds (weighing 4173 g) from a large short-necked jar. At the southern end of this ditch, a scatter of small pits and postholes were mostly undated, although pit 662035 contained two large sherds of a coarse vessel, along with 135 sherds (1889 g) from a very large bowl or short-necked jar in an unusual vesicular fabric (Fig. 3.45). The majority of the surviving sherds derived from the rim (almost complete; flat and generally everted, but highly variable around the 440 mm diameter), neck and shoulder, with only nine base sherds present (the base diameter was perhaps in the region of 160–190 mm). The neck had an applied cordon decorated with finger impressions and the shoulder had occasional shallow vertical impressions, possibly finger-nail. The surface is slipped, but survival is highly variable with some sherds very badly pitted and others surviving in good condition. The best parallels for the form of this unusual vessel (the only instance of its type in the Terminal 5 assemblage) come from Canham's Site K (1978, 27 fig. 17 no 65 especially) although the size and vesicular fabric are best matched in a very large shouldered jar from Caesar's Camp (Grimes and Close-Brooks 1993, 345–6 fig. 30 no 87). Other domestic material from this pit included 40 small fragments of amorphous fired clay.

This concentration of material in the eastern half of Farmstead 3 is one of the strongest indications of settlement location in this period from anywhere in the aggregate landscape. The only other concentration of material lies slightly to the north and east, in Farmstead 4.

Farmstead 4

The evidence for Late Bronze Age activity in Farmstead 4 typically takes the form of quantities of refuse in the highly truncated remains of pits and ditches (Fig. 3.46). Pit 609020, for instance, contained numerous small fragments of animal bones, quantities of burnt flint and sherds (mostly small) from several post-Deverel-Rimbury vessels. Other features had rather different contents. For instance, pit 638008, which may have been a small waterhole subsequently used for the disposal of domestic waste, contained over 1.5 kg of post-Deverel-Rimbury pottery, and approximately half of a perforated clay slab (Fig. 3.46; Plate 3.17)

Fragments of several such slabs were recovered during the excavations at Terminal 5, although this is the most complete example. Other examples are known from the region, including a group of five from Yiewsley (Champion 1980, who also provides a distribution map for the Thames Valley). The purpose of these objects is unknown, although they vary only slightly from a basic pattern. The example from 638008 is slightly larger than most, and has more perforation, but retains the characteristics that mark most examples, including the slight

groove around portions of the circumference. Although ambiguous, these slabs are normally thought to be associated with some domestic or perhaps light industrial process (eg cheese making).

A second very large ramped waterhole in Farmstead 4 (517310; 6.75 x 5.6 m) seems to date to the late 2nd millennium (Fig. 3.46). Rapid collapses of gravel from the sides of the original cut contained portions of two post-Deverel-Rimbury vessels, and these gravels had subsequently been partially removed by a scouring recut. This recut contained an extensive assemblage of wooden and ceramic objects (Fig. 3.47).

The earliest fill contained stake points (two Salix spp., one Pomoideae spp.), roundwood fragments (one each of Alnus spp, Corylus avellana L. and Fraxinus excelsior L.), Salix spp. and Quercus spp. chippings. Several fragments of broken wooden artefacts were also present, including two separate withy ties (one Salix spp, one Frangula alnus Mill.), part of a Quercus spp. board with carved step or stop at one end and part of the wall of a hollowed vessel, probably a bucket, cut from Fraxinus excelsior L.

(Allen, CD Section 11)

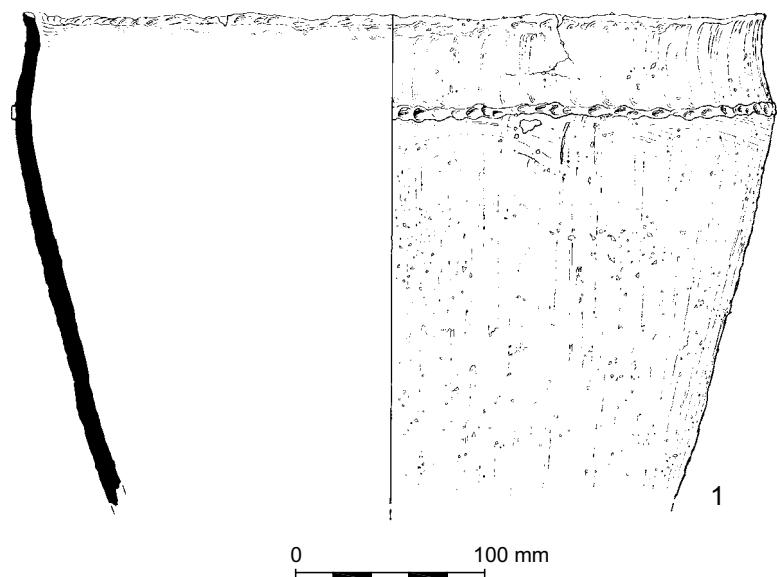


Figure 3.45: Very large bowl or short-necked jar from pit 662035

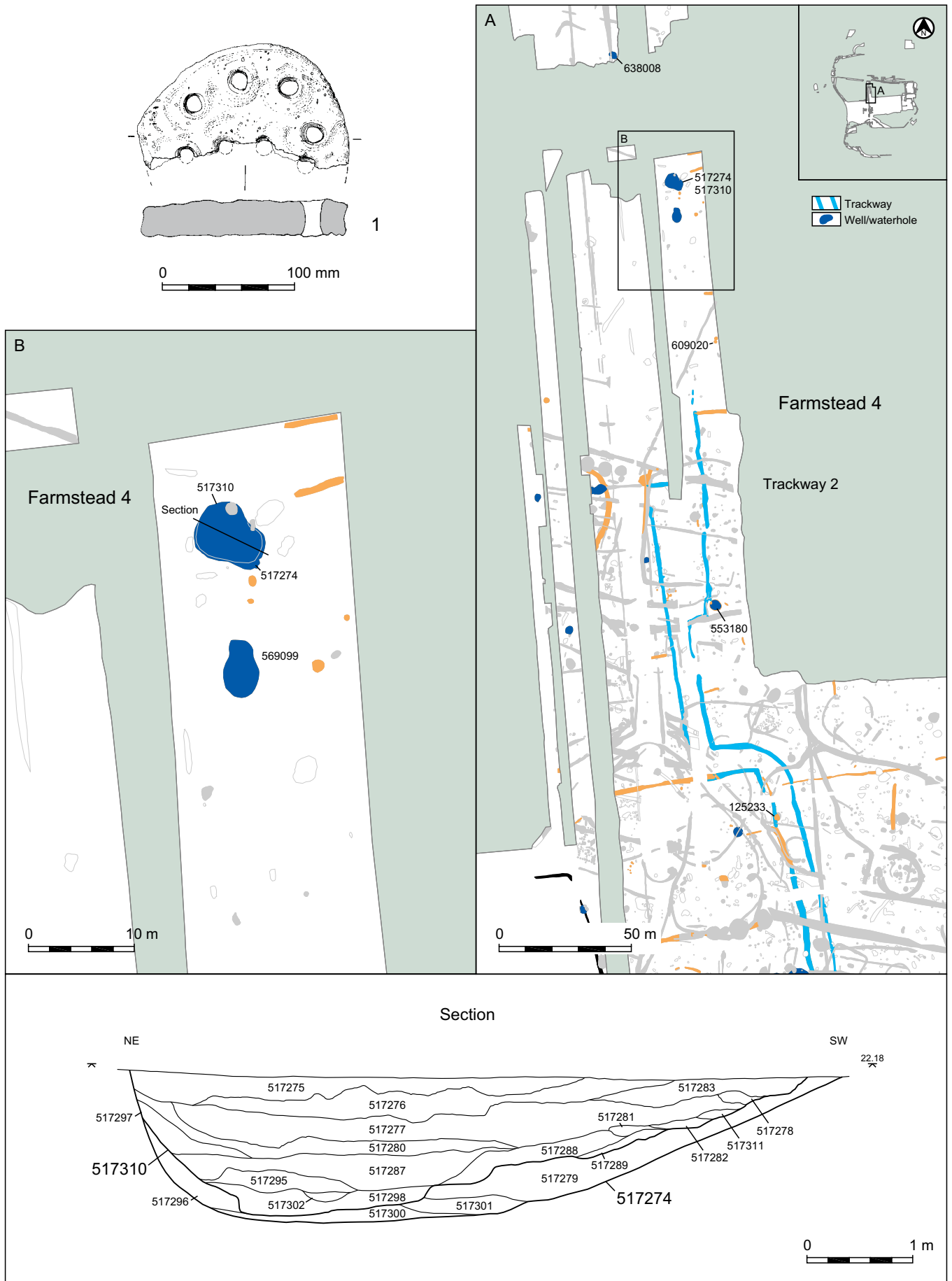


Figure 3.46: Late Bronze Age activity in Farmstead 4 and waterhole 517274/517310 section and perforated clay slab from 638008

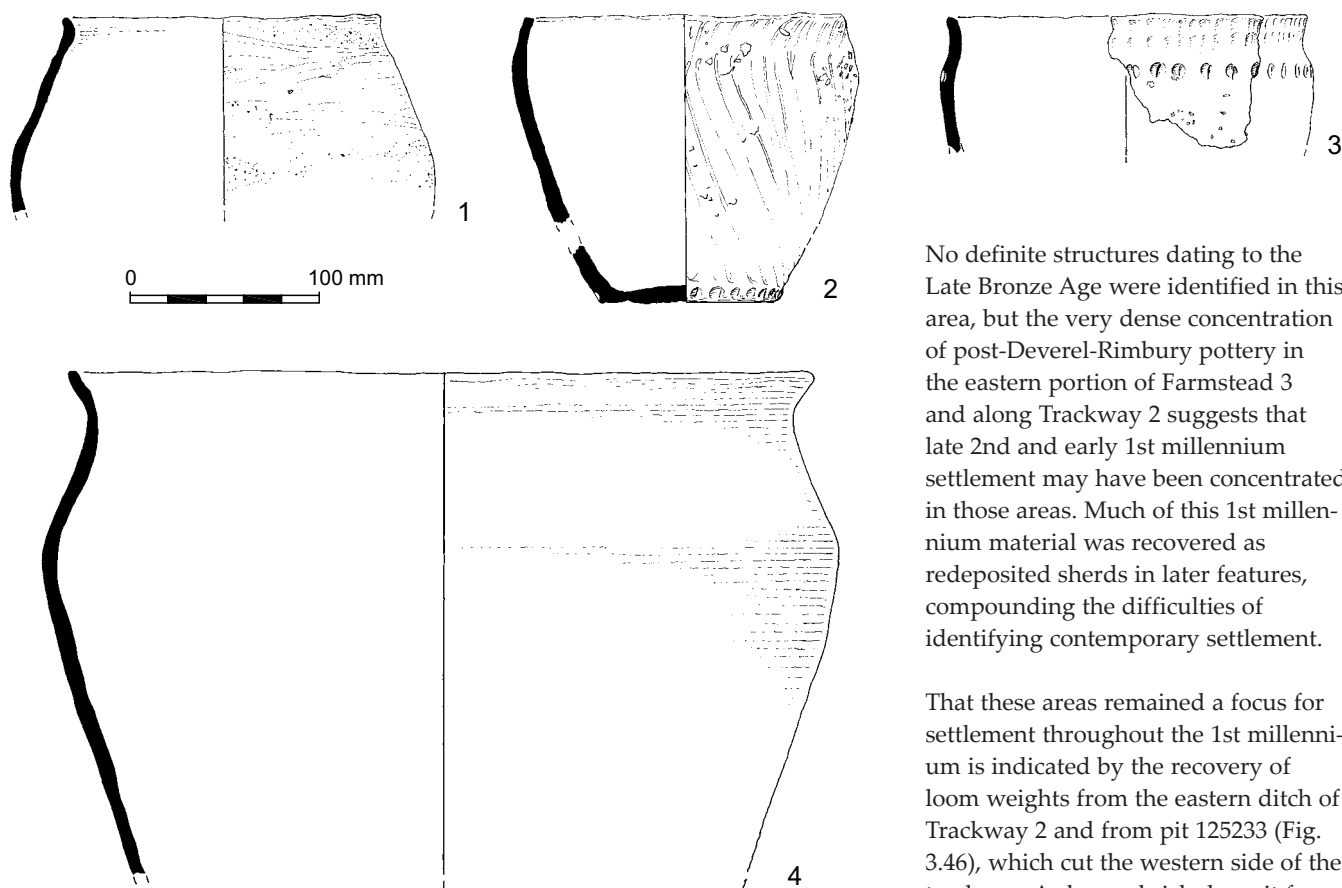


Figure 3.47: Pottery from waterhole 517310

One of the withy tie ropes gave a radiocarbon determination of 1160–980 cal BC (93%) or 1190–1170 cal BC (2%) (Wk-18456; 2871±29 BP), dating the objects securely in the Late Bronze Age. This date fits very well with the ceramics from the same fill.

Basal fill 517298 contained 117 sherds from six vessels, including a short-necked jar in fineware FL11 [Fig. 3.47, 1], and a biconical bowl [Fig. 3.47, 2], a shouldered bowl [Fig. 3.47, 3], and an extremely large shouldered fineware bowl or jar [Fig. 3.47, 4]. Several sherds from at least three vessels show signs of over- or re-firing, and two vessels have surface spalling. The deposit is clearly different in intention to the ceramics in the higher fills of the same feature, which appear to result from unstructured rubbish disposal.

It is possible that the group represents the result of a house or other fire, such as was suggested for the slightly later material from Longbridge Deverill Cow Down (Hawkes 1994). At Terminal 5 however, there is no obvious settlement in the

immediate vicinity, being rather amongst field systems, and removed from the main distributions of contemporary pottery.

(Leivers et al., CD Section 1)

The question of the whereabouts of the settlement associated with Farmstead 4 is not easy to resolve. Activity at this time is incontrovertible: as well as the ceramic evidence, a second waterhole in Farmstead 4 (553180) contained worked wood which gave a radiocarbon determination of 1200–970 cal BC (Wk-19327; 2859±33; Fig. 3.46). Two possibilities arise. Firstly, crop marks plotted from aerial photographs suggest an arrangement of possibly Bronze Age features to the north of the Farmstead 3 'D'-shaped enclosures, which may represent an enclosed settlement in Farmstead 4 (see Fig. 3.23 above). Secondly, truncation (severe in this part of the site) may have removed postholes, drip gullies, beam slots and other ephemeral settlement traces entirely.

No definite structures dating to the Late Bronze Age were identified in this area, but the very dense concentration of post-Deverel-Rimbury pottery in the eastern portion of Farmstead 3 and along Trackway 2 suggests that late 2nd and early 1st millennium settlement may have been concentrated in those areas. Much of this 1st millennium material was recovered as redeposited sherds in later features, compounding the difficulties of identifying contemporary settlement.

That these areas remained a focus for settlement throughout the 1st millennium is indicated by the recovery of loom weights from the eastern ditch of Trackway 2 and from pit 125233 (Fig. 3.46), which cut the western side of the trackway. A charcoal rich deposit from the top of this pit produced a radiocarbon determination of 840–410 cal BC (Wk-9373; 2569±62 BP; 125228). Associated ceramics included a finger-impressed jar (Fig. 3.48, 5) amongst potentially later forms (Fig. 3.48, 1–4).

Alternatively, rather than postulating a settlement from which all structural traces have been erased, much of this material, and especially the redeposited element of it, could represent a dispersed midden deposit. A number of other sites dating to the late 2nd/early 1st millennium BC, including East Chisenbury (McOmish 1996) and Potterne (Lawson 2000), are characterised by the accumulation of large concentrations of pottery, flint and animal bones. During analysis of the Potterne site, Lawson (2000, 264–272) conducted a wide-ranging review of formation processes and the structure of similar sites in southern Britain. This discussion will not be repeated here, but the post-Deverel-Rimbury associated concentrations in Farmsteads 3 and 4 resemble these sites in some respects, particularly in terms of the presence of large accumulations of domestic rubbish at a single location.

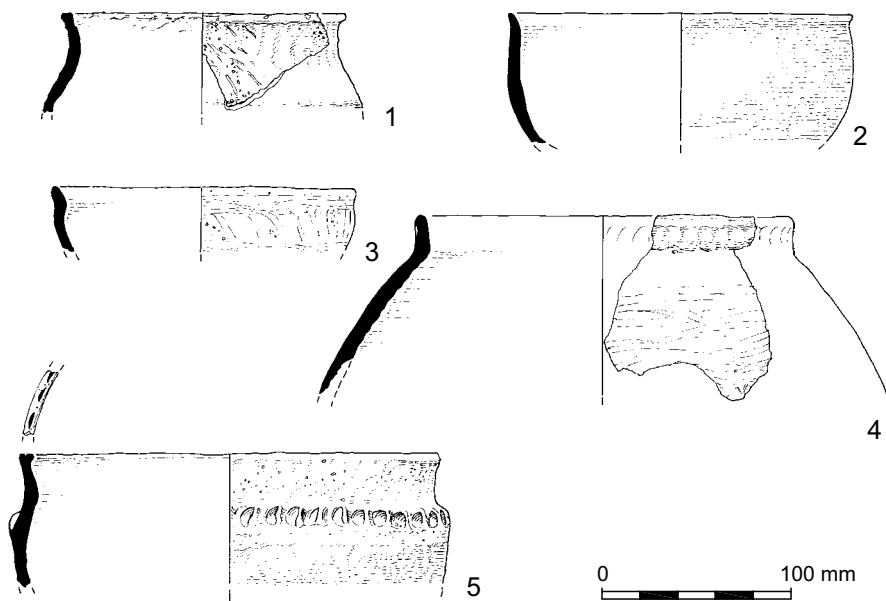


Figure 3.48: Pottery from pit 125233

Farmstead 7 and Settlement 1

Whilst there are no structures within the area of Settlement 1 that can be definitely ascribed to the period 1150–750 BC, there are sufficient post-Deverel-Rimbury ceramics and features to suggest that some level of activity continued at the settlement during this period (Fig. 3.49).

The major features include the recutting of the westernmost boundary ditch of Trackway 4 and the digging of a very large feature, 212066, immediately to the south of the fenceline. The fills of the recut ditch were stained dark with comminuted charcoal and contained pottery, burnt and struck flint, fired clay and burnt stone, the sort of material that would be produced by domestic activity. Very little post-Deverel-Rimbury pottery was recovered from the silts of the other trackway ditches defining the settlement, suggesting that they had silted up by this time.

Feature 212066 was only partly exposed within the excavated area. It may have been either a large ditch or a series of pits or quarries. The fills produced 94 g of Deverel-Rimbury pottery and 168 g of post-Deverel-Rimbury pottery, along with struck flint and a small quantity of fired clay and burnt flint.

Within the settlement area, a few postholes produced small sherds of possible post-Deverel-Rimbury pottery, as did a small 'T' shaped gully (211081) near Posthole Group 1. These features are sufficient to suggest the presence of structures of some sort during the period 1150–750 BC, although gully 211081 is more likely to belong to Posthole Group 1.

One very notable feature of either phase of this settlement is its lack of a water supply. No features were

encountered which could possibly have served as wells or waterholes; it can only be assumed that such features lay in the northern (unexcavated) portion.

South of the settlement large areas of Farmstead 7 were without evidence of any sort, field boundary ditches and other features being entirely absent due to more than normally severe truncation. Only at the southern end of the Farmstead does the usual pattern of enclosures and features survive (Fig. 3.50). In this area were large pits and waterholes containing the familiar range of material dominated by post-Deverel-Rimbury ceramics and in one pit (148042) a portion of a saddle quern.

The most notable group of ceramics came from pit 146048, which contained fineware bowls with short upright or everted rims and rounded or carinated shoulders and well finished surfaces (Fig. 3.50, 1–4), with jars in the same fineware fabrics, some with finger-impressed shoulders (Fig. 3.50, 5). This amounted to a substantial ceramic assemblage (927 sherds; 9841 g) consisting of a maximum of 13 bowls and seven jars. A significant proportion of the assemblage shows clear signs of having been burnt or overfired to

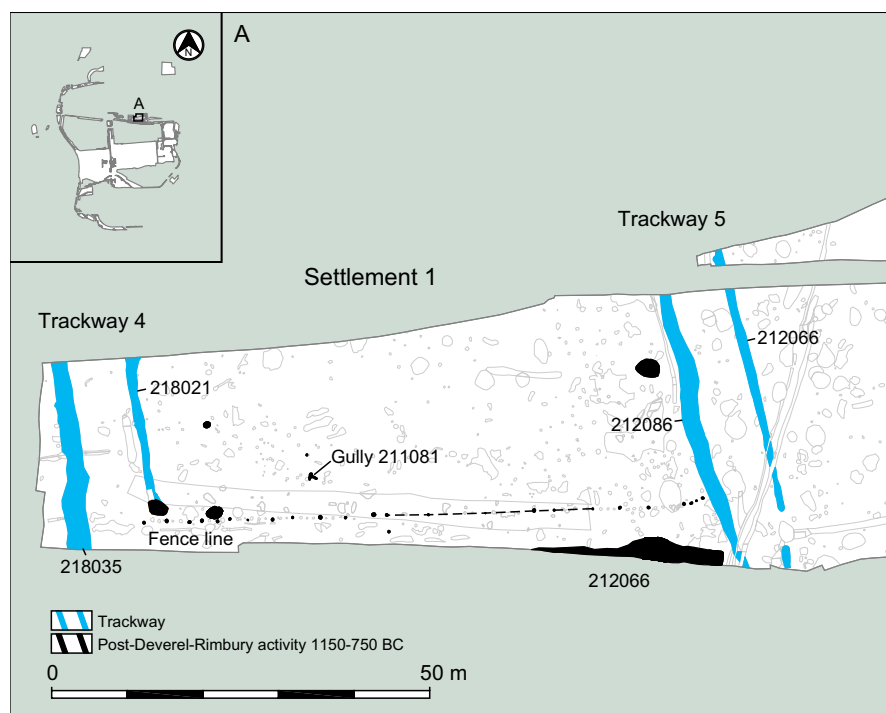


Figure 3.49: Late Bronze Age activity in Settlement 1 of Farmstead 7

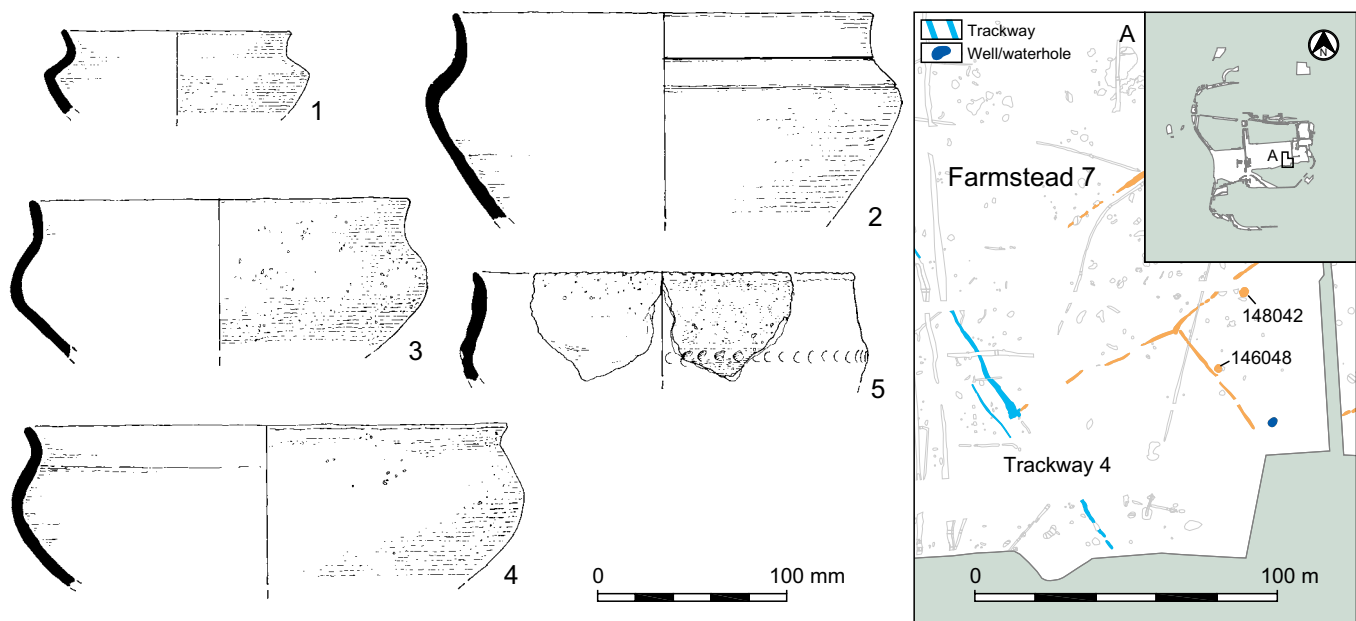


Figure 3.50: Late Bronze Age activity in the south of Farmstead 7 and pottery from pit 146048

varying degrees—sherds have a friable, powdery texture and have frequently been (re)fired to a pale grey colour. Some examples have slightly blistered surfaces, and some show evidence of surface spalling.

Taken together, the similarities in fabric type, the limited range of vessel forms and the possible signs of firing errors are suggestive of groups of waster material from pottery production. Such evidence is extremely rare for the prehistoric period, when any physical traces of pottery production (in bonfire or simple clamp kilns) would necessarily have been quite ephemeral. There is no evidence for *in situ* firing, and if these are wasters, they appear to have been deposited from sources elsewhere. The feature is not located amongst any obvious settlement.

Farmstead 8

Most of the detailed evidence for activity in this farmstead dates to the Late Bronze Age, and some provides a picture of local activities and land use (Fig. 3.51). Pit 509174, for instance, seems to have been a dumping place for household waste, overhung with grass rather than surrounded by bare earth as it probably would have been if used by animals. Alder, oak, hazel and willow pollen suggest a woodland edge environment, as do rosaceous

shrubs and other taxa associated with woodland edges, glades, or hedges. No cereal grains or other unequivocal evidence of arable fields were found in this fill (probably due to the distance of this feature from any settlement) but many taxa associated with grassland were present.

Throughout the subsequent life of the pit there is decreased evidence of woodland and increasing values of taxa characteristic of waste and disturbed land, as well as a small increase in arable fields at the expense of grassland.

A similar setting and sequence applied to well/waterhole 685032 (containing another example of a log ladder), 320 m to the south. Abundant hawthorn, blackberry and sloe again indicate a woodland edge environment, while weeds of cultivated/disturbed ground were common but not particularly abundant. Grazed grassland and hedgerow/wayside taxa were present and a few damp ground plants were recorded (gypsywort, mint, sedge).

The pollen evidence from the basal fill of the waterhole indicates that during its initial infilling the landscape surrounding the feature consisted of open/rough grassland with some areas under cultivation. Very limited stands of tree/shrub were also present, which

regenerated very slightly during some periods. Essentially, however, the landscape remained very open in the area during the Late Bronze Age/Early Iron Age period.

Waterhole 581168 contained a very large assemblage of post-Deverel-Rimbury ceramics, mostly in a small pit cut into the upper fills, but in lesser quantities throughout. The pit contained cess, over 2 kg of pottery—including a pair of short-necked jars (Fig. 3.51, 1–2)—much charcoal, a cut piece of a copper alloy ring or bangle (which is most likely an intrusive Romano-British piece) and an assemblage of 46 struck flints in fresh condition. The flintwork is technologically consistent with the date provided by the pottery and appears to represent a mixed deposit of utilised flints and knapping waste. This feature appears to be a rubbish pit cut into the top of the waterhole.

The waterhole also contained almost 8 kg of burnt unworked flint, which may relate to its particular function, industrial or otherwise.

Charcoal from the upper fills of this feature comprised Quercus (oak), Corylus avellana (hazel), Alnus/Corylus (alder/hazel), Prunus spinosa (blackthorn), Maloideae type, Acer campestre (field maple) and Fraxinus excelsior (ash). There is a larger

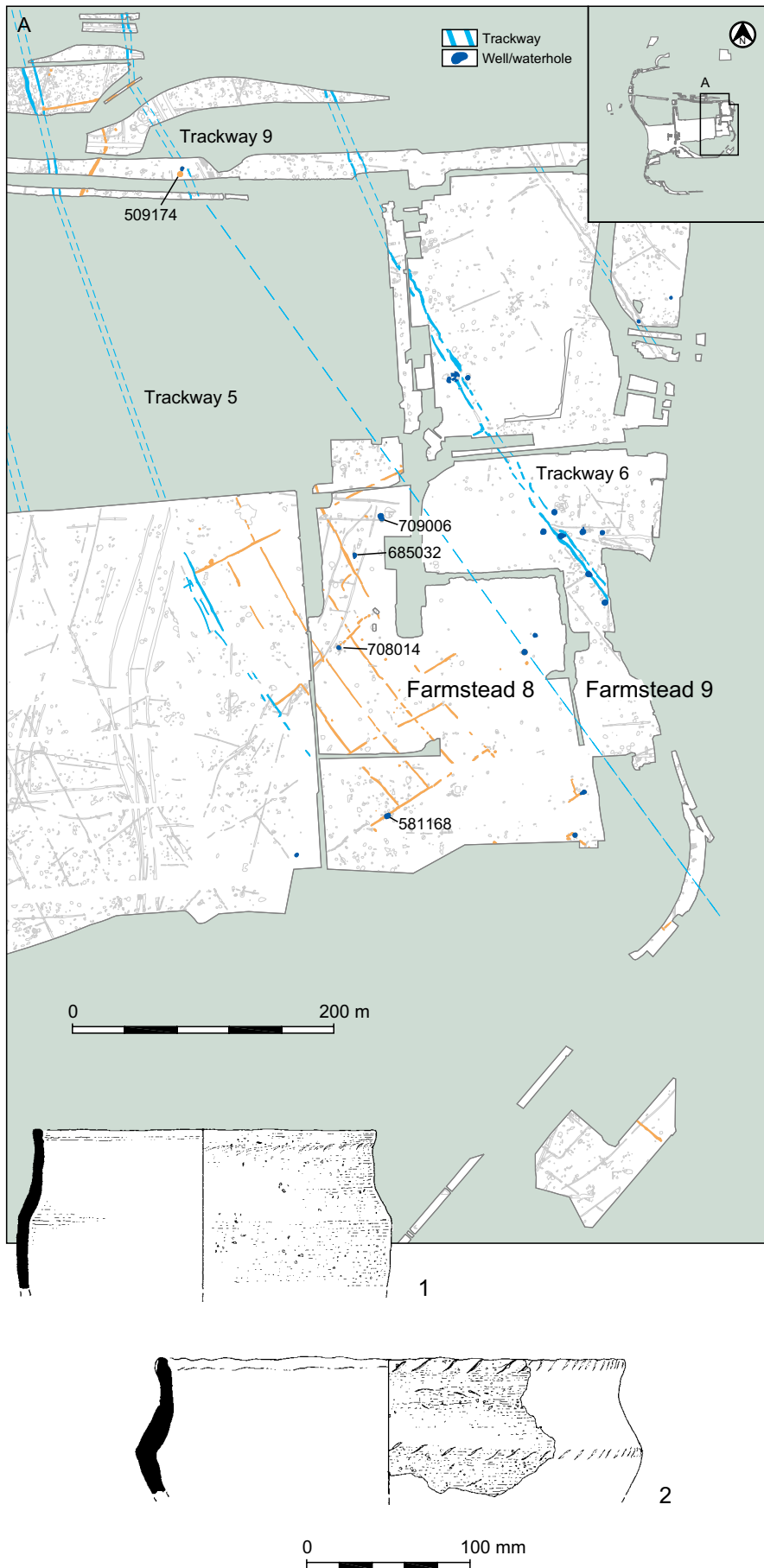


Figure 3.51: Late Bronze Age activity in Farmstead 8 and pottery from pit cut into waterhole 581168

component of *Prunus* in these later samples, which may be significant since it is intolerant of shade and suggests an even more cleared landscape. Moreover, *Fraxinus*, which is a coloniser, was present.

The selection of fuelwood in this period seems to be consistent with the earlier phases. Oak continues to be utilised but a range of other, supplementary woods are also used. Many of these derive from hedgerow/scrub and presumably reflect what was easily available in the increasingly cleared landscape.

(Challinor, CD Section 15)

Located 133 m to the north, waterhole 708014 (Fig. 3.51) contained only a small quantity of artefactual material, predominantly in the lowest fill, including a cylindrical loomweight and a possible *Salix* bark container (Plate 3.18). The refitting parts appear to have a deliberately cut curving edge, and there are indications of several small through holes in some fragments.



Plate 3.18: Bark container in waterhole 708014

The feature...

... had odd grains of duckweed in the basal fill, providing evidence for standing water. The lower part of the fill was dominated by grass and nettle pollens, including clumps indicative of their growth around the waterhole. Fungal spores and *Trichuris* eggs, characteristic of the inclusion of faecal material into the sediment, were also present. Cereals included oats/wheat, barley, emmer/spelt and rye. Two grains of hemp/hops were also identified. This is the earliest evidence for the growth of rye from this site. Many other taxa are characteristic weeds of arable fields, grassland, waste, rough ground and trackways. There is increasing evidence of woodland.

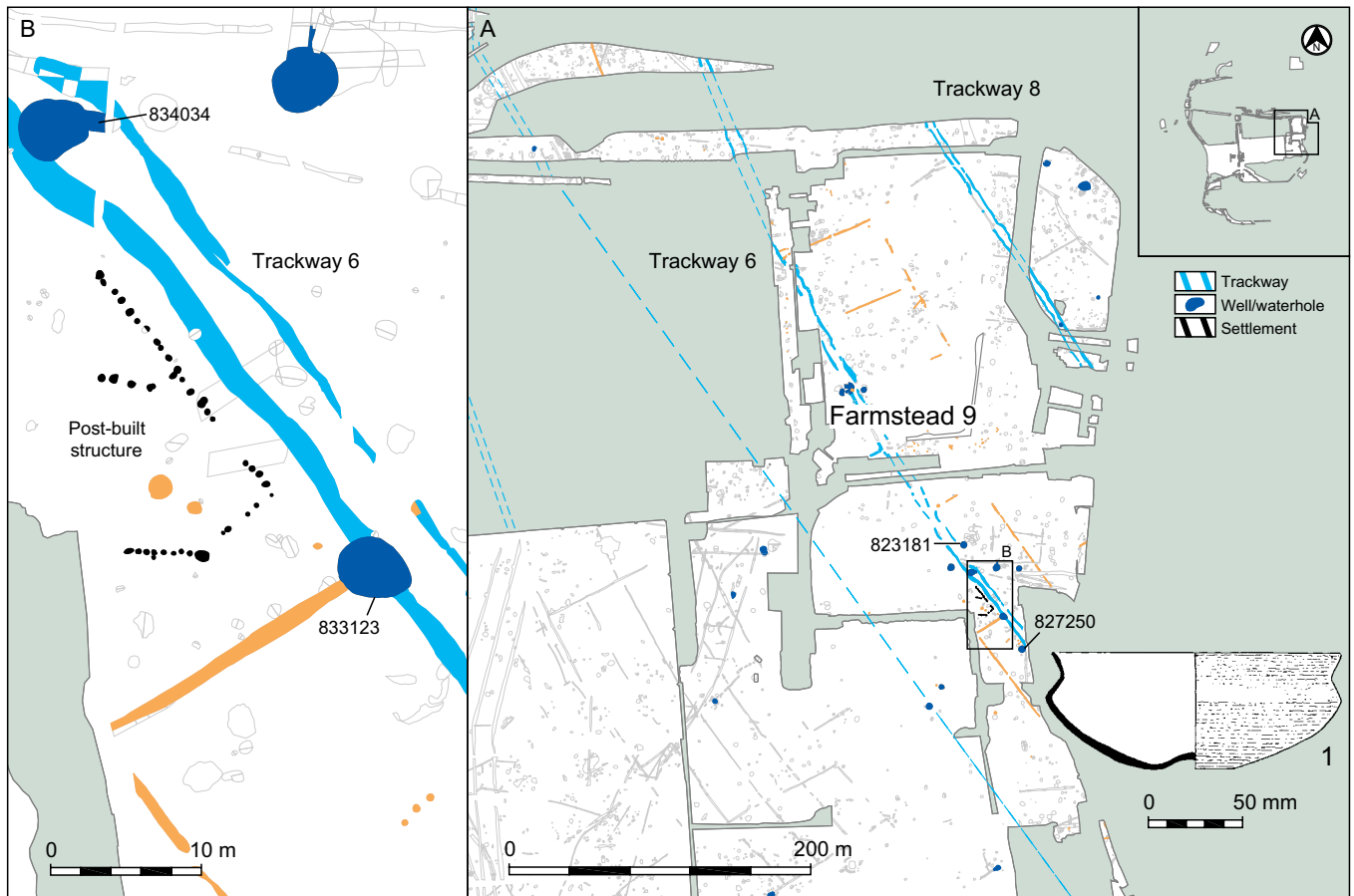


Figure 3.52: Late Bronze Age activity in Farmstead 9 and carinated bowl from waterhole 833123

The upper part of the fill has increasing amounts of tree and shrub pollen (especially lime and hazel) and fern spores, particularly those of polypody (*Polypodium vulgare*). There is a concomitant decrease in herbaceous taxa especially grasses. Charcoal values are higher and then decrease. These assemblages suggest that there is woodland regeneration close to the sample site, or that trees and bushes of lime and hazel which had previously been pollarded or coppiced had been abandoned and had begun to flower again. Pollen of taxa characteristic of hedgerows decrease as tree and shrub pollen increases. Fungal spores and *Trichuris* eggs disappear suggesting that there was abandonment of the waterhole. Grass pollen decreases. There were still some arable fields, although perhaps further away, and evidence of rough and waste ground.

(Peglar et al., CD Section 16)

The presence of much faecal material suggests that this feature was probably a watering place for animals or became used as a cesspit rather than as a source of water for human use.

Waterhole 709006 lay c 105 m NNE of 708014, and contained a substantial quantity of animal bones. A small rectangular pit 8 m to the west contained over 12 kg of burnt flint, and may be another example of a trough associated with the heating of water.

Farmstead 9

Farmstead 9 contained Late Bronze Age features that were typical of the wider landscape (Fig. 3.52). Wells and waterholes containing log ladders, post-Deverel-Rimbury ceramics and (sometimes very substantial) quantities of burnt flint lay amongst a background scatter of pits and other small features which generally contained very little.

A substantially-complete fineware carinated bowl came from towards the top of the fill sequence in waterhole 833123 (Fig. 3.52), which cut through the western ditch of Trackway 5 at its junction with a field boundary. The feature contained a substantial amount of post-Deverel-Rimbury ceramics

throughout its fills, along with burnt flint and animal bone in sizeable quantities, and a saddle quern from mid way up the fills. The pottery vessel is akin to the 'sealing deposits' of wooden and other artefacts seen in other waterholes, although there are no other examples of whole or near-complete vessels in sealing deposits. Other sherds from lower levels in this feature are predominantly rims or decorated upper body sherds, and this point is worthy of note as it highlights a repeated distinction: while ditches tend to contain bases and lower body sherds, seldom decorated, waterholes (and to a lesser extent, pits) are more likely to contain complete or near complete vessels or decorated fragments, often rims.

The lower fill of this feature produced a similar range of palaeoenvironmental material to the other features in this area, that is:

...occasional signs of domestic waste, some nitrophilous weeds of disturbed and cultivated places, a few damp ground taxa



Plate 3.19: Artist's representation of sheep herding within a Bronze Age farmstead

that may have been growing as marginals (water pepper, blinks (*Montia fontana* ssp. *chondrosperma*, mint, sedges) and only traces of woody taxa (hazelnut shell, elderberry). This southerly group was clearly growing in a more open location that was closer to human habitation than the northern group. Alternatively the differences may be temporal, with further clearance of scrub and hedgerows having taken place since the MBA and more domestic waste being distributed around the site in the LBA period.

(Caruthers, CD Section 14)

Other notable deposits came from waterhole 827250, 25 m to the south. This feature contained a log ladder, and—more remarkably—a complete bark container (Plate 3.20). Ceramics from this feature include a mix of Deverel-Rimbury and post-Deverel-Rimbury from throughout the sequence.

Waterhole 823181 further north-west contained an environmental sequence indicative of landscape changes throughout the period.

The [pollen] evidence shows that the area around the waterhole consisted of fairly open woodland during its initial stages of infilling (tree & shrub pollen representing 60% TLP), and this woodland was dominated by oak with little alder and hazel scrub. Other tree and shrub pollen was also



Plate 3.20: Bark container in waterhole 827250

recorded, however only two or three grains represent these types, which suggests they were not well represented in the woodland flora. Grasses dominate the herbaceous assemblage, which, alongside fairly abundant ribwort plantain pollen, and the presence of common sorrel, buttercups, sedge, members of the cow parsley family, composites (daisy family and dandelion type) salad burnet and bedstraws, indicates the presence of pastures and meadows. The recording of nettle, which grows in nitrogen-enriched soil, plus bracken spores, which is common in grazed woodland, may indicate the presence of livestock.

The nearby cultivation of oats/wheat and barley is indicated, as is the possible cultivation of hemp/hops; although the latter may originate from native hops growing in nearby hedgerows or scrub. Other taxa indicative of arable land are also recorded, including black bindweed, knotgrass and goosefoot. However, some of these taxa are also frequent on disturbed ground and around habitation sites.

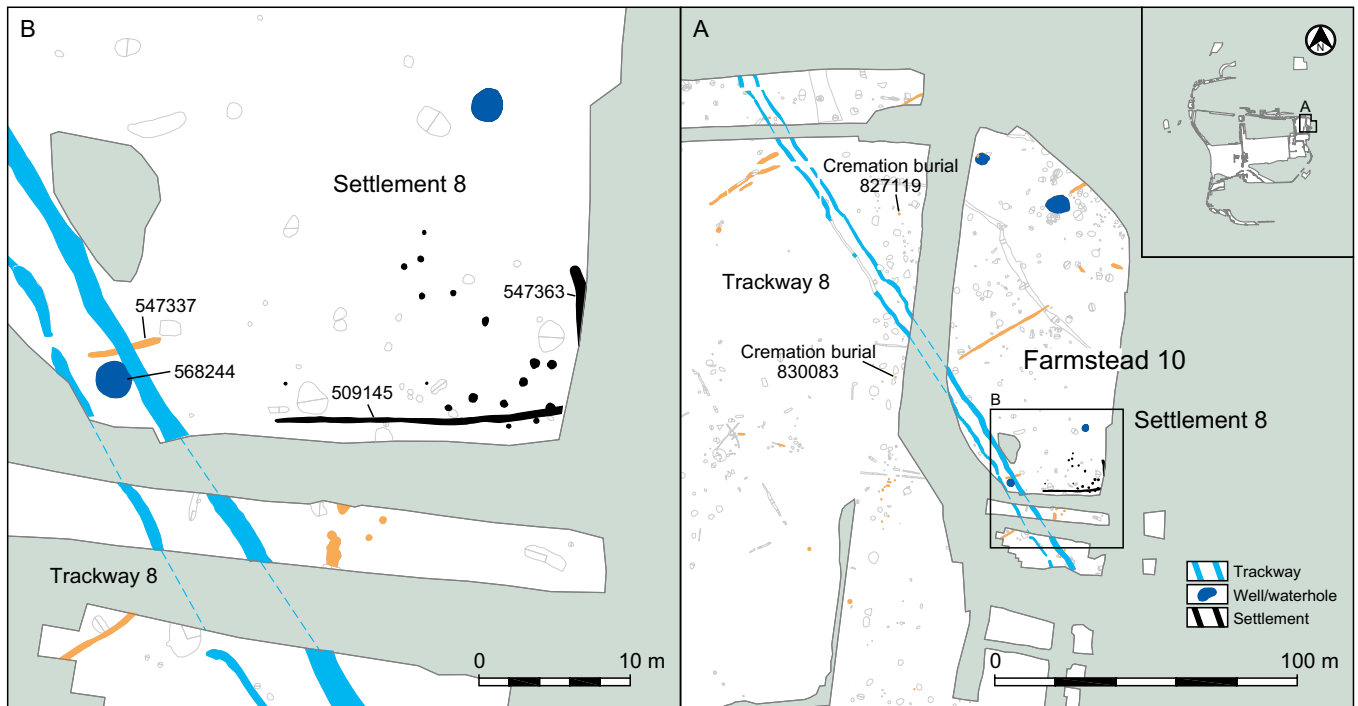


Figure 3.53: Late Bronze Age activity in Farmstead 10 and Settlement 8

A change is recorded at 0.57 m depth which shows a marked decline in oak pollen and a corresponding rise in alder, hazel, and rosaceous taxa (hawthorn, cherries, whitebeams), which, common at woodland borders, may indicate the opening up of the oak woodland around the waterhole, or, alternatively, the expansion of hedgerows nearby. This change in the woodland flora is accompanied by a marked rise in grass pollen, a very slight increase in cereal pollen, and a slight increase in the number and diversity of arable weeds including a slight rise in mugwort and goosefoot, and the first appearance of pollen from the cabbage family, St John's wort, and black nightshade. Herbaceous taxa indicative of pasture are also recorded, including bird's-foot trefoil, ribwort plantain, greater and hoary plantain, cinquefoils and buttercups. The pollen record appears to signify a period of increased management of the landscape with designated areas of arable and pastoral land with possible boundary hedges where oak woodland persisted perhaps further away. The marked rise in horsetail at this level is difficult to interpret, however, it could mean that denser vegetation was being left to grow immediately around the waterhole, perhaps as a result of less trampling by livestock. The appearance of pondweed at this level may corroborate this, and suggests that aquatic vegetation was now growing on the surface of the water.

Regeneration in oak woodland, with the persistence of some hedgerow species is indicated at 0.45 m depth. At the same time cereal pollen declines alongside a reduction in the associated arable and pastoral weed flora described above. Although the two samples above 45 cm depth were poor in pollen, the very top sample taken at 27 cm depth, suggests that this was a temporary recovery in woodland, and by the final stages of infilling, the area was very open with little hazel/oak woodland, dominated by herbaceous taxa indicative of pasture, such as grass, daisy-type, dandelion-type, ribwort plantain, greater and hoary plantain and buttercups.

Changes in the charcoal values more or less mirror the oak curve, and indicate that decreased burning activity was taking place during the period of increased landscape management. It is possible that burning activity, be it for clearance or domestic fires, was taking place further away from the areas of farmed land.

(Peglar et al., CD Section 16)

A further waterhole in this farmstead (834034) dates to the 1st millennium cal BC. This feature sits in the centre of Trackway 6, effectively blocking it. The contents of this waterhole were in no way remarkable (a little post-Deverel-

Rimbury pottery, some burnt clay and flint), but its positioning is noteworthy, since it rendered north-south movement along the trackway impossible. This phenomenon is also seen in Farmstead 10.

Farmstead 10

The dating of two unurned cremation burials, 827119 (OxA-18031; 2906±30 BP) and 830083 (OxA-18032; 2905±30 BP), to 1220–1040 cal BC is strongly suggestive of Late Bronze Age settlement and activity in this farmstead (Fig. 3.53). It may also be the case that Settlement 8 dates to this period, although the evidence is entirely circumstantial.

The settlement itself is demarcated by a pair of ditches (509145, 547363) at right angles and aligned cardinally (rather than sharing the alignment of the fields and trackway). The southern ditch (aligned east-west) is dated by an assemblage of post-Deverel-Rimbury ceramics; the eastern ditch (aligned north-south) contains Middle Neolithic Impressed Wares: these are in poor condition and likely to be redeposited. Within the settlement a scatter of 17 postholes were excavated, three containing post-Deverel-Rimbury ceramics. A possible roundhouse with



Plate 3.21: Artist's reconstruction of Farmstead 11

a diameter of approximately 7 m may have stood in the south-east corner of this settlement. A pit a little way to the north and not certainly associated contained small quantities of both Deverel-Rimbury and post-Deverel-Rimbury pottery.

Corroborating evidence for the existence and date of this settlement lies in the nature of the trackway and some associated features immediately to the west. A Late Bronze Age waterhole (568244) and short gully (547337) block the trackway, and there are re-cut terminals to the trackway ditches immediately to the north and south of these which appear to be contemporary. These seem to provide access to the settlement on the one hand and into the fields north of it on the other, effectively diverting traffic along the trackway into the settlement, around the waterhole. What this may alternatively suggest is that Settlement 8 is in fact some form of stockyard or holding pen, designed to facilitate the sorting of animal as they were herded along the trackway (see artist's reconstruction in Plate 3.19).

Farmstead 11

While it has been argued that the northern and eastern limits of the field systems were very distant from Heathrow, this may not be true in the north-west (Fig. 3.54). Here, a small settlement was encountered within an enclosure and fragmentary field system, the alignment of which is at odds with that of Farmsteads 1–10 (see reconstruction in Plate 3.21).

A series of five radiocarbon determinations was obtained, placing activity in and around Settlement 10 in the last two centuries of the 2nd millennium (Fig. 3.55). Cremation burial 699001 dated to 1300–1100 cal BC (Wk-18463; 2989±28 BP); posthole 699042 dated to 1260–1060 cal BC (Wk-18465; 2944±36 BP); cremation burial 699010 dated to 1220–1050 cal BC (93%) or 1260–1230 cal BC (2%) (Wk-18464; 2921±30 BP); waterhole 711024 dated to 1260–1000 cal BC (Wk-19332; 2917±36 BP); cremation burial 699046 dated to 1220–1040 cal BC (OxA-16320; 2891±30 BP).

The fields of Farmstead 11 are regularly arranged in a NE-SW/NW-SE alignment. South-west of Settlement 10

is a series of approximately 30 m-wide strips which are evidently fields. Within one was waterhole 711024, the basal fill of which contained a morticed *Quercus* spp. timber cut from a halved parent log with no bark present.

Waterlogged plant remains were not abundant in the lower deposit (sample 27205), and other organic remains such as twigs were present in small quantities. The most dominant group of taxa was the weeds of disturbed, nutrient-enriched soils such as fat hen, stinging nettles and chickweed. A few alder seeds were present, suggesting that alder scrub/woods were growing fairly close to the feature. A trace of charred cereal processing waste (an emmer glume base and a couple of weed seeds) provided scant evidence for human activity occurring in the area.

The upper, possibly later, dry deposit (context 711029, sample 27207) produced only charred plant remains, consisting of a small amount of burnt cereal processing waste and other domestic debris. This may represent ash cleaned from a domestic hearth, or material blowing in from nearby hearths. The fact that the cereal grains were in a poor state of preservation supported this suggestion. The main crop

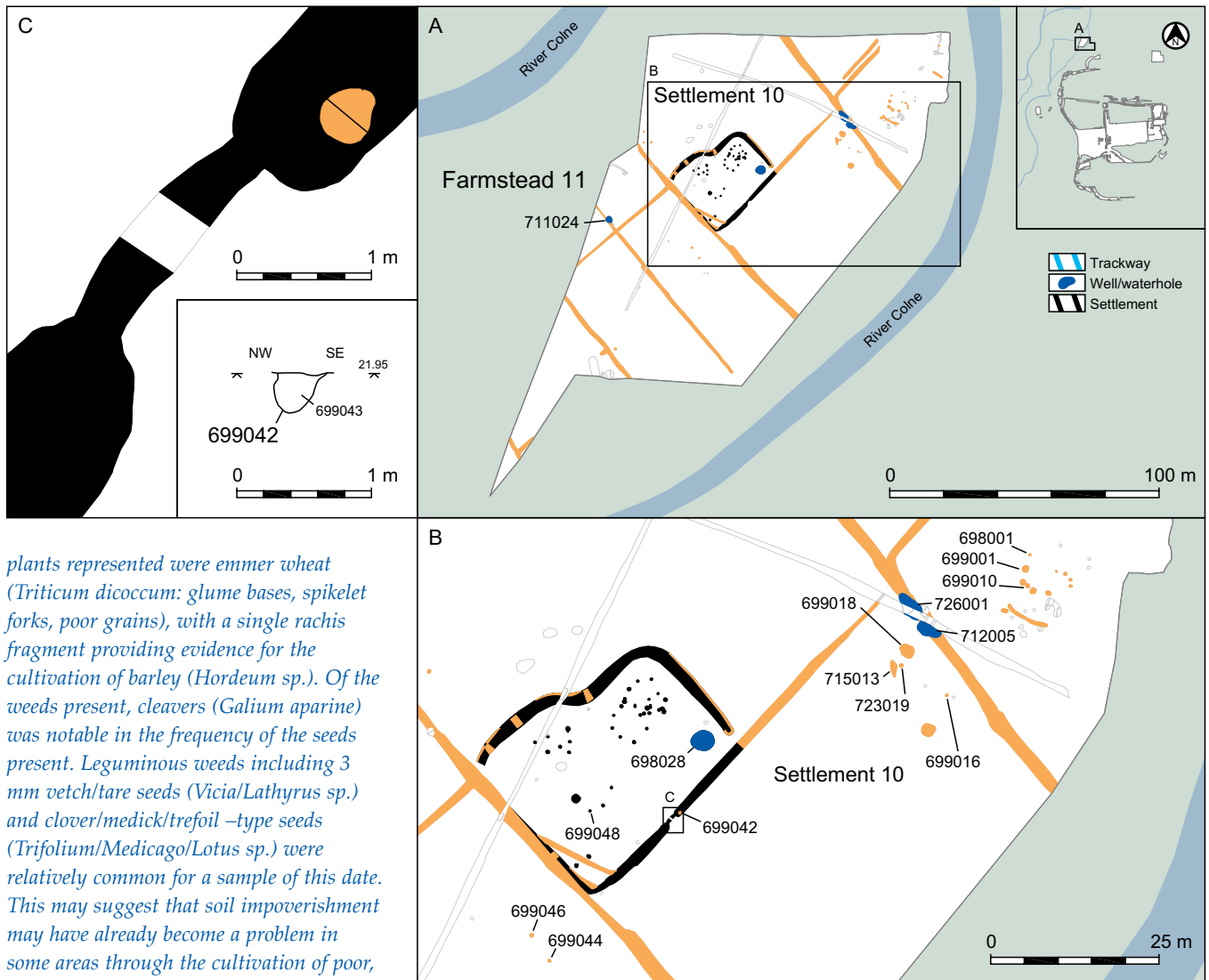


Figure 3.54: Farmstead 11 and Settlement 10

plants represented were emmer wheat (*Triticum dicoccum*: glume bases, spikelet forks, poor grains), with a single rachis fragment providing evidence for the cultivation of barley (*Hordeum* sp.). Of the weeds present, cleavers (*Galium aparine*) was notable in the frequency of the seeds present. Leguminous weeds including 3 mm vetch/tare seeds (*Vicia/Lathyrus* sp.) and clover/medick/trefoil-type seeds (*Trifolium/Medicago/Lotus* sp.) were relatively common for a sample of this date. This may suggest that soil impoverishment may have already become a problem in some areas through the cultivation of poor, acidic soils. Sheep's sorrel (*Rumex acetosella*), an indicator of acidic soils, was present. Onion couch tubers (*Arrhenatherum elatius* var. *bulbosum*) were also present, and this grass can become an arable weed for a short period where coarse grasslands have been recently ploughed. The presence of a few hazelnut shell fragments in the deposit indicated that other types of domestic waste had also been dumped.

(Carruthers, CD Section 14)

Settlement 10 was situated in the south-western corner of a large plot almost exactly twice as wide as those already discussed. That this set of field boundaries, enclosures and settlement was laid out as a unit is suggested by this continued relationship between different plot widths, to which the settlement enclosure conforms, being almost exactly 30 m wide. The apparent entrance to the enclosure was on the south-eastern side, and consisted of

a 1.8 m wide gap in the flanking ditch. It is possible that this gap was closed by some form of wooden structure, since the gap is crossed by a beam slot, and there is a posthole (699042) in the ditch to the north-east.

In the eastern corner of the settlement enclosure, a recut waterhole (698028) with a wattle lining contained post-Deverel-Rimbury ceramics and a thick layer of twigs, leaves and bark, indicating a hedge east of the feature, presumably marking the settlement boundary. A second shallow pit lay to the west, close to two groups of stake and postholes which do not resolve into convincing structures. In the north-eastern corner of the enclosure, however, a group of eight postholes define a circular setting approximately 5 m in diameter (Fig. 3.54). This appears to be a roundhouse, possibly

with a doorway on the south-eastern side. Another group of 14 postholes forms a slightly less regularly circular structure, again of approximately 5 m diameter, with a porch on the south-east. The two buildings overlap, and one must therefore replace the other, but no sequence can be detected. A single sherd of post-Deverel-Rimbury pottery came from a pit within the second structure.

The most notable feature of Farmstead 11 is the scatter of small pits containing unurned cremation burials and redeposited pyre debris. Two (699044 and 699046) lie in the field west of the settlement, one (699048) is within the settlement enclosure, one (699016, pyre debris only) lies in the large field south of the settlement, and three (698001, 699001, 699010) are among a small cluster of postholes, pits and gullies in

the next field to the east. A start date for the cremations can be estimated at 1430–1110 cal BC and an end at 1200–960 cal BC (Healey, CD Section 20).

In each case, the bone was probably deposited as a separate entity either within an organic container or possibly as a heap within the grave cut, with subsequent deposits of pyre debris prior to sealing the grave.

It is immediately striking that a surprising range of taxa were utilised in these cremations and only three of the six confirmed cremation deposits were dominated by a single species. The dominance of a single species in Bronze Age cremation assemblages has been noted at other sites and may be of ritual significance (Thompson 1999). Certainly, there is some suggestion that fuelwood was more carefully selected for cremations than for domestic purposes at other sites. Oak is commonly used for cremations, since it is highly suited to the practical requirements of cremating a human body (Edlin 1949). It is perhaps surprising, then, that oak is not better represented. Nonetheless, the other species used, Maloideae (hawthorn type), Corylus (hazel) and Rhamnus (buckthorn) have been recovered from cremation assemblages at other sites (Parry 2006). The single fragment of Ullmus (elm) may have been an accidental inclusion on the pyre, or deliberately included as a pyre good. It seems unlikely to have been selected as fuelwood, since it is the only fragment recovered from the assemblages and, although the pollen record at Perry Oaks (Wiltshire in Framework Archaeology 2006) indicates that elm was growing in the catchment area in the Middle Bronze Age, it was not commonly used as fuelwood. Elm wood was used in the past for a number of structural and artefactual uses, including coffins (Gale & Cutler 2000), which may be significant.

The assemblage from 669016 differs from the other Terminal 5 cremation deposits in so far as it is almost exclusively comprised of Prunus spinosa (blackthorn), with a single Alnus fragment. This is similar to Middle/Late Bronze Age cremation assemblages at Dorney (Challinor forthcoming) and Ashville (Jones 1978) which were also dominated by Prunus. In that respect, it would be appropriate as a pyre-related

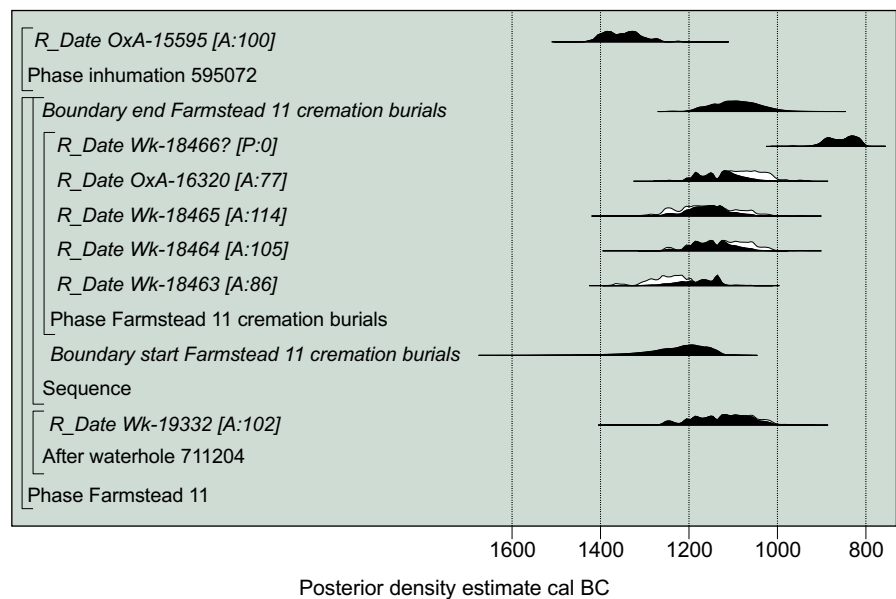


Figure 3.55: Radiocarbon dates for Farmstead 11

assemblage, but it does contrast with the other confirmed cremation deposits at Terminal 5 and since there is no human bone, its function must remain uncertain.

A recent study of Early/Middle Bronze Age cremation burials at Raunds suggests that there may be a correlation between the age/sex of the deceased and the fuelwood used, where infants and adults tend to be associated with a single species and children with mixed assemblages (Campbell & Robinson, in press). The results from Terminal 5 do not entirely fit into this hypothesis since neither 699001, an infant, nor 699046, an adult, were dominated by a single species. Nonetheless, 5 of the 8 cremations from Heathrow which produced analysable charcoal are consistent with the Raunds results. The link with gender is more difficult to analyse since we do not have a full dataset to compare.

The presence of Arrhenatherum elatius (onion couch) tubers in three of the cremation deposits is also of interest. Why these tubers are frequently recovered from Bronze Age cremation deposits is still unclear, but is discussed in the Perry Oaks charcoal report (Challinor 2006). The assemblages which produced the tubers are all from redeposited pyre debris, and it has been argued that assemblages characterised by mixed species and tubers may have resulted from a specific pyre construction, over a pit (Campbell & Robinson, in press). In that case, it is apparent that the pyre construction did not relate to the age or

size of the deceased, which were an infant, a subadult and an adult.

(Challinor, CD Section 15)

The similarities between this series of burials make the demonstration of any sequence difficult if not impossible, but other elements of Farmstead 11 indicate a chronology potentially beginning in the Middle Bronze Age, with either continual or sporadic settlement into the Early Iron Age.

Early Iron Age evidence is not common, but consists of a series of pits cutting and west of one of the field boundary ditches. One (726001) was probably a waterhole, used towards the end of its life as a grave.

Waterlogged remains follow the pattern of most of the others examined to date. Wood fragments and twigs were abundant and leaf fragments, seeds of woody taxa (blackberry, maple, dogwood, elderberry) and thorns were common. Alder seeds and catkin fragments were notably frequent in this sample, as was the case with a Middle Bronze Age feature in this area (Waterhole 711024). It is clear that alder carr growing along a nearby palaeochannel of the River Colne extended to this area of the site during the Bronze Age/Early Iron Age.

Other plant remains were not frequent in this very woody sample, but the usual range of weeds of cultivated/disturbed

soils, grazed grasslands and hedgerows was recovered. No aquatic plants and only a couple of sedge seeds were found. A couple of waterlogged emmer/spelt chaff fragments and a couple of charred weed seeds was all that was present from economic plants.

(Carruthers, CD Section 14)

The remains of an inhumation were encountered at the top of the fill sequence. This burial (Skeleton 703006) has been provisionally dated to the Iron Age based on the proximity and similarity between pits 726001 and 712005, the latter of which contained a sequence of post-Deverel-Rimbury to Middle Iron Age ceramics. In reality, however, the skeleton is undated since the attempted radiocarbon dating failed.

The skeleton had been placed in the pit orientated north-south. The posture was difficult to determine owing to the poor preservation of the remains, however the arms at least were judged to have been flexed and it is likely that the individual had been buried in a crouched position. A crouched body position was standard practice in Bronze Age and Iron Age inhumations and it persisted as a minority rite throughout the Roman period (Philpott 1991, 71).

(Geber, CD Section 12)

Fifteen percent of this skeleton survived, namely the skull, upper appendage and ribs. Molar attrition indicated an age of approximately 25 to 35 years but no indicators were available with which to estimate the sex of the individual.

The adjacent pit (712005)—immediately to the south and cutting the same field boundary ditch—was wattle lined and appeared to be a second waterhole. The secondary fill contained portions of an Early Iron Age carinated bowl and Middle Iron Age pottery, above which was over 2 kg of burnt flint. This suggests a link between this feature and three pits a few metres to the west. Pit 699018 contained almost 10 kg of burnt flint (Plate 3.22); next to it 723019 was a small pit/depression containing scorched earth, while pit 715013 contained more burnt flint. None of



Plate 3.22: Burnt flint feature 699018

these three features is independently dated, but the prevalence of burnt material and evidence of *in situ* heating suggests a link between all of them. This may be another 'burnt mound' complex: the link (if any) between this and the human remains in waterhole 726001 remains conjectural.

Farmstead 12

The very south-eastern corner of the Terminal 5 excavations revealed numerous isolated field boundary ditches that formed no coherent pattern on their own but which clearly form a part of the landscape investigated by Poulton (1978) and O'Connell (1990) (Fig. 3.56).

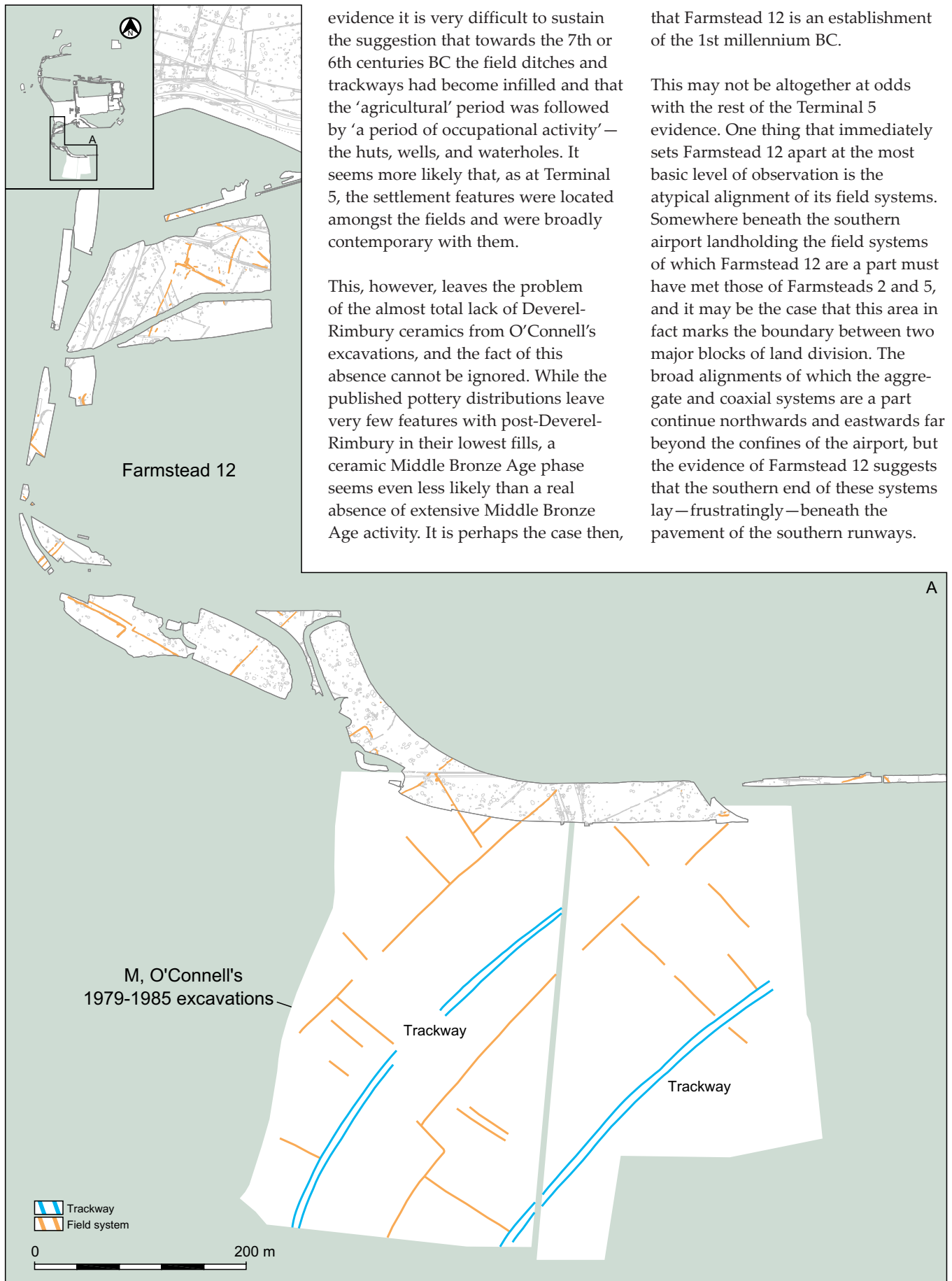
That landscape was typified by a field system aligned NE-SW, crossed by two double-ditched trackways 170 m apart on the same alignment (O'Connell 1990, 36). The field boundaries and trackway ditches encountered during the Terminal 5 excavations share this alignment, and in some instances are demonstrably features visible on O'Connell's plot of cropmarks (*ibid.*, fig. 3).

Very little detail can be drawn concerning Farmstead 12 from the Terminal 5 excavations, but O'Connell identified some limited settlement evidence, consisting of one probable and one possible hut. Recut wells and waterholes

were encountered which mirror exactly those from across the Terminal 5 excavations: log ladders, wooden stake revetments, and domestic debris in higher fills were all present. The single radiocarbon determination obtained came from wood in the lower fills of one waterhole, gave 800–390 cal BC (HAR-4823; 2440±70 BP), essentially an Early Iron Age date. The pottery from this feature contained the greatest proportion of decorated wares from the site (O'Connell 1990, 53).

This is clearly later than the dated features from Terminal 5, and poses a number of problems. Firstly, the sample on which this determination was made is not securely located, being recorded only as wood from feature 553. The published description and section (O'Connell 1990, 41, fig. 24) shows a feature with numerous recuts, with wood in what may be the third and fourth cuts in the sequence. The location of wood marked on the section (in contexts 653 and 644) does not tally with that given in the description (in 595, the upper half of 609 and 636). Given these uncertainties, the radiocarbon determination clearly does not date the earliest phases of use of the feature.

Whatever the precise date of feature 553, a single determination cannot date a site, and in the light of the Terminal 5



evidence it is very difficult to sustain the suggestion that towards the 7th or 6th centuries BC the field ditches and trackways had become infilled and that the 'agricultural' period was followed by 'a period of occupational activity' – the huts, wells, and waterholes. It seems more likely that, as at Terminal 5, the settlement features were located amongst the fields and were broadly contemporary with them.

This, however, leaves the problem of the almost total lack of Deverel-Rimbury ceramics from O'Connell's excavations, and the fact of this absence cannot be ignored. While the published pottery distributions leave very few features with post-Deverel-Rimbury in their lowest fills, a ceramic Middle Bronze Age phase seems even less likely than a real absence of extensive Middle Bronze Age activity. It is perhaps the case then,

that Farmstead 12 is an establishment of the 1st millennium BC.

This may not be altogether at odds with the rest of the Terminal 5 evidence. One thing that immediately sets Farmstead 12 apart at the most basic level of observation is the atypical alignment of its field systems. Somewhere beneath the southern airport landholding the field systems of which Farmstead 12 are a part must have met those of Farmsteads 2 and 5, and it may be the case that this area in fact marks the boundary between two major blocks of land division. The broad alignments of which the aggregate and coaxial systems are a part continue northwards and eastwards far beyond the confines of the airport, but the evidence of Farmstead 12 suggests that the southern end of these systems lay – frustratingly – beneath the pavement of the southern runways.

Figure 3.56: Farmstead 12 in relation to O'Connell's 1979-85 excavations

The Character of the 1st Millennium Settlement at Heathrow

Precise dating of developments in landscape use and settlement activity remain unclear, largely because the chronology remains grounded in the ceramic sequence. Moreover, Late Bronze Age and Early Iron Age pottery fabrics and forms are generally indistinguishable in the region, meaning that most undiagnostic body sherds can only be broadly dated.

Evidence for similar Late Bronze and Early Iron Age activity was encountered during excavations in advance of the Northern Runway extensions in 1969 (Canham 1978). Nonetheless, the evidence from past and recent fieldwork at Heathrow is insufficient to allow us to fully characterise the scale and nature of early 1st millennium activity or to determine the role of the settlements within a larger economic and social milieu of the Thames Valley at this point in prehistory. All that can be claimed with certainty is that, as agricultural activity continued, habitation persisted in some form until, at some point in the period preceding about 400 BC, the central part of the site was transformed by the establishment of a substantial nucleated settlement (see Chapter 4).

If the observed changes in settlement pattern are real, with a return to a single large focus of settlement in the aggregate landscape and a continuation of the pattern of smaller dispersed settlements in the coaxial landscape, then the trackways of the former would now simply be used for movement and stock management. In effect, the aggregate farmsteads would reunite and become one large pastoral/arable system, farmed by a community living in a single larger settlement, as they may well have been at the time of the foundation of the agricultural system. Given this, the fragmentation of settlement in the period after 1400 cal BC could be seen as a temporary aberration in a general pattern, were it not for the fact that elsewhere in the coaxial landscape fragmentation appears to have continued unchecked.

The usual causes suggested for such changes in society and its organisation include deterioration in climatic conditions and soil quality leading to increased pressure on resources. 'Pressure' is a term often used in a variety of contexts as an impetus for development or to explain change. Unfortunately, exactly what form this pressure is meant to take is often unclear.

If we take the evidence from Terminal 5, the beginnings of division around 1400 cal BC and the period of retrenchment a century later could be read as indications of such pressures. On the basis of insect remains Robinson makes a case for '...possibly a brief episode towards the end of the Middle Bronze Age when southern England had significantly warmer summers than at present' (Framework Archaeology 2006, CD Section 12), followed by a decline in temperature. Lambrick proposed a rise in the water table in the Upper Thames Valley from the Late Bronze Age (Lambrick 1992, 217), and the recutting to a shallower depth of waterholes during this period at Terminal 5 suggests a similar occurrence in the Middle Thames. Pollen, insect and waterlogged plant evidence indicate heathland at Terminal 5 from the latter half of the 2nd millennium BC. Such evidence could be read as the effects of a deteriorating climate and worsening soils, and these in turn could cause pressure on land and productivity. These pressures can be made to account for both the fragmentation of farmsteads into smaller units, with individual groups (perhaps families) staking stronger claims to dwindling resources, and for the unification of smaller units into larger wholes, with groups abandoning individual landholdings in order to pool those same resources. Such explanations cannot adequately account for the changes visible in settlement patterns throughout the second half of the 2nd millennium and into the 1st. Undoubtedly, climate and soils must have had some effect on how people lived, but for the most part the changes apparent in these were far from catastrophic.

The successful development of the individual landholdings may paradoxically have required more co-operation between groups. In other words, successful development would have reached a point where it could only continue by farmsteads working in co-operation, rather than isolation. In the aggregate landscape this appears to have involved a physical unity of settlement, but not in the coaxial landscape.

Common land?

The difference in trajectory of development in the aggregate and coaxial systems brings to the fore the possibility that they may in fact have belonged to two separate units of landscape, one (in the west) being a set of settlements and farmsteads in the valley of the Colne; and another (in the east) situated on the Heathrow Terrace. In this model, the Colne system (the aggregate landscape) would have included Farmsteads 1, 2, 3, 4, 11 and possibly 12, while the Terrace system (the coaxial landscape) would have included Farmsteads 6, 7, 8, 9 and 10. What is of some interest—and perhaps of very great significance—is that between Trackways 11 and 3 (in other words, between the boundaries of the two systems) is a three hectare plot of land which seems to have belonged to neither, but to have been accessible from both.

This plot survives untouched throughout all the changes and alterations to the trackways, fields and settlements around it, and not only is it untouched, it is also empty. There are no wells or waterholes or subdivisions or structures of any sort, and the almost inescapable conclusion is that this three hectare plot was in effect common ground, belonging to none, and accessible to all. Interestingly, it is also largely free of any earlier feature: it is crossed by none of the earlier Neolithic cursus monuments, and contains none of the clusters of pits which mark locations of Middle and Late Neolithic activity. In fact, it is not until the Iron Age that this plot is inhabited in any way that left a physical trace, at the point in time when the patterns of inhabitation which had typified the area for a millennia finally broke down.

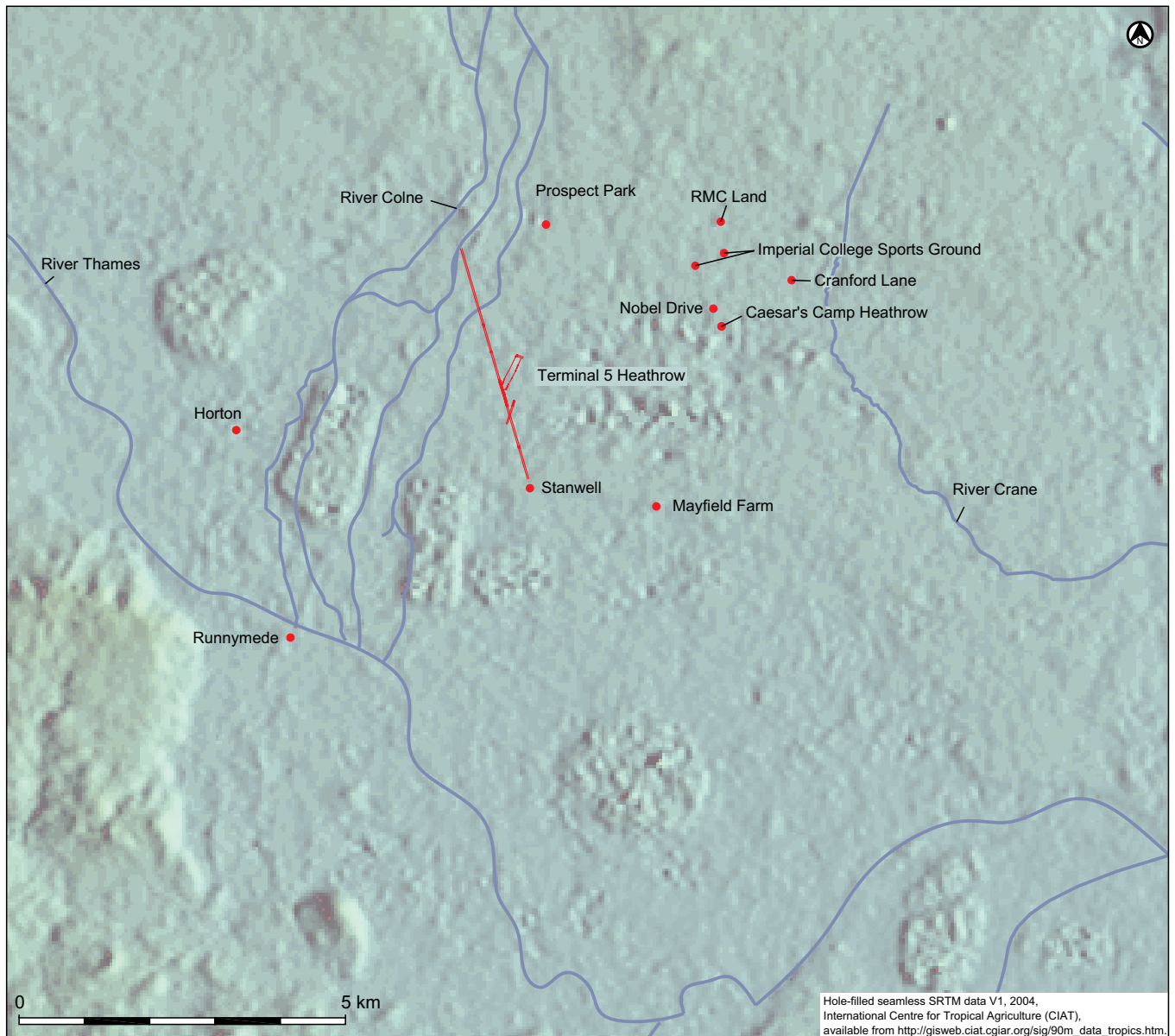


Figure 3.57: The regional Bronze Age landscape

Links with the hinterland

The mixed arable and pastoral system appears to have been highly successful, both economically and socially. Unfortunately, the prevalence of environmental evidence and the near-absence of other kinds of material (especially metalwork and burial evidence) preclude an understanding of how this part of life fitted in to wider Bronze Age society.

The evidence from the Terminal 5 excavations does not exist in isolation, however. All across the West London gravel terraces watching briefs, evaluations, excavations and non-intrusive surveys have revealed fragments of

presumed and confirmed 2nd and 1st millennia settlements and field systems (see Fig. 3.57) of which the Terminal 5 examples are only a part. Making sense of this material as a whole is difficult, coming as it does from a range of sources with very different aims, but it is possible to suggest that planned and maintained agricultural landscapes like the one at Heathrow were characteristic of the gravel terraces and flood plains. Indeed, the most recent published considerations of this evidence (for instance Yates 2001, 2007) locate the Heathrow fields within a network that has the Thames as its southern boundary, extending from Runnymede to Hampton, and from Uxbridge to Ealing on the northern side.

The individual pieces of these systems, which have been revealed through excavation and other field-work, are necessarily fragmentary and dislocated: few can be pieced together to reveal even the broad outlines of landscape organisation, and not many are securely dated.

Although many parts of these widespread field systems have been encountered, very few in Heathrow's immediate surroundings have been published. At the time of writing, large areas to the north at RMC Land, Harlington and Imperial College Sports Ground, and to the west at Horton are under post-excavation analysis. They are revealing settlement

enclosures, field systems, cremations and other funerary monuments, pits and waterholes indicating a relatively intense occupation of the landscape. At Imperial College, assessment revealed settlement enclosures between 250 m and 320 m apart containing very few structural remains, set amongst a fairly regular pattern of approximately north-south aligned ditches, 60–62 m apart with discontinuous east-west divisions. A small cremation cemetery was dated to the Middle Bronze Age on the basis of its associated Deverel-Rimbury ceramics (Crockett 2001).

In terms of Late Bronze Age activity, the best known is Caesar's Camp (Grimes and Close-Brooks 1993). Here pottery, loom weights, a collared bronze disc, a fragment of a bronze spearhead, part of a perforated clay plaque, and a fragment of a saddle quern demonstrated settlement activity of some sort, although no contemporary structures were detected (any present could easily have escaped detection, given the circumstances of excavation). Four pits, a hollow and a posthole are likely to be contemporary. Although interpreted as an open farm or village, on the basis of the Terminal 5 evidence it is just as likely that the evidence derives from an enclosed settlement, given the lack of investigation beyond the bounds of the then-upstanding Middle Iron Age enclosure.

North of the airport, a large number of sites have been investigated under the rubric of the West London Gravels Project (MoLAS, forthcoming). Most remain in assessment, but a number of broad patterns can be identified. As at Terminal 5, the excavated evidence falls—or can be suggested to fall—into a number of separate groups, all aligned at odds to each other. Elsdén described one such group at and beyond the airport's north-east corner:

The distinctive orientation of the enclosure at Nobel Drive and the field system at Cranford Lane is also exhibited by crop marks representing large enclosures adjacent to Caesar's Camp, which lie at an angle to the Middle to Late Iron Age enclosure. Whilst these could be of Iron Age date, the differing alignments suggest

that they might more plausibly be seen as part of the Late Bronze Age activity excavated in 1944 (Grimes & Close-Brooks 1993, 330-1). It is thus quite possible that all these features were parts of a series of Later Bronze Age field and enclosure systems, sharing a common alignment. This alignment appears to be derived from the overall slope of the valley of the River Crane in this area.

The end of use of this alignment may coincide with the extensive flood deposits seen at Cranford Lane, which sealed the Late Bronze Age features, and probably dated from the Late Bronze Age or Early Iron Age. Similar flood deposits were also seen at Newall Road... At Cranford Lane this alluvium appears to mark a break in the prehistoric occupation.

(Elsden 1997, 12)

This group of sites, which lies at the opposite end of the airport and in the valley of the Crane, cannot be linked physically with the Terminal 5 evidence, although clearly the contemporaneity and proximity of the two sets of systems are beyond doubt. Other sets of field systems however articulate directly with those encountered in the current excavations.

In particular, the evidence from Stanwell (part of—or at least a part of the same group as—Terminal 5's Farmstead 12) indicates connections with the series of fields and enclosures running eastwards along the edge of the terrace, which have been subject to a number of interventions. At Mayfield Farm, East Bedfont (Jefferson 2003), field boundary ditches aligned NE-SW extended southwards onto the Kempton Park Terrace, and the continuation of these systems off the Heathrow Terrace provides a link with those in the flood plains of the Colne and Thames, primarily at Horton (Wessex Archaeology 2009) and Runnymede (Needham and Longley 1980; Needham 1991, 2000).

This interconnected set of field systems is one of several flanking the Thames—this one being what Yates has called the West of London group (2001, 67–9, fig. 7.2 and table 7.1)—each of which

has been argued to centre on a regional power base (the so-called aggrandised enclosures). The coherence of these groups is arguable, not least in terms of their chronology, as is the status of some of the claimed aggrandised enclosures (one of the postulated examples for the West London group at Mayfield Farm has only been subjected to trial trenching on a limited scale, and is as likely to be a Neolithic causewayed enclosure as it is to be a Bronze Age ringwork), and the Heathrow excavations have revealed that if it existed at all, the West London cluster had a very great degree of internal variation.

While the 2nd and 1st millennium field systems were very widespread, they clearly did not cover the entire area of Yates' West of London group. A series of differently aligned systems of fields and enclosures seems to have existed, some abutting each other, some separated by areas without visible fields.

The absolute extent of the field systems encountered in the course of excavations at Heathrow is unknown, but portions of at least three different systems appear to be represented. The main block of Farmsteads 1 to 10 seem to form a single unit (unless the division between the aggregate and coaxial systems is a boundary between blocks, one—the aggregate landscape to the west—in the valley of the Colne and the other—the coaxial landscape to the east—on the Heathrow Terrace) of unknown eastern, northern and western extent. Farmstead 12 at the southernmost limits of the excavations forms part of another pattern of fields that is known to have extended southwards at least to Stanwell, where the terrace edge is marked by a linear cemetery of round barrows, and by the double-ditched enclosure at East Bedfont (whatever date that site ultimately proves to be), and—even if this was not the southward limit of agriculture—it is at least probable that this point marked a major land boundary.

The possible existence of such boundaries highlights the lack of understanding of the political economy of the later 2nd millennium in the

region, and how different units of land articulated. Indeed, it is not entirely clear what constitutes the region. As noted, David Yates has suggested that by the end of the 2nd millennium the Thames Valley had been divided into a number of blocks of managed land, each containing a high-status settlement and a concentration of metalwork in riverine contexts (Yates 1999). Clearly, the establishment of such extensive and well-ordered landscapes of fields and settlements represents an enormous expenditure of labour, and the ability for such an undertaking implies a well-structured social system.

The most commonly accepted economic model is one in which the establishment and maintenance of a field-system based mixed farming economy allowed the production, accumulation and distribution of surplus, through which wealth was created and controlled, reinforcing the already hierarchical and differentiated structure of society, what Yates has called a 'complex inter-regional exchange system based on social storage' (2001, 67).

Be that as it may, there are a number of broad similarities between many of the excavated field systems in the Thames Valley which indicate a shared economic base. Pastoralism is most often suggested as the main element of the economy, but—at Heathrow at least—cereal production was also present, and may have been as (if not more) important. This is one of the significant alterations to the proposed operations of a lowland farming system which comes about as a result of the Terminal 5 excavations: whereas several other sites have no evidence of the growing or processing of cereals, environmental evidence from Terminal 5 confirms that all stages of cereal production and use occurred on site. Francis Pryor has suggested that many Bronze Age field systems may have been oriented towards the management of livestock on an extensive scale, with cereal production geared more towards a subsistence, household level (Pryor 1999). An argument can be made for this being the economic model indicated by the Heathrow

evidence. However, it is equally possible to propose the opposite: that the economy was one based on arable production, with pastoralism representing only a minor element. The difficulty in choosing between the two is that the evidence is equivocal: while the provision of water for livestock was a concern for the inhabitants of the Heathrow Terrace, and the trackways may have been intended to facilitate the movement of stock, there is very widespread pollen evidence for cereals, and charred and waterlogged remains of crops at all stages of processing, in addition to which, the presence of ard spikes in waterholes indicates the importance of agriculture of whatever sort. Given the nature of the evidence, it is difficult to argue convincingly for the absolute priority of one form of production over another, and all that can be claimed with certainty is that it is not necessary to propose 'a lowland farming system specialising in livestock rearing... depend[ent] on cereal producers elsewhere for grain supplies in exchange for meat' (Yates 1997, 10).

As well as the production and consumption of cereals and meat, other economic activities are attested, including the production of textiles, not only from wool, but also through the growing and processing of flax, present at Heathrow and elsewhere (Bray: Barnes and Cleal 1995; Reading Business Park had evidence of flax processing on a relatively large scale: Moore and Jennings 1992).

The agricultural field systems of the Thames Valley seem to have been linked by more than an economic base. Even in terms of construction there are similarities of detail which indicate some degree of connection amongst the different elements of the system. Of course, the basic elements of ditches, banks and hedgerows allow for little expression of difference, but the ways in which some of these building blocks were used differently at different times are more than coincidentally parallel. It has been argued that the trackways dividing the coaxial systems at Heathrow were originally constructed from series of short interrupted ditches, and only later by continuous

ditches. Precisely the same is true at Reading Business Park (Moore and Jennings 1992), and at Butler's Field, Lechlade (Boyle *et al.* 1998, 17). The provision of water in wells and holes is common to many field systems. But, again, there are differences in access to other water sources: whereas many sites have ditched trackways leading down to the water's edge (according to Yates 'all the bounded landscapes were constructed with direct access to the main river course or tributaries of the River Thames'; 2001, 67), at Heathrow the trackways run parallel to the drainage. This in fact may be the strongest argument in favour of the Heathrow landscape being primarily arable: whereas herds of animals on the scale of those that would have been present if Heathrow were given over to the keeping of stock would have required access to more water than the holes could provide—and consequently to rivers—fields of crop would not.

The wells and waterholes scattered throughout the farmsteads brought water to an area that seems to have been largely without any flowing or standing surface sources. In addition, they seem to have played a vitally important role in the lives of the inhabitants of Bronze Age Heathrow. That they were more than simply utilitarian (or that their function as watering places was itself not simply utilitarian) is indicated by the range of other activities associated with them. The association of at least one waterhole with activities resulting in the creation of large quantities of heated flint has already been discussed, along with the possible ceremonial importance of those activities. Throughout this chapter, mention has been made of wooden, ceramic and other artefacts which had been placed in these features, often on the base, and apparently unrelated to their construction or function as water sources.

These objects include apparently unusual ceramic and wooden vessels (although it may be that it is the deposition—and consequent preservation—of these forms in waterholes that was unusual, rather than the forms themselves, which may have been entirely

normal objects), wooden ard spikes, axe hafts and metal objects. The only object which is likely to have been truly unusual prior to its deposition is the Neolithic stone axe, which must have been at least a curiosity—if not a thing of some value—in the context of Middle Bronze Age society.

Again, the majority of these things are parts of the normal repertoire of objects which would have featured in the daily lives of the inhabitants of Bronze Age Heathrow, and their inclusion in deposits in the bases (or, in occasional instances, as ‘sealing deposits’) of waterholes fits very well into the understanding of ritual behaviour and its role in society, which has already been discussed. What is particularly interesting about many of the wooden artefacts recovered is that all of the dated examples (the wooden bowl, two axe hafts, three ard spikes) appear to have been deposited during a restricted period around or shortly after 1400 cal BC, precisely the point at which the restatement of social realities and norms would have been most needed, given the breakdown of Farmstead 3 into smaller units and the changes to life and society which would have occurred as a result.

The End

Identifying the processes which brought about the final abandonment of the system—or indeed the point at which it was finally abandoned—is close to impossible. In part, this is because some elements may not have been physically abandoned at all: there is evidence that some field boundary ditches, particularly in the area around Farmstead 2, were maintained into the medieval period. As the next chapter will demonstrate, however, Middle Iron Age settlement seems to have involved the establishment of new centres, having very little to do with any existing patterns.

The end, when it came, seems to have been a widespread phenomenon with a broad contemporaneity. As at Heathrow, the majority of sites in the Thames Valley seem to have witnessed a halt at much the same time, in the 1st millennium BC. On many sites, Iron Age evidence is most notable for its absence, and in almost every instance where Iron Age evidence is found it either comes in the form of field boundaries with a different alignment to those of the Bronze Age (for instance at Nobel Drive: Elsdon 1997) or is quite

isolated from any earlier activity. Indeed, at Terminal 5 there is no convincing Early Iron Age element beyond a small number of largely isolated features and a few ceramic forms which seem to belong later in the post-Deverel-Rimbury sequence. It is perhaps significant that where Early Iron Age settlement has been identified—at Site K of Canham’s excavations (Canham 1978), for instance—it lies to the north of the Terminal 5 excavations. At this site, the associated ceramics are mostly flared necked jars, and burnished bowls with tall necks (Grimes and Close-Brooks 1993)—typical Early Iron Age forms.

This phenomenon could be the result of a continuation of the pattern seen in the eastern Farmsteads of the Terminal 5 excavations—a continued northward expansion across the Heathrow Terrace. What then becomes of interest is what brought this process to a halt, and why it was that Middle Iron Age settlement seems to have been established in the one place where there was never any visible Bronze Age activity—in the three hectare plot of common land separating the aggregate and coaxial systems.