Chapter 4

Later prehistory

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Introduction

This chapter will discuss the High Speed 1 (HS1) project's contribution to our understanding of later prehistory, the period of approximately 1500 to 100 BC (Fig. 4.1). Any decision about how to divide up the continuity of the human past into sections invites questions about the validity of the preferred scheme and the particular changes in the past that it prioritises. The original research agenda for the HS1 project was based on an assumption, derived from the limited evidence for the prehistory of Kent then available, that there would be a marked change in the nature of the archaeological record in the middle of the 2nd millennium BC, from a landscape dominated by the barrows of the Early Bronze Age to a landscape of fields and settlements typical of the Middle and Late Bronze Age; and, at the other end, a further assumption that the emergence of central places, some of which became towns in the Roman period, marked a similar major shift in the nature of the settlement record and of social organisation.

As it happened, and as will be clear from this and the following chapter, the assumptions about the nature of the archaeological record encountered in the HS1 project were correct. There is plenty of evidence for extensive woodland clearance and the ordering and division of the landscape in the centuries after 1500 BC, and also for a widespread reorganisation of settlement at the start of the Late Iron Age. The general approach adopted in the original research design is therefore retained in the discussion of the results in this volume. Thus, this chapter avoids the more traditional division of the past into Bronze Age, Iron Age and Roman periods, in favour of one based on a period from the Middle Bronze Age to the Middle Iron Age, followed by a period combining the Late Iron Age and Roman. This framework has been

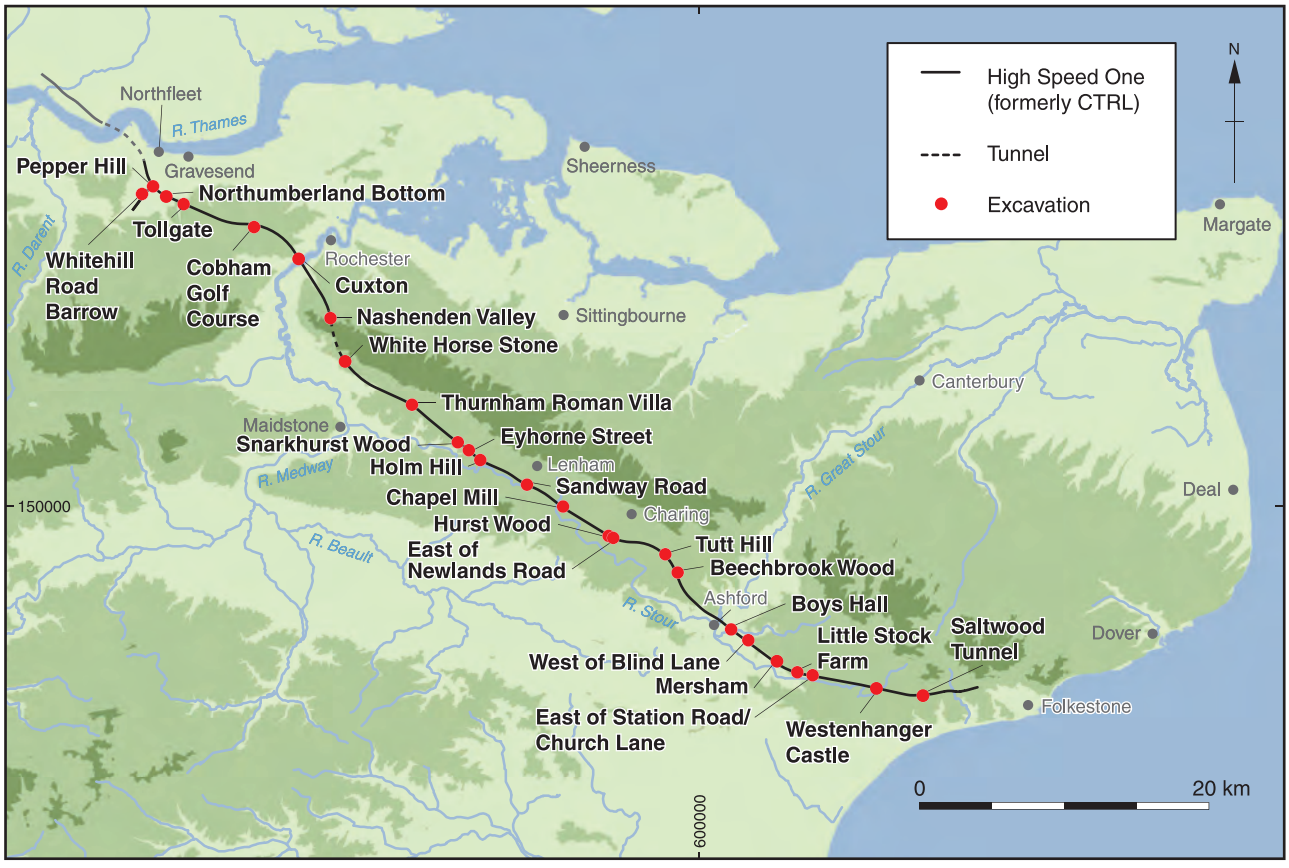


Figure 4.1 Map of HS1 route showing later prehistoric sites

used by some other recent accounts of later prehistory in Britain, though not by all; in the specific case of Kent, for example, Ashbee (2005) has followed a more traditional Three Age System structure, while the sub-division of prehistory in Williams (2007) has adopted breaks in the middle of the Bronze Age and at the start of the Late Iron Age, without completely linking that period with the Roman. Though the periodisation adopted here reflects real changes in the nature of the archaeological record, in particular the types of sites that regularly recur, it should not be assumed that the transitions that mark the beginning and end of this period necessarily correspond to major changes in the nature of society. The sites and monuments constructed and used by past societies need to be interpreted in terms of the organisation of those communities, and changes in the nature of the record set against other evidence for the changing nature of social organisation.

In fact, when seen in this rather broader light, the transitions at the beginning and end of the period that is the subject of this chapter show two rather different patterns. Within the HS1 project the transition to the Late Iron Age is marked in the archaeological record by an almost total non-continuity of settlement occupation and a new phase of settlement foundation characterised by land division and enclosure (see the following chapter); this coincides very generally with other phenomena such as the beginning of the oppida, the adoption of formal cremation burial, the proliferation of brooches and distinctive new pottery types. The introduction of coinage may have been somewhat earlier, but these wide-ranging and broadly contemporary changes show a fundamental restructuring of society in terms of personal identity and political power as well as settlement and economy. It may be justifiable, therefore, whatever the arguments about the validity of the concept of an Iron Age as a technological stage, to have doubts about its coherence in terms of social organisation and to accept that the Late Iron Age represents something fundamentally different and more akin to what follows.

At the start of the period, the transition from the Early Bronze Age is rather different. The archaeological record certainly shows a major shift from burial monuments and largely invisible settlement to a landscape of fields and settlements, but this takes place during the continued currency of bronze as a material with high symbolic value. The concept of a Bronze Age makes sense as much as a period of social attitudes to the metal as it does as a technological stage. The periodisation used here therefore has its problems. The transition to a cleared, ordered and settled landscape, which marks the beginning of this chapter's focus, and the implied continuity throughout the rest of the Bronze Age and the Early and Middle Iron Age, do not correspond with the period during which bronze circulated as a valued material. The end of this period at around 800 BC (Needham 2007b) marks what must have been a significant disruption to established social values and practices, and we might reasonably expect that this would have been reflected in other areas of the contemporary archaeological record.

The final section of this chapter will provide the opportunity for further discussion of these themes among others and of the contribution of the HS1 project to the development of our understanding of them. The significance of that contribution can only be properly appreciated in the light of the slow growth of our knowledge of the later prehistory of Kent as revealed by previous treatments of the subject. In contrast to certain other periods, especially the Lower Palaeolithic, the Roman and the Early Anglo-Saxon (though specialists in those periods would not necessarily agree), understanding of the later prehistory of the county has been slow to develop. In the first general survey, contained in the archaeological contributions to the Victoria County History, the prehistoric section was written by George Clinch (1908), and seems especially limited by modern standards; he could do little more than list some of the better known finds of metalwork, especially the bronze and gold hoards; for the Iron Age he presented an important discussion and plans of some earthworks, but could assign very little else to this period except the recently published Late Iron Age finds from Aylesford (Evans 1890). A quarter of a century later, Ronald Jessup's (1930) chapters on the Bronze Age and the Iron Age showed how little progress had been made: the former could include a larger number of bronze hoards, and the latter some possible Iron Age settlements, but there had been few major excavations of any type of monument. Even after another half century, further progress had been disappointing: the contributors of both the Bronze Age (Champion 1982) and the Iron Age (Cunliffe 1982) chapters to a survey of Kent archaeology bemoaned the lack of high-quality modern evidence.

The position changed dramatically in the 1980s as the pace of development increased and the significance of archaeological remains was recognised by PPG16 (Champion 2007a). Quite apart from the HS1 and the growth it stimulated, Kent saw some of the largest and most numerous development and regeneration proposals in southern England, with a consequent explosion of fieldwork activity and eventually of archaeological knowledge. Not all periods have necessarily benefited to the same extent; the archaeological benefits have arguably been greatest for the later prehistoric period, for reasons perhaps as much to do with the lack of previous knowledge as with the economically driven non-random quirks of the development industry. Some idea of the progress that has been made in this period can be gained from a comparison of successive treatments of later prehistory, which have drawn heavily on the unpublished grey literature as well as published sources; for a vivid demonstration of this rapid growth in knowledge, compare the maps of known Bronze Age evidence for fields and settlement in Kent in 1990 and in 2002 published by Yates (2007, fig. 3.2), which clearly demonstrate the quantitative growth in knowledge, but also how it was geographically constrained by the location of development proposals. A paper discussing the distribution of settlement in Kent from 1500 to 300 BC (Champion 2007b) was originally written for a

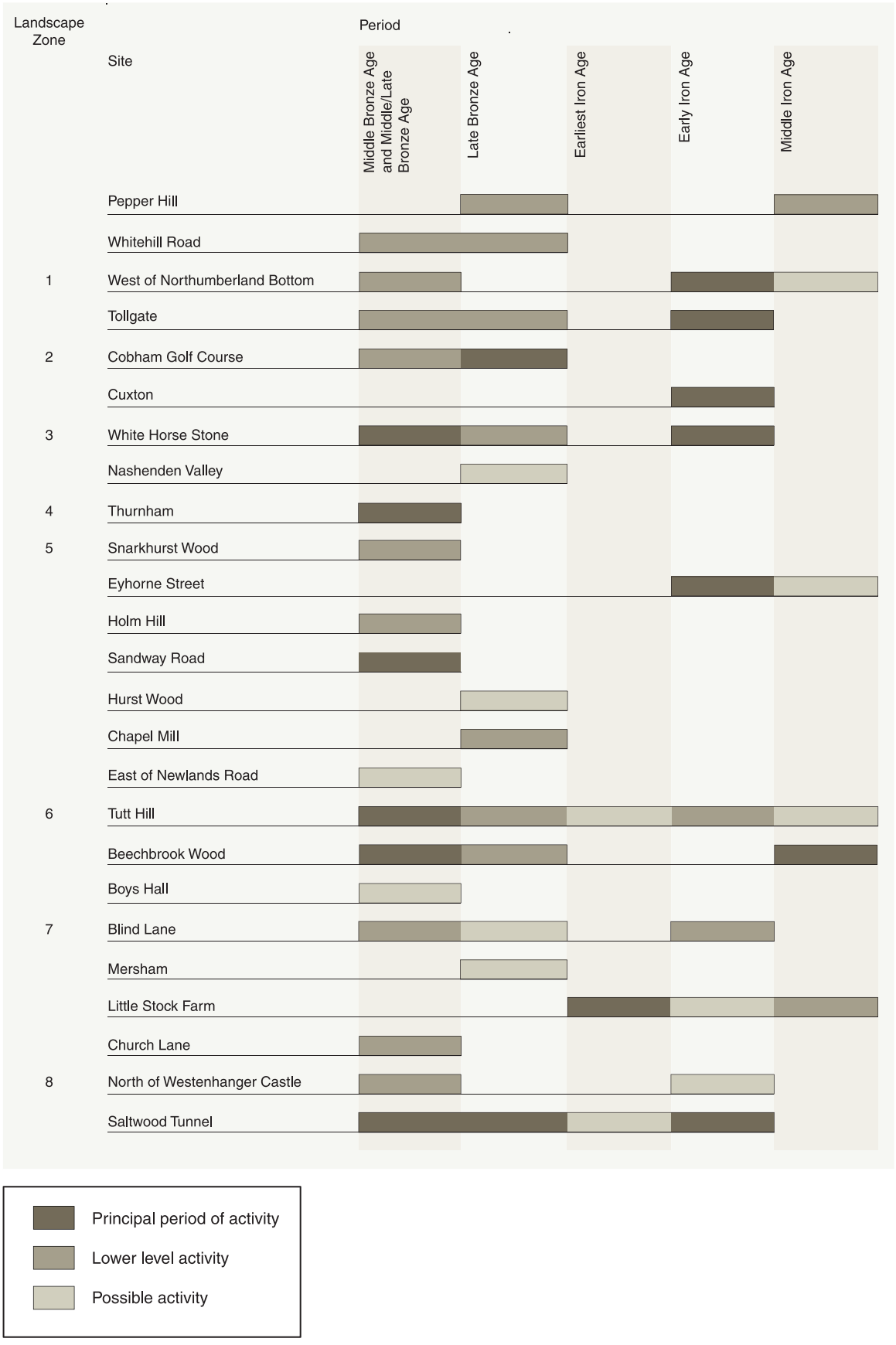


Figure 4.2 Later prehistoric activity along the HS1 route by site and period

Figure 4.3 Beechbrook Wood Railhead under construction

conference in 2001 and subsequently revised; it drew on the grey literature at a time when few of the major sites had been published and knowledge of the HS1 excavations was still at an early stage, before most of the assessments had been completed. A more general account of the prehistory of Kent (Champion 2007c) was completed in 2005, using the same range of sources but with new sites discovered and knowledge of older sites updated. Many of the themes covered in these earlier works are dealt with in the rest of this chapter, and comparison of what is written here with what was written earlier is instructive about the growth of our understanding even in a period of five years. Comparison of the two accounts of the distribution of settlement in the landscape in this chapter and in the earlier paper (Champion 2007b) is particularly revealing, as many of the questions originally posed can now be answered or at least refined.

Few published reports were available at the time of writing the earlier papers (Champion 2007b; c); the publications of Coldharbour Road, Gravesend (Mudd 1994) and Monkton Court Farm, Thanet (Perkins *et al.* 1994) stand out. That has now changed as the major sites work their way through to publication. The publication of the HS1 sites and this overall summary can now be added to reports on Bronze Age sites such as Shrubsoles, Isle of Sheppey (Coles *et al.* 2003), Iwade (Bishop and Bagwell 2005), Kemsley Fields (Diack 2006), the critically important Late Bronze Age and Early Iron Age site at Highstead, near Chislet (Bennett *et al.* 2007), the major Bronze Age and Roman sites on the Monkton – Mount Pleasant road scheme (Bennett *et al.* 2008), and the Neolithic, Late Bronze Age and Iron Age sites at Kingsborough, Isle of Sheppey (Allen *et al.* 2008), with others too in preparation. All of these sites lie on the north Kent plain, the chalklands east of Canterbury or the offshore islands of Sheppey and Thanet, parts of Kent not traversed by the HS1 route. For the north Kent region west of the Medway and more particularly for the Greensand vale to the south of the Downs, the HS1 route represents a linear transect through landscapes that have not seen the same intensity of development and archaeological activity as other parts of the county, with the possible exception of the area immediately around Ashford.

For the areas that it crosses, the HS1 therefore gives us a uniquely important body of high-quality modern data (see Fig. 4.1). As well as the scheme-wide evidence for the distribution of settlement, there is information on the nature of settlement of all periods (Fig. 4.2). There is fragmentary evidence for low-density activity of all periods throughout most of the route, but more substantial evidence for the Middle Bronze Age from White Horse Stone, Sandway Road, and Beechbrook Wood; for the Late Bronze Age at Cobham Golf Course and especially Saltwood Tunnel; and for the Iron Age the probably total excavations of two settlements at White Horse Stone and Beechbrook Wood (Fig. 4.3), as well as other important Iron Age settlement data at West of Northumberland Bottom, Tollgate, Cuxton, Eyhorne Street and Little Stock Farm. The excavations have also

cast new light on Middle Bronze Age bronzeworking at Beechbrook Wood, early iron-working at White Horse Stone and on the salt industry at several sites, including Cobham Golf Course and Tollgate. The many large pottery assemblages recovered have also allowed a ceramic chronology to be established with greater confidence, as well as shedding light on resource utilisation, production and distribution. There was also a very varied pattern of clearly selective and structured deposits from all periods.

A chronology for later prehistoric Kent

One of the most important aims of a regional research strategy is to establish, and then to refine, a reliable chronology. The process of establishing such a chronology is, of course, only a means to an end, but it is an essential foundation for the proper interpretation of the excavated record, especially for the understanding of the sequence of events and the duration of individual episodes and for comparison with other regions. Although the application of scientific dating methods, and radiocarbon in particular, has become much more common in recent years, it still seems likely that for many excavations, especially the smaller ones, dating will rely on the traditional methods for establishing a regional sequence of structures and artefacts. For the period from the Middle Bronze Age to the Roman conquest, the archaeological record for southern and eastern England is dominated by evidence from settlements. The structural features, whether fields, enclosures or buildings, cannot yet be dated themselves, so chronology depends very largely on the artefacts contained in the fills. For this period of later prehistory in this region, pottery is the only item that occurs with any regularity and that is potentially datable. There is, therefore, little alternative to the traditional approach of using pottery as the basis for the chronology, and it remains a major aim of later prehistoric research in Kent to establish a regional sequence that will prove a robust basis for the interpretation of the later prehistoric evidence.

The evidence needed for such a project (Willis 2002) includes, most fundamentally, a series of large assemblages of pottery, excavated, analysed and reported to a standard methodology. A ceramic sequence based on the formal variation in such assemblages will then need to be confirmed by a range of other evidence, including comparison with other regional assemblages, stratigraphic sequences, associations with other classes of artefact whose chronology is better established, most notably some types of metalwork, and secured by an increasing number of dates from absolute methods, especially radiocarbon.

The restricted knowledge of the prehistory of Kent into the 1980s has been described above. Until the intensification of archaeological investigation in Kent in the 1990s, the basic evidence for such a ceramic chronology project, large and well excavated pottery assemblages, did not exist. Consequently, there was only the vaguest outline of the chronological sequence of later prehistory, and even a lack of an agreed terminology to refer to different assemblages; this was both a symptom of the lack of relevant research and a hindrance to further progress. Champion (2007b, 296–297) summarised the picture twenty years later. Some progress had been made, though the first detailed results of the HS1 work and other major excavations were only just becoming available. Few detailed pottery reports had been published: the reports on Farningham Hill (Couldrey in Philp 1984) and Monkton Court Farm (Perkins *et al.* 1994) stand out. Other major excavations remained unpublished. One of the most important of these was at Highstead, north of Canterbury, where a sequence of settlements from the Late Bronze Age to the Late Roman period had been excavated in the 1970s; though only published thirty years later (Bennett *et al.* 2007), the site's importance did not go completely unrecognised. It was well known to archaeologists in Kent and Peter Couldrey's work on the prehistoric pottery attracted particular attention. The significance of the ceramic assemblages from the middle centuries of the 1st millennium BC was widely known among specialists, and informed other pottery reports, not least the work done on the later prehistoric assemblages from the HS1 project. The importance of this pottery was also recognised at a national scale, when the fourth edition of Cunliffe's standard text book on the Iron Age in Britain added two new ceramic style zones: the 'Highstead 2 group' and the 'Highstead-Dolland's Moor group' were adopted to fill in gaps in the scheme for Kent (Cunliffe 2005, 94 and 103).

The HS1 project was part of the explosion of archaeological activity in Kent in the 1990s, as part of which a significant number of important later prehistoric sites was excavated. These, when fully published, will provide a new basis for the understanding of prehistoric Kent, and in particular will provide the basic evidence of large pottery assemblages for a regional chronology. In addition to Highstead, important assemblages have been published from Shrubsoles Hill (Raymond in Coles *et al.* 2003), Iwade (Hamilton and Seager Thomas in Bishop and Bagwell 2005) and Kemsley (Macnee in Diack 2006), three sites from North Kent with Middle and Late Bronze Age occupation. The HS1 project can now add key assemblages from Cobham Golf Course, White Horse Stone, Sandway Road, Beechbrook Wood and Saltwood Tunnel for the Middle Bronze Age and Saltwood Tunnel for the Late Bronze Age. Evidence for the middle and later parts of the 1st millennium BC has been rarer, so the assemblages from West of Northumberland Bottom, Tollgate, Cuxton, White Horse Stone, Eyhorne Street, Beechbrook Wood and Little Stock Farm are of critical importance.

As well as large assemblages, the HS1 sites have also yielded some of the further evidence needed for fixing a secure chronology. Given the nature of most later prehistoric settlement sites, stratigraphic sequences are always likely to be rare, and the HS1 sites are no exception. There are some important associations with metalwork, most notably the two La Tène I brooches from West of

Northumberland Bottom and Tollgate (see Fig. 4.37); these are the first La Tène I brooches in the county securely stratified with pottery. It should be noted, however, that such associations with metalwork are not always easy to interpret, as the discussion of deposition practices below will show. The HS1 project has also provided an important suite of radiocarbon dates. Although there are well over 100 radiocarbon dates available for the post-glacial prehistory of Kent, excluding the HS1 project, surprisingly few of these are relevant to large pottery assemblages; radiocarbon dates had often been used to date individual events within the history of a site's occupation, which ironically meant that features with pottery were seldom dated. As part of the research strategy for the HS1, a scheme-wide series of dates was commissioned to refine the chronology of the more detailed ceramic sequence that was emerging from the study of the individual site assemblages. As shown below, the radiocarbon chronology is now beginning to emerge, especially for the Middle and Late Bronze Age, but, given the still comparatively small number of dates, the varying degrees of reliability of association of date and pottery and the problems of calibration in the middle of the 1st millennium BC, no detailed statistical modeling of the results has been attempted here.

In the following parts of this section, the emerging regional ceramic chronology for Kent will be presented (Table 4.1); other aspects of the pottery, especially production, use and deposition, will be discussed in later sections of this chapter. It is not yet possible to construct a chronology as precise as that in use for Wessex, but it is possible to set out the current strengths and weaknesses in our knowledge, as has been done for the East Midlands (Knight 2002). The Kent evidence can also be compared with the radiocarbon dates for Sussex (Hamilton 2003, 83–4), though they have not been linked so explicitly to a ceramic sequence. The discussion will draw on other recent prehistoric research in the region, but the key role played by the HS1 excavations will be evident. The production and usage of pottery was a continuous, common and widespread social process from the Middle Bronze Age onwards, and dividing such a continuum into separate phases is problematic. There were no abrupt breaks where one ceramic tradition was replaced by another, so more or less smooth transitions and overlaps are inevitable. The temptation to propose transitional phases has been resisted in most cases, with one exception where the transition seems particularly lengthy. In other cases it is likely that there will be variation within the ceramic assemblages assigned to a particular phase, and that some of this will be due to temporal change; it may be possible to identify earlier and later pottery within a phase. The approach adopted here has been to propose phases that are distinctive and repeatedly recognisable at sites in the region, in a scheme that can be used more widely elsewhere in the furtherance of regional research. As will be clear, there is still much room for improving the scheme, especially the dating and the intra-regional variability. There may also be debate about the appropriate names for each of the phases; that, however, is a minor point compared to establishing the phases of a practicable scheme of ceramic chronology for the region.

In the following discussion radiocarbon dates from the HS1 sites have been quoted using the calibrated date and laboratory results number (see Allen 2006). The full set of radiocarbon dates from HS1 Section 1 is presented in Appendix 3. Dates from other sites are quoted with the original result, calibrated according to OxCal 4.1 and quoted in the same rounded form as for the HS1 dates.

Deverel-Rimbury (Middle Bronze Age)

Pottery of the Deverel-Rimbury phase has been known in Kent since the 19th century, though the quantities have been small and almost all of it has come from burials (Champion 1982, 34–7). Recent work has now added important assemblages from occupation sites at Shrubsoles Hill (Raymond in Coles *et al.* 2003), Iwade (Hamilton and Seager Thomas in Bishop and Bagwell 2005) and especially Kemsley (Mcnee in Diack 2006); publication of the enclosure at Westwood Cross (Gollop 2005) on the Isle of Thanet will add further to this growing list. Among the HS1 excavations the most significant assemblages have come from Cobham Golf Course, White Horse Stone, Beechbrook Wood and Saltwood Tunnel.

It is now possible to begin to define the characteristics of Deverel-Rimbury pottery in Kent (Morris in Booth 2006a, 56–61). The assemblages are dominated by jar forms, especially bucket-shaped, in flint-gritted fabrics, with a small percentage of finer wares and of other forms such as globular urns (Fig. 4.4).

There are a few metalwork associations with Deverel-Rimbury pottery in the region. The two most important are old finds, but are securely associated and

Table 4.1 Chronological periods for later prehistory used in this chapter

Period	*Dates*	*Pottery*	*Metalwork*
MBA	BC 1600-1250	Deverel-Rimbury	Acton Park/Taunton
M/LBA	BC 1350-1000	Late Deverel-Rimbury	Penard/Wilburton
LBA	BC 1100-800	Post-Deverel-Rimbury plainware	Wilburton/Blackmoor/Ewart Park
Earliest IA	BC 800-500 ??	Post-Deverel-Rimbury decorated	Llyn Fawr/HaC
Early IA	BC 550-300	EIA	HaD/LTI
MIA	BC 300-100	MIA	LTI/II
LIA	BC 100- AD 43	LIA	LTIII

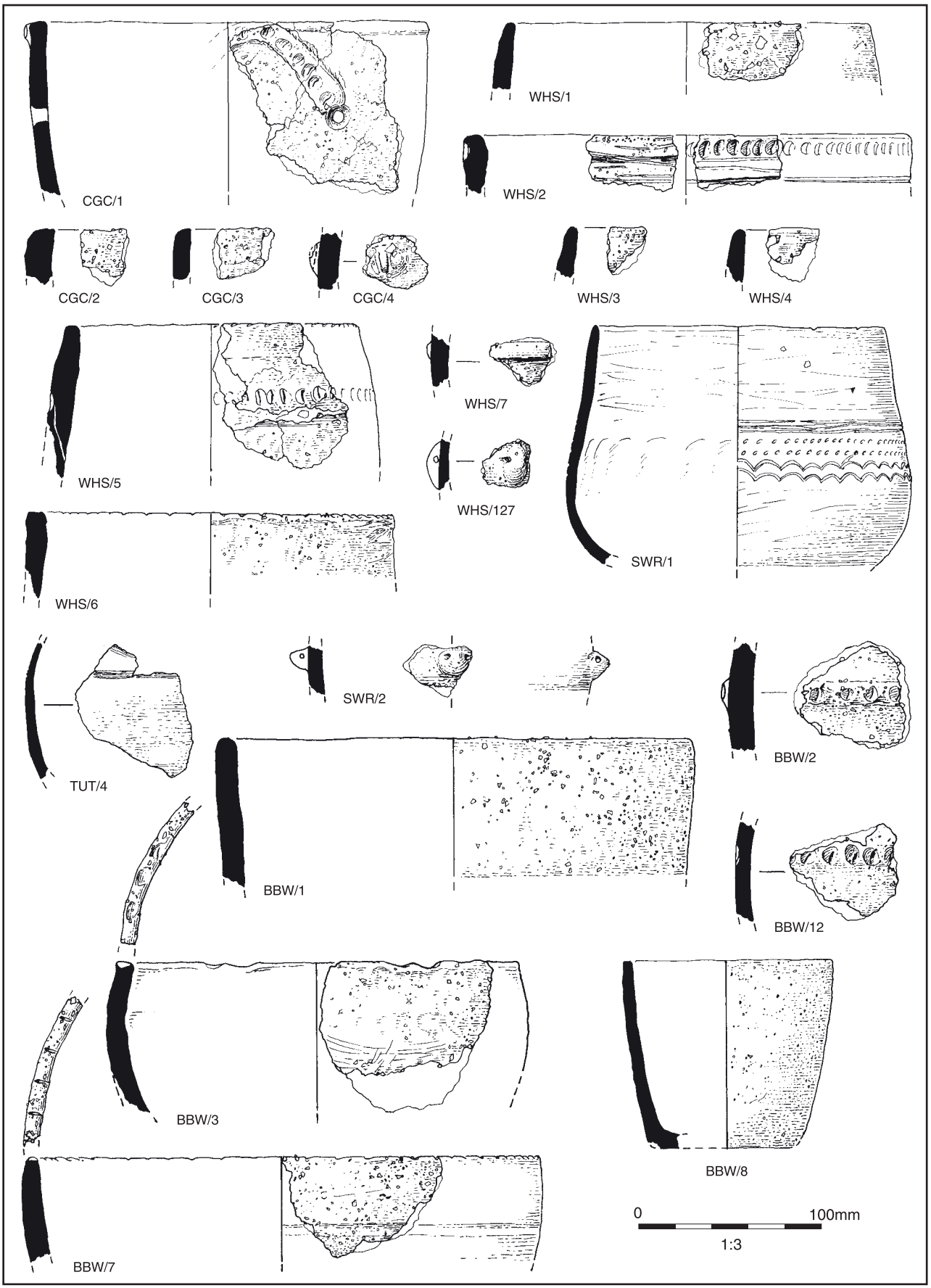


Figure 4.4 Middle Bronze Age pottery from Cobham Golf Course (CGC), White Horse Stone (WHS), Sandway Road (SWR), Tutt Hill (TUT) and Beechbrook Wood (BBW)

Table 4.2 Radiocarbon dates for Middle Bronze Age sites with pottery in Kent

Site	*Context*	*Result No.*	*Result BP*	*Cal BC*	*Reference*
Princes Road, Dartford	Base of occupation layer 11/10	Beta 114525	3240±60	1670-1400	Hutchings 2003
Cobham Golf Course	Ditch 197	NZA-23006	3191±40	1530-1390	Allen 2006
White Horse Stone	Context 4016	NZA-21326	3151±35	1520-1310	Allen 2006
Princes Road, Dartford	Top of occupation layer 11/10	Beta 114527	3150±60	1610-1260	Hutchings 2003
Saltwood Tunnel	Pit 5366	NZA-22879	3146±35	1520-1310	Allen 2006
Beechbrook Wood	Pit 1220	NZA-22878	3112±30	1430-1260	Allen 2006
Coldharbour Rd, Gravesend	Lower fill of ditch	OxA-4718	3085±75	1510-1120	Mudd 1994
Pilgrim's Way	Context 572	NZA-21840	3079±30	1430-1260	Allen 2006

reliable. At St Laurence's College, Ramsgate, three bronze pins were found in a typical Deverel-Rimbury bucket urn in a pit (Hawkes 1942); the pins, so-called Picardy pins, have North French affinities, but are difficult to date with precision (Rowlands 1976, 84–5), but hoard associations in France suggest that they are best assigned to the Taunton phase or O'Connor's MBA2 (1980, 76, 79). Secondly, a hoard of 14 bronze palstaves was found at Birchington in a decorated globular bowl (Powell-Cotton and Crawford 1924); twelve of the palstaves are of Rowlands' Class 3 Birchington type (1976, 246), also best dated to the Taunton phase (O'Connor 1980, 53). An early speculation that such bowls with ring-stamped decoration would eventually be recognised as a key component of the local Deverel-Rimbury tradition (Champion 1982, 34) has proved true, with finds from Westwood Cross in Kent (Gollop 2005) and other examples from Essex, such as North Shoebury (Wymer and Brown 1995, 78), among others. These associations link the Deverel-Rimbury ceramic phase to the Taunton phase of the bronze chronology, with a radiocarbon-based date range of perhaps 1400–1275 BC (Needham *et al.* 1998). Other associations are less secure. The bronze roll-headed pins from Princes Road, Dartford (Needham and Rigby in Hutchings 2003, 63–4) are of a type that lasted on the continent from the Tumulus period to the Late Bronze Age; they were not directly associated with the Deverel-Rimbury pottery, but they attest to a history of occupation and deposition there, and they would be compatible with the dating suggested here. Similarly, the deposition of a hoard of bronze palstaves in a pit cut into a ditch containing Deverel-Rimbury pottery at South Dumpton Down (Perkins 1995, 468–70; Barber 2003, 60 and figs 12–13) provides a *terminus ante quem* for the pottery; the palstaves may have been deposited at the end of the occupation of the site, and thus be broadly contemporary with the pottery, but there could equally have been a longer interval between these episodes.

There is now a significant number of radiocarbon determinations available for Deverel-Rimbury pottery in Kent (Table 4.2). These are all derived from recent excavations and secure associations. They give a consistent pattern of dates that would calibrate to a range of about 1600 to 1250 BC. This regional picture is in full agreement with the chronology proposed by Needham for the Deverel-Rimbury period as a whole (1996); he suggested a range of 1600 (or possibly as early as 1700) to 1150 BC, with a possible late phase continuing to 1050 or even 950 BC. It is therefore possible to reject a recent suggestion that 'Kent Deverel-Rimbury pottery belongs to the later part of the wider Deverel-Rimbury tradition' (Hamilton and Seager Thomas in Bishop and Bagwell 2005, 26); that conclusion, though tentatively expressed, seems to have relied on a rather late date assigned to the Birchington palstaves and on two radiocarbon dates in the early 1st millennium BC from burials in a barrow at Bridge (Macpherson-Grant 1980a), which were unurned cremations not associated with any other pottery and therefore not relevant to this issue. On the contrary, the assemblages from the HS1, coupled with other recent sites, suggest that it is now possible to distinguish a later phase in which Deverel-Rimbury pottery is associated with new forms and fabrics more representative of the following Late Bronze Age phase, and that this transition may have begun well before 1300 BC, confirming the early dates for the 'classic' Deverel-Rimbury assemblages.

Middle/Late Bronze Age transition

Detailed analysis of the assemblages from several HS1 sites, especially Tutt Hill and Beechbrook Wood (Morris in Booth 2006a, 59–61), shows that it is now possible to identify a phase where the ceramics include groups which are characterised by the association of traditional Deverel-Rimbury vessels with new forms, including ovoid jars, and new fabrics, including grog-tempered and sandier fabrics, which would later be much more widespread in the succeeding Late Bronze Age phase when the classsic Deverel-Rimbury forms and fabrics had disappeared completely (Fig. 4.5). The association of Deverel-Rimbury and Late Bronze Age types is only to be expected: the Deverel-Rimbury sherds could be residual from earlier occupation, but there could also be a phase when the two ceramic traditions were in use at the same time. The number of such assemblages identified at Tutt Hill, Beechbrook Wood and Saltwood Tunnel on the HS1 and elsewhere as at Coldharbour Lane, Gravesend (Mudd 1994) demonstrates that this was a widespread phenomenon. Though reports on other sites have not explicitly

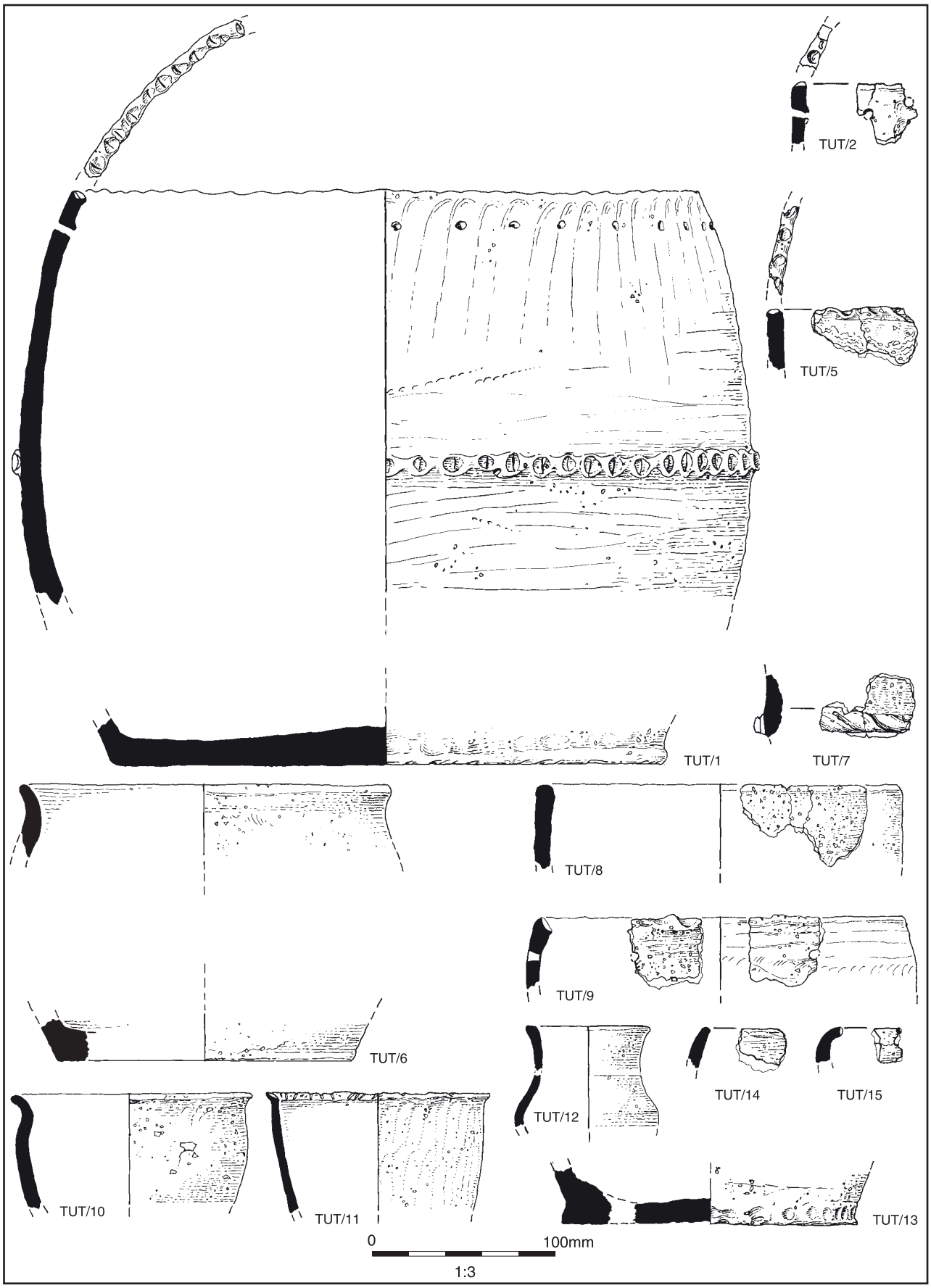


Figure 4.5 Middle/Late Bronze Age pottery from Tutt Hill

Table 4.3 Radiocarbon dates for Middle/Late Bronze Age sites with pottery in Kent

Site	Context	Result No.	Result BP	Cal BC	Reference
Beechbrook Wood	Context 1201	NZA-22878	3112±30	1430-1260	Allen 2006
Beechbrook Wood	Pit 245, context 244	NZA-22877	3081±30	1410-1260	Allen 2006
Shrubsoles Hill	Residue on pot in cremation burial 908	KIA-11045	3052±39	1420-1210	Coles et al. 2003, 91
Gravesend, Coldharbour Rd	Middle fill of ditch	OxA-4717	2895±70	1305-905	Mudd 1994
Gravesend, Coldharbour Rd	Residue on pot in middle fill of ditch	OxA-4719	2880±65	1270-900	Mudd 1994
Gravesend, Coldharbour Rd	Middle fill of ditch	Q-3255	2835±45	1130-850	Mudd 1994

identified such a separate phase, a similar transitional process was clearly happening: at Kemsley, a difficult site to interpret and with little stratigraphic evidence, 'it is doubtful whether particular styles of potting tradition ended abruptly. It is feasible that there is co-existence of pottery styles from periods which archaeologists have labelled Middle and Late Bronze Age' (Mcnee in Diack 2006, 42); similarly, at Iwade, it was noted that 'one of the Deverel-Rimbury vessels (P8) occurs in Fabric 10 that is otherwise associated with the post-Deverel-Rimbury assemblage' (Hamilton and Seager Thomas in Bishop and Bagwell 2005, 23). The associated radiocarbon dates for this phase suggest that it may have been a lengthy one. It is therefore worth distinguishing this phase as a separately identifiable element in the ceramic sequence rather than the period of overlap that would be expected. It could be called 'Late Deverel-Rimbury' or 'Deverel-Rimbury 2', but the term preferred here is 'Middle/Late Bronze Age Transition', to ensure better compatibility with the terminology proposed for later phases.

There are no metalwork associations for this phase, but there are several relevant radiocarbon dates (Table 4.3). It is curious that the HS1 dating programme produced no determinations for settlement or ceramics with central points between about 3050 and 2850 BP, or about 1250 and 1050 cal BC. This gap is slightly narrowed by dates from Coldharbour Lane, Gravesend, but there are currently no radiocarbon dates in Kent for pottery between 3050 and 2900 BP, or for about 150 years after 1250 cal BC. This gap is presumably no more than a random product of the limited number of dates available, and when it is eventually filled there will be much better evidence for the lengthy period of ceramic tradition suggested above and confirmed by the few dates so far obtained. As it is, the dates suggest that this phase covers a period from approximately 1350 to 1000 BC.

Post-Deverel-Rimbury Plain Ware (Late Bronze Age Pottery)

The characteristic pottery tradition of the early 1st millennium BC was initially recognised by Barrett (1980), and subsequently elaborated through the excavation of sites such as Mucking North Rings (Bond 1988), Runnymede (Needham 1991), and Reading Business Park (Moore and Jennings 1992; Brossler *et al.* 2004). This Late Bronze Age pottery phase in Kent is characterised by assemblages containing jars and bowls in a variety of forms (Morris in Booth 2006a, 61–3). Jar forms include simple ovoid jars, sharply shouldered jars, and jars with rounded shoulders and upright rims. Bowls include rounded-bodied forms, bowls with simple shoulders, and bowls with more developed necks. Many of the fabrics are significantly finer than those of the preceding phases. Decoration is rare and limited mostly to simple finger-tip ornamentation of the rim (Fig. 4.6).

In the early 1980s it was difficult to recognise the occurrence of such pottery in Kent (Champion 1982, 38) and even a decade later sites of this period were still rare (Macpherson-Grant 1992). Subsequent work has added enormously to our knowledge of the period, with key sites including Coldharbour Road, Gravesend (Mudd 1994), Shrubsoles Hill Phase 3b (Coles *et al.* 2003), Iwade (Bishop and Bagwell 2005), Kemsley (Diack 2006) and Willow Farm, Broomfield (Mcnee pers comm). To these can now be added the major assemblages from HS1 sites at Cobham Golf Course, White Horse Stone and Saltwood Tunnel (Morris in Booth 2006a, 61–3).

There are a few associations of pottery of this phase with metalwork, though not perhaps as many as we might expect given the quantity of Late Bronze Age metal in Kent, and all present difficulties of interpretation. Two of the most important and most securely recorded associations are especially problematic. At Shrubsoles Hill, Ditch 135, forming part of the main Enclosure A, contained a bronze side-looped spearhead associated with a ceramic assemblage that was predominantly of Late Bronze Age plain-ware type, though some sherds could be assigned more appropriately to the following 'decorated' phase (Coles *et al.* 2003, 15, 30–1). The spearhead is a type normally assigned to the Middle Bronze Age, with hoard associations limited to the Taunton phase (Taylor in Coles *et al.* 2003, 42); as we have seen above, this would now be dated to 1400–1275 BC (Needham *et al.* 1998, 82). A sample of wood obtained from the socket of the Shrubsoles spearhead gave a radiocarbon date of 1010–821 cal BC (2758±41 BP: KIA-11047), spanning the early part of the 1st millennium BC. This date would be perfectly compatible with other radiocarbon dates for the plainware pottery, but is rather later than the suggested dates for the Taunton phase. The terminal date of 1275 BC for this phase was proposed as an estimated 'focal date' for the transition, which may well have been a much longer

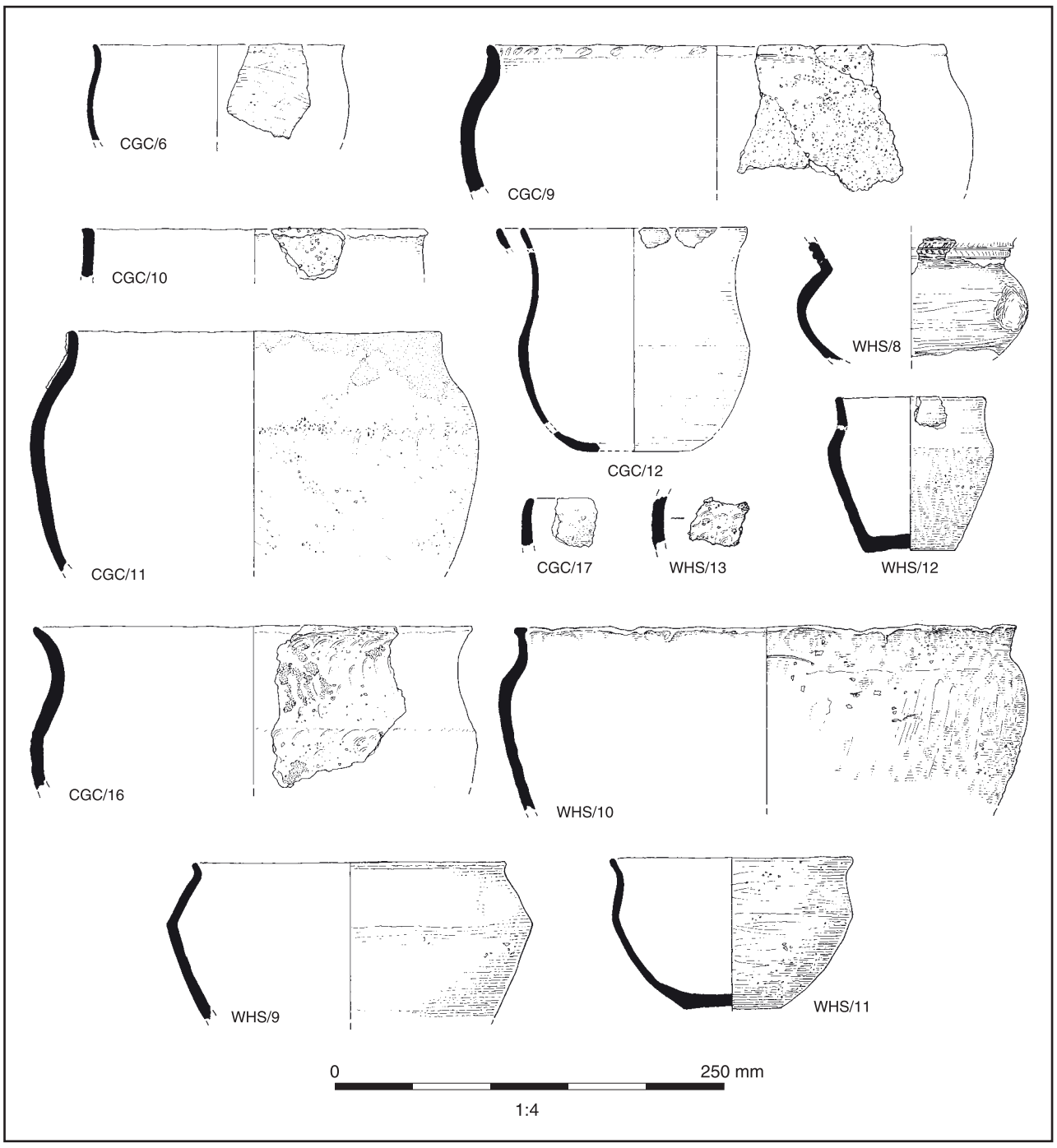


Figure 4.6 Late Bronze Age pottery from Cobham Golf Course (CGC) and White Horse Stone (WHS)

process, and it is possible that Taunton types continued in use for a lengthy period thereafter. Even so, the Shrubsoles date is substantially later than the latest date for Taunton metalwork used by Needham *et al.* (1998, illus. 4); further dates with good associations may help to refine this chronology. It can only be concluded that, if the hoard associations give the correct date for the production and circulation of this type of spearhead, at least this individual object remained in circulation for perhaps four hundred years before being reshafted; alternatively, the type continued to be produced for a lengthy period into the 1st millennium BC. In either case, the spearhead deposited in the ditch was a recognisably old object or of a recognisably old type. The accepted typological and hoard-based date for this object is therefore irrelevant to the dating of the associated pottery. The radiocarbon date is better evidence, though the recognition that a distinctively old object was deposited in this way raises the possibility that the spear remained in circulation long after the new shaft was fitted, thus making the radiocarbon date less relevant for the chronology of the associated pottery.

Similar problems beset the finding of a bronze palstave at Iwade, in a ditch containing pottery of the Late Bronze Age plain ware phase (Bishop and Bagwell 2005, 15 and fig. 22). The palstave belongs to Rowlands'

Table 4.4 Radiocarbon dates for Late Bronze Age sites with pottery in Kent

Site	Context	Result No.	Result BP	Cal BC	Reference
Saltwood Tunnel	Pit 5235, context 5250	NZA-19637	2847±35	1130-900	Allen 2006
White Horse Stone	Pit 5421, context 5449	NZA-22006	2804±40	1130-890	Allen 2006
Saltwood Tunnel	Pit 6658, context 6662	NZA-22727	2769±30	990-820	Allen 2006
Shrubsoles Hill	Wood in socket of bronze spearhead, Ditch 135	KIA-11047	2758±41	1005-820	Coles *et al.* 2003, 51
Cobham Golf Course	Pit 137, context 136	NZA-21143	2741±30	980-820	Allen 2006
Guston	Wood in pit	Beta 179754	2700±40	920-800	Allison 2005, 60

Class 3 Birchington type, and is most probably to be assigned to the Taunton phase of 1400–1275 BC, though a slightly earlier date is possible (Barber in Bishop and Bagwell 2005, 44–6). Though it is possibly a residual survival from earlier occupation at the site, it seems likely that, as at Shrubsoles Hill, an old object was selected for deposition in the ditch fills; in any case, the date normally assigned to such an object from the metalwork chronology cannot be relevant to the pottery chronology. The significance of this recognition of the antiquity of some objects at the time of their deposition will be discussed further below.

At Mill Hill, Deal (Stebbing 1934), a bronze pin, a fragment of a blade and a mould for a bronze ring were found in a ditch with pottery, some of which has been illustrated (Champion 1980, figs 5-6) and is of this phase; other sherds may be better assigned to the following phase. The metalwork is not especially diagnostic, but it would all fit in the Ewart Park phase. Again the association is compatible with a date in the range 950 to 800 BC.

The radiocarbon dates (Table 4.4) form a consistent pattern, with central points falling between 2850 and 2700 BP. When calibrated, this would range from approximately 1100 to 800 cal BC.

Earliest Iron Age

The following phase is equivalent to the post-Deverel-Rimbury Decorated Phase in Barrett's terminology (1980) and to the Highstead 2 style zone in Cunliffe's scheme (2005, 94). The name 'Earliest Iron Age' is proposed here partly in conformity to the other names for phases used here and partly to match the terminology already in use for the Wessex region. The pottery of this phase is characterised by assemblages containing shouldered jars and tripartite bowls. Decoration is significantly more common than before, including especially a wide variety of finger-tip ornamentation and neck cordons. Pottery of this phase is best represented in Kent by assemblages from Highstead period 2 (Couldrey in Bennett *et al.* 2007, 118-121), Monkton Court Farm (Perkins *et al.* 1994) and Ramsgate Harbour Approach Road (Mcnee, pers comm). It is not common among the HS1 sites, with only one significant assemblage, at Little Stock Farm, although other vessels possibly attributable to this phase were found at Tutt Hill and Saltwood Tunnel (Morris in Booth 2006a, 63–4) (Fig. 4.7).

The dating of this phase cannot be established with any degree of certainty, because of a comparative lack of informative associations and an absence of radiocarbon dates. There is an important association with metalwork in a layer in the filling of the ditch of what was probably some form of Early Bronze Age funerary monument at East Northdown, Margate (Smith 1987). This layer contained a rich collection of pottery, flint, bone and clay objects; it may have been domestic debris from an occupation site somewhere nearby, but the wealth of the material and in particular the peculiar location of this material suggest some form of ritual deposition. Though some of the pottery fits well into the Late Bronze Age plainware phase, there is a high percentage of sherds with decoration: *c* 24% of the individually recognisable jars had rim decoration. There are no radiocarbon dates associated directly with the pottery, but it was stratified above a chalky silt layer, charcoal from which gave a radiocarbon date of 1440-1020 cal BC (3020±80 BP: HAR-7010), which would calibrate to a date of 1440–1020 BC. The pottery is associated with three bronze objects. One is a pair of tweezers, a type found fairly commonly in the later part of the Bronze Age. The second is a thin cone of bronze with a perforation at the apex. The third, and possibly the most chronologically diagnostic, is a thin blade, possibly a razor, the nearest parallel to which is in the western European Hallstatt C series, suggesting a date in the 8th century BC (Needham 2007b).

Another secure, but rather uninformative, association with metalwork is at Highstead, where a bronze blade was found in a ditch terminal of enclosure A24 with pottery of this phase, though the blade is highly corroded and undiagnostic (Bennett *et al.* 2007, 27 and 270). Also at Highstead, Pit B80 contained pottery of this phase (Bennett *et al.* 2007, 24 and fig. 80, 255–63) and a collection of clay mould fragments for pins and other objects, probably best dated to the end of the Late Bronze Age (Needham in Bennett *et al.* 2007, 258–65) At Monkton Court Farm, a large assemblage of this phase was recovered; the site also produced three small disturbed Late Bronze Age hoards, but the exact association is not clear (Perkins *et al.* 1994). The possible association of pottery from this phase with the bronze objects and a mould found at Mill Hill, Deal, has already been noted above.

These associations suggest that the pottery of this phase overlapped with the final stages of the production and use of Late Bronze Age metalwork. A start in the 8th century

BC, or possibly a little earlier, therefore seems probable. How long it lasted is also difficult to determine with any precision. On the evidence from Highstead (Couldrey in Bennett *et al.* 2007, 121), there seems to be a smooth transition to the following phase, the Early Iron Age. As discussed below, however, the start date for this phase is still uncertain. For the moment, it is suggested that a date of 500 BC is the best approximation that can be given.

Brudenell (2008) has recently reviewed the evidence for the pottery of this phase in eastern England and questioned the validity of a simple chronological succession from plain to decorated. In view of the comparative rarity of such assemblages of decorated pottery, and the distinctive nature of the sites on which they are found, he has suggested that assemblages with a significant percentage of highly decorated pottery are exceptional.

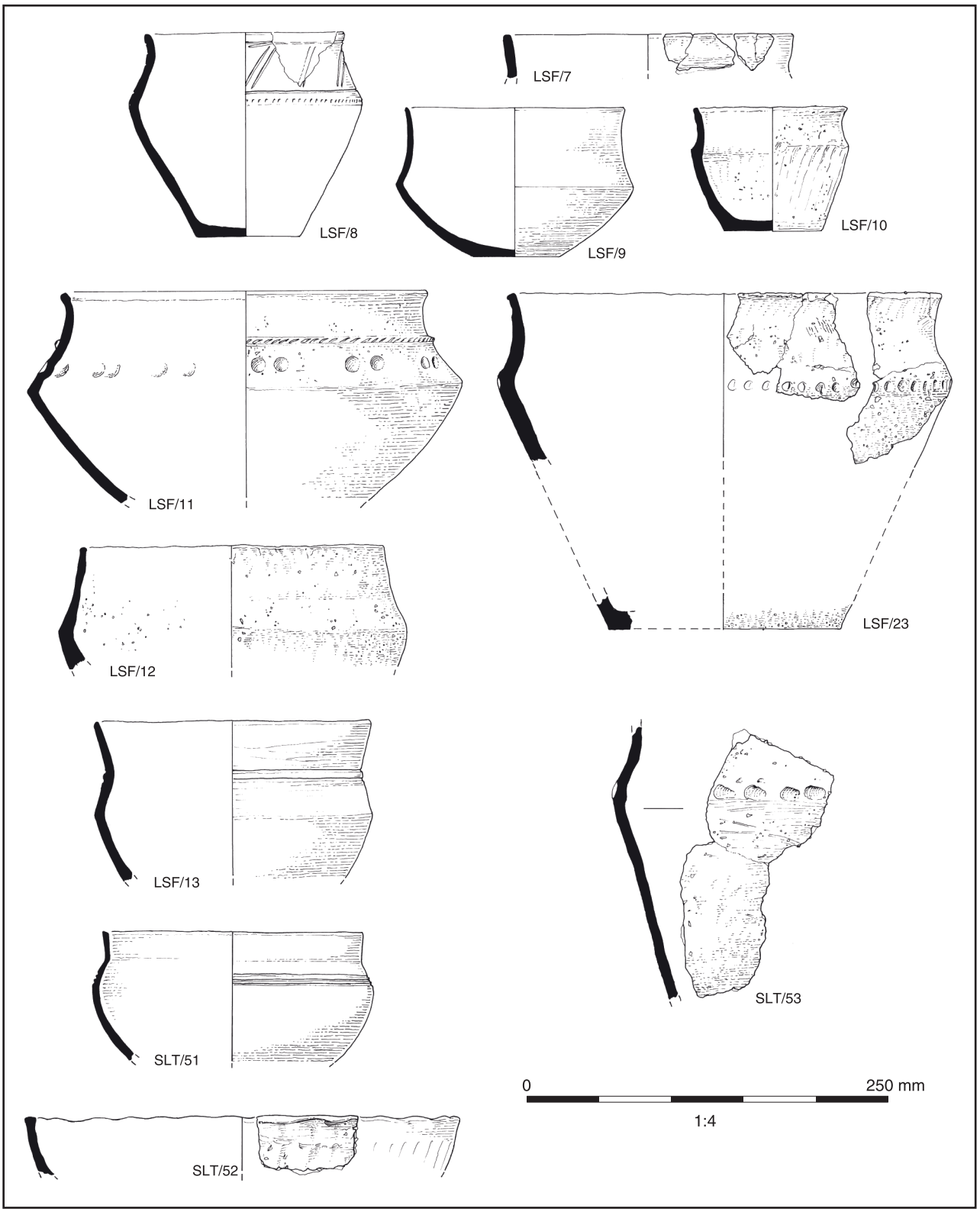


Figure 4.7 Earliest Iron Age pottery from Little Stock Farm (LSF) and Saltwood Tunnel (SLT)

They should not be regarded as constituting a separate chronological phase, but rather a series of special deposits, or deposits associated with special sites, which would have existed chronologically alongside a continuing tradition of plainer wares throughout the Late Bronze Age and the Early Iron Age.

Such a suggestion has a certain attraction for the understanding of the ceramic sequence in Kent. The HS1 project produced assemblages clearly attributable to this 'phase' from only one site, Little Stock Farm, though individual vessels of comparable form and decoration were found elsewhere, as at Tutt Hill and Saltwood Tunnel (Morris in Booth 2006a, 63–4). At Little Stock Farm (see Fig. 4.22), two pits contained placed deposits consisting of large parts of several decorated vessels, together with others less diagnostic. This was clearly an abnormal deposit at a site where there was other evidence for special depositional practices. Other sites producing comparable assemblages mentioned above, such as the circular enclosure at Mill Hill, Deal, and the oval enclosures at Highstead enclosure A24 and Ramsgate Harbour Approach Road, could also be regarded as special or distinctive types of settlement.

Nevertheless, it is perhaps prudent to reserve judgement. There are still very few well excavated and reported assemblages for this period (though that would be an argument in favour of Brudenell's hypothesis). There are as yet no radiocarbon dates for these assemblages; no samples were submitted from the HS1 sites, as there were no suitable materials in good association. In any case, Brudenell's suggestion does not exclude the possibility that the highly decorated pottery appeared comparatively late in the Late Bronze Age/Early Iron Age ceramic continuum, so that late dates would be compatible with either explanation. Perhaps more significant is the lack of any late dates for the hypothetical continuation of the Late Bronze Age plainware phase beyond about 800 BC; if these assemblages continued alongside the special deposits of decorated pottery, then we might expect that some radiocarbon dates would reflect this survival, but as yet they do not. There are in fact few radiocarbon dates for pottery in Kent between 2700 and 2550 BP; it may be that archaeologists have been put off using radiocarbon because of the problem of interpreting the results in view of the plateau in the calibration curve, but this only becomes an issue with dates after 2550 BP. There is clearly a good case to be made for many more dates from reliable contexts containing such assemblages.

Unlike the area of East Anglia from which Brudenell draws the evidence for his argument, and where he cannot define a clear Iron Age ceramic tradition until after about 400 BC, for Kent it is possible to show an Early Iron Age ceramic phase, as will be seen below, though the date of its inception remains very uncertain. There are certainly questions to be asked about the significance of a horizon of highly decorated pottery towards the end of the first half of the 1st millennium BC, and about its possible association with elite sites and its occurrence in specially placed deposits. At the moment, however, we do not have the evidence to decide how long the Late Bronze Age pottery lasted or how early the Early Iron Age pottery started, or whether the decorated pottery assemblages overlap in date with either or neither or both.

Early Iron Age

This phase is characterised by the appearance of jars and bowls with rounded shoulder profiles, low pedestal bases and other new base forms, and the earliest saucepan pots (Fig. 4.8). Surface finishes include various forms of rustication, continued use of red slip coating, and the end of the tradition of finger-tip ornament on rims and shoulders. It corresponds to the Highstead-Dolland's Moor style zone in Cunliffe's scheme (2005, 103) and includes what Macpherson-Grant has called the 'East Kent Rusticated Tradition' (1989; 1991).

An earlier assessment of the chronology of this phase (Champion 2007b, 296–7) commented that it was difficult to date, since there were no properly published assemblages and no associations with metalwork or radiocarbon dates; the chronology was fixed largely, and somewhat loosely, by comparison with pottery traditions in northern France. The HS1 project has now partly rectified those gaps and the chronology can be established more firmly, even if not yet with the precision that is desirable.

There are now two important metalwork associations, at Tollgate and at Northumberland Bottom, both with La Tène I brooches (see Fig. 4.36). The brooch from West of Northumberland Bottom is of Hull and Hawkes's (1987) Type 1A (Keily and Richardson 2006a, 8) and that from Tollgate is of Type 1C (Keily 2006a, 11) and both should date to between the late 5th and the mid 3rd century BC. The Tollgate brooch was found in Pit 374, with a small assemblage of pottery. Burnt residue from the interior of one pot gave a radiocarbon date of 850–760 cal BC (NZA-22880). This is clearly incompatible with the known date of the brooch, so it is possible that an earlier sherd has been incorporated residually in the pit fill, though this problem is considered further in the discussion of deposition practices below.

Other radiocarbon determinations are more helpful (Table 4.5), though at this point in the radiocarbon curve particular care is needed in interpreting the results. There is an especially important series of dates from White Horse Stone; detailed modelling of the dates for this phase suggest that, although occupation began earlier, much of the activity in the northern area of the site was limited to a single episode of about one hundred years, covering the 5th century BC (Allen 2006, 14). The date from Pit 387 at Tollgate is compatible with this suggested date for White Horse Stone, but the single date from West of Northumberland Bottom, which calibrates to 800–420 BC but with a 93% probability that the calendar date lies between 800 and 510 BC, might suggest an earlier start for this phase, as would the earlier dates from the activity at the southern end of the White Horse Stone site.

Among the later dates there are two that are particularly problematic, and exemplify the difficulties of

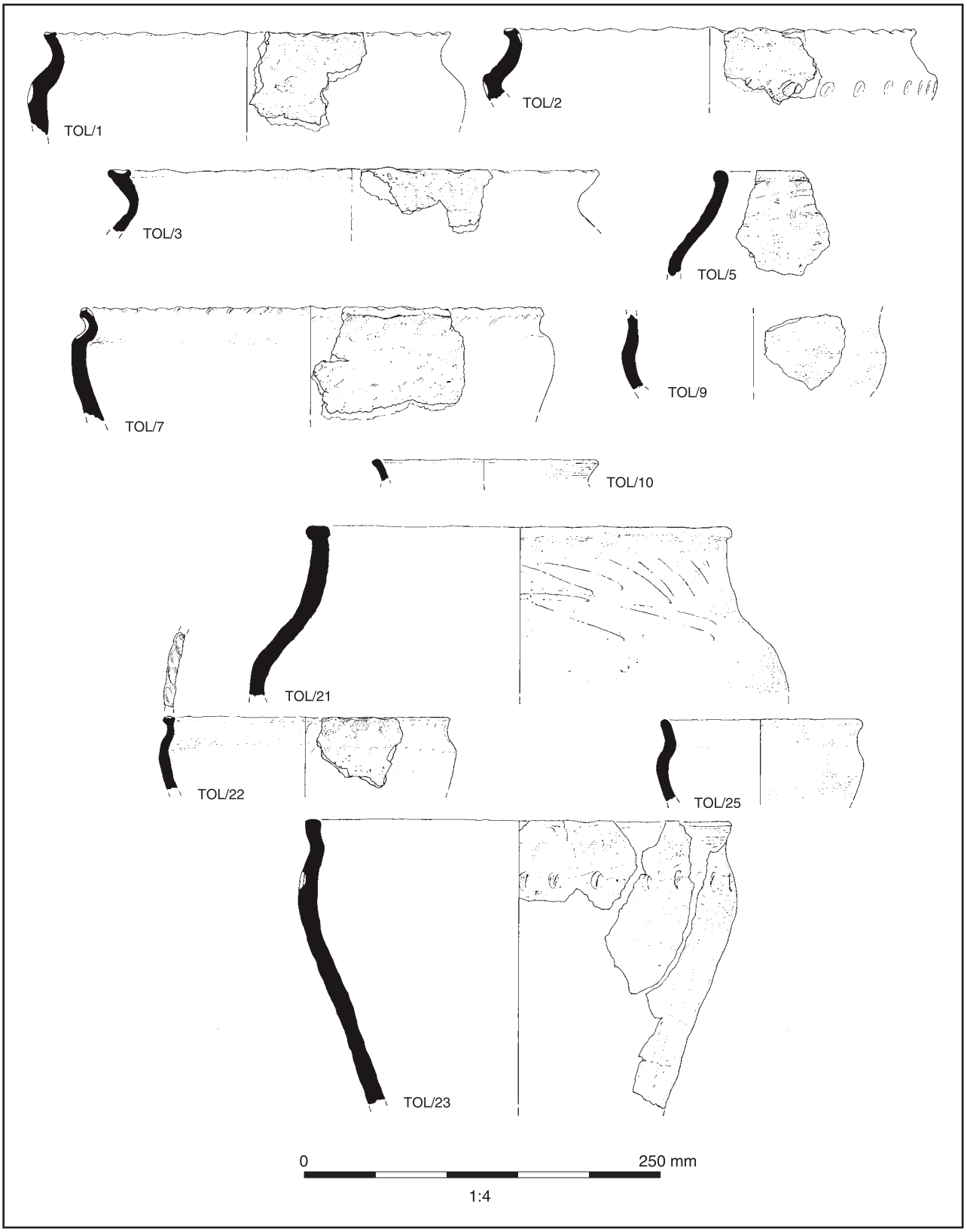


Figure 4.8 Early Iron Age pottery from Tollgate

interpreting radiocarbon dates at this point on the curve. The results from Eyhorne Street and Cuxton are virtually identical; both give similar calibrated ranges, 410–210 cal BC and 400–200 cal BC respectively. Both are bimodal, and suggest ranges of 410–350 cal BC (64%) or 300–230 cal BC (30%) at Eyhorne Street and 400–350 cal BC (41%) and 320–200 cal BC (51%) at Cuxton. In both cases the earlier range would fit well with the dates of the brooches, but each of the assemblages also contains an early version of forms that will become common in the succeeding phase, a saucepan pot at Cuxton and a S-profile jar at Eyhorne Street, so the later

date range would also be acceptable. The dates are shown in Table 4.5, but should be treated with caution until further research has resolved the position.

Another line of dating evidence can be found by comparison with the continent. The ceramics of this phase show a marked similarity in forms in decoration and in surface treatment with those from northern France (Leman-Delerive 1984; Hurtrelle *et al.* 1990; Blancquaert and Bostyn 1998), where they are dated, by further comparison to the cemeteries of the Aisne region, to La Tène I, or approximately 450–250 BC. A very specific comparison can be found in a distinctive type of bowl with festooned rim (*coupe à bord festonné*), quite widely distributed in northern France, with a unique example now known from White Horse Stone (Morris in Booth 2006a, fig. 3.7f, WHS/147); in France this form is dated to the 6th to 4th centuries BC (Lambot 1988; Milcent 2005, 90 and fig. 4).

It can therefore be shown with some confidence that this phase covers the 5th and 4th centuries BC, but it is more difficult to determine either the start date or the end date with any certainty. The start could be during the 6th century BC, or perhaps even the 7th; equally the end could be well after 300 BC. For the sake of the present scheme, and until further research clarifies the position, a start date of 550 cal BC is proposed, with an end date of 300 cal BC.

Middle Iron Age

This phase is characterised by S-profile jars, jars with bead-rims and convex shapes, and saucepan pots, as well as continued use of earlier forms such as round bodied bowls and jars (Fig. 4.9). Some vessels are decorated with curvilinear ornament in what Brown (1991) has termed the Mucking-Oldbury style. This phase is best represented in Kent by the earlier assemblages from Farningham Hill (Couldrey in Philp 1984, 38–70) and by smaller groups from Bigberry (Thompson 1983, 263 and figs 11–12, nos 57–105), Oldbury (Thompson 1986, 283 and fig. 7, 16–24) and Kingsborough, Sheppey (Allen *et al.* 2008, 288). The HS1 project has added an important assemblage from Beechbrook Wood (Morris in Booth 2006a, 68–74).

There is only one useful association with datable metalwork. At Farningham Hill, a La Tène II involuted brooch was found in the upper fill of the north-west ditch, stratified above fills containing pottery of this phase; if the association is taken at face value, despite the note of caution previously sounded about the relationship of metalwork and pottery in ditches, then the pottery sequence ought not to date later than about 100 BC.

The available radiocarbon dates (Table 4.6) have central points between 2210 and 2060 BP, which

Table 4.5 Radiocarbon dates for Early Iron Age sites with pottery in Kent

Site	*Context*	*Result No.*	*Result BP*	*Cal BC*	*Reference*
Tollgate	Pit 374	NZA-22880	2624±35	850-760	Allen 2006
White Horse Stone	Pit 8037	NZA-22043	2527±40	800-510	Allen 2006
West of Northumberland Bottom	Pit 156	NZA-22728	2509±35	800-420	Allen 2006
White Horse Stone	Pit 2130	NZA-22040	2507±50	800-410	Allen 2006
White Horse Stone	Pit 4561	NZA-22044	2469±40	770-400	Allen 2006
White Horse Stone	Pit 7090	NZA-21958	2438±30	760-390	Allen 2006
White Horse Stone	Pit 4067	NZA-22045	2429±55	770-390	Allen 2006
White Horse Stone	Pit 2119	NZA-22042	2397±50	770-380	Allen 2006
Tollgate	Pit 387	NZA-22886	2384±35	760-380	Allen 2006
White Horse Stone	Pit 2155	NZA-22038	2377±45	760-370	Allen 2006
White Horse Stone	Pit 2130	NZA-22041	2367±40	760-370	Allen 2006
White Horse Stone	Pit 2155	NZA-22039	2337±40	800-200	Allen 2006
Eyhorne	Pit 226	NZA-22594	2295±30	400-260	Allen 2006
White Horse Stone	Pit 6132	GU-9088	2270±60	460-160	Allen 2006
Cuxton	Pit 343	NZA-22593	2267±30	400-200	Allen 2006
West of Northumberland Bottom	Pit 147	NZA-22748	2222±30	370-190	Allen 2006

Table 4.6 Radiocarbon dates for Middle Iron Age sites with pottery in Kent

Site	*Context*	*Result No.*	*Result BP*	*Cal BC*	*Reference*
Oldbury	Hearth in association with gully	BM-2292R	2210±40	390-180	Clark and Thompson 1989
Beechbrook Wood	Enclosure ditch 3072	NZA-20052	2207±40	390-170	Allen 2006
Kingsborough	Structure 2263	NZA-22282	2207±35	380-170	Allen *et al.* 2008
Little Stock Farm	Grave 2037	NZA-19987	2203±35	380-170	Allen 2006
Kingsborough	Structure 2265	NZA-22283	2183±40	380-110	Allen *et al.* 2008
Bigberry	Ash layer in waterhole	BM-1530	2080±45	340-20	Clark and Thompson 1989
Bigberry	Ash layer in waterhole	BM-1768N	2060±50	200-50	Clark and Thompson 1989

would calibrate to a range of approximately 390 to 50 cal BC. As with the two previous phases, it is difficult to be precise about the dates of this phase, but a range of approximately 300 to 100 cal BC might be a reasonable approximation.

From Middle Iron Age to Late Iron Age

It is not proposed here to continue the chronological scheme into the Late Iron Age in any detail, not least because the HS1 project has been able to add very little

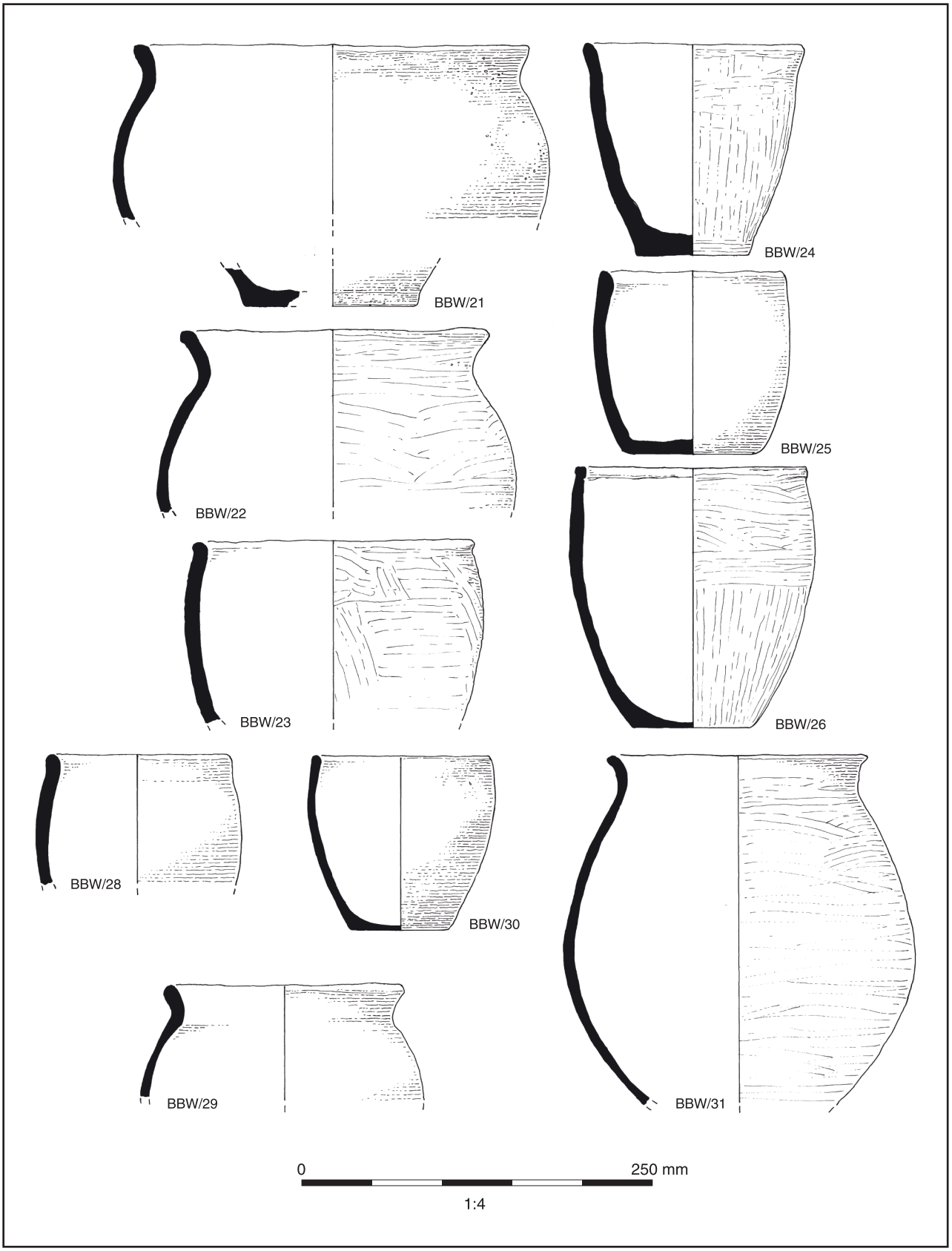


Figure 4.9 Middle Iron Age pottery from Beechbrook Wood

to this debate, but some discussion is needed in order to clarify the end date for the preceding Middle Iron Age. The transition to the Late Iron Age in the south-east of England, and especially in Kent, has long been seen as a critical point in the prehistory of the region, and there has been considerable argument over its nature, chronology and causation. There has also been considerable discussion over the appropriate terminology for the period and its material culture, and the term 'Belgic' has been widely used, in particular for the pottery (eg Thompson 1982, 4–5). The use of that term has, however, been avoided in this discussion, since it is felt to be, at best, unhelpful and, at worst, positively misleading. It carries with it the baggage of meanings derived from its original association with immigrants or invaders from Belgium as the explanation of the changes involved in the transition to the Late Iron Age, an explanation now widely discredited. Even if used without any such historical or explanatory intent, as a name for a type of pottery, it is often ill-defined, or, as defined in Thompson's sense, refers to a subset of the ceramic production, whether this be the wheel-thrown or the grog-tempered pottery, thus creating an artificial and unhelpful division in the history of ceramic technology. A neutral term such as 'Late Iron Age' is greatly preferable, and in line with the terminology used here for the earlier periods of the Iron Age. Evolving ceramic production can then be discussed in terms of technology, fabrics and forms in the usual way.

The construction of a precise ceramic chronology is difficult, because of a lack of large assemblages, of associated objects and of radiocarbon dates. Though the Late Iron Age pottery of Kent has been known since the publication of the cemeteries at Aylesford (Evans 1890) and Swarling (Bushe-Fox 1925), most of what is known has come from burials, and it is now clear that the pots selected for inclusion in the graves were not a representative sample of the ceramic repertoire. Thompson's survey and gazetteer (1982) show just how few settlement sites of the Late Iron Age had been excavated in Kent. With no large or well excavated assemblages to build on, establishing a detailed chronology was difficult. Since then a few other 1st century BC assemblages have been published; the largest is from Marlow Theatre Car Park, Canterbury (Blockley *et al.* 1995), with smaller, but important, finds at Iwade (Lyne in Bishop and Bagwell 2005) and Highstead (Couldrey and Thompson in Bennett *et al.* 2007, 176–214). None of these, with the possible exception of Highstead, shows continuous occupation from the Middle Iron Age; the only other site where that continuity can be seen is Farningham Hill (Philp 1984). Even now, therefore, there are few such

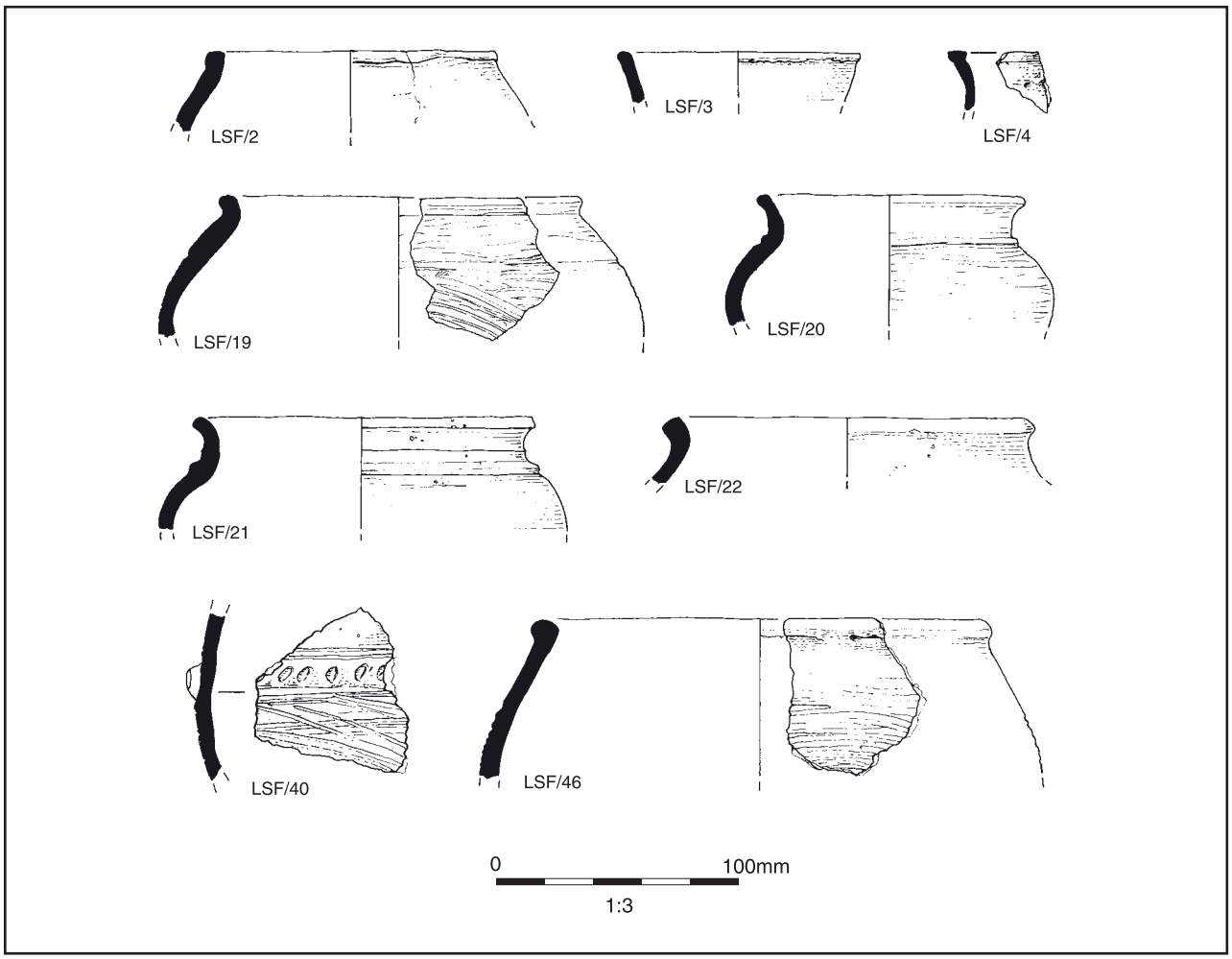


Figure 4.10 Middle/Late Iron Age pottery from Little Stock Farm

published assemblages for the earlier and middle part of the 1st century BC. Among the HS1 sites, those with evidence for Late Iron Age occupation were almost all founded in the half century or so before the conquest; this has important implications for the history of settlement and land use, but it does not help with fixing a ceramic chronology. The only exception is Little Stock Farm, where occupation continued from the Middle Iron Age before ending somewhere in the mid 1st century BC (Fig. 4.10).

With few published assemblages relevant to the earlier 1st century BC, it is not surprising that there are few stratigraphic sequences or useful associations with datable objects. For the Late Iron Age the known typological evolution of brooch forms is the most precisely diagnostic measure, but in Kent as elsewhere in England (Haselgrove 1997), brooches are not commonly found in settlement contexts until the appearance of Colchester, Langton Down, rosette and other forms at the end of the 1st century BC. There are, however, some known associations of brooches of La Tène D1 and La Tène D2a forms in Kent, though unfortunately very few with usefully large published ceramic assemblages.

The earliest possible example is at Farningham Hill, where the pin of a brooch was stratified in the upper fills of the south-west ditch; it may belong to a filiform brooch of LTD1 date, but, unfortunately, the rest of the brooch is missing and the identification is uncertain. It falls at a point in the seriated sequence of pottery at the site somewhat after the iron involuted brooch discussed above in the context of the Middle Iron Age, at a time when the new forms and fabrics were beginning to be introduced. If the identification is correct, then the date of 120–80 BC for this type should indicate the start of the Late Iron Age ceramic tradition.

The only other associations are with the characteristic 'boss-on-bow' type of brooch, identified by Stead (1976) as the earliest brooch form found with the Aylesford cremation burials; though he preferred a post-Caesarian date, it is now clear that these brooches are characteristic of La Tène D2a and could date as early as 80 BC (Haselgrove 1997, 56–7). Many more of this form have now been recognised, but most of them are from burials, accompanied by small and selected ceramic groups. There are a few settlement finds, however. There is a small group of such brooches from the Marlow Theatre Car Park site at Canterbury (Mackreth in Blockley *et al.* 1995, 964–71); they were, however, mostly found redeposited in later soil horizons and pits, and there are few useful associations with Late Iron Age pottery. Outside Canterbury these brooches are rare settlement finds; examples are known from Bridge Hill (Watson 1963; Thompson 1982, 666–7), Radfield (Baxter and Mills 1978; Thompson 1982, 821) and Quarry Wood Camp, Loose (Kelly 1971; Thompson 1982, 773–5). A further example of a La Tène D2a brooch with pottery is from Birchington, Shaft 11 (Thompson 1982, 620).

The evidence is not yet conclusive, and further well published assemblages are needed to firm up the ceramic sequence, but there is enough to suggest that the new traditions were already fully developed by the time of the currency of the La Tène D2a brooches in the middle decades of the 1st century BC, a conclusion that would fit well with the suggested identification of the brooch from Farningham Hill. For the purposes of the broadly based scheme of ceramic phases being proposed here, a start date for the Late Iron Age phase of 100 BC may not be very far wrong, and fits well with the evidence for the preceding Middle Iron Age phase, whose chronology shows little sign of continuing beyond that date. If further research and better evidence do in fact show this to be the case, then it would follow that the generally accepted dates for much of our Late Iron Age pottery are too late; more specifically, it might suggest that the apparent gap in the settlement history of the HS1 sites in the first half of the 1st century BC is illusory rather than real.

The environment in later prehistory

Work along the HS1 route produced little direct evidence for the state of the natural environment and the landscape in the later prehistoric period, though there are a number of important lines of evidence, which, taken together, provide a coherent picture that is broadly in agreement with the established interpretation, and help to refine it in certain details (Giorgi and Stafford 2006). In particular, the evidence for a significant increase in the exploitation of domesticated plants and animals and for the division of the land into fields, sometimes on an extensive scale, agrees well with the other environmental evidence in suggesting that woodland clearance for extensive agriculture was primarily a phenomenon of the Middle and Late Bronze Age.

Many of the environmental sequences in Kent, although comparatively informative for the Late Glacial and Early Holocene, are subsequently truncated or poorly dated, with the consequence that we know much less about environmental change in later prehistory. In addition, or possibly as a consequence, there has been much more emphasis on Late Glacial environmental history than there has been on subsequent land-use history in Kent; there have, for instance, been no studies of the colluvial fills of dry chalk valleys comparable to the work of Bell (1983) or Wilkinson (2003) in Sussex.

Much of the available evidence comes from the zone at the foot of the North Downs scarp, especially between Ashford and Folkestone, relevant to Zones 7 and 8 of the HS1 and to the area further east, now occupied by the Channel Tunnel Terminal. The important sequence from Holywell Coombe, explored in advance of the construction of the Terminal, lacks evidence for later prehistory (Preece and Bridgland 1998; 1999). Sites immediately to the east at Castle Hill and slightly further east still at Dover Hill (Kerney *et al.* 1980) showed evidence for later colluvial deposits, probably the result of late prehistoric and early historic agriculture, but they are not well dated. There is somewhat better dating evidence from further west, at the Devil's Kneadingtrough, near Brook, a site north-east of Ashford at the mouth of the gap through

the Downs formed by the Stour Valley (Kerney *et al.* 1964; Burleigh and Kerney 1982). The sequence there showed evidence for some clearance in the Neolithic, followed by regeneration before a major episode of renewed clearance; dating evidence is not plentiful, but two sherds found in the lower levels of the colluvium and attributed to the Early Iron Age suggest that renewed clearance and agriculture on the slopes of the scarp may not have begun until the early 1st millennium BC.

A similar picture is given by the profile at Frogholt, near Newington (Godwin 1962), where a layer rich in pollen and macrofossil remains was deposited in a period of about 500 years spanning the first half of the 1st millennium BC. There was evidence for some clearance and agricultural activity throughout the profile, and the base of the peat was dated to 1500-820 cal BC (2980±130 BP: Q-354). Higher up there was a significant change in the profile, showing extensive deforestation and accompanying evidence for pastoral and arable activity; this began a little below a level that yielded a radiocarbon date of 1030-410 cal BC (2640±110 BP: Q-349). As the quantity of arboreal pollen decreased, so a larger proportion was made up of pine and birch, suggesting the greater influence of species typical of the Weald to the south as local woodlands declined in extent. The Frogholt site is only about 2km east of the HS1 excavation at Saltwood Tunnel, where, after the construction of five Early Bronze Age ring ditches and some sporadic Middle Bronze Age activity, an extensive rectilinear field system was laid out somewhere around 1000 BC (see Fig. 4.13). There is thus good agreement between the environmental and the archaeological evidence for major clearance around the early 1st millennium BC in Zone 8.

The HS1 project produced new evidence for the state of the prehistoric environment in various forms, including the analysis of molluscan assemblages, the identification of charcoal and wild animal bones, and the observation of colluvial deposits, though in most cases the number of sites that produced such evidence is limited (Giorgi and Stafford 2006).

Charcoal was the most abundant source of evidence. Oak was the dominant species, suggesting a ready supply of such wood. At West of Northumberland Bottom, for example, all the prehistoric assemblages were dominated by oak, used for both cremations and domestic functions, presumably structures, artefacts and fuel. Oak was the main wood used in the Early Iron Age metalworking at White Horse Stone, since its charcoal is ideal for smelting and smithing, and also the main wood found in cremation burials at Saltwood Tunnel and at White Horse Stone. Other woods found in cremation burials include ash, alder, hazel, hawthorn and blackthorn, as well as occasional finds of willow/poplar and birch. Large amounts of blackthorn were found in Early Iron Age pits at White Horse Stone; it is an effective hedging plant and its presence may suggest an organised division of an open landscape around the occupied area. The range of species identified suggests a variety of habitats in the landscape, and the existence of considerable areas of woodland. In particular, the regular dominance of oak suggests that there was no strong pressure on the availability of woodland resources.

Confirmation of the continued existence of extensive woodland is found in the presence of evidence for red deer, roe deer and wild boar. There is a marked contrast between the eastern and western parts of the HS1 route, with the evidence for these wild animals noticeably concentrated in Zones 1–3. Red deer and roe deer antler and small quantities of bones are found at White Horse Stone and Tollgate, perhaps suggesting that antler collection was more important than deer hunting. Deer bones were found in much greater numbers at the West of Northumberland Bottom sites; at Zone 330 Area B red deer was the second largest component of the animal bone assemblage after cattle. Wild boar and pine marten were also found at West of Northumberland Bottom. The fact that the bones of some of these wild species were sometimes found in conspicuously structured deposits, such as Pit 147 (see Fig. 4.38 and the discussion of deposition practices below), may raise questions about prehistoric attitudes to such animals and the role of hunting in those societies, but the fact that they were present at all shows that there was still sufficient woodland surviving to provide them with a habitat. In Kent, especially west of the Medway where this evidence is concentrated, this woodland may well have been on the upper slopes of the North Downs. Various campaigns of survey and excavation in West Kent have produced remarkably little evidence for Iron Age occupation above the lowest slopes of the North Downs and the lower land of the Darent Valley (Philp 1973; 1984; 2002), and it was not until the 1st century AD that that area seems to have been densely occupied (Philp 1963; 1973, 53–118, Sites 6–20).

Molluscan evidence was analysed at two sites. Despite poor preservation conditions in the sandy soils at Saltwood Tunnel, a small quantity of molluscan remains was recovered; these comprised species typical of open-country, grassland or arable conditions, suggesting large-scale clearance at least by the Late Bronze Age, and thus confirming the evidence from a field system and occupation of that date (see Fig. 4.13). At White Horse Stone, samples from the valley bottom show a transition from woodland to heavily grazed grassland perhaps sometime during the Bronze Age and certainly by the Early Iron Age. A short distance away, however, at the site North of the Pilgrim's Way trackway, there is evidence for a strong shade-demanding component in the assemblages into the Bronze Age. By the time of the Early Iron Age settlement and buried soil, however, open-country species comprised up to 80% of some assemblages, indicating extensive areas of open ground with large tracts of grassland and arable, in an environment almost totally free of shade.

In Zone 1, there is some evidence for colluvial deposits that can potentially be related to datable archaeological features. In the area south of Springhead Roman town, in a dry valley at the head of the Ebbsfleet Valley, a series of pits, possibly of Neolithic or Early Bronze Age date, were sealed by a layer of colluvium up to 2 or 3m

Table 4.7 Major evidence of animal bones and charred plant remains for later prehistoric agriculture

Site	MBA and M/LBA		LBA		Earliest and Early IA		MIA	
	Animals	*Plants*	*Animals*	*Plants*	*Animals*	*Plants*	*Animals*	*Plants*
West of Northumberland Bottom					Cattle, sheep/goat, horse, pig	Emmer, spelt, barley		
Tollgate					Sheep/goat, cattle, pig, horse	Emmer, spelt?		
Cobham Golf Course				Spelt, emmer?, barley, beans				
Cuxton					Sheep/goat, cattle, pig, horse, dog	Emmer, spelt		
White Horse Stone	Sheep/goat, cattle	Barley			Cattle, sheep/goat, pig, horse, fowl	Emmer, spelt, bread wheat, barley, flax, brassica		
Eyhorne Street					Cattle, horse	Spelt, emmer, barley, brassica		
Beechbrook Wood		Emmer, spelt, barley, flax						Emmer spelt, beans
Little Stock Farm			Sheep/goat		Sheep/goat, cattle, pig			
Saltwood Tunnel		Emmer, barley	Cattle, horse, sheep/goat	Emmer, spelt, barley, peas, beans, flax		Spelt	Cattle, sheep/goat	

deep, which was in turn cut by pits containing Late Bronze Age pottery. In a neighbouring evaluation, the remains of a barrow underlay colluvium which was itself dated to the Late Bronze Age or Early Iron Age. These relationships would suggest that clearance and agriculture began to have a significant impact in the environment possibly from the Middle Bronze Age and certainly by the Late Bronze Age.

The HS1 evidence therefore confirms the existing idea of the later prehistoric environment, with extensive clearances for agriculture in the Middle and Late Bronze Age, but also adds significant new detail. For the route east of White Horse Stone, the evidence is very limited. The archaeological evidence for Middle Bronze Age occupation at several sites between Maidstone and Ashford and the establishment of a field system at Sandway Road in the Middle Bronze Age conforms generally to the picture of Bronze Age clearances, while, east of Ashford, the Late Bronze Age field system at Saltwood Tunnel agrees more closely with the environmental evidence for major woodland clearance in the early 1st millennium BC from nearby Frogholt. Further west, there is a greater quantity of new evidence, which is in good agreement with results further up the Thames in the London region, where there is a consistent pattern of woodland clearance in the 2nd millennium BC (Scaife in Sidell *et al.* 2000, 111–7). The colluvial deposits at West of Northumberland Bottom show some measure of clearance starting perhaps as early as the Middle Bronze Age, while the molluscan sequence at White Horse Stone suggests significant clearance and establishment of open-country conditions as late as the Early Iron Age. Nevertheless, throughout the route there is no sign of stress on woodland resources, and especially west of the Medway there is evidence for the survival of extensive woodland at least into the Early Iron Age.

Agriculture and the food supply

Evidence for the development of prehistoric agriculture and the changing nature of the food supply was widespread throughout the route (Table 4.7). As for other periods, survival of animal bone was poor, despite plentiful contexts such as pits and ditches where conditions might have been expected to be more favourable. Charred plant remains made up the greater part of the available evidence. The reports on the HS1 sites are the first systematic contribution to the study of later prehistoric agriculture in Kent: Scaife's review (1987) of environmental archaeology in south-eastern England was able to collate only a very few sites with relevant plant remains, while Hambleton's studies of Iron Age (1999) and later prehistoric (2008) animal bone assemblages could identify only one relevant site report from Kent, that from Farningham Hill (Philp 1984). The charred plant remains from the HS1 sites cover all periods of later prehistory, but the animal bones are mostly limited to the Iron Age. There is therefore some important evidence for the exploration of changing

agricultural and food production strategies through time, though the patterns emerging here will need to be augmented by information from other sites in the region.

Crop husbandry and processing

Charred plant remains were recovered from ten sites, from all zones except Zone 4 (Giorgi and Stafford 2006, 23–6). These assemblages were dominated by cereal remains, although the absolute quantity of the evidence, the density of remains and the quality of preservation varied greatly; there were especially large and informative assemblages from Late Bronze Age deposits at Saltwood Tunnel and Early Iron Age contexts at White Horse Stone and Eyhorne Street. The main cereals were the hulled wheats, emmer and spelt, and hulled barley.

Emmer and spelt were found on sites of all periods from Middle Bronze Age to Middle Iron Age, but the frequently very small quantities recovered make it difficult to judge their relative importance or how that may have changed through time. Emmer is well represented in Middle Bronze Age contexts at Beechbrook Wood and Saltwood Tunnel, but was also found in later contexts and was the dominant cereal in an Early Iron Age sample from Tollgate and in some contexts at White Horse Stone. Spelt was present from the Middle Bronze Age, and was the dominant type at Early Iron Age Eyhorne Street. Late Bronze Age assemblages at Saltwood Tunnel and Early Iron Age assemblages at White Horse Stone show both wheats well represented.

Other cereals recorded include traces of free-threshing wheat grain from two sites, including possible hexaploid bread wheat (*Triticum aestivum*) at White Horse Stone. Barley was found at several sites, including Beechbrook Wood and Saltwood Tunnel, and was more common in the Bronze Age assemblages than in those of the Iron Age. Oat (*Avena* sp.) grains were recovered in small numbers from several sites, although it is impossible to be certain that any were from cultivated species; at some sites, such as White Horse Stone and Eyhorne Street, wild oat florets were present, suggesting that oats were a cereal weed, though possibly exploited as fodder.

Apart from cereals, there was also evidence for pulses, in the form of beans (*Vicia faba*) and peas (*Pisum sativum*). Most of the evidence came from Late Bronze Age deposits at Saltwood Tunnel, but beans were also found in a Late Bronze Age context at Cobham Golf Course and in a Middle Iron Age deposit at Beechbroook Wood. At Saltwood Tunnnel there were large numbers of beans in Late Bronze Age contexts, including one deposit of several thousand, some of which showed weevil infestation.

Other cultivated species included flax (*Linum usitatissimum*), represented on three sites, with large amounts of flax capsules (whole and fragments) but no seeds coming from several Late Bronze Age pit samples from Saltwood Tunnel, and smaller quantities from Middle Bronze Age deposits at Beechbrook Wood and in an Early Iron Age sample from White Horse Stone. Other potential cultivars may be represented by *Brassica* seeds from Early Iron Age contexts: large numbers of mineralised seeds were found in four samples from White Horse Stone, which may represent consumed foodstuffs from cultivated species, while charred seeds were also found there and at Eyhorne Street. At the latter site, gold of pleasure (*Camelina sativa*) may have been cultivated for its edible seeds or for their medicinal use, although they may simply be from weeds.

Among the charred plant remains were weed seeds, with particularly good assemblages from Saltwood Tunnel and White Horse Stone. Many of these arable weeds have distinct preferences for particular soil types and these weed seed assemblages suggest the possible cultivation of several soils types but with a tendency towards the use of sandy loam soils, which would have been dominant in much of Zones 4–8. The catchment area exploited from each site may have been extensive and included different soil types, or cereals may have been imported from other settlements; at Cuxton, for example, on the chalk of the North Downs, the presence of corn gromwell and corn spurrey suggest cultivation of a relatively acidic, and therefore probably non-local, soil. The weeds may also have seasonal preferences: seeds of corn spurrey, knotgrass, black bindweed and fat hen may indicate the presence of spring-sown crops, while corn gromwell is often associated with winter-sown cereals.

These various assemblages seem to derive from different activities in the later stages of the processing and preparation of the grain for consumption. Some are the waste discarded from crop cleaning, for example the weed-rich deposits at Little Stock Farm or Pit 6110 at White Horse Stone, or the chaff-rich assemblages that dominate the Late Bronze Age record at Saltwood Tunnel. Others clearly comprise grain that has been almost completely cleaned and is near the point of storage or preparation as food. Such deposits occur as early as the Middle Bronze Age, as in Pit 238 at Beechbrook Wood, which has a low density of plant remains of which 83% are grain, but are particularly characteristic of the Early Iron Age, as in many of the deposits at Eyhorne Street, which are typically >70% grain. Assemblages with a similar composition are also found at White Horse Stone in Type 1 and Type 2 pits, and also at Tollgate, where the assemblage associated with a hearth or oven was 95% grain. Such grain-rich assemblages dating to the Iron Age have been the subject of considerable debate. They were originally interpreted as a feature of grain production sites (Jones 1985), but more recent arguments have suggested that they should be seen as indicators of storage and consumption (van der Veen and Jones 2006; 2007). The question of grain production and storage will be considered further in the section below on pits and their functions.

In general, the HS1 sites have produced a low density of charred plant remains, and many of the smaller assemblages may have been incorporated into the fills through normal processes of discard and waste disposal. At White Horse Stone, a series of pits whose contents included iron-working debris also contained high

densities of burnt chaff; this may result from the use of chaff as a fuel, but we should not discount the possibility that it derives from some other process and was deliberately deposited with the remains of metalworking. Other assemblages of charred plant remains, however, seem to be the result of clear selection for deliberate deposition, either because of the volume of material, such as a dump of several thousand beans near the base of Pit 207 at Saltwood Tunnel (Riddler and Trevarthen 2006, 13), or because of repeated patterns of location and association or non-association in features. The question of the deliberate structuring of deposits of charred plant remains will be considered further in the more general discussion of deposition below.

Animal husbandry

Animal bones from this phase were recovered from seven sites covering Zones 1, 2, 3, 5, 7 and 8 (Giorgi and Stafford 2006, 26–7). The assemblages are not large, except at White Horse Stone and West of Northumberland Bottom; sites with smaller, but still useful, assemblages include Tollgate, Cuxton, Eyhorne Street, Little Stock Farm and Saltwood Tunnel. Most of these assemblages belong predominantly to the Iron Age, and we have little evidence for domesticated animals in the Middle and Late Bronze Age; it is unfortunate, therefore, that we know so little about the development of animal management strategies at this critical stage.

In addition to the generally low numbers of bones recovered, there are two other problems affecting their interpretation. Preservation was especially poor in the more acidic soil conditions of the Greensand belt covering Zones 4–8, and this may have differentially affected the various species, leading to an over-representation of the larger species, in particular cattle and horse. This was particularly the case at Eyhorne Street.

On some sites too, especially at West of Northumberland Bottom, there are good reasons for thinking that the animal bones had been deliberately deposited in a way that makes them probably unrepresentative of normal husbandry and consumption practices. For example, as much as 80% of the bone from West of Northumberland Bottom came from one sub-site, Zone 330 Area B, and of this the vast majority came from one feature, Pit 147 (see Fig. 4.38). This contained little pottery, but a large collection of animal bone, both domestic and wild, including cattle, red deer, wild boar and pine marten; it also contained an assemblage of struck flint, including Neolithic and Early Bronze Age tools. The contents of this pit are so unusual, in quantity and in type, as well as in spatial organisation, that it seems unlikely to be a representative sample of the full site economy and more likely represents a single, and possibly very uncommon, event. Of the other 20% of the later prehistoric bone from West of Northumberland Bottom, comprising the finds from the Army Camp area, a large proportion came from a single feature, ditch 271; this assemblage was dominated by pig, but comprised the partial skeletons of four animals, probably from a single deposition event. These obviously structured deposits and large dumps of animal bone are themselves an important feature of these sites, and will be discussed further below in the more general discussion of deposition practices, but they make it very difficult to rely on the observed proportions as representative of the general economy.

The main domesticated species recorded were cattle, sheep/goat and to a lesser extent pig, with horse and dog also present. Despite the difficulty discussed above of estimating the importance of species through calculating the percentages of the surviving bones, it may nevertheless be possible to suggest some tentative conclusions about the relative importance of the different species and the management strategies being practised at some sites. Cattle were the most abundant species at West of Northumberland Bottom Zone 330 Area B, even allowing for the special assemblage in Pit 147, though absolute numbers were small. At Eyhorne Street the high proportion of cattle may be due at least in part to poor preservation and differential survival rates, reducing the representation of the smaller mammals. Similarly at Saltwood Tunnel, the only large assemblage of animal bones dating to the Late Bronze Age was dominated by cattle, horse and sheep/goat; numbers were small, however, and preservation not good. Cattle and sheep/goat were present in approximately equal proportions at White Horse Stone and Little Stock Farm, while sheep/goat was dominant at Tollgate and Cuxton. Pig was not abundant at any of the sites except in Early to Middle Iron Age deposits from West of Northumberland Bottom Army Camp, though distorted by one large dump; in the discussion of the state of the environment above, it was suggested that the area around West of Northumberland Bottom retained significant quantities of woodland, perhaps more so than areas further east along the route, and this may have provided the woodland pasture suitable for pig rearing.

There was limited ageing data from the bone remains at these sites. For cattle, the results from the Early Iron Age sites at West of Northumberland Bottom and Tollgate show a number of mature animals, suggesting that they were reared for traction and milk as well as meat, while at White Horse Stone and Cuxton the emphasis was on traction and dairying rather than meat. In the case of sheep, they were bred for wool, milk and meat at West of Northumberland Bottom, Tollgate and White Horse Stone and for meat at Cuxton, with evidence for lambing on site or close by at West of Northumberland Bottom and White Horse Stone. For pig, the data conform to the expected pattern, showing that they were primarily bred for meat. At White Horse Stone, it is clear that a few were retained for breeding.

Other species were represented in smaller numbers. As elsewhere in the Iron Age, horse and dog were present at several sites. Horses were presumably intended primarily for traction, but there is no convincing evidence from the prehistoric period that horses were bred domestically rather than tamed from feral herds. Dogs had been domesticated since the Mesolithic, and may well have

been working animals as well as pets and scavengers. Occasional bones of domestic fowl (*Gallus gallus*) were found at White Horse Stone in an Early Iron Age context. The domestic fowl only became widespread in southern Britain during the Middle to Late Iron Age, and these examples are perhaps the earliest so far recorded in secure Early Iron Age contexts (Hambleton 2008, 30).

Despite the low numbers and mostly poor to moderate preservation, there were some indications of butchery. The major species all showed cut marks indicative of disarticulation and the removal of meat. It was also clear that horses had been subject to the same process of meat removal.

Wild resources

Bones of red deer and roe deer at sites in Zones 1–3 suggest that deer were important as a source of meat as well as for antler (Giorgi and Stafford 2006, 27). Quantities are not large at White Horse Stone and Tollgate, but are more significant at West of Northumberland Bottom, where red deer were the second most frequent species after cattle. Here again, however, there are problems in interpreting the raw percentages since the figures are so heavily biased by the unusual deposit in Pit 147. Nevertheless, the presence of red deer and roe deer, and also wild boar, demonstrates that these animals were part of the meat supply, even if we cannot be sure of their relative importance in terms of proportion to other species, or about the social role of hunting and eating them. Other wild species, such as the cat and the pine marten found at West of Northumberland Bottom, seem more likely to have been exploited for their skins than as food.

One of the most striking features of bone assemblages from later prehistoric Britain is the almost total absence of fish and shellfish, freshwater or marine (Jay and Richards 2006; Dobney and Ervynck 2007); despite improvements in the methods of recovery, fish and shellfish remain almost totally absent. This seems to be true of sites in watery environments with plentiful freshwater resources, as well as for coastal sites with ready access to marine resources. At Wardy Hill in the Fenlands, there was some evidence for the catching of pike, but even here the quantity was very small (Evans 2003, 137). Even in Kent, with its long coastline, there is a long gap between the Middle Bronze Age and the Late Iron Age. There is evidence for the exploitation of marine resources, especially shellfish, in the Middle Bronze Age: at Westwood Cross, Broadstairs, in the Isle of Thanet, a variety of species from different habitats were exploited, including oysters, mussels and cockles, but consumption was already declining by the later phases of the occupation (Allison 2005). Oysters reappear in the record in the Late Iron Age, as shown at Faversham (Gidlow 1969) and sites in Thanet at Dumpton Gap (Hurd 1909) and King Edward Avenue, Broadstairs (Hurd 1914), while marine fish were a regular part of the diet in the Roman period, as evidence from HS1 sites such as Pepper Hill and Thurnham shows.

It is all the more surprising, therefore, to find a herring (*Culpea harengus*) bone reported from the site at West of Northumberland Bottom. It and other unidentified fish bone come from unphased features, however, and despite the evidence for intensive Iron Age occupation, it seems more likely that these bones result from later phases of occupation. The only other bit of evidence for fish from a secure Iron Age context is a tooth of a predatory fish, not identified to species, from Pit 175 at Eyhorne Street (see Fig. 4.25); the contents of this pit are a very unusual collection of items, discussed further in the section on deposition practices below, and it seems best to regard it as an exotic oddity rather than the product of catching and eating fish.

There was also evidence for the continued use of wild plant resources in this period at four sites, White Horse Stone/Pilgrim's Way, Eyhorne Street, Tutt Hill and Saltwood Tunnel, though in much smaller quantities than in the previous period. Charred hazelnut shell was present at all four sites, while remains of sloe/blackthorn, crab apple and blackberry/ raspberry (*Rubus fruticosus/ idaeus*) (including a few mineralised seeds) were found at White Horse Stone/Pilgrim's Way, and elder (*Sambucus nigra*) seeds and sloe/blackthorn stones were recovered from Saltwood Tunnel.

Discussion

The decreased proportion of wild resources, both plants and animals, represents a clear change in the nature of the food supply from the Middle Bronze Age onwards, with the demonstrable rise in the importance of domesticated plants and systematic agriculture on a larger scale. It also represents a decline in the physical extent of the wild landscape and its varied resources, as the managed and domesticated landscape of agriculture encroached irrevocably.

The general pattern of agricultural activity corresponds well to what is known of later prehistoric practice in southern Britain. The evidence for the species of animals reared, their relative importance and the purposes for which the herds were managed all place the HS1 sites within the regional husbandry strategy described for Eastern England and East Anglia by Hambleton (1999, 89–90). In contrast to the Wessex and Upper Thames regions, cattle are the dominant species, managed for a variety of purposes, including milk, meat and traction. Though the HS1 assemblages are small, they add significant new evidence to the emerging picture and reinforce the argument for linking Kent more closely with eastern England north of the Thames than with southern England.

The cereal crops also show this distinctive regional tradition. Emmer and spelt were present throughout the period. Spelt was recorded tentatively at Beechbrook Wood as early as the Middle Bronze Age, matching the date at Princes Road, Dartford (Pelling in Hutchings 2003) and Westwood Cross, Broadstairs (Allison 2005); these are some of the earliest records of spelt in Britain.

Thereafter, the two cereal crops were grown, possibly as a maslin crop. The HS1 sites show emmer and spelt in varying proportions throughout the later prehistoric period; though one species may dominate a particular assemblage from a single context, or the assemblages from one site, at the regional level the two appear to be of roughly equal importance. This is paralleled by the plant remains recovered from other prehistoric sites in Kent: at Princes Road, Dartford, both spelt and emmer were present in the Middle Bronze Age (Pelling in Hutchings 2003); at Guston, near Dover, emmer was dominant (Allison 2005); and at Whitfield, north of Dover, both emmer and spelt were again present in the Early Iron Age (Allison 1997). Even as late as the Late Iron Age, emmer and spelt were still being cultivated together, as a site at Wilmington demonstrates (Hillman 1982). It was not until the Roman period that emmer was finally replaced by spelt in Kent.

There were clearly marked regional variations in the development of arable agriculture in later prehistoric Britain. In some regions, especially in Wessex, emmer was almost entirely replaced by spelt by the beginning of the Iron Age (Campbell in Cunliffe 2000, Vol. 1, 45–6). In the north-east of England, van der Veen (1992) has identified two contemporary regional economies in the Iron Age and early Roman period, one dominated by emmer, the other by spelt. Elsewhere in eastern England the pattern seems closer to that identified in Kent. Emmer continued to be a major part of the crop economy alongside spelt, as seen, for instance in sites such as Asheldham Camp, Essex (Bedwin 1991), Wardy Hill, Cambridgeshire (Murphy in Evans 2003, 108) and even at the end of the Iron Age at the Hutchinson's Site, Addenbrooke's, near Cambridge (Roberts in Evans *et al.* 2008, 111).

The reasons for these varied patterns of change are as yet little understood. Though they may have been responses to environmental or climatic change, or to social pressures for increased productivity, they are part of a more complex and longer-term move from the glume wheats to the free-threshing bread wheats more common in the Roman period; indeed this change may have begun earlier than can be currently shown because of the probable under-representation of bread wheats in the record of charred plant remains. We should not forget the importance of cultural preference. Spelt and emmer were not interchangeable parts of the diet, since spelt has a higher gluten content and is therefore more suitable for bread-making. Just as the cultivation of the free-threshing wheats, rich in gluten, allowed bread to become the staple carbohydrate component of the diet, so a switch from emmer to spelt would have had significant consequences for the form in which wheat was consumed. Spelt would have been more suitable for the production of something like bread, while emmer would have been eaten in a form more like porridge. The transition from one to the other would have had a significant impact on food consumption and on the everyday life of the household, possibly in ways that are reflected in the material culture of food preparation and serving. It may not be a coincidence, for example, that the best evidence for the development of the oven in the Iron Age is seen in Wessex (Poole in Cunliffe and Poole 1991a, 145–51), precisely where spelt had replaced emmer and so created the possibility of baking bread.

Settlement in the landscape

The HS1 route through Kent provides us with a slice through the archaeological record of almost the whole length of the county. It has produced high-quality data, systematically collected, for the nature and distribution of human settlement, but the evidence produced, however abundant, is only a sample and it is necessary to consider how reliable that sample is and what inferences can be drawn for the wider pattern of settlement beyond the narrow trace of the rail route itself. The first point, an obvious one but still one worth making, is that the HS1 evidence is only relevant to certain regions of Kent. The county is marked by a strong east-west grain to the geology and topography, typified by the coastal plain, the North Downs, the Greensand vale and ridge, and the Weald to the south. West of the Medway, the HS1 route in Zones 1 and 2 traverses the coastal plain and the dip slope of the North Downs; east of the river it runs in Zones 4–7 along the Greensand vale, with shorter sections of the North Downs in Zone 3 and the south coastal plain in Zone 8. These are regions that have, on the whole, seen less archaeological intervention in recent years than the area of the north coastal plain east of the Medway, the Isles of Sheppey and Thanet and the east coast. The HS1 route therefore provides evidence for some regions that have been less intensively researched, but the results cannot necessarily be extended beyond those regions.

For the regions cut through by the HS1, the archaeological investigations have provided a sample of the prehistoric occupation, and the problem is once again to decide how reliable we think that sample might be for those limited regions. The original pattern of human occupation in later prehistory is unknown, so we cannot compare the sample with the total population. Nor do we have any reliable figures for the density of prehistoric sites derived from elsewhere that might be relevant, so unlike the discussion below of the distribution of Roman settlement, we cannot compare the actual sample with hypothetical predictions. Almost all archaeological interventions in recent years in Britain have been in response to proposed development, whether single-site projects or linear projects with multiple sites such as pipeline, road or rail schemes; their location has therefore been determined by economic and social considerations relevant to the development. They therefore do not constitute a truly random sample, though they may be a judgement sample in as much as prior archaeological knowledge is a factor in determining the need for an intervention. It has nevertheless been argued that we can, with some reservations, treat the results as a reliable basis for inference (Champion 2007b).

These arguments are still valid, but they need further discussion and refinement. The suggestion that the results of development-led archaeology may approximate to a random sample depends crucially on the definition of the area to which the sample is relevant and for which it is a reliable basis for inference. In the ideal fantasy world of pure research archaeology, an appropriate sampling strategy would be to divide the research region into distinct zones, or strata, and devise a separate strategy for each stratum. In the real world of development-led archaeology, the number and location of the samples are determined by non-archaeological factors, and the problem therefore is to devise the strata for which the actual evidence may approximate to a random sample. Previous discussion (Champion 2007b) adopted an approach that in retrospect was too simple and accepted too coarse a set of strata, and the areas about which it has informed us need more careful definition.

It could also be argued that it is possible to estimate the confidence to be placed in such samples by comparing the results with those from samples selected for totally different reasons. In terms of archaeological sampling strategy, single development projects can be regarded as quadrat samples and linear infrastructure projects as transect samples. Comparison of the results of linear projects such as the HS1 with other single interventions could be a useful way of understanding the significance of the results.

These problems can best be illustrated by discussion of the two major regions of the HS1 route—north Kent west of the Medway and the Greensand vale between Maidstone and Folkestone. West of the Medway, most archaeological work has been related to urban regeneration or suburban expansion, and has been very largely confined to the narrow strip of the coastal plain and the coastal zone of the Hoo peninsula. The HS1 route, on the other hand, has avoided the built-up areas to take a more southerly line further inland, across the dip-slope of the North Downs. It is therefore important to distinguish carefully between the coastal plain and the dip-slope of the Downs as different regions with their own distinctive archaeological samples. The evidence from one region will not necessarily be relevant to the settlement history of the other. For the HS1 route across the dip-slope of the Downs there is little other evidence available for comparison. Modern development has seldom extended south of the line of the A2 road. The one major development project further south was the construction of the M20 motorway, which led to the discovery and excavation of the Middle Iron Age enclosure on the chalk at Farningham Hill (Philp 1984).

In the case of the vale south of the scarp slope of the downs east of Maidstone, the region is a much narrower one and the HS1 may offer a reliable sample. Even so, the HS1 route cannot be regarded as random, since it has avoided the location of the present-day villages such as Charing, Lenham and Harrietsham; though the origins of these villages may be post-Roman, their siting may be the result of preferences that were equally valid in the prehistoric period. There has, however, been comparatively little suburban or industrial development, with the exception of the area around Ashford, and there is correspondingly little comparative evidence. Some archaeological investigations have been undertaken in advance of mineral extraction, for example at Charing (Keller 1990) and Lenham (Holmes and Bennett 2003), which, like the HS1 route, have avoided major settlements. The HS1 route might be compared with the results of another linear transect, the M20, even though archaeological observation when this was built was not systematic. For long stretches, however, the HS1 and M20 run parallel and immediately adjacent, and it would be a surprise if they did not encounter very much the same archaeology; indeed, one HS1 site, at Snarkhurst Wood (Diez 2006c, 6), seems to represent part of a site excavated in advance of the construction of a motorway service area (Scott 1997). Such a comparison would therefore be of limited value, and any differences in results could be a product of the varied intensity and quality of fieldwork as much as actual variations in the archaeological record.

In the light of these discussions, the rest of this section will examine the evidence from HS1 for the distribution of human activity in later prehistory, and then go on to consider its implications for the nature of the regional patterning of human settlement and for continuity and disruption within the period.

Regional distribution

The ceramic chronology described earlier, together with the available suite of radiocarbon dates, allows many of the features discovered in evaluations and excavation to be dated with some confidence. There are, however, some that remain undated or that can be dated with only minimal confidence. The problem can arise from several different reasons: either because of the limited number of finds in a feature, or even total lack of them, or because of uncertainty about the possibility of residuality, or sometimes because ceramic identifications were done at a time before the detailed study of the later prehistoric assemblages allowed a more precise chronology to be established. This is particularly true of some features found in assessments, where the small scale of the intervention, and its timing, frequently at an early stage of the project, inevitably left some questions unresolved. Nevertheless, it is possible to review the evidence for the changing pattern of human occupation of the landscape and to have a reasonably high level of confidence in the dates attached to most features (see Table 4.8). The emphasis in this section is on the distribution of human activity; the detailed nature of that activity will be the subject of the next section.

In Zone 1, there is probable evidence for activity in the Middle Bronze Age, but it is fragmentary and poorly dated. At West of Northumberland Bottom, some cremation burials and residual finds of pottery and cylindrical loomweights from later features may belong to this period or may be later (Askew 2006, 15–6). Similarly at Tollgate, Middle Bronze Age activity is documented

Table 4.8 Major types of later prehistoric evidence by zones

Zone	MBA and M/LBA	LBA	EarliestIA	EIA	MIA
1	Dispersed settlement evidence, much of it residual	Scattered, low-density settlement		Scattered clusters of pits and postholes	Inhumation burials
2	Isolated settlement with ditches and pits	Isolated settlement with ditches and pits		Isolated settlement with pits, enclosure	
3	Dispersed settlement evidence	Isolated pit, cremation burials		Major settlement with pits, structures, granaries, ironworking	
4	Isolated cluster of ditches, pits and waterhole				
5	Widespread evidence of ditches and trackways	Possible evidence of ditches		Isolated settlement with pits	
6	Widespread evidence of ditches, settlement clusters	Widespread evidence of ditches, settlement clusters, field system		Scattered, low-density settlement	Large enclosure, occasional pits
7	Widespread evidence of ditches, settlement clusters	Possible evidence of ditches	Fenced enclosure, droveway	Scattered, low-density settlement	Site with enclosure, trackways
8	Isolated pit, residual material	Field system		Field system, trackways, burials	

only by a small number of residual sherds (Bull 2006b, 11). At South of Temple Precinct, some pits may belong to this period, but Middle Bronze Age activity is more clearly marked by the accumulation of a colluvial deposit resulting from agricultural disturbance, dated by the Late Bronze Age pits cut into it (Bull 2006a, 10). Late Bronze Age activity is equally slight; apart from the pits just mentioned and the poorly-dated features at West of Northumberland Bottom, there is one pit (537) at Tollgate (Bull 2006b, 11); the excavation of the Roman cemetery at Pepper Hill also produced a small collection of abraded sherds possibly of this date, while the radiocarbon date of 920–800 cal BC (KIA-23932) from pyre material in Grave 10314 suggests Late Bronze Age activity of some sort (Biddulph 2006a, 8). The Earliest Iron Age was not identified, while Early Iron Age activity was documented at West of Northumberland Bottom (Askew 2006, 17–25) and Tollgate (Bull 2006b, 11–16). The only evidence for possible Middle Iron Age activity was in the form of two inhumation burials from the Pepper Hill cemetery (Biddulph 2006a, 9): Grave 10404 has a radiocarbon date of 350–40 cal BC (KIA-23946), while Grave 10961 is dated to 350–50 cal BC (KIA-23945).

In Zone 2, Middle Bronze Age activity is firmly dated by pottery and radiocarbon at Cobham Golf Course, in the form of a ditch and other settlement features (Davies 2006, 9–15). Occupation there continues into the Late Bronze Age, but there was no evidence for subsequent occupation in the later prehistoric period. At Cuxton (Mackinder 2006, 9–11) occupation was limited to the Early Iron Age (see Fig. 4.23). On the other side of the Medway in the Nashenden Valley (Barclay 2000, 2), Holocene colluvium could be approximately dated by the discovery of Late Bronze Age pottery in the lower layers; a TL date of 790±350 BC from the base of the colluvium would be consistent with a date between the Middle Bronze Age and the start of the Early Iron Age. Otherwise there was no evidence for occupation before the Late Iron Age.

In Zone 3, across the scarp slope of the North Downs, the White Horse Stone site (Hayden 2006a, 98–125) produced well-dated evidence for occupation in the Middle Bronze Age in the form of a ditch, pits and possible structures (see Figs 4.16–19). Activity continued in the Late Bronze Age, with cremation burials and a pit. After an apparent gap in the Earliest Iron Age, a large Early Iron Age settlement developed (see Fig. 4.24) (ibid., 126–72). Thereafter, however, there was no further evidence until the Roman period.

In Zone 4, the only evidence for activity before the Late Iron Age was at Thurnham Roman Villa, where a ditch, pits and unurned cremations, as well as a waterhole (see Fig. 4.39), are probably best assigned to the Middle Bronze Age (Lawrence 2006, 14–17).

In Zone 5, Middle Bronze Age occupation is well dated at Sandway Road, with evidence for a field system (Trevarthen 2006, 13–15). At Snarkhurst Wood (Diez 2006c, 6), a few sherds of Middle Bronze Age pottery may represent part of the site excavated in advance of the construction of a motorway service station, and dated then to the Late Bronze Age (Scott 1997). At Holm Hill, ditch construction may date to the Middle Bronze Age, or possibly even earlier, since one ditch contained sherds identified as late Beaker. Late Bronze Age activity is seen at Chapel Mill in the form of a single pit and other sherds in topsoil (Hayden 2000b, 5); a similar date may also apply to parallel ditches at Holm Hill (Wessex Archaeology 2001, 3). Evidence for later activity is restricted to the site at Eyhorne Street, where a settlement of the Early Iron Age was found (see Fig. 4.25) (Hayden 2006b, 19–27).

In Zone 6, the sites at Tutt Hill and Beechbrook Wood (Fig. 4.11) both had long sequences of later prehistoric occupation, though not necessarily unbroken. At Tutt

Hill (Brady 2006b), ditches, pits and cremation burials of the Middle Bronze Age were followed by a similar range of evidence dating to the Late Bronze Age. After a gap in the Earliest Iron Age, occupation in the Early Iron Age was less intense, while just a single pit was assigned to the Middle Iron Age. At Beechbrook Wood (Brady 2006a), two areas of occupation and burials could be dated to the Middle Bronze Age (see Figs 4.20–1), followed by a Late Bronze Age field system (see Fig. 4.12). Occupation resumed in the Middle Iron Age with a ditched enclosure (see Fig. 4.15) and continued into the Late Iron Age.

In Zone 7, Middle Bronze Age ditches are well dated at Church Lane (Hayden 2000c, 13) and by a single sherd at Boys Hall (Hayden 2000a, 5); other ditches and a possible trackway at Blind Lane are of Middle or Late Bronze Age date (Hayden 2001, 5–7), while Middle Bronze Age activity is also documented at North of Westenhanger Castle (Gollop 2006, 5). Later activity is limited to a site of the earliest Iron Age at Little Stock Farm (Ritchie 2006, 5–9), where occupation may have continued on through the Middle Iron Age and into the Late Iron Age (see Fig. 4.22); otherwise, there is only a single posthole at Blind Lane containing a placed deposit of a La Tène I brooch (Hayden 2001, 8).

In Zone 8, the site at Saltwood Tunnel (Riddler and Trevarthen 2006, 12–17) provided evidence for Middle Bronze Age activity in the form of a single pit and residual sherds in later features, followed by a field system of Late Bronze Age date (see Fig. 4.13). In the Early Iron Age, the area was occupied by a field system with trackways (see Fig. 4.14) and was also used for burial.

Chronology: development and continuity

After the almost total absence of occupation evidence in the Late Neolithic and Early Bronze Age, the change in the nature of the archaeological record of the Middle

Figure 4.11 Beechbrook Wood: excavated features of later prehistoric date

Bronze Age is very striking. Activity of this period is represented in all eight of the HS1 landscape zones, and the Middle Bronze Age is by some margin the most frequently identified period. It is difficult to calculate reliable statistics because of the uncertainty of the dating of some of the sites and also because of the problem of defining a site. For example, it would seem reasonable to count the Middle Bronze Age activity at Beechbrook Wood, where settlement features were grouped into two clusters separated by 1km, as constituting two individual sites, but such a decision is less clear in the case of contemporary activity at White Horse Stone, where three clusters of features were located within 150m of each other. Nevertheless, it does seem as though there was a higher density of Middle Bronze Age occupation in the Greensand vale than on the chalk. In Zones 5–8 there is a fairly consistent pattern of one site for approximately 4km of the route: in the 13km length of Zone 5 there were two or possibly three sites, in the 8.5km of Zone 6 there were two sites, in the 12km of Zone 7 there were three or possibly four sites, while in the 3.5km of Zone 8 there was one site at Saltwood Tunnel. Further west, the density was much lower: in the combined 20.5km of Zones 2–4 there were only three Middle Bronze Age sites. In Zone 1 the density may have been higher and more like that on the Greensand, but the occupation is very fragmentary and poorly dated.

Though there is some scattered evidence for occupation in the Late Neolithic and Early Bronze Age, there is nothing to suggest any particular influence on the emerging pattern of Middle Bronze Age activity. Only at Holm Hill, where a ditch contained pottery identified as late Beaker, is it possible that this phase of settlement may have started slightly earlier. In all the other cases, it looks as though the Middle Bronze Age marked a dramatic and possibly quite sudden episode of human impact on the landscape. In general terms, this agrees well with what we know about the environmental history of Kent (discussed above), with evidence for major clearance in the Bronze Age, but it demonstrates a very different type of settlement activity, with humans leaving a much greater physical mark on the landscape.

In the Late Bronze Age, where there are again similar problems of precise chronological attribution, there are fewer sites, but they are again more or less evenly distributed along the route. There is only one landscape zone, Zone 4, where there is no evidence, certain or possible, for Late Bronze Age activity, and only Zone 1 has more than two possible Late Bronze Age sites. In most cases, the sites with Late Bronze Age activity are ones that had already seen some form of Middle Bronze Age usage; only at Chapel Mill does it seem as though Late Bronze Age activity, comprising a single pit, was not preceded by Middle Bronze Age features. The reduced number of sites occupied in the Late Bronze Age means, of course, that a significant proportion of the Middle Bronze Age sites went out of use. The field systems at Sandway Road, Church Lane and Boys Hall did not continue into the Late Bronze Age, while occupation areas at Thurnham, Snarkhurst Wood and North of Westenhanger Castle were similarly abandoned. Where occupation did continue into the Late Bronze Age, the nature of the continued usage varied considerably. At Cobham Golf Course the Late Bronze Age occupation appears to have respected land divisions marked out in the Middle Bronze Age; at Tutt Hill, though the evidence was much truncated, a new pattern of ditches in the Late Bronze Age may represent the replacement of one field system by another; at Beechbrook Wood (see Fig. 4.12) and Saltwood Tunnel (see Fig. 4.13), areas of occupation marked by Middle Bronze Age pits and burials were overlain by field systems in the Late Bronze Age. At South of Temple Precinct and Tollgate the low density of Middle Bronze Age activity was followed by a similar level in the Late Bronze Age, while at White Horse Stone more extensive activity in the Middle Bronze Age was followed by a single pit indicating human occupation in the Late Bronze Age.

This evidence for Late Bronze Age sites seems to suggest a phase of consolidation in the settlement history of the region. As will be seen below, the two best defined examples of extensive co-axial field systems, at Beechbrook Wood and Saltwood Tunnel, both date to the Late Bronze Age rather than the Middle Bronze Age, while the smaller number of sites suggests a phase of nucleation of settlement locations after the widespread occupation of the Middle Bronze Age. Unfortunately, we do not yet have sufficient data about the number of sites or their size to examine this suggestion more closely.

The problems associated with the concept of a 'decorated phase of post-Deverel-Rimbury' pottery, and with the identification of any chronological phase of pottery production between the Late Bronze Age and the Early Iron Age, whatever it may be called, have been discussed above in the section on chronology. The typological and classificatory problems are further compounded by the sheer rarity of assemblages on the HS1 that may be assigned to the hypothetical phase of the Earliest Iron Age. Such pottery is found in only a very few assemblages at very few sites: most prominently at Little Stock Farm (see Fig. 4.10), where there were two deposits of pottery that were characterised by the presence of abnormally large sherds and included vessels with neck cordons and decoration. Elsewhere, comparable assemblages have only been identified in single features at Tutt Hill and Saltwood Tunnel. The rarity of these assemblages, and the limited number of decorated sherds in them, together with the unusual nature of the Little Stock Farm assemblages, together add further weight to the doubts expressed earlier about the validity of these types of pottery as distinctive chronological markers. If we do accept this as a genuine chronological phase, validly characterised by the types of vessels and decoration used in the ceramic reports on the HS1 sites, then it is the period with the least substantial evidence for human occupation anywhere along the route. Until the chronological issues are resolved, it is difficult to say anything more about the settlement of this hypothetical phase.

Evidence for Early Iron Age activity existed at nine HS1 sites. As for the Late Bronze Age, they were distrib-

uted more or less evenly throughout the route; Zone 4 was again the only zone without any evidence for this period, and no zone contained more than two Early Iron Age sites. The density and distribution of Early Iron Age settlement were therefore very similar to those of the Late Bronze Age. The problem of the Earliest Iron Age makes it very difficult to discuss continuity of settlement through the middle of the 1st millennium BC, but there is a certain congruity of Late Bronze Age and Early Iron Age activity. Five of the nine sites with certain evidence of Early Iron Age occupation were also certainly or probably occupied in the Late Bronze Age: West of Northumberland Bottom and Tollgate in the west, White Horse Stone, Tutt Hill, and Saltwood Tunnel in the east, while Little Stock Farm was occupied in the Earliest Iron Age. Only at Cuxton and Eyhorne Street was Early Iron Age occupation located where there had been no Late Bronze Age, or even Middle Bronze Age, activity. It is more difficult to interpret the question of continuity at Blind Lane, since the ditches of a probable field system are dated only to the Middle or Late Bronze Age without greater precision and in any case the evidence for Early Iron Age occupation takes the form of a single posthole.

The following period, the Middle Iron Age, is also problematic, but in a different way, since it is the period with the smallest number of sites producing evidence for human occupation. Despite the vastly improved knowledge of Middle Iron Age ceramics provided by the HS1 project, certain occupation of this period, as defined in the discussion of Iron Age ceramic chronology above, was only identified at the double-ditched enclosure site at Beechbrook Wood, though on the basis of finds from a single pit at each site, occupation at Tutt Hill and Eyhorne Street may have continued into this period. Occupation at Little Stock Farm may also have begun late in this phase, though the majority of its use falls into the Late Iron Age.

With so few Middle Iron Age sites, in sharp contrast to the proliferation of occupation evidence in the Late Iron Age described in the next chapter, it is hardly surprising that there is little evidence for continuity at individual sites. Occupation continued at Beechbrook Wood and at Little Stock Farm, but elsewhere the Late Iron Age sites are new foundations. In some cases the sites are located where earlier prehistoric occupation had taken place: at Thurnham, Snarkhurst Wood, Boys Hall Balancing Pond and Church Lane/East of Station Road Late Iron Age sites were located on or immediately adjacent to Middle Bronze Age occupation of more than a millennium earlier with no evidence of intermediate activity; similarly, the Late Iron Age occupation at Chapel Mill was in the same location as probable Late Bronze Age activity.

Implications

It is now possible to consider the wider implications of the HS1 findings for our knowledge of the settlement history of Kent in later prehistory, and the extent to which they can be used for sound inferences about wider occupation of the landscape.

There are few other sources of evidence to use for comparison with the picture presented above of widespread activity in the Middle Bronze Age, either within the zones traversed by the HS1 or more widely in Kent. There was a very limited number of sites with settlement or burial evidence known before the 1980s (Champion 1982, 35–7), and more recent development-funded excavation has been hampered by the small scale of investigation, the comparatively slight traces of human activity in this period, and the difficulty of secure dating. Nevertheless, some ideas of our knowledge of the distribution of sites of this period can be gained. One source of comparative data would be the distribution of known finds of Middle Bronze Age metalwork, since the processes leading to their discovery are at least partly separate from and independent of those affecting sites finds through development. The rise of metal-detecting activity has increased the number of known objects, but has so far only minimally affected the known geographical distribution. Compare the maps showing finds as known in the late 1970s (Champion 1982, fig. 13) with those known more than a decade later (Perkins *et al.* 1994, fig. 24). The distributions are dominated by finds from the lower Medway and the Isle of Thanet, with small clusters around Maidstone and Ashford. There are no metalwork finds to match the distribution of settlement activity now revealed by the HS1 sites.

Another comparison would be with discoveries made from other recent archaeological interventions, mainly in advance of development or mineral extraction. Yates's map (2007, fig. 3.3) of later Bronze Age fields and enclosures provides a picture of activity in this period, derived from developer-related investigations, though it lacks chronological precision. There is a marked concentration along the north coast of the county, largely determined by the nature of recent development activity. It is noticeable that in Zones 1–3 the HS1 finds are matched by similar discoveries from other interventions; east of the Medway, however, in Zones 4–8 the sites mapped by Yates are almost exclusively those discovered in HS1 work, with the exception of two sites near Ashford, at Brisley Farm and Westhawk Farm. Other investigations in the area between Maidstone and Ashford, for instance at Lenham (Holmes and Bennett 2003), Charing (Keller 1990) and Harrietsham (Jarman 2002), failed to identify Middle Bronze Age activity. The HS1 finds therefore represent a significant addition to our knowledge of the distribution of Middle Bronze Age sites, which could not have been predicted from prior evidence, but which could now serve as a reliable basis for future predictions. They have also demonstrated that maps of Middle Bronze Age metalwork should be treated as maps of deposition and discovery, not of Middle Bronze Age occupation.

In the Late Bronze Age also, one obvious comparison for the settlement site distribution is with the known pattern of metalwork finds, and again, the sequence of maps shows the growth in the number of finds

(Champion 1982, fig. 14; Perkins *et al.* 1994, fig. 24). The Late Bronze Age distribution is heavily skewed by the well-known concentrations of hoard finds around the mouth of the Stour and the Wantsum in north-east Kent and around Hoo and the lower Medway in the north, areas not touched by the HS1. Despite these clusters, there is still a marked concentration along the north coast and in the north-east of the county. There is, however, a scatter of finds in north-west Kent and in the area south of the Downs from Maidstone to Ashford, which would now be further augmented by metal-detector finds reported to the Portable Antiquities service, including hoards from Hollingbourne and Lenham (Barber 2003, 60; Andrew Richardson, pers comm). In that light, the discovery of Late Bronze Age activity in Zones 1–3 and in Zones 5–8 is not exactly surprising and documents a level of settlement activity that complements the metalwork evidence in a way that is not matched in the Middle Bronze Age.

Comparison with other archaeological interventions reveals much the same pattern for the Late Bronze Age as for the Middle Bronze Age. Though some evidence has been found in north Kent west of the Medway, the occupation of the Greensand zone south of the Downs had not been previously identified. The HS1 evidence therefore provides new evidence for the distribution of Late Bronze Age settlement.

The problems of the Earliest Iron Age as a distinct chronological phase, and the paucity of assemblages that can be attributed to it, have been discussed above. Elsewhere in Kent assemblages of this period are also difficult to identify with confidence; those at Highstead Period 2 (Bennett *et al.* 2007) and Monkton Court Farm (Perkins *et al.* 1994) stand out, but both present problems of interpretation and dating. In the circumstances, it seems prudent to await further clarification of the chronological issues before attempting to draw conclusions about the history of human settlement based on ceramic evidence in this period.

The distribution and density of sites of the Early Iron Age has been a particular problem in Kent (Champion 2007b, 299–302). An identifiable ceramic phase, the 'East Kent rusticated tradition', and the regular occurrence of sites of the Early Iron Age in developer-funded work provided a reasonable degree of certainty in north-east Kent, and subsequent finds have borne that out, with sites such as the Whitfield-Eastry Bypass (Parfitt *et al.* 1997) or Downlands, Walmer (Jarman 2010), as well as others in Thanet (Moody 2008, 116–32), including, for example, North Foreland (ibid., 118–24), Ellington School, Ramsgate (Boden 2007a) or Thanet Earth, Monkton (Rady 2009; 2010). Elsewhere in Kent, sites of the Early Iron Age were much more difficult to find. Several possible explanations for this 'missing' phase were suggested and discussed (Champion 2007b, 299–302), including the possibility that we had misconstrued the ceramic sequence and had already found the sites without correctly identifying them; or that the area really had been abandoned in that period; or that the area was occupied in a way that left little archaeological trace. The HS1 evidence can now clarify the situation to a great extent, allowing some suggestions to be discarded, others modified and new ones to be introduced. The first possibility, that we had misunderstood the ceramic sequence, can be discounted. The discovery of sizeable and well-dated assemblages of Early Iron Age pottery at West of Northumberland Bottom, Tollgate and Cuxton to the west of the Medway, and at White Horse Stone, Eyhorne Street and Tutt Hill further east, all that show that sites using such pottery did exist and can be recognised. By the same token, these sites demonstrate that the area was not totally abandoned, although the occupation may have been less intensive. A rather different situation seems to have existed at the far eastern end of the HS1 route, where the Greensand vale gives way to the south-eastern coastal plain. The Early Iron Age activity at Saltwood Tunnel consisted of fields, trackways and burials, but the presence of a large Early Iron Age site a short distance to the east at Dolland's Moor, excavated in the construction of the Channel Tunnel Terminal (Bennett 1988), might suggest a greater density of human activity in this zone than further west.

A more likely explanation for the previously 'missing' Early Iron Age can now be seen to lie in a combination of the nature of Early Iron Age occupation and the pattern of archaeological observation, and with no single explanation covering all regions of Kent equally. In the Greensand vale south of the Downs between Thurnham and Saltwood the HS1 evidence seems to confirm previous indications that human activity in the Early Iron Age was of low density and that individual settlements were few and of small size. The nature of the prehistoric features will be discussed in more detail in the following section, but here it is important to note that the Early Iron Age site at Eyhorne Street consisted of a low density of pits and gullies scattered over a distance of 200m, while at Tutt Hill it was a ditch and a pit, and at Blind Lane little more than a single pit. Such dispersed and insubstantial features are difficult to interpret in terms of the human activity that produced them; though they may not be fully representative of the intensity of human activity, much of which may not have involved features cut into the subsoil, they are far removed from the more common vision of Early Iron Age sites in southern Britain, with the emphasis on clearly defined concentrations of structures and other features and, frequently, actual enclosures. Given the nature of this occupation, it is perhaps understandable how the comparatively small number of previous interventions had failed to identify it, in just the same way that Middle and Late Bronze Age occupation had escaped attention.

In other sections of the HS1 route, Early Iron Age activity was more substantial, and the reason why similar sites had not previously been discovered may lie in their precise location and the factors influencing archaeological investigation. The site at White Horse Stone was located on the scarp slope of the chalk Downs, a topographical zone that has seen little recent development and no archaeological investigation. Similarly, the Early Iron Age sites at West of Northumberland Bottom and Tollgate are

the first clear evidence of Early Iron Age activity in Kent to the west of the Medway, but they have been found further south than most other archaeological investigations, in the foothills of the North Downs rather than on the coastal plain. Previous discussions of the problem (especially Champion 2007b) have discussed this region of north-west Kent in too broad and undifferentiated a way, failing to distinguish between two distinct zones, the coastal plain and the foothills of the Downs. In terms of sampling theory, these should represent two different strata, and the archaeological evidence from previous investigations has been limited to the coastal plain and is therefore relevant to predictions about that stratum alone. The HS1 data now provide evidence for occupation in the Early Iron Age being preferentially located not on the coastal plain but higher up and further south in the foothills of the Downs, where it had not previously been identified because of a lack of archaeological investigation. More solid verification of this suggestion will have to await further archaeological work in an appropriate location, though it is not clear how this might happen, since it is not an area subject to much development pressure. Subsequent work on the improvement of the A2 road (Allen and Donnelly 2009) has revealed more of the Early Iron Age activity seen at West of Northumberland Bottom and Tollgate, but, although it can document the extent of occupation at this period, it cannot really act as independent confirmation of the suggestion, since they are in fact just different parts of the same sites.

If this suggestion of a significant shift in the location of Early Iron Age settlement to a slightly higher location on the downs is correct, then it needs an explanation. One possibility is that it is in some way a response to changing sea-levels. Devoy's study (1978; 1980; 1982) of sea-levels in the Thames estuary has shown a series of oscillations in later prehistoric and early historic times, with episodes of marine transgression intercalated with episodes of retreat and lower levels relative to the land. The onset of one major transgression, Thames IV, is dated to around 2600 years BP, approximately contemporary with the start of the Early Iron Age. Despite some critical re-examination (Haggart in Bridgland *et al.* 1995, 329–38), Devoy's results have, at least for this period, been broadly confirmed by later work. Research further upstream the Thames, largely in the area of Southwark, has shown major changes in the estuarine regime, with a more westerly tidal head and higher water levels, by about 3200 BP (Sidell *et al.* 2000). Though due regard must be paid to the probably very high degree of regional variability within the Thames estuary, these results fit well with a more general model of changing estuarine conditions in south-eastern England (Long *et al.* 2000), which sees a phase of renewed or increased rise in relative sea-level from about 3200 BP.

It is possible, therefore, that rising sea-levels made the coastal plain less suitable or less safe for human habitation, and occupation retreated to the higher ground. The coastal plain may still have been exploited for activities such as seasonal grazing or salt making, but not as a prime centre of habitation. Again, testing of this suggestion will require further research on the archaeological and especially environmental evidence of the coastal plain, a project made more difficult by the extensive erosion and accumulation that has taken place on some areas of the north coast of Kent since later prehistory.

It is possible that the same explanation may also be valid for the north coastal region east of the Medway. Sites of the Early Iron Age have been difficult to locate there, and excavations at sites such as Iwade (Bishop and Bagwell 2005), Kemsley (Diack 2006) and Borden (Coles *et al.* 2003) have all failed to identify occupation of this period. Clarification of this issue will have to wait until opportunities for investigation arise in zones further south of the previous work. Further east again, between Seasalter and the Wantsum, Allen (2009, 202) has documented a similar decline in the number of Early Iron Age sites in the coastal region.

The problems associated with finding settlement sites of the Middle Iron Age have been discussed elsewhere (Champion 2007b, 303); they are especially acute in Kent east of the Medway, where the only previously known ceramic assemblage was from Bigberry hillfort (Thompson 1983). The very limited evidence for Middle Iron Age activity located on the HS1 is, therefore, hardly a surprise, but in some ways it has made the problem more complex. Not only has a major transect through the county failed to find significant quantities of evidence for occupation of this period, but the one convincing site, at Beechbrook Wood, is of a type unique in the county, as will be discussed in more detail below. There is an intriguing parallel with the problem of finding sites of the Earliest Iron Age: in both cases, there are well-defined ceramic assemblages which have been taken as markers of a chronological phase, but finds containing such pottery are rare or appear only on sites or in deposits that are in some way unusual or, at the least, not typical of what we assume occupation to have been like at that period. Only further and more careful characterisation of the ceramic chronology and the discovery of further well excavated and well-dated sites will clarify the problem.

The nature of later prehistoric settlement

The exploration of a long transect such as the HS1 provides an opportunity to examine not only the general distribution of human settlement in the region and its changes through time, but also the more detailed nature, form and density of such activity (Table 4.9). Unlike other forms of excavation which concentrate on known or suspected 'sites', and are therefore self-selecting in favour of areas with dense evidence of past activity or defined zones such as enclosed settlements, linear transects allow the varying density of settlement to be monitored. Where the width of the transect corridor is sufficient to enable the horizontal extent of activity to be discovered, as with a motorway rather than a pipeline, information about the nature of human activity is potentially available of a type that cannot be matched from other sources.

Table 4.9 Major types of evidence for human activity in the later prehistoric period

Site	MBA and M/LBA	LBA	Earliest IA	Early IA	MIA
Pepper Hill		Pyre debris			Burials
Whitehill Road		Pits, residual material			
West of Northumberland Bottom	Residual material			Scattered groups of pits, stakeholes	
Tollgate	Pit, residual material			Scattered groups of pits, post- and stakeholes	
Cobham Golf Course	Ditch and pits	Ditches, clusters of pits, postholes			
Cuxton				Fenced enclosure with ?house, pits, ditches	
White Horse Stone	Dispersed clusters of pits and postholes (?structures)	Pit, cremated human bone		Dense concentration of pits and postholes, structures including four-posters, iron working, burials	
Thurnham	Pits, gully, waterhole				
Snarkhurst Wood	Pits				
Eyhorne Street				Pits, ditches	
Holm Hill	Ditch	Ditches			
Sandway Road	Ditches				
Hurst Wood		Pits			
Chapel Mill	Pit				
East of Newlands Road	Cremation burial				
Tutt Hill	Cremation burials, pits, ditches			Pit, gulley	
Beechbrook Wood	Dispersed clusters of pits and postholes (?structures)	Field system		Ditch	Double-ditched enclosure, four-poster
Boys Hall	Ditches				
Blind Lane	Ditches, ?trackway			Highly dispersed pits and postholes	
Little Stock Farm			Fenced enclosure, pits, placed deposits	Enclosure, pits, ?house, droveway	
Church Lane	Ditches				
North of Westenhanger Castle	Pits			Redeposited material	
Saltwood Tunnel	Pit, cremation burial, residual material	Field system, trackways, pits		Trackways, burials	

Not that all of the features exposed in the HS1 operations can be fully understood. In many cases they extend outside the excavated area, or have been severely truncated by later activity, or cannot be reliably phased. Nevertheless, the HS1 sites do provide us with an unparalleled wealth of data about the nature of later prehistoric settlement in Kent, or at least in certain parts of Kent. In the following section, some of that wealth will be explored, with particular attention to the presence of fields, ditches and trackways, and of open and enclosed settlements, and to the details of the pits and other structures that comprise the settlements. It will also be possible, at least to some extent, to consider the clustering of activity evidence into 'sites', and whether that is a particularly helpful way of categorising the evidence.

Fields, ditches and trackways

The digging of ditches was predominantly an activity of the Middle and Late Bronze Age. Ditches have been phased by the material culture, primarily pottery, in their fills; in theory this dates their filling rather than their digging, but there is little or no evidence for recutting or clearing of ditches at any site, so the process of digging may not have been significantly earlier than the first filling. On this basis, most of the ditches that could be assigned to a phase were dug and filled in the Bronze Age. They were a far less frequent feature of Iron Age sites, though in a few cases they formed significant elements of the site plan.

The interpretation of the function of these ditches is problematic. Disturbance by later features, and even more so truncation by later agriculture, mean that we are often dealing with the poorly-preserved and fragmented remains of what may have been much more extensive ditch systems. The limited width of the excavated corridor makes it difficult to discern the extent or pattern of what may originally have been larger-scale systems of ditches. Where the evidence includes ditches with junctions or angles, or sets of ditches running in parallel, it may be easier to suggest the existence of fields or

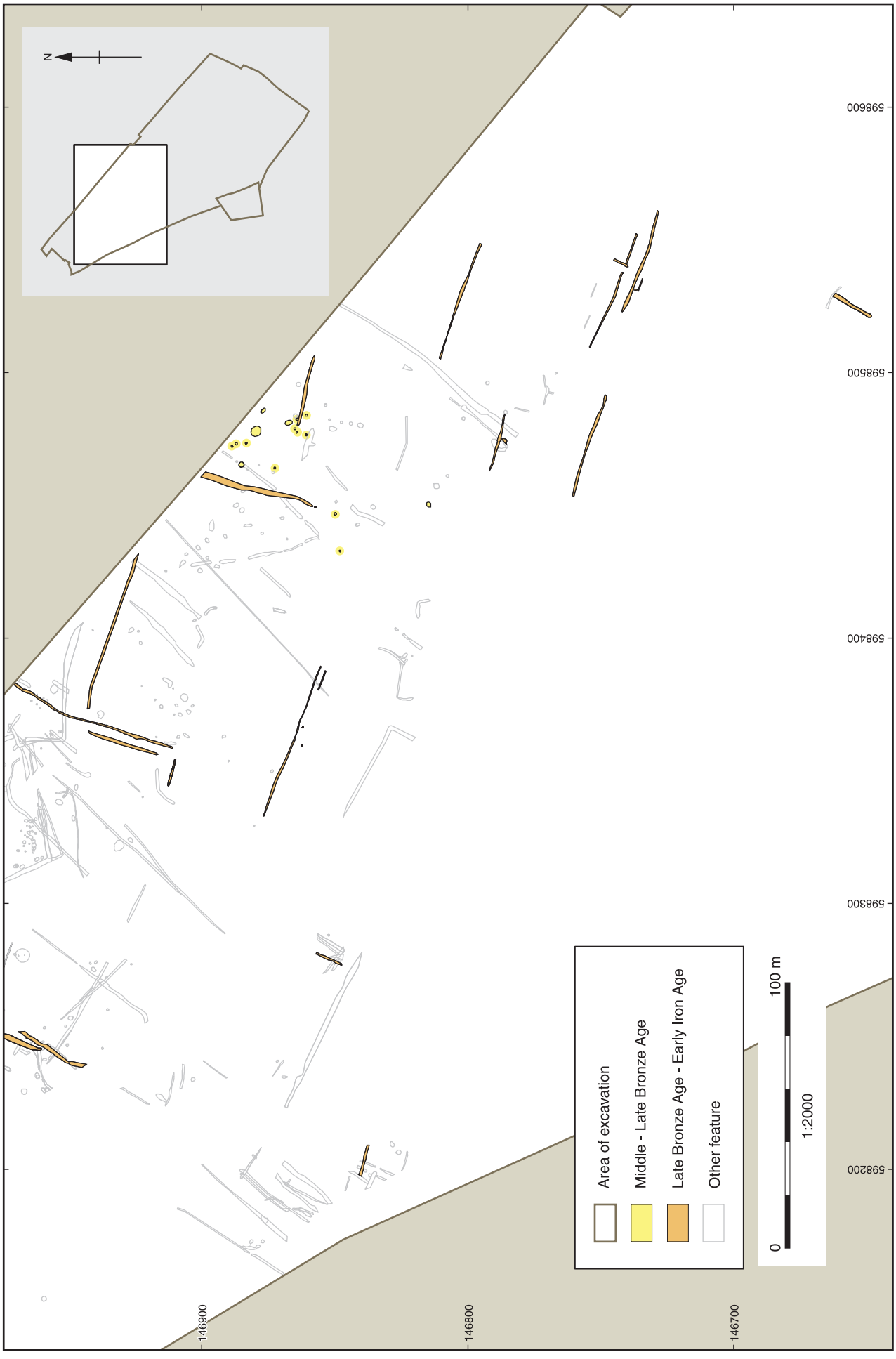


Figure 4.12 Beechbrook Wood: Late Bronze Age field system

trackways, but many other examples of single ditches will remain enigmatic. In purely functional terms, the ditches may have served as a means of dividing the landscape or of draining it, or both. In either case, it indicates a concern for the more active management and control of the land.

In the Middle Bronze Age, ditches were found at a number of sites, but they were mostly fragmentary or badly truncated, and could not be seen as parts of larger systems. In Zones 1 and 2 all physical remains of Middle Bronze Age activity were poorly preserved, though they may have been only slight to start with. Only at Cobham Golf Course (Davies 2006, 9–11) was a small section of badly truncated ditch excavated that was datable to this period. In Zones 3 and 4 the Middle Bronze Age evidence was of settlement in the form of pits and other small features, discussed below. At White Horse Stone (Hayden 2006a, 107–9) a substantial ditch (4025) was revealed some distance from other evidence for contemporary activity; though it was used as a location for the deposition of domestic waste, there was no evidence for its primary function. At Thurnham (Lawrence 2006, 15–17), a waterhole possibly of this period (see Fig. 4.39) did not appear to be related to a field system. Further east, in Zones 5–8 along the Greensand, the evidence for Middle Bronze Age fields becomes more substantial. At Sandway Road (Trevarthen 2006, 13–15) two sections of ditch of Middle Bronze Age date, parallel and closely spaced but of unequal size, may represent a trackway or the reworking of a field system, while two other parallel sections of ditch may be evidence of a similar trackway, unfortunately not securely dated. Further east again, fragments of ditch dating to the Middle Bronze Age were found at Tutt Hill (Brady 2006b, 17), Boys Hall Balancing Pond (Hayden 2000a, 5), Blind Lane (Hayden 2001, 5–7) and Church Lane (Hayden 2000c, 13), though at all of these sites it is impossible to see any larger pattern of which they may have formed part.

In the Late Bronze Age there is similar evidence for the digging and filling of ditches, though they differ greatly from those of the earlier period in their frequency and state of survival. In Zones 1 to 5 the only evidence is a short section of ditch at Cobham Golf Course in Zone 2 (Davies 2006, 11–12). Further east there are comparatively well-preserved field systems at Beechbrook Wood and Saltwood Tunnel. At Beechbrook Wood (Brady 2006a, 23–4) a section of a Late Bronze Age field system was explored which extended for approximately 400m by 250m. The plan was badly fragmented, with no clear evidence that the outer limits had been reached in any direction (Fig. 4.12). It was orientated approximately NW to SE, but although this was the dominant direction for the long ditch sections identified and for shorter sections at right angles to them, it was not clear that there was a regular pattern of rectangular fields laid out within the framework formed by the main ditches. Fragments of what appear to be trackways were incorporated into the plan, with separate sections running in each of the two main directions.

The excavations north of Saltwood Tunnel (Riddler and Trevarthen 2006, 12–14) produced some of the most important evidence for the later prehistoric landscape, and indeed for its long-term evolution (Fig. 4.13). The landscape was dominated by the presence of the earlier barrow cemetery; burial continued into the Middle Bronze Age (Grave 3602), alongside some small-scale evidence for domestic settlement (Pit 251). From the Late Bronze Age onwards, however, the area was subjected to a sequence of episodes of organisation and division; there was evidence for occupation in the Late Bronze Age, and burial activity continued in the form of small cemeteries in the Early Iron Age and the Late Iron Age, but the dominant usage seems to have been for agriculture. A badly preserved linear ditch, assigned to the Late Bronze Age, ran east-west from the south side of barrow W201 to the south side of barrow C10055; it is not clear what activities were being separated by this boundary, but the barrows were obviously still major features of the perceived landscape. At some point in the Late Bronze Age a field system was laid out on a different orientation; the axes now ran approximately NNE-SSW and WNW-ESE. The field system was traced over an area of approximately 350m by 100m. It appeared to show no obvious respect for the barrows. Where one of the barrows, W33, fell within the system, the ditch seems to stop after crossing the filled-in ditch and resume in a similar position on the other side; either the ditch did originally stop at the surviving barrow mound, or else it continued over the barrow and has now been ploughed away with the remains of the mound. At the eastern end a north-south ditch appeared to mark the limit of the field system; there was no clear delimitation on other sides, and on the north it continued into the area destroyed by the earlier construction of the M20. Where it was best preserved towards its western exposure, the divisions were marked by parallel ditches spaced about 24m to 29m apart, though they were less regular further east. The ditches contained only limited quantities of highly abraded pottery, but their relationship to other features, especially the settlement enclosure on a similar orientation associated with Pit Group 46025, which is certainly of Late Bronze Age date, makes their date almost certain.

The orientation established in the Late Bronze Age shaped the future development of the landscape. The Saltwood tunnel site produced some of the best evidence for the rare phenomenon of Iron Age landscape organisation (Riddler and Trevarthen 2006, 14–16). The landscape was dominated by a series of more or less parallel trackways, perhaps as many as four, running NNE-SSW (Fig. 4.14). It is difficult to demonstrate actual continuity from the Late Bronze Age in any single case, but the orientation is the same as that of the earlier field system. The clearest example is Trackway 226. This was particularly difficult to excavate since it runs under and along the modern trackway to Stone Farm, and was on the boundary of different phases of excavation as well as being severely affected by later and continuous usage. The boundary ditches marking this trackway date to the Iron Age, but they are on a similar alignment to the

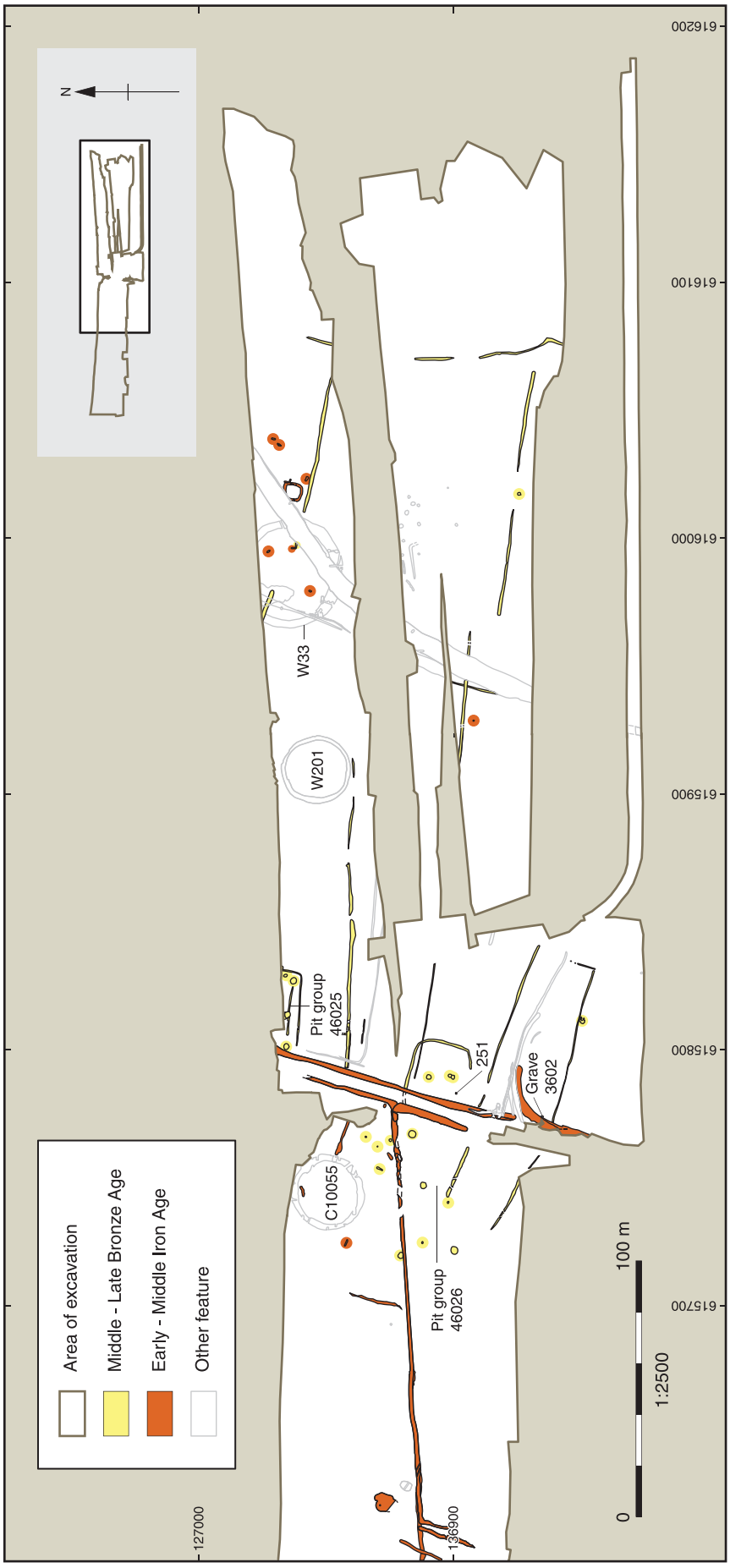


Figure 4.13 Saltwood Tunnel: Late Bronze Age field system

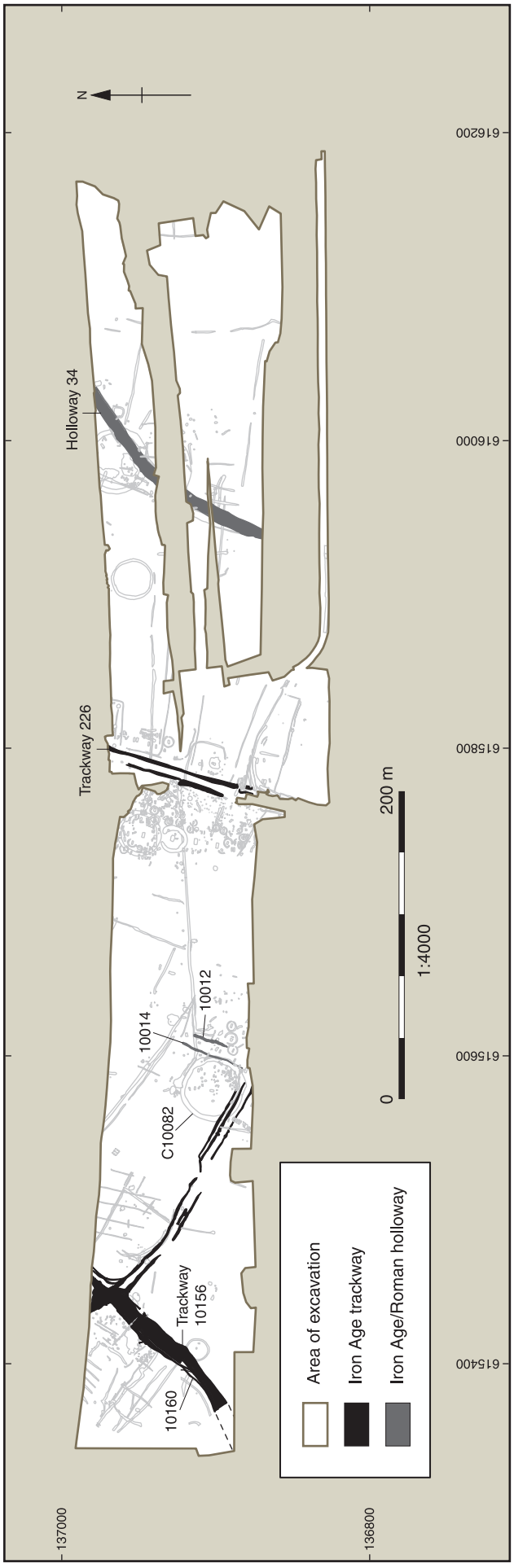


Figure 4.14 Saltwood Tunnel: Iron Age trackways

earlier Late Bronze Age field system and it is not impossible that they replicate an earlier trackway, now obliterated by later features, or at least were laid out to respect some prominent feature of the surviving field system. Further east, Holloway 34, which follows a roughly parallel line but curves away to the east at its northern end, was certainly in use in the Roman period, but sherds of Iron Age pottery in its fill, although possibly residual, may indicate an earlier origin. To the west of Trackway 226 two parallel ditches, 10012 and 10014, are certainly of Iron Age date, and may represent another trackway, although only preserved for a short distance. Further west again, Trackway 10156 became an important minor road in the Roman period, but its origins lie much earlier, as the Iron Age ditch 10160 indicates. In the Roman period a junction formed to the west of the Bronze Age barrow C10082, where a trackway led off at right angles from 10156 to the south side of the barrow; this too seems to have had possible Iron Age origins, since the trackway overlay earlier enclosure ditches of Iron Age date, though the details are somewhat obscure. The Iron Age landscape at Saltwood Tunnel, therefore, was marked by the formation of a series of parallel trackways. What they may have been linking, and what other elements of organisation there may have been around them, are not clear, but at least some of them survived into the Roman period and even into the modern landscape.

Elsewhere along the HS1 ditches dating to the Iron Age are far less common. Single ditches which are difficult to interpret occur at Tutt Hill (Brady 2006b, 20) and Beechbrook Wood (Brady 2006a, 25). Other ditches of a much smaller nature that seem to form part of small settlement enclosures were found at Cuxton (Mackinder 2006, 11; see Fig. 4.23) and Eyhorne Street (Hayden 2006b, 19–20; see Fig. 4.25), and will be discussed further below. The only other evidence for larger-scale division of the landscape in the Iron Age was at West of Northumberland Bottom (Askew 2006, 22). There the evidence for a bank, ditch and holloway, formed fairly late in the Iron Age, is similar to Saltwood Tunnel, though it did not lay the foundations for long-term landscape organisation.

The lack of evidence for the digging of features to divide the landscape in the earlier parts of the Iron Age is in sharp contrast to what happened in the Late Iron Age and early Roman period. As will be discussed in the next chapter, that period saw a renewed phase of ditch construction and landscape division throughout the length of the HS1.

Wells and waterholes

The more controlled use of the agricultural and pastoral landscape from the Middle Bronze Age onwards required the more carefully managed supply of water for livestock, especially cattle. Wells and waterholes are not uncommon features of these later prehistoric landscapes in other parts of southern and eastern England. At Thurnham a suspected waterhole was identified but not fully excavated (Lawrence 2006, 15–17); it may have been of Middle Bronze Age date, and will be discussed later because of the nature of the depositions in its final filling. Other features identified as possible waterholes were found at West of Northumberland Bottom (Askew 2006, 8) and Beechbrook Wood (Brady 2006a, 30).

Domestic settlement sites

Evidence for human occupation and settlement in later prehistory was widespread, but its nature and density were very surprising. The overwhelming impression left by this survey of the HS1 settlement evidence is of its low density and insubstantial nature. In a smaller-scale or less intensive investigation much of it may well have escaped notice altogether or, if noticed, dismissed as of little significance or as too slight to be interpretable. Only the large Iron Age settlement at White Horse Stone and the enclosure at Beechbrook Wood, and possibly the complex of ditches at Saltwood Tunnel, would have been recognised as 'sites'. At the other end of the scale, a surprising result of the project has been the recognition that human activity of all periods of later prehistory may be represented by as little as a single isolated pit. Of course, this needs to be qualified by provisos concerning the truncation of features, the narrowness of the excavated corridor and the difficulty of phasing some features. Nevertheless, it is clear from the examples of pits such as those of the Middle Bronze Age at Mersham, the Late Bronze Age at Tollgate, White Horse Stone and Chapel Mill, the Early Iron Age at Blind Lane and the Middle Iron Age at Tutt Hill, that a single pit, sometimes with a carefully selected and deposited set of artefacts, could be the only evidence of past activity.

In the light of this rarity of what we might expect to find by way of 'sites', it is perhaps understandable that it is difficult to talk in terms of different site types. The large, Early Iron Age agglomeration at White Horse Stone (see Fig. 4.24) and the Middle Iron Age enclosure at Beechbrook Wood (see Fig. 4.15) clearly conform to expected types of Iron Age site, but each is in its own way unique on the HS1 route. The Early Iron Age site at Cuxton (see Fig. 4.23) and the Early to Middle Iron Age site at Little Stock Farm (see Fig. 4.22) might be grouped together on the basis of the probable presence of a circular structure within a small fenced yard or enclosure, but otherwise the rest of the evidence might most reasonably be thought of as a group of sites of varying size and density, comprising postholes, pits and short sections of ditches, ranging from a single feature upwards, and very often characterised by an absence of clear evidence for structures

It is also difficult to talk in terms of the internal spatial organisation of the sites. At Beechbrook Wood, the nature of survival and excavation did not allow much of the occupation evidence within the enclosure to be recovered, and it was only at White Horse Stone that clear patterns, discussed below, were recognised.

In the following sections, the evidence will be discussed in terms of the open or enclosed nature of the occupation, and then with respect to the various elements that make up the individual sites, such as structures, hearths and pits. It will then be possible to consider the evidence for site function and to place the HS1 evidence in the wider context of Kent and south-eastern England.

Enclosures

Evidence for fences or ditches enclosing all or part of a settlement area was located at several sites, as discussed further below. Two occupation areas of the Late Bronze Age at Saltwood Tunnel were delimited by ditches (Riddler and Trevarthen 2006, 12–14). Animal pens were inferred as a feature of the Early Iron Age occupation at West of Northumberland Bottom (Askew 2006, 7) and Tollgate (Bull 2006b, 14). Rectangular fenced areas were found at Cuxton (Mackinder 2006, 11) and Little Stock Farm (Ritchie 2006, 8–9), again dating to the Iron Age.

These, however, were not enclosed occupation sites in the normal sense of the term. The only later prehistoric settlement enclosure located anywhere on the HS1 was at Beechbrook Wood (Brady 2006a, 25–31). There, after a period of very little activity in the Early Iron Age, a double-ditched enclosure was founded in the Middle Iron Age (Fig. 4.15); there was little sign of other features of this date elsewhere, and only one pit was securely dated to this phase. The enclosure measured approximately 90m by 95m overall, with the inner ditch enclosing an area of 50m by 54m. There was an entrance in the south-east side and the inner ditch was significantly larger near the entrance than at the back of the site. The entrance

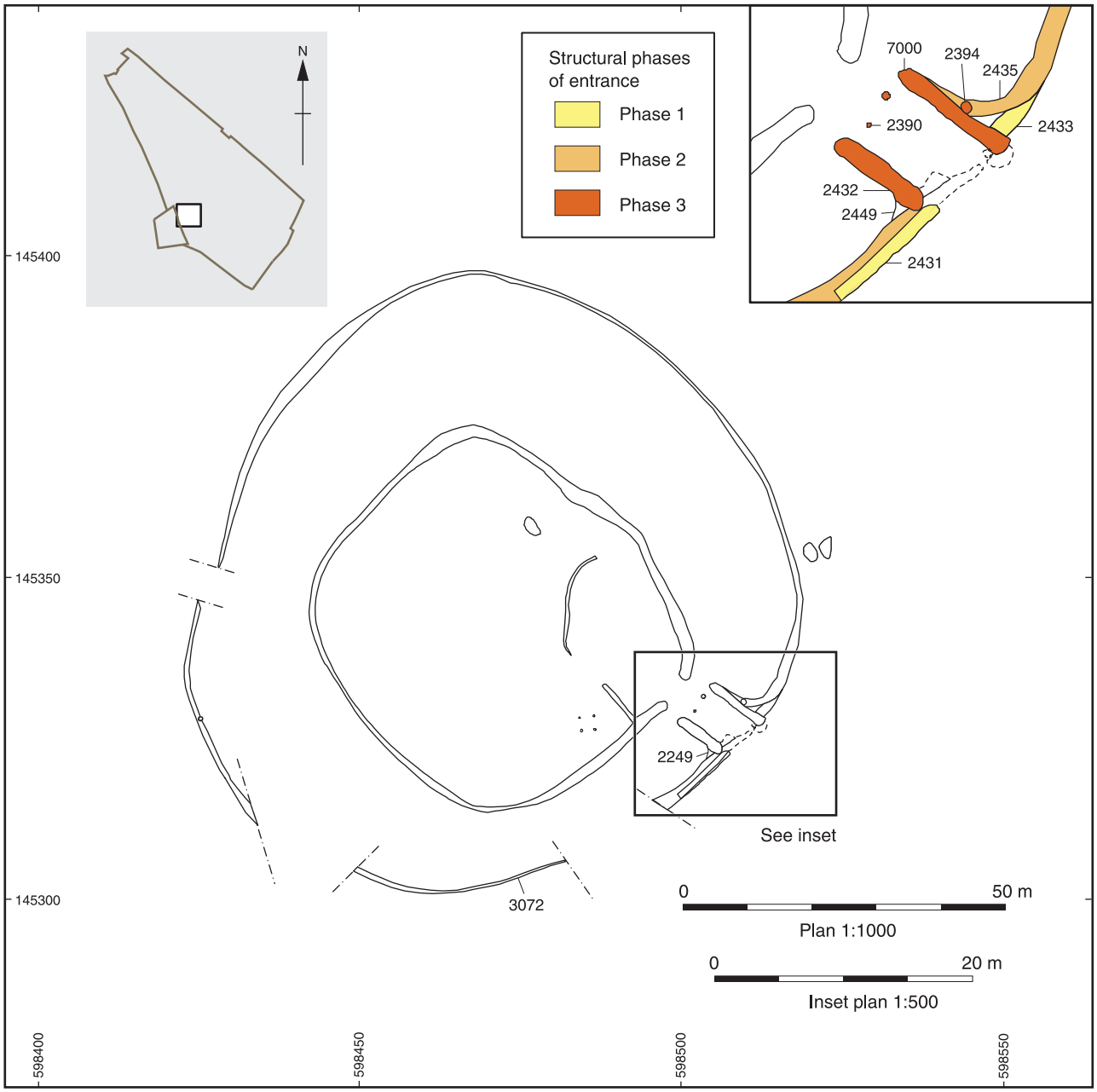


Figure 4.15 Beechbrook Wood: Middle Iron Age enclosure 3072

was remodelled and went through three structural phases, perhaps of increasing complexity and impressiveness. Unfortunately, the interior had suffered badly from truncation, especially by modern earthmoving, and few details of internal occupation survived. There were enough traces of pits and postholes to suggest that there had originally been internal occupation, perhaps quite extensive, though the only structure to be recognised was a probable four-post rectangular building just inside the entrance.

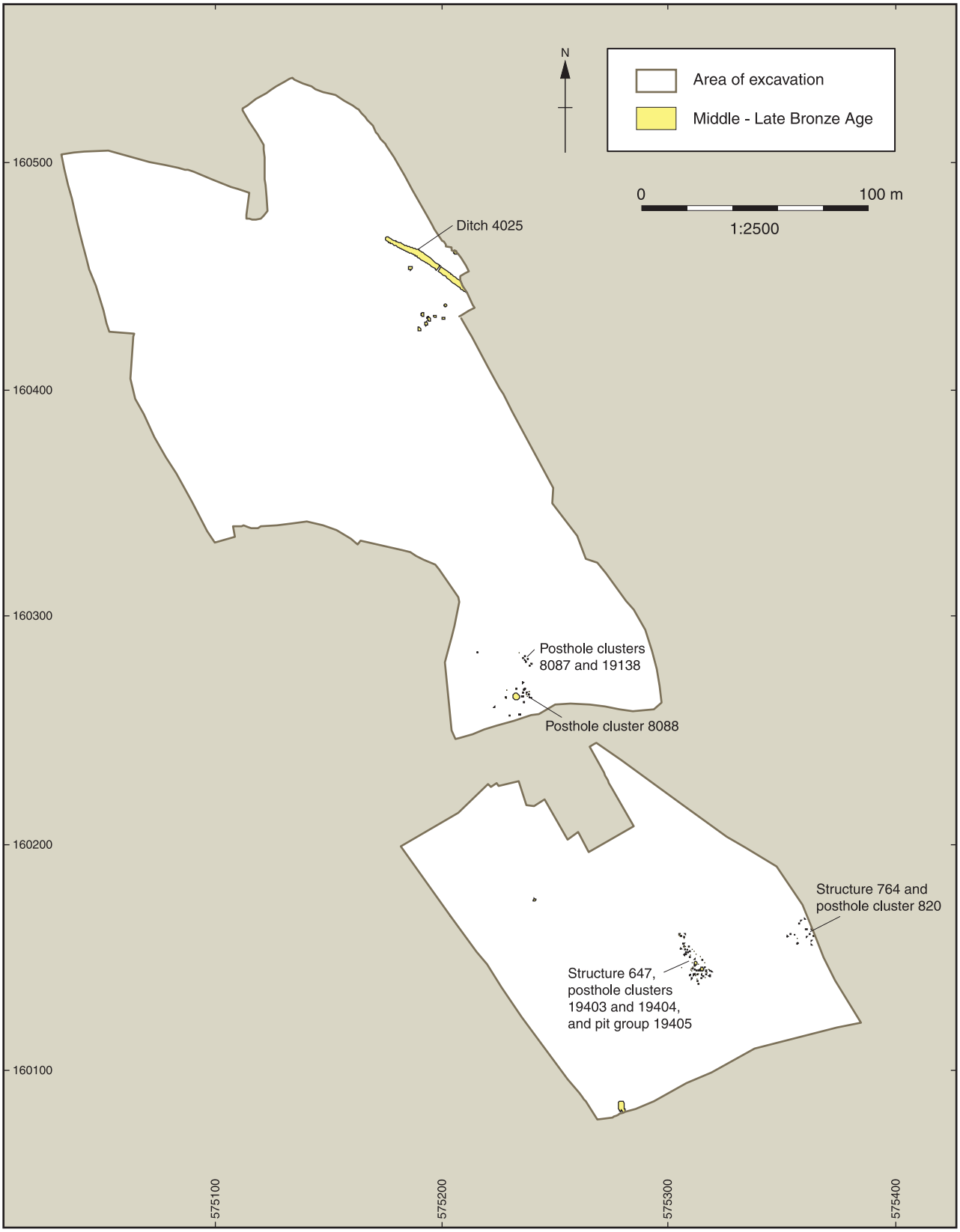


Figure 4.16 White Horse Stone: plan of Middle–Late Bronze Age features

Open settlements

The vast majority of the evidence for occupation was in the form of open settlements. In a few cases there was some sign of the settlement area being bounded by a ditch, but this did not constitute enclosure in its normal archaeological usage. In this section the physical evidence for settlement will be reviewed, in terms of features and structures other than the ditches and field systems discussed above. The lack of clear boundaries makes it difficult to estimate the size of individual settlements or the density of settlement features within the area. Nevertheless, some attempt will be made here to suggest some of these figures, to exploit the evidence provided by the HS1 route for less substantial settlement traces as well as the larger and more densely packed 'sites'.

Middle Bronze Age

In the Middle Bronze Age all traces of settlement were slight, and frequently in very small clusters. At West of Northumberland Bottom (Askew 2006, 15) and Tollgate (Bull 2006b, 11) all evidence for this period was in the form of residual artefacts in later features; no structural traces of Middle Bronze Age activity had survived and they may originally have been quite slight.

The largest concentration of Middle Bronze Age activity was at White Horse Stone (Hayden 2006a, 99–115). Even so, it was very dispersed within the area excavated (Fig. 4.16). At the south end of the site a clearly defined cluster of over 80 postholes (Groups 19403 and 19404) and two pits (Group 19405) extended for a length of nearly 30m, and a width of less than 10m (Fig. 4.17). It included postholes with flint packing that may have formed a structure (see below). About 40m to the east was a further cluster (Group 820), little more than 10m across, and including a possible circular structure (764; see below); these features contained no dating evidence but are assigned

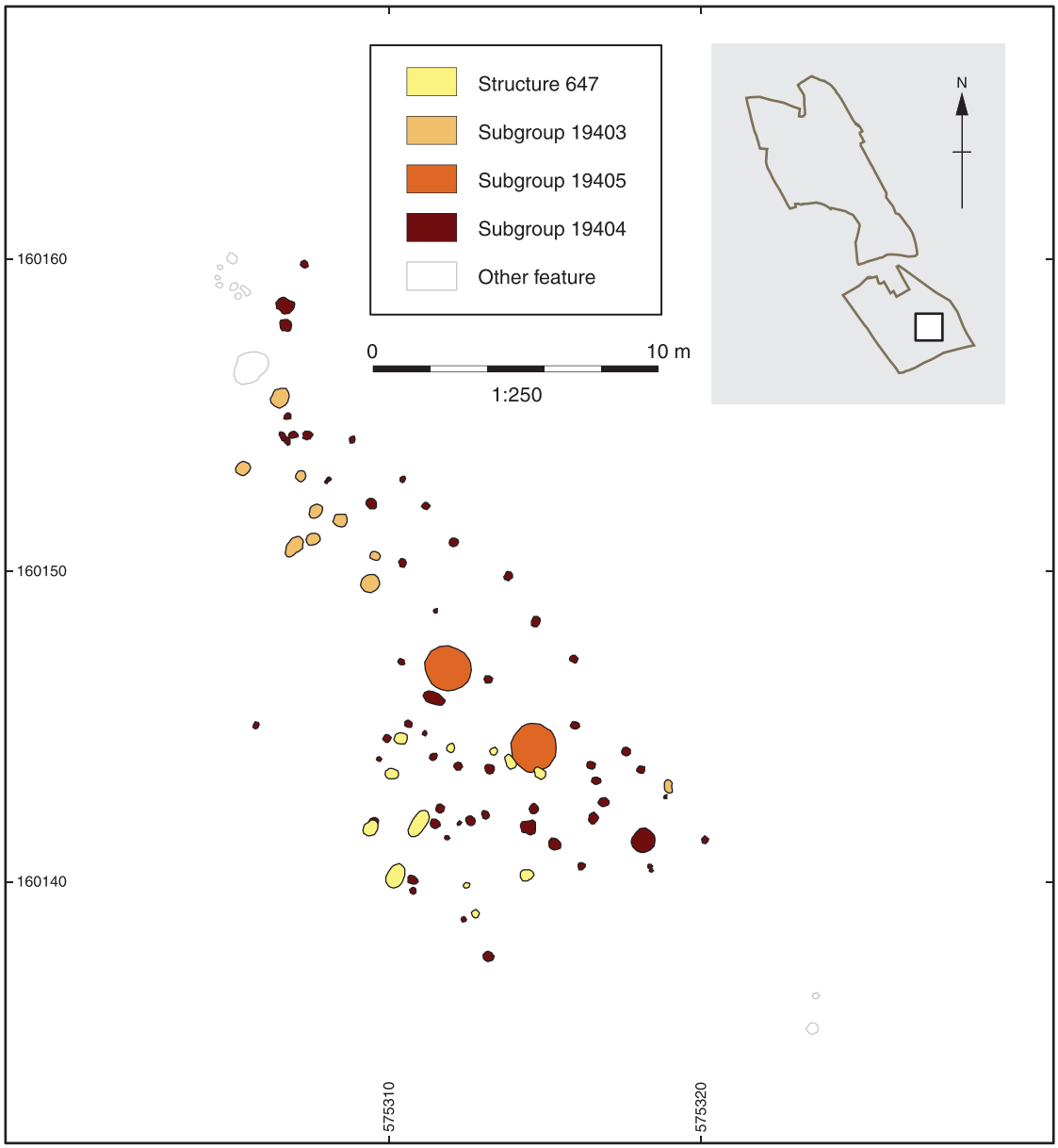


Figure 4.17 White Horse Stone: Middle Bronze Age structure 647, posthole groups 19403 and 19404, and pit group 19405

to the Middle Bronze Age because of the similarity of their form and filling, especially flint packing, to those of more securely-dated groups (Fig. 4.18). About 140m to the north was a further cluster of Middle Bronze Age features (Groups 8087 and 8088). These were thinly dispersed over areas about 15m across (Fig. 4.19), and 8087 included a possible rectangular structure (19138; see below). A further 150m north at the northern edge of the excavation another small group of pits containing pottery of the later Middle Bronze Age was found, about 20m across.

At Thurnham (Lawrence 2006, 14–15), a cluster of features, including the waterhole and some small pits with charcoal and burnt material, was found in an area of approximately 20m by 20m, though other possibly contemporary features, including a cremation burial and two ditches, extended more widely. At Snarkhurst Wood (Diez 2006c) the features included a small gully and two pits, spread out over a distance of less than 50m by 20m; if the features located in the construction of a motorway service station (Scott 1997) are related, the area of settlement would have been much larger, but the density even lower. At Tutt Hill (Brady 2006b, 16) three small pits, the fills of which contained charcoal and charred plant remains as well as Middle Bronze Age pottery, may be the evidence of settlement, but they were near earlier Bronze Age barrows and outlying cremation burials and so may rather be some form of ritual deposition.

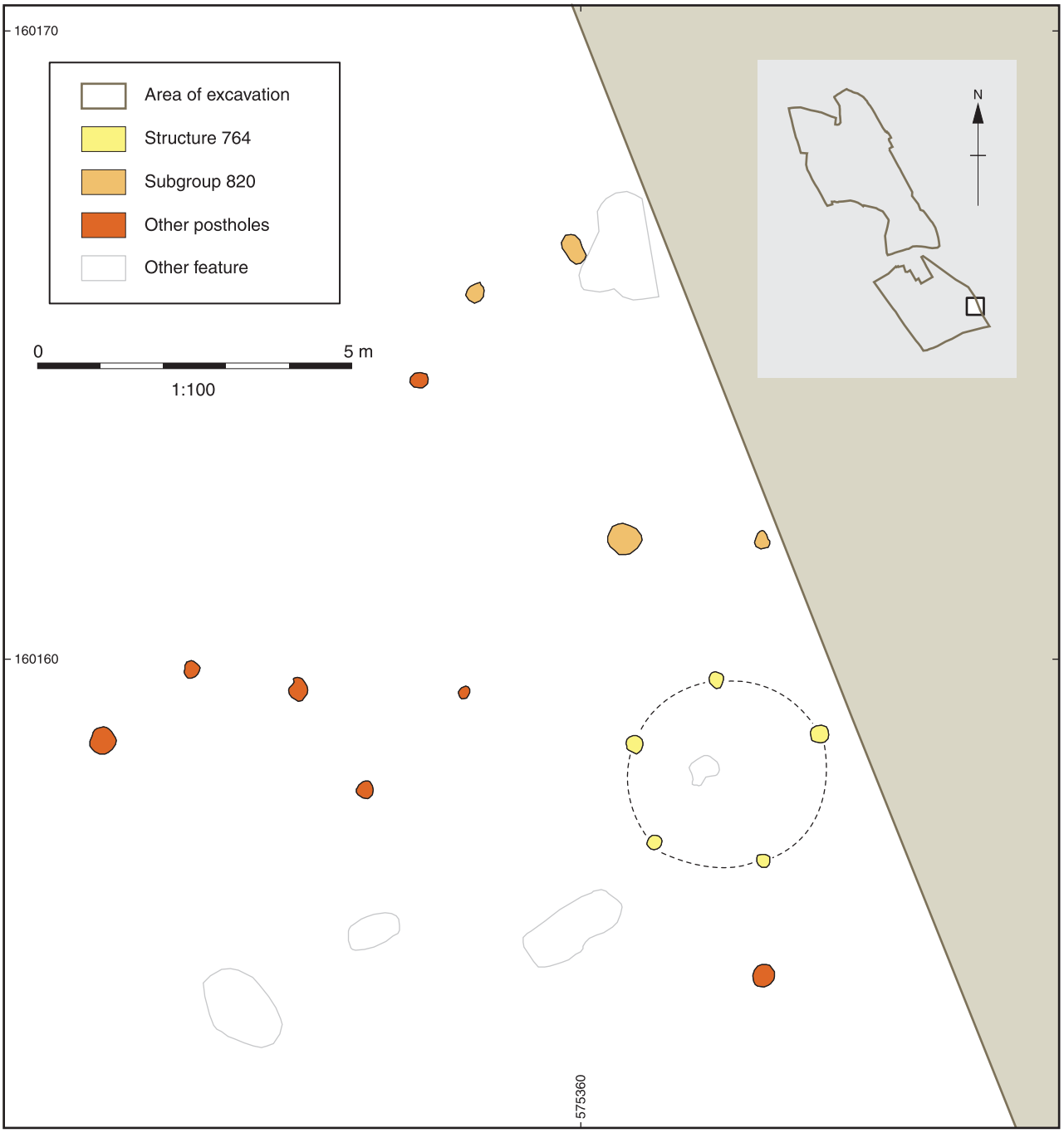


Figure 4.18 White Horse Stone: structure 764 and posthole group 820

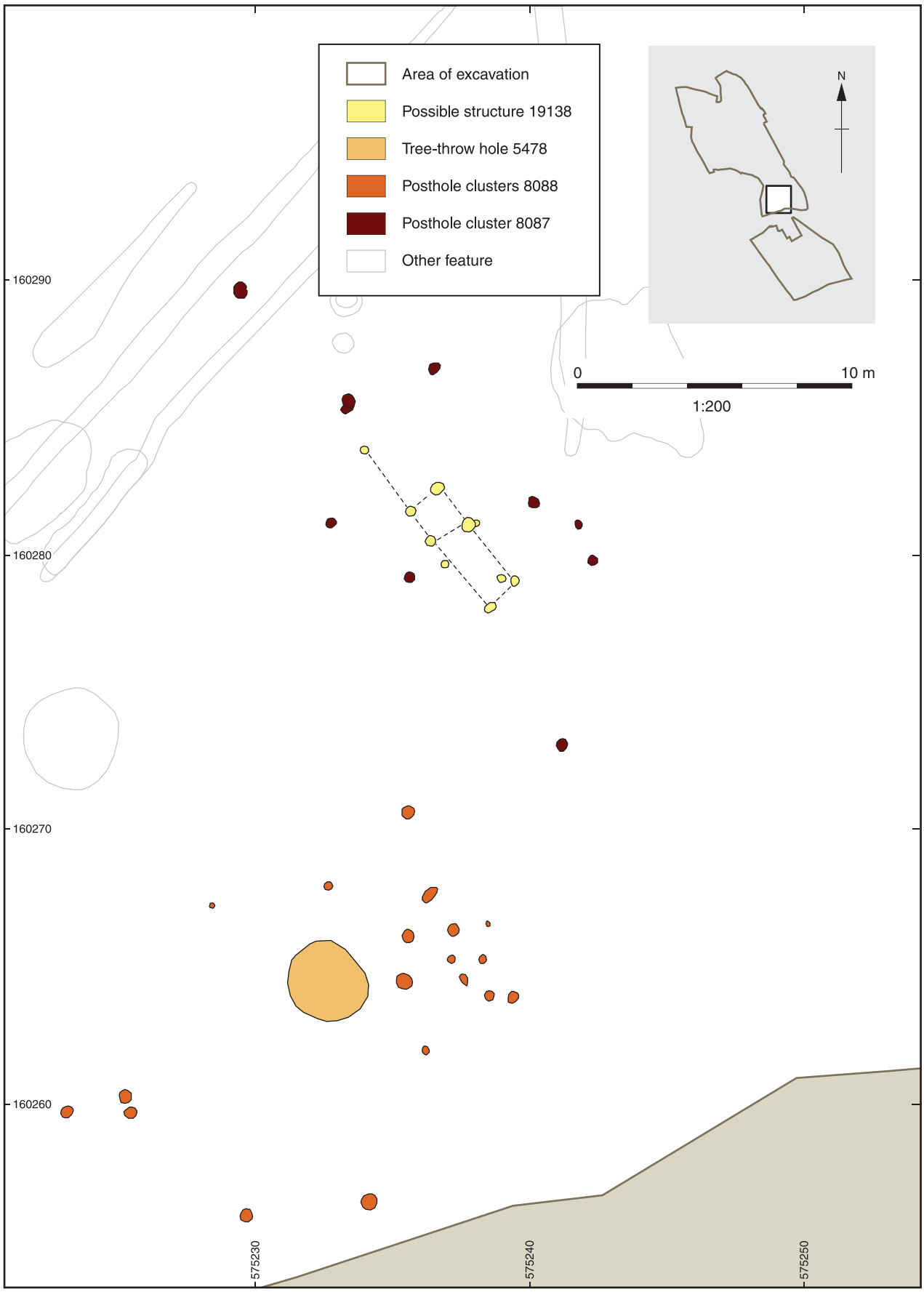


Figure 4.19 White Horse Stone: posthole clusters 8087 and 8088 with posthole structure 19138, tree-throw hole 5478 and posthole 5415

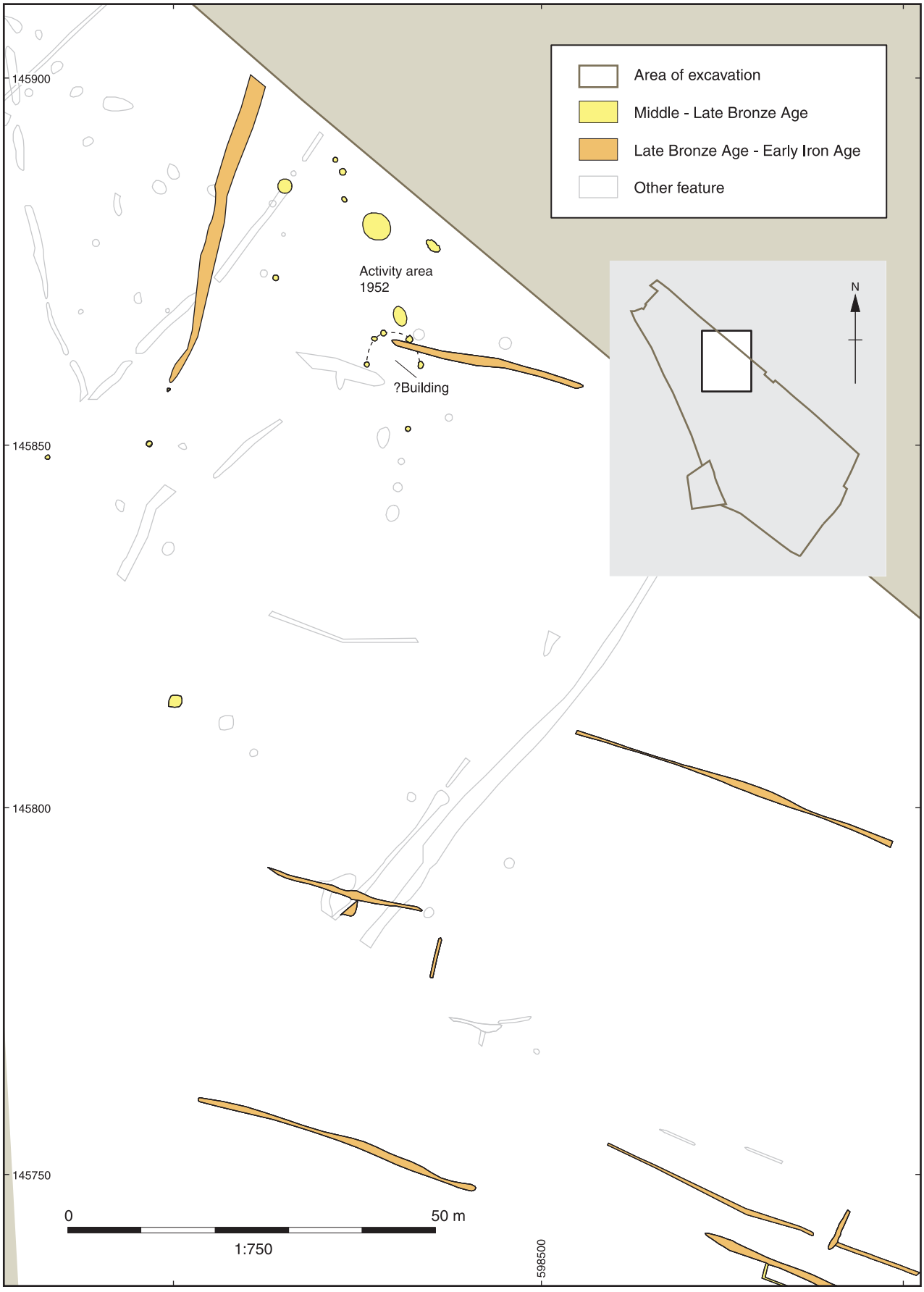


Figure 4.20 Beechbrook Wood: plan of Area 1952

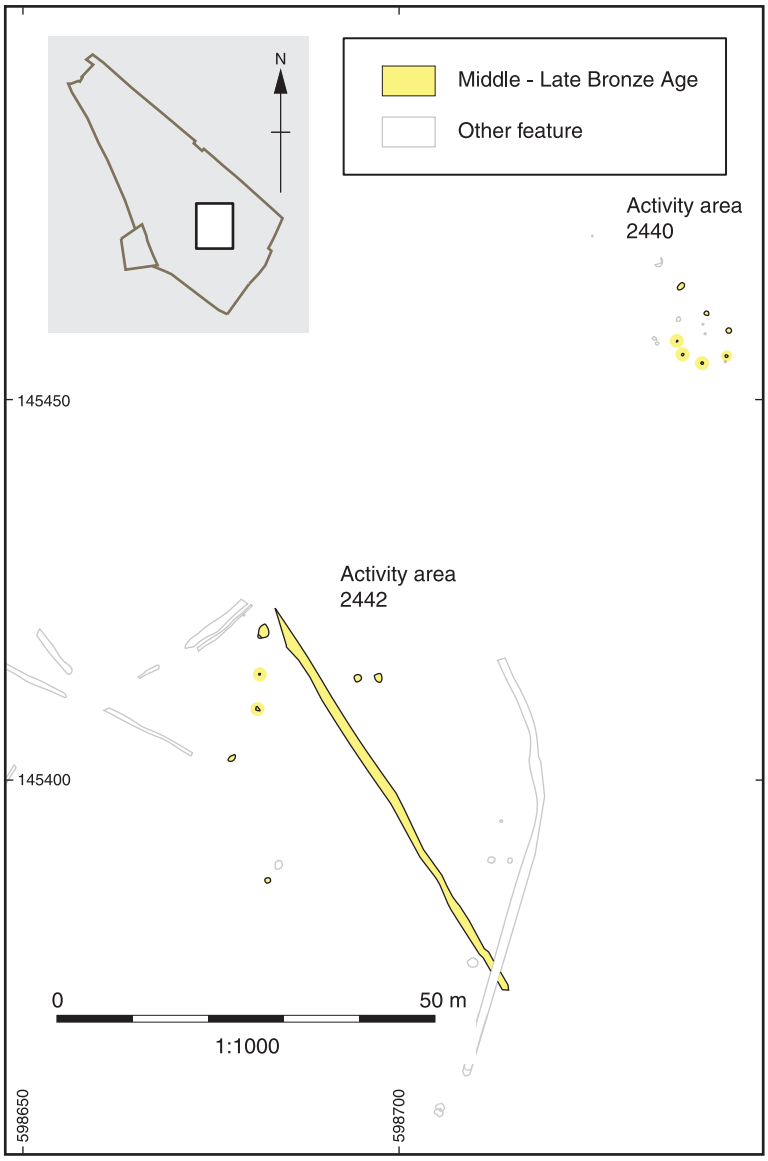


Figure 4.21 Beechbrook Wood: plan of activity areas 2440 and 2442

At Beechbrook Wood (Brady 2006a, 18–23), Middle Bronze Age settlement comprised dispersed features in an open landscape, with two main clusters as much as 500m apart (see Fig. 4.11). Activity area 1952 was about 50m by 50m (Fig. 4.20), and included shallow pits with pottery, fired clay possibly from hearths, charred plant remains, as well as a small quantity of cremated human bone. The group also included an arc of five postholes, possibly the remains of a building. To the west of this group other undated features represented possible structures and may have been of similar date. Another pit, certainly of Middle Bronze Age date but situated 50m to the south, may have been part of the same complex, or another unrelated focus of activity. Towards the southern end of the site lay activity area 2440, comprising groups of postholes that may have made up structures, as well as a small number of pits (Fig. 4.21). To the south-west of this group, about 70m distant, was activity area 2442, similarly comprising some pits, the postholes of a possible structure, and some fragments of ditches. These two groups of features, widely separated in the excavated area, both comprise pits and possible structures, with fired clay suggesting the presence of possible hearths. The activity areas, however, are defined by very sparse scatterings of features, each of which is quite small.

Further east, between Ashford and Folkestone, Middle Bronze Age activity was well documented, but settlement traces were minimal. At North of Westenhanger prehistoric settlement traces were present, but incoherent; they included at least one pit of Middle Bronze Age date (Gollop 2006, 5). At Saltwood Tunnel, Middle Bronze Age material mostly survived as residual finds in later fills: apart from an unurned cremation deposit, the only structural feature of this date was a single Middle Bronze Age pit (Riddler and Trevarthen 2006, 12).

Late Bronze Age

A similar pattern is seen in the evidence for Late Bronze Age settlement, though on fewer sites. At Tollgate (Bull

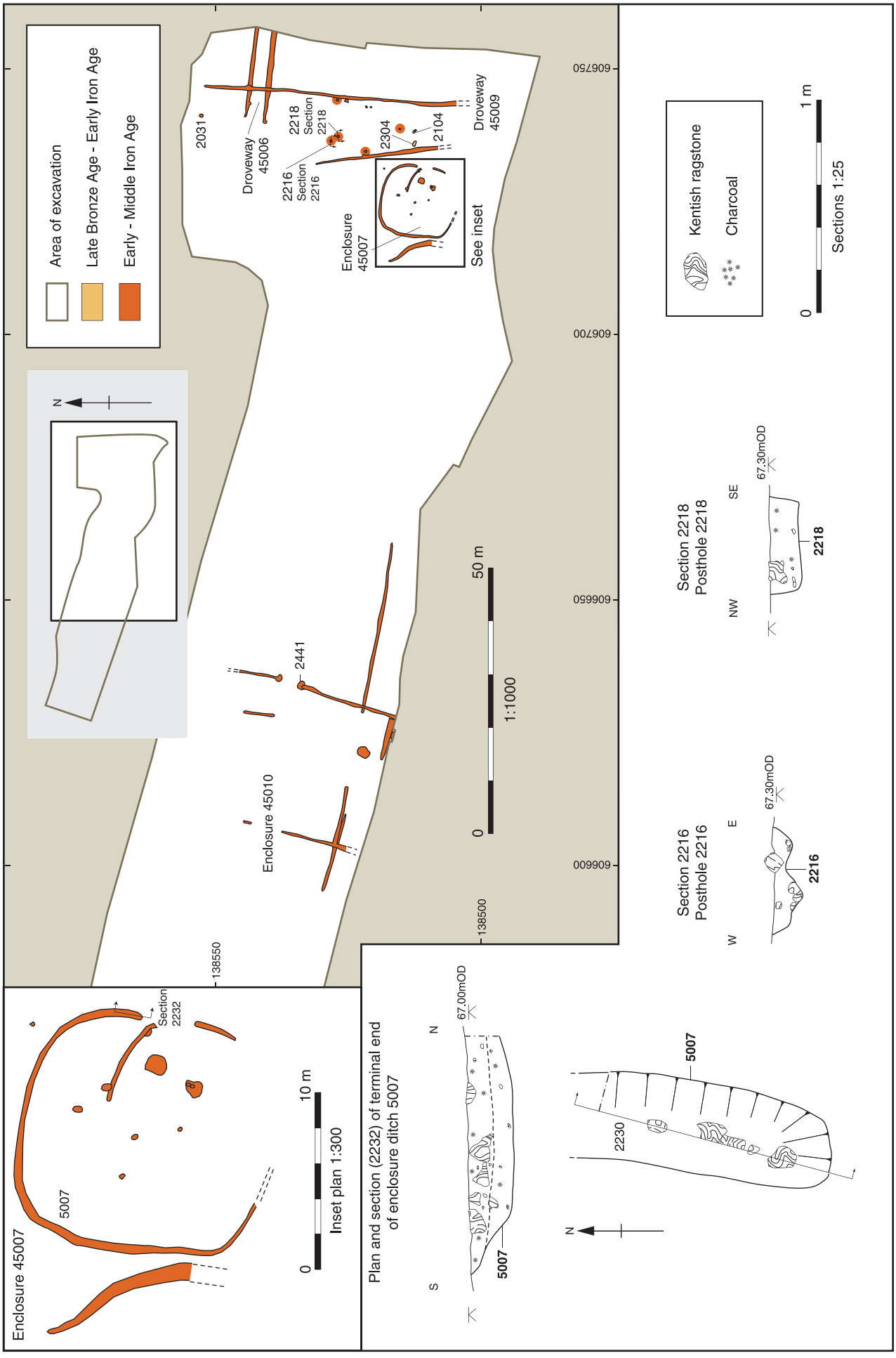


Figure 4.22 Little Stock Farm: Early–Middle Iron Age phase plan and selected sections

2006b, 11), Late Bronze Age settlement was represented by a single pit. At Cobham Golf Course (Davies 2006, 11–12) the evidence comprised a scatter of features in two groups on either side of a ditch, respectively about 20m and 40m across. The Late Bronze Age evidence at White Horse Stone also consisted of a single large pit (5421) containing a considerable quantity of pottery and flint (Hayden 2006a, 122–3). At Beechbrook Wood (Brady 2006a, 24) a few pits in the area of the field system may have been contemporary with its use, but otherwise there was no indication of domestic activity. At Chapel Mill too there was a single pit to indicate occupation in the Late Bronze Age (Hayden 2000b, 6).

Only at Saltwood Tunnel was the evidence rather more extensive (Riddler and Trevarthen 2006, 12–14). There the occupation evidence for this period lay within the area of the field system (see Fig. 4.13) and comprised two groups of pits, each spread fairly thinly over a large area. At the northern edge of the site, and extending beyond the limits of the excavation, was a zone of occupation features (Group 46025) delimited by a ditch; this was aligned on the axis of the field system and appears to be contemporary with it. It extended for a distance of about 30m. About 60m further south was another cluster of pits (Group 46026), which extended somewhat further, and also appears to have been bounded on its eastern edge by a ditch. This ditch intersected one of the field system ditches, and was therefore probably not contemporary with at least one phase of the use of the fields. Although both groups of features were dated to the Late Bronze Age, there is no indication of whether they were in contemporary use or alternatively represent a pattern of migration and relocation of settlement within a structured landscape.

Earliest Iron Age

The clearest evidence of occupation in this phase is at Little Stock Farm (Ritchie 2006, 5–6), where two shallow pits contained placed deposits of pottery (Fig. 4.22). These may have existed in isolation, or may have been contemporary with some of the other features, which were mostly difficult to date before the Late Iron Age occupation. A rectangular ditched enclosure (45010) with an eastern entrance may be of this period, on the basis of human skull fragments found in a placed deposit in a pit (2441) by the entrance; these were dated to 800–510 cal BC (NZA-19916), though the possibility that they were already very old by the time they were buried there must be considered, especially in view of other depositional activities at the site (see below). The enclosure appears to have been associated with a droveway leading up to it from the east, and may have been for stock management. Other features on the site are more likely to be associated with the phase of Late Iron Age activity, though that may have begun in the Middle Iron Age.

Early Iron Age

In the Early Iron Age the evidence is similar: though the features are again found mostly at a very low density, some of the occupation areas are more extensive and at White Horse Stone there is the only large site of dense prehistoric occupation along the HS1. At West of Northumberland Bottom (Askew 2006, 17–25) the Early Iron Age occupation was in the form of a low-density scatter of pits and stakeholes extending about 50m by 25m in the excavated area; no structures were visible except possible animal pens formed by some of the stakeholes. At Tollgate (Bull 2006b, 11–16) Early Iron Age occupation comprised two small clusters of pits separated by a distance of 300m, and a third cluster of pits and other features including hearths and stakeholes. This may have represented structures such as pens or fences, now severely truncated. The group spread over a length of about 80m, separated from the next nearest group of pits by 150m of space with no features.

At Cuxton (Mackinder 2006, 9–11) the occupation area had been cut through by a 19th-century railway line and a quarry; if all the evidence for Early Iron Age occupation is part of a single site, then it was made up of a scatter of features over an area roughly 100m by 40m, including pits and postholes and a possible circular structure (Fig. 4.23). Lines of postholes indicate a fenced enclosure to the east of the house, with double postholes marking an entrance. Short sections of ditch inside the enclosure demarcate an area between the entrance and the house devoid of other features. Other features, potentially contemporary, were located outside this small enclosure.

The Early Iron Age occupation evidence at White Horse Stone (Fig. 4.24) was strikingly different from that found at any other site, in size and density of the features and in their type and organisation (Hayden 2006a, 126–73). It extended across the whole of the northern end of the excavation and may well have continued beyond the limits of exploration on three sides; on the south side the occupation was bounded by a zone with few features and then a distinct lynchet. As found, it stretched for approximately 150m in each direction. The whole area was covered with pits and postholes at a much greater density than seen anywhere else, but with a clear zonal organisation. Radiocarbon dates suggest that the southern part of the site was occupied earliest and for the longest span of time, while activity in the northern part of the site started later and may have been confined to a period of about a century. At the heart of the site was a cluster of intercutting pits; about one third were excavated, totalling 61, suggesting that there may originally have been about 180 pits. Around this was a zone of postholes; many could not be associated with recognisable buildings, but others formed four-post structures. A small number of possible structures of other types was suggested. Beyond the structures were further clusters of pits, some with distinctive filling patterns. On the east side many of the pits contained iron slag from smelting and smithing. The structures and the pits will be discussed further below, and the pit fills in more detail in a later section.

Figure 4.23 Cuxton: plan of Early–Middle Iron Age settlement

Figure 4.24 White Horse Stone: plan of Iron Age settlement

Further east, Early Iron Age occupation was once again minimal. At Eyhorne Street (Hayden 2006b, 18–27) it was made up of a very low density of features including pits, hollows and small gullies, which may be the remnants of some form of enclosures, scattered along a distance of about 200m; occupation may well have extended either side of the excavated HS1 corridor (Fig. 4.25). At Tutt Hill (Brady 2006b, 20) there was only a short length of gully and a pit, about 80m apart, that could be assigned to this phase. In the whole of the large area observed at Beechbrook Wood only one feature, a short section of ditch, was found which could be dated to the Early Iron Age (Brady 2006a, 25), though other features were found nearby which could not be dated securely. Similarly, at Blind Lane, the only Early Iron Age feature was an isolated posthole or small pit with a placed deposit of a La Tène I brooch, though it is again possible that nearby features, not well dated, may also belong to this phase (Hayden 2001, 8).

Middle Iron Age

Evidence of occupation in the Middle Iron Age was very limited, apart from the double enclosure at Beechbrook Wood (Brady 2006a, 30) (see Fig. 4.15). At the same site there was a single pit that could be dated to this period. Otherwise, the evidence for Middle Iron Age activity was limited to one pit at Tutt Hill (Pit 33), where pottery with curvilinear decoration in glauconitic fabric could be dated to this phase (Brady 2006b, 20). Less certain is the dating of features at Little Stock Farm (Ritchie 2006, 6–8). The main phase of occupation definitely belonged to the Late Iron Age, but when it began is less clear (see Fig. 4.22). A sub-circular enclosure (45007) may date to the Middle Iron Age; it was about 15m in diameter, and possibly contained a post-built roundhouse, though the details are far from clear.

Structures

There were very few convincing features or groups of features that could be interpreted as structures of any period. In the Middle Bronze Age, the only possible examples identified were at White Horse Stone and Beechbrook Wood, while in the Late Bronze Age no possible structures were recognised.

At Beechbrook Wood, there were several possible structures of varying degrees of certainty (Brady 2006a, 18–23). In Activity Area 1952, a semicircle of postholes with a diameter of approximately 8m may have been the remains of a roundhouse, or alternatively a semicircular building; other nearby postholes may have been related (see Fig. 4.20). To the west of this were two possible structures, though neither was well dated. Similarly, further south, in activity areas 2440 and 2442, there were groups of features that might have been postholes, but, despite the presence of quantities of burnt clay, some with wattle marks, which might have demonstrated the nearby presence of structures, they did not convincingly indicate a ground plan (see Fig. 4.21). Thus, although there was plentiful evidence for human activity in two distinct areas at Beechbrook Wood, there were certainly no clear roundhouses or other structures; although the cut features and the remains of fired clay point to the original presence of structures, neither their plan nor their function is certain. It is possible that later truncation has removed shallower features; alternatively, substantial structures were built without leaving significant archaeological trace.

Other equally problematic traces of possible Middle Bronze Age structures were found at White Horse Stone (Hayden 2006a, 101–6). At the southern end of the site there was a large group of postholes and pits (see Fig. 4.16); some of the postholes had flint packing, suggesting use for structural timbers. One set of these (Fig. 4.26) formed a possible sub-rectangular or trapezoidal feature (Structure 647), though other similar postholes could not be fitted to a clear pattern (ibid., 102 and fig. 52). Some way to the east was another, more dispersed, cluster of pits and postholes (subgroup 820); the features were mostly undated, but the postholes were similar in form and packing to those of the other group. One set of five postholes formed an approximate circle or oval of about 3m diameter, probably indicating the basic plan of a structure (764) (ibid., 106 and fig. 57). A final group of postholes (8087) contained no finds and was undated, except by comparison of form and contiguity to the neighbouring cluster 8088, some or all of which almost certainly dated to the Middle Bronze Age. Among this group was a set of postholes that could be grouped to form a rectangular structure (19138) (ibid., 105 and fig. 56); it is not entirely convincing, and could equally represent a four-post granary plus some unrelated postholes, or a much more complex and diverse set of functions.

Evidence for possible structures of Early Iron Age date was found at three sites. At Cuxton (Mackinder 2006, 11) there was a possible circular structure: seven postholes in a subcircular pattern may have been the inner ring of posts for roof support (see Fig. 4.23). There was no trace of the outer wall line, but burnt daub, some showing an external surface treatment with a sandy limewash, shows its material nature. Lines of postholes marked a fenced enclosure to the east of the house, with double postholes indicating an entrance.

The most plentiful evidence for structures of the Early Iron Age comes from White Horse Stone, though even there the patterns are difficult to decipher and many postholes cannot be reliably grouped into meaningful structures (Hayden 2006a, 143–6). In addition to the large number of four-post granaries, discussed below, there was one set of four very large postholes with a further pair (Fig. 4.27), which it is suggested might represent the central roof supports and porch of a roundhouse (structure 19440) (ibid., 143 and fig. 82); the hypothetical porch, however, would indicate a doorway orientated north-westwards, the opposite of the most frequent direction seen in Iron Age roundhouses (Oswald 1997). There were also two groups of postholes interpreted as open-sided rectangular or trapezoidal

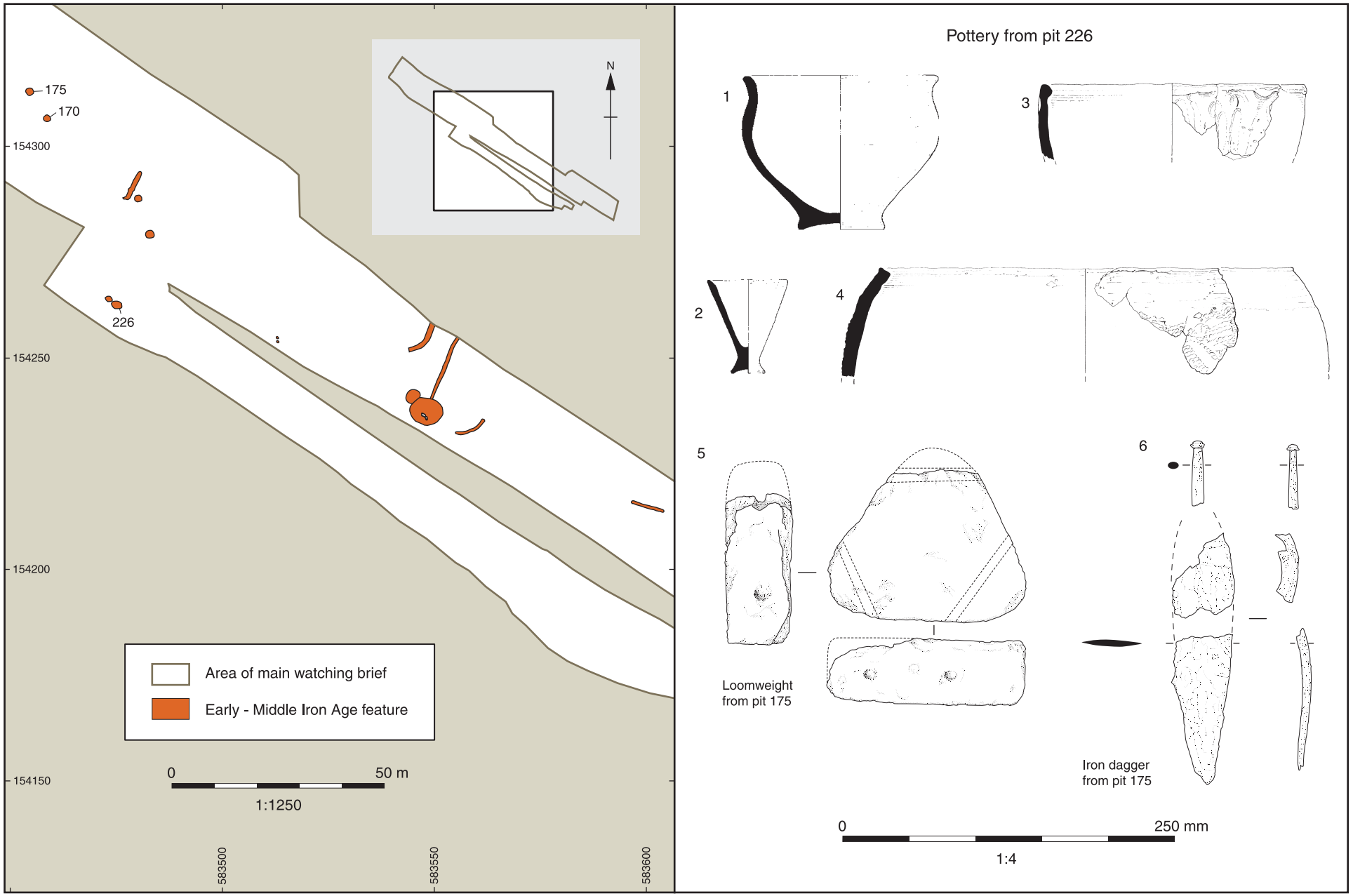


Figure 4.25 Eyhorne Street: plan of Iron Age features and associated finds

structures. Structure 19098 (Fig. 4.28) seems like a screen or shelter constructed around pit 4561, though it is not clear why this pit should have required such a feature (Hayden 2006a, 145 and fig. 79), while structure 2597 (Fig. 4.29) was a more like an open shed (ibid., 145 and fig. 77).

Despite lengthy analysis of the recorded postholes, only two possible fragments of circular patterns could be recognised, in the form of two intersecting arcs (subgroup 2584, structures 2584a and 2584b; Fig. 4.29), which may have represented structures, though not contemporary, with diameters of approximately 8.5m and 9.5m (Hayden 2006a, 145 and fig. 77). If roundhouses had originally existed at the site, then they were either unrecognisable among the mass of unassigned postholes, or had been truncated by later activity, or had been built in a way that left no significant archaeological trace.

At Little Stock Farm (see Fig. 4.22), a post-built roundhouse may have existed in the interior of the sub-circular enclosure described above (Ritchie 2006, 6).

Granaries

Rectangular four-post (and similar) structures of the type normally interpreted as granaries were found on only four sites, and their chronological distribution is quite striking. None was found that could be dated to the Middle or Late Bronze Age. At White Horse Stone a minimum of 55 such structures were found, all belonging to the Early Iron Age (Hayden 2006a, 136–43) (Figs

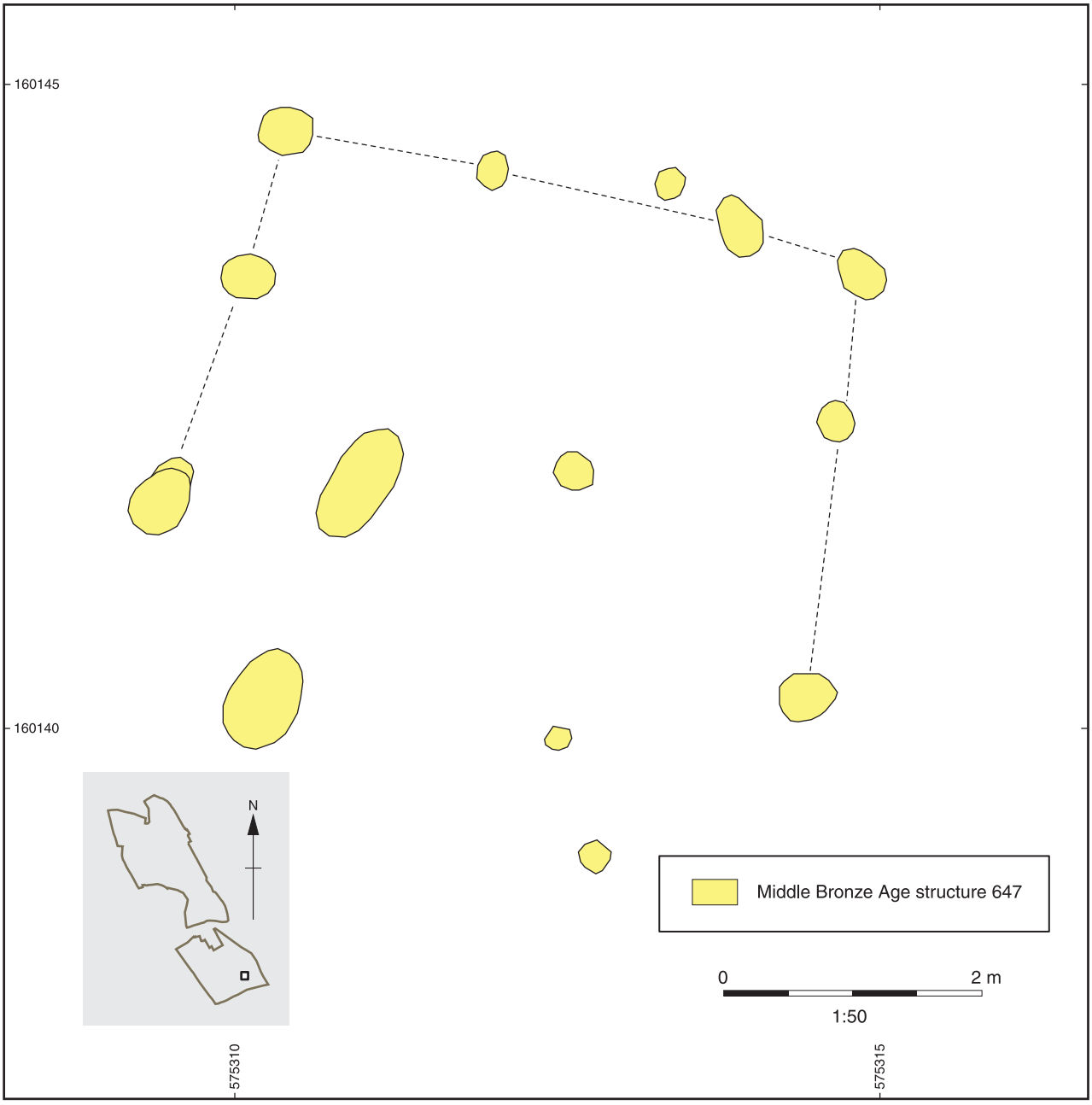


Figure 4.26 White Horse Stone: Middle Bronze Age structure 647

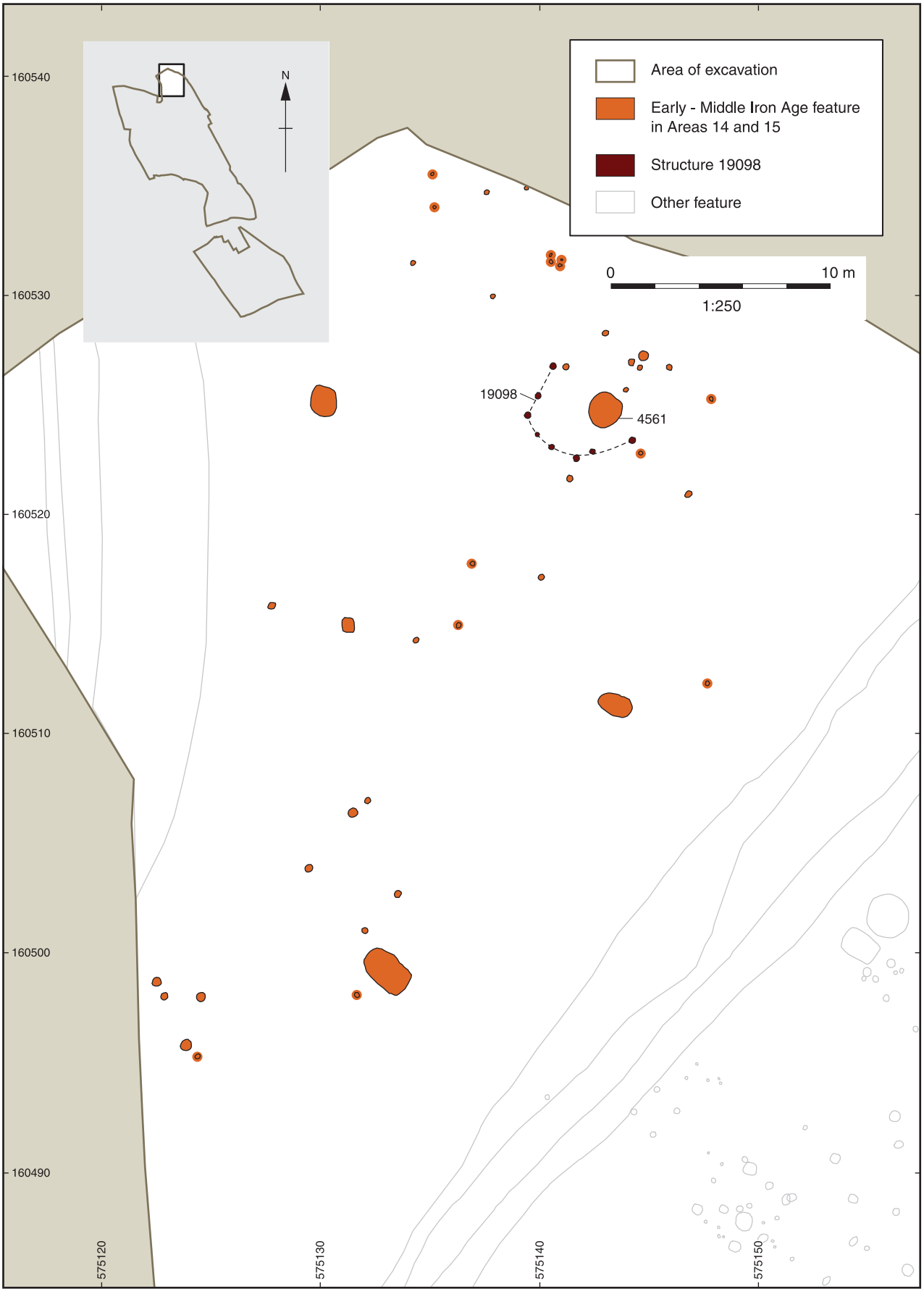


Figure 4.28 White Horse Stone: structure 19098

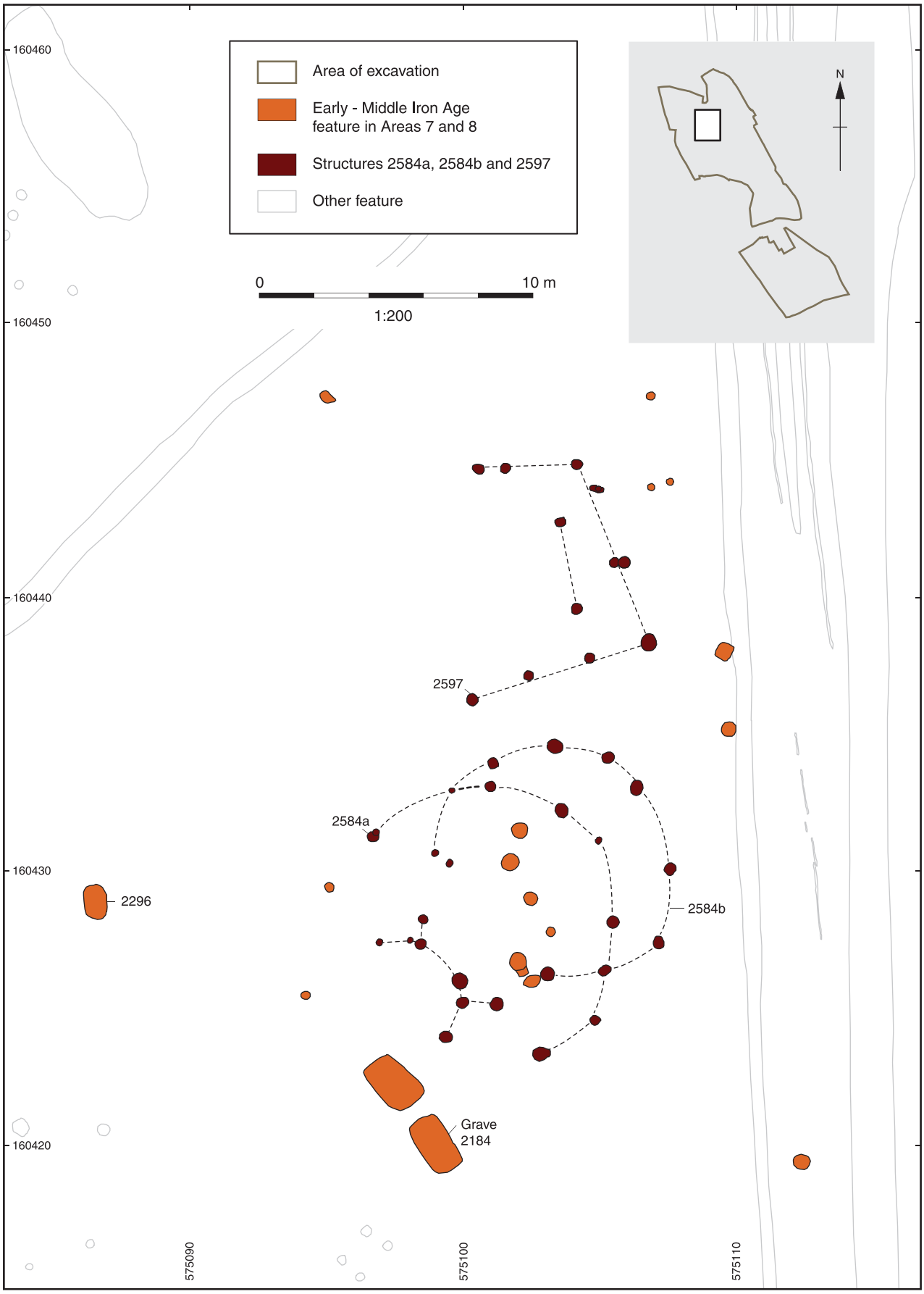


Figure 4.29 White Horse Stone: Iron Age settlement, including structures 2584 and 2597

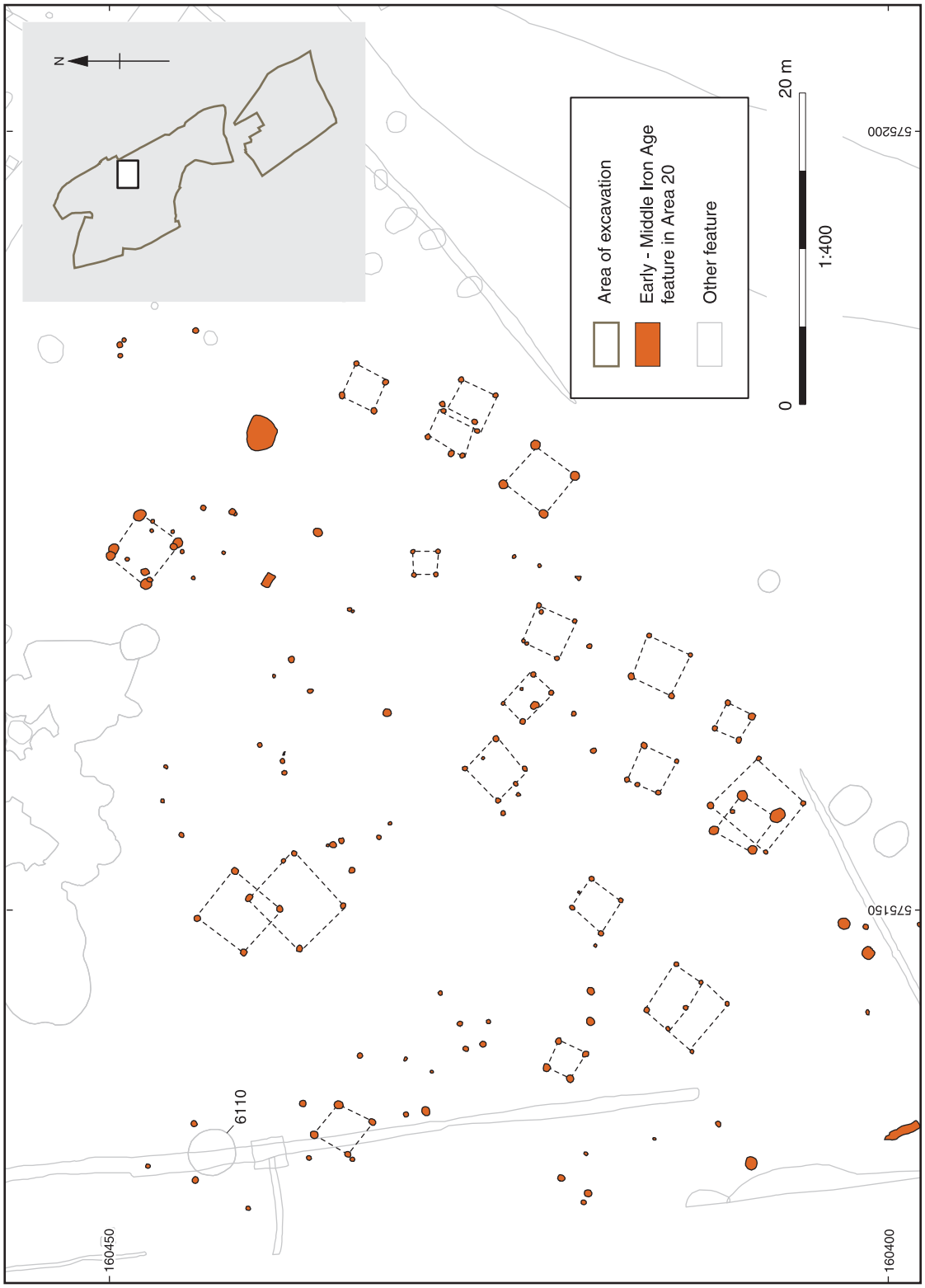


Figure 4.30 White Horse Stone: granaries in the Iron Age settlement, Area 20

Figure 4.31 White Horse Stone: photograph of granaries in the Iron Age settlement, Areas 1–6

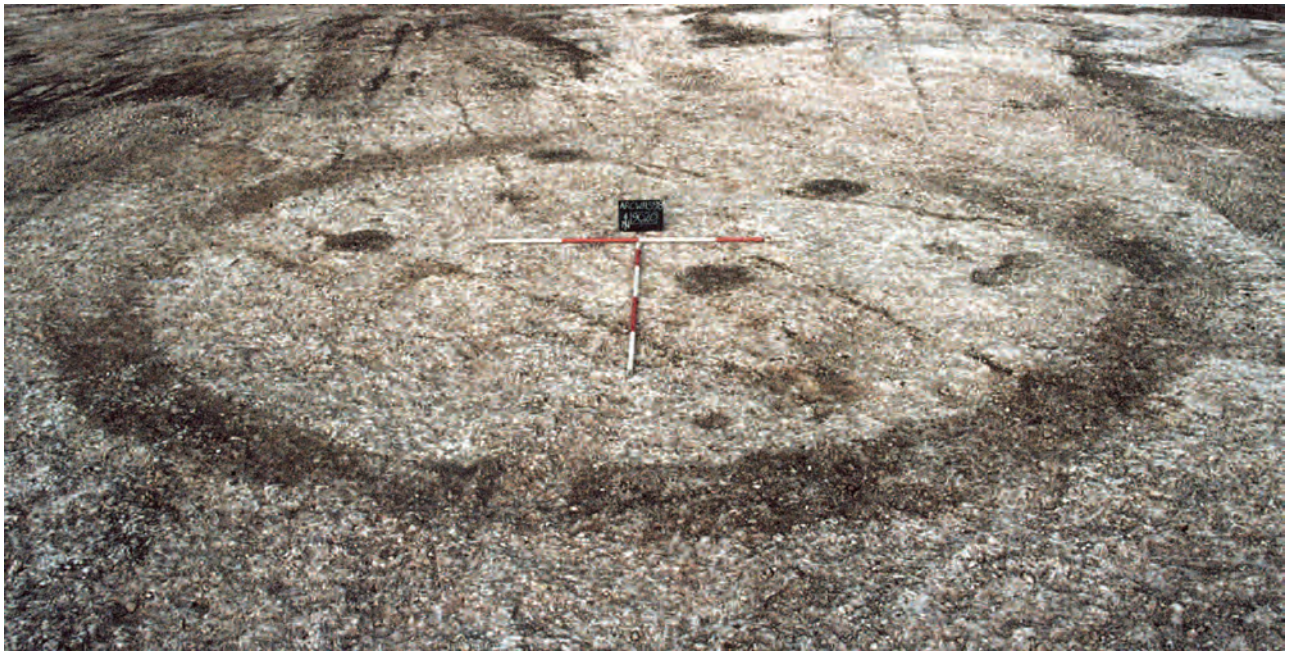


Figure 4.32 White Horse Stone: photograph of Iron Age granary 19061 and gully 19020

4.30–32). Elsewhere, they were all somewhat later. At Beechbrook Wood (see Fig. 4.15), one four-post granary was found inside the Middle Iron Age double-ditched enclosure (Brady 2006a, 30), though it is quite possible that others may have existed, now destroyed by modern disturbance; two more were found that dated to the Late Iron Age. At West of Northumberland Bottom two granaries were found associated with the episode of land division that was organised late in the Iron Age (Askew 2006, 23), while at Little Stock Farm the only granary found was also firmly dated to the Late Iron Age (Ritchie 2006, 10–11).

Hearths and furnaces

Evidence for features such as hearths and furnaces was found at several sites, though seldom *in situ* or with sufficient clarity to determine the original function in detail. At West of Northumberland Bottom a group of undated features located near a Middle Bronze Age cremation included a hearth and an area of scorched earth, suggesting fire-related activities, possibly cremation of human remains, but their function and date were not certain (Askew 2006, 16). At Tollgate an area containing small pits, hearths and a possible posthole structure suggests an area for some industrial activity; the majority of the burnt bone fragments from the site came from a pit near there, but the true function of the complex was not clear (Bull 2006b, 14). Elsewhere, a single hearth (503) among a cluster of Iron Age pits was associated with an assemblage of charred grains, mainly emmer with some barley; the low proportion of chaff suggests a late stage in the process of food preparation (Bull 2006b, 15).

At White Horse Stone two shallow bowl-shaped pits showed signs of intense burning (Hayden 2006a). Both contained debris from iron-working, which was also found in much greater quantities in other features in this area, and they may have been the bases for small furnaces or smithing hearths; vitrified clay fragments from other features suggest other such hearths may have existed (ibid., 148 and 163).

At Beechbrook Wood several pits dating to the Middle Bronze Age contained fragments, sometimes quite large, of fired clay, but none was found *in situ* (Brady 2006a, 20–1).

Pits

One of the commonest elements on all settlement sites were cut features termed pits. This term covers a very wide range of features, with different sizes, depths and profiles, and probably many different functions. Further study is needed to make clearer distinctions within this large group of features, but it is immediately possible to distinguish two types, though these do not necessarily include all of the excavated examples. One type is typically circular in plan, with a rounded or irregular profile in section and no clear base. The other is circular or sub-rectangular in plan, more or less vertical sided, and with a flat base. In terms of the definition offered by Rawlings for the analysis of the pits at Maiden Castle (in Sharples 1991, 89), where a pit is defined as having a distinct flat base which meets the sides at an angle between 60 and 120 degrees, only the latter type would be called a pit. This distinction is recognised at White Horse Stone, where the pits assigned to that site's types 1 and 2 have true bases, but those in type 4 are shallow scoops (Hayden 2006a, 146–8).

The scoop-like pits are found in settlement contexts of all periods. They are typically shallow, seldom being more than 0.5m deep. Their function is unclear, but in the Iron Age occupation site at White Horse Stone there was a considerable degree of spatial separation from the deeper vertical-sided pits, suggesting a difference in usage; two showed signs of burning, perhaps related to iron-working, but these features may well have been dug for a variety of functions, including simply the burial of things.

True pits, with vertical sides and flat bases, were only found in sites of the Early Iron Age, at West of Northumberland Bottom (Askew 2006, 18–22), Tollgate (Bull 2006b, 11–15), Cuxton (Mackinder 2006, 9–10), White Horse Stone (Hayden 2006a, 146–52) (Fig. 4.33) and Eyhorne Street (Hayden 2006b, 22–5). Though comparable in form to the well documented pits from Iron Age sites in Wessex, they were mostly rather shallower, seldom reaching a depth of even 1m. Most were straight-sided features with flat bases, conforming to the cylindrical type defined at Danebury (Whittle in Cunliffe 1984a, 130) and at Maiden Castle (Rawlings in Sharples 1991, 89). At White Horse Stone it was possible to distinguish between those with a roughly circular shape in plan (Type 1) and those with a sub-rectangular shape (Type 2), a difference also noted at Danebury and Maiden Castle. Only one pit, Pit 147 at West of Northumberland Bottom, was clearly described as 'bell-shaped' (Askew 2006, 19), thus falling into the beehive category at Danebury or the overhanging category at Maiden Castle; this pit had a remarkable filling, discussed in detail below. A distinctive and unique type of pit was found at White Horse Stone, defined there as Type 3; this comprised pits with a smaller pit cut into the base, of which there were three examples (Hayden 2006a, 148; Fig. 4.33).

Settlement function and settlement hierarchy

The HS1 evidence will be discussed in a wider context in the following section, but first it is possible to say something about the possible social and economic functions of the various sites.

In the Middle Bronze Age there seems little difference between the various sites investigated. Some were more clearly integrated into organised field systems than others, but in terms of the size, density and nature of the occupation clusters, there was little variation. The absence of structures makes social interpretation difficult, but these may represent small social groups, perhaps individual households, of equal status.

The evidence for the nature of occupation in the Late Bronze Age and the Earliest Iron Age is very limited and does not allow profitable discussion of this sort.

The pattern found in the Early Iron Age is in sharp contrast to that of the Middle Bronze Age, showing considerable difference between sites. The large site at White Horse Stone is unique the presence of large numbers of pits and granaries, the evidence for iron-working and other crafts (discussed below), and in the very distinctively diverse nature of its ceramic assemblage (also discussed below). It occupies a key place in the landscape, where the Medway cuts through the scarp of

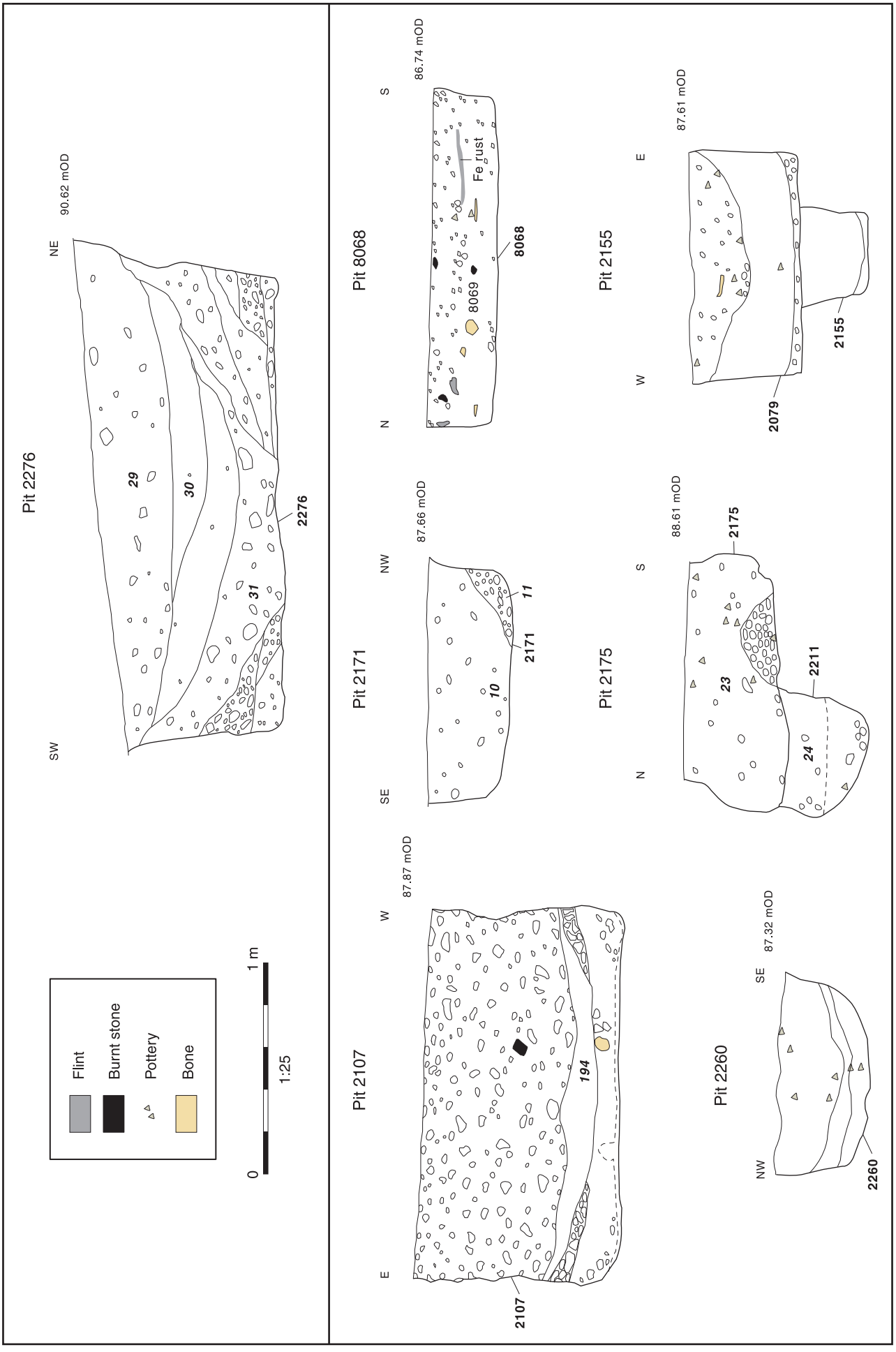


Figure 4.33 White Horse Stone: sections of selected Iron Age pits

the chalk downs, and may well have played a central role in the organisation of the agricultural and technological economy of the region; this role will be discussed further below, in a wider landscape context. By contrast, the other Early Iron Age sites are much smaller and simpler, again possibly representing the occupation of single households engaged in agricultural activity, though again the absence of clear structures makes interpretation problematic. There is, however, a marked difference between those sites at the western end of the route, on the chalk downs, and those lying east of White Horse Stone on the Greensand and clays. The latter are characterised by a much lower frequency of storage pits than those on the chalk. The Greensand zone may have been given over to predominantly pastoral activity, with a low level of dispersed population. There is clearly a need for more detailed economic evidence in the form of animal bones and plant remains, but the possibility of seasonal occupation for summer grazing cannot be excluded.

The evidence for the Middle Iron Age is limited almost entirely to the Beechbrook Wood enclosure. Its role will be discussed in a wider landscape context in the following section.

The later prehistoric settlement evidence in context

The evidence from the HS1 route can now be considered in the light of what is known from elsewhere in Kent and the south-east of England.

Middle-Late Bronze Age fields

Although the Middle Bronze Age was the period with the most plentiful evidence for human activity, the discussion above has shown that the physical traces of activity are very fragmentary. In particular, the ditches that may have made up field systems or other forms of land division are very difficult to interpret because of their poor survival. They may originally have been elements of coherent systems of fields and tracks, but it is not until the Late Bronze Age that we find clear indications of the true scale and nature of the organisation of the fields, as seen at Beechbrook Wood and Saltwood Tunnel.

Field systems of this sort dating to the later Bronze Age are now well known in Kent and more widely in southern and eastern England (Yates 2007). Some of the clearest evidence in Kent comes from large-scale excavation in the north of the county, the area that has seen the most development in recent years; Coldharbour Road, Gravesend (Mudd 1994), Kemsley Fields (Diack 2006) and Shrubsoles (Coles *et al.* 2003) are the more extensively explored. The HS1 sites now clearly demonstrate the existence of such field systems in the Greensand region south of the Downs. Some of the systems certainly began in the Middle Bronze Age, as at Coldharbour Road and Chestfield (Allen 2002), but the chronology of others is less certain.

The evidence from Beechbrook Wood and Saltwood has for the first time provided some indication of the extent of these systems; most of the known field systems in southern England, except those still surviving visibly in upland environments, have been discovered during excavation on development sites and are therefore known only in comparatively small interventions, revealing only a small part of the whole plan. At Beechbrook Wood the excavated traces extended for 400m by 250m, but the outer limits were not determined; at Saltwood, they measured 350m by 100m, but although the limits were reached on two sides, the whole system extended further. These were clearly not small openings in a wooded landscape, and there are some indications of even larger scale works. Two field systems excavated under much later occupation near Ashford, at Westhawk Farm (Booth *et al.* 2008, 25) and Brisley Farm (Williams 2003), were separated by a distance of about 500m, but the layout of the fields on approximately the same alignment at both sites hints at the possibility of wider planning of the landscape (Champion 2007c, 101 and fig. 4.21). Nevertheless, there is no evidence yet in Kent to match the scale of fields found for instance in Dartmoor (Fleming 2008) or parts of Wessex (McOmish *et al.* 2002). Much more research is needed in Kent and elsewhere to understand the variations in the extent of episodes of later Bronze Age landscape organisation and the social and environmental factors that lay behind them.

The HS1 sites have not produced much direct evidence for the usage of the fields. The presence of occasional features interpreted as waterholes is well matched at many other contemporary sites (Yates 2007, 137), but they may have served other purposes as well as livestock rearing. Environmental evidence from an excavated waterhole at Swalecliffe on the north coast of Kent (Masefield *et al.* 2003; 2004) showed that wheat and barley were also cultivated in the vicinity. Yates (2007, 120–2) has argued that the enclosing of fields may have been an important element in the control of both pastoral and arable production.

There is little evidence to suggest the continued use of the fields after the end of the Bronze Age, as in other areas of southern England with similar evidence for landscape organisation at this time (Bradley and Yates 2007, 96). The latest material in the ditches is certainly of Late Bronze Age date, showing that they had silted up by that date, but it is of course possible that the framework of the fields was maintained by other features such as trackways or hedges. A good argument for the presence of hedges demarcating the fields has been made at Perry Oaks (Framework Archaeology 2006, 102–4). Although the HS1 sites have not produced the same wealth of environmental evidence, the presence of large amounts of blackthorn at White Horse Stone has been interpreted as a possible indication of hedges in an otherwise open landscape there (Giorgi and Stafford 2006, 29). There is almost no evidence to demonstrate the subsequent use of the area covered by the Late Bronze Age field system at Beechbrook Wood, since the entire excavated area was remarkably devoid of any sign of activity between the Late Bronze Age and the Middle Iron Age. At Saltwood Tunnel, however, it has been

suggested above that the basic lines of the later prehistoric landscape may have originated in the orientation of the Late Bronze Age field system, with a set of Iron Age and later trackways following the orientation established then. The main focus of human settlement may have moved eastwards to the Dolland's Moor site, but the landscape was still used as an area for pasture and burial.

Middle Bronze Age

The evidence for Middle Bronze Age settlement, though found more frequently than that of any other period, is particularly slight. Occupation typically covered an unenclosed area about 20–40m across, with a low density of postholes and shallow pits, though individual structures were difficult to discern. This is clearly a very different settlement landscape from that described by Brück (1999c, 145), with 'round-houses, accompanied by a few pits, a pond, and perhaps one or two four-post structures', taken as typical of the Middle Bronze Age period, but derived from the limited sample then available, primarily from the chalklands of Wessex and Sussex. Sites of this general nature continue to be typical of the period on the chalklands of Sussex, as finds on the Brighton By-pass project demonstrate (Rudling 2002, 255–6). There are, in fact, few examples of any of the elements of this idealised Middle Bronze Age settlement type known anywhere in Kent. The evidence from the north-east of the county seems to suggest a distinctively different settlement history there: enclosures reminiscent of those in Wessex are found, such as at South Dumpton Down (Perkins 1995, 468–70) or Westwood Cross, Broadstairs (Gollop 2005), and there are occasional examples of well-defined roundhouses such as that at East Valley Farm near Dover (Parfitt and Corke 2003). The archaeological record of Middle Bronze Age southern Britain may be rather more varied, however: at Thorny Down, for instance, there are examples of rather slighter buildings of forms other than the classic roundhouse (Ellison 1987, 386 and fig. 1, structures III, X and XI), and these might be parallels for the possible oval or semi-circular structures identified at White Horse Stone and Beechbrook Wood.

Our understanding of the settlement pattern in north-west Kent, glimpsed somewhat fragmentarily at West of Northumberland Bottom and Tollgate, will be greatly enhanced with the publication of the more extensive discoveries in the subsequent A2 road works (Allen and Donnelly 2009). For the zone south of the Downs between the Medway and the Channel, however, the pattern of occupation is better documented, though still difficult to interpret. As discussed above, there is plenty of evidence for ditches and the division of the landscape, but nothing to suggest the large-scale field systems known from the Late Bronze Age. There is also evidence of human occupation at several sites, again discussed above, but in no case is it possible to integrate the occupation evidence into a landscape of fields. If the suggested interpretation of the ditches is correct, it seems likely that there was a pattern of dispersed and unenclosed settlement set within a divided landscape, even if we cannot now demonstrate it in detail. It is difficult to find exact parallels for such a system of occupation, and it is perhaps only in the largest-scale excavations that such a phenomenon could be revealed and understood, though even then there is the problem of precise dating. The evidence from the HS1 sites, especially White Horse Stone and Beechbrook Wood, can be compared in Kent with that from Kemsley, where small groups of pits and a possible roundhouse, located within a set of fields, could be dated to the Middle Bronze Age (Diack 2006, 9–15). Even less substantial were the traces of occupation at Hayes Common (Philp 1973, 30–51) or scattered in the field system at Iwade (Bishop and Bagwell 2005, 14). Further afield, the HS1 evidence could be compared to that found at Perry Oaks, near Heathrow in West London, where small settlement clusters were found amidst a large area of Middle Bronze Age land division (Framework Archaeology 2006, 114–33), or with the contemporary settlement evidence at North Shoebury in Essex, where 'small clusters of pits and postholes' were found scatted among the field boundaries (Wymer and Brown 1995, 20).

Evidence for Middle Bronze Age activity in the form of single, isolated pits, as at Mersham, is less easy to parallel elsewhere, though it is quite possible that such features are difficult to recognise in small-scale excavations and are under-represented in the published literature. A single pit with Middle Bronze Age pottery was found at Iwade in north Kent (Willson 2002), but the excavated area was limited. Further afield, two isolated Middle Bronze Age pits, one containing a placed deposit of two quern stones, are known in Hampshire at Winnall, near Winchester (Hawkes 1970). Other similar features could probably be found, and it now seems as though such isolated pits might be a regular part of the archaeological record for Middle Bronze Age settlement.

The HS1 sites do not contribute much to our detailed knowledge of the Middle Bronze Age settlement history of the chalk region in north-west Kent, but in the area south of the Downs the widespread but rather slight evidence for human activity seems to suggest an episode of large-scale clearance and colonisation of an area that had not been densely exploited before. Since most of our knowledge of the period is derived from other areas, especially the river gravels and chalk downlands, with very different long-term landscape histories, this evidence is an important reminder of the regional variability that we should expect, even within southern England.

Late Bronze Age

The settlement sites of the Late Bronze Age in the south of England are more varied than those of the preceding period (Brück 2007), but little of this variation shows in the HS1 evidence, which again shows a marked contrast to the rest of Kent. Distinctive sites such as the strongly enclosed, or even 'defended', ringworks are known in the county, such as Mill Hill, Deal (Stebbing 1934; Champion 1980, 233–7), Highstead B70 (Bennett *et al.* 2007, 16–25) and now Kingsborough (Allen *et al.* 2008); by the later stages of the period there is also

another distinctive type of oval enclosure, as at Highstead A24 (Bennett *et al.* 2007, 25–31) and Ramsgate Harbour Approach Road (Champion 2007c, 106 and fig. 4.25), as well as much larger enclosures such as at Eddington Farm, Herne Bay (Shand 2002). Extensive open sites are also beginning to be recorded, as at Holborough Quarry in the Medway Valley (Boden 2006; 2007b). At some sites, such as Kemsley (Diack 2006, 15–22), Shelford Quarry, Broad Oak, north of Canterbury (Boden 2004), or Willow Farm, Broomfield (Helm 2003), the occupation is scattered within the enclosures of a field system. Structural evidence includes roundhouses at Kemsley, Willow Farm, Shelford Quarry, and in the enclosures at Highstead A24 and Ramsgate, as well as four-post storage buildings at Holborough Quarry and Shelford Quarry.

The most substantial evidence for Late Bronze Age settlement on the HS1 sites, however, are the small clusters of occupation features in demarcated blocks within the co-axial field system at Saltwood Tunnel, a pattern best paralleled elsewhere in the Thames Valley at sites such as Cranford Lane, Hillingdon (Yates 2007, fig. 4.4). Parallels for the isolated Late Bronze Age pits, as at Tollgate, White Horse Stone and Chapel Mill, are probably greatly under-represented in the literature, but they can be matched elsewhere, for instance at Zionshill Farm, Chandlers Ford, Hampshire (Rawlings *et al.* 2003), where cylindrical loomweights and pottery were placed in a pit.

Again, as in the Middle Bronze Age, it seems as though there is a sharp distinction in the nature of settlement between the north and east of the county and the area south of the Downs. Although there are two extensive co-axial field systems, at Beechbrook Wood and Saltwood Tunnel, the occupation evidence is slight, with no traces of enclosures, houses or four-posters.

Earliest Iron Age

In view of the discussion above about the validity of the 'decorated' phase of pottery production as a valid chronological period, and the very small number of HS1 deposits that would fall into such a category, it is difficult to say much about occupation at this time. Brudenell (2008) has argued that such pottery is characteristic, not of a chronological phase, but of special places, perhaps associated with an elite. The one HS1 site with significant assemblages was Little Stock Farm, but apart from the deliberate deposits of pottery and the placing of a human skull fragment in a posthole by the entrance to the small enclosure, there was little to suggest a special or elite nature for this site. Elsewhere in Kent, characteristically decorated assemblages are not common; the pottery associated with the interrupted oval enclosures at Highstead A24 (Bennett *et al.* 2007, 25–31) and Ramsgate Harbour Approach Road (Champion 2007c, 106 and fig. 4.25) may be best assigned to this phase, and these distinctive enclosures with single central houses may be a form of elite residence. At Monkton Court Farm in Thanet (Perkins *et al.* 1994), however, which has produced the most distinctively decorated assemblage, the nature of the site is far from clear. Further research, and possibly new sites, are required to clarify this problem.

Early Iron Age

Despite extensive excavation in recent years, the nature of Early Iron Age settlement in Kent still remains unclear; this may be in part due to the fact that detailed publication has so far lagged behind that of sites of other periods, but it is also true that the information currently available suggests a considerable diversity of sites and structures. Much of the current evidence comes from sites on the chalklands of Thanet and east Kent; this is mostly due to the pressure of development in that area, but may also be partly a result of the easy visibility of Iron Age sites, typically characterised by pits, in this geology. Such sites are now known frequently in Thanet (Moody 2008, 116–32) and on the mainland of Kent at Downlands, Walmer (Jarman 2010), the Whitfield-Eastry By-pass (Parfitt *et al.* 1997) and elsewhere. Other sites, such as Highstead (Bennett *et al.* 2007) and Underdown Lane, Eddington (Jarman 2005), have fewer and smaller pits, a reflection of their location on gravel and clay subsoils.

The size and density of features in these sites are a remarkable contrast to the evidence of Early Iron Age sites on the central and eastern part of the HS1 route: east of the major site at White Horse Stone, the only evidence was at Eyhorne Street, Tutt Hill, Beechbrook Wood and Blind Lane, and at all of these sites, as discussed above, the physical remains of occupation were very slight. Other interventions in this Greensand zone have also failed to identify Early Iron Age occupation, and it seems as if the whole zone immediately south of the scarp of the North Downs was occupied in a way that has left little physical trace. The clays and sandy soils may not have lent themselves to the digging of pits in the same way as the chalk, but even so other traces are minimal. This does not preclude the possibility of extensive pastoral use and the cultivation of arable crops, but these activities must have taken place in the remnants of the organised landscape created in the Bronze Age, without major new episodes of land division, and with actual occupation sites making little impact on the subsoil. Comparatively non-intensive occupation of this sort has been seldom documented in the Iron Age of lowland England, in Kent or elsewhere, as research has tended to concentrate on identifiable sites rather than transects, and such evidence would have been easily missed or discounted.

From the Medway westwards there is considerably more and more substantial evidence for settlement in the Early Iron Age. The site at Cuxton may have been only the surviving fragment of a much larger area of occupation, partly destroyed in 19th-century railway construction. The features excavated at West of Northumberland Bottom and Tollgate can now be seen to be only peripheral parts of much larger areas of Iron Age occupation (Allen and Donnelly 2009). In all these cases it is difficult to reconstruct the full nature of the sites and to compare them with other sites elsewhere in Kent, but full publica-

tion of the subsequent excavation on the line of the A2 will clarify the picture.

The one major Early Iron Age site of the project was at White Horse Stone. Its key structural elements, consisting of pits, four-post granaries and other buildings, compare well with the known Iron Age sites of eastern Kent, and it would be tempting to think of it as a typical site of the more densely occupied regions of the county. There are, however, some features of the site that suggest a more complex function. Sited at the foot of the Downs, where the Medway crossed the Greensand vale, it occupied a place of great significance in the landscape (Champion 2004); the Neolithic structures and megalithic monuments have been discussed above, and it continued to be a place for the deposition of bronze and gold throughout the Bronze Age, while its importance in the Late Iron Age is indicated by the rich burials at Aylesford (Evans 1890).

Any Iron Age site in this vicinity, therefore, not only had the strategic advantage of location in terms of communication along the Medway route through the Downs, but was also invested with the memory of the long-term significance of the place. The importance of the place may also be indicated by the careful selection and placing of special deposits, including human remains, that mark the end of the Iron Age occupation, to be discussed in more detail below. The evidence for storage in the form of pits and granaries and the large-scale production of iron, as well as the slighter evidence for the working of shale and bronze, also discussed in more detail below, and in sharp contrast with the very limited evidence of such activities elsewhere, all suggest that the White Horse Stone site acted as a form of central place for the more scattered occupants of the region. The site is also marked by a wide variety of pottery fabrics, again discussed below, and Morris (in Booth 2006a, 43) has suggested that one explanation could be the extensive exchange relations manipulated from the site; alternatively, it may represent the presence at the site of a mixed community of people, with each group having its own local contacts and pottery supply. If that were the case, it is quite possible that the site was not occupied by a fixed group of people, but by a fluctuating mix of smaller groups from the surrounding area. However that may have been, the emphasis on production and storage, as well as the network of external relations and even the evidence of the zoning of activities within the site, all suggest that the White Horse Stone settlement had much in common with early hillforts, such as the broadly contemporary phase of early occupation at Danebury, with the obvious exception of the absence of the impressive defences that were built in other regions. Such a function has not been suggested for other non-defended Early Iron Age sites in the south-east, and it is an open question whether this might be a feature of the peripheral location of White Horse Stone on the southern margins of active settlement and occupation in Kent, or whether other sites elsewhere in the broader region may have had a similar function.

A recurring feature of the Early Iron Age sites in Kent is their comparative lack of clear structural evidence for roundhouses. Three sites have produced evidence in the form of ring grooves or gullies: Highstead (Bennett *et al.* 2007), Underdown Lane, Eddington (Jarman 2005) and the Isle of Grain (Philp 2002, 139 and fig. 33–2), but otherwise there has been little that could be clearly interpreted as a typical roundhouse. While it is possible that the degree of truncation and destruction through ploughing has been more severe in Kent than in other counties, it seems unlikely to have been so over the whole of such a large area. Alternative explanations, either that the roundhouses in this region were constructed in such a way as to leave little or no subsurface trace, or that structures other than roundhouses, but again with little below-ground remains, were the norm, need to be given proper consideration. Classic examples of roundhouses also seem to be difficult to locate elsewhere in the Lower Thames region; sites such as Caesar's Camp, Heathrow (Grimes and Close-Brooks 1993) and Uphall Camp, Ilford (Greenwood 1989) have certainly produced evidence for roundhouses, but they may be more correctly assigned to the Middle Iron Age. It may be that a widespread and long-lasting architectural tradition in the Early Iron Age in the region is characterised by their absence.

Middle Iron Age

The one major piece of evidence for Middle Iron Age occupation was the double-ditched enclosure at Beechbrook Wood (see Fig. 4.15). This is a distinctive site plan, without obvious parallel in Kent or anywhere else in the Lower Thames Valley. Though single-ditched enclosures of this approximate size have been well known since the work of Bersu at Little Woodbury, enclosures with a double ditch are rarer. It is unfortunate that the conditions of excavation did not allow better recovery of the details of the interior, but there is clear evidence for a strongly enclosed, or even defended, site with an impressive entrance. Comparison with other sites will therefore have to be on the basis of location, chronology and plan. Among the few obvious parallels are the site at Mingies Ditch, Oxfordshire (Allen and Robinson 1993) and that at Wardy Hill, Coveney, Cambridgeshire, in its 'ringwork' phase (Evans 2003). The sites, despite their similarities of size and plan, have rather different functions and histories. Mingies Ditch was a new site, interpreted as a 'pioneer pastoral settlement, bringing what had been underexploited land marginal to the gravel terrace settlements into more intensive use' (Allen and Robinson 1993, 143); the interior space was largely taken up with structures. Wardy Hill in its Phases 4–5 was a development of an earlier enclosed site, itself a successor to an open settlement. In its developed phase much of the interior was open, and it may have been a site of refuge or meeting. Whatever its function or occupants, the excavator preferred to see it as an 'expression of power' (Evans 2003, 260).

It is important to see the Beechbrook Wood enclosure in its local and wider setting, both topographically and archaeologically. It lies on an area of higher land that

forms a promontory overlooking valleys that lead down towards the Stour, thus dominating an area of lower land around the Stour Valley and the communication routes north-south along the river valley through the Downs and into the Weald, and east-west along the lower land at the foot of the Downs. As discussed above, this area had seen the organisation of complex field systems in the later Bronze Age, at Beechbrook Wood itself and at Brisley Farm and Westhawk Farm, and was also the locus for a concentration of deposits of Late Bronze Age metalwork. Thereafter, however, there was almost no evidence for Iron Age activity until the construction of the enclosure.

In the wider context, there is good evidence for contemporary activity along the northern fringes of the Weald. To the west of Beechbrook Wood, the Late Iron Age oppidum at Quarry Wood Camp, south of Maidstone (Kelly 1971), incorporated a small oval earthwork; though this is itself undated, it may have been the original core of the site's development, in the same way as Gatesbury was the early focus for later activity at Braughing, Hertfordshire (Partridge 1981, 27). Beyond that, the large hillfort of Oldbury (Ward Perkins 1944) was built on an outlier of the Greensand. Further west again, the small hillfort of Squerryes, at Westerham (Piercy Fox 1970), occupied a position similar to that of Beechbrook Wood, on the Greensand ridge overlooking the upper reaches of the Darent Valley. In Surrey, three hillforts, at Anstiebury, Holmbury and Hascombe (Thompson 1979), were similarly located on the Greensand ridge, overlooking the Weald to the south. At the same time, hillforts were also being built on sites deeper into the Weald, as at Dry Hill, Lingfield (Winbolt and Margary 1933), Castle Hill, Tonbridge (Money 1975; 1978), and High Rocks, Tunbridge Wells (Money 1960; Money 1968).

The hillforts on the northern side of the Weald, then, have a very different history from those on the south, and belong predominantly to the Middle and Late Iron Age (Hamilton and Manley 2000). They seem to be part of a general movement back into a zone south of the North Downs that had not been intensively occupied since the end of the Bronze Age, and perhaps even further into the Weald, a region that appears to have been little used for much longer, but was now beginning to be valued for its economic resources, perhaps especially its iron. There are, of course, some uncertainties about this suggestion: many of the sites are not well dated; where excavated, the sites have rather varied records of interior occupation; and the long-term landscape history of the area south of the scarp of the Downs is not as well documented further west as it is in the area of the HS1 route. Nevertheless, the evidence, such as it is at present, is broadly consistent and compatible with this hypothesis. Such a process would also be part of a wider phase of settlement expansion and consolidation that characterises many regions of south-eastern England (Hill 2007, 23).

Seen in this context, the Beechbrook Wood enclosure would be part of a much wider attempt to recolonise a landscape little used in previous centuries. Though not to be categorised as a hillfort as are most of the sites to the west, it enjoys the same sort of prominent location. Although there is no evidence yet for an oppidun in the area of the Stour Valley around Ashford, unlike Quarry Wood Camp to the west in the upper valley of the Medway tributaries, the area did become an important focus of Iron Age activity with a very rich burial at Westhawk Farm (Booth *et al.* 2008, 27–34) and other burials at Hothfield Common (Brinson 1943), and an extensive settlement incorporating warrior burials at Brisley Farm (Williams 2003). This was followed in the immediate post-conquest period by the development of the small town at Westhawk Farm. The Beechbrook Wood enclosure therefore represents the first significant evidence of re-occupation of an area that may have been largely abandoned for several hundred years, or at least only used in a non-intensive way.

Production and procurement, technology and trade

The HS1 sites produced evidence for the exploitation of many different raw materials and the practice of a wide range of craft activities in the later prehistoric period. In this section, the evidence for the procurement of raw materials and the production activities will be considered, including the facilities and tools needed for the various processes, the debris of production, and the raw materials being exploited. In the following section the products of these crafts, where identifiable, will be discussed in the light of their role in the social life of the period.

Bronze

Two sites produced possible evidence for the actual working of copper alloy, and that was unfortunately indecisive. The majority of the evidence comes from Beechbrook Wood (Northover in Diez *et al.* 2006). A small piece of bronze-working waste had the characteristic composition of bronzes widely used in southern England in the Taunton period of the Middle Bronze Age, but it was found in a context dated to the Iron Age. Other waste items, including possible crucible residue, could not be similarly analysed, but would be compatible with such a date for bronze-casting, but equally could be somewhat later. It seems certain that one or more episodes of bronze-casting happened at Beechbrook Wood, and probable that one of these was in the Taunton phase, but certainty beyond that is impossible. The only other possible evidence for the working of copper alloys was a rivet found in an Iron Age pit at White Horse Stone (Hayden 2006a, 162). The pit was in the area probably used for metalworking and contained much iron-working waste. It is possible that bronze-working was also carried out in this area.

Objects of copper alloy were not common finds. Highly corroded pieces of bronze rod may be the remnants of Middle Bronze Age pins from Sandway Road

(Northover in Northover and Shaffrey 2006, 3) and Beechbrook Wood (Northover in Diez *et al.* 2006, 3–6); other finds from the latter site include a possible ring, a piece of strip metal, possibly from tweezers, and a blank for a knife blade. The most impressive objects of this period were the knife or dagger blade and the possible pin selected for deliberate deposition in the top of a waterhole at Thurnham Roman Villa site (Northover in Booth *et al.* 2006, 3–7; see Fig. 4.39). Finds later than the Middle Bronze Age were limited to a decorated strip of bronze, possibly a fragment of a bracelet, from Little Stock Farm (Ritchie 2006, 5), a La Tène I brooch and ring from West of Northumberland Bottom (Keily and Richardson 2006a, 12) and a ring-headed pin from White Horse Stone (Fell *et al.* 2006, 5), all of Early Iron Age date. Other finds from Beechbrook Wood, mentioned above, including a possible ring and tweezers, were found in Iron Age contexts, but may have been earlier.

Iron

The most prolific evidence for iron-working came from White Horse Stone (Keys in Fell *et al.* 2006, 10–14; Hayden 2006a, 160–1). More than 100kg of various types of slag were recovered from the excavated sample of the site; most of this was from the east side of the excavated area, where iron-smelting and smithing waste was found in most pits, probably indicating the approximate location of the iron-working activity. Two shallow, bowl-shaped pits which had been exposed to intense heat may have been the sites of smelting furnaces or smithing hearths. The technology used was the bloomery process known elsewhere in England, and the slag represented all three major stages of iron production including initial smelting of the ore, primary smithing to consolidate the bloom and secondary smithing to produce the final artefact. The smelting slags suggest that a variety of methods were used, since they included tap slags and slag lumps that consolidated at the bottom of the furnace. The hammerscale residues show that the final fabrication of iron objects was also being carried out.

Possible traces of earlier iron-working were found at Beechbrook Wood. Iron slag was identified in a pit with Late Bronze Age pottery; some may have been intrusive from later disturbance, but some was more securely stratified at the base of the pit (Brady 2006a, 64). Other evidence for iron-working at this date is known in Kent at South Street, south of Herne Bay (Allen *et al.* 1997).

As with the bronze objects, the total number of recovered items seems very small, and the major ones were clearly selected for deliberate deposition: context 6132 at White Horse Stone contained a human cremation accompanied by a bronze ring-headed pin and six small iron objects, including two knives and four awls (Fell *et al.* 2006, 3–6; Hayden 2006a, 159) (Fig. 4.34), while Pit 175 at Eyhorne Street (see Fig. 4.25) contained an iron dagger bent into a near-circular shape (Hayden 2006b, 23–4). Apart from these obviously placed deposits, iron objects were rare: at Tollgate there was a

Figure 4.34 White Horse Stone: metal artefacts from Iron Age pit 6132

La Tène I brooch (see Fig. 4.36) and two rings, as well as possible fragments of a blade and an implement such as an awl (Keily 2006a, 8–13), while at White Horse Stone other finds were limited to fragments, mostly of nails or spikes. Fragments of iron sheet associated with rivets and nails were found in two pits at White Horse Stone, suggesting something more complicated in terms of production (Hayden 2006a, 162).

It was not until the final stages of the Iron Age that evidence for iron production became more common, for example at Tutt Hill, Beechbrook Wood and Leda Cottages, and finds of iron objects more prolific in the archaeological record.

Though there have been no analyses to attempt to identify the source of the iron ore used in these processes, there seems little doubt that it would have originated locally, somewhere in the Weald. The evidence from the iron-working sites in the Weald suggests a date for the start of the major exploitation of the Wealden iron deposits in the Late Iron Age (Cleere and Crossley 1985), but there is no reason why it could not actually have started much earlier. The scale of iron production in southern England seems to have increased steadily in the Early and Middle Iron Age, with the major production centres in the Forest of Dean, the Jurassic ridge and the Weald beginning to dominate, as shown by the distinctive

forms of ingots in which their products were distributed, the so-called 'currency bars' (Allen 1967; Hingley 1991). If the spit-shaped bars found in the Thames Valley are correctly identified as the products of the Wealden district, it would suggest a significant upturn in the scale of production during the Iron Age. Even so, the White Horse Stone evidence is perhaps the earliest yet discovered to support the idea of the exploitation of Wealden iron in the Early Iron Age.

Shale

Among the finds at White Horse Stone were a shale bracelet and a shale disc (Hayden 2006a, 164). Occasional finds of shale, especially bracelets, are known from later prehistoric sites in Kent, beginning with Mill Hill, Deal (Champion 1980, 233 and fig. 4, 4–5), and a piece of shale was placed in the abandoned Dover boat somewhat earlier (Clark 2004, 216). The find of a disc, however, suggests the actual working of shale at the site. Such discs are the discards from working circular bracelets from blocks of shale, as demonstrated by the best known industry of its type in later British prehistory, in Dorset, using the local occurrence of Kimmeridge shale (Calkin 1953). In addition to the White Horse Stone finds, evidence for shale-working in Kent is now also known from a site a short distance to the north in the Medway Valley, at Burham (Chris Ellis, Wessex Archaeology, pers. comm.); shale bracelet rough-outs and debitage, as well as flint tools for working the shale, have been found there. It is possible that raw shale was being brought from Dorset to be worked in Kent, as has been generally presumed for the earlier finds, but it is equally possible that another source was being exploited. Though none is known in Kent, similar shale deposits are known to occur in northern France, near Boulogne (DPS Peacock, pers. comm.), and it is an interesting possibility that the shale came from cross-Channel contacts, though further research will be required to substantiate this suggestion.

Flint

Flint was found throughout the route, though in comparatively small quantities (P Harding 2006). On many sites it was difficult to determine the presence of a flint industry dating to the Middle Bronze Age, Late Bronze Age or Iron Age because of the problems of residuality. The case for continued exploitation of flint in the 1st millennium BC has recently been made (Young and Humphrey 1999; Humphrey 2003; 2007), but the characteristics of these late industries make them hard to discern; they are typified by a comparatively low-level technology, and by flakes with little retouch and few signs of elaborate core preparation. Throughout the route the specialist reports discuss the problem of flint tools and waste in contexts of the Middle Bronze Age and later; those in Roman and medieval contexts are presumably residual, but flints from later prehistoric contexts are more problematic. The reports at sites like West of Northumberland Bottom, Tollgate, Cobham Golf Course, White Horse Stone and Saltwood Tunnel all refer to assemblages in later prehistoric features that are characterised by high levels of debitage, hard hammer mode, irregular flakes, and limited retouch. There is undoubtedly an element of residuality, but it also seems highly likely that there was a contemporary 1st-millennium flint industry producing flake tools. All the flint exploited in later prehistory would have come from deposits derived from the North Downs, though probably from clay-with-flint layers or gravel outwashes at the foot of the scarp.

Interest in flint-working in the Iron Age may have extended beyond the limited production of irregular flakes. Some deposits, especially the upper fills of pits at West of Northumberland Bottom (Askew 2006, 19–20), contained significantly large collections of flint, some of which must have been of much earlier date: Pit 147, which also included many other carefully selected items of animal bone (see Fig. 4.38), also contained a barbed-and-tanged arrowhead. These unusual deposits will be discussed in more detail below, but it is possible that people in the Iron Age were aware of earlier prehistoric flints, especially distinctive tools, and collected them for deliberate deposition. Less easy to date are three hammerstones from Iron Age contexts at White Horse Stone, two of them from burials, and one showing evidence of heavy use (Cramp 2006, 15); accidental incorporation into later contexts seems very unlikely in these instances, so either they were deliberately collected and selected for deposition as curiosities, or they demonstrate the reality of flint-working in the Iron Age, unless they were for some other function such as crushing iron ore.

Stone

Items of worked stone of later prehistoric date other than flint were recovered from five sites: West of Northumberland Bottom (Keily and Richardson 2006a, 26), Tollgate (Keily 2006a, 8), White Horse Stone (Hayden 2006a, 163–4), Sandway Road (Northover and Shaffrey 2006, 3), and Beechbrook Wood (Diez *et al.* 2006, 8–11). All were fragmentary; though some could be recognised as parts of saddle querns, in other cases it was not clear whether they were querns, rubbers, whetstones or even some other processing tool. Some of the rocks could be identified as coming from sources in the Lower Greensand, while others were of various sandstones as yet unidentified. At Tollgate Iron Age finds included a piece of sarsen which had been heavily used, possibly as a whetstone or rubber for a quern, as well as two pieces of glauconitic sandstone that had been used as querns. There was no evidence of debitage to suggest the working of any of these objects on site, and they may well have been fashioned at or near their quarry sites, wherever they may have been.

There have been few other published accounts of querns and rubbers from prehistoric sites in Kent. The HS1 evidence, however, is well matched by that from a site at Iwade in north Kent, where the origins of the artefacts were the Lower Greensand and other unidentified sandstones (Riddler and Vince in Bishop and Bagwell 2005, 46–7); ferruginous sandstones were also used for querns at Coldharbour Road, Gravesend (Roe in Mudd 1994, 399) and Hayes Common (Philp 1973, 51). In the Middle Iron Age, utilised stone found at Farningham Hill included mostly Lower Greensand, but also a piece of sarsen (Parfitt in Philp 1984, 36–7). There is no evidence that any of the rocks used need have been from sources other than fairly local within Kent; the Greensand is a productive source of stone for querns, most notably at Folkestone (Keller 1989). The HS1 sites and the others mentioned above are all located to the north of the Downs and show that the Greensand sources, and possibly the ferruginous sandstones, were being exploited for querns to be transported over some distance within the county.

Salt

Some of the most significant information for the nature of Late Bronze Age and Early Iron Age technology from the HS1 has been the evidence for salt production (Morris in Booth 2006a, 106–16). Sites for prehistoric salt production have been known in Europe since the 19th century, recognised by the characteristic remains of fired clay artefacts known as *briquetage* (Riehm 1961). This term has come to be used for a wide range of objects, including troughs and their supports used in the early stages of production as well as a variety of containers used in later processing or transporting and distribution of the finished salt cakes, as well as many pieces whose original function is still obscure. Though many different fabrics were used for the vessels and other equipment for salt production, many can now be recognised by their distinctively oxidised fabrics, frequently with an organic tempering, and often with a marked pink or purple colouration or a white surface layer (Morris in Booth 2006a, 107). Evidence of hearths, pedestals and other equipment is a good indication of a site used for some stage or stages of the production, though finds of briquetage containers are more difficult to interpret. They may represent sites used for a stage of the production and distribution process, or they may indicate the final place of usage of the salt and the abandonment of any containers used to acquire it.

Briquetage material (Fig. 4.35) was found on seven of the HS1 sites (Morris in Booth 2006a, 106–16). The clearest evidence of production is from Cobham Golf Course, where the briquetage included several items identified as the remains of pedestals as well as containers, dated to the Late Bronze Age. Of a broadly similar Late Bronze Age date were finds from Beechbrook Wood, where several contexts contained fragments of briquetage containers, the small quantity suggesting this was a site of consumption or usage, rather than production. Similar small quantities of containers were also recovered from Little Stock Farm in the Earliest Iron Age and from Cuxton and White Horse Stone in the Early Iron Age, again suggesting final usage of the salt. More difficult to interpret are rather larger quantities of briquetage containers from West of Northumberland Bottom and especially Tollgate; the briquetage containers here were found in association with evidence of burning, including fired clay, possibly from hearths or clay-lined

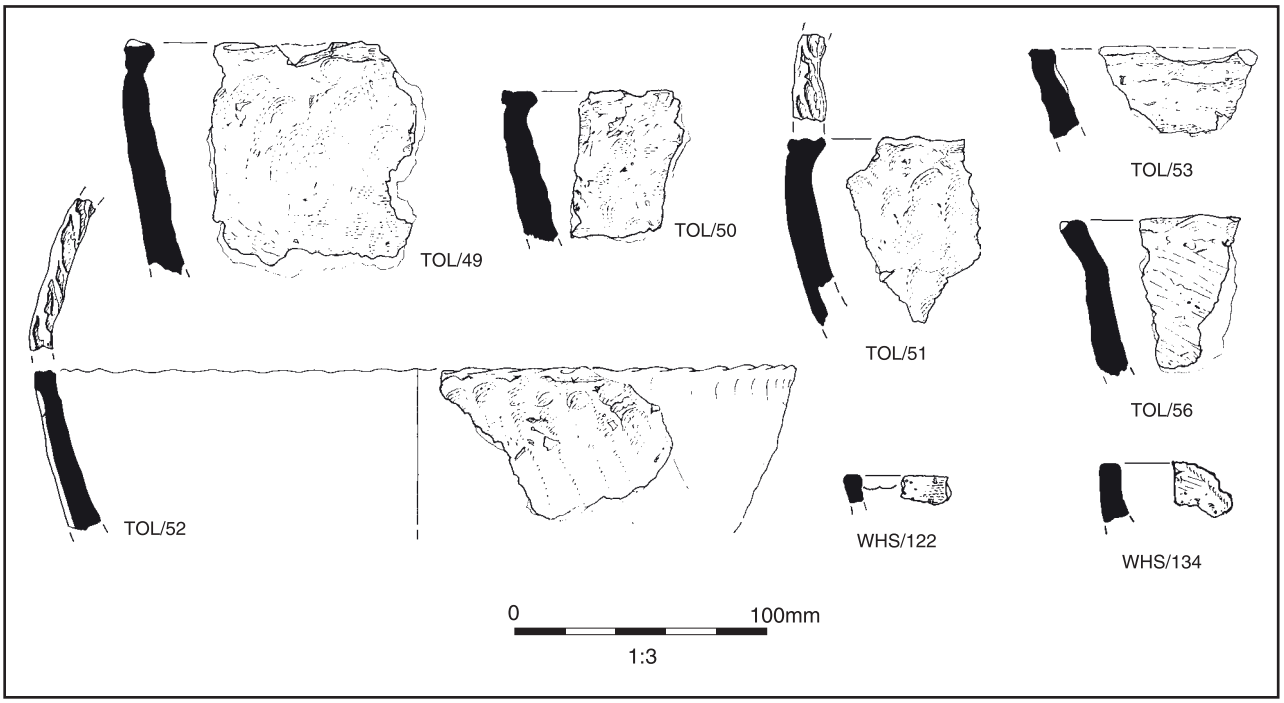


Figure 4.35 Selected briquetage vessels from Tollgate (TOL) and White Horse Stone (WHS)

pits which might have been used in a production process. Subsequent work on the A2 improvement scheme has produced more briquetage from the areas of Iron Age occupation adjacent to the HS1 easement, demonstrating salt production on a considerable scale (Allen and Donnelly 2009).

These seven sites add considerably to our knowledge of the production and distribution of salt in prehistoric Kent. Evidence for salt production in the Thames estuary area has been known, or at least suspected, since the 19th century, primarily through knowledge of the so-called Red Hills of Essex, now known to be major salt production sites of the Late Iron Age and early Roman period (Fawn *et al.* 1990). Research on these sites led to the recognition of earlier finds from the Upchurch Marshes in north Kent, where clay pedestals had been recovered by the 1830s (Barford 1990, 81). Worsfold excavated briquetage remains from Minnis Bay in the Isle of Thanet and published one sherd from a semi-cylindrical trough or mould (Worsfold 1943, fig. 8, no. 10), though without recognising its significance. Much similar material was found in further work at the site, and the connection with salt production was established, though the full implications were not followed up. Important new discoveries were then made in southern Essex, especially at Mucking (Jones 1977; Barford in Bond 1988, 39–41 and 50–1), while a radiocarbon dated hearth at Fenn Creek pushed the industry back into the Middle Bronze Age (Wilkinson and Murphy 1995, 157–9).

Comparable discoveries from the southern side of the estuary in Kent have been slower to come to light. A pedestal and what was probably a fragment of a hearth wall were found in excavations at Cliffe in 1976 (Cameron and Barford in Kinnes *et al.* 1998, 54) dating to the Early Iron Age, while further pedestals have now been found at Swalecliffe (Masefield *et al.* 2003, fig. 28) and at Hoo St Werburgh (Moore 2002, fig. 3, 1–2), both of Late Bronze Age date; other evidence of salt-working has also been reported from the Isle of Grain (Philp 2002, 139) and from the Isle of Sheppey (Pratt 2004), as well as from sites in east Kent, especially at Highstead (Bennett *et al.* 2007, 268–70) and, at least from the Late Iron Age, the products of a source probably in the south-east of the county (Macpherson-Grant 1980b).

The previous finds had all been small-scale and fragmentary, so the HS1 evidence adds considerably to the number of sites producing or using salt in Kent, as well as to the quantity of salt-related material. The evidence for production now seems to fall into two geographical groups, one in north-west Kent, and one in the east around the Wantsum and Thanet, both with origins in the Late Bronze Age, with a possible third in the south-east starting before the end of the Iron Age. It must be remembered, however, that there have been very significant changes to the shoreline of north and east Kent since later prehistoric times, and much evidence for salt-working may have been eroded away or covered by later coastal accretion; much evidence may still remain in the north Kent marshes or under later deposits in the Wantsum or Lydden valley areas. Both known groups show generic similarities to industries known elsewhere around the southern North Sea and the English Channel, especially to those in Essex (Barford 1990), around Poole harbour in Dorset (Morris 1994) and in Lincolnshire (Lane and Morris 2001), and across the Channel in Belgium and Holland (Thoen 1975) and in northern France (Prilaux 2000); though there are considerable variations in the material elements used in the processes, all are characterised by the use of pedestals and troughs or pans for some stage of the production process.

Further research is still needed to clarify the exact process and the locations of the various stages (Morris in Booth 2006a, 1015–116). The evidence for salt-working at Cobham may at first sight seem strange, since the site is about 4km from the current coastline and at a height of about 50m above sea level. Precisely the same points were made about the discoveries at Mucking, when the evidence was first found there (Jones 1977). Coastlines will have varied since prehistory, and it has been argued that the modern inland locations of salt-working sites in Belgium (Thoen 1975) and France (Prilaux 2000, 82–3 and fig. 56) can be accounted for by marine transgressions in later prehistory, making them originally much nearer the coast at the time they were in operation. That may possibly be the case for the Thames estuary sites, but they seem likely to have been situated some way above sea level, and therefore not in the obvious location for the primary evaporation of the sea water. It is more likely that they were sites for secondary drying, crystallisation and moulding of the salt, ready for distribution. At the other end of the chain, sites such as Beechbrook Wood and Cuxton, with comparatively small proportions of container briquetage among their ceramic assemblages, may well have been sites where salt was consumed or used. In between, however, there are sites such as Tollgate and to a lesser extent West of Northumberland Bottom, where the proportion of container briquetage is much higher. It may be that they played a similar role in production to that of Cobham, but pedestals and other such equipment have not yet been found; alternatively, they may have had a later role in the process, perhaps in packaging or distribution; or, again, they may have been large-scale consumers of salt.

The final purpose or purposes of the salt are also unclear. There is no particular evidence at the moment to suggest what it was being used for; though the preservation of meat or dairy products seems a reasonable suggestion, this cannot be supported by clear archaeological evidence. In view of the absence of fish bones from later prehistoric contexts in Britain, discussed above, it was not for the preservation of fish, though pork or other meat may have been possible. If salt was being produced at Cobham and other sites in north-west Kent, we have little evidence yet as to how far it was being distributed, if indeed it did get beyond sites such as Tollgate. The briquetage found at Cuxton may have come from this area or from another salt-working area in the lower Medway region, as yet unlocated. Similarly, it is only possible to suggest a speculative origin for the finds from Beechbrook Wood and Little Stock Farm, which may

have come from the Wantsum or Thanet area or possibly from an unidentified source in the south-east of the county; if so, salt was being transported up to 50km inland.

Pottery

Pottery was the most frequent material recovered from the later prehistoric sites (Morris in Booth 2006a, 34–121), but there is almost no direct evidence for its actual manufacture or firing. As elsewhere in Britain at this time, the pottery was hand-made, and presumably fired in a bonfire or clamp, leaving little archaeological trace. It is possible, however, to say something about the procurement of the raw materials of clay and temper, and the development of traditions of ceramic practice; perhaps also about the question of local production or longer-distance exchange within the region. This section will therefore consider such questions of the production and distribution of pottery, while the range of outputs and their social uses will be discussed later.

One of the problems in examining the localisation of ceramic production is the comparative homogeneity of the geology in long sections of the route. West of the Medway the route runs along the Upper Chalk foothills of the North Downs, with a similar availability of clay and flint throughout that length; in places also the Woolwich and Reading beds provided a source of clay and sands, some with a distinctive component of fossil shell. East of the Medway the route runs along the grain of the geology, providing little variation throughout the route. The Gault Clay and the Lower Greensand deposits, together with the Weald Clay to the south and the Upper Chalk to the north, offered broadly similar resources from Maidstone to Folkestone, with little variation; the Greensand and the Weald Clay are likely to have been the source for the glauconitic and ironstone-rich clays that are major components of the ceramic repertoire here. Within these geological zones, therefore, there may be little chance of discriminating between the local and the non-local, but pottery made in a different geological zone may be easier to recognise if made with distinctive materials.

In the Middle Bronze Age (Morris in Booth 2006a, 56–8) the pottery throughout the route is characterised by a very similar suite of fabrics, with flint-tempering in a silty matrix. In the later part of the Middle Bronze Age, the period distinguished above as the Middle/Late Bronze Age transition (ibid., 59–61), new fabrics were used, tempered with grog or with flint and grog. A similar development has been documented elsewhere in Kent, as at Kemsley (Mcnee in Diack 2006, 31), Iwade (Hamilton and Seager Thomas in Bishop and Bagwell 2005, 26) and probably Shrubsoles (Raymond in Coles *et al.* 2003, 24–7), and can also be seen in Essex (Brown in Wymer and Brown 1995, 77–92). Various authors, including Morris (in Hearne and Heaton 1994, 34–43), Woodward (2002b, 109–10) and Brück (2006), have linked the adoption of grog-tempering to other forms of material culture and social practice in the later Middle Bronze Age, including changes in burial rite and the fragmentation of material objects as a means of reinforcing social cohesion. Another feature of equal interest is the widespread geographical homogeneity of practice in the use of flint and grog tempering in ceramic recipes, in contrast to the much more varied and localised technologies that developed later. Again, we may be seeing an episode in the production of material objects where shared technological practices are helping to promote social cohesion at a time of major cultural change.

In the Late Bronze Age, we begin to see the regional diversity in fabrics that characterises later ceramic production. Though there are no large assemblages in the central part of the route, we can distinguish the region in the chalk lands of north-west Kent to the west of the Medway from that at the eastern end of the route. In the former, the use of grog disappears and tempering is of flint; in the latter, there is a varied use of flint, grog, and flint with grog-tempering. By the end of the Late Bronze Age and the Earliest Iron Age, the sandy matrix common to most later prehistoric pottery had been widely adopted and the distinctive glauconitic and iron-oxide clays were beginning to be used (*contra* Seager Thomas 2008, 47). The reasons for this regional diversity may have been rooted in a changing significance of pottery within contemporary society, perhaps now emphasising regional identity more than wide-ranging cohesion. Whatever the cause, it allows us to see something of the movement of pottery: at White Horse Stone, for instance, one vessel in an iron-oxide-rich fabric stands out from the rest of the assemblage, which was predominantly flint-gritted, and presumably represents an import from further east (Morris in Booth 2006a, 82).

In the Early Iron Age, the regional diversity continued. In the north-west, the predominantly flint-tempered tradition gave way to the use of shell-tempered pottery, while east of the Medway fabrics were characterised mainly by the use of quartz sand and glauconitic clays. The site assemblages of this period are characterised by a fairly narrow range of fabrics, dominated by varying proportions of flint and shell to the west, quartz sand and glauconite to the east. Differences in these proportions may be a result of chronological variability, of small sample size, or regional preference within these zones; further research will be needed to clarify the reasons for these variations. One site, however, stands out for the strikingly different range of fabrics represented: White Horse Stone. Though approximately half the pottery is in flint-tempered fabrics that might be expected for a site on the edge of the chalk, there are many other different fabrics represented there, some of which could not have been locally produced, for example the shell-gritted wares that must have come from north of the Downs. Given what has been said about the widespread occurrence of similar clay and temper resources, it is difficult to reach firm conclusions on how much of the White Horse Stone pottery was local and how much the result of exchange. What is perhaps more important is the uniquely wide range of fabrics

represented, suggesting a very different composition of the social group living at White Horse Stone from those at other sites, and possibly a very different function for the site (Morris in Booth 2006a, table 3.6).

The picture of ceramic production in the Middle Iron Age is limited by the small number of such assemblages, dominated by that from Beechbrook Wood. There are no significant groups west of the Medway, but the evidence from Farningham Hill (Couldrey in Philp 1984, 38–70) shows that shell-tempered fabrics continued in common use, but alongside an increasing proportion of glauconitic wares, imported from south of the Downs, although these in turn gave way to grog-tempered fabrics in the transition to the Late Iron Age. The Beechbrook Wood assemblages also show the growing predominance of glauconitic sandy wares east of the Medway, together with iron-rich, flint-tempered and grog-tempered fabrics (Morris in Booth 2006a, 85–6).

The size and number of the HS1 assemblages can thus allow us to establish something of the history of the procurement and usage of clays and tempers in later prehistoric Kent, and to put in a better context the pattern of fabric usage seen in the Late Iron Age (Thompson 1982, 8–17). The grog-tempered fabrics that became widespread then had a long history of continuous usage, especially in east Kent, at least since the Late Bronze Age. The glauconitic fabrics of Thompson's Pottery Zone 4, centred on the Medway Valley around Maidstone, were the continuation of a pottery tradition that went back to the start of the Iron Age and even to the Late Bronze Age and had dominated production in the Middle Iron Age, while the shell-tempered pottery of her Zones 2 and 3, in south-east Essex and west Kent, continued another regional tradition that had begun in the Early Iron Age.

The picture of preferred ceramic fabric recipes may be beginning to emerge, but the reasons for the changing patterns need further research and discussion. The rise in the proportion of the shell-tempered and glauconitic fabrics during the Iron Age may represent a greater degree of specialisation of production, or may be a recognition of the superior suitability of certain fabrics for specific uses. The similarity of geology over considerable distance of the route limits the possibility of discussing the localisation of production, but it does provide some evidence for the movement of pottery away from the region of its geological origin. The uniquely wide range of fabrics found at White Horse Stone has been discussed already, but other vessels are also found out of the production zone. Morris (in Booth 2006a, 84) has suggested that burnished bowls may have been the particular subject of exchange, perhaps denoting a special social significance for this form.

None of the pottery need have been made from sources outside Kent. Though some vessels show an obvious connection to forms better known in France, as will be discussed below, the geological similarity of the zones on either side of the Channel means that it will be difficult to determine possible imports on the grounds of fabric alone.

Textiles

The main evidence for textile production is in the form of loomweights of various types for weaving. Other evidence, for the earlier stage of spinning the yarn, and the later stage of finishing the cloth or clothing, was much rarer.

The only spindle whorls found were at White Horse Stone, where two examples were placed in grave 2296, with the articulated remains of an adult male; these were the only such objects found in the White Horse Stone excavation or anywhere on the HS1 route and were clearly deliberately selected for deposition in the grave. In view of the discussion below about the deposition of small finds it is difficult to make any inference from this find about the organisation of textile production in the region; spindle whorls are not common finds in Kent, and it is tempting to think that this must under-represent the reality of prehistoric activity.

Loomweights have been found at several sites, covering the entire later prehistoric period. The earliest examples are of the cylindrical form now well known from sites of the Middle and Late Bronze Age. Sites with finds in certain or probable Middle Bronze Age contexts include West of Northumberland Bottom (Keily and Richardson 2006a, 10) and White Horse Stone (Hayden 2006a, 65 and 105), while for the later period there are finds at Cobham Golf Course (Keily *et al.* 2006, 4–5) and again at Beechbrook Wood (Buss 2003, 73). Less common are examples of the type that seems to follow them, the pyramidal form with a tapering square profile and a horizontal perforation near the top, as found for instance at Mucking (Bond 1988, 37–9 and fig. 26, 7–9). Though comparatively rare in Britain, they are the commonest form in Iron Age Europe, with some finds from contexts that clearly show their function in a warp-weighted loom (Schierer 1987). The only site to produce examples of this form was Beechbrook Wood, where they occurred in Group 2442 in a probable Late Bronze Age context (Buss 2003, 73). A similar example from Kent is recorded from Highstead (Bennett *et al.* 2007, 276, no. 44 and fig. 160).

From the Early Iron Age onwards the commonest form in Britain is the triangular type, found widely in southern and eastern England and also in the neighbouring areas of north-western Europe (Champion 1975; Wilhelmi 1977; 1987). Though it has been argued that not all triangular objects of fired clay had the same function, and that some may have been associated with ovens (Cunliffe and Poole 1991b, 380; Poole in Cunliffe 1995, 285–6), it still seems probable that some of these objects were in fact loomweights, and that interpretation is followed here. Fragments of triangular loomweights were found in Early Iron Age contexts at West of Northumberland Bottom (Askew 2006, 18–19), White Horse Stone (Hayden 2006a, 163) and Eyhorne Street (Hayden 2006b, 24), and also in the Middle Iron Age enclosure at Beechbrook Wood (Brady 2006a, 27).

Finds from later stages of textile production were rather fewer. The only item possibly connected with

textiles is a probable bone needle from West of Northumberland Bottom (Keily and Richardson 2006a, 9). Though only a limited number of sites of later prehistoric date have yet been published in full from Kent, such a low number of spinning, weaving and cloth working implements is not uncommon.

Bone and antler

Though objects of bone and antler are well known from many later prehistoric sites in southern Britain, they were again very rare in the HS1 project. At Tollgate there was a worked antler point, which had been trimmed, rounded at the end and drilled as though to form a handle for something, as well as a fragment of waste from antler-working (Keily 2006a, 11). At White Horse Stone a sheep horn core and red deer and roe deer antlers showed evidence of working, while fragments of burnt antler may have been from antler handles for tools (Hayden 2006a, 156). Otherwise the only evidence was at the Early Iron Age site at West of Northumberland Bottom, which produced a bone pin or needle and a 'gouge' or point, both from the same pit (Keily and Richardson 2006a, 13).

The evidence for deer has been discussed earlier in the sections on the environment and food resources; they seem to have been present at least in the area west of the Medway. Domestic animals, especially sheep and cattle, were present throughout the route, and would have provided a ready source of raw material for a wide range of products. It is surprising, therefore, that so few artefacts were found.

Leather, wood and basketry

Although no remains of any organic materials such as wood, leather and fibres were found in prehistoric contexts, it is reasonable to presume that they played a significant part in the material culture of the period. It is perhaps surprising that so few tools possibly associated with the exploitation of these materials were found. The set of iron knives and awls from Pit 6132 at White Horse Stone (see Fig. 4.34) has already been mentioned, but otherwise the evidence seems limited to a single bone tool of a type sometimes referred to as a 'gouge' from West of Northumberland Bottom (Keily and Richardson 2006a, 13); the true function of these objects, and they may have been multi-purpose tools, is not known, but they may been used, among other things, for basket weaving.

Unknown technologies

Perforated clay slabs, often surviving in only fragmentary form, have become a well recognised element of the material culture of the Late Bronze Age and the Earliest Iron Age in the region of the Thames Estuary, though their true function or functions are not yet established (Champion 1980, 237–8 and figs 8–9). The HS1 project has added two more sites to the list of approximately 40 where these objects have now been found: four fragments were found in the isolated Late Bronze Age Pit 537 at Tollgate (Bull 2006b, 11; Keily 2006a, 14), while three fragments were found at Cobham Golf course, again in Late Bronze Age contexts (Davies 2006, 12; Keily *et al.* 2006, 5–6).

The slabs all seem to conform to a general pattern, being about 150–200mm by 120–150mm, where dimensions can be established, and up to about 20–25mm thick in the middle, tapering somewhat towards the edges. In some cases one or two edges have semicircular grooves, possibly a result of the method of manufacture rather than a functional trait. Some appear to have regular arrays of five or six perforations, while on others the pattern is more irregular. Various functions have been suggested, including cooking, ventilation or some industrial process involving heat or fire, such as salt-working or metalworking. The association of the slab fragments at Tollgate with fire debris, including charcoal, burnt gravel and fire-crackled flint, and at Cobham again with burnt flint, supports the suggestion of a connection with a pyrotechnic technology, well documented at Highstead (Bennett *et al.* 2007, 286). Despite the fact that one of the Cobham fragments is made in a briquetage-like fabric, and the strongly estuarine distribution of the finds, a connection with salt extraction seems unlikely in view of the distance of some of the finds from salt water, for example at Runnymede Bridge (Needham 1991, 152), Queen Mary's Hospital. Carshalton (Adkins and Needham 1985), or the Springfield area of Essex (Lavender 1999; Manning and Moore 2003), let alone on the west London gravels at Yiewsley (Champion 1980, 237–8 and fig. 8).

The distribution of the slabs shows a general congruence with concentrations of Late Bronze Age field systems mapped by Yates (2007, 20–8, 73–7, 112–6) from the West London gravels through the coastal zone of the Thames to the Wantsum, with clusters inland in the Wandle Valley around Carshalton and in the Chelmer basin around Springfield, areas which also show marked concentrations of deposition of Late Bronze Age metalwork. There is a particular association with the defended enclosures or ringworks of the Late Bronze Age, or with sites very near to them: Queen Mary's Hospital, Carshalton, and Highstead Enclosure B70, both cited above, as well as South Hornchurch (Guttman and Last 2000), Mucking North (Bond 1988) and South Rings (Jones and Bond 1980), and Springfield Lyons (Buckley and Hedges 1987) have all produced examples, sometimes in considerable quantities. The perforated slabs have a remarkably constricted distribution in space and a very limited lifespan; perhaps in some way they are associated with the explosion of agricultural and technological intensification that characterised much of the Lower Thames area at the end of the Bronze Age. Further research into the contexts of these enigmatic objects will be required to investigate this suggestion and identify their actual function.

Material culture

The number of later prehistoric artefacts registered as small finds seems rather small compared to better known regions in Wessex or the Thames Valley (Table 4.10). This subjective impression needs to be tested, however, by detailed analysis of comparative volumes of earth excavated. As was pointed out above, the pits from the Late Bronze Age and Iron Age sites are small compared to those known from other regions and the occupation sites had few ditches; with the exception of Beechbrook Wood, there were no enclosed sites. The fills of pits and ditches are the contexts for the vast majority of finds, so it would perhaps not be surprising if the quantity of finds was small. On the other hand, there may be more complex reasons for the incorporation of small finds into the archaeological record, and this question will be discussed further in the section below on deposition, where it will be suggested that the range and quantity of finds is not a representative sample of what might originally have existed.

The tools of technological production, such as loomweights and spindlewhorls, have been discussed above. In this section, discussion will turn to items that were used for other purposes in everyday life.

Clothing and adorning the body

Though there was plentiful evidence, discussed above, for the production of textiles, it is hardly surprising, given the environmental conditions, that no actual fragments of clothing were discovered. The nearest that we get to the clothing of the prehistoric body is in the artefacts used to fasten or adorn the clothes. In the Middle Bronze Age these were pins, and examples of possible bronze pins of this date were found in the top filling of the waterhole at the Thurnham villa site (Northover in Booth *et al.* 2006, 6-7) (see Fig. 4.39), in a highly corroded form at Sandway Road (Northover and Shaffrey 2006, 3), and also, possibly unfinished, at Beechbrook Wood (Diez *et al.* 2006, 3–4). These finds fit well with others from Kent: in the Middle Bronze Age pins have been found at sites in Ramsagate and St Margaret's-at-Cliffe (Hawkes 1942; Rowlands 1976, Vol. 1, 84–5), Walmer (Parfitt 1994) and Princes Avenue, Dartford (Needham and Rigby in

Table 4.10 Later prehistoric artefacts, other than pottery, briquetage and flint

Site	*MBA and M/LBA*	*LBA*	*Earliest IA*	*Early IA*	*MIA*
West of Northumberland Bottom	Clay: cylindrical loomweight			Clay: triangular loomweight; Bronze: LTI brooch, ring; Bone: needle, gouge; Stone: saddle quern fragments	
Tollgate		Clay: perforated slab		Iron: LTI brooch, ring, fragments (?awl); Stone: sharpening tools (?), quern fragment (?), flint hammerstone; Antler: handle	
Cobham Golf Course		Clay: perforated slab, cylindrical loomweight			
White Horse Stone	Clay: cylindrical loomweight			Clay: spindle whorls, triangular loomweights; Stone, whetstone and quern fragments, sling-shot; Shale: disc and bracelet; Antler: fragments (?handles); Iron: knives, awls, nails, spikes, sheet; Bronze: ring-headed pin, rivet	
Thurnham	Bronze: knife and pin				
Sandway Road	Bronze: rod (?pin); Stone: quern fragments				
Eyhorne Street				Clay: triangular loomweights; Iron: dagger	
Beechbrook Wood	Clay: cylindrical loomweights; Bronze: blade and pin shaft; ring and ?tweezers (date uncertain)	Clay: pyramidal - loomweights; Stone: quern and rubber fragments			Clay: triangular loomweights
Blind Lane				LTI brooch	
Little Stock Farm			Bronze: strip (bracelet?)		

Hutchings 2003, 63–4). In the Late Bronze Age, simpler forms of flat-headed pin were in use in Kent, as at Mill Hill, Deal (Champion 1980, fig. 5.1), or in the form of moulds for multiple castings at Highstead (Needham in Bennett *et al.* 2007, 258–65), though no pins of this age seem to have been found in the HS1.

In the Early Iron Age, the only pin recovered was the small copper alloy ring-headed pin from the group of metal objects in Pit 6132 at White Horse Stone (Fell *et al.* 2006, 4–5; Hayden 2006a, 159) (see Fig. 4.34). The ring-headed pin is a well known form of this period, and well documented in other regions, so it is perhaps surprising that this is the only example so far known from excavations in Kent; the Portable Antiquities database also contains no example.

The HS1 work did, however, produce three examples of La Tène I brooches (Fig. 4.36), from West of Northumberland Bottom (Keily and Richardson 2006a, 12), Tollgate (Keily 2006a, 11) and Blind Lane (Diez in Hayden 2001, 34). Though others have been found in Kent, these are the first known examples from controlled excavation; the number of known associations for such brooches is not large nationally (Haselgrove 1997, 69–70), and these finds are therefore important for establishing a dated ceramic chronology, as discussed above. If the HS1 finds are compared with the pattern of Early Iron Age brooches from the whole of Kent, they conform well to previously published finds (Hull and Hawkes 1987; Kelly 1991; Parfitt 1999), and to those recorded in the Portable Antiquities database. The comparatively large numbers of the earliest forms of the safety-pin brooch, those of Hallstatt D types, coupled with the almost total absence of the ring-headed pin in Kent may suggest that the switch from pins to brooches took place quite early. This is only to be expected in the most south-easterly quarter of the country, nearest to the continent, but more detailed study in other regions further inland would be needed to test this suggestion.

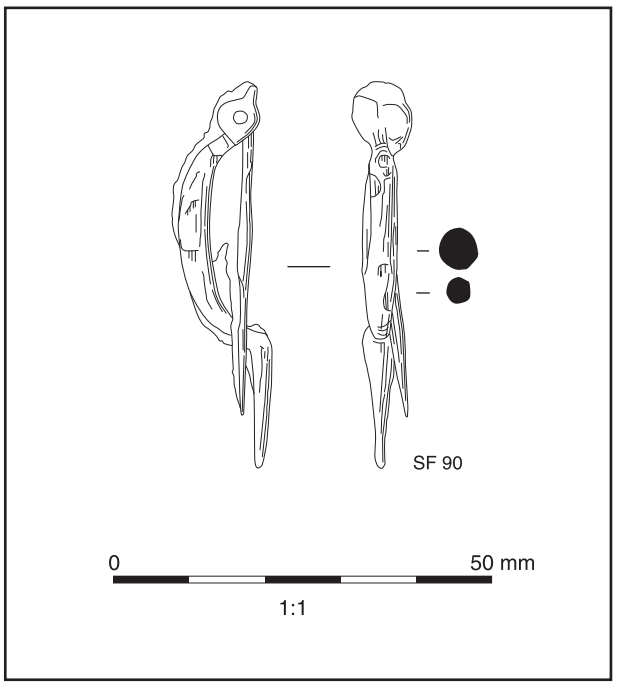


Figure 4.36 La Tène I brooch from Tollgate

Apart from the pins and brooches, there were few other items of adornment for clothing or the body. There was a strip of copper alloy at Little Stock Farm, probably from a bracelet similar to one from All Cannings Cross (Cunnington 1923, 119 and pl. 18, 5), and at White Horse Stone there was a fragment of a shale bracelet (Hayden 2006a, 164); otherwise the only other finds were small rings of bronze or iron found in Iron Age contexts at West of Northumberland Bottom (Keily and Richardson 2006a, 12) and Tollgate (Keily 2006a, 12), and another of bronze at Beechbrook Wood (Northover in Diez *et al.* 2006, 5), though not closely datable. Their precise function is unknown, and they may have nothing to do with bodily adornment, but equally they may have been used to adorn clothing, hair or the body.

Eating and drinking

The evidence for the preparation and consumption of food and drink is, with the exception of pottery, rather sparse. The record of possible hearths and ovens has been discussed earlier. Querns were derived from local sources, especially in the Greensand; all the fragments appeared to be from saddle querns and rubbers, with no evidence of the introduction of the rotary quern. The iron knives found at White Horse Stone (Fell *et al.* 2006, 5) may have been multi-purpose implements, but among those uses would have been the preparation of food.

Pottery took on a new social importance in the Middle Bronze Age and a more prominent role in the serving and consumption of food, roles which were enhanced further in the Late Bronze Age (Barrett 1989; Woodward 1995). Though the Middle Bronze Age assemblages are quite modest in size, the HS1 evidence fits this wider pattern. The majority of the vessels fall into two size groups, with estimated rim diameters of 10–16cm and 20–28cm (Morris in Booth 2006a, 90–1). There are few surviving indications of usage, but sooting and burnt residues show the use of some pots in cooking. The presence of a row of perforations just below the rim on some vessels may be linked to the use of a cover to protect stored food. The one large jar outside the normal range was used as a funerary urn at Tutt Hill; it is not clear whether it was specially made for this purpose, or an example of a rarer class of large storage vessels. There is one example of a very small vessel, *c* 6cm, perhaps showing the occasional use of pottery for individual consumption rather than cooking and serving. Most of the vessels would be classed as coarse wares, but finer vessels did exist, such as the globular jars from Sandway Road (Morris in Booth 2006a, 46), showing the use of pottery for more symbolic and social purposes in Kent as elsewhere.

In the Late Bronze Age the range of vessels increased considerably, with the proliferation of smaller and more open forms such as bowls and cups, and large jars

(Morris in Booth 2006a, 91–7). As in the Middle Bronze Age, there is a little evidence for use, and both jars and bowls seem to have been used for cooking. The increasing frequency of the smaller forms of bowls and cups shows an increasing use of pottery in the serving of food and drink and in individual consumption. Though the frequency of decoration is never high, it appears to increase throughout the Late Bronze Age and into the Earliest Iron Age. By the end of the period there is evidence to suggest a general increase in the size of vessels, continued in the Early Iron Age.

In the Early Iron Age, the pottery is marked by a decline in the use of decoration, but a continued increase in the size of the vessels (Morris in Booth 2006a, 98–100). The jars and bowls are substantially larger than those reported from contemporary assemblages elsewhere in southern England, with diameters on average 8cm wider, and the assemblages also include a higher percentage of large and very large jars over 30cm in diameter (Fig. 4.37). The reasons for this are hard to define. It might be a functional response to regional variations in the style of cooking or serving food, which required larger volumes for the bulk of the food. Alternatively, it might represent the social practice of serving more food, perhaps to feed a larger family group or perhaps in response to local customs. With so little evidence yet available about how food was prepared or about the size of the family or the household, it is difficult to decide.

One other possibility is that it may be an imitation of practices in continental Europe. There is certainly a well established similarity in form and decoration of pottery in Kent and in northern France (Leman-Delerive 1984; Hurtrelle *et al.* 1990; Blancquaert and Bostyn 1998), though more detailed analyses of vessel sizes would be needed to substantiate this hypothesis. As well as the general similarity of pottery, there are specific traits of surface finishing, including rustication, red slip and occasional polychrome painted surfaces, that are common to both sides of the Channel. There are also two individual vessels that demonstrate more marked imitation of continental culture: at Eyhorne Street there was a unique small conical cup which can be best paralleled in the cemeteries of the Marne and Aisne region of France (Morris in Booth 2006a, 45 and fig. 3.8c, EYH/2), while at White Horse Stone (Morris in Booth 2006a, 44 and fig. 3.7f, WHS/147) there was a rim sherd of a distinctive *coupe à bord festonné* or *coupe en parasol*, a type well documented in Early La Tène France, especially the north, but not previously found in England (Lambot 1988; Milcent 2005). Both vessels are in fabrics that are, or could be, local, so they may well be copies rather than actual imports. It is significant that the best evidence that we have for cross-Channel connections and the influence of continental styles is in brooch forms for the fixing and adornment of clothing and in the vessels for the socially important act of drinking.

In the Middle Iron Age, the vessel sizes reduce again, partly because of a lower proportion of large and very large jars, but also because of a predominance of smaller bowls and cups (Morris in Booth 2006a, 101–3). This picture may be distorted because our understanding of the repertoire of Middle Iron Age potters is almost entirely dependent on one large assemblage from Beechbrook Wood, which may not be typical. Nevertheless, the pottery of this phase is dominated by open jars and bowls, including saucepan pots more typical of the area further west. This limited range is very different from what emerged in the Late Iron Age, and although evidence is needed from more sites to give greater confidence, the

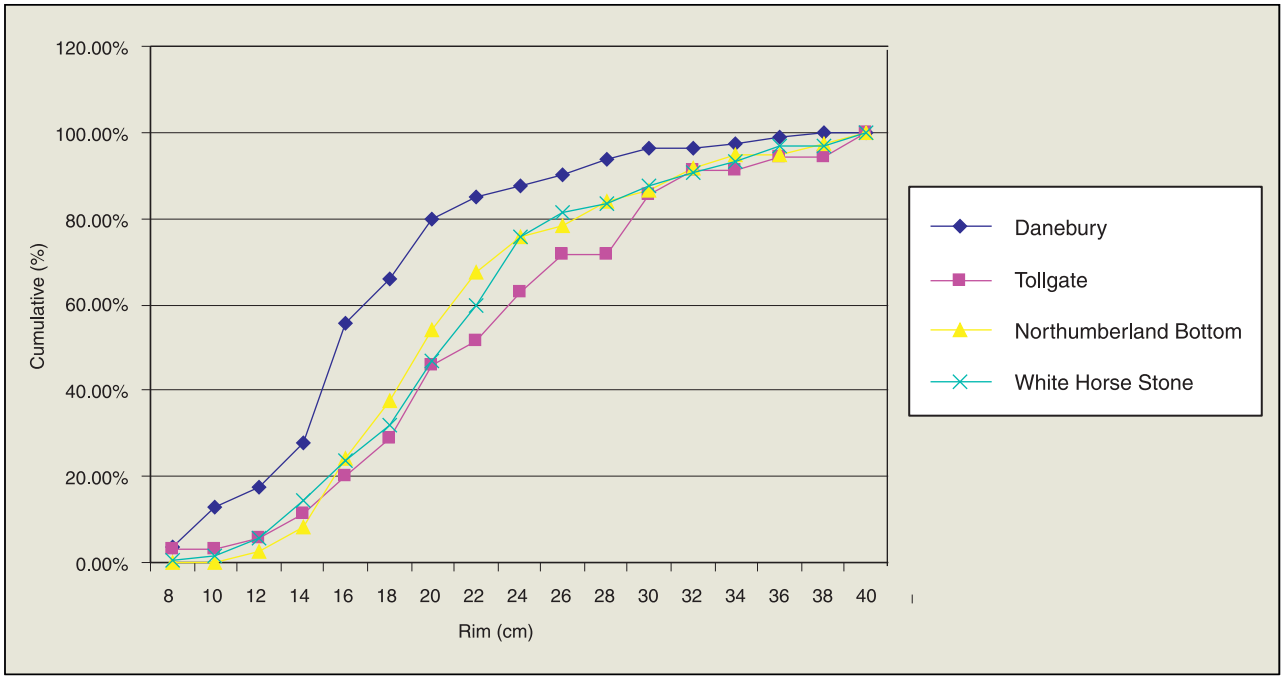


Figure 4.37 Cumulative percentage frequency of rim diameter size for Early Iron Age assemblages from Danebury and HS1 sites

changes in ceramic technology and repertoire, as well as in the nature of what was eaten and drunk and the social context in which it was consumed, were probably very similar in Kent to those described by Hill (2002) for the Late Iron Age in the area north of the Thames.

Defence and attack

Weaponry, whether for warfare or hunting, is seldom in evidence on later prehistoric settlement sites, and the only examples from the HS1 all occur in special deposits, which will be discussed in more detail in the next section. Reference has already been made to the deliberate filling of the waterhole at Thurnham with a layer of flints that contained two Middle Bronze Age bronze items. One of these was the blade of a dagger or short dirk (Lawrence 2006, 15–17; see Fig. 4.39).

One of the most unusual artefacts is the iron dagger found in pit 175 at Eyhorne Street (Hayden 2006b, 23–4; see Fig. 4.25). Iron Age daggers have been distinguished from swords by being designed for multi-purpose cutting and stabbing, and having a blade length between 130 and 305mm (Stead 2006, 5). They are comparatively rare objects. An important group from the River Thames and others totalling 40 items were discussed by Jope (1961) and there have been occasional further finds since, in particular from rivers (Fitzpatrick 1998-2003), burials in East Yorkshire (Stead 1991, 71), and occasional metal detector finds (Babb 2001, plus two others recorded in the Portable Antiquities database). Daggers have also been rare in settlement excavations, even those producing substantial assemblages of iron work. At South Cadbury (Barrett *et al.* 2000, 236) two daggers were found, plus possible fragments of three others, but at Maiden Castle (Wheeler 1943, 270–86 and especially 277; Sharples 1991, 162–5) the blades appear to belong to swords rather than daggers. Interestingly, there do not seem to be any daggers recognised in the extensive assemblages of ironwork from Danebury (Cunliffe 1984, 346–71; Cunliffe and Poole 1991, 333–54), despite the presence of many knife blades. Daggers are well represented as settlement finds in western Britain, especially in Somerset (see references in Barrett *et al.* 2000, 236) and north Wiltshire, as at Groundwell Farm (Gingell 1981, fig. 18, 9), but are rare elsewhere. Another example from Kent was a 19th-century find in an iron hoard at Bigberry (Thompson 1983, fig. 19, 53), suggesting the type may have survived into the Late Iron Age. The example from Eyhorne Street matches the other known finds well, but it is difficult to know whether it was an oddity in the region or an example of a type that was more common than its occasional deposition might suggest.

The only other item is a sandstone pebble shaped like a sling shot, found with human remains in a pit at White Horse Stone (Hayden 2006a, 164). Sling shots are well known from hillforts such as Maiden Castle (Wheeler 1943, 48–51; Sharples 1991, 232) and Danebury (Cunliffe 1984b, 398, 425–6; Cunliffe and Poole 1991b, 370, 404), where they had a defensive function, and there are examples from Oldbury in Kent (Ward Perkins 1944, 166). They may well have been used in many other places and for other purposes, possibly hunting.

The only clear evidence for inter-personal violence is derived from the human remains (Skeleton 2030) in Pit 2031 at Little Stock Farm (Ritchie 2006, 8; see Fig. 4.22). This was the skeleton of an adult woman, aged about 40 or more, and dated to 770–400 cal BC (NZA-19915). Two of the parietal vault fragments show an unhealed wound from a 'pick-like' implement. This adds an important piece of evidence to Redfern's argument (2008) for the level of violence inflicted on women, though at a rather earlier time than her data from Middle and Late Iron Age Dorset. It seems likely that other finds, such as the adult female from Fairfield Park, Stotfield, Bedfordshire (Witkin in Webley *et al.* 2007, 100), who had suffered a depressed fracture to the parietal bone, will extend this picture even further.

Deposition and site formation

The nature of the later prehistoric archaeological record, and in particular the processes that led to its formation, have been the subject of considerable interest in recent years. A number of distinct, but partially overlapping, debates have explored various facets of this problem, but the different strands of the arguments have never been brought together in a unified study.

One long-standing debate has been about the interpretation of finds of bronze artefacts. It has been dominated by discussion of the hoards, though this has largely focussed on questions of the assemblage and formation of hoards rather than their deposition and non-recovery (Barber 2003, 43–63); too often there has been an assumption of burial for safe-keeping, with an intention to recover which was frustrated by circumstances. A parallel debate has concerned the interpretation of bronze finds, whether single objects or larger groups, in wet and watery places such as rivers and bogs (Bradley 1998b); here, unlike the hoards, a 'ritual', or at least a less utilitarian, explanation has been accepted, especially in the light of spectacular discoveries such as those at Flag Fen (Pryor 2001). Much less attention has been paid to the explanation of single finds on dry land, though with the explosion of discoveries as a result of the boom in development-related excavation, more and more have been recovered in controlled circumstances from settlement sites (Barber 2003, 65–9). In view of the widespread practice of recycling, it seems likely that only the smallest fragments would have been the result of accidental loss or deliberate discard, suggesting the possibility of other forms of purposive deposition: the increasing evidence for the archaeological record of settlement sites has also confirmed the unusual nature of finds in places such as rivers. Needham (1992, 60–5) recognised that many deposits on settlement sites were 'event-marking', related to important moments in the life of a site, such as foundation deposits or deposits marking the closure or filling of a feature.

Another long-standing debate has been over the question of burial traditions in the period after the use of round barrows. It has long been recognised that the practice of cremation burial, often with the ashes placed in a ceramic urn and often in or near a barrow, continued in the Middle Bronze Age; thereafter there appeared to be no readily recognisable tradition with the exception of some regional groups such as in East Yorkshire and western Cornwall, until the Late Iron Age, when cremation burial was again adopted in the south-east of England (Whimster 1981). There was considerable debate about the human remains that were known, such as skeletons placed in pits on Iron Age sites (Wilson 1981; Wait 1985), and considerable speculation about the possibility of practices such as excarnation (Ellison and Drewett 1971; Carr and Knüsel 1997; Lally 2008; Madgwick 2008). For the Late Bronze Age, Brück (1995) showed that human remains, both burnt and unburnt, were more frequent than had been imagined, but formal burials were less common than use of the remains in other contexts as a ritual resource. More recently, with more excavation and the wider application of radiocarbon dating, there has been a growing mass of evidence to suggest that formal burial was not as rare as had been expected; for instance, inhumations at Yarnton (Hey *et al.* 1999) and Suddern Farm (Cunliffe and Poole 2000, 152–74) are securely dated to the Iron Age. More unusually, the possibility of mummification and the curation of human bodies has been raised (Parker Pearson *et al.* 2005; Lally 2008). Most of the attention has been on whole bodies and formal disposal rites; while the presence of human body parts on many archaeological sites has been recognised for some time, there has been much less attention paid to their interpretation.

A third debate, largely limited to the Iron Age and focused on the evidence from Wessex, has concerned the classification and interpretation of pits and their fillings. The excavated pits at Danebury provided overwhelming evidence for repeated patterns of behaviour, especially in the deposition of whole animal skeletons or articulated joints and of human skeletons or body parts (Morris 2008). In an influential monograph Hill (1995) took the analysis of Iron Age pits in Wessex much further and argued that the animal skeletons and human bodies were part of a much more complex pattern of deliberate deposition of pottery, metalwork and other small finds. He also extended his analysis to enclosure ditches and demonstrated the existence of further patterns of deliberate deposition there. Despite the impact of this work on the interpretation of Iron Age sites, there have been surprisingly few detailed analyses (Gwilt 1997; Hamilton 1998; Rees 2008) of other regions to explore the wider validity of his conclusions.

These debates have mostly been rooted in the recognition of patterns in the evidence (or the absence of any evidence) and have sought to find explanations for them in the realm of human motivation or intention. Studies of the processes involved, the intermediate stage between the observed pattern and the human motivation, have been less frequent. Whittle (in Cunliffe 1984a, 128–46) distinguished between natural and artificial processes of pit filling at Danebury, and subsequent work at that site (Cunliffe and Poole 1991a, 161–2; Poole in Cunliffe 1995, 249–75) recognised that most pit fills represented a complex combination of these processes. A different model has been developed in the context of the excavation of the hillfort at Segsbury (Lock *et al.* 2005, 124–32), based on intentionality and knowledge of the nature of the deposits. Using a more empirical approach, most attention has been paid to the evidence offered by study of the pottery, in particular patterns of breakage, abrasion, and size and weight of the final sherds. A pioneering study by Bradley and Fulford (1980) was not systematically followed up by other similar work. Middens were investigated in detail at Runnymede (Needham and Spence 1996; 1997) and at Potterne (Lawson 2000; Waddington 2008) and elsewhere in Wessex (Tullett 2008), but these are comparatively rare features on other sites. Sherd abrasion was investigated at Danebury (Cunliffe 1995, 7–13) to investigate residuality and its impact on phasing and chronology, and the nature of sherd assemblages in individual contexts was an important part of Hill's attempt to define unusual assemblages in pits (Hill 1995, 51–2). Brudenell and Cooper (2008), in a detailed critique of the concepts involved in the discussion of 'structured deposition' in later prehistory, have now offered a more subtle analysis of the pottery and burnt bone on Late Bronze Age sites in Bedfordshire (Cooper and Edmonds 2007), arguing that the processes of site formation were much more complex and varied than usually presumed, and that it is therefore much more difficult to distinguish 'special' or 'unusual' deposits from the 'normal'.

Yet another theoretical debate has revolved around our understanding of the deposits that are often referred to as 'special' or 'deliberate' or 'placed', and in particular the concept of 'ritual'. The term, too often used as an unthinking description for those features of the archaeological record that do not seem to have an obvious utilitarian explanation, is based on the modern separation of the secular from the ritual. Applied to the later prehistory of Britain, this is a serious anachronistic misconception. From the decline in the use of round barrows in the 2nd millennium to the appearance of temples in south-eastern England in the 1st century BC, there are no sites that have an exclusively 'ritual' or non-domestic function, with the possible exception of sites such as Flag Fen (Pryor 2001) or Fiskerton (Field and Parker Pearson 2003), used for the deposition of artefacts in water. The secular and the ritual were intimately entwined (Bradley 2005). Brück's (1999a) discussion of the concept of ritual provides a basis for understanding the nature and context of repeated acts of 'site maintenance', even if we cannot understand the significance that they held for the people performing them. She had also (Brück 1999c) explored some of the repeated patterns of activity and deposition associated with houses of the Middle Bronze Age, developing the concept of the lifecycle of the house and practices of 'odd' deposition to

mark key events in that history, reminiscent of Needham's concept of event-marking deposition of bronze objects.

In the context of these overlapping and intertwining debates, it is perhaps surprising that one other concept of contemporary theoretical concern has not been more explicitly explored with reference to the later prehistory of Britain. The idea of fragmentation has been well developed for earlier periods and other areas (Chapman 2000; Chapman and Gaydarska 2007), but has had little explicit discussion in later British prehistory, except by Brück (2006). Hill (1995) emphasised what a small percentage of prehistoric material culture survived, but his point was to ask why anything at all was found, rather than to enquire what happened to the rest. In view of the rarity of finding any object complete, except perhaps in graves, hoards and ritual offerings, it is perhaps odd that this question has not been more actively investigated.

This brief review of recent work concerning the nature of object deposition and the formation processes of later prehistoric sites demonstrates the complexity of the issues. Successive attempts to pick out 'special' or 'odd' deposits have clearly shown that the archaeological record is not simply the product of disposal processes that are intuitively comprehensible to modern

Table 4.11 Major examples of 'unusual' deposits

Site	*MBA and M/LBA*	*LBA*	*Earliest IA*	*EIA*	*MIA*
West of Northumberland Bottom				Pit 147: bones of red deer, wild boar, pine marten, cat, sheep, pig, horse, Neolithic and EBA flint tools;	
Cuxton				Pit 343: large sherds of >50 vessels, many exposed to extreme heat	
White Horse Stone				Pit 6132: cremated human remains in bowl, six iron tools, bronze ring-headed pin, antler ?handle, deposit of almost fully processed wheat; Pit 8012: human skull and long bones in primary fill, also flint hammerstone and slingshot	
Thurnham	Context 10288: bronze knife and pin and Neolithic flint tools in backfill of waterhole				
Eyhorne Street				Pit 170: torso of cow, legs of horse (?articulated); Pit 175: bent iron dagger, fish tooth, large quantity of pottery; Pit 226: bisected pottery bowl, small cup	
Sandway Road	Context 357704: large deposit of pottery, querns, bronze				
Beechbrook Wood	Pit 237: large deposit including pottery, loom-weights, bronze fragment, cremated human remains, charred plant remains				Context 2213: large deposit of >30 vessels
Blind Lane				LT I brooch in posthole	
Little Stock Farm			Pit 2441: human skull fragments in gatepost hole; Pit 2104: placed deposit of decorated vessel; Pit 2304: >8 decorated vessels, nearly complete, and bronze strip (?bracelet); Pit 20231: human skeleton in pit; Pit 2031: human radius in pit		

minds, but the understandable emphasis on the distinctive has oversimplified the complexity of the processes involved and the variety of forms that could be the result of more 'normal' processes. A full understanding of the patterns in the archaeological record of the HS1 sites would demand a much larger research project than has been possible here, including a detailed analysis of site formation processes to establish the range of what is normal and therefore to distinguish the abnormal. Though the HS1 sites have produced some important evidence for deposition practices, the sample is still quite small (Table 4.11), and a more wide-ranging approach, to include especially a wider range of Late Bronze Age sites and the many Iron Age pits excavated elsewhere in Kent, would be more productive. In the following sections, therefore, some themes of particular relevance to the current debates summarised above will be selected, including the physical context of the deposits and the nature of the items deposited, as well as the possible events with which they were associated. To quote the words used an a similar context, 'this is not a wholly sound method to try and understand prehistoric rationales, but the great amount of groundwork that would have to be done makes a methodologically robust approach unfeasible for this study' (Gerritsen 2003, 83).

Pits

No detailed scheme-wide analysis of pit fills from all sites has yet been undertaken, though the pits at White Horse Stone and Eyhorne Street have been extensively analysed. In view of the comments above, the following observations may be little more than anecdotal examples of the more obvious sorts of patterning that may be seen. Fuller understanding of their significance must await the completion of the wider programmes of research and analysis of pits from both HS1 sites and more widely in Kent.

At White Horse Stone several different patterns of pit fill could be recognised (Hayden 2006a, 146–52). The central area of massed intercutting pits was difficult to interpret, but many of the pits had layers of sterile chalk, presumably from the digging of other pits; the function of this area is unknown. Other pits had clearer patterns of fill. In some areas the pits showed very little material in their lower fills, but combinations of pottery and animal bone in the upper layers, sometimes with charred grain or human bone. Other pits showed the opposite pattern, with finds concentrated in the lower fills, while a small number had finds deposited throughout the vertical sequence. There was no obvious correlation with the shape or size of the pit, and it was in fact the combination of human bones and small finds, discussed in more detail below, that proved to be the most striking pattern. Large quantities of slag from iron smelting and smithing were found in pits in Area 19 on the eastern side of the site, with very little from features anywhere else. Though other explanations may be possible, this marked spatial clustering seems most likely to have resulted from the activity of iron-working in this area, and the discard or rapid incorporation of waste material into the nearest convenient hollow.

At Eyhorne Street (Hayden 2006b, 22–7) there were eight pits, fairly shallow although possibly truncated. Finds occurred mostly in the upper fills, with few in the lower levels (see Fig. 4.25). There was some variation in the nature of the fills, but generally there was a negative correlation between the quantities of charred grain and of pottery, suggesting deliberately different processes of filling. Three pits stood out for the distinctive character of their contents. Pit 226 was the largest pit and contained two pots in the lower fills. One was an S-profile bowl with a footring, but it had been bisected vertically, leaving a complete half pot to be deposited. As well as this unusual treatment, it was the only vessel at the site in a particular quartz fabric. With it was a small cup, a unique example of a form more common on the continent, and again the only vessel at the site in a particular grog and quartz fabric. Both vessels may have had their own individual histories and significances, which may have been the reason why they were selected for deposition in this way.

Pit 175 contained an iron dagger in its upper fills, which had been bent into a near circle before being placed in the pit. It also contained a quantity of pottery that was considerably above average and a collection of faunal remains that included a tooth from a predatory fish of unidentified species. It seems unlikely that this resulted from normal food waste, and it was more probably an exotic oddity specially selected for deposit here. Pit 170 was different again, containing a large collection of animal bones in its middle fills. Though no longer articulated, this seems to have derived from the torso of a cow and the rear legs of a horse.

Pits at other sites have been less exhaustively analysed, but it is possible to pick out some important 'abnormal' deposits. Perhaps the most striking example is that of Pit 147 at West of Northumberland Bottom

Figure 4.38 Northumberland Bottom: Iron Age pit 147

(Askew 2006, 20–1) (Fig. 4.38). This was a bell-shaped pit, the deepest discovered on the site, and the only one of this form identified on any site; Hill (1995, 67) noted the fact that in Wessex special deposits were most likely to occur in beehive-shaped pits. It contained a highly unusual collection of material. Despite its size, it had a small amount of pottery, comparable in quantity to some other pits, but much less than two others. It had an unusually large assemblage of Late Neolithic or Early Bronze Age flintwork, including a barbed-and-tanged arrowhead; one other pit had a similar quantity of much earlier flint, but these two stood out from all other pits to such an extent that the flintwork seems very unlikely to have been the accidental residue of earlier occupation. The most distinctive feature of the pit, however, was the large and varied collection of animal bone, comprising more than 80% of what was found on the whole site. This included red deer, among which were three partially articulated skeletons of juvenile animals; cattle, including six partially articulated skeletons; and smaller quantities of sheep, pig, horse, wild boar, cat and pine marten. The large quantity of bones, the range of species, the mixture of wild and domesticated, and the presence of partially articulated skeletons, mark this pit out from all others, emphasised even more by the presence of the large collection of earlier prehistoric flintwork. It is tempting to associate the bones with some episode of feasting, possibly also with a celebration of hunting, but the significance of its deposition in this way is more enigmatic. The partially articulated skeletons must have been deposited fairly soon after dismemberment, yet other elements of the filling, such as the small quantity of abraded pottery, would have had a rather longer history of discard and redeposition.

The other pit at West of Northumberland Bottom that contained a large collection of earlier flintwork was Pit 205 (Askew 2006, 18). This also contained two bone artefacts, a 'gouge' and a needle; apart from a worked antler point, these were the only two items of bone or antler found anywhere in the HS1 sites. Their discovery here in association with the flintwork seems unlikely to have been accidental.

At Tollgate the part of the site excavated in the HS1 project will clearly need to be assessed in the light of the further excavations in advance of the A2 improvements (Allen and Donnelly 2009). For the moment we can note Pit 374, where most of the small finds from the site occurred in a single feature, including a La Tène I brooch, an awl, two sharpening tools, a flat pebble with grinding marks and a piece of sarsen used as a whetstone; also in this pit was an unusually large amount of pottery.

There are very few other pits yet published in detail from Kent, so there is little scope for regional comparison and discussion. Moody (2008, 123–4) provides some evidence for Iron Age pit fills in Thanet, in particular for the deposition of human remains, but a much wider study is needed.

Waterholes

One of the most striking deposits was that encountered in the upper layers of a disused waterhole at Thurnham (Lawrence 2006, 15–17; Fig. 4.39). The ramped hollow was filled with a water-lain silt, which unfortunately was not excavated, so there is no dating evidence for the possible earlier use of the feature. Above the silt was a layer of well-sorted flint nodules, smaller at the centre and larger towards the outer edges, up to 0.30m deep and containing between 10 and 15m^3 of flint; above this were further silt layers filling up the hollow. Towards the bottom of the flints at the centre were two bronze objects, a dagger or dirk blade and a pin or needle; these were characteristic products of the Acton Park or early Taunton phase of Middle Bronze Age metalwork, though the pin may have been several decades older than the dagger (Northover in Booth *et al.* 2006, 3–7). Also in the layer of flint nodules was a worn end-scraper of probable Late Neolithic or Early Bronze Age date; while it is possible that it is an accidental inclusion of a residual item from an earlier phase of activity, the lack of other comparable pieces on the site and the carefully sorted and laid nature of the flint nodules suggest that it is another deliberate inclusion.

Deliberate deposits of distinctive material in the fills of disused water features such as wells and waterholes can be matched elsewhere in Kent. In the excavations preparatory to the construction of industrial greenhouses at the Thanet Earth site, near Monkton on the Isle of Thanet, a feature that had been used as a waterhole in the Bronze Age contained a Middle Bronze Age palstave carefully placed in its silts (Rady 2009, 18) and at Swalecliffe a small pot was set at the bottom of a complex of waterhole features (Masefield *et al.* 2003, 71). Rather later in date is the waterhole at Bigberry near Canterbury, where the layers filling the depression contained a bronze harness item (Thompson 1983, 247–250 and fig. 17, 30). In excavations at Iwade in north Kent, feature 1145 was a well or waterhole which contained a single, almost complete fine-ware globular jar of Middle Bronze Age date in its lower fill; there was no other artefactual material, and the bowl must have been a deliberate deposit after the use of the feature as a well. The upper fills contained a collection of 22 struck flint items, including scrapers and a leaf-shaped and a barbed-and-tanged arrowhead (Bishop and Bagwell 2005, 14, 27, 82). The items are characteristic of Neolithic and Early Bronze Age flint industries, but the arrowheads in particular are unlikely to be contemporary. The assemblage cannot have been the result of the accidental incorporation of residual material, but must have originated from the discovery and collection of old artefacts or their long-term curation in society. The upper fills also included Late Iron Age pottery, but however many episodes of filling there may have been and whatever their date, it is clear that the deliberate deposit of unusual items was a part of the appropriate way of marking the end of the use of a well. These examples from the Late Iron Age suggest that the practice was a very long-lived one.

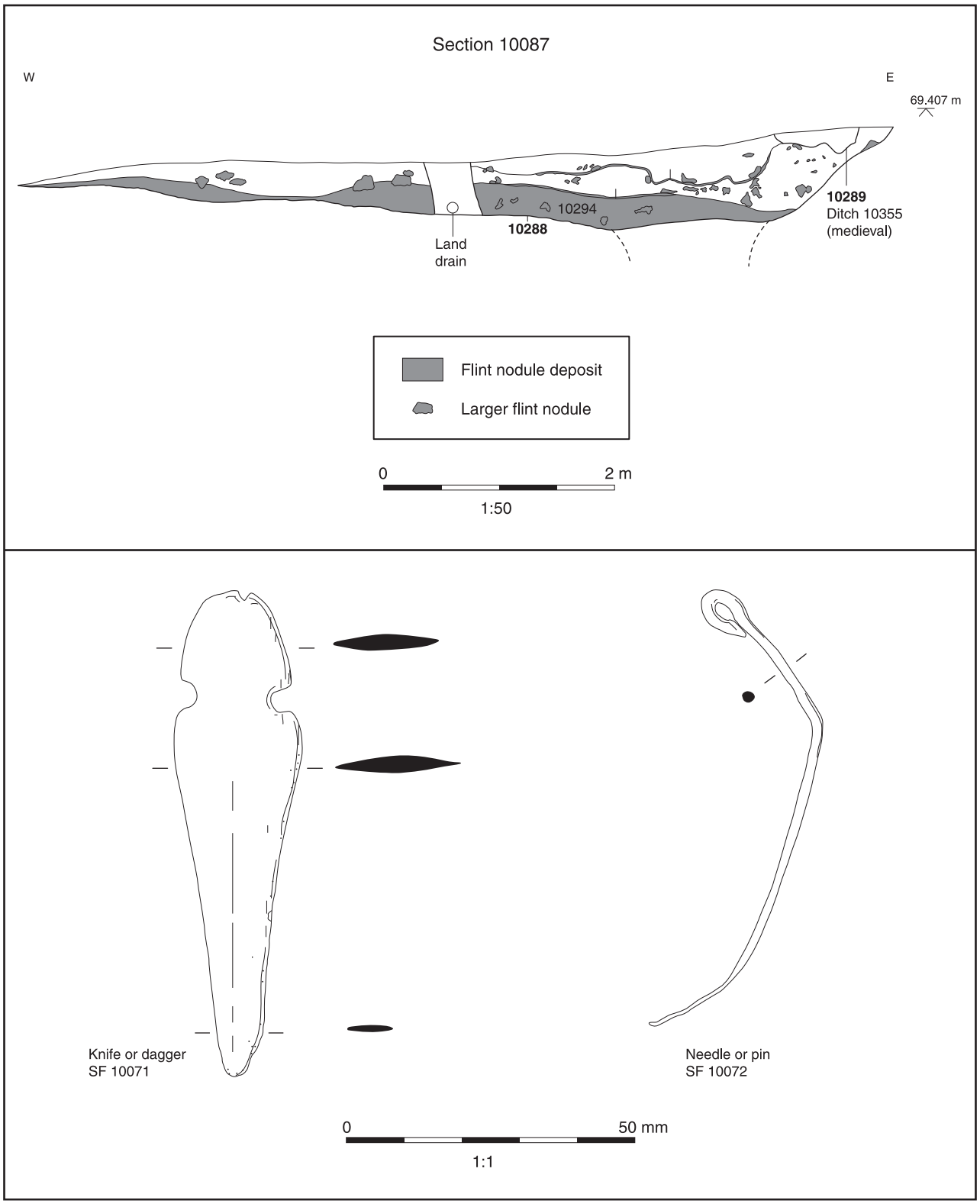


Figure 4.39 Thurnham Roman villa: section through waterhole and Middle Bronze Age metalwork from fill 10294

Pottery

Later prehistoric pottery was found on 21 of the sites investigated (Morris in Booth 2006a, 37–8). It was by far the most common material recovered from later prehistoric contexts, but there has been comparatively little analysis of the processes by which it came to be incorporated into the archaeological deposits. Full analysis of all the sites would be beyond the scope of this report, but some comments can be made about the assemblages and their characteristics, and some of the more 'abnormal' contexts identified against a background of the more 'normal', with attempts at possible explanations.

One way of summarily characterising ceramic assemblages is through calculation of the mean sherd weight (MSW) as a measure of breakage and fragmentation, itself a product of use, disposal and post-depositional processes. The HS1 sites have MSWs in the range 2.0 to 29.2g, although most of them, especially the larger ones in terms of sherd count, range between 5.8 and 16.7g. This corresponds with Hill's (1995, 51–2) observation that MSW tends to vary with the numerical size of the assemblage. Those below 5.8g are mostly small and well worn assemblages, while the one outlier at the top of the range, at 29.2g, is Cuxton, where the Iron Age assemblage is very unusual and will be discussed in more detail below.

The absolute values for MSW of the whole-site assemblages compare well with figures available for other sites. In Kent the figures for the later prehistoric (Middle Bronze Age to Middle Iron Age) component of the ceramic assemblages can be quoted from some site reports or calculated from figures provided: Highstead, 6.3g (Couldrey in Bennett *et al.* 2007, 101); Shrubsoles, 10.1g (Raymond in Coles *et al.* 2003, 22); Kemsley, 19.6g (Macnee in Diack 2006, 25). Elsewhere in southern England we can find 12.6g for Black Patch, Sussex (Ellison in Drewett 1982b, 363); 10.8g and 5.0g for the Middle and Late Bronze Age assemblages respectively at Mile Oak Farm, Sussex (Hamilton in Rudling 2002, 36); 13.8g for the Late Bronze Age site at Reading Business Park (Morris in Brossler *et al.* 2004, 58); 10.5g for the unsieved assemblage at Gravelly Guy (Lambrick and Allen 2004, 261); 20.8g at Watkin's Farm (Allen 1990, 32). Hill's (1995, table 6.7) survey of Iron Age sites in Wessex, concentrating on pit fills rather than whole-site assemblages, gave roughly similar figures in the range 9.3 to 17.9g. Doubtless more systematic research would provide a larger set of statistics, but these figures suggest an approximate range for the MSW of later prehistoric sites, which would be a function of the mechanical properties of the pottery, the patterns of usage, breakage and discard, post-depositional processes, and recovery methods. At this gross level, the HS1 assemblages, with the exception of Cuxton, do not seem out of the ordinary.

A more detailed understanding of the processes forming the archaeological record requires a more discriminating analysis, ideally focusing on individual features and individual contexts within them. The data for such a detailed analysis in the site archives, but it is beyond the scope of this discussion. To illustrate some of the potential, it is possible to note that from the statistics provided for pits and their fills at Tollgate (Bull 2006b, table 3) and Eyhorne Street (Hayden 2006b, table 8 and associated pottery records) there is considerable variation in the quantity and density of pottery in pits within the two sites as well as between them. The explanation for such variability needs much more detailed analysis.

One feature of several of the HS1 sites is the presence of one particular context which contains an abnormally large quantity of pottery, often a significant percentage of the entire site assemblage. In the Middle Bronze Age site at Sandway Road, Context 357704 contained 75 sherds weighing 528g (Morris in Booth 2006a, 46; Trevarthen 2006, 14); the quantity and the weight may not be absolutely large, but these constituted 94% and 99% of the site totals respectively, and the assemblage was a distinctively fine-ware one in comparison to other sites. This localised deposit in a ditch also included a fragment of a quern and two corroded pieces of bronze rod, possibly the remains of a pin, an unusual collocation of pottery and small finds. In the Late Bronze Age at Cobham Golf Course, Pit 137 (Davies 2006, 11) contained pottery amounting to 41% of the site total by sherd count, and 37% by weight. In the Early Iron Age at Tutt Hill, Pit 5 contained more than 3 kg of pottery, representing 53% of the site total by sherd count, but only 27% by weight (Brady 2006b, 20); the MSW of this feature was 2.5g, against a site average of 4.9g, showing that this was some of the most fragmented material on the site. The only significantly large collection of Middle Iron Age pottery was that found in a single large deposit at Beechbrook Wood, where context 2213 contained 18,369g of pottery, with a MSW of 16.8g.

These large dumps of pottery, sometimes together with other important finds, clearly do not originate direct from some significant social activity since the pottery has undergone processes of fragmentation and deposition that must have consumed varying lengths of time. Nevertheless, the act of making such deposits may have had a social significance, and they can be matched on other sites. In Kent, the Middle/ Late Bronze Age site at Kemsley had a similar deposit (239), which comprised 31% of pottery by count and 51% by weight; though it was deposited in the Late Bronze Age, much of the pottery was substantially older (Mcnee in Diack 2006, 41). Further afield, they are known at Lofts Farm, Essex (Brown 1988, 270–1) and Petters Sports Field, Surrey (O'Connell 1986, 14; Needham 1990, 129–30). For the Iron Age, various examples are discussed by Rees (2008, 70) and by Hill (2002, 154). They could be interpreted as event-marking or closure deposits, especially when in the upper fill of enclosure or boundary ditches, but there may also have been an element of major site maintenance about them.

Two other individual deposits also need comment. At Cuxton, a large pit (343) contained a distinctive assemblage of pottery, including sherds of at least 50 vessels, among which were 21 bowls or saucepan pots and 33 jars (Morris in Booth 2006a, 42; Mackinder 2006, 9; see Fig. 4.23). Much of the pottery had been subjected to extreme heat after manufacture, causing many of the vessels to become cracked and twisted. The sherds were comparatively large and unabraded. Although this deposit represents a stage in the post-usage life of the pots much nearer to the point of breakage than is the case with most of the other, much more fragmentary groups, it is still true that no more than 10% of any individual vessel was found in this pit group. This group is clearly different from the other large assemblages discussed above, in the size of the sherds and the heat treatment they had experienced. It is tempting to think of it arising from a single incident: possibly the burning down of a house and its

contents, or possibly a feast associated with a funeral or some other event, after which the pots were deliberately discarded and burnt. Whatever the social context, it seems likely that there was a deliberate fragmentation and selection of pots for deposition in this pit, since the processes of abrasion and dispersal that are normally assumed would not have had time to operate. Less than 10% of any one vessel was found, so at least 90% was treated in some other way; whether it was buried in other pits at the site not located in the excavation, or taken away to other sites as souvenirs of the event can only be a matter of speculation.

At Little Stock Farm, two features could be dated to the Earliest Iron Age by virtue of the decorated pottery (Morris in Booth 2006a, 51–2; Ritchie 2006, 5–6). The small pit or posthole 2104 contained a single vessel, while the small pit 2304 held the remains of at least eight vessels, some of them largely complete, as well as briquetage and a copper-alloy strip, probably from a bracelet. The pots were clearly placed deliberately in these features, and comprise jars and bowls with a high degree of decoration. They were indeed the only groups on the HS1 route that could be assigned to a hypothetical decorated phase of post-Deverel-Rimbury pottery, and add some support to the argument, discussed above in the section on chronology, that such decorated assemblages should be seen, not as a separate chronological period, but as special deposits, distinguished by the use of decorated pottery, within a longer chronological continuum (Brudenell 2008).

Animal bones

Survival of animal bone was generally not very good throughout the route, and no detailed analysis of animal bone deposition has been carried out. It is possible to identify an occasional act of deposition such as the horse skull placed in a posthole of a four-post structure at White Horse Stone (Hayden 2006a, 143), but in the circumstances it is only otherwise possible to make two important points. The first is the completely anomalous nature of the animal bones in Pit 147 at West of Northumberland Bottom (Askew 2006, 20–1; see Fig. 4.38), discussed above in the context of pit fills. Against a background of a comparatively low density of bones of the major domesticated species, with very rare occurrences of wild animals, this pit contained a very large collection of wild and domesticated animals, including the articulated partial skeletons of three red deer and six young cattle.

The other observation concerns the comparative lack of evidence for animal skeletons or articulated bone groups, other than those in Pit 147 at West of Northumberland Bottom. At White Horse Stone, Pit 8080, which was difficult to date but probably belonged to the Early Iron Age, contained the partial skeleton of a sheep, including skull, mandible, vertebrae and ribs (Hayden 2006a, 155). At Eyhorne Street, Pit 170 contained a large quantity of animal bone, which had probably originally been derived from the torso of a cow and the hind limbs of a horse; it was not clear, however, that the bones had been articulated when deposited (Hayden 2006b, 24–5). On the basis of the HS1 sites, therefore, it looks as though the practice of depositing whole or partial animal skeletons, which has attracted so much attention on Wessex sites (e.g. Hill 1995; Morris 2008), did not extend to Kent.

Small finds

It was noted in the discussion above of material culture that there was a very limited number of manufactured items discovered on all the sites together. Some consideration of their deposition and associations may help to clarify whether this a true reflection of a material poverty or whether there were other factors at work in producing the observed record.

A rapid survey of the contexts and associations shows that many of the artefacts were found in deposits that stand out for other reasons as unusual. For the Middle Bronze Age, the two significant bronze objects were placed in the top fill of a waterhole at Thurnham (Lawrence 2006, 15–17; see Fig. 4.39). At Sandway Road (Trevarthen 2006, 14), the remains of a small bronze rod, possibly a pin, were found with cremated human bone and a large collection of pottery in a single dump in the lower filling of a ditch. For the Earliest Iron Age, the decorated bronze strip, possibly part of a bracelet, was found in feature 2304 at Little Stock Farm, together with the abnormal collection of pottery described above (Ritchie 2006, 5–6). For the Iron Age, the pit assemblages have been discussed above, while the associations with human remains will be considered in more detail below. Among the pit finds we can note the find of a La Tène I brooch in Pit 374 at Tollgate with an exceptionally large quantity of pottery (Bull 2006b, 14), and two bone implements, the only ones from the site, in Pit 205 at West of Northumberland Bottom (Askew 2006, 18), with a collection of much earlier flint tools. At Eyhorne Street, Pit 175 contained a bent iron dagger in its upper fill (see Fig. 4.25), together with a much larger assemblage of pottery than in the other pits (Hayden 2006b, 23–4).

Among the finds associated with burials, which will be discussed below, the two spindle whorls with the adult burial 2295 at White Horse Stone (Hayden 2006a, 158), and the group of iron objects, together with a possible antler handle, a whetstone and a ring-headed pin, found with the cremation in 6132 from the same site (ibid., 159), are the only examples of these types of find from the site, or indeed from any HS1 site. Similarly, the fragment of shale bracelet with the human bone in 2130 was unique, as was the sling shot in Pit 8012. Other items found with these burials, including a hammerstone and a fragment of triangular loomweight, were rare discoveries, though not unique.

The recurring pattern of small finds being located in contexts and features that are strikingly abnormal

suggests that they are not random survivals of the suites of material culture in use on the sites at the time, but items carefully selected for deliberate deposition. There is therefore little reason to make inferences from these finds about the abundance or otherwise of material culture in later prehistoric society. Such items seldom entered the archaeological record except by deliberate human acts.

Formal burial of human remains

The only possible example of a cemetery of the later prehistoric period is a small group of burials and other features at Saltwood Tunnel (Riddler and Trevarthen 2006, 15–17; Fig. 4.40), but several other examples of the formal disposal of the dead were found at various sites. In addition, human remains were located in contexts that were clearly not the primary burial site, and these will be discussed in the following section.

The burials datable to the Middle and Late Bronze Age were all cremations (McKinley 2006a, 12–13). At Tutt Hill (Brady 2006b, 15–16) the cut features were severely truncated but one burial contained 7g of cremated bone and charcoal under an inverted bucket urn. Another also contained 7g of cremated bone and some calcined flint, but these were unurned; this was radiocarbon dated to 1440–1210 cal BC (NZA-20102). Both of these are clearly of Middle Bronze Age date, and were found near to the ring ditches of the earlier barrows. Other features near the barrows are more problematic. One feature, Pit 46, contained a much larger amount of burnt human bone, 1288g, and the remains of a bucket urn and other pottery, but because of vandalism the details are not secure; it may represent another urned cremation or something more complex. Other pits nearby, including one dug into the fill of the earlier Bronze Age ring ditch, contained various combinations of pottery and charred plant remains but no human bone; they may be the remains of offerings associated with the barrow and the burials, or of unrelated domestic activity.

Other burials of the Middle Bronze Age were found at West of Northumberland Bottom and East of Newlands Road. At the former site (Askew 2006, 16), a cremation burial placed in an urn was discovered, though there was little other sign of contemporary Middle Bronze Age occupation apart from residual material in Iron Age pits. At the site East of Newlands Road (Morris in Booth 2006a, 47; McKinley 2006a, 50), there was a cremation burial in a Middle Bronze Age bucket urn, and another cremation apparently deposited without an urn, but possibly contemporary. Again, there was little sign of related occupation.

At Saltwood Tunnel (Riddler and Trevarthen 2006, 12) two unurned cremations were identified, though the presence of cremated bone in later graves suggested that many more such cremations may originally have existed. One of these cremations, Grave 3602, was found 75m south of one the earlier Bronze Age ring-ditches, 10055; it was radiocarbon dated to 1410–1210 BC (NZA-20655). It may be associated with the barrow, though it was a considerable distance away; alternatively, it may have been associated with other evidence of Middle Bronze Age occupation activity in the area and unrelated to the barrow.

At Beechbrook Wood (Brady 2006a, 24 and 45), two unurned cremation burials were dated: burial 1294 to 1270–990 cal BC (NZ-20050) and burial 1290 to 1190–920 cal BC (NZ-21507). A similar burial, 1603, was unphased, but may well have been of the same date. In this case there was no association with a previous barrow, but all the burials lay roughly along the line of ditches of the Late Bronze Age field system.

At Pepper Hill, Grave 10314 (Biddulph 2006a, 8) contained pyre debris with a radiocarbon date of 920–800 cal BC (KIA-23932). The discovery of a small quantity of fragmented and abraded pottery of Late Bronze Age date suggests that it may have been related to contemporary occupation.

At White Horse Stone, after a phase of Middle Bronze Age settlement, there were few features that could be confidently dated to the Late Bronze Age. These included two unurned cremations in pits (Hayden 2006a, 118–9). These were assigned to the Late Bronze Age on the basis of radiocarbon dates: Grave 852 dated to 1190–920 cal BC (NZA-21505), and Grave 948 to 1010–830 cal BC (NZA-21492). There were other features also containing small deposits of cremated human bone, but similar features could also be assigned to the Late Neolithic and possibly the Roman period, so their phasing is insecure. In the circumstances, with very limited evidence for Late Bronze Age activity, it is difficult to say much about the context of these cremation burials.

The HS1 sites also produced some important evidence for formal burial in the Iron Age. The largest group of features was at Saltwood Tunnel (Fig. 4.40), where a small cemetery complex was found at the eastern end of the site, adjacent to the earlier Bronze Age ring-ditch 33 (Riddler and Trevarthen 2006, 15–16). A small square ditch (62), about 3m square, may have represented a mortuary enclosure or a barrow. At one point it cut through a shallow pit (1699) which contained charred material and human bone that gave a date of 760–390 cal BC (NZA-20597). The eastern side of the ditch was cut or overlain by five small deposits of charred material, two of which contained cremated human bone; one of these, feature W1726, gave a radiocarbon date of 790–450 cal BC (NZA-20598). These dates are not statistically distinguishable, and the whole sequence must lie in the Earliest Iron Age or the early part of the Early Iron Age. Near this enclosure was a group of eight certain or probable inhumation graves. Bone preservation was very poor, but five of these features contained some human remains and the interpretation of the others is based on their proximity and similarity of shape. Two of the graves, W1732 and W1737, appeared to cut the fill of the square enclosure, though the relationship was not conclusive. Another two of the graves, W1411 and W1421, contained sherds of carinated bowls. While it is possible that these may have been residual material in the

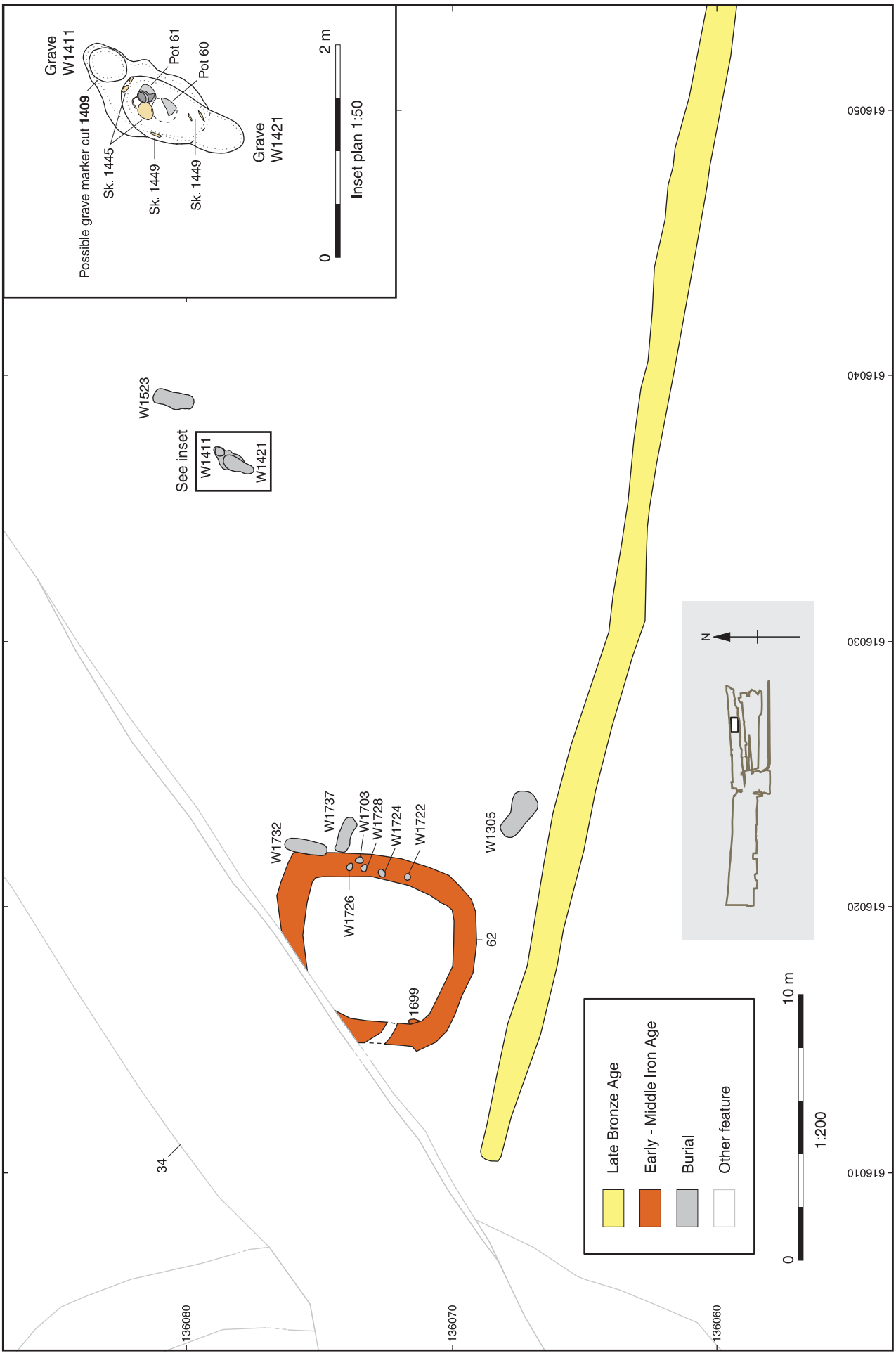


Figure 4.40 Saltwood Tunnel: Iron Age burial complex

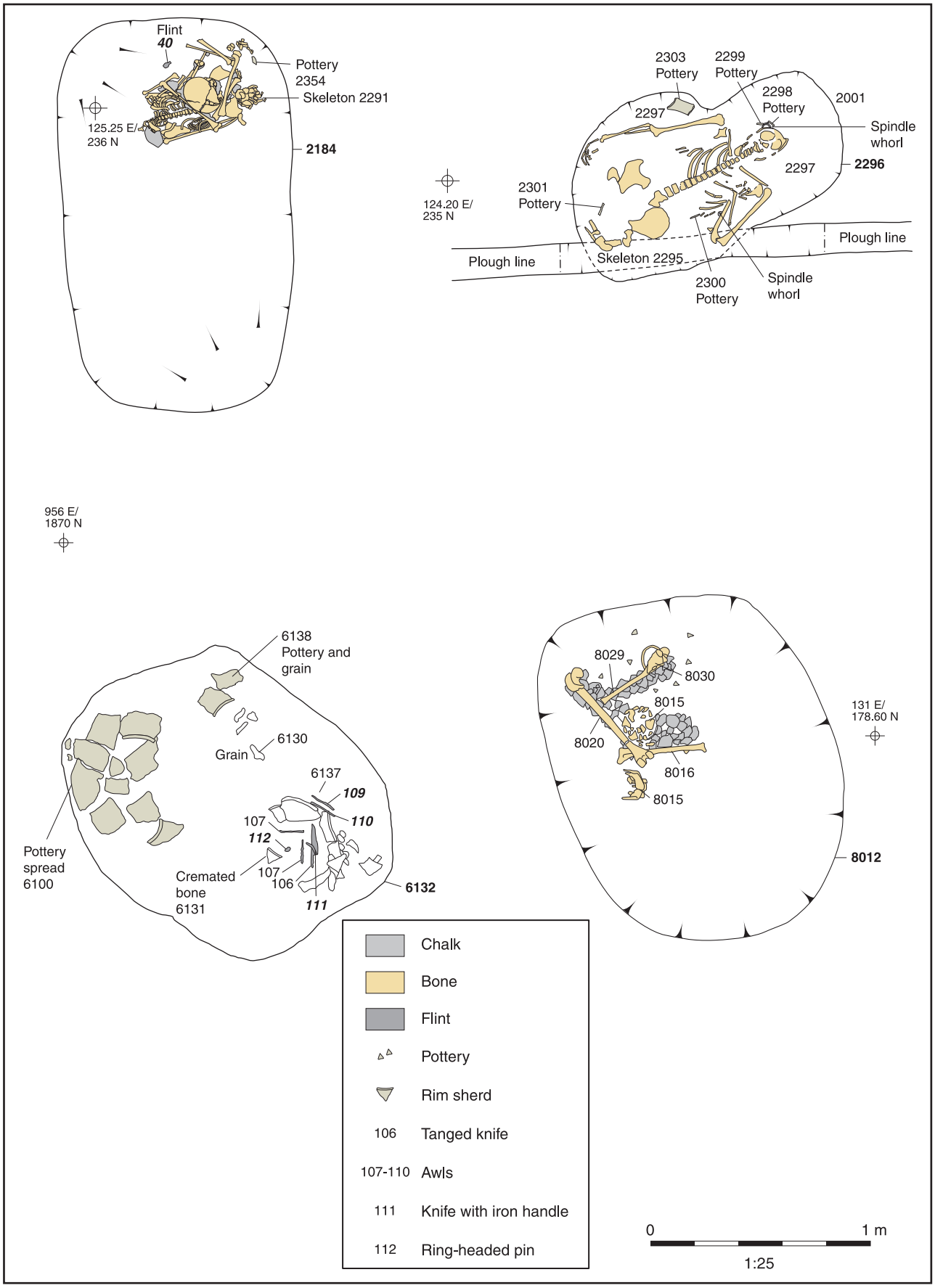


Figure 4.41 White Horse Stone: burials and pits containing human remains from the Iron Age settlement

grave fill, there is almost no other evidence for Iron Age activity in the area from which they could have been derived, and the similarity of the sherds suggests the deliberate deposition of incomplete pots as grave goods. The pottery would date to the 5th or 4th centuries BC, possibly overlapping with the end of the possible date range for the cremation deposits.

The only other Iron Age burial evidence at Saltwood Tunnel was at the far western end of the site, where an unaccompanied inhumation (C24) was found (Riddler and Trevarthen 2006, 16). This was located near to ditch 10042, one of the complex of ditches that marked the boundary that developed as the major north-south trackway 10156, but appears to have originated in an episode of Iron Age land division and enclosure. The extended inhumation was dated to 370–110 cal BC (NZA-27734), confirming the Iron Age origins of this landscape.

One unexpected discovery at the site of the Roman cemetery at Pepper Hill (Biddulph 2006a, 9) was the presence of a burial (Grave 10404) of an adult male, laid face downwards. This was radiocarbon dated to 350–40 cal BC (KIA-23946). There was no other indication of occupation in the area at that date, and the burial remains an isolated phenomenon.

Figure 4.42 White Horse Stone: photograph of burial in pit 2184

The evidence for human burials in the Iron Age at White Horse Stone was more variable and less easy to interpret (Hayden 2006a, 157–60). It ranged from what might be called formal burials through whole bodies in pits to body parts or individual bones in pit fills (Fig. 4.41). Although it creates an unhelpful division of the material, the possible formal burials will be discussed here and the remaining evidence in the following section. There were three deposits that might be regarded as formal burials. One (2295) was as inhumation of an adult male, placed in a shallow pit (2296) that was not long enough to take the body fully extended, so that the knees were drawn up over the torso. The fill of the pit contained two ceramic spindle whorls, the only ones found on the site. In a nearby pit (2184) was the body of a child (2291), placed in the lower fill (Figs 4.41–2); the upper fills contained fragments of pottery and animal bone, and also of triangular clay loomweights, one of only three contexts containing such finds anywhere on the site. This burial was dated to 410–90 cal BC (GU-9089).

The third deposit was in a shallow oval-shaped pit (6132), which contained the cremated remains of an adolescent, which had been placed in a bowl. Also in the bowl were a set of iron tools, including two blades and four awls, the remains of some antler, possibly a handle, and a copper alloy ring-headed pin. The bowl, the metal tools and the antler all showed signs of burning, possibly from being placed on the cremation pyre. Also in the pit were a jar containing a deposit of almost completely processed wheat and the remains of at least four other vessels. The cremation was dated to 460–160 cal BC (GU-9088). The radiocarbon dates for this cremation and the inhumation 2184 are the latest from the site, and they suggest that they were among the latest activities carried out in the Iron Age phase of occupation.

The significance of these burials will be discussed further after the treatment of other human remains has been described.

Other human remains

Human bone was found at two sites in contexts that were not the primary formal burial location, White Horse Stone and Little Stock Farm. At White Horse Stone, unburnt human bone was found in six Iron Age pits (Hayden 2006a, 159–60). In Pit 8012 a group of bones was carefully placed on top of the primary fills, including a skull with mandible separate, and a selection of long bones (Fig. 4.43); the pit also contained a hammerstone and a sling shot. In five other pits human bone was found in the upper fills, almost exclusively fragments of skull and fibula or tibia. Other finds in these pits were generally similar to those around them, including pottery and animal bone, but pits 2119 and 2214 also contained the only examples of dog and red deer bones found on the site, while in Pit 2130 there was a fragment of a shale bracelet, again the only example found on the site.

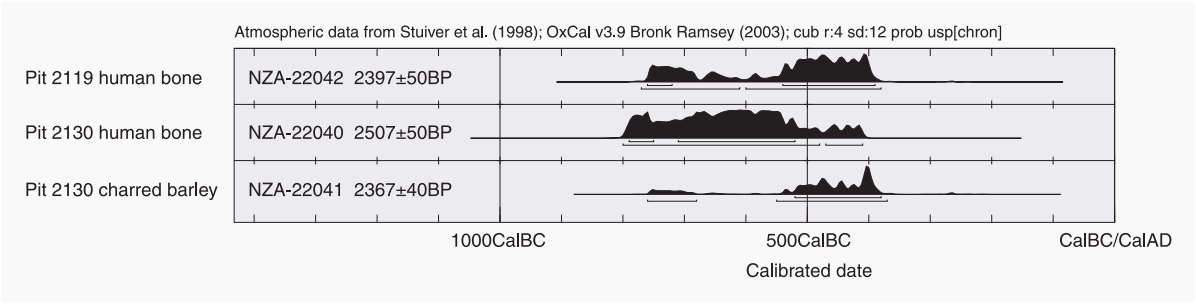
An attempt was made to date the human bone, to assess whether it was contemporary with the rest of the

material in the pit fill or had been curated (Hayden 2006a, 134). This test was focused on two pits. Pit 2130 contained a deposit of charred barley in its lower fill, with a fragment of adult human fibula in the upper layers; the pit was in turn cut by Pit 2119, which also contained a fibula fragment. The radiocarbon dates seem to show that the fibula from the upper layers of Pit 2130 is somewhat earlier than the other two dates (Fig. 4.44). Modelling of the dates (Allen *et al.* 2006, 30–2) suggests that, although it is possible to reconcile these dates with the stratigraphic sequence, the date for the charred barley fits the model rather poorly and it is quite possibly out of sequence. An alternative explanation would be that the human fibula from Pit 2130 was old, quite possibly very old, by the time it was deposited.

Figure 4.43 White Horse Stone: photograph of burial in pit 8012

A similar possibility also arises from the dates of human remains at Little Stock Farm. A rectangular enclosure with an east-facing entrance is poorly dated, but probably belongs to the Early Iron Age on the basis of the little pottery found there. The entrance was defined by a gap in the fence line, with a large posthole on either side (Ritchie 2006, 8–9). One of these held three non-joining fragments of human skull, dated to 800–510 cal BC (NZA-19916). This was clearly a form of foundation deposit at the entrance, but in view of the poor dating evidence for the rest of the structure it is difficult to know whether the bone was old at the time of deposition.

In another part of the site, where the occupation belonged to the later part of the Iron Age, continuing into the Roman period, human remains were found in two intercutting pits, which had themselves been disturbed by a medieval pit (Ritchie 2006, 8). In the stratigraphically earliest pit (2037) were the partial remains of a young adult woman. This pit was cut by another pit (2031), which also contained human remains. Analysis of the



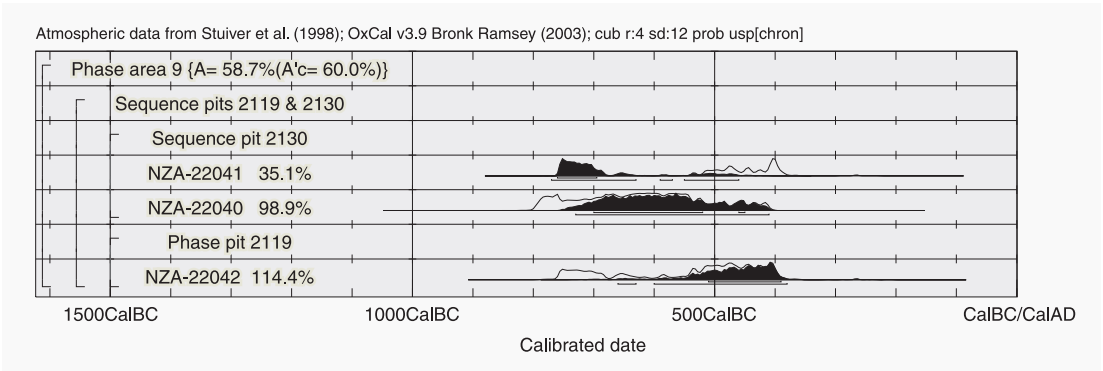


Figure 4.44 White Horse Stone: a) Radiocarbon distributions from pits 2130 and 2119 and b) the probability distributions and posterior density estimates from the modelled data

human bone showed that almost all of it belonged to a young adult woman, who had suffered a blow to the parietal vault, causing a wound that had not healed. In addition to her skeleton, there was also another human radius. It seems likely that the female skeleton had been buried in the lower pit, and that the body was at least partially articulated at the time of burial, though some degree of disturbance or removal of parts, before or after deposition, cannot be ruled out. It was then certainly disturbed by the digging of the second pit, which caused some bones to be redeposited. Also included in the fill of the upper pit was an additional isolated human radius, though it is possible that it was originally in the lower pit and was also redeposited. The bones were radiocarbon dated: those in the lower pit were dated to 380–170 cal BC (NZA-19987), while the additional radius in the upper pit was dated to 770–400 cal BC (NZA-19915). These dates show that the individual radius in the upper pit was substantially older than the disturbed body buried below it. It must have been redeposited from some other location; even if redeposited from the lower pit, it was still substantially older than the other skeleton. The radiocarbon dates of course only refer to the date of death of the individuals, not to the deposition; the only other dating evidence is the pottery found in the two pits. The lower pit (2037) contained pottery that belonged comparatively late in the site sequence; pottery from the upper pit (2031) was less diagnostic, but could be broadly contemporary with the lower. The deposition of the radius in the upper pit must post-date the death of the individual buried in the lower pit. That means that the body must have been curated in some way, perhaps buried, for a period of least several decades and possibly several centuries before being retrieved or exhumed for final redeposition.

Burial, deposit or offering?

This review has shown how varied was the treatment of the human body in later prehistory. At one end of the spectrum is something that would be clearly recognised as formal, primary burial. At the other is something that is obviously not that, but a use of human body parts as a ritual resource alongside other categories of object suitable for such deposition. In between, there are examples that do not fit easily into our categories of burial or ritual offering, such as the burials in Iron Age pits. The following discussion will try to situate the HS1 evidence in the light of what else is known for the region.

The continuation of a cremation burial tradition into the Middle Bronze Age, using earlier barrows or less commonly newly constructed ones, is well documented in southern England (Woodward 2000, 43–5). In Kent Deverel-Rimbury bucket urns are reasonably well known, though the details of the burials from which many of them presumably derived are less well recorded (Champion 1982, 34; 2007c, 111). In the Monkton cemetery, Middle Bronze Age cremation burials were found in and near several of the ring-ditches, especially Ring-ditches VI, IX and X (Bennett *et al.* 2008, 99). At Bridge (Macpherson-Grant 1980a), Barrow 2 contained ten burials within the ring-ditch and a further six outside; several were covered by inverted bucket urns, but many were simply placed in small pits. The cremation burials from Tutt Hill, and possibly Saltwood Tunnel, are therefore part of a pattern that is well known elsewhere in southern England and is now beginning to be better documented in Kent.

How long the practice of making such burials associated with barrows continued is as yet uncertain, but with the wider application of radiocarbon dating it is becoming clear that unurned cremation burials were more common in the Middle and Late Bronze Age than previously suspected and that burials were increasingly being placed in settlement contexts rather than barrows or cemeteries. Radiocarbon dates from the HS1 sites (Allen 2006, 14) demonstrate a tradition of cremation lasting throughout prehistory and well into the Roman period (Fig. 4.45). Deposition in settlement sites seems to have started already in the Middle Bronze Age, as burials from the enclosure complex at Shrubsoles Hill in Sheppey, some deposited in urns, show (Coles *et al.* 2003, 13). The context of the Middle Bronze Age burials at West of Northumberland Bottom and East of Newlands road is not clear, but there was no indication of nearby barrows and they may have been related to settlement. The Late Bronze Age burials at White Horse Stone and Beechbrook Wood were certainly placed in settlement contexts, in the latter case close to the ditches of a field system.

Brück (1995, 257) has documented the regular occurrence of human remains in Late Bronze Age sites, frequently used as a metaphorical resource for the demarcation of liminal places and especially spatial boundaries. Her Class B, representing formal burials in settlements sites, was not numerous, but subsequent research suggests it may have been under-represented in her list of sites. Unurned and unaccompanied cremation burials are difficult to date without the use of radiocarbon, unless they have an obvious stratigraphic or contextual relationship, which is comparatively rare. More recent work, especially more intensive excavation and the wider application of radiocarbon dating, is now revealing many more examples of such burials. They are now being reported from a growing number of sites in Kent, such as Shrubsoles (Coles *et al.* 2003, 17–19) and Shelford Quarry, near Canterbury (Boden 2004). In both these cases the burials are located near or along boundaries and enclosures, as at Beechbrook Wood; at Shrubsoles the enclosure ditch seems to have already filled up before some at least of the burials were deposited, but the attraction of the boundary was clear.

One repeated feature of these cremation burials is the quantity of cremated bone that is collected and deposited, which rarely even approaches the amount that would be expected from a full body, and is occasionally as low as 7g. Though it may have been accepted practice to collect only a token amount, leaving the rest of the bone and the pyre material to be dispersed naturally, the

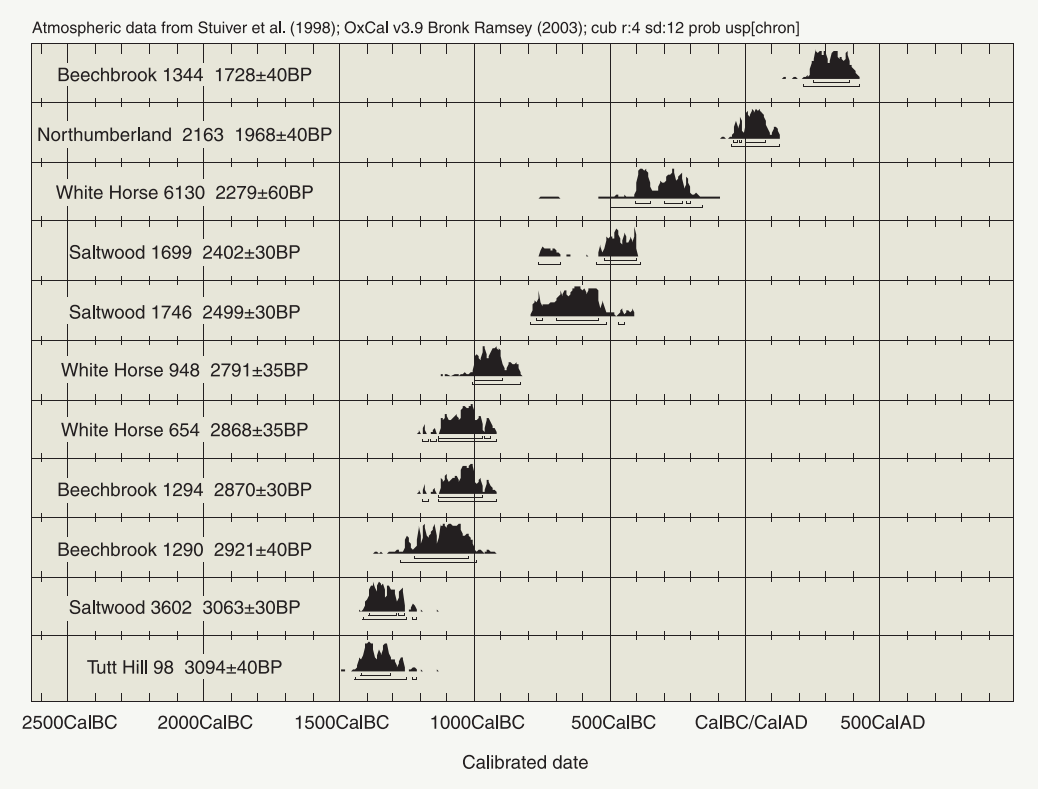


Figure 4.45 Radiocarbon dates of unurned cremations

possibility should not be overlooked that the rest of the cremated bone was deliberately dispersed and deposited in small quantities at places other than the 'burial'. Some site reports, for example at Beechbrook Wood (Brady 2006a, 18), document the presence of small collections of cremated bone in various contexts, often described as residual or redeposited, but possibly part of a practice of fragmented or dispersed disposal.

Brück (1995) also records the frequent use of unburnt human bone in specific contexts, such as foundation deposits, at or near the entrances to houses and enclosures. The burial of fragments of human skull in a posthole at the entrance to the rectangular enclosure at Little Stock Farm, which dates to the end of the Bronze Age or the very beginning of the Iron Age, is an excellent example of such a practice.

The distinction between formal burial and the deposition of human remains for ideological or metaphorical reasons is reasonably clear in the Bronze Age, despite the comments above about the liminal location of burials and their very partial nature. The distinction becomes much more difficult to draw in the Iron Age. The evidence for formal burial is clearest at Saltwood Tunnel, where the group of four, or possibly eight, inhumations can be interpreted as a small cemetery, albeit associated with other deposits of burnt material and the small square enclosure. The isolated inhumations at Saltwood Tunnel and Pepper Hill can also be seen as formal burials, though the boundary location of the former may well have been important too. These examples are significant additions to the growing evidence for inhumation burial in Kent and elsewhere in southern England in the Iron Age. The inhumation tradition is best documented in Kent in the Late Iron Age at Mill Hill, Deal (Parfitt 1995), in a group of burials inserted into the ditch of the Neolithic long barrow at Jullieberrie's Grave (Jessup 1937; 1939) and in a poorly recorded cemetery at Highstead near Sittingbourne (Vale 1987), but it clearly began much earlier. Radiocarbon dates from Deal (Parfitt 1998) suggest it may have started at least as early as the 3rd century BC; a burial at North Foreland, Broadstairs (Perkins and Macpherson-Grant 1981, 21-24) contained distinctive sherds of Early La Tène pottery. These inhumation burials from Kent match the record from elsewhere in southern England, as the examples from Yarnton and Suddern Farm, cited above, show. The cremation burials from Saltwood Tunnel, however, only serve to remind us that other rites were also practised.

The evidence for human remains from White Horse Stone is the clearest example of the problems with our categorisation of such deposits. The burial of the child (2291) in a pit is something that can be well paralleled in many other sites in southern England (Whimster 1981; Wilson 1981; Wait 1985), where it has been most frequently characterised a 'pit-burial tradition'. The main focus of the interpretation is, therefore, to try to explain why a subgroup of the population had been treated to what was clearly an abnormal burial rite, whatever the rite accorded to the majority of the population might have been; groups such as enemies, outcasts, or those killed in warfare have regularly been cited (Lally 2008, 124). Treating these deposits as burials thus removes them from consideration alongside other instances of human remains in pits, in particular partial skeletons or

fragmentary human bones, and categories of evidence such as animal skeletons, pottery or querns.

Three observations that can be made of the archaeological record at White Horse Stone might support the argument that these cases of human bones should be regarded as ritual deposits rather than burials. The first of these concerns the feature 6130, which contained a cremation deposit and a set of iron tools; but rather than an accompanied burial, we could regard it as a group of special deposits which included the iron tools, the cremated bone, the processed wheat in a jar and other pottery. Secondly, the human remains, whether whole or fragmentary, were often accompanied by small finds or other things that were the only examples found on the site, as noted above. In addition to the iron tools and the ring-headed pin with the cremation burial in 6130, the only spindle whorls were in the same feature as the adult inhumation (2295), the fragmentary human remains in various pits were associated with the only examples of a shale bracelet and of dog and deer bones, and the child inhumation (2291) was found with one of only three examples of triangular clay loomweights. In the case of the pit deposits containing human and other finds, the normal interpretation would be to see them as carefully selected items appropriate for such deposition, whatever the event. It therefore seems possible to regard the complete human skeletons found with similarly distinctive items as deliberately selected sets of deposits rather than burials accompanied by grave goods. Thirdly, the radiocarbon dates show that the cremation deposit with the iron tools (6130) and the child inhumation (2291) were some of the latest activities on the site, possibly after the main phase of occupation had finished. It seems reasonable to see them as acts marking an important event, the abandonment of the site, in much the same way as the placing of the bronze objects and the flint tools in the upper fill of the waterhole at Thurnham marked the closure of that feature.

The partial or fragmentary deposits of unburnt human bone were dominated by skull and long bone fragments, a phenomenon discussed by Brück (1995, 256–7). Since these are the most robust parts of the human skeleton, it is understandable that they are the ones that have survived to be selected for later deposition, but the question of where and how the skeletons were preserved between death and final deposition of some parts still remains. The evidence from Little Stock Farm suggests that the interval between these events could be lengthy, so we must envisage either above-ground curation or exhumation of below-ground burials.

A proper understanding of the human remains, as of the pit deposits in general, will only be possible with the analysis of a larger sample of sites from the region. The HS1 evidence does, however, demonstrate some of the variety of ways that human remains were treated. In general they conform to the patterns that have been seen in other parts of southern England, but provide detailed evidence for the first time for Kent, and add substantially to the argument for the curation and reuse of human body parts in later prehistory.

Something old

One striking feature of the special deposits that have been described here is the regular selection of something that must have been obviously old at the time of final deposition. It has been possible to recognise this practice through a combination of radiocarbon dating, stratigraphy and association with other finds. So, radiocarbon dates and stratigraphic superimposition show that the skeletal fragment buried in pit 2031 at Little Stock Farm must have been decades or even centuries old. Similarly the contextual association of the earlier flint item with Middle Bronze Age bronzes in the waterhole at Thurnham shows that the flint must have been old; likewise the flints incorporated into the fills of some of the pits at West of Northumberland Bottom. These methods, however, will only identify a minimum number of such events, which may very well underestimate their occurrence. At Thurnham, for example, the bronzes themselves may have been old when deposited; since the feature was not fully excavated, there is no hard evidence for the date of the final filling of the hole. At Little Stock Farm it is not impossible that the lower of the human burials may also have been old, possibly partially disarticulated, at the time of deposition. At White Horse Stone, few of the skeletal fragments were radiocarbon dated, so we have no evidence to suggest that any of them may have been old, other than the fibula in pit 2130 discussed above.

One apparent anomaly may also be explained by this practice. At Tollgate two pits were dated by means of residues on the surface of pots found in their fill (Bull 2006b, 15). In pit 387 the date was 760–380 cal BC (NZA-22886); this may seem rather early for the Early Iron Age, but the most likely calibration lies in the 5th century BC, well in line with expectations. The other pit, 374, contained a La Tène I brooch, which would be securely dated to around the 4th century BC, but also a sherd with burnt residue surviving on the interior which gave a date of 850–760 cal BC (NZA-22880). This incompatibility could be explained in one of three ways. It could be a statistical outlier, with a calendar date of 400 BC just falling with very low probability within the calibrated range at three standard deviations. Alternatively, it could be that the pot was an old one, though the sherd (PRN 1186) is in a form and a shell-gritted fabric that would have been unusual at around 800 BC. Or the sooting could derive from some organic material that was itself very old at the time of burning, though it is difficult to guess what that might have been. At the moment it is hard to suggest which is the least unlikely explanation.

The wide range of objects selected for deposition and their very varied ages suggest that we are dealing with complex patterns of behaviour and with items that may have had complex histories. At the very least we can distinguish those objects that seem more likely to have been accidentally found from those that had been somehow curated. Stone artefacts from the Neolithic or Early Bronze Age would have been found, as now, in agricultural operations, recognised as not part of contem-

porary material culture and retained as curiosities. Reference has already been made to the Neolithic and Early Bronze Age flints deposited in the top filling of a well at Iwade (Bishop and Bagwell 2005, 14, 27, 82). Other examples of the practice involve the deposition of Neolithic axes in the filling of Iron Age pits. In one pit at Ellington School, Ramsgate, dated to the end of the Bronze Age or the Early Iron Age, two polished axes and a large quantity of other implements and flakes were found on top of the basal fill (Boden 2007a, 28). A Neolithic axe was also found in the extension of the Tollgate site excavated in improvements to the A2, placed in an Iron Age pit alongside an iron spike (Allen and Donnelly 2009, 40). On the other hand, some items seem likely to have been old or even carefully curated. Unfortunately we know very little about the treatment of human bone in later prehistory, but the discussion of the later prehistoric chronology at the start of this chapter referred to examples of Bronze Age metalwork associated with what would seem to be much later pottery at Shrubsoles (Coles *et al.* 2003, 15, 30–1) and Iwade (Bishop and Bagwell 2005, 15 and fig. 22); objects that were either themselves old or of a type that was recognised as old were selected for such depositions. Other examples will doubtless come to light with further excavation or with the willingness to recognise these finds as deliberately selected and deposited rather than being accidental residues from earlier occupation.

Discussion

This brief analysis of some of the evidence for deliberate deposition and for the processes of site formation has been able to do little more than indicate the possibilities for further research. At the theoretical level, it has demonstrated the need to rethink the categories of burial and ritual deposition that are generally used in site reports, and has also argued for the need to explore the processes of site formation in more detail in order to be able to discriminate the normal from the abnormal. More factually, it has shown patterns of pit filling that must be the product of deliberate acts of deposition; though the whole or partial animal carcasses known elsewhere appear to be rare or absent, it is noticeable that small artefacts are regularly part of these patterned deposits. The social context of those acts is not always clear. At Little Stock Farm, the deposition of human skull fragments suggests a foundation deposit, while at Thurnham the deposition of bronze objects was clearly part of the formal closure of the waterhole; at White Horse Stone, various deposits may be marking significant events, possibly the abandonment of the site. It has also been possible to show how human remains were treated in various ways, ranging from formal primary burial to ritual deposition of individual bones, especially skull fragments and long bones. One important characteristic of the deposits is the regular use of something that must have been known to be old, whether it was earlier prehistoric flintwork or human body parts.

Conclusions

After this detailed review of the later prehistoric discoveries and their significance, it remains to summarise the key points and also perhaps suggest what questions have not been illuminated.

Perhaps the most important result has been the understanding we now have of the Greensand region south of the Downs, a zone that had been little explored by previous work and where the archaeological record is very different from that of the better known north and east of the county. The Middle Bronze Age shows a picture of a rapid and dispersed colonisation of the region, coupled with the beginning of widespread woodland clearance, but we have very little idea of how this was achieved in human terms. Where did these people come from? What was the nature of the groups who inhabited the rather vestigial settlement sites of this period? What was the relationship with the rather different societies north of the Downs? In the later stages of the Bronze Age, the population seems to have consolidated to the occupation of a smaller number of sites, but with larger and more substantial field systems. What did this mean in terms of social organisation? If the fields are an expression of power, who exercised that power? One of the surprises is perhaps that the detailed excavations found not a single piece of Late Bronze Age metalwork, despite the enormous quantities that were deposited in hoards in Kent, including some now known in the vicinity of the fields. We clearly need to know more about the relationship between the control of land and its products and the control of bronze and other precious commodities, especially gold.

The end of the period in which bronze and gold had circulated as items of wealth, around 800 BC, unfortunately coincides with a problem in the chronology, and the difficulty of determining the true chronological sequence from Late Bronze Age to Earliest and then Early Iron Age. How was the collapse of this exchange and circulation system reflected in local social organisation? In the Iron Age the regional contrast between different parts of the county continues, but the central importance of the Medway Valley continues; the site at White Horse Stone, which plays a central role in the economy and society of the region, is another episode in the long-term significance of this place. The distinctive enclosure at Beechbrook Wood also seems to mark the emergence of the region around modern Ashford as a similar nodal point at the crossing of the Greensand vale and the Stour Valley, later marked by a Roman town.

The later prehistoric period also saw major changes in the environment, whether externally driven, like the rise in the relative sea level that had such an effect on the coastline of the Thames estuary, or humanly induced, like the woodland clearance that transformed the visible landscape of the region. How the people of the region saw their relationship to the land and to the sea and the lands beyond the sea, no doubt also changed enormously during this period. Though most of what they produced and used throughout the period was made from local

resources, there were some indicators of a wider world. The bronze ornaments of the Middle Bronze Age were made from metal that must originally have come from outside the region; the adoption of a new variety of wheat, spelt, of which Kent has the earliest records so far documented, was presumably also an introduction from across the Channel. The Late Bronze Age shows no evidence for outside contacts, though again any bronze that might have been in use would have been imported. The Early Iron Age, however, shows intriguing evidence of a new level of contact across the Channel, as is revealed by the adoption of the new fashion of brooches and of the domestic fowl, as well as the similarity of pottery production, even down to the presence of some distinctive cups that were, if not actual imports, at least inspired by the cultural practices of northern France.