Pattern and progress: field systems of the second and early first millennia BC in southern Britain

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I hereby declare that this thesis has not been, and will not be, submitted in whole or in part to another University for the award of any other degree

Judie English

For Peter Reynolds, friend and mentor

To the axe of the spoiler and self interest fell a prey
And cross berry way and old round oaks narrow lane
With its hollow trees like pulpits I shall never see again.
Inclosure like a Buonaparte let not a thing remain,
It levelled every bush and tree and levelled every hill.
Here was commons for the hills where they seek for
freedom still, though every common's gone,
All levelled like a desert by the never weary plough.

John Clare, *Remembrances*

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PATTERN AND PROCESS: FIELD SYSTEMS OF THE 2ND AND EARLY 1ST MILLENNIA BC IN SOUTHERN BRITAIN

SUMMARY

Analytical survey of the above ground evidence has been undertaken on twelve areas of prehistoric fields in southern Britain. In all cases at least two phases were noted, one directly overlying the other; in ten of these areas the earlier phase comprised an extensive rectilinear grid and the later smaller areas of aggregated fields.

The earlier field systems could be externally bounded and left little land unenclosed for open grazing and timber production, movement was only allowed along high ridges. It is suggested that the earliest of these fields date to the beginning of the 2nd millennium, on both sides of the Channel, where they were regarded as symbolic of status within a period of visible ostentatious possessions. The majority were created in the middle centuries of that period, possibly as a reaction to perceived land pressure. No settlements could be identified as coeval with these fields.

The later fields represent a major contraction of enclosed land and their design is more suited to stock, rather than arable, production. Larger areas around the fields were marked by linear ditch systems or by cross ridge dykes. Settlements were frequently, and presumably deliberately, placed over the boundaries of the earlier fields, possibly in an act of incorporation; these settlements tend to date to the two centuries on either side of 1000BC, and it is likely, though not certain, that the later fields were contemporary with these settlements. The production of stock as evidence of wealth led to feasting, as exemplified by midden sites, and to a raiding culture within which aggression is more likely, but warfare not proven.

The point is made that, with no structure visible at excavation across lynchets, analytical survey is the best method of recording phase differences. Also, given the lack of below ground evidence these sites, though widespread, are a diminishing resource and protection of the best examples is highly desirable.

Contents

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Chapter 1

Introduction

A reconstruction by Peter Reynolds of the late 1st millennium BC Donnerupland ard (from Reynolds 1979, 62)

1.1 The origins of agriculture in Britain

There is a fundamental transformation in a cosmology governing the relationship between man and the land which he inhabits when an economy based on understanding and exploiting non-domesticated species changes to one of tending stock and crops. It is now thought that the indigenous population adopted new ideas, a new subsistence economy and a new world view, motivated either by social competition or by a need to alleviate pressure on resources (Whittle 1999, 63). In the south-east at least, the possession of prestige artefacts appears before firm evidence of farming (Holgate 2004), and early dating of flint mines on the South Downs suggests exploitation and participation in exchange networks during the 5th millennium BC (Barber *et al* 1999). There appears to be some evidence of minor manipulations of the environment by man before this time in the form of clearance (Simmons 1969; Evans 1999, 36-37), although the likelihood that this represents deliberate burning of trees has been challenged on the basis that British deciduous woodland is relatively non-flammable (Rackham 1986, 71). However, simply burning the under-storey at the right season would encourage growth of tender shoots and ground cover attractive to browsing animals thus bringing them to a known locale and facilitating the hunt; such burning may occur naturally (Zvelebil 1994; Moore 1997) and it has been suggested that the production of clearings by burning, whether intentional or not, would change man's perception of the woodland from 'wildwood' to a partially tamed environment (Tacon 1999, 51). At Iping Common, West Sussex, for example, pollen analysis suggests the brown earth covering of the greensand had begun to deteriorate, probably due to human activity, and possibly by the end of the 5th millennium BC (Keef *et al* 1965). Similarly at West Heath, West Sussex, burning of pine and hazel precipitated development of a heathland vegetation (Scaife 1985, 21).

The gradual change from such use of shifting clearings with their amplified opportunities for both hunting prey and gathering less mobile food resources, to shifting agriculture, still combined with hunting, may have done less to change man's perceived relationship with his environment than the introduction of strange species of both plants and animals.

Domesticated crop and stock species, with the knowledge of farming techniques, spread across north-west Europe taking some six millennia to reach Britain from the Middle East (Cunliffe 2008, 88-112). While the exact method by which such knowledge spread is much debated the presence of the sea crossing between Britain and Continental Europe would have necessitated the transmission of more than ideas and, indeed, recent investigations into the genetic make-up of the modern British population indicate the presence of small numbers of individuals carrying alleles derived from Middle Eastern ancestors of approximately 6,000 years ago (Chilkhi *et al* 2002). Analysis of ancient deoxyribonucleic acid (DNA) has shown little continuity between Mesolithic and Neolithic peoples – people came with their seeds and livestock – but also that, in Central Europe at least, early farmers are not the direct ancestors of modern Europeans (Bramanti *et al* 2009). Whilst the study of ancient DNA as an indicator of population movement, rather than examining the ancestry of individuals, is in its infancy, some people clearly moved. The context of that movement and the sea routes used is much debated (for example Cummings & Harris 2011; Sheridan 2011) but evidence from radiocarbon dates from agricultural sites suggests early foci around the Solent area of central southern Britain and the Central Lowlands of Scotland (Collard *et al* 2009).

The time period over which agriculture came to be adopted is a subject of much debate and seems to vary in different areas of north-west Europe.

In Ireland a 'package' of substantial houses, cereal production and stock rearing appears together with a remarkably early, and reliably dated field system, at Céide Fields in the west of the country (Molloy & O'Connell 1995; Cooney 2000). Here, a series of fields extending over more than 1km^2 with a main axis aligned north east / south west has been dated by approximately 50 radiocarbon samples from the peat overlying the stone walls, and confirmed by dendrochronological dating of wood from within that peat, to about 3700BC. However, these are large enclosures and may relate to stock management rather than to agriculture (Cooney 2000). Neolithic fields have also been identified at Scord of Brouster on Shetland (Whittle 1986).

This relatively rapid change to an agricultural economy is also found in northern Britain. Obtaining land for crop growing may have required greater clearance of existing woodland or scrub than had occurred previously and, despite the doubts expressed above it is probable that this was achieved by ‘slash and burn’ techniques which left, as evidence, charcoal on Neolithic land surfaces, for example that buried beneath a long barrow at Daladies, Angus (Romans & Robertson 1975) although clearance of the land specifically for barrow construction cannot be ruled out. Analysis of the soil structure of palaeosoils sealed beneath a henge monument and of cultivation ridges sealed under a mound at Strathallan, Perthshire (Barclay 1983) has been interpreted as indicating Neolithic use of an ard in the former context and hoe in the latter (Romans & Robertson 1983).

The agency through which this fundamental change took place in northern Britain is thought to be settlement from overseas, a similar situation to that in parts of Europe, and to have been part of a continuum of spread and adoption by indigenous cultures (Whittle 1996, chapters 6 & 7).

In southern Britain, by contrast, change seems to have taken place over an extended period of time and large monuments to the dead appear in the early centuries of the 4th millennium BC (Whittle *et al* 2007). There is more evidence of continuing use of wild resources and stock management may have been practised before arable farming. Evidence for both cross ploughing using an ard and a phase of spade digging have also been found on the chalk surface sealed beneath the South Street long barrow (Ashbee *et al* 1979), and both here and at Beckhampton Road long barrow recurrent, piecemeal cultivation, a ‘routine’ activity, was followed by a shift to ‘special’ use of the loci and eventual construction of burial mounds (Pollard 2005). Also located beneath the long barrow at South Street was a row of stake holes, possibly indicative of a fence and, if so, one of the few examples of a boundary constructed during the first centuries of farming activity (Ashbee *et al* 1979). It is possible that the linear arrangement of sarsens found beneath the same long barrow should be interpreted as resulting from clearance and thus, effectively, also as a field boundary (McOmish 2005).

Here it is considered that indigenous peoples adopted farming through acculturation across an agricultural frontier moving north from across the Channel (Fischer 2002). It is however worth stressing that within this model domesticated plants and animals, and the orally transmitted knowledge surrounding their successful use, must also have travelled.

Early evidence for agriculture in north-west Europe comes from a series of examples of ard mark survival, particularly in Denmark where some 175m^2 of marks were located beneath a dolmen mound at Snave near Dreslette and dated to between 3700 and 3500BC (Bakker 1979, 141-145).

The apparent rarity of constructed earthwork boundaries to fields at this time may relate to their impermanent nature, failure to maintain fertility by use of manuring necessitating the breaking in of new ground when yields on the old fell. Either the labour involved was not considered worthwhile or, more likely, the sense of ownership of a particular area was reflected in the permanence of monuments rather than areas of food production. Early monument types, long barrows and causewayed enclosures represent a considerable labour investment and their construction over previously cultivated ground, as at South Street and Beckhampton Road, adds cogency to the suggestion that clearings, used temporarily for agriculture, were made permanent by being monumentalised (Brown 2000).

However limited, the use of any individual cleared area during the 4th and 3rd millennia BC saw the start of a fundamental, and in some cases irrevocable, alteration to the structure of certain fragile soils and the ecosystem. Tillage beneath the long cairn at Hazleton (Gloucestershire), for example, on a soil with poor structural stability caused slaking (Macphail 1990). At Rackham in West Sussex, the process of podzolisation had been initiated by 2000 ± 140bc after a period of clearance and activity not, on the evidence found, including cereal production (Dimbleby & Bradley, 1975). At South Street, near Avebury, arable land became infested with weeds and, more seriously, bracken began to infiltrate, and it may have been that this led to abandonment of the area for agricultural purposes and its use for long barrow construction about 2800bc (Smith 1984). It has been suggested that early farmers enjoyed a period of high crop yields which gradually declined as weeds, pests and diseases evolved to occupy the ecological niche provided by agriculture (Dark & Gent, 2001). Baysian dating of long barrows places their construction, use and abandonment within a relatively short period in the Early Neolithic (Bayliss & Whittle 2007), a flourishing of activity possibly enabled by these high yields. Whilst shifting agriculture undoubtedly altered soil structure in some areas, recent work has challenged the view that Britain was covered in climax woodland during the earlier Holocene and that, therefore, the country was covered with thick, well-structured argillic brown earths. On parts of Cranborne Chase in Dorset, only thin brown earths developed and these were reduced to thin rendzinas by the Late Neolithic (French *et al* 2003) and a similar mosaic of varying thicknesses of fertile soils also existed in the Dorchester area (Allen 1997) and on the Marlborough Downs around Avebury (Allen 2005). The changes initiated in this period would have remained visible in terms of soil texture and vegetation – an indication of past activity recognised and understood by those who came later.

1.2 The genesis of field systems and their geographical occurrence

The reasons underlying the development of systems of fields defined by visible boundaries during the 2nd millennium BC is a matter of much debate. What is certain is that many thousands of hectares of land, in most of the country, were so marked and the appearance of the farming landscape changed for ever. Early surveyors recognised the standing remains of field systems and also their considerable age. William Stukeley (1724) writing of the interior of Ogbury hillfort, Wilts noted:

> ‘within it are many little banks, carry’d strait and meeting one another at right angles, square, oblong parallels and some oblique, as the meres and divisions between plow’d lands; yet it seems never to have been plow’d’

and on Cranborne Chase:

> ‘I frequently observed on the sides of hills long divisions very strait crossing one another with all kinds of angle; ….. made of flint oregrown

> with turf; they are too small for plow'd lands, unless of the most ancient Britons, who dealt little that way'

On Dartmoor field workers debated the identity of the reaves but their potential role as land divisions and considerable age came early here also (Baring-Gould 1900):

> 'It is very probable that the long tracklines that extend over hill and vale on Dartmoor indicate tribal boundaries, limits beyond which the cattle of one clan might not feed. Some of these lines, certainly of the age of the Neolithic men of the hut circles, may be traced for miles'.

Similar extensive field systems came to be known as 'Celtic' (Crawford 1923; Curwen & Curwen 1923) in the mistaken belief that they originated in the Iron Age. They are now divided by many authors into two types on the basis of their morphology; coaxial (Fleming 1987) or terrain oblivious systems comprise a grid based on a consistent axis and regardless of the underlying topography, whilst aggregated or agglomerated systems comprise irregular clusters of variably shaped fields. Both types may occur in the same area and, where an association allowing relative dating is found, in the great majority of cases the aggregated system is seen to post-date the co-axial (Fleming 1988, 101; McOmish *et al* 2002, 56). This division may come to be seen as an oversimplification but for convenience, the terms will be used in this brief overview. Whilst in no way comprehensive, examples have been selected which indicate both the breadth of research which has been undertaken and also the complexities revealed and the questions unanswered.

Since their first modern identification on Dartmoor (Fleming 1978; 1983) coaxial field systems have been recognised in many parts of the country. However, only where large areas of fields can be observed can their morphological type be classified with any certainty. The methods involved, analytical survey or aerial photographic transcription, require a level of survival found only in areas where the land has been considered agriculturally marginal at least throughout the post-medieval period, and where remains have not been obliterated either by colluviation, alleviation or modern development.

Recognition of such large entities within the necessarily limited exposure of excavated trenches is problematic and, whilst small areas with parallel boundaries are often interpreted as part of a coaxial system, only when large areas are exposed as at Heathrow Terminal 5 (Framework Archaeology 2006; 2010) or Peacehaven (Hart forthcoming) can this identification be accepted. These problems have resulted in an apparent bias of distribution away from lowlands and valleys where later land-use and PPG16 developer funded excavations are the norm, towards upland areas.

The first upland areas to be considered are the granite moors of the south-west where acidity and altitude have combined to produce an infertile 'rab', often covered with peat. Since the prehistoric period they have been primarily used for rough grazing, a typical 'zone of preservation' (Taylor 1972). The reaves on Dartmoor cover several thousand hectares but, whilst early interpretations of the extent and apparent single phase construction of these coaxial systems (Fleming 1978) attempted to understand their genesis in terms of the development of social hierarchies, and a growing importance of land ownership, more recent work has emphasised a continuum of evolution (Johnston 2005).

Excavation of the Saddlesborough terminal reave on Shaugh Moor has shown that what appears as a single boundary can have a complex and extended biography (Smith *et al* 1981), and adaptation of existing field systems as economic and socio-political priorities changed is common. Similar results, only available as preliminary data, have been obtained from excavation of part of the reave system on Shovel Down (Brück 2003). Pollen analysis and radiocarbon dating show something of the complex history of human activity on Shaugh Moor (Balaam *et al* 1982) and calibration of dates from Shaugh Moor which relate to phases of activity during the use of the boundary bracket the period 2140-1260BC (Johnston 2005). The area of the Saddlesborough reave had been used for grazing, but then abandoned, prior to woodland clearance and construction of the reave. The land had then been used as rough grazing with very little evidence of arable production. Although dating evidence was not obtained, the authors speculate, on the basis of the rate of deposition of peat, that this grazing period lasted for about 200 years after which the area degenerated into heathland (Balaam *et al* 1982).

A similar pattern on Wotter Common, close-by, produced a radiocarbon date of *c*1450 ± 70bc for the woodland clearance phase, whilst a similar phase at Lee Moor gave dates between 1560 ± 80 and 1230 ± 80bc. It is notable that none of the pollen columns analysed indicated more than occasional, episodic cereal production. Settlement sites on Shovel Down and Kestor give indirect dating for adjacent field systems early in the 2nd millennium BC (Wainwright & Smith 1980) and association with Trevisker ware pottery suggests dates after *c.* 1700BC (Needham 1996; Parker Pearson 1990).

On Exmoor coaxial systems survive primarily in the central portion of the moor. On Codsend and Hoar Moors situated on Middle and Upper Devonian sandstones, fragments of a coaxial system exist on the flanks of Dunkery Beacon (Pattison & Sainsbury 1989), and a similar system, with a main axis running north-east / south-west has been observed above Chetsford Water (McDonnell 1980).

On all the south-western moorland, at least partial abandonment occurred around the end of the 2nd millennium BC, possibly as a result of climatic deterioration leading to increased acidity of soils based mainly on granite bedrock, and the development of blanket bog. Given the general problem of dating the use of field systems, it is not usually possible to distinguish between continuity of activity and utilisation punctuated by hiati. However, on Shapley Common, Dartmoor, a timber house set on a platform cut into the hill-side was replaced by a smaller, simpler building in the Mid to Late Iron Age after a gap of at least a century (Gibson 1992). Other settlement sites on Dartmoor demonstrate later, but more ephemeral, occupation (for example Silvester 1979; Quinnell 1994) but this does not necessarily imply use of the field systems. Transhumance grazing is one option, and at Black Patch on the South Downs a similar situation pertains, with simple shelters, little more than windbreaks, being built around the grassed over and trampled depressions left by earlier, possibly ancestral, dwellings (Tapper forthcoming).

On St David's Head, Pembrokeshire, a coaxial system predated the sinuous boundaries of an agglomerated system (Murphy 2001). Survey and excavation at Tulloch Wood, Forres in Moray has located a coaxial field system oriented north-west / south-east (Carter 1993). Radiocarbon dates provided a *terminus post quem* for their construction of between *c*1450 and *c*1150bc.

At Behy / Glenulra in Ireland fields which appear on morphological grounds to be part of a coaxial system (Caulfield 1978, fig 19.1) have produced early dates. The parallel boundaries are aligned north-east / south-west but the area of the individual fields is some 7ha, much larger than those found in Bronze Age contexts, and it has been suggested, on theoretical grounds, that such divisions might represent one stage in the evolution of coaxial systems (Fowler 1971, fig 26). Radiocarbon dating of the basal peat overlying the mineral soils on which the walls were built and of trees growing within the mineral soils range from 2270 to 1885bc.

Coaxial systems have been widely recognised on chalk downland in southern Britain. Within the Salisbury Plain Training Area little of the higher land was ploughed during the medieval period and military ownership has protected the earthworks from the post-World War 2 agricultural onslaught. Here the earthworks are well preserved over wide areas (McOmish *et al* 2002, fig 3.1) with some of the lynchets up to 6m in height. The detailed surface survey undertaken allows some relative dating, and in all cases where the field systems come into spatial association with linear ditches, the latter post-date the former and the authors place the field systems contemporary with Deverel-Rimbury tradition pottery, between approximately 1500 and 1000BC. It has been noted that there appears to be a consistency of alignment between different blocks of fields with the main axis tending to lie between 26 and 30 degrees east of north – whilst there may be a pragmatic explanation for this observation its constancy over different portions of the topography of the chalk plateau may militate against this explanation (McOmish *et al* 2002, fig 3.4).

There also appears to be some consistency in the size of fields within each block with square fields of 25m^2 to 50m^2 in the centre of each block whilst those on the periphery are often elongated, possibly as a result of removing one or more cross banks. Work on Fyfield and Overton Downs west of Marlborough has suggested that the alignment of field systems changes with time (Fowler 2004). Here it is suggested that two phases with main axes lying between 15^o and 45^o west of north date to the Early Bronze Age / Middle Bronze Age whilst those aligned north / south are Romano-British in origin.

1.3 Field systems in detail

1.3.1 Coaxial field systems

The nature of the boundaries to these field systems varies both between and within geographical areas, but truncation, usually by modern ploughing, often precludes assessment of its original form. The reave system on Dartmoor was primarily constructed of stone blocks (Fleming 1978) and on Exmoor a similar situation pertains (Riley & Wilson-North 2001, 43). On Fyfield Down, near Marlborough, some boundaries comprised sarsens from field clearance which became the basis for lynchet formation (Bowen & Fowler 1962, 104-105). Lynchets, the most common visible form of field boundary, could also have formed against fences or hedges (Bowen 1961) or may have simply resulted from unploughed baulks, perhaps used as permanent pasture (Bowen 1978). Lynchetted fields cover large areas of the chalk plateau of central Wessex (for example McOmish *et al* 2002, fig 3.1) and the South Downs at, for example, New Barn Down (Curwen 1934), Park Brow (Wolseley *et al* 1927, fig A) and Plumpton Plain (Holleyman & Curwen 1935).

On the Marlborough Downs opportunistic collection of artefacts, largely by Owen Meyrick, permits some dating of the settlements intimately associated with field systems (Meyrick 1973). An extensive and intensive survey of the surviving earthworks of both coaxial and agglomerated field systems, and their accompanying settlement enclosures, has taken place and this allows for some relative dating (Gingell 1992). On Preshute Down the enclosure ditch for a small settlement produced Deverel-Rimbury pottery and could be seen to, unusually, pre-date the adjacent, coaxial field system. By contrast, an enclosure on Ogbourne Mazey Down, which produced similarly dated pottery (Piggott 1942) post-dated a field system, its enclosure ditch truncating the lynchetted field boundaries. At South Lodge Camp, on Cranbourne Chase, the shape of an enclosure round a settlement producing Deverel-Rimbury pottery had been influenced by the field boundaries it overlay and therefore post-dated (Barrett *et al* 1991, 144-183).

In Sussex a number of field systems were surveyed as standing monuments before World War 2 and several of their accompanying settlements have been excavated. A pre-war survey of the downs around Brighton (Holleyman 1935) indicates a density at least equal to that on Marlborough Downs and Salisbury Plain Training Area in Wiltshire. The available aerial photographs are being transcribed as part of the National Mapping Programme (Simon Crutchley & Ed Carpenter pers comm.); any comments for this area must be seen as premature since small pilot studies show a considerable abundance and complexity of evidence.

One example of the potential of large scale excavation has taken place at Peacehaven, East Sussex where some 32ha have been examined in advance of development (Hart in prep). Two Neolithic pits were the only evidence relating to that period but a Middle Bronze Age / Late Bronze Age landscape indicating extensive use was revealed. The earliest feature found was a small pit which had been rapidly back-filled after deposition of a broken antler pick. A double ditched drove-way, running west / east along a low spur, was laid out with one ditch directly overlying the pit. A series of irregular rectilinear, fields were laid out on either side of the drove-way and among the fields were probably five settlement sites, characterised by storage pits, one of which contained peas (*Pisum sativum*), post-holes and roundhouses. The field system had several characteristics typical of stock management - substantial ditched boundaries, several drove-ways forming cross-roads with settlement sites accessible from the droves, Y-gates and a race for separating groups of stock, and a gated entrance into a drove-way which ran between fields from a possible open grazing area. The main area was then apparently abandoned but a small section to the south-west was laid out with paddocks, enclosures and drove-ways in the Middle Iron Age. The results from extensive post-excavation analysis and a suite of radiocarbon dates are awaited.

Away from the chalk, heathlands, then supporting deciduous woodland with an understorey of grass and herbs growing in an argillaceous brown earth, would have appeared attractive to early farmers. On Yately Common, Hampshire fragmentary remains of a field system surveyed on military land may possibly be a coaxial system of prehistoric date (White

2002). In Dorset, fieldwork in advance of development of the Wytch Farm Oilfield located a group of six parallel ditches, aligned north-north-west to south-south-east, of which five were fairly regularly spaced at 23 – 33m apart (Cox & Hearne 1991, 27-45). They were situated on Bagshot Beds (here known as Poole Formation) and finds of carbonised plant remains included barley (*Hordeum vulgare*) and wheat (*Triticum dicoccum*) suggestive of arable use. A date of Early Bronze Age / Middle Bronze Age was attributed to the field system on the basis of a radiocarbon date for the subsequent phase of activity of 1450-1224BC (at 2σ). Small areas of field system, not securely dated but probably late prehistoric in origin, have been located in the New Forest. One such, on Ridley Plain south-east of Fordingbridge, situated on Barton Sands and Plateau Gravels, is considered by the author to represent the fragmentary remains of a coaxial system (Smith 1999).

It has recently become clear that coaxial field systems also existed in areas not now marginal in arable farming terms, although here later use tends to have been more destructive and discovery of small portions of a large field system, often under the limitations of PPG16 excavations, may preclude their recognition. In some areas, the soils would have been suitable for prehistoric agriculture, brickearths of the coastal plain or gravel terraces in river valleys for example, but other, heavier, soils were also utilised.

The clay soils of East Anglia, once thought too heavy to have been ploughed with the ards available at the time, are now seen to have been extensively cultivated. Here, intensive agriculture since means that these systems do not survive as relict earthworks, but are revealed by aerial photographic transcription as part of the National Mapping programme and by regressive map analysis as fossilised in the present agri-landscape. Between the villages of Scole and Dickleburgh an extensive area of some 7 x 6km had, in the 1840s, a network of fields whose alignment had been slighted by, and, therefore predated, the Roman Pye Road (Williamson 1987). This assigning of the field systems to a prehistoric date has been challenged and a later, possibly post-medieval, date suggested (Hinton 1997). A further rejoinder (Williamson 1998) maintained his belief that the landscape was prehistoric in origin A narrow strip examined in advance of laying a pipeline has shown evidence of Bronze Age activity on the Boulder Clay of the Essex Plateau (Guttman 2000). Other work on the lowlands of East Anglia will be discussed below.

In the Low Weald Bronze Age field systems are now known to have existed close to Gatwick Airport (Wells 2004); recent and ongoing work in advance of housing development at Meath Green, Horley, some 3km to the north, has also located prehistoric activity including Bronze Age field boundaries suggesting the possibility of extensive use of the Weald Clay in this area (Roger Ellaby pers comm.). Also in Surrey, Bronze Age field boundaries have been found on London Clay north of Guildford (Lambert 2008; chapter 3).

Work in advance of gravel extraction on the first terrace of the Thames in Oxfordshire revealed ditched boundaries and a number of water-holes which were considered to indicate land divisions suited to a mixed farming economy with each unit provided with a source of water. Here macroscopic plant remains from one of the water-holes suggested any associated banks may have been surmounted by hedges (Mudd 1995). A radiocarbon date of 1680-1420BC from wood from one of the two waterholes was considered too early, and may indicate re-use of timber, but one of 1020-800BC from the second waterhole appeared more likely to be correct in view of the date of the pottery recovered.

At Perry Oaks, a 21ha site on the West London Gravels was excavated in advance of development of Terminal 5 at Heathrow (Framework Archaeology 2006; 2010). In the eastern portion a coaxial field system, with its main axis lying north-north-west / south-south-east main, contrasts with a less formally organised series of agglomerated fields to its west. The ditches were accompanied by banks with indications from pollen analysis of multi-species hedges. Presence of both cereal pollen and dung beetles indicates a mixed farming regime. The chronological development of this landscape depends largely for its dating on radiocarbon estimations on wood from waterholes but the authors considered that these features may have been inserted into an already partially organised pattern of fields, and therefore cannot date the genesis of enclosure. The suggestion here is that initiation of the coaxial and agglomerated systems was more or less contemporary, and took place in the

period 1700 – 1600BC (Framework Archaeology 2010, 137). However, in general, there is a broad indication that radiocarbon dates from the area of agglomerated fields may predate those from the coaxial system.
Piecemeal development of the coaxial system from south to north attests a system adapting to changing local circumstances. ‘Stops’ across some of the 10 identified north / south routes were noted, presumably ended their role as through routes. The size of the ditches and, presumably, their accompanying banks differed within the same route, between substantial continuous construction close to settlements, and segmented construction away from the houses. The latter form was thought to be the earlier of the two which also hints at priorities which changed over time (*ibid* 143-147).

Within the agglomerated field system the main alignment changed on either side of a north / south trackway but most of the main axes were perpendicular to the Colne valley. Several settlements could be seen to result from either division of the earliest, or to have been constructed close by. Each of these settlements had several phases of occupation pointing to long term development and use of the area and its resources from *c.* 1700cal BC to the start of the 1st millenium BC (*ibid* 148-175).

By contrast settlements within the coaxial field system did not appear to have had such a clear chronological development; all were bounded by trackways and there appeared to be little evidence of development in the morphology of the fields (*ibid* 175-187).

Considerable changes took place over the turn of the 1st millennium BC but these do not form a coherent trend. Settlements within the agglomerated system tended to coalesce into fewer but larger farms, while those within the coaxial fields tended to fragment into smaller units. This pattern seems to have continued until about 400BC when a single nucleated settlement took the place of the scattered farms (*ibid* 187-206).

Also on the Taplow Terrace of the West London Gravels, part of a coaxial field system has been excavated at Imperial College Sports Ground in Hillingdon (Crockett 2001). The system, with a main axis aligned approximately north / south and ditches 60-62m apart, and with a subsidiary east / west axis, had been constructed during the Middle Bronze Age, here on land previously farmed and invested with monuments during the Early Neolithic, the coaxial field system respected the earlier monuments. At Mayfield Farm, Bedfont, also on the Taplow Terrace but extending onto the Kempton Park Terrace, a further field system was excavated in advance of development (Jefferson 2004). The main alignment was north-east / south-west and the ditches contained both Deverel-Rimbury and post-Deverel-Rimbury plainware tradition pottery. A few cereal grains were found although the lack of weed species suggests domestic debris rather than large scale production and processing.

Further sites on the gravels east of London include a Late Bronze Age settlement and field system at South Hornchurch in the Borough of Havering (Guttman & Last 2000). By the Bronze Age the soil appears to have been an argillic gley with a leached upper subsoil, an unstable soil with low humic content, vulnerable to erosion, and of limited fertility. However, here a fragment of several phases of a probable coaxial system was located, with ditches laid out with a main axis, or alignment, to the ditches between 45 and 50m apart and a drove-way belonging to the first phase leading from the terrace towards the river. The first and second phases were similarly aligned north-west / south-east but in the second phase the drove-way had been remodelled and ran parallel to the river appearing to separate the field system from a ringwork. In the third phase the alignment of the field system changed to north-north-east / south-south-west and the ditches of the earlier phases were disregarded. Pottery found on site dated the occupation to between the 10^{th} and 8^{th} centuries BC. Although grain had clearly been processed on site the lack of weed seeds encouraged the authors to believe that it had been transported from farther afield, and that the fields close to the settlement were used for pastoral farming.

A large number of archaeological interventions in the Thames and other valleys have provided evidence of Bronze Age activity and this information, gained mainly through PPG16 excavations, has improved our understanding of the distribution of field systems, which had previously exhibited a bias towards those preserved on marginal land (Yates 2007).

The Reading Business Park, an 80ha development in the Kennett valley close to its confluence with the Thames illustrates this point (Moore & Jennings 1992). A combination of non-invasive fieldwork, field walking and aerial survey, and excavation in advance of development has identified a density of Bronze Age settlement previously unsuspected in this area of contemporary abraded marshes and low lying gravel islands. Settlement sites, considered to be contemporary, lay within 500m of each other for a considerable distance along the valley and many have probably been lost without record during gravel extraction. However, as always, the difference between contemporary and shifting, short-lived settlements is difficult to detect. Ditches representing field boundaries were located in several trenches and are known from aerial survey outside the excavation area. In most cases the ditch lines had been re-dug on several occasions and, at the same time, the positions of most of the entrances had been changed. Small fields, possibly for flax cultivation, and larger ones thought to be suitable for stock control were located. These, together with systems found by aerial survey on several of the nearby gravel islands (Carstairs 1986), and by excavation at Dorney Island (Oxford Archaeological Unit 1990) and at Dorchester (Bradley & Chambers 1988), point to extensive and intensive use of the valley.

Ditches, again maintained through re-cutting were also found at Wear Farm Stud, Bray (Barnes *et al* 1995, 32) and on a number of other floodplain sites along the Thames and its tributaries. On most of these sites truncation had destroyed evidence of banks but they are likely to have accompanied the ditches. Pollen analysis has occasionally indicated the presence of hedges and rows of stake holes suggest fences (*ibid*).

Synthesis of ‘grey literature’ and other sources indicates that the density of exploitation of low lying land on the floodplain of the Kennett at Reading is by no means unusual. Study of a 120km stretch of the Thames valley between its source near Shorncote and the gravels around Heathrow has allowed a detailed picture to be drawn of management of a productive landscape and changes in the administration of that landscape over time (Yates 1999). Middle Bronze Age activity in the form of ditched field boundaries appears concentrated in the lower reaches of the river with large coaxial field systems on gravel terraces at

Heathrow and sites upriver around Eton, Bray, Dorney, and a further cluster around Reading and Abingdon. Farther west settlement sites of the same period are known, at Yarnton for example (Hey & Muir 1997), but these do not appear, on the basis of present evidence, to have been associated with contemporary field systems, and environmental evidence suggests a continuity of the older, less intensive farming economy with shifting grazing (Allen *et al* 1993, 95).

Reasons for this apparent dichotomy have been suggested as lying within the prevailing social structure (Yates 2007, 107 *et seq*). Away from the 'core' areas, like those around Reading an older kin based system, with its concern for the ancestors and possibly inherited land pertained. A 'ritual authority structure' (Thorpe & Richard 1984, 67), with close integration between the living and spirit worlds, led to a rigidly controlled society and resistance against change. Within the 'core' areas, however, change had taken place and more entrepreneurial society with a 'growth-orientated' economy resulted. Here, access to and control over resources, and the production of wealth, imbued power and a more fluid society resulted (*ibid*, 67-68). This in turn may have led to a greater bed for the acquisition of prestige, possibly exotic, goods, and development of the international hierarchy of the 'Channel Bronze Age' (Needham *et al* 2006).

By the Late Bronze Age this portion of the Thames valley contained four concentrations of field systems (Yates 1999, fig 3). The position of these groups also reflects findings of riverine votive deposits and each is dominated by an 'aggrandised' settlement, sometimes but not always a ringowork; there are also differences in ceramic styles between the settlement areas. The farming regimes were dominated by pastoralism; at sites around Reading, for example, stock farming and textile production (Bowden 1985; Moore & Jennings 1992) are evidenced on site whilst the small amounts of grain recovered had been processed and, probably, grown elsewhere (Bradley *et al*, 1980; Campbell 1992).

The morphology of the field systems, incorporating drove-ways, waterholes and possible stockyards, points to the importance of stock raising from the Middle Bronze Age, but by the Late Bronze Age a strongly specialised regime appears to have been adopted

throughout the middle and lower Thames valley. Both coaxial and aggregated systems are known; the former were common around the Colne, where drove-ways and waterholes can be seen to have been inserted into an already existing field system (Maloney 1999, 14).
Use of extensive low lying and traditionally marshy areas during late prehistory is also attested, later peat deposits have since been drained providing light and fertile, if vulnerable, soils – the ‘grain basket’ of East Anglia for example. In the Fenlands careful analysis of complex areas of enclosures and tracks has provided evidence for seasonal movement of stock and intensive stock management. In the Nene Valley concern about destruction of archaeological remains due to the expansion of Peterborough lead to a survey by the Royal Commission for Historic Monuments in England (Taylor 1969) and this led to the eventual founding of the Fengate Project by Francis Pryor. This resulted in the excavation of a prehistoric landscape, one of the first in lowland Britain and here with the additional advantage of wet preservation beneath the fenland peat (Pryor 2001). It is now clear that large areas were enclosed in field systems and details of Y-gates, stockyards and pens and tracks between grazing on slightly higher ground and water at the fen edge suggest an emphasis on stock management (Evans & Pryor 2001; Evans & Pollard 2001). Many of the field systems in this area are thought to date to the mid-2nd millennium BC, and in area of south Fengate an apparently short-lived coaxial system was overlain by a settlement complex at the Late Bronze Age to Early Iron Age transition (Evans & Pryor 2001).

At Fengate drove-ways are seen to link the summer pastures at Flag Fen with stock being kept over winter in enclosures on higher, flood-free land in a system dating to the 2nd millennium BC (Pryor 1980; 1996). Large populations of sheep may have been kept in these systems with stocking densities of 10-20 animals per hectare, and the suggestion is made that status within this society may have been expressed by the number of animals an individual was able to maintain.

Recent and ongoing work at Must Farm and Bradley Fen, also near Peterborough, is providing more detailed evidence from water-logged contexts (Knight & Murrell 2012). The area was inhabited from at least the Neolithic period and a house whose surviving timber posts gave a radiocarbon date of 2200-1950BC appears to have existed within an unenclosed landscape. Before 1500BC coaxial field systems were constructed on the higher land but periods of use were separated by long fallow phases. The excavators speak of mobility, occupation on the scale of the river system rather than long-term occupation of single sites. The fen encroached and *c*. 1500BC the landscape was reorganised into strips divided by linear ditches. As movement became more difficult timber alignment were built and this development coincided with the advent of many hundreds of bronze weapons. Boats, fish-weirs and eel-traps attest an increasing reliance on aquatic resources as ‘the fens were rapidly transforming a place once connected by a major river into a series of islands’.

On the Avon Levels evidence of seasonal grazing of the low lying pastures, mainly by sheep, has been found at Avonmouth, Cabot Park and Rockingham Farm, and dated to the period 1760-1500 to 910-420 BC (Locock 1999; 2000). A model has been produced to explain the relationship between uplands and wetlands throughout the prehistoric and Romano-British periods and to counter the assumption that areas of marsh would have been considered marginal during the Bronze Age (Gardiner *et al* 2002, fig 9). For the Late Bronze Age it is suggested that uplands were used for burial and flint production whilst arable land was concentrated on the lower slopes and the fen edge. Fen islands were used for summer grazing and temporary settlements whilst salt was produced from the intertidal zone. Notably, this system seems to have been abandoned, possibly as a result of climatic deterioration and increasing inundation, with little evidence of activity during the Early Iron Age.

Extensive evidence of field boundaries has been found on the coastal plain of West Sussex (Yates 2004, 46-52, 156-157) but here most work has been on the small-scale of developer funded interventions. Although parallel boundaries have been found on a number of sites, Ford Aerodrome for example (Clouston 2000), it is an assumption that they were part of a coaxial system. (See also chapter 6).

Abandonment of coaxial field systems can rarely be dated and for many, abandonment, if it happened, was only temporary. On Fyfield and Overton Downs, Wilts, for example, eleven blocks of ‘Celtic’ fields, mainly of the coaxial type, have been located, and many associated with Late Iron Age and / or Romano-British pottery. Within these blocks are instances where the field systems are overlain by Bronze Age settlements and where Early Iron Age linear boundaries slice through the field systems pointing to a probable Bronze Age origin for the fields, with later reuse (McOmish 2005).

1.3.2 Agglomerated field systems

Agglomerated field systems, surviving to such an extent that they can be recognised, are widespread in occurrence but largely limited to present agriculturally marginal land. On Dartmoor a number of small settlements with stone built hut circles set within stone walled enclosures, probably fields, have been assigned to the Bronze Age (Curwen 1927; Ralegh Radford 1952). In some cases small agglomerations of fields can be associated with their settlements; on Rippon Tor a single hut circle was linked with three fields totalling 1.06a (0.43ha), whilst on Blissmoor three hut circles lay on the edge of six fields totalling 2.17a (0.88ha) (Fox 1954). More recent work on Crownhill has resulted in the location and survey of five or six small field systems all on different alignments and apparently formed by piecemeal enclosure (Collis *et al* 1984).

At Eaglestone Flat in Derbyshire an extensive survey of field boundaries allowed a detailed interpretation (Barnatt 1987). After some initial clearance in the 3rd millennium BC the area was used intensively with perhaps between 30 - 50% of the available land enclosed. Some of the boundaries originated in clearance of stone to field edges, whilst others were lynchets resulting from erosion. Each set of fields contained a single farmstead and each unit was separated from its neighbour by uncleared land, possibly used for grazing. Mixed farming was practised, with cereals grown in fields close to the settlement, the units remaining in use throughout the 2nd millennium BC. Excavation provided evidence of cereal production and a series of radiocarbon dates lying between 1900 and 1400BC (Barnatt 1994).

At Houseledge, Black Law in the Cheviots a field system comprising a number of narrow terraces with a single associated house scoop has been dated to the Early Bronze Age whilst, probably in the Middle Bronze Age this field system was superseded by one of larger fields bounded by banks running down slope (Burgess 1980). On Islay, a site at An Sithean produced evidence of a system of banks, probably surmounted by a hawthorn hedge, and fields used for cereal production on soils where the podzolisation process had already been initialised by earlier arable use (Barber & Brown 1984). The construction of the boundaries was dated by radiocarbon to not long after *c.* 1220BC.

Agglomerated field systems appear rarer in the lowland zone than in the uplands, though this may be a result of differential preservation and recognition rather than a genuine contemporary difference. In the New Forest, a system noted on Bracklesham Beds at Nightingale Woods, Rownhams near Nursling in the Test valley (Crawford 1953, 94) may be a continuation of that excavated at Dairy Lane, Nursling and shown to date to the Middle Bronze Age (Gardiner 1994). A further example lying on Becton Sand was located at Shepton Water east of Brockenhurst (Smith 1999). Here the above ground evidence comprised portions of four, sub-rectangular enclosures of varying sizes; the banks disappeared into a boggy area where further remains may survive.

At Dean Bottom on the Marlborough Downs a settlement platform with a main occupation phase dating to 1150-850bc, and set close to the edge of a large agglomerated field system, also showed evidence of Beaker period activity, including ploughsoil, suggesting considerable longevity for the field system (Gingell 1992, fig 14). The lack of any strict regional dimension to the distribution of the two types of field systems is illustrated by the presence of coaxial fields at Dean Bottom and an agglomerated system immediately to the west on Preshute Down, sites no more than 10km apart. Unfortunately the relative chronology of these systems is unknown but the variation in morphology could result from either economic and social changes over time, or from differing contemporary usage.

One area where the agglomerated field systems have appeared to dominate is the South Downs where, to date, no certain, extensive coaxial system has been reported. However, several field systems were surveyed as standing monuments before World War 2 and careful examination of that recorded at Plumpton Plain (Holleyman & Curwen 1935, fig 1;

chapter 5, fig 5.4) shows that an agglomerated system may in fact overlie a coaxial example. Aerial photographs suggest that many more may exist and it is suspected that results from National Mapping Programme transcriptions for the South Downs National Park will profoundly change our view of this area.

At Itford Hill a settlement site has been excavated and dated to the Middle Bronze Age but most of the adjacent field system was, at the time of excavation, considered to be Romano-British (Burstow & Holleyman 1957). Grain located on site was identified as unthreshed barley (*Hordeum vulgare*), much of which was undersized and twisted, a phenomenon denoting either a wild form or grain suffering nutrient deficiency. The settlement site has since been dated by radiocarbon to 1292-1018 cal BC (GrN-6167; 2950±35 BP; Holden 1972) and the field system reassessed. A group of small, rectangular fields, about 50m in width but too damaged to estimate their length, is aligned on a lynchet which is an integral part of the settlement site and it has now been suggested that the two entities are coeval (Drewett 1978). The settlement has been described as a series of sequential operational units pointing to occupation over a considerable time span in the Middle Bronze Age (Ellison 1978, fig 16). The area had already been in use prior to this settlement was built. A small amount of Beaker pottery has been found and the presence of a Late Neolithic / Early Bronze Age ceremonial site on Itford Hill suggested (Russell 1996), that suggestion has since been refuted (Garwood 2003). A barrow containing the remains of young and old adults and children, again suggesting a family unit (Holden 1972) is of a form likely to date to between 1800BC and 1200BC (Garwood 2003).

At Black Patch a Late Bronze Age settlement, associated with a probably contemporary field system was partially excavated (Drewett 1982) and an attempt made to assess the resource area utilised by this and other settlements. Radiocarbon dates between 1130 and 830bc were obtained from samples of grain found in pits cut into the hut platforms. Many requirements - arable land, upland and lowland grazing, water, flint and clay - would have been available within an hour’s walk. Coastal and marine resources could have been reached within about a 1.5 hour walk, depending on the amount of cliff erosion which has taken place. Timber would have been available from the Weald had all the downland been cleared, although the effort required to drag large posts up the scarp slope would have been considerable. Items from farther afield included a fragment of quernstone of Mayern lava from the Eiffel region of Germany and bronze or its constituents.

Recently the concept of an Early Bronze Age 'maritory', an area of cultural links made by cross-channel communicants based on the eastern reaches of the Channel and the southern portion of the North Sea, has been discussed (Needham *et al* 2006). The amber cup from Hove is one artefact which hints at the status of some Sussex coastal settlements and the concentration of barrows on the South Downs (Field 1998) may also reflect this wealth. This wealth will be further discussed, particularly in light of the recently discovered 'near Lewes' hoard.

The settlements associated with the downland Middle Bronze Age field systems appear to be small units, possibly family farms, with main buildings regularly replaced on new locations within the settlement area as at Varley Halls (Greig 1997), possibly as often as every generation (Brück 1999). Contemporary settlements on the coastal plain have seemed notable by their absence but developer funded excavations are correcting that bias, and more evidence of settlement in the Weald to the north of the downs is also emerging (Yates 2007). During the Late Bronze Age there appears to be a continuation of activity on the Downs but also an interest in significant locations on the coastline for deposition of high status goods (Hamilton 2003), presumably indicating either wealth accumulation in that area, or movement of goods from other areas for deposition. As with other areas, only on the chalk downs have field systems survived sufficiently above ground to be surveyed, but it is the brickearths of the coastal plain, producing light fertile soils, which are likely to have provided a core area for agriculture during the late prehistoric period - the combination of coastal erosion and urban development has destroyed much of the evidence, but a number of sites have been recorded on the West Sussex coastal plain (see chapter 6). Coastal marshland sites such as the Willingdon Levels provide rare opportunities to study timber preserved *in situ* and the Late Bronze Age Shinewater platform and associated trackways may shed light on cross-Channel links as a source of trade and wealth for this period (Greatorex 2003).

This division of field systems into coaxial and agglomerated is simplistic in the extreme, ignoring as it does both changes in morphology over time and the possibility of other types of layout. One such, which is increasingly being recognised, is a ladder like arrangement; a number of this type have been recognised in the south-west quarter of the Marlborough Downs, where they stretch from the chalk escarpment on a north-east / south-west alignment (McOmish 2005).

1.3.3 Later developments

An increasing emphasis on stock raising has already been noted; addition of water-holes to the fields at Heathrow and extensive use of low-lying areas, the Avon Levels and the Fens for example, for grazing. A further change involved division of land into larger areas with linear boundaries, the ‘ranch’ boundaries (Bowen 1961) used by ‘Wessex cowboys’ (Cunliffe 2004). These boundaries are wide spread, both geographically and in terms of soil type, and have been studied on the Wolds (Stoertz 1997) and Tabular Hills (Spratt 1989) of Yorkshire, the Fens of East Anglia (Pryor 1996; Knight & Murrell 2012) the chalk downland of southern Britain (Bradley *et al* 1994; McOmish *et al* 2002) and elsewhere. These boundaries, and the changes they imply, will be further discussed in chapters 4 and 10.

1.4 The late prehistoric environment and the effect of agricultural intensification

In some areas there appears to be a strong suggestion of wide spread socio-political disruption at the end of the Bronze Age with only a minority of Late Bronze Age sites remaining in use and relatively sparse recovery of evidence of Early Iron Age settlement and farming activity. It is thought that the climate cooled at the start of the 1st millennium BC with an estimated fall of around 2^{o}C between 1000 and 750BC (Lamb 1981). In the Thames valley and estuary the dearth of sites seems to indicate something of a catastrophe, and it has been suggested that the international trading links which had underpinned earlier prosperity now collapsed, precipitating a crisis (Yates 2001). Farther west, on the chalk of the Marlborough Downs, linear ditches divided the land into relatively large blocks and some field systems were slighted but, as in the Thames valley, intensive farming activity ceased by the Early Iron Age (Gingell 1992, 155). On the Salisbury Plain Training Area a change in the farming economy from crop growing in extensive field systems to pastoral farming was noted but here several unenclosed settlements and the vast East Chisenbury midden site attest continuing activity into the Early Iron Age, with a number of hillforts being constructed later in the period (McOmish *et al* 2002, 67 *et seq*).

Any investigation of the distribution of prehistoric field systems and the economic structure which they supported must recognise that considerable alteration, and, in the main, deterioration of the soil structure, topsoil depth and fertility, has taken place since the fields were in use. Indeed, in many cases prehistoric agriculture was one of, if not the main, precipitating factor in these changes. Fertility of the soil, and the vulnerability of the soil structure were in the past clearly of supreme importance to contemporary farmers and their experience of certain soils would have been fundamentally different from the modern view.

In general terms a major phase of land clearance for agriculture is found to have taken place during the Bronze Age. Two sites on the Jurassic limestones of Oxfordshire have been subjected to palynological investigation (Day 1991). Cothill Farm is located in a shallow basin, a location where pollen from the sides is considered likely to have blown in from several hundred metres away and to represent vegetation over a longer distance from the site (Jacobson & Bradshaw 1981). By contrast Sidlings Copse lies in the bottom of a steep-sided valley, and the pollen is considered likely to have originated mainly from the slopes immediately above it. Both sites were surrounded by woodland, alder (*Alnus glutinosa*) on water-logged soils and small-leaved lime (*Tilia cordata*) where drainage was better, from *c.* 4850BC (Oxa-2709; given as 6790 ±100 BP). The pollen profile at Sidlings Copse provided evidence for the first major disruption of woodland cover at about 1850BC (Oxa-2049 given as 3820 ± 100BP; Oxa-2050 given as 3820 ±70BP), in the Early Bronze Age, with the appearance of cereal pollen. This would suggest a wooded environment, first cleared and ploughed during the Early Bronze Age.

However, in some areas a different pattern is emerging. As described earlier, detailed work in the Upper Allen valley in Dorset suggests that some areas of the chalk downs may never have become wooded (French *et al* 2003). These poor soils, apparently lacking any deposition of *loess*, a light aeolian deposit, may have presented a very different agricultural potential to prehistoric farmers, when compared with areas of the North and South Downs, emphasizing a need for local environmental assessment when considering farming economies in the past. In some cases the original soil can be recovered in sub-soil horizons (Evans 1972) or, with its structure altered, in valley sediments (Bell 1981). In others, heathlands in particular, the pre-podzolisation soil is subject to leaching even when in a sealed context, and its contemporary fertility cannot now be judged with any precision. However, it is clear that, in some cases at least, the podzolisation process had led to a noticeable deterioration in soil fertility prior to the construction of coaxial field systems (Cox & Hearne 1991), and also that in some areas, Tofts Ness in Orkney for example, manuring was used as a mitigation strategy, possibly as early as the Neolithic period (Simpson *et al* 1998).

In an attempt to address a number of problems and apparent paradoxes in prehistoric land use Martin Bell (1983) studied valley sediments on the South Downs. Using the stratification sequence, 3D recording of artefacts, radiocarbon dating and molluscan analysis of valley bottom trenches, combined with soil pits on the valley sides, the work enabled a correlation to be drawn between adjacent, excavated settlements and their exploited environment. This colluviation does not occur in all areas, for example in the Lambourn valley in Berkshire (Bradley & Ellison, 1975).

Further work on the South Downs adds evidence to the anthropogenic effect on the environment. At Grey Pit (Allen 1995) a colluvial foot-slope deposit revealed by quarrying produced a molluscan sequence indicating limited clearance of woodland during the Neolithic period, followed by a period of open grassland. The main periods of colluviation due to upslope ploughing occurred during the Iron Age and later, an unusual lack of evidence of Bronze Age activity being suggested as resulting from truncation of the deposits. At Malling Hill sections of lynchets showed a similar sequence with some evidence of woodland clearance between *c.* 3200-2900BC, but no deposition during the Bronze Age despite the presence of field systems on the slopes of Cliffe Hill above

(Gregory 1985), and it is assumed that truncation of the deposits had occurred. In reviewing environmental data from a number of sites Allen (1995) concludes that, on the South Downs, woodland clearance started during the Neolithic period, accelerated during the Middle Bronze Age and, particularly, the Late Bronze Age with some areas laid out in field systems but others, like the area around Grey Pit, reserved for grazing.

Whilst colluvial deposits may preserve information about environmental and soil structure changes, they also preserve, but mask, sites covered at depths not reached by most survey methods. Whilst ploughing will seldom penetrate to a depth greater than 40cm, fieldwalking, aerial photography will not detect sites below that depth and above ground remains will, by definition, not be visible. Valley bottom deposits vary and generalisations are unwise – at Black Patch, East Sussex, the valley to the west of the settlements contains *loess* some 1.4m deep probably eroded from the slope above during the Neolithic period, whilst to the east large flint nodules and fractured chalk of modern origin lie immediately over, and in, post-glacial solution hollows (Tapper forthcoming). This may introduce a bias in our understanding of prehistoric land-use since it is clear that in some areas, where colluvium has accumulated over millennia, sites do exist in the valleys. In the Kennett valley lines of sarsens located *in situ* under deposits of erosion debris have been interpreted as early field boundaries (JG Evans pers comm. as quoted by Gingell 1992, 155). In Sussex Beaker activity has been located at depths of between 0.5m and 1m at Ashcombe Bottom, Cuckoo Bottom and Grey Pit, and at greater depths that 2m at Cow Gap and Kiln Bottom (Allen 2005c, table 1).

1.5 Across the seas

A question which appears to have been little considered is any relationship between the evolution of field systems in Britain during the later part of the 2nd millennium BC and development on the Continent although their presence in Europe is well attested (Bradley 1978). A survey of field systems in north-west Europe visible on aerial photographs has shown them to be a widespread phenomenon (Brongers 1976, fig 1). Examples are found in Sweden, Denmark, and Holland, often on heathland, and in Belgium. To this can be added systems in the Rhineland, the French Jura and the Côte d'Or, the Lower Somme and the Upper Marne valleys, in Alsace and Westerwald and in the Rhön, Vogelsberg and Eifel Mountains (Bradley 1978).

A considerable amount of work, including aerial photography and excavation, has been undertaken in The Netherlands, Denmark and Holland. In Vendsyssel in Denmark some 300 field systems covering in total 22,500ha have been located on aerial photographs and divided into three types (Harder Sørensen 1982). Type A, described as irregular, comprised sub-rectangular fields of between 0.04 and 0.3ha concentrated on undulating land; type B is an apparently planned layout of long, narrow fields of between 0.06 and 0.45ha, with no sub-division evidence and concentrated on level land; type C fields again show evidence of planning but are of two phases, the first comprising large rectangular fields and the second the subdivision of those fields into long narrow fields of between 0.04 and 0.7ha. No direct dating evidence for these systems is reported but a prehistoric origin for types A and B at least is considered likely. In Jutland an irregular field system comprising banks and lynchets originating with clearance of stones into cairns and along field edges has been dated, through proximity to a cemetery, to the Iron Age (Lerche 1968). At Store Vildermose, also in Jutland, the earliest boundaries were simply strips of land left unploughed, and only later were boundary earthworks constructed (Nielsen 1971). A detailed survey has been undertaken in eastern Denmark of 162 field systems surviving, partially at least, as standing earthworks within woodland (Nielsen 1984). The majority are described as regular and some illustrated would, in Britain, be considered coaxial, with main axes running north-east to south-west (*ibid* figs 5 & 11). In the limited number of examples where dating evidence is available there appears a Late Bronze Age / Early Iron Age genesis with development starting about 1200BC and abandonment of most systems by 200BC. On the South Thy Sandhills in Denmark an ‘infield / outfield’ system is suggested with approximately 10% of the available land used for arable production, and supported by manure from grazing the remaining 90% (Liversage 1996-7). Use of these systems continued from the Late Bronze Age to the early pre-Roman Iron Age with radiocarbon dates from associated settlements falling between *c.* 1400BC and *c.* 600BC.

In a detailed case study from Pleistocene sands in the Noordseveld of Zeijen in the Drenthe in Holland (Spek *et al* 2003), five developmental periods were identified for a single field within a system in use from the Late Bronze Age to the Roman Period. The field system was constructed during the Late Bronze Age / Early Iron Age and some manuring of the plot seems to have taken place. During the Middle Iron Age / Late Iron Age extensive cultivation had taken place on the ridges of the field boundaries as well as in the plots, and the need for long fallowing periods was noted. Later the ridges alone were intensively cultivated and their fertility maintained by introduction of material from elsewhere (*plaggen* soils) and by addition of glacial till subsoil from the now abandoned field plots. Eventually, possibly during the 2nd century AD, the field was abandoned and the process of podzolisation produced the heathland of the present day.

In The Netherlands, systems of coaxial type have been dated to a considerably later period than in Britain; at Vaassen radiocarbon dates bracketing the last cultivation layer within a 'Celtic' field system were *c.* 470BC and *c.* 150AD (Brongers 1976). More recent work is, however, producing examples from earlier periods. At Noordwijk in Zuid-Holland a settlement with Accelerator Mass Spectrometry / radiocarbon-dates from the house of between 1980 and 1680BC was associated with a field system that had been abandoned due to peat development, and dates from the overlying peat range from the Middle (3270BP; 1690-1430BC) to the Late (2650BP; 900-780BC) Bronze Age. Use of the fields, which is likely to have been contemporary with the house therefore took place during the 1st half of the 2nd millennium BC (van der Velde 2008).

From Väderstad in Östergötland, Sweden clearance cairns denoting early agriculture have been dated to the Neolithic period whilst hearths, commonly found at field edges in Scania and Denmark, have given radiocarbon dates between 720 and 210BC, (Petersson 1999). Constructed field boundaries were not found until later, but unfortunately this phase was not accurately dated.

In north-east France aerial photographic evidence exists of large areas of field systems, particularly on the *limon* soils of Picardy (Agache & Bréart 1975) but unfortunately little investigation appears to have taken place and these systems do not have dates assigned although, from the morphology, a prehistoric origin seems likely. However, work in Normandy has produced evidence of agricultural landscapes of houses with associated fields dated to the first half of the 2nd millennium BC (Marcigny 2008; Marcigny & Ghesquière 2008), and these will be further considered in the discussion.

1.6 The questions – 'we do not know'

Despite the widespread and frequent nature of these field systems, and the period of time over which they have been recognised, basic questions remain unanswered. That two major pieces of recent work (Yates 2007; Wickstead 2008) can produce fundamentally different interpretation only serves to emphasise this point. The former work, primarily a synthesis of information available in the 'grey' literature, examined the distribution of coaxial field systems. Their genesis was placed largely in the Late Bronze Age, seeing them as resulting from a need to intensify farming production, particularly of stock, to allow participation in an economy defined by the possession of prestige items. In contrast, the latter work places identity, not solely that of the individual, at the centre of a process negotiating land tenure.

We do not know where or when field systems originated. The coaxial field systems of the Middle Bronze Age do not appear to have evolved or, if they did, then the early forms are either lost or have not been recognised. Although southern and south-eastern Britain appear to be the core areas for this development, landscape archaeology, *sensu stricto*, and with it the technique of analytical survey, has not been a priority on the Continent and field systems, away from the Low Countries, may well be under-reported. Gaining absolute dates for the earliest section of any field system is fraught with difficulty (and will be further discussed in Chapter 2), but most methods and contexts yield only *termini post* and *ante quem*, and, at best, only a single boundary within a complex, which may have been added to and altered, may be dated. Relative dating, recovered either from above ground survey or from excavation, is more commonly found but less useful in relating these major landscape features to their socio-political and economic contexts.

We do not know whether any coaxial field systems were created as a single entity, or if all originated from core areas to which additions could be made as required. Occasionally, as at Heathrow (Framework Archaeology 2006; 2010), for example, stratigraphic analysis can identify developmental stages, but single cases should not lead to generalisations. If large areas were enclosed in a single act, we do not know whether the whole was farmed at the same time or whether sub-divisions could have been used sequentially. It is not thought that the population was such as to require the produce of even a fraction of the area enclosed, and some form of phased redundancy seems likely. The relationship between specific settlement sites and field systems is also unclear; indeed, settlements, temporary or permanent, which were contemporary with the earliest field systems are relatively rare.

We do not know the change in social framework within which these systems were created. The view that in southern Britain the development of a landscape of enclosed settlements and field systems represented a change of concern from ritual to everyday matters, particularly the need for intensification, has been challenged (Brück 2000). The belief that early farmers exploited their land for maximum output, despite visible evidence of destruction of soil structure, may be seen as a reflection of the present concerns of our capitalist society over the global effect of profligate use of natural resources. Instead, social fragmentation is suggested as the driving factor behind the Early Bronze Age / Middle Bronze Age transition, reflected in fixed divisions within settlements and a centripetal organisation of daily activities within an extended family rather than the communal concerns of a more mobile lifestyle. The construction of field systems comprising familial blocks within a communally coherent whole (Gingell 1992, fig 96 and below), requiring as seems likely cooperation and perhaps shared labour can then be seen as a level at which such social fragmentation was not expressed (Brück 2000).

We do not know why such a rigid and formal morphology was chosen. Whilst fields were undoubtedly an important part of the farming landscape their construction may have represented more than a pragmatic act of land division. That such major impositions on the land, albeit now known to have been, in some cases, built piecemeal, should have come into use over a wide area of the country suggests some socio-political impetus. The field systems must also have acted as a visible marker of control or tenure of the land, a situation arguably of greater permanence than the exact location of settlement sites. These divisions may well have negated earlier, less extensive, systems of tenure, invisible to us but important to those whose rights and memories were displaced. Placing the dead in barrows, false crested and often overlooking springs, related the ancestors to the land and, through the visibility of the burial sites, with the living, and with the source of their water. The continuing presence of ancestral spirits may have been weighed against the disruption inherent in reorganising land tenure. Later, the labour involved in the initial creation of a field system would have been remembered as having been undertaken in an ancestral past; the constant maintenance of the boundaries, adaptation of the morphology and utilisation of the fields would have provided an ongoing link between the living, the land, and the remembered ancestral past.

We do not know why the organisation of the landscape changed, although an increasing interest in stock, perhaps as a form of wealth, is strongly implicated (Bowen 1978; Bradley *et al* 1994; McOmish *et al* 2002; Cunliffe 2004). Climatic change may be implicated in this development, or is this, again, a reflection of our modern concerns? Stock as an expression of wealth is both valuable and mobile – an ideal situation for raiding to develop. Raiding cultures can be highly successful, for example the Chiricahua branch of the Apache nation could exist by hunting and raiding to the point where violence was unnecessary - the threat of a raid was sufficient to elicit ‘presents’ of food (Opler 1941). That aggression increased in later British prehistory seems evidenced by the prevalence of weaponry and defensible sites, eventually to become hillforts – but it had never been absent. What is clear is that although many were to be re-used, coaxial field systems were no longer created after the start of the 1st millennium BC, a change which must have reflected a realignment of parameters within society.

This thesis cannot attempt to address the totality of these questions.

It will examine, primarily, the above ground evidence for a number of limited areas. It will also seek to link the field systems with their wider hinterland, and to assess the influence of differing geological and topographical zones, and from them the differing resource base and communication potential, on the fields and their attendant settlements. An integral aim will be to study the development of late prehistoric field systems over time and, where the evolutionary sequence is available, relate the changes in morphology to possible changes in the socio-political and economic landscapes of southern Britain within a European context.

1.7 Chronological framework

The names that we give to divisions within the Chalcolithic, Bronze and Early Iron Ages have undergone much discussion over several decades. Creating a framework out of diverse information derived from typologies of metalwork and pottery traditions, and absolute and relative chronologies, and then attempting to allow that framework to cover areas throughout north-west Europe and beyond has proved complex. As discussed in Chapter 2, assigning dates to field systems is particularly problematic but, in general terms, the chronological framework used here is shown in table 1.1.

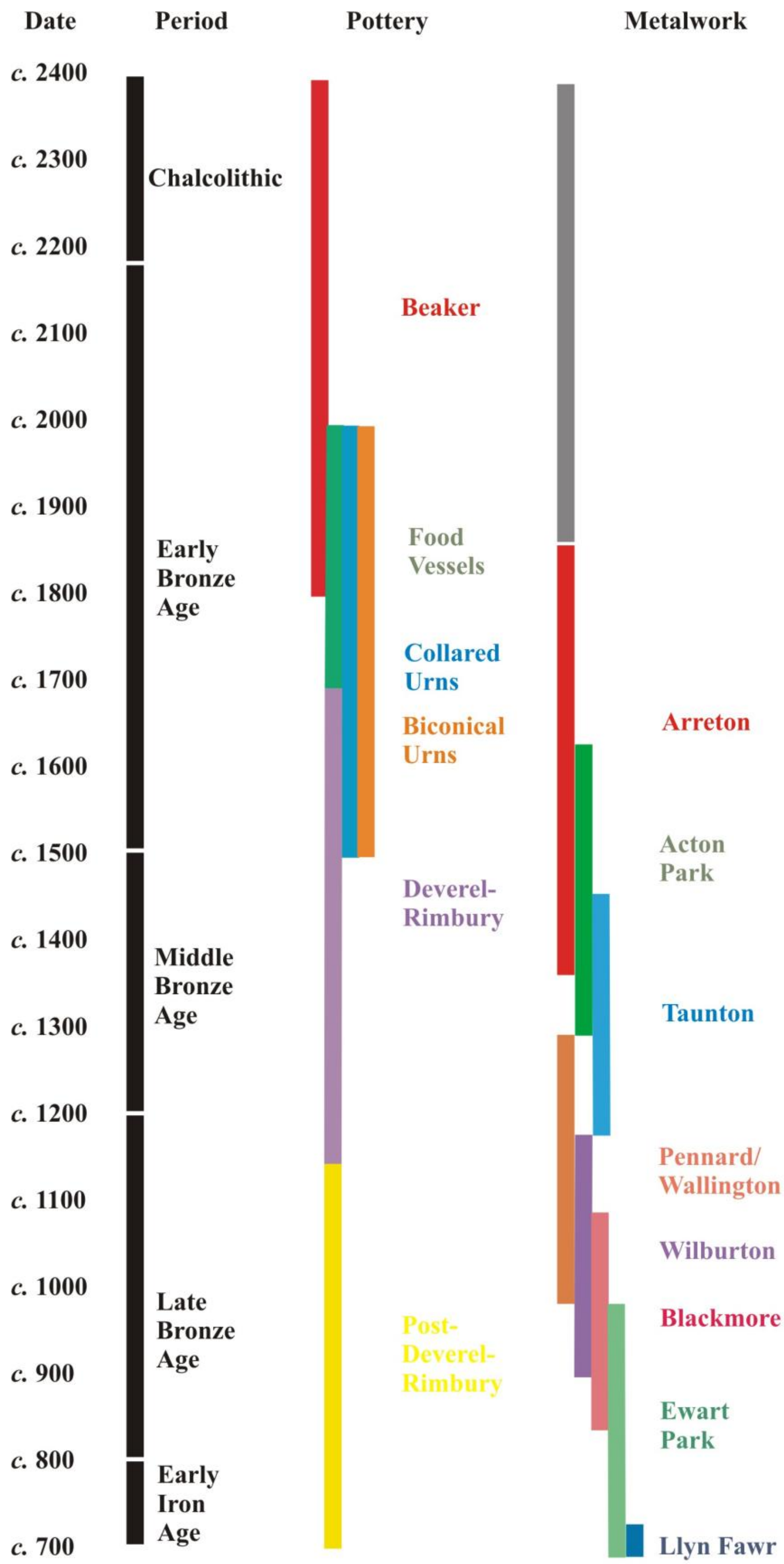
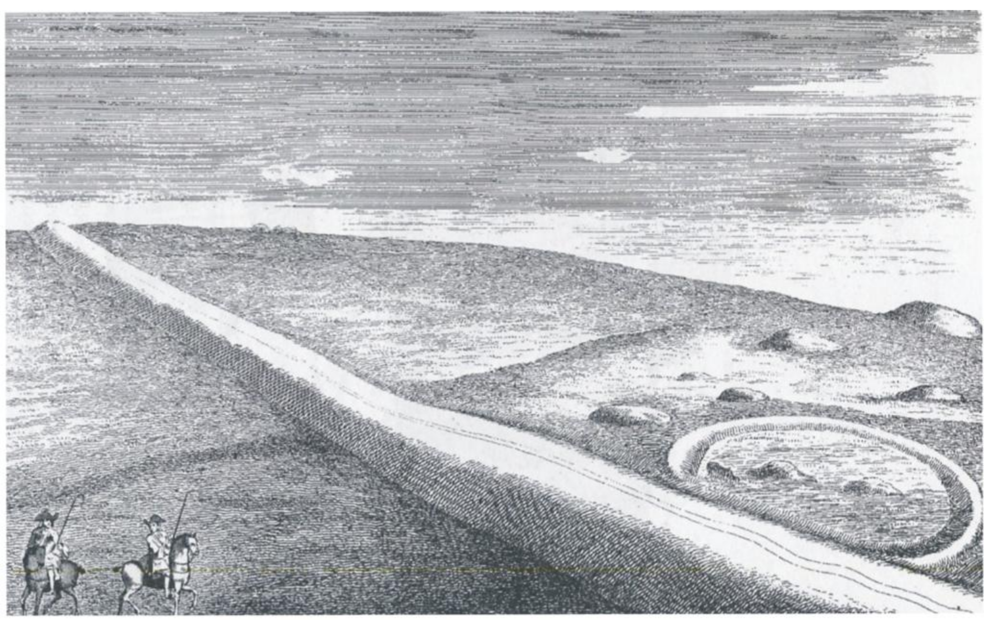


Table 1.1 Chronological framework. Dates for pottery assemblages are derived from Seager Thomas 2008, and metalwork assemblages from Needham 1996

Chapter 2

Methods: means and limitations



'A view a little beyond Woodyates where the Ikening Street crosses part of a Danish barrow, June 9 1724.' **Wm Stukeley recognised that the Roman road must post-date the barrow.**

2.1 Introduction

The aim of this thesis is to use primarily above ground evidence of field systems dating to the 2nd and early 1st millennia BC to investigate the succession in morphology of land division, any regionality in that succession in central southern and south-eastern Britain, and the implications of these findings for our understanding of contemporary socio-political and economic organisation.

Detailed analytical earthwork survey, the main technique which will be used, allows study of chronological developments over relatively large areas suitable for attempting to link developments in land use by communities. These changes, while immediately relating to these developments, may also reflect changes in the wider economy and, possibly, socio-political aspects of the life of the community. If these changes vary from site to site reflection of decisions made by small groups is implied, but emergence of a more general pattern should infer regional and, possibly, wider change. The factors which may underlie these changes, whether they represent responses to natural factors, climate change for example, or human agency, through population change, foreign contacts or insular pressures, will be explored.

The study will utilise information from different sources and gained by use of disparate methodologies, each of which may present their own strengths and weaknesses. The aim of this chapter is to:

- specify the primary and secondary sources which will be used in the dissertation
- describe the manner of their use and the type of information which may be obtained
- recognise the weaknesses inherent in each source
- illustrate ways by which these weaknesses may be mitigated

2.2 Existing archives

2.2.1 Published information

2.2.1.1 County Historic Environment records (previously Sites and Monument Records)

Each county produces, and in theory at least updates, a database of all known archaeological sites, a public document which can be searched on various bases but usually by area, key word and period. This should include information from published texts, ‘grey’ literature and the Portable Antiquities Ssheme record (see below). However, there are no national standards for the collection and inputting of data and, as a consequence, the database varies in both reliability and ease of access from county to county.

Some counties, East Sussex for example, can produce site distributions mapped against both modern and older maps and against aerial photographs whilst others only contain what is effectively a transcription of data held on old records onto a digital base.

In some counties neither cleansing of inaccurate information nor updating the Historic Environment Records is regarded as a priority and in these cases searching the literature is a necessary adjunct. However, at their best these archives form the core of any archaeological investigation and, even at their worst, they still provide a point from which to start.

2.2.1.2 National Monuments Record archive (AMIE) and database

A national database held by English Heritage containing information from Ordnance Survey records, county Historic Environment Records, excavation indices, work of the Archaeological Investigation teams at the Royal Commission for Historic Monuments (England) and English Heritage, and other sources. Being largely dependent on others for its information the National Monuments Record suffers, inevitably, from their flaws.

2.2.1.3 Archaeological Data Service website

This is a site hosted by the University of York on which any organisation can archive primary information. The deposition has been somewhat eclectic and, since the withdrawal of core funding in March 2008, payment is now required. This limits its usefulness and it cannot be regarded as providing an over-view of any given area although it can prove useful for individual sites but, hopefully, it is a source of information which will grow in importance.

2.2.1.4 Academic journals

Papers published in academic journals are now usually peer-reviewed and therefore provide information considered reliable and in keeping with views current at the time of publication. Older journals will provide information of a level considered acceptable by the then editors.

2.2.1.5 Portable Antiquities Scheme database

Artefacts reported to Finds Liaison Officers for each county are identified and entered into a publicly available database. Whilst this can be accessed and is a valuable source of information about finds made by metal detector users and others, the database only gives area National Grid References and precise find spots may be difficult to obtain. In addition, the context of the find is seldom recorded – many represent deposited hoards and their relationship with settlements and land-use is unclear.

2.2.2 Unpublished information

The amount of information available in the 'grey' literature, largely unsynthesised into the body of archaeological knowledge, is one of the challenges facing the modern practitioner. The manner in which accessing this information can revolutionise our understanding of the distribution of activity has been well illustrated by work on British and Irish prehistory in general (Bradley 2007) and Bronze Age field systems in particular (Yates 2007) and use will be made of unpublished client reports in this thesis. Copies of reports from most work undertaken under PPG16 regulations are generally lodged with the appropriate county authorities and sometimes with county archaeological societies and can be accessed there. Online access is available to the index of archaeological investigations (http://OASIS.ac.uk) and to databases produced by the Archaeological Investigations Project based at Bournemouth University (http://csweb.bournemouth.ac.uk/aip/aipintro.htm). Some, although regrettably few, professional units make non-confidential reports available online but occasionally word of mouth and personal contacts may have to be used.

2.3 Analytical earthwork survey

A description of survey work at Julliberries Grave, Kent, written by one of William Stukeley's colleagues, Lord Winchelsea, mentions a number of the concerns of modern surveyors of archaeological monuments (Piggott 1985, 56-7): they set out

> 'in my chaise, where that will go; and where not, upon our horses'.

They made notes and took bearings of the Roman road when they came upon it,

> 'and I have been at Julaber's Grave, which I formerly measured only by my paces but I have now taken it with my measuring chain, and have all its dimensions very right; and I took its bearings with my compass, and from the top of it I have drawn out a prospect of the country'

However, most early surveys were of discrete monuments, and it was not until the advent of detailed Ordnance Survey maps in the middle decades of the 19th century that a few prehistoric field systems were depicted. An exponent working in the early 20th century was a one-time pupil of Pitt Rivers, himself a poor observer of earthworks (Bowden 1991, 121-1), Herbert Toms, whose work on field systems in Sussex, together with that of Robert Gurd, provides valuable information for that county.

During the last hundred years surveyors with, successively, the Ordnance Survey, the Royal Commission for Historic Monuments (England), and, since their takeover of the latter organisation, the Archaeological and Investigation team of English Heritage, have maintained the traditions of analytical earthwork survey and the interpretation of above ground earthworks.

The aims of analytical survey, in the words of one of its great practitioners (Bowden 1999, 23), are to:

- look at what is there

- consider, and try to understand, the component parts, and how they relate to one another
- assess how the whole relates to its contemporary context (whether on a local, regional, or national level) and to comparable examples recorded elsewhere

The methods used in this dissertation vary according to the information available and any limitations in access to the area under study. Where possible, surveys took place in winter and spring when vegetation cover was least likely to mask detail.

Where there were no constraints in terms of access, and the earthworks were clearly visible, survey was undertaken using the tape and offset method (Bowden 1999, 62-63). Tapes were laid out relative to fixed points present on the relevant Ordnance Survey large scale maps and the positions of additional control points were located by Global Positioning System. Where large open fields, with no available fixed points within the area, were involved earthworks were located entirely by Global Positioning System. However, in these cases, a number of readings were taken along each field boundary (which could be located on Ordnance Survey maps) where earthworks abutted the boundary these points were compared with measured distances from corners or other fixed points to minimise the error inherent in hand-held navigational Global Positioning System units. In examples where a 'full' survey was possible, information from different sources, previous surveys or aerial photographs, was not incorporated until after the ground survey was complete.

Where access was limited, as on the Defence Estates land on Bulford Ranges, the results of the National Mapping Programme, made available though the kind offices of Dr David Field, were used to enable phasing of the earthworks to be completed within the military closure period. The aerial photograph transcriptions were printed onto a suitable scale of Ordnance Survey map so that the junction points between boundaries could be located on the ground and the relative chronology of the different components determined.

On the rare occasions where access could not be arranged information from earlier surveys and from aerial photographs could be used, but in these cases it will be made clear in the text that the results could not be verified and determination of phase relationships will not be attempted unless the survey was made by a person or organisation whose work can be fully accepted.

Where accurate surveys made by accomplished practitioners were already available these were used but the earthworks were checked on the ground by a walk over survey and in all cases the source of the original material is given in the appropriate chapter.

All these techniques have inherent errors and analytical survey as a whole has to be regarded as subjective – both an advantage and a disadvantage. This subjectivity stems both from accuracy of observation, some individuals being better able to recognise slight earthworks than others, and from the fact that recording the relationship between component parts of the system of earthworks necessitates a level of interpretation - the data recorded therefore lacks 'detachment'. However, in the hands of a skilled practitioner this element of subjectivity lends depth to the results and allows experience to be brought into the equation.

Mensural errors can be reduced by selecting the most suitable survey strategy available. All of the work reported here has been undertaken to at least Level 3 (non-analytical essential information, detailed, descriptive and fully analytical earthwork survey, methods statement and assessment of accuracy, and photographs as appropriate), and, in some cases to Level 4 (Level 3 with a multidisciplinary approach involving other specialists) (Bowden 1999, 189-193). In the absence of differential Global Positioning System, accuracy was maintained by ensuring that control points fixed using navigational Global Positioning System formed a closed ring and were related to fixed points available from large scale Ordnance Survey maps. When using the tape and offset method, all offset tapes related to a fixed base tape, not to each other, so avoiding any compounding of error.

As used here, the fieldwork relies to a large extent on the accuracy of Ordnance Survey maps, sometimes in rural areas which have not been re-surveyed since the early 1970s. Whilst the construction of rings of control points, and triangulation between fixed points should make any errors apparent and therefore capable of correction, the possibility of survey errors cannot be discounted.

This method alone can only provide relative phasing, and dating of those phases must rely on more invasive techniques.

2.4 Aerial photographs

Among the earliest aerial photographs produced for archaeological purposes was that taken of Stonehenge from a balloon (Wilson 1982, 11) and after World War 1 landscapes in the Middle East (Wiegand 1920) and elsewhere were recorded (Deuel 1969). In England the work of OGS Crawford, who not only took his own photographs but collected the work of others (Crawford & Keiller 1928), formed the basis of the archive held by the National Monuments Record. After World War 2 work of Cambridge University Committee for Aerial Photography added to the cover available (St Joseph 1966).

Many photographs in these archives date to a period before modern development and changes in agricultural practice which have destroyed some sites completely and damaged the above ground evidence over widespread areas. Ploughing of chalk downland in southern Britain has had a particularly severe effect on the survival of prehistoric field systems, some of this destruction being portrayed in the photographs. Whilst aerial photographs may indicate the presence of field systems or their ploughed-out remains they seldom give information about the relationship between the different boundaries and are thus incapable alone of producing the relative dating evidence required for this research. They can be useful however, as described above, for aiding the speed of survey when access is limited, and for producing a fuller picture of large systems where portions have been lost to agriculture, vegetation cover or other activities.

For all the study areas in this dissertation the archives of the National Monuments Record and of the Cambridge University Committee for Aerial Photography have been accessed. At present the information from these collections of photographs is being transcribed under the National Mapping Programme; where such transcriptions are available they will be utilised. In other areas transcription have been undertaken manually and must be considered to give only an approximate picture.

2.5 Dating methods

2.5.1 Introduction

Dating a field system which may cover many hectares and may have been both altered and adapted during its original period of use, and re-used and adapted since, presents a major challenge. A number of methods may produce absolute dates, or more usually *termini ante quem* and *termini post quem*, but only for a short stretch of the particular boundary under study, not the entire system. Dating a field system as contemporary with settlement sites in the immediate vicinity, although frequently done, involves obvious, and possibly unjustified, assumptions.

The contexts from which direct dating evidence may be obtained encompass the palaeosoil below either a constructed bank or wall which formed the original boundary, or the build up of soil within a lynchet; the body of the boundary itself, most usually the matrix of the lynchet; any ditch which accompanies the boundary; or material overlying the boundary.

Contexts which may indirectly provide putative absolute dates include settlement and other sites close to, but not an integral part of, the boundary structure and complex.

Relative chronologies of the different boundaries within a field system or field systems, or between a boundary and other earthworks, can be developed from examination of the above ground earthworks. Where earthworks come into direct contact with each other it should be possible to detect a stratigraphic relationship – for example, banks may overlie and underlie, or abut each other, and the shape of the termini at an entrance may indicate whether it was original to the construction or a later cut. These phase relationships may sometimes also be visible on aerial photographs or indicated by excavation. It is however by analytical survey of standing earthworks that the phase relationships of entire systems are most likely to be available.

2.5.2. Chronological evidence from contexts pre-dating construction of field boundaries

Only if the boundary comprised a constructed bank or wall can the palaeosoil beneath the structure truly be said to pre-date the construction of the boundary. In such a case radio-carbon dating of the upper layer of that palaeosoil will, at best, provide a *terminus post quem* for the construction of that particular portion of the boundary. If the vegetation on the old land surface can be recovered, most likely in an acid podzolic environment, and is of short lived species, then that *terminus post quem* is likely to be close to the construction date. Dateable artefacts recovered from the old ground surface again provide only a *terminus post quem* if ploughing or other disturbance had taken place before construction of the boundary; only if the palaeosoil can be considered undisturbed, a rare occurrence, may artefacts provide an absolute date.

2.5.3 Chronological evidence from contexts within the matrix of the original field boundary

These contexts comprise artefacts or ecofacts from within the matrix of a constructed bank or wall, or from fills of any ditch associated with the boundary.

Artefacts or other dateable material located within a constructed bank or wall, are likely to have come from the immediate vicinity, the former often from a ditch associated with the bank, and provide a *terminus post quem* for its construction. It must be borne in mind, however, that re-use of building material may add further uncertainty to this already unsound date.

If the boundary complex includes a ditch, the fills and artefacts from within those fills may provide dating evidence. The material of the fill may have eroded in from any adjacent bank, in which case artefacts will pre-date construction, or from the surrounding ground surface. In the latter case they may date to before the digging of the ditch or from any period up to final abandonment. Artefacts from within the primary silt, or Optically Stimulated Luminescence dating of that silt, may therefore provide a *terminus post quem* not for the construction of the ditch but for the last time it was cleaned out.

2.5.4 Chronological evidence from contexts post-dating construction of field boundaries

Dating obtained from archaeological features or from natural build-up of material which overlie field boundaries will, at least, provide a *terminus ante quem* for its construction and may provide the same for its abandonment.

Intrusive features, burials or deposited hoards, created within the matrix of a developed lynchet clearly post-date the construction of that boundary. Settlements overlying a field boundary also post-date its construction although here a caveat must be entered. In most cases it is a bank enclosing the settlement that can be seen to overlie the field boundary and in some cases previously open settlements were enclosed at a late stage in their evolution. In such a case artefacts from the settlement are not necessarily of the same date as construction of the enclosure and thus do not themselves provide a *terminus ante quem* for the field boundary.

On acid producing bedrock like granite, land may become covered with peat – essentially undecayed vegetable matter. In these rare cases radiocarbon dating of the peat may provide a *terminus ante quem* for the abandonment of any fields and their boundaries excavated from beneath it.

In summary providing an approximate date of construction, use and abandonment for a field system relies heavily, yet unsatisfactorily, on its morphology and the date ascribed to settlements in the immediate area which may provide dateable artefacts or contexts. Whilst this may be accepted when an approximate date for an entire system is sufficient, it produces major uncertainties when attempting to study developmental sequences and alterations which may involve short term, perhaps generational, change.

However, observation of repeating patterns of change, particularly if excavation of different sites also provides a relatively constant chronology, may give at least a narrow enough date range to form the basis for the development of working hypotheses.

2.6 Excavation

Excavation was undertaken according to the principles described in *Standard and Guidance for Archaeological Excavation*, Reading: Institute for Archaeologists, published 1995, revised 2008.

2.7 Pottery analysis

Any necessary pottery analysis, at more than a superficial level, was undertaken by Mike Seager Thomas, an independent expert in the analysis of prehistoric pottery based in Sussex.

2.8 Analysis of worked flint

Items of worked flint were assessed by the author with, where necessary, the assistance of members of the Prehistoric Group of the Surrey Archaeological Society or Bertie Haken of Sussex Archaeological Society.

2.9 Soil structure analysis

Soil analysis was undertaken by Dr Richard Macphail at the Institute of Archaeology, University College London using routine published methods.

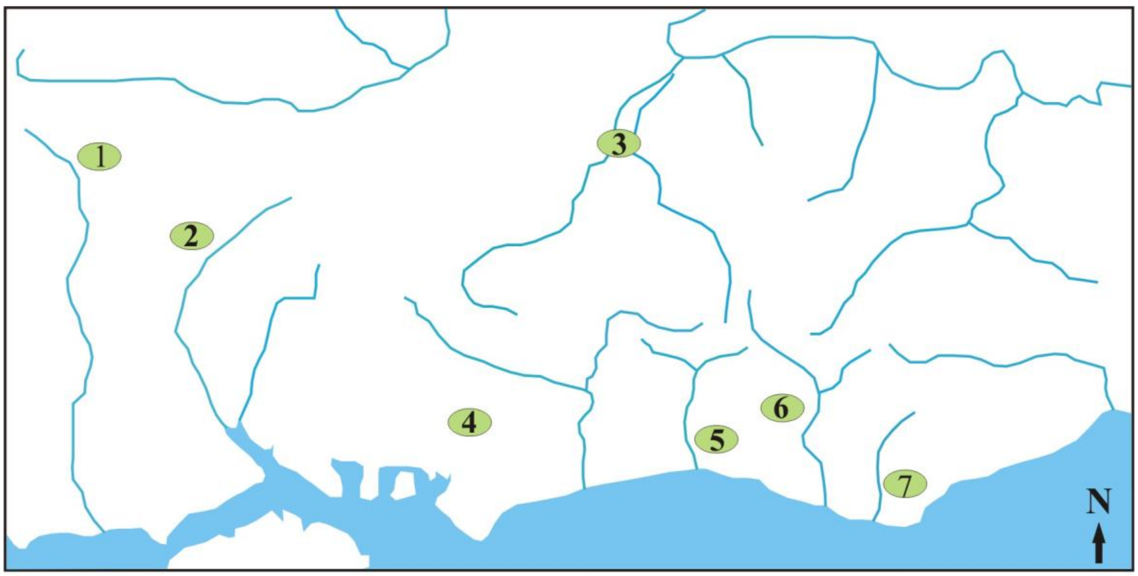
2.10 Graphical depiction of analytical survey results

Field drawings will be made at scales of either 1:2500 or 1:1250 depending primarily on the amount of detail visible. Vignettes designed to illustrate details of complex areas, or of areas where relative phasing is of importance, were surveyed at larger scales, and these will be given within the text. In the case of small scale depiction, hachures will be used to show the direction of slope and to crudely differentiate between major and minor scarps, but, given the need to reduce the scale for final presentation, they will not replicate the width of the field boundaries accurately. In the case of larger scale surveys of small areas the hachures will be drawn to scale. Otherwise the survey drawings will observe accepted conventions (Bowden 1999, 85; English Heritage 2007).

Figures intended to illustrate different phases of development of the field systems will be given as line drawings and will utilise colour to identify the phases.

2.11 Site selection

A number of criteria were used in selecting sites for survey where the resultant data were considered likely to provide information relevant to the questions posed in the design of this thesis. The location of the case study areas is shown in figure 2.1 and in greater detail in the appropriate chapter.



1 Nine Mile River valley, Wilts
2 Stockbridge Down, Hants
3 Central Surrey
4 Kingley Vale, West Sussex
5 Thundersbarrow, West Sussex
6 Plumpton Plain, East Sussex
7 Fore Down, East Sussex

Figure 2.1 Location of the study areas in southern Britain

2.11.1 State of preservation

The most important of these criteria was that the above ground survival of earthworks should be such that survey would provide evidence of different phases of construction, use and abandonment over a wide area. A somewhat arbitrary measure was that at least 75% of the field corners and abutments should be available, and their phase differences visible, over an area of about a sq km or more. In most cases the larger earthworks on which this assessment was based proved to be only part of the story and inevitably slighter earthworks provided a poorer degree of certainty.

2.11.2 Access and timing

Permission from landowners, tenant farmers, wardens and rangers, English Heritage where scheduled monuments lay within the proposed survey area and, similarly, Natural England for Nature Reserves, Sites of Special Scientific Interest or other relevant designations, was essential. Where possible survey took place when vegetation cover was low but if other priorities, the presence of ground nesting birds for example, made this impossible then those limitations were accepted. This had particular relevance when working on the Salisbury Plain Training Area where, although above ground survival was excellent, the requirement to work within the summer closure period necessitated survey when the vegetation cover was maximal. In areas some distance from a road the availability of vehicular access, and permission to take a vehicle on site, were desirable.

2.11.3 Previous archaeological interventions

Since this project largely involved above ground evidence, previous fieldwork in the area was used to provide some dateable evidence of activity in the area. Whilst they are not necessarily contemporary, the presence of Bronze Age settlements within the field systems was taken as a strong suggestion that the latter were also prehistoric, and a lack of Romano-British or later settlement in the immediate area was considered highly desirable though not essential. Given the widespread evidence of re-use of prehistoric fields in the Romano-British period this resulted in the exclusion of a large number of sites, and may well have introduced a further bias towards the most marginal areas in agricultural terms.

2.11.4 Geological distribution

It was recognised that suitable sites would cluster within zones of preservation but the initial intention was to try to locate areas situated on a range soil types. However, it became clear that, within the accessible regions of southern Britain, the great majority lay on chalk. Only on Whitmoor Common in Surrey, located on superficial sands of the

Bagshot Series, was the survival on a non-chalk geology sufficient for the purpose of survey.

2.11.5 Terminology

The term plough, used throughout, is taken to indicate use of an ard in all pre-Roman contexts.

Chapter 3

Land use in Central Surrey during the 2nd and early 1st millennia BC

The Mickleham hoard (photograph by Alan Hall)

3.1 Summary

Erosion of the Wealden Dome, the uplifted area at the junction between the northern and central European tectonic provinces, has resulted in a wide variation of the solid geology within a limited area and, therefore, of the resources available for exploitation. Concommitantly, however, each soil type is of limited extent, and those based on either greensand or superficial sandy deposits were vulnerable to anthropogenic deterioration. While some clustering of sites on lighter soils can be seen, the combination of only relatively small areas of either fertile soils for arable agriculture or easily accessible high quality grazing appears to have led to extensive rather than intensive land use during the BA. Within this general picture, the Mole Gap provides an example where fieldwork has identified an integrated economic, socio-political and ritual landscape. In the western portion of the area, study of present heathlands has located a prehistoric field system with at least two phases of construction, where organic survival has allowed dating and palynological information to be recovered.

3.2 Definition of the study area

The study area lies in central Surrey and stretches from the clay of the Thames Basin, across the North Downs and the greensand ridge to the south, and into the Weald. It comprises an area of 360 sq km and is bounded by grid line SU90 to the west, TQ20 to the east, SU/TQ56 to the north and SU/TQ44 to the south (fig 3.1).

3.3 Rationale for selection of the study area

- The area comprises outcrops of a wide range of solid geology exposed by erosion of the Wealden Dome, and therefore a varied resource base available within a small locality.
- Its central location provides an opportunity to study rural settlement and land use in an area of the south-east of Britain relatively free of external influence from contact zones either in the Lower Thames Valley or the Sussex coastal plain.
- Recent fieldwork, primarily led by the author, has located and investigated two field systems (Whitmoor Common and Mickleham Downs), both of which probably originated in the BA.

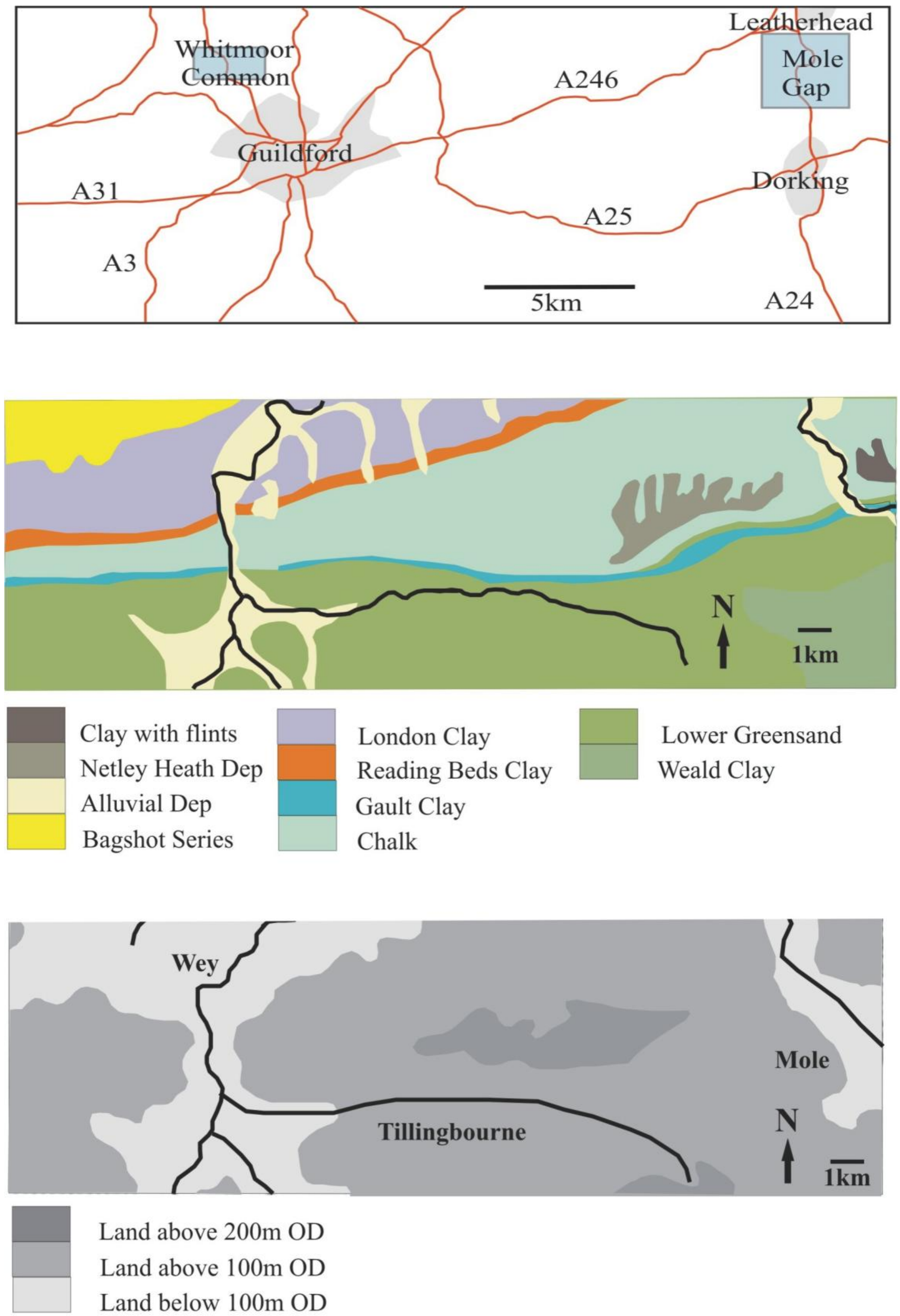


Figure 3.1 Location (top), geology (middle) and topography (bottom) of the Central Surrey study area

- The archive from the excavation during the 1960s of a major settlement site (Weston Wood) is being prepared for publication by the Artefacts and Archives Research Group of the Surrey Archaeological Society under the Aggregates Levy Sustainability Fund.
- This is new research in an area often overlooked

3.4 Geology and topography of the study area

Simplified geology and topography of the study area are shown in figure 3.1. Relevant points of note are:

- The degree to which the Upper Chalk of the North Downs is overlain by clay-with-flints and other superficial deposits
- The presence of extensive areas of leached, acidic podzols which have developed, probably through anthropogenic action, on sand-based solid geology
    - In the north-west of the study area these comprise Bagshot Series soils derived from superficial Holocene deposits
    - The central greensand ridge, mainly Hythe, Folkestone and Sandgate Beds, here higher than the chalk downs to the north, ranges from light, relatively fertile soils on the dip-slope to infertile heathland with high points protected from erosion by strata of chert
- Large areas of alluvium and river gravel related to the Wey and its tributaries
    - The limited areas of similar geology related to the Mole
- The relatively ‘small scale’ nature of the different geological areas
- That the gentle dip-slopes of both the North Downs and the greensand ridge are north facing and thus less conducive to arable agriculture than the similar geological strata in Sussex

3.5 Evidence of Bronze Age activity in the study area

A general overview of evidence pertaining to the relevant period will be given here and further details are available in Appendix 1. Distributions of known sites and finds, taken from the Surrey Historic Environment Records and Portable Antiquities Scheme data, are shown for the Early Bronze Age, Middle Bronze Age and Late Bronze Age in figure 3.2. Sites specifically named in the text and in appendix 1 are located in figure 3.3.

Barrow
Find spot - pottery
Find spot - metalwork
Find spot - flintwork

Settlement
Field system
Burials
Find spot - pottery
Find spot - metalwork

Settlement
Find spot - pottery
Metalwork hoard
Find spot - metalwork

Figure 3.2 Sites and finds of Early (top), Middle (middle) and Late (bottom) Bronze Age date (as defined by the Surrey Historic Environment Record) related to the geology of the Central Surrey case study area (for key to the geology see figure 3.1)

Figure 3.3 Location of places mentioned in the text against geology (for key see figure 3.1)

The distribution in general shows a strong bias towards land agriculturally marginal in modern terms, heathland and chalk downs, a bias which may relate to areas of light soils suitable for early cultivation but since degraded, but which could also be caused by differential survival and by a greater propensity towards finding sites on what are, in many cases, commons and public open spaces. A local history of antiquarian and modern flint hunters, although under-recorded, has also produced a bias, particularly for the Early Bronze Age, towards the greensand ridge. Ongoing cataloguing by the Prehistoric Group of the Surrey Archaeological Society of unpublished collections of worked flint held at Guildford Museum is showing a concentration of areas searched on Lower and Upper Greensands.

The great majority of Early Bronze Age data comprises either barrows or casual finds of worked flint. The identification of a number of barrow sites is uncertain. Those on heathland can easily be confused with naturally occurring dunes (Graham *et al* 2004), and ring ditches located by aerial photography may have different origins; in addition the distinction between prehistoric and Anglo-Saxon barrows is not always clear. Most of those within the study area are dispersed on heathland and here the acid environment has resulted in poor survival of artefacts (for example *ibid*). The notable lack on the North Downs contrasts with the situation in Sussex and even those excavated on chalk have yielded remarkably few and poor contents. Within the study area three groups of barrows warrant consideration here.

The Hog’s Back (area SU 912485) is the dominant landscape feature of western Surrey, where the North Downs narrow to give a ridge, measured as land above the 100m contour line, 11.2km long and no more than 200m wide. Exactly at the mid-point of this ridge is a nivation hollow, producing a slight dip in the skyline and a coombe on the north facing slope. Two certain and a further possible barrow, the latter visible only as a ring ditch, formed an arc at the head of this coombe. However, molluscan analysis of deposits in the ditch of one of these barrows, excavated by AJ (Tony) Clark in 1966 (Allen in English *in press*) indicate that the barrow was constructed in previously undisturbed, mature deciduous woodland. Unless much of the ridge was cleared at the same time long views may not have been available, but pathways into remaining woodland could have led to barrows standing in secluded glades.

All the known barrows in the Mole Gap (area TQ 1754) are assumed to be prehistoric in date and are situated in two clusters on the east of the river, at the northern and southern ends of the gap. At the north, in the Cherkley valley, a group of eight or nine mounds, of which at least four have been destroyed, lay on the southern slope of the now dry valley. In 1868 ‘sepulchral urns’ one of which had ‘impressed zig-zag ornament’ were found (Grinsell 1934), presumably representing flat graves. It has been suggested (Currie 2000, 16) that the description indicates Beaker pottery pre-dating the barrow burials. A group of ten or eleven ring ditches noted on an aerial photograph close to Hambleton Wood on the northern slope of the same valley may indicate the presence of a further barrow cemetery. At the southern end of the gap two barrows on Boxhill overlook the river from the top of the scarp slope. No barrows have survived to the west of the river but at the southern end of the gap, on a prominent spur, ring ditches, again visible on aerial photographs may be relevant.

The barrows on Whitmoor Common are further discussed below. No Early Bronze Age settlement sites have been located within the study area although the presence of the barrows is strongly suggestive of settlement somewhere in the area.

A number of hoards of metalwork have been located within the study area. On the southern slope of the Hog's Back (SU 97254835) a hoard including parts of four axes was found with a number of pieces of waste. One of the axes was of end-winged type placing the hoard within the Carp's Tongue Complex (English 2002). A socio-political territorial division has been suggested on the basis that Late Bronze Age metalwork from the greensand ridge in the east of the county has Carp's Tongue affiliations and may relate to a Thames-side and eastern North Downs zone whilst farther west the hoards resemble those from eastern Wessex (Needham 1987). On this basis the Hog's Back hoard represents the westernmost of the former tradition.

At Coast Hill, Wotton (TQ 130482), on the greensand ridge between the Wey and Mole Gaps, a hoard discovered in 1787 by workmen quarrying sandstone was located 'in a cavity in the rock' (Barber 2003, 63). It comprised two socketed axes, a possible sickle and lumps of copper cake. The site is within the valley but on high ground marking the watershed between the Tillingbourne and the Pipbrook, a location which was perhaps marginal in settlement terms.

The third hoard, from Norbury Park, Mickleham (TQ 16155345, comprised three objects, two palstaves and a sword chape, and was found within a flint cairn placed over a developed lynchet close to the foot of the chalk downs and dated to between 1150-1000 BC (Williams 2008). It will be further discussed below in relation to the field system located on both sides of the river in the Mole Gap.

In 1853 a hoard comprising a socketed axe, portions of three other socketed axes, two palstaves, a spearhead, an arrowhead, a chisel and an ingot was found close to the top of the dip-slope of the greensand ridge on Farley Heath (area TQ 053447) (list provided by British Museum who purchased the hoard, with other objects, from Henry Drummond, Lord of the Manor of Albury). Other finds from Farley Heath include an early palstave (Field & Needham 1984) and on Blackheath, nearby, a possibly contemporary advanced form of flanged axe (Phillips 1968). Farther east, on Winterfold, a looped palstave from the later portion of the Middle Bronze Age has close stylistic links with Brittany although probably a local product (Needham 1980). This block of heathland again represents an elevated and perhaps marginal position.

A number of finds by a metal detector user on ploughed land within Clandon Park (TQ 038520) include a hollow tip of a spearhead, a further tip to a side-looped spearhead, part of a palstave, an awl and part of a tanged chisel together with a number of sherds of Late Bronze Age pottery (Portable Antiquities Scheme data).

A further group of metal detector finds, parts of two palstaves, part of a socketed axe, part of the blade of a sword, the tip of a spearhead and an unidentifiable piece of copper alloy have been reported over a period of time as coming from the northern side of St Martha's Hill (area TQ 029487), a prominent high point of chert capped greensand visible from much of the Tillingbourne and Bramley Wey valleys (Portable Antiquities Scheme data).

A recent find from Frank's Sandpit (area TQ 1950), one of several from different periods with ritual connotations from the same area, is a Late Bronze Age two-handled pot filled with ingot fragments. Similar vessels have been dated to the 8th century BC but their use as a container for a hoard appears to be a unique find (David Williams, Surrey Finds Liaison Officer, pers comm.). It may be relevant that a number of finds of metal-working debris have been located in the same area; one large plano-convex ingot, of which about two thirds weighing 1783g was present is thought, in view of its size, to be a deliberate burial (PAS-SUR-599873) and two other smaller pieces (PAS-SUR-21D003 and PAS-SUR-08F611) add evidence of industrial activity to this area.

These finds of metalwork dating to the Middle Bronze Age and Late Bronze Age include a notable cluster of early examples. Shield-pattern palstaves from Guildford, Albury and Farley Heath (2) are part of Burgess' Acton Park complex (1962, 17-18) and are thought to date from either side of 1400BC. It has been suggested (Needham 1987, 111) that this group represents a novel tradition current in southern Surrey whilst farther north the Arreton tradition still persisted. Later in the Middle Bronze Age, Winterfold has produced a narrow-bladed palstave based in style on those imported from northern France and rare lugged chisel and palstave-chisel forms from Farley Heath represent a diversification in tool form (*ibid* 113-114).

All these find spots, with the possible exception of an inexact location ‘Guildford’, are found on the heaths of the Upper Greensand. The two field systems probably initiated during this period are, however located on chalk (Mickleham Downs) and sands of the Bagshot Series (Whitmoor Common) (these sites will be further discussed below). Only one settlement site is known from this period, a possible enclosure producing Deverel-Rimbury tradition pottery near Cherkley Wood, situated on Upper Chalk (Harp 1999).

By contrast with the earlier periods, the Late Bronze Age data set includes two certain and one possible settlement sites, together with a number of pottery scatters which may indicate occupation. Of these Weston Wood and Reelhall are situated on Upper Greensand whilst Manor Farm, Guildford is on London Clay.

Some of the pottery from Weston Wood, Albury (TQ 055484), excavated in advance of sand extraction in the 1960s (Harding 1964), has been published (Russell 1989) but the site archive and the remainder of the pottery is presently undergoing assessment with the aim of full publication. The settlement is situated on an isolated hill where the Lower Greensand has been protected from erosion by a capping of chert and carstone, but within easy reach of both the chalk of the North Downs and the alluvial deposits of the Tillingbourne and Bramley Wey valleys. It would have had extensive views in all directions except to the north where the scarp slope of the North Downs dominates the skyline. The presence of a prehistoric route along the North Downs has been comprehensively discounted (Turner 1980), but the amount of Bronze Age metalwork found on the greensand ridge (see above) and increasing evidence of settlement, mainly from the Late Bronze Age, in the Wey valley to the west (English & Davis 2000; Lambert 2008) and to the east in the Tillingbourne valley (fieldwork in progress at Barnfield East, Abinger TQ110482) suggests the possibility of at least a local route along the greensand. It is unlikely that the entire site was excavated, but no enclosure ditch was located. The settlement comprised at least three round houses and a number of pits, one containing a coarseware jar with the carbonised grains of sixrowed hulled barley (*Hordeum sp*) and emmer wheat (*Triticum dicoccum*), and twenty probable hearths and burnt areas. A radiocarbon date of 510 ± 110bc is regarded with some suspicion, and, on the basis of the pottery, dates of between 11th to 9th centuries BC for area 2 and between 8th and 7th centuries BC for area 1 seem more likely (Russell 1989). Findings of grain attest agricultural production with barley, the predominant grain in the single sample recorded, being well suited to the relatively dry land available in the immediate locality. The amount of pottery recovered, some 9000 sherds including almost complete pots, together with the finding of concentrations associated with kilns / furnaces has led to the suggestion that the economy of the site may have included some form of industrial presence (*ibid*), possibly a specialised pottery production centre.

At Manor Farm, Guildford (SU 968496) evaluation (English & Davies 2000) located a scatter of Late Bronze Age pottery in an area where development was intended and further excavation (Oxford Archaeological Unit 2002) located three possible buildings and other features including a cremation burial all associated with Late Bronze Age / Early Iron Age pottery. Later fieldwork (Wessex Archaeology 2003) produced further evidence in the form of a number of ditches, set at right angles to each other and possibly enclosing fields, together with three possible post holes, two concentrations of burnt flint and approximately 1kg pottery. This latter contained few diagnostic sherds and was generally dated to the post-Deverel-Rimbury (Late Bronze Age/Early Iron Age) ceramic tradition. This site which, from the area over which the pottery was found, appears to have been of some size was located on London Clay within sight of the chalk of the Hog's Back. Expansion of activity onto this heavy soil has been confirmed by work north of Guildford (Lambert 2008) which will be further discussed below.

The site located at Reelhall, Shamley Green (TQ 039442) during a watching brief, comprised a concentration of Late Bronze Age / Early Iron Age pottery overlying a buried soil which in turn sealed a number of apparent post-holes. The pottery was thought to have been located within erosion products from the adjacent hill-slope and no further work on this site has been undertaken (Jackson *et al* 1999).

At Cherkely Wood, Mickleham (TQ 191544), an area lying at the eastern end of a chalk ridge jutting out from the eastern side of the Mole Gap, but partially hidden from the field system on both sides of the river by a raised area of superficial deposits, has produced evidence of Late Bronze Age activity. In 1907 a large ditch producing pot sherds, animal bones and worked flint overlain by the point of a bronze weapon, was located but the archive of both this intervention and a later one by the Ordnance Survey appear to have been lost. The site was damaged by a flying bomb in World War 2, by the Great Storm in 1987 which felled a number of large beech trees and pulled out their root plates, and by subsequent inappropriate replanting. Examination of the root plates produced post-Deverel-Rimbury tradition pottery including a globular urn. The position of this site, set on high ground above an extensive field system, and the presence of Late Bronze Age pottery suggests that this may have been a high status 'aggrandised' settlement.

3.6 The Field Systems

3.6.1 Whitmoor Common, Worplesdon

3.6.1.1 Background

Whitmoor Common is part of the extensive sandy heath which characterises land on the borders of Surrey, Hampshire and Berkshire. It lies between 30 and 40m OD on Eocene sands of the Bagshot Beds and is now a stagnogley podzol. A small stream crosses the common from west to east. The detailed location, geology and topography of the area are shown in figure 3.4.

Two barrows are known to have existed on the common and both were excavated by Lane-Fox (later Pitt Rivers); the finds are now deposited in the Pitt Rivers Museum, Oxford and a partial archive in Salisbury and South Wiltshire Museum but the excavation remained unpublished (Saunders 1980; English 2010). The western barrow (NGR TQ98635333) has been portrayed as a saucer barrow (Grinsell 1987) but in that publication the National Grid References and the descriptions have been transposed. Two somewhat impressionistic watercolour section drawings exist among the records of Lane-Fox's excavation of this barrow (accession number R7[e]) and, with the accompanying notes, indicate that this was a bowl barrow, probably covering a cremation burial with at least three bucket urns

Figure 3.4 Location (top), geology (middle) and topography (bottom, arrow indicates direction of flow of the stream and red stars the position of the barrows of the Whitmoor Common study area

containing cremated bones inserted as secondary burials. The eastern barrow was probably constructed over the remains of a pyre or redistributed pyre debris and a digital terrain survey (Graham & Graham 2005) has shown it to be a hybrid between disc and bell types.

In the 1970s a rapid survey, undertaken by a local man and reported to Dr Stuart Needham, noted a number of banks which appeared to be portions of a field system. More recently, the presence of pollen from deciduous woodland including *Tilia* in samples collected from a land surface beneath one of the banks suggested that the earthworks dated to a period prior to the full development of the present heathland vegetation (Ellis 1996).

Confirmation of an early date for the field system was gained from multi-element analysis (Entwistle & Abrahams 1997; Entwistle *et al* 1998) of samples taken from the palaeosoils beneath the western barrow and two of the banks, and from the primary silt in the bottom of the linear ditch. This technique, not before used on an acid podzol, indicated that all three palaeosoils and the primary silt were approximately coeval, indicating a similar *terminus post quem* for construction of both the barrow and the portion of the field system sampled, and for the initial silting of the linear ditch. In addition, high phosphate levels for this latter feature, the 'Grymes diche' (see below) suggested its use as a droveway (Dolan *et al* 2004), but the date of such usage is unclear.

3.6.1.2 Fieldwork

3.6.1.2.1 Analytical survey

An analytical survey (level 3) located a series of banks, most of which were between 15 and 20cm high, with occasional traces of an accompanying ditch. These are depicted in line form only since the depth of vegetation and the mobile nature of their sandy matrices precluded identification of any phase relationships other than by variations in their alignments (fig 3.5).

The banks appear to represent two phases of a rectilinear field system on different alignments. The earliest phase had banks aligned 70^{o} west of north, whilst those of the main phase lay 20^{o} west of north. This main phase comprised both sub-rectangular and strip fields. Insufficient survives to calculate the area of individual fields but a number of parallel banks forming boundaries of the sub-rectangular fields are approximately 100m apart. The NNW / SSE axis curves slightly towards the west at the northern end of the common and appears to have been constructed perpendicularly to the small (un-named) stream. In some areas the fields comprise narrow strips and where these survive complete they measure approximately 220 x 40m.

The mid-19th century Tithe Map for Worplesdon parish (SHC WOR/10/1/1-3) shows fields similar in alignment to those on the common immediately north of the present common boundary, suggesting re-use of the prehistoric boundaries at a later date. Both extant boundaries and visible earthworks in fields up to 1km north of these suggest the field system may have extended for a considerable distance.

A ditch, known in 1562 as 'the Gryme's diche' (SHC G97/6/12), appears to be an integral part of this field system. It is on the same NNW / SSE alignment and the field boundaries abut it. In form, this feature is flat-bottomed, approximately 4-5m wide and between 0.3m deep at its southern end and 1.8m at its northern, with slight banks on either side (fig 3.6a). There are two points at which field boundaries on either side abut the linear ditch opposite each other – this may be coincidental or it may indicate that the ditch was imposed along an already existing NNW / SSE boundary. Aubrey (1718, 326) called this the 'great old trench' and gave a length of 800 yards, considerably longer than the portion which still survives, again suggesting that only a fragment of a once larger system is now visible.

3.6.1.2.2 Excavation

The locations of four trenches (T1 – T4) excavated under the direction of this author are shown in figure 3.5. Nine sections in total, including those by other investigators (Ellis 1996, Dolan *et al* 2004), have been dug across the banks and in all except one case they had been of simple 'dig and dump' construction with each bank having a ditch on one side.

One bank however, (fig 3.6b, T3) showed a more complex construction (fig 3.7). The core of the bank, 1.2m wide, comprised yellow / orange sand with an upper context (308)

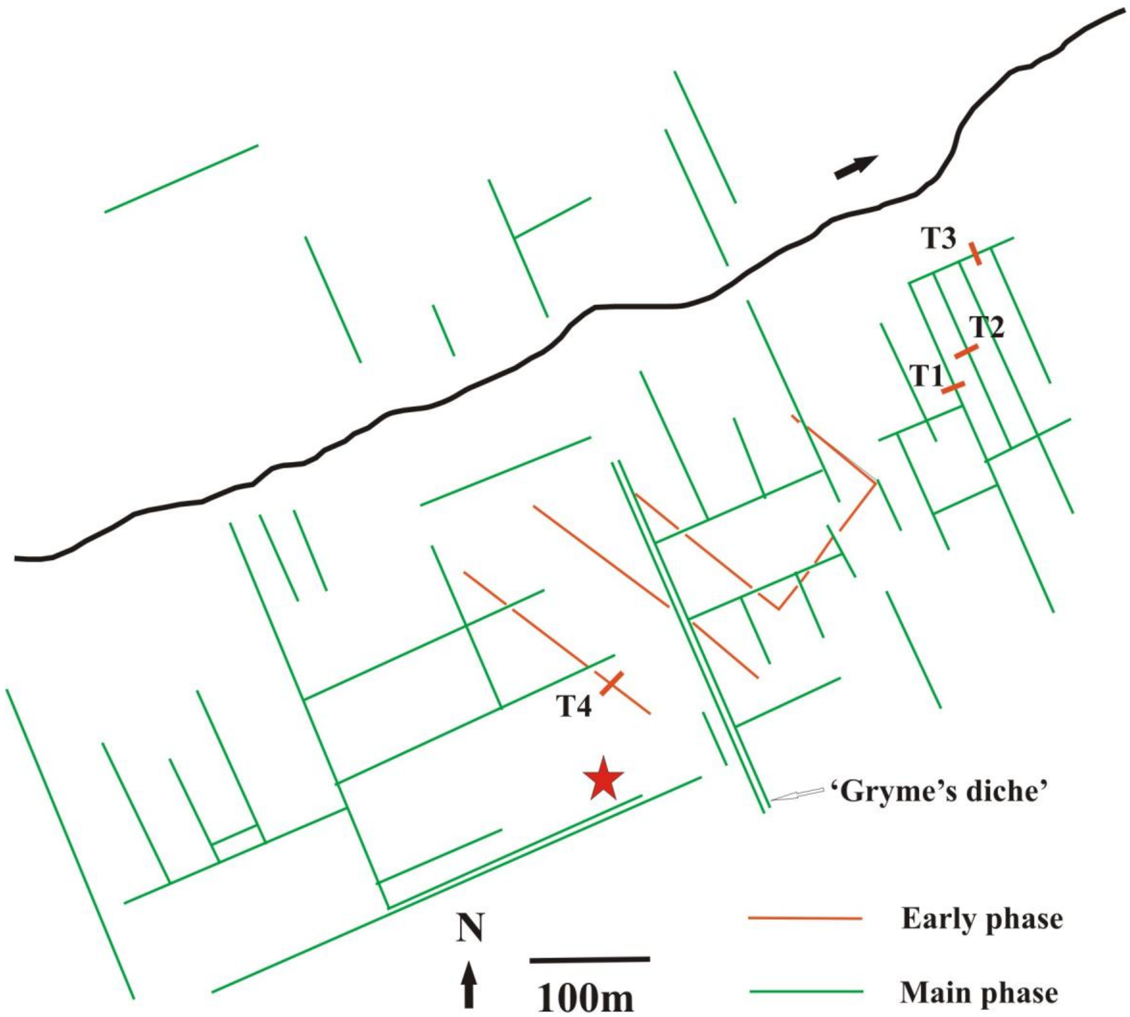


Figure 3.5 Analytical survey of field systems on Whitmoor Common, Worplesdon showing positions of excavation trenches (T) and barrow (red star)

containing a higher density of pebbles than the lower (310), there was no sharp boundary between these two contexts. On the surface of context 308 the pebbles almost constituted a continuous layer. The sides of this core were vertical and on either side were contexts (312 and 314), triangular in section, of fine grey sand with no inclusions. Beneath these and the core of the bank was a dark layer (313; 2A horizon) which appeared to be a buried soil overlying a pale elluvial (2Ea) horizon. There were ditches on both sides of the bank, with variable amounts of iron panning at the bottom of the fills (306 and 307) overlying apparently undisturbed leached yellow / orange sand. The complex of central bank with both ditches was approximately 3.4m in overall width.

Figure 3.6a The Gryme's diche, Whitmoor Common in winter, looking north

Figure 3.6b Bank on Whitmoor Common found on excavation to be of relatively complex construction (T1 in fig 3.5)

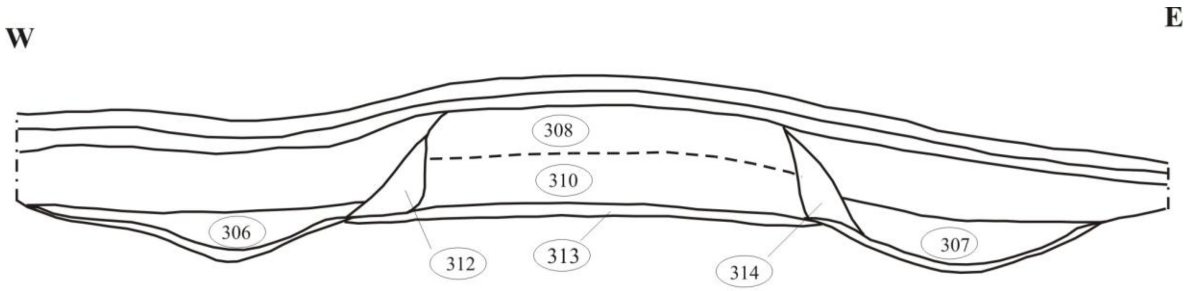


Figure 3.7 South facing section of complex bank excavated on Whitmoor Common (Trench 3)

Further sampling of palaeosoils beneath the banks of the field system, and the fill of a stake hole cutting that of the 'early' phase, provided material for radiocarbon dating and the results of this are shown below, calibrated and given as a range at 2σ::

NZA 26365	'Early' phase	Trench 4	1522 – 1415BC
NZA 26250	'Main' phase	Trench 1	1297 – 1199BC
NZA 26368	Strip field	Trench 2	1317 – 1123BC
NZA 26367	Stake hole	Trench 4	1373 – 1339BC

The period of time elapsed between these dates and the construction of the field system cannot be judged but an origin in the Middle Bronze Age seems likely as does a remodelling some time later, on a different alignment. It is not possible to say whether there was a period of abandonment between the two phases and the strip fields appear to have been an integral part of the second phase, rather than a later adaptation.

Pollen samples have been collected on one occasion as fieldwork for a thesis, part of a MSc degree being undertaken at Royal Holloway College, University of London, under the supervision of Dr Nick Branch (Ellis 1996) and secondly, by this author for whom the preparation and assessment was undertaken by Professor Jon Dodson, then of Brunel University and now of the University of Western Australia. Details of this latter analysis appear as table 3.1 and figure 3.8.

Species	Palaeosoil below bank in Trench 4	Palaeosoil below bank in Trench 1	Palaeosoil below bank in Trench 2
Pinus	1	_	_
Tilia	present	_	8
Ulnus	_	present	_
Betula	3	2	1
Fagus	_	present	_
Quercus	8	4	7
Alnus	4	5	5
Fraxinus	_	_	1
Corylus type	14	18	16
Salix	2	present	_
Ilex	present	present	_
Calluna	15	26	16
Erica type	19	27	15
Ranunculus type	present	_	present
Brassicaceae indet	_	_	_
Sinapis type	2	_	_
Caryophyllaceae indet	present	present	_
Chenopodium type	present	present	_
Fabaceae	present	_	_
Filipendula	present	_	_
Apiaceae	present	_	_
Potentilla type		present	_
Rumex indet	present	present	present
Plantago lanceolata	_	present	_
Succisa	present	_	_
Circium	_	_	_
Asteroideae	present	present	_
Serratula type	_	_	_
Lactuceae indet	4	present	present
Cyperaceae	2	4	1
Poaceae	17	10	9
Cereale indet	_	present	_
Hordeum group	_	present	_
Utricularia	_	_	_
Mentha type	_	_	_
Polypodium	_	present	3
Pteridium	_	present	5
Dryopteris type	4	present	17
Dryopteris filix-mass	present	present	_
Sphagnum	present		_
Total	**95**	**96**	**104**
Trees	15	11	21
Shrubs	53	67	45
Herbs	27	16	10
Spores	5	6	24
Total	**100**	**100**	**100**

Table 3.1 Pollen analyses from palaeosoils beneath the ‘early’ (T4) and ‘main’ (T1 and T2 phases of the field system on Whitmoor Common, Worplesdon

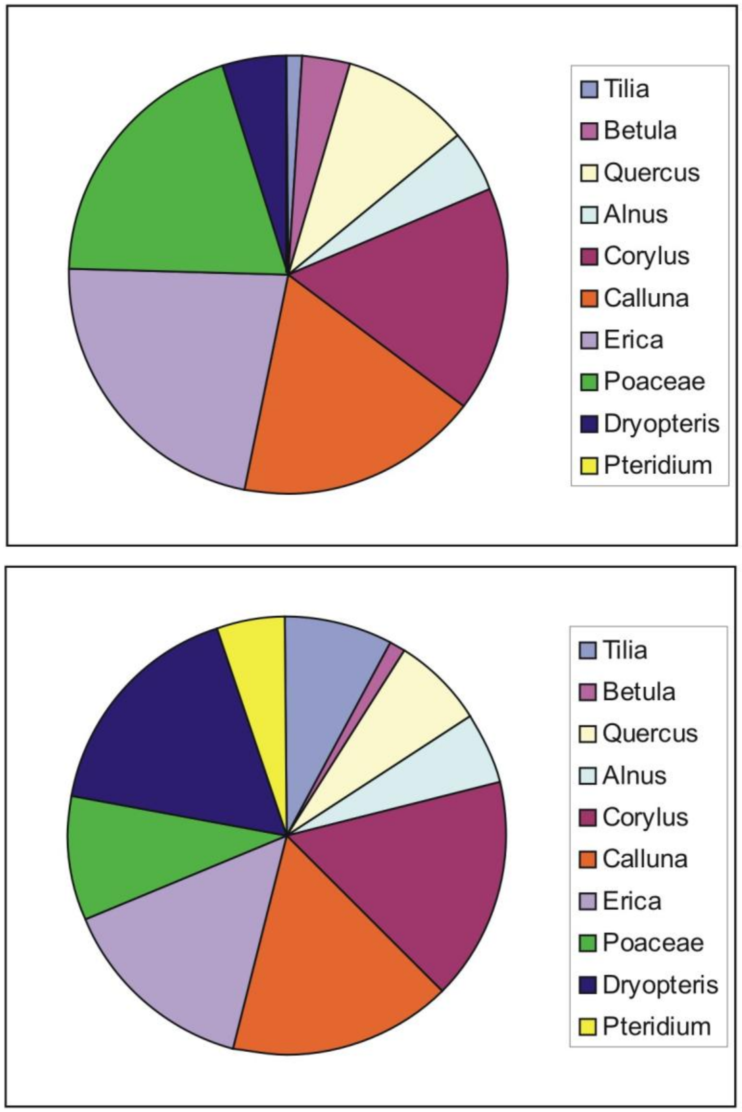


Figure 3.8 Pollen (%) from samples taken from palaeosoils beneath the 'early' (top) and 'main' (bottom) phases of the field system on Whitmoor Common

There is little variation in the pollen content of the palaeosoils taken from below the banks of the two phases of the field system. All show that, although the land supported a tree, shrub and grass rich vegetation prior to construction of the field system the process of podzolisation had already started. However, the replacement of a portion of the *Poaceae* pollen by spores from *Dryopteris* and *Pteridium* suggest further deterioration in fertility between the construction dates of the two phases. Samples taken from below banks of the main phase of the field system (T1 and T2) showed that they had been built in an environment of mixed deciduous woodland with a hazel under-storey, but with large open areas where the vegetation was dominated by a mixture of grassland species and heathers. Pollen from *Hordeum* (barley) indicated arable farming and broken ground which would have supported the ruderal weeds *Rumex* (dock) and Lactuceae (dandelion-like plants). Areas of shorter, possibly grazed, turf are indicated by the presence of *Plantago lanceolata* (ribwort plantain), *Potentilla* type (possibly tormentil or cinquefoil) and Asteroideae (daisy). The presence of Cyperaceae (sedges) suggests damp ground in the vicinity as do the occurrence of *Filipendula* (meadowsweet), *Ranunculus* type (possibly buttercup), *Succisa* (scabious) and spores from *Sphagnum* although the dry loving species Caryophyllaceae (pink family) was also present. Tree species present included *Tilia* (lime) which requires a base-rich soil (Keith-Lucas 1994), indicating partial survival of a fertile brown earth but podzolisation is indicated by high percentages (over 20% in most samples) of *Calluna* (heathers) and *Erica* (heaths) together with *Pteridium* (bracken).

3.6.1.3 Discussion

Despite the belief that the degradation of brown earths to the present podzols has an anthropogenic origin, and the not infrequent finding of signs of agriculture on land surfaces beneath Bronze Age barrows, few prehistoric field systems have been located on sandy heathland in this country. The standing earthworks on Whitmoor Common are the most complete example as yet recognised. Of those known there is an apparent bias towards sands derived from superficial Eocene and Pleistocene deposits rather than those from greensand of the Cretaceous period – given the occurrence of prehistoric barrows in both areas and the evidence from pollen analysis of deposits in Ockley Bog on Thursley Common, Surrey of cereal cultivation (Graham *et al* 2004), this bias may be artefactual. Both areas, though marginal in modern agricultural terms, have been subject to activities likely to have destroyed above ground archaeological evidence. The greensand ridge, particularly between Guildford and Dorking, was clear felled to provide fuel for industries in the Tillingbourne valley during the 16th century if not before (Brandon 1984). This activity took place at the date before note was likely to have been made of any archaeological remains and commercial forestry since will have led to further damage. By contrast, the superficial sands and the extensive heaths in the west of Surrey were primarily used for grazing and the more destructive military use largely occurred at a later period, mainly in the 19th and 20th centuries (English 2004; 2005); 'ancient' earthworks are likely to have been recorded by that date.

Here, the podzolisation process was under way by the middle of the 2nd millennium BC. It is not known whether ploughing is necessary to initiate this process, or if trampling by stock is sufficient. Earlier activity is evidenced by the presence of a few worked flints of probable Mesolithic and Neolithic dates and podzol development may have started during these earlier periods. Woodland hunters would recognise changes in the vegetation resulting from abandoned clearances as evidence of earlier communities (Field 2004a) whilst Neolithic farming, whether agricultural or pastoral, is likely to have resulted in clearings in use or in successive stages of regeneration, as much here as on the more intensively studied chalk downland (for example Allen 2000). The dating, longevity and degree of permanence of this earlier activity remains unknown but the land would have been known and understood as a patchwork of significant locales and links between them, a changing patchwork probably already many centuries old when the barrows and the first field system came to be constructed. The presence of *Tilia* pollen, however, suggests the presence of at least semi-permanent woodland – the decline of this species being strongly associated with clearance (Drummond-Murray *et al* 1994; Sidell *et al* 2000; 2002). It is inconceivable that the vegetational change, involving the invasive species *Pteridium* with *Erica* and *Calluna*, was not observed at the time, and unlikely that the implications for crop yield were not appreciated, yet the expenditure of effort involved in creating the field system was deemed necessary.

Although analysis of the palaeosoil gives a *terminus post quem*, not a construction date, a Middle Bronze Age date for the first phase of boundaries seems likely. Adaptation of these systems is now recognised and the new layout could observe and respect or, occasionally, ignore that of earlier land use (Bradley 2002, 76-78). The second phase field system was constructed on a different alignment although some at least of the banks of the earlier fields were visible. On Dartmoor a number of systems were constructed with their main axes perpendicular to rivers (for example Johnston 2005), and here the second phase bears the same relationship to the stream crossing Whitmoor Common. It may be that the labour needed to reconstruct a field system reflected practical concerns, particularly access to water, but it might also represent a response to a new, or different, cosmology and these aspects will be further discussed.

One of the boundaries was of some complexity, comprising a bank ditched on either side. The vertical sides of that bank would have been unlikely to survive without support and the presence of triangular contexts of pebble-free sand on either side may indicate that it was retained by a permeable material, possibly hazel wattle, through which soil might trickle. Such a construction has been suggested as revetment for sand used to cover a turf stack barrow (barrow III) on West Heath in Sussex (Drewett 1976) where similar contexts of filtered sand were observed. The concentration of pebbles in the upper part of the bank and, particularly, on the top, may indicate an attempt to prevent wind erosion of the exposed surface but it is more likely to represent the effect of some of the light soil matrix having slipped down the side of the bank. The additional work required to construct and maintain this boundary hints at some greater importance within the tenurial system, perhaps a division between different familial groups – division of land using boundaries set at right angles to the stream would allow each holding access to this essential resource.

The slight nature of all these banks would preclude their utility as effective boundaries unless they were surmounted by a fence or a hedge; the stake hole located in a bank from the earlier phase may represent such a structure but could equally easily have been used as a sighting device when the system was laid out. No other evidence was recovered and although truncation through erosion is likely on this geology, the soft nature of the soil would have necessitated deep stake holes for any fence – hedging appears the more likely solution given pollen evidence that hazel, in particular, could survive on the soil at the time. However, a non-exclusive boundary to mark divisions of use or responsibility is possible.

The linear ditch may have served as a route through which stock could be taken to water without their straying into arable fields on either side, or as access for any whose holdings did not front the stream. It could either have been part of the original design of the field system or imposed on that system, but if the latter no individual fields appear to have been slighted and the system presumably remained in use. However, the limited evidence hints that the line originated as a field boundary. North of the stream the line of the bank on the east side of the 'Gryme's diche' continues as a field boundary but there is no hollow-way or western bank. South of the stream three west / east boundaries appear, albeit now damaged, aligned on both sides of the ditch and may have been cut when a track was imposed.

At Perry Oaks, west of London, major north / south boundaries of an Early Bronze Age / Middle Bronze Age field system later acquired a second parallel ditch, thus creating a trackway and , in the opinion of the authors, dividing the land into identifiable holdings (Framework Archaeology 2006, 105-112). If the same situation pertains here, the 'Gryme's diche' may have been constructed when more fields were enclosed to the south. In this scenario the west / east trackway located at the southern edge of the surviving field system may have divided two blocks of fields and the 'Gryme's diche' allowed access to the stream for these southern fields.

The second phase of this field system lends itself to a highly speculative reconstruction of land holdings (fig 3.9). One holding (red), bounded by the a trackway to west, the stream to the north and the complex boundary to the east, would place the size as approximately 17ha. To its west two further holdings (blue and green) might be suggested by the continuous north / south boundaries, and a further track to the south of one (blue) and would enclose areas 18.8 and 15ha respectively. These are of a similar size to those of medieval virgates which in Surrey range from a generality of 5.3 to 6.5ha (13 to 16a) but could be as large as 24.3ha (60a) on poor land like heavy Wealden Clay (Blair 1991, 72). If the virgate was designed to support a familial unit could the putative holdings on Whitmoor Common have been allocated with the same intent?

Whether they would have been used contemporaneously or sequentially remains open to question. It is, however, worth noting that despite the labour expending in creating the main phase of this field system, it cannot have been used intensively since the sand banks of the earlier phase still survive. The pollen analysis showed some slight evidence of the presence of barley but a single episode of cross-ploughing of the later fields is likely to have destroyed the boundaries of the earlier, and spade digging of small plots avoiding both sets of earthworks is a possibility.

Figure 3.9 Hypothetical division of field system on Whitmoor Common, Worplesdon into small, possibly 'familial' holdings

This site hints at a complexity of land use over several centuries but once the soil structure deteriorated to the present podzol the area was abandoned other than for rough grazing, becoming the 'zone of preservation' (Taylor 1972) within which these remarkable earthworks could survive.

3.6.2 The Mole Gap

3.6.2.1 Background

Four archaeological interventions have taken place in recent years in the Mole Gap. Land on the west of the river was subjected to landscape survey as the Norbury Park Project, a joint undertaking by Surrey Archaeological Society and Surrey County Council between 1989 and 1993 (Dyer 1996). On the east, Mickleham Downs was the subject of a successful proposal gaining it Area of Special Historic Landscape Value status (Currie 2000). Finds made by a metal detector user and reported to the Finds Liaison Officer for Surrey resulted in excavation of a hoard buried within a flint cairn close to the downstream swallow holes in Norbury Park (Williams 2008; see appendix 1 and chapter frontispiece). The author was involved in all this fieldwork and also undertook a more detailed survey of the portions of the field system to the east of the Mole on Mickleham Downs.

The river Mole cuts a steep-sided valley through the North Downs with river cliffs at various points on either side. There are three dry side valleys, the Polesden valley to the west and the Cherkley and Headley valleys to the east, as well as several smaller combes. Detailed location, geology and topography are shown in figure 3.10. There are many swallow holes, some still active, both in the bed of the river, and in the pasture on either side and in Nower Wood. Before the swallows were capped the river would disappear in times of drought, reappearing downstream as permanent springs.

The earliest recognition of a prehistoric field system on Fetcham Downs, to the west of the Mole, appears to have been by AHA Hogg in 1936 but unfortunately neither record nor source for the quotation ‘it was a prominent system with numerous lynchets’ (Hanworth 1978) can now be found. On Leatherhead Downs a sketch-plan of a field system incorporating field observations and information from aerial photographs was apparently prepared but this too appears to have been lost. Described are ‘a small group of typical Celtic fields, laid out regularly on both sides of a fieldway which runs south-west from the north-east corner of the Downs’ (Hope Taylor 1949). Aerial photographs reveal numerous disconnected field-banks scattered over the whole area of Leatherhead Downs, but those on Mickleham Downs are not visible. There is little doubt, however, that the lynchets on

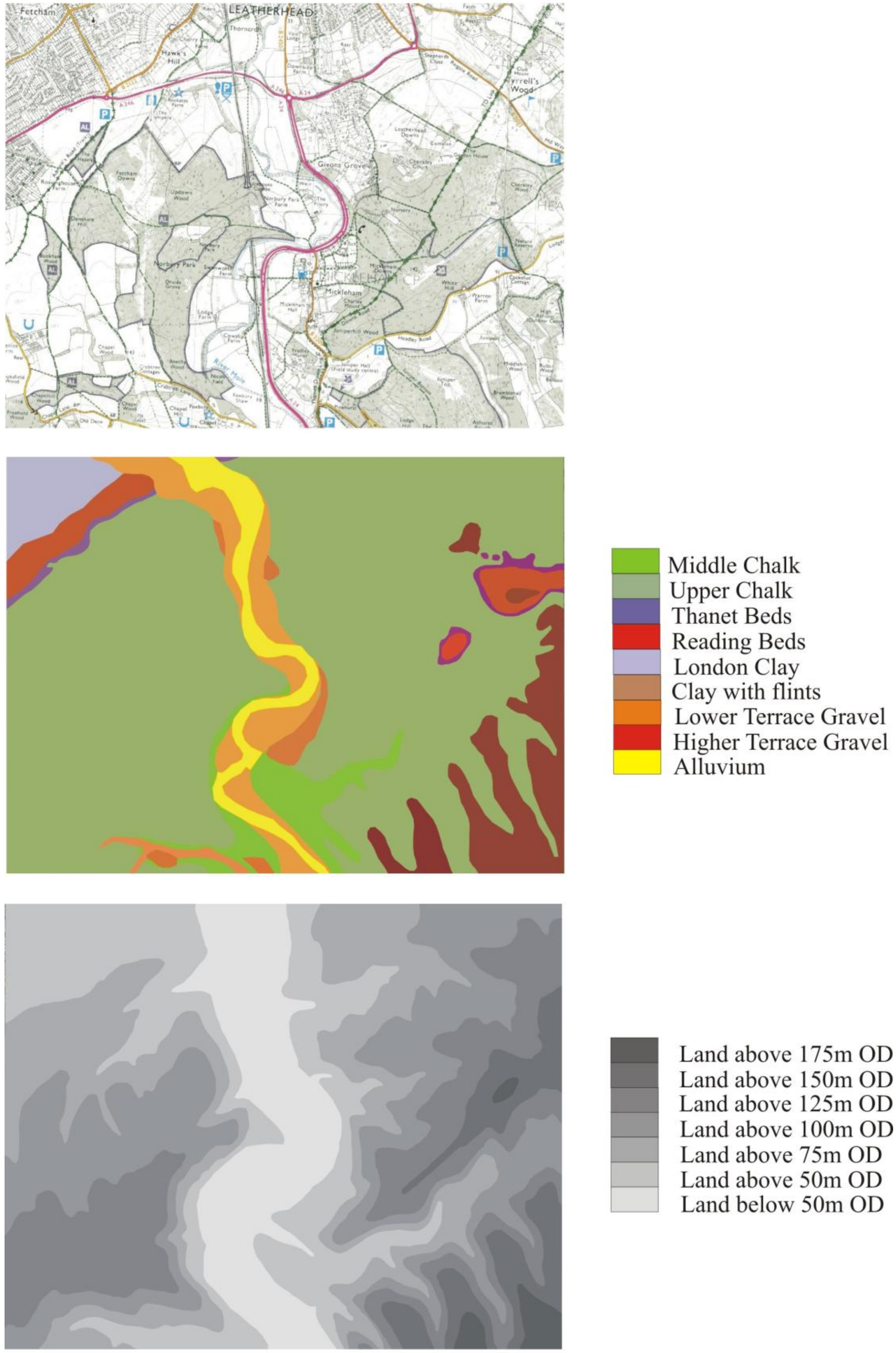


Figure 3.10 Location (top), geology (middle) and topography (bottom) of the Mole Gap

Mickleham Downs, recorded by Messrs Frere and Hogg (1944/5), were part of this larger system. On the Long Ride a small portion of what could then be observed was published and ascribed, from pottery evidence, an Iron Age or Romano-British date. The area had been ploughed as part of the *'Dig for Victory'* campaign during World War 2 and the position of the lynchets could then be seen as lines of large flint nodules.

Excavation of a lynchet on the *Shepehale* (Currie 2000) showed that there was no structure underlying the earthwork but a series of plough marks, thought to be prehistoric ard marks, were found cutting up to 10cm into the chalk bedrock. The ard marks gave evidence of cross ploughing but the visible lynchet appeared to have been created by ploughing uphill until the point of the ard dug into the slope, loosening the chalk downslope and leaving a step in the surface. It is difficult to understand how this could have been achieved if there had been any permanent barrier in place since this would have not allowed the space for a means of forward traction.

No signs of any barrier were seen on the top of the lynchet, and, although these could have been lost to subsequent erosion, the ard marks show that the point had been driven into the chalk with considerable force, possibly indicating the use of a rip ard to try to obtain some depth of topsoil on this high point of the downs. All the pottery recovered came from a single context and is of mixed date; the prehistoric portion is further described below.

3.6.2.2 Fieldwork

The dip-slope of the downs on both sides of the river is still under the plough and here portions of the field system are visible on aerial photographs which have been transcribed (by Rog Palmer). The earthworks, visible in areas above the present and, probably, historic arable margin have been subjected to analytical survey. Minor excavation was undertaken on the Long Ride and pottery recovered during fieldwalking undertaken as part of the Norbury Park Project (Dyer 1996) and from excavations in the *Shepehale* (Currie 2000) and on the Long Ride has been re-assessed.

3.6.2.2.1 Analytical survey

Only the Long Ride and small areas on the top of Fetcham Downs are now clear of scrub and woodland, a situation exacerbated by adventitious vegetation covering trees felled by the Great Storm of 1987 which devastated this narrow valley, and it is recognised that some zones were impenetrable and in others minor earthworks may have been missed.

Results from the analytical survey, together with the aerial transcripts, are shown in figure 3.11. To the west of the Mole on the dip-slope of Fetcham Downs the boundaries of a series of small sub-rectangular fields are visible as soil marks, with their main axis running approximately 30^0 west of north. This alignment is also observed by lynchets crossing the summit of Fetcham Downs. Farther south a number of lynchets follow the line of the contours on the steep slope above Norbury Farm.

To the east of the Mole a series of short lengths of parallel lynchets cross the Long Ride on an alignment, again, of approximately 30^0 west of north. The majority of these earthworks are very slight but the larger ones correspond with the positions of those noted during their reduction by ploughing in WW2 (Frere & Hogg 1944/5) and it is possible that two phases of field system existed in this area. To the north of this, on the dip-slope of Leatherhead Downs, the same alignment is continued by a number of linear soil marks indicating the presence of further small sub-rectangular fields. None of the areas surveyed produced sufficient information for the sizes of individual fields to be assessed although, where visible, parallel boundaries tend to lie 70-80m apart.

3.6.2.2.2 Excavation

A series of test pits were excavated on the Long Ride in an area where horses' hooves were eroding the side of a track revealing Romano-British pottery. Some 20, 1m x 1m, test pits placed in a grid, excavated only to the top of compacted soil, and a 2m x 2m trench located over the area of maximal damage, produced a large amount of Romano-British pottery dating from the 1st to the 4th centuries and a small amount of prehistoric pottery. Only the latter is described here.

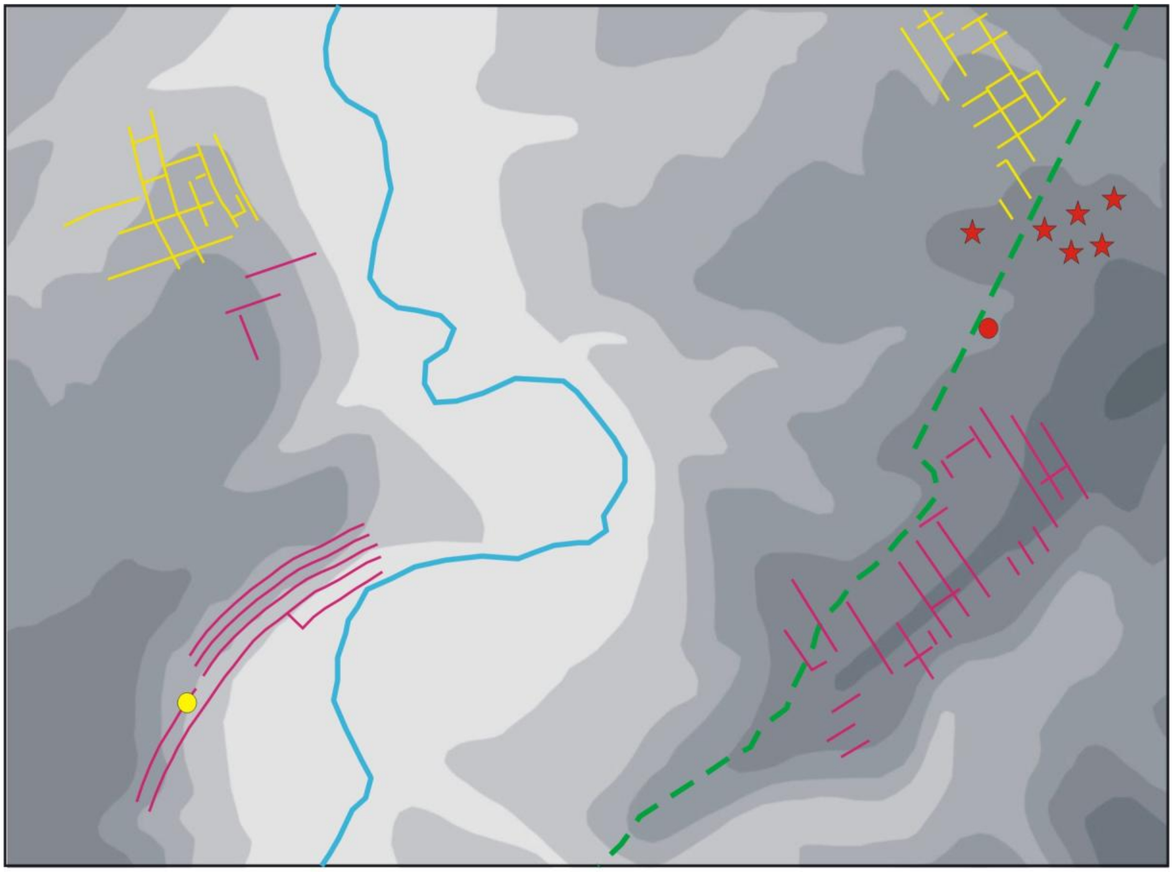


Figure 3.11 The Mole Gap showing positions of field boundaries visible as earthworks ( ) or on aerial photographs ( ), barrows ( ), burial ( ), metalwork hoard ( ) and the Roman road, Stane Street ( ). For details of topography see figure 3.1

3.6.2.2.3 The Pottery (by Mike Seager Thomas)

The full details of this report can be found in Appendix 1. In summary, the pottery assemblage from the *Shepehale* (Currie 2000) contained few diagnostic pieces but a general Middle Bronze Age / Late Bronze Age could be assigned. That recovered during excavation of test pits on the Long Ride was all from the first millennium BC, including some definite Late Bronze Age and Middle Iron Age, but mostly probably Late Bronze Age/Early Iron Age: Pottery recovered during fieldwalking west of the Mole included 8 sherds, possibly from the same vessel, of a medium to coarse flint tempered fabric dating to the Late Bronze Age.

3.6.2.3 Relative and absolute chronology

- None of the field boundaries within the Mole Gap can be dated with certainty and the view that the system is prehistoric in origin relies on relative chronology, morphology and the presence of Late Bronze Age and Early Iron Age pottery in relevant, but not secure, contexts. The caveats expressed above pertain and a summary of available evidence is given below.

- To the west of the Mole the modern fields attached to Bocketts Farm are probably those associated with a late 13th century holding (Blair 1977) and may well have remained in arable use for much time since, and the sub-rectangular fields visible as soil marks, on a different alignment, clearly pre-date these.

- One of the contour lynchets west of the Mole was overlain by, and must therefore predate, a flint cairn containing objects dated to between *c*1150-1000BC (Williams 2008).

- On the east side of the Mole the field boundaries on the dip-slope of Leatherhead Downs, visible on aerial photographs, appear to underlie, and therefore predate, the strips in one of the medieval open fields belonging to Thorncroft Manor, Leatherhead.

- The earthworks of field boundaries at the western end of the Long Ride can be seen to underlie the Roman Road, Stane Street (a situation confirmed by excavation at Thirty Acres Barn, some 2km north of Leatherhead Downs [Fasham & Hanworth 1978; Hall 2008]).
- The presence of ard marks and Late Bronze Age/Early Iron Age pottery attest activity in the area, although that does not, of course, necessarily provide dating evidence for the field system.

Survival of boundaries as earthworks on the top of the downs on both sides of the river probably results from lack of later ploughing and protection by medieval and later sheep grazing, evidenced from the 14th century in documents produced during a legal dispute in

1305 about rights to Fetcham Downs (Blair 1978, no 9), and by the place-name *Shepehale*, current in 1303, on Mickleham Downs (Blair 1984, no 261).

It may be relevant that the orientation of strips in the open fields of Headley parish to the south, and of Leatherhead to the north of Mickleham, is not dissimilar to that of the probable prehistoric field boundaries on the Long Ride and the *Shepehale* (Currie 2000, 12).

Any temporal relationship between these fragments remains to be verified but if it were to be proven then the field system, on either side of the river, might cover an area of some 3sq km. However, a major caveat must be entered regarding ascribing a single date to these disparate areas. Settlements in, or close to, the Mole Gap include the Early Iron Age farmstead at Hawk's Hill (Hastings 1965), an Iron Age and Romano-British settlement on the Long Ride, Mickleham (Frere & Hogg 1944-5) and a further Romano-British settlement at Park Corner (Dyer 1996); any or all of these and possibly others not yet recognised may have created or utilised any part of the system/s thus masking information dating to the Bronze Age.

3.6.2.4 Discussion

In contrast to the situation in Sussex, where at least 23% of an area on the South Downs north of Brighton bore standing earthworks prior to World War 2 (Holleyman 1935), few prehistoric field systems are known on the chalk of the North Downs in Surrey. A system on Farthing Down where the lynchets are overlain by Anglo-Saxon barrows may well be prehistoric in origin (Hope-Taylor 1949); here the fields lie on either side of a trackway which appears to be integral to the design. It seems at this stage unlikely that this finding is completely incorrect – whilst much of the dip-slope of the North Downs within the study area has been under the plough since the medieval period, and remains so, that degree of ploughing did not render field systems invisible to aerial photography in the Mole Gap. Additionally, detailed field survey of the Sheep Leas, West Horsley, and Westhanger, Coombe Bottom and Netley Plantation, Shere and Gomshall, all on the North Downs between Guildford and Dorking, failed to find any earthworks suggestive of prehistoric activity in areas of grazing where preservation might be expected. Whilst the degree of clay-with-flints cover and the northern aspect of the gentle dip slope might militate against early agriculture, this finding still remains surprising. Although it has been said that prehistoric farmers avoided this type of soil (Moffatt 1988) work in Hampshire and Sussex has shown field systems extending onto superficial clay-with-flints cover over chalk (see chapters 8 and 9).

However, the Mole Gap shows evidence of at least intermittent activity over a long period. The barrows on Leatherhead Downs and Boxhill are assumed to date to the Early Bronze Age whilst one of the vessels from an inurned cremation found in 1868 but now lost (HER169) is probably from the Middle Bronze Age. Pottery recovered during the work described here dates from the Late Bronze Age, Early Iron Age and Romano-British period whilst earlier work on Mickleham Downs found some thought to be Late Iron Age (Frere & Hogg 1944/5). The gap cut through the North Downs provides easy access to both the clay of the London Basin to the north and to the greensands and clay of the Weald to the south; such an ecotonal zone might well have attracted settlement.

The presence of swallow holes may have been an additional factor. The story is told locally of the air raid warden for Mickleham during World War 2 who was shaving one morning. Looking in the mirror he saw behind him a tree descending out of view. When he turned round he realised that an unknown swallow hole had opened in his lawn and engulfed a mature oak. The reaction to such a happening in the Bronze Age can only be imagined – although these events would be relatively uncommon, folk memory within an oral tradition would ensure that the story was told and retold. Shafts have long attracted attention; on Cranborne Chase a natural shaft which had been open since the early Mesolithic period acquired a symbolic capping during the currency of Beakers (Green & Allen 1997) and at Charterhouse-on-Mendip deliberate placement within a swallet (swallow hole) of items from the Late Neolithic or Early Bronze Age including a Beaker, a flint dagger, bone pin and antler spatula and five slate ‘sponge finger stones’ (Levitan *et al* 1988) are just two examples. Use of shafts for burial and deposition occurred throughout prehistory and encourages the belief that such places were seen as portals to the underworld. An association between barrows and swallow holes can be seen, among other places, on Bronkham Hill, Dorset and here Tilley (1994) says that 'It is not hard to imagine that during the Bronze Age these circular sink holes were conceptualised as sites of ancestral activity: the places where ancestors entered and exited from the land into a sea of the underworld existing below'. Together with the habit of the river of disappearing underground, this surely made the Mole Gap a 'special' area perhaps necessitating particular care to appease the river spirits, though not sufficiently dangerous to prevent use of the land for food production.

3.7 Discussion of land use in Central Surrey during the 2nd and early 1st millennia BC

The relative lack of known evidence for field systems on the chalk of this area has already been mentioned and, similarly, there are few barrows in Surrey as a whole when compared with Sussex (Field 1998). Nevertheless, copious amounts of worked flint of the period and the increasingly regular finding of mainly Late Bronze Age pottery and, less frequently, features indicative of Bronze Age settlement, during developer funded interventions on both London and Weald Clay in Surrey as a whole, attest the presence of communities.

The locations of the known barrows within the study area evidence a concern for visibility but also for water sources. Of those on the Hogs Back two known and a possible third visible only as a crop mark cluster at the top of a nivation hollow (English in press), a position repeated elsewhere (Tomalin 1993; McOmish *et al* 2002, fig 2.24[b]) at the exact middle of the ridge, whilst one suggested as forming the focus for an Early Anglo-Saxon cemetery on Guildown (Reynolds 1999) would have overlooked the Wey from the eastern end of the ridge. Those in the Mole Gap are again clustered, in groups on the sides of dry valleys overlooking the Mole and its swallow holes.

However, the number of barrows on areas of heathland suggests an early interest in the fertile brown earths which would then have been available. The burial mounds appear on heaths derived from both superficial deposits and greensand although field systems only appear on the former. The Abinger Transect fieldwalking programme recovered large amounts of Mesolithic and Neolithic material from the dip-slope of the greensand (Field *et al* 1987) but notably less evidence of activity in later prehistory (Dave Field pers comm.), suggesting that deterioration of the soils had already reduced fertility and therefore utility. Neolithic clearance and settlement of the High Weald has been postulated as underlying major colluvial deposition in the Eastern Rother valley in Sussex (Scaife & Burrin 1987), and a similar picture of the preferential use of soils derived from sandstones and superficial sandy deposits seems to exist in Surrey.

The coaxial field system on Whitmoor Common was constructed after the podzolisation process was underway as, indeed, were the barrows (Ellis 1996, 66-67). North of the area under study a bell barrow at Ascot with a radiocarbon date of 1480 ± 70 cal BC (Bradley & Keith-Lucas 1975) was also constructed over a podzol. Work on acidic lithologies in the south-east of Britain indicate a range of dates for the first appearance of *Calluna* sps between 3873 ± 29BP (range 4400 – 4150 cal BP at 2σ, 2450-2200 cal BC) on Bagshot Heath in Surrey, 2812 ± 36BP (range 3000 – 2800 cal BP; 1050 – 850 cal BC) on Conford Heath in Hampshire, both these examples lying on Eocene sands, and 1565 ±30BP (range 1550 – 1400 cal BP; 400 – 550 cal AD) at Hurston Warren in West Sussex on Lower Greensand (Groves 2008). At all three sites woodland with small areas of heathland vegetation were dated to the Early Bronze Age / Middle Bronze Age but after the widespread appearance of developed heathland the areas were kept open by grazing on Bagshot Heath and Hurston Warren and by repeated episodes of burning at Conford. Recent work has located a possible field system underlying the rampart surrounding the greensand hillfort on Hascombe Hill (Hooker & English 2009) and post-Deveral-Rimbury tradition pottery has been found among excavated collections both there and from Holmbury Hill (Seager Thomas 2010).

Deterioration of these sand based soils may have resulted in use of the chalk for agriculture but in Surrey much of the North Downs are covered by superficial strata of difficult and infertile soils, particularly clay-with-flints, Netley Heath and Headley Heath Deposits. At Juniper Hall in the Mole Gap through the North Downs in Surrey, molluscan analysis from valley bottom deposits showed a high proportion of shade loving species preceding a downwash of chalk debris as erosion products moved down the steep valley sides (Barrett & Chatfield 1978). Given the coaxial system surveyed on the Long Ride, directly above Juniper Hall, this may indicate a lack of clearance prior to construction of the fields. Middle Bronze Age and Late Bronze Age activity on London Clay has been located at Manor Farm with evaluations yielding environmental samples which gave a radiocarbon date of 1416-1292 cal BC (Howe *et al* 2010) and Late Bronze Age pottery (English & Davies 2000). At Christ's College School, Guildford a pit containing Middle Bronze Age pottery, and post-holes and ditches dated to the Late Bronze Age were located (Lambert 2008). It may well be that the small-scale geology of the study area, with only small, discrete areas suitable for agricultural development, meant that the impetus necessary for creation, regulation and use of numbers of large co-axial field systems was limited to farther north in the Thames Basin or south on the Channel coast (Framework Archaeology 2006; 2010; Yates 2007, 29-36).

Chapter 4

Land use near Nine Mile River, Wiltshire during the 2nd and early 1st millennia BC

Aerial photograph of Brigmerston Down, Wilts showing linear ditch complex (bottom left), enclosed settlement (centre left) and field system within current arable field (from Google Earth)

4.1 Summary

Two areas of enclosed fields on Brigmerston and Milston Downs, have been subjected to limited analytical survey utilising transcriptions of aerial photographs undertaken as part of the NMP. Those on Brigmerston Down resolved as a small area of aggregated fields set around two conjoined enclosures all overlying a rectilinear field system. The sequence on Milston Down was less clear due to the imposition of modern military ranges but may have been similar. The vicinity displays complex and long-lasting use within the Stonehenge landscape.

4.2 Definition of the study area

The study area lies on the chalk massif of Wessex, on the Bulford Ranges, part of the Salisbury Plain Training Area. Some 28 sq km, bounded by grid line SU43 to the south, SU19 to the west, SU23 to the east and SU50 to the north, forms the core to this area. Since access is extremely limited only a small proportion, comprising two areas where the earthworks of parts of field systems appear practicable for analysis, was selected for detailed fieldwork. However, these surveyed systems will be set within a wider context through use of published fieldwork and reference to the Wiltshire Historic Environment Record.

4.3 Rationale for selection of the study area

- Military use of Salisbury Plain has preserved a wide range of prehistoric earthworks as standing monuments and this may enable some understanding of the relative dating of different phases of the field system and its adjacent settlement sites and linear ditches
- The Nine Mile River valley and its surrounding area has already undergone extensive (McOmish *et al* 2002) and intensive (Bradley *et al* 1994) survey and this work can be utilised in the present study
- Aerial photographs of the Salisbury Plain Training Area have been transcribed as part of the National Mapping Programme and made available through the kind offices of Dr David Field
- Permission was granted for access during the summer closure period for fieldwork within the danger area of Bulford Ranges

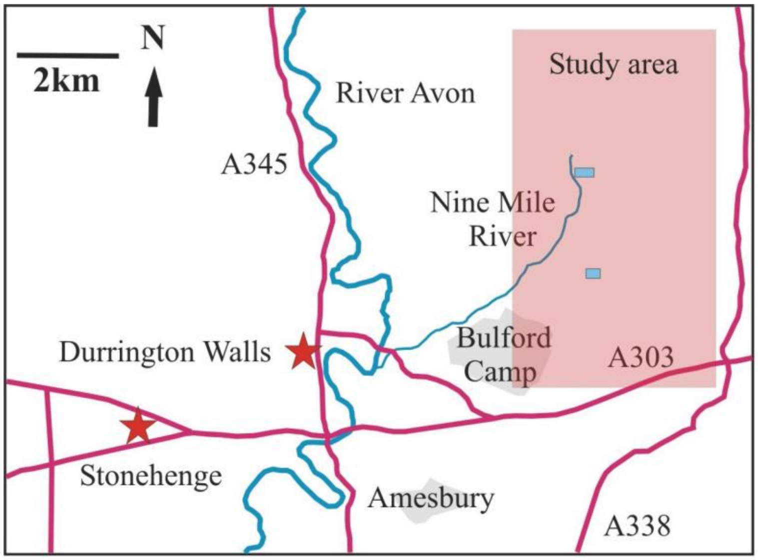


Figure 4.1 Location (left), geology (below left) and topography (below right) of the Nine Mile River study area

- The lack of Romano-British pottery as a significant component in any of the collections recovered either from the surface or at excavation encourages the belief that extensive adaptation during that period is unlikely

4.4 Geology and topography of the study area

The location, geology and topography of the study area are shown in figure 4.1. Relevant points of note are:

- The generally southern aspect of the Nine Mile River valley
- The relative lack of variation in the geology of the area and, from that, a lack of diversity in the resource base

The 'closure' of the southern end of the valley by the high ridge of Beacon Hill

4.5 Evidence of Bronze Age activity in the study area

Several of the sites in the Nine Mile River valley were investigated at an early date. A number of barrows at Bulford and Brigmerston were excavated in the early 20th century (Hawley 1910) and secondary burials characterised by Deverel-Rimbury tradition pottery were noted. An early and influential study of linear ditches led to their being used to define valley-based Iron Age territories (Hawkes 1939).

More recently excavation in advance of roadworks (Bellamy 1992), molluscan analysis (Allen 1992) and extensive work undertaken as part of the Stonehenge Environs project (Richards 1990) have added information about the general area. Molluscan data from Copehill Down (approximately 10km NW of Stonehenge) suggests the presence of broad-leaved deciduous woodland during the Late Neolithic period (Evans & Vaughan 1985) and several other sites around Stonehenge produced similar data (Evans 1984). However, the density of round barrows strongly suggests that by the Early Bronze Age much of the area had been cleared of woodland cover and indications of woodland and scrub regeneration at a number of sites indicates a complex pattern of shifting clearance and abandonment (Allen 1992). A rather different view has suggested that some areas of the chalk downland of southern Britain may never have been wooded (Allen 2000; Allen 2002) but clearly field systems are only likely to have been constructed in areas which did not bear woodland.

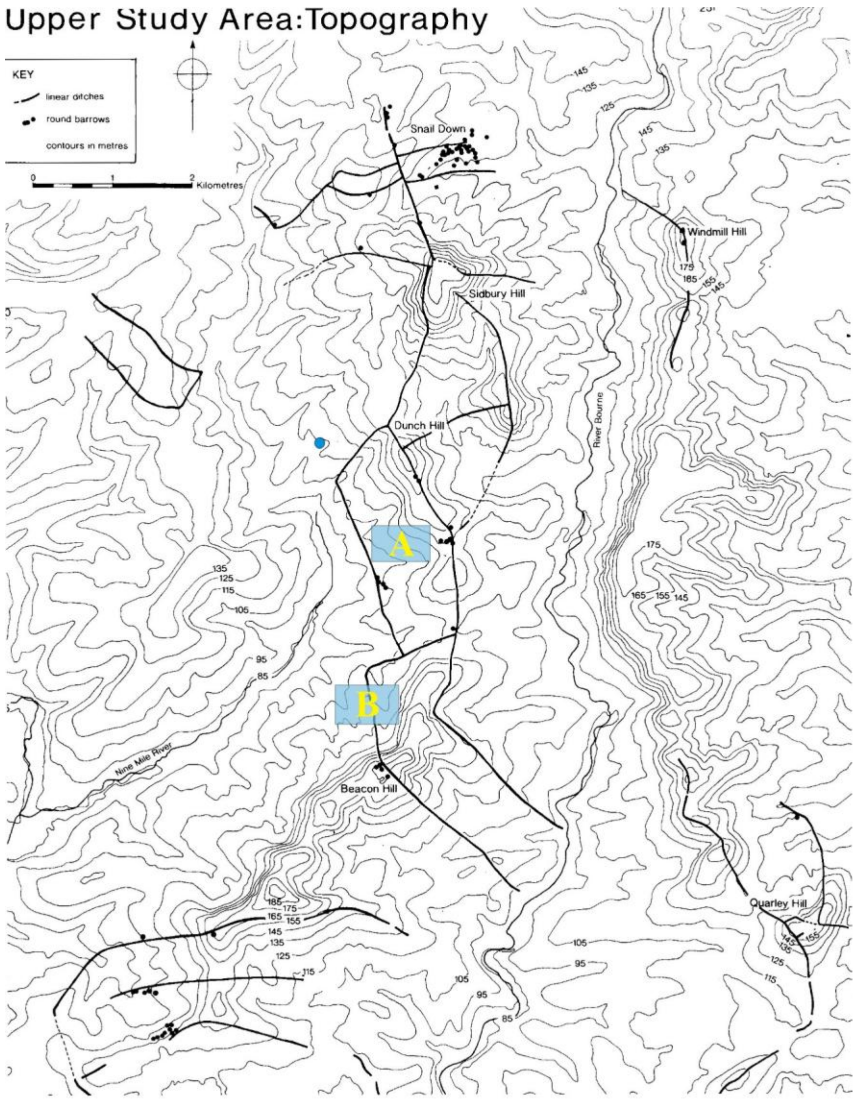


Figure 4.2 The Upper Study Area of the Wessex Linear Ditches Project showing position of linear ditches confirmed by an auger survey and excavation (from Bradley *et al* 1994, fig 23). Area of Brigmerston Down (A) and Milston Down (B) and the position of site LPD104 (•) are marked.

The Wessex Linear Ditches Project was devised to investigate division of the land during the Late Bronze Age into relatively large areas bounded by large scale earthwork bank and ditch complexes (Bradley *et al* 1994). However, a large amount of information about earlier periods and, in particular, the changing pattern of land use over time, was also recorded, and this project above all provides a context for the study presented here. Their Upper Study Area (fig 4.2) comprised an area some 18 x 11km, including Sidbury hillfort and a large number of linear ditches, settlement sites, round barrows and areas of field system, including both those under consideration here. What follows is a resumé of the findings which relate to the land under study, Brigmerston Down and Milston Down, using the site coding from that report. Percentages only relate to the relative proportions of Deverel-Rimbury tradition and Late Bronze Age pottery and do not include finds from other periods unless stated.

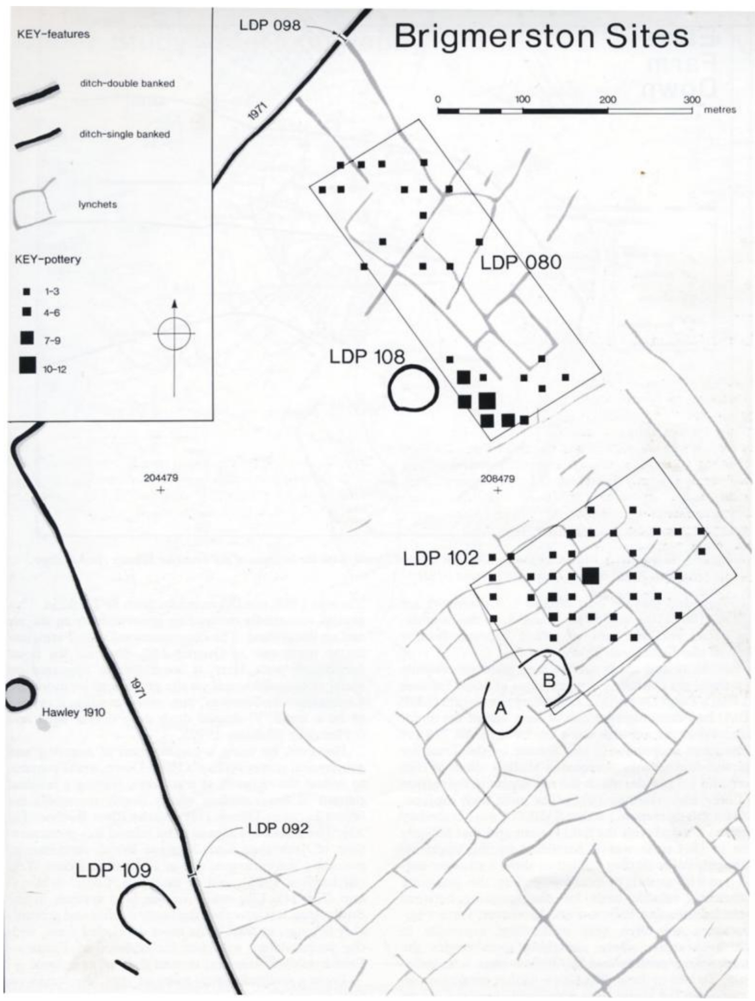


Figure 4.3 Plan of Brigmerston Down with the position of enclosures LPD108 and 109, soil mark sites A and B, the location of excavations LPD 092 and 098, and surface collection sites LPD080 and 102, showing the relative density and distribution of Middle Bronze Age and Late Bronze Age pottery (from Bradley *et al* 1994, fig 21)

On Brigmerston Down (fig 4.3) two areas (LPD080 and LPD102), both of which overlay portions of coaxial field systems, were selected for surface collection of artefacts. Area LPD080, adjacent to enclosure LPD108, produced 79 sherds of which 4% were Deverel-Rimbury tradition and 90% Late Bronze Age, including All Cannings Cross tradition pottery, but no Romano-British pottery. Included in the Deverel-Rimbury pottery was the fineware FS: DR/5, a fabric whose ubiquity on sites up to 8km apart led to the suggestion of specialisation. Either the pottery derived from a single production site or was the work of an itinerant potter (Ellison 1980), or that the sharing of pottery fabrics between groups referenced complex and shared relationships (Barrett 1980). The enclosure (LPD108), adjacent to area LPD080, appears to have gone out of use earlier than the field system since the pottery assemblage from surface collection lacked any Early Cannings Cross ware sherds but, since that tradition represented only a small proportion of the pottery recovered, the lack may not be significant

Moving approximately 100m south-east further surface collection in an area of surviving fields overlain by two enclosures (LPD102) produced a pottery assemblage of 20% (by weight) Deverel-Rimbury tradition and 80% Late Bronze Age and also a very small amount of Beaker ceramic, but All Cannings Cross ware was completely lacking. The highest concentration of pottery did not coincide with the position of the enclosures (fig 4.3) suggesting a second locus, possibly either a settlement or a midden accumulation.

On the west side of the linear ditch (1971) a horse-shoe shaped enclosure (LPD109; fig 4.3) produced a rather different picture with 53% (by weight) Deverel-Rimbury tradition and 47% Late Bronze Age, mainly Plain Ware. A small amount of Beaker ceramic suggests activity during that period but the main period of occupation at this site appears to have originated during the Middle Bronze Age and may be associated with secondary burials in nearby Early Bronze Age barrows.

On the basis of the pottery two sites, LPD102 and LPD109, showed evidence of activity during the Beaker period but there then appears to have been a hiatus in occupation, although Early Bronze Age occupation foci may have lain outside the areas of surface collection and excavation. Only LPD109 produced a high proportion of Deverel-Rimbury tradition pottery but low amounts were also found at LPD080 and LPD102. All sites produced Late Bronze Age pottery and occupation into the Early Iron Age was indicated by findings of All Cannings Cross ware at LPD080, which was considered to have been occupied from the end of the Middle Bronze Age to the beginning of the 8th century BC.

The chronology of the settlement sites within the Northern Core Area derived from study of the lithic assemblage placed LPD102 as the earliest followed by LPD080, LPD081 and, latest, LPD081A. There was also an impression of a greater time depth for sites LPD102 and LPD080, both of which were to be included within the area bounded by linear ditch 1971, when compared with those excluded. Location of the flint procurement site LPD104 (fig 4.2) indicated that surface material from the Pleistocene river gravels was utilised.

Analysis of the pottery also allowed some discussion of social and cultural changes through the Bronze Age. In the Early Bronze Age and Middle Bronze Age there appears to have been close contact between the different communities with identical fabrics from both Beaker and Deverel-Rimbury fine ware assemblages being found on sites throughout the area. However, a different picture pertains to the Deverel-Rimbury coarse wares. Here individual wares have a more restricted distribution and appear to respect the position of the later linear ditch boundary. A contrast exists between contemporary sites LPD 080 and LPD102, inside, and Dunch Hill and Milston Down, outside, the bounded area. Although all the sites could have had access to the same range of pottery, cultural determinants resulted in different choices being made (Bradley *et al* 1994, 86-87).

The high proportion of Deverel-Rimbury ware associated with the horse-shoe shaped enclosure or, possibly, with an open settlement in the immediate area may result from its early abandonment when left outside, to the west of, the area bounded by linear ditch 1971. Further tenuous evidence that this settlement was abandoned at, or prior to, construction of linear ditch 1971 lay in the presence of two post holes, located at excavation (LPD092), beneath the banks of the complex. Despite admitted problems with the phasing, it was thought likely that they represented a structure related to settlement at LPD109.

A further type of site located during this study was the burnt mound. The investigators differentiated between small accumulations of burnt flint, sometimes found in pits, associated with settlement sites and interpreted as cooking holes and burnt mounds, which were located on marginal land, peripheral to settlements, and associated with rivers (*ibid* 130-131). Two of the former were found within the Northern Study Area (LDP 087 and

LDP 110), neither associated with the field systems under study. However, there are dense concentrations of burnt flint close to the Nine Mile River, including one associated with a D-shaped enclosure constructed of burnt flint close to the sources of the river (SU19904761).

The Wessex Linear Ditches Project took only a peripheral note of the field systems within their study area but examination of soils buried beneath the banks of linear ditch complex 1971 produced useful information about land use prior to its construction (intervention LDP092). The soil beneath the western bank (LPD092B) was a rendzina and this, together with molluscan analysis indicated that vegetation on the west side had been short-turfed grassland, possibly maintained by grazing. By contrast the soil buried beneath the eastern bank of the linear (LPD092C) was an unsorted plough soil and the snail species found were typical of a cultivated horizon. The secondary silts of the linear ditch contained *Trichia hispida* at levels up to 45% of the total fauna, suggesting a relatively moist and well-vegetated environment, which led to the suggestion that if arable farming did continue in the field to the east of the linear ditch then it was at a somewhat insignificant level.

The area between Brigmerston Down and a site at the foot of Beacon Hill, Milston Down, produced virtually no pottery. In contrast, and mainly on the floodplain and lower terraces, there was a marked concentration of burnt flint together with the only evidence of metal working found within the study area, a deliberately deposited hoard of axes and the flint procurement site (LPD104). This led the authors to suggest a different perception of the settlement areas and the regions beyond, which again predated formalised boundaries.

The settlement on Milston Down (LPD112) is located on the south facing slope of a slight spur to the west of linear ditch 1971 and thus later lay outside the bounded area. The area of occupation, as defined by surface collection of ceramic material, lay within a small barrow cemetery. The field system on the north facing slope of Beacon Hill, the second example from the Nine Mile River valley studied here, may have related to this settlement. The pottery included a few Beaker sherds with decoration which enabled them to be identified as Middle to Late Styles (Case 1977). Of 471 pottery sherds recovered 5.5%

were Deverel-Rimbury tradition but the overwhelming majority, 91.7%, dated to the Late Bronze Age. These proportions suggested to the authors that the settlement on Milston Down was founded towards the end of the Middle Bronze Age but the relatively coarse dating allowed by the Plain Ware tradition did not enable a judgment to be made about whether it survived to a period after the construction of the linear ditch system, although a single sherd of Early Cannings Cross pottery was recovered.

A number of field systems exist within the study area. Morphologically they take the form either of large areas of small rectilinear enclosures or smaller areas of aggregated fields. Together with the observation that in some places they are cut by linear ditches, believed to have been constructed in the Late Bronze Age/Early Iron Age, and the lack of later pottery, this suggests that the fields probably had their genesis during the Bronze Age. Their relationships with both linear ditches and settlement enclosures were sometimes noted. To the east of Beacon Hill linear ditches 1959 and 2061 clearly cut across pre-existing field systems (Bradley *et al* 1994, fig 72). On Brigmerston Down linear ditch 1971 observed the same alignment as the field system it cut, isolating it from its adjacent settlement (LPD109) and, from the evidence presented above, may have been associated with a reduction in arable usage.

In summary, the Wessex Linear Ditches Project provides a background of settlements of known, primarily Bronze Age in date, a virtually complete lack of evidence of later activity, and a limited amount of phasing evidence from the various interventions. However, in line with its design, the numerous field systems in the area received little attention.

The relationship between linear ditches and field systems had already been noted over a wider area in the pioneering work by Collin Bowen. In some areas linear ditches cut coaxial field systems, whilst in other groups of fields were enclosed by the linear boundaries (Bowen 1975; 1978). He also noted examples where linear ditches were overlain by the ramparts of IA hillforts, as at Whitsbury (Bowen & Eagles 1990, 75) or where a hillfort might be constructed at the end of a linear ditch, for example Damerham Knoll (*ibid*, fig 32).

Limited analytical survey of the Nine Mile River valley was undertaken as part of an assessment of the field archaeology of the Salisbury Plain Training Area (McOmish *et al* 2002). This project provided evidence of the extent of 'Celtic' fields on Salisbury Plain and of their above ground survival, but also recognised their relative lack in the river valleys. Whilst many examples have probably been destroyed by later development including the widespread construction of water meadow systems, some low lying areas may have been managed as meadow or woodland. Specific to the Nine Mile River valley were detailed surveys of a number of the small enclosures and their relationships with field boundaries. The majority of these enclosures appeared to overlie lynchets and the suggestion is made that the enclosures may relate to a stock based farming economy within land divisions marked by the linear ditch complexes, rather than representing the farmsteads of those growing crops in the field systems. Earthworks of one of the enclosures on Brigmerston Down (LPD 109 [Bradley *et al* 1994]; fig 4.3) and its immediate environment indicated a more complex history; two adjoining enclosures, rather than one, open out onto each other and both overlie the lynchets of part of a coaxial field system, but ploughing after the construction of the enclosure boundaries resulted in a further build up of soil against the outer side of the banks (McOmish *et al* 2002, 71-72).

Approximately 1km north of the field system on Brigmerston Down mitigation work in advance of track construction located evidence of intermittent activity from the Late Neolithic period to the Late Bronze Age on the south-west facing slope of Dunch Hill (Andrews 2006). The earliest evidence comprised a small pit containing Late Neolithic Grooved Ware and Beaker pottery. Environmental evidence suggested areas of grazed grassland among hazel, ash and oak woodland. Despite the presence of two barrows no Early Bronze Age settlement activity was located within the areas of excavation or of watching briefs. A cremation burial, radiocarbon dated to 1450-1210 cal BC (2σ) was found within 10m of one of the barrows and may have been a secondary burial. A ditch (402) containing a single sherd of Deverel-Rimbury pottery and sealed by a Late Bronze

Figure 4.4 Bronze Age activity in the study area (data from the Wiltshire Historic Environment Record)

Age midden deposit radiocarbon dated to 770-390 cal BC (2σ), was also assigned to the Middle Bronze Age. This ditch appears to have been part of a large field system part of which has been subjected to a detailed survey, which clearly showed that it predated one of the linear ditches (McOmish *et al* 2002, figure 3.3). A larger barrow (HER 604) appears to overlie one, or possibly two, boundaries within the field system which would confirm a Middle Bronze Age or earlier date (Andrews 2006, figure 17). The ditch appears to have been allowed to silt up but its alignment was respected by a series of fences enclosing what may have been paddocks for stock, and which were associated with round houses and other features producing post-Deverel-Rimbury Plain Ware, three sherds of All Cannings Cross Ware, and a radiocarbon date of 1320 – 1000 cal BC (2σ). *Triticum dicoccum* (emmer) was found in the Late Neolithic / Beaker period pit, *Hordeum* sp from the Middle Bronze Age cremation burial, and both these cereals, together with *Avena sativa* (oats) from the Late Bronze Age round houses.

Archaeological sites ascribed to the Bronze Age listed on the Wiltshire Historic Environment Record are shown in figure 4.4 and listed in appendix 2 (this includes all barrows where the dating is uncertain although some of these may have originated in the Romano-British or Saxon periods).

Aerial photographs of sites on the Salisbury Plain Training Area, a total of 675 sq km, have been transcribed under the National Mapping Programme and, despite intense archaeological interest in the area over a long period of time, 43% of the sites mapped had not previously been recognised (Crutchley 2000). An extract from these transcriptions covering the upper reaches of the Nine Mile River valley is shown as figure 4.5 and it is these data which were used as the basis for fieldwork reported here

4.6 Fieldwork

4.6.1 Method of analytical survey

Access to that portion of the Nine Mile River valley which lies within the Bulford Ranges was granted through the good offices of Dr Richard Osgood, archaeologist for this area of the Defence Estates, during the two week closure in July 2008. A digital version of the relevant portion of the National Mapping Programme transcription of aerial photographic evidence had been provided by Dr David Field (fig 4.5).

Figure 4.5 Extract of a transcription of aerial photographic evidence for the study area undertaken by the National Mapping Programme

The field system on Brigmerston Down was found to be under long grass and, since the boundaries stood on average only 20cm high, they had to be located from the National Mapping Programme transcript by hand held Global Positioning System. Although the known portions could be investigated any above ground evidence in the 'blank' areas was unlikely to have been recognised. An exception to this proved to be an area under tree cover where the section of fields known from transcription of aerial photographs could be extended. A portion of the field system was situated within an arable field under crop and this area was not investigated.

On Milston Down the field system lay within an area of small arms ranges and some dense tree and shrub cover. However, the majority of the ranges had been constructed without destroying the above ground archaeology and only on one modern range had the field system been totally obliterated. Within this area detailed examination of the junctions between the field boundaries could be undertaken and in many cases phase relationships could be established. During this work two probable and one possible previously unrecognised settlement areas were located and these were subjected to measured survey. The opportunity was also taken of visiting the area between these two field systems, notably the barrow cemetery on Milston Down (also known as Sling Down), and a selection of the linear ditches and enclosures were also viewed.

4.6.2 Survey of field system on Brigmerston Down

The results of the survey, giving both additional field boundaries located under vegetation cover and the phase relationships of the observed earthworks, are shown in figure 4.6.

The great majority of the features noted on the National Mapping Programme transcript could be located on the ground and the observed lines deviated only slightly and occasionally from that transcript. Some additional earthworks were observed and plotted along the north-western edge of the system which lay under tree and shrub cover, and at the southern limit where the effects of colluviation masked the crop and parch marks on which the transcript was based.

4.6.2.1 Analysis

Examination of the relationships between the various earthworks suggested that the earliest field system had comprised a grid of small rectangular fields with a main axis aligned between 40^{o} and 50^{o} east of north. This orientation lies within the range observed for the area (McOmish *et al* 2002, fig 3.4). The smallest fields, in some cases measuring no more than approximately 30m x 30m, lay on the north-western and south-eastern edges of the system but examination of the aerial photographic data from ‘outside’ these fields show that this form extended in each direction, albeit with only fragmentary survival. It may be that this was the original form of the entire system but that areas close to the settlement sites had been altered and adapted over time. The north-western boundary appeared as an uninterrupted line with no sign of any boundaries approaching it from 'outside' the system.

Figure 4.6 Phase relationships between earthworks on Brigmerston Down. The colour sequence denotes the earliest in red, through green, yellow, pale yellow to blue, the latest.

The only area which has been available for fieldwalking was the arable field east of the enclosures and this has produced pottery including Beaker, Deverel-Rimbury and post-Deverel-Rimbury (figure 4.3; Bradley *et al* 1994, figure 21). In an area south of the enclosures a number of possible stances were noted during survey and one of these produced a single sherd of post-Deverel-Rimbury pottery from the up-throw of an animal burrow. These may represent unenclosed settlements contemporary with the earlier field system.

Figure 4.7 Theoretical subdivision of the 'early' phase of the field system on Brigmerston Down and the area of the resultant subunits

Without excavation it is not possible to determine whether or not all the field boundaries were of similar construction but survival of a small number, which appear to be evenly spaced, as more or less continuous lines from north-west to south-east across the block of fields, have been used to try to divide the system into subunits. The lines utilised in this way, and the size of the resulting subunits, are shown in figure 4.7. These areas are similar to the medieval virgate, a parcel of land designed to support a single family; also like many Late Saxon and Medieval estates, they lie across the valley, giving each unit a share of the different soils and aspects. However, it should be noted that these parcels lie perpendicular to the main axis of the system and, although similar evenly spaced boundaries could not be as clearly seen lying from north-east to south-west, the decision to utilise the north-west to south-east lines has been taken as a personal judgment rather that with any clear evidence from the fieldwork.

Overlying this grid pattern of fields are a number of boundaries which together form a group of four enclosures with rounded outer corners and each linked to the others (green in fig 4.6). The two central enclosures are each further divided into sub-rectangular fields. The total area of these aggregated fields is approximately 6.2ha, less than half the size of the earlier subdivisions. In some places the boundaries of this later system utilise the earlier lynchets but for the majority of their circuits, lines were created *de novo*. Boundaries from the earlier system are still visible within the western and eastern of the four enclosures of the later system suggesting that they cannot have been ploughed intensively. However, in the central two the pre-existing boundaries have been obliterated, and to the west of the small enclosure outlined in red (fig 4.6) ploughsoil has built up against the outer side of the enclosure bank.

Set within this system of aggregated fields is a small enclosure (orange in fig 4.6) within which can be traced a lynchet from the earliest surviving fields, but at no point does this enclosure appear to overlie those from the aggregated fields. There is no reason to believe other than that this enclosure was contemporary with, and formed an integral part of, the remodelling of the field system. Adjoining it to the north-east, and overlying the boundary of one of the aggregated fields, is a further banked enclosure. Although ploughing has now eroded these banks to the point where the position of any entrance is uncertain, earlier fieldwork determined that the two enclosures opened into each other and into the fields at their southern edges (McOmish *et al* 2002, 77-72).

Linear ditches (blue in fig 4.6) occur to east and west of the field systems and enclosures but at no point do they intersect. The eastern linear, known as the Devil's Ditch, runs along the top of a ridge which forms the end of the re-entrant valley in which the survey area lies. The western linear is located on low lying ground, and runs parallel to and on the eastern side of the Nine Mile River, thus effectively dividing the fields and enclosures from their presumed source of water.

4.6.3 Survey of field system on Milston Down

The results of that survey, giving both additional field boundaries located under vegetation cover and the phase relationships of the observed earthworks, are shown in figure 4.8. As with Brigmerston Down, the great majority of the features noted on the National Mapping Programme transcript could be located on the ground and the observed lines deviated only slightly and occasionally from that transcript. A small number of additional earthworks were observed and plotted but a number of those visible as crop or parch marks located on the small arms ranges have not survived to a height where their phase relationships could be determined.

4.6.3.1 Analysis

Given the impact of later land-use over much of the area it is not possible to produce as coherent a picture of the successive phases of the field system on Milston Down as that on Brigmerston Down. This interpretation is therefore based on an incomplete data set and is necessarily somewhat speculative.

However, the surviving pattern might suggest a similar developmental sequence. The earliest boundaries are those of a series of small rectangular fields lying within a grid with a main alignment of approximately 30^0 east of north. These fields can also be divided into blocks (fig 4.9), the areas of which are very similar to those on Brigmerston Down ranging from 18.3ha to 21.2ha. These blocks again lie perpendicular to the main axis of the field system, and here there are no continuous boundaries lying with the main axis. The topography here is relatively flat and this disposition does not appear to confer the advantage seen on Brigmerston Down of sharing land types equally.

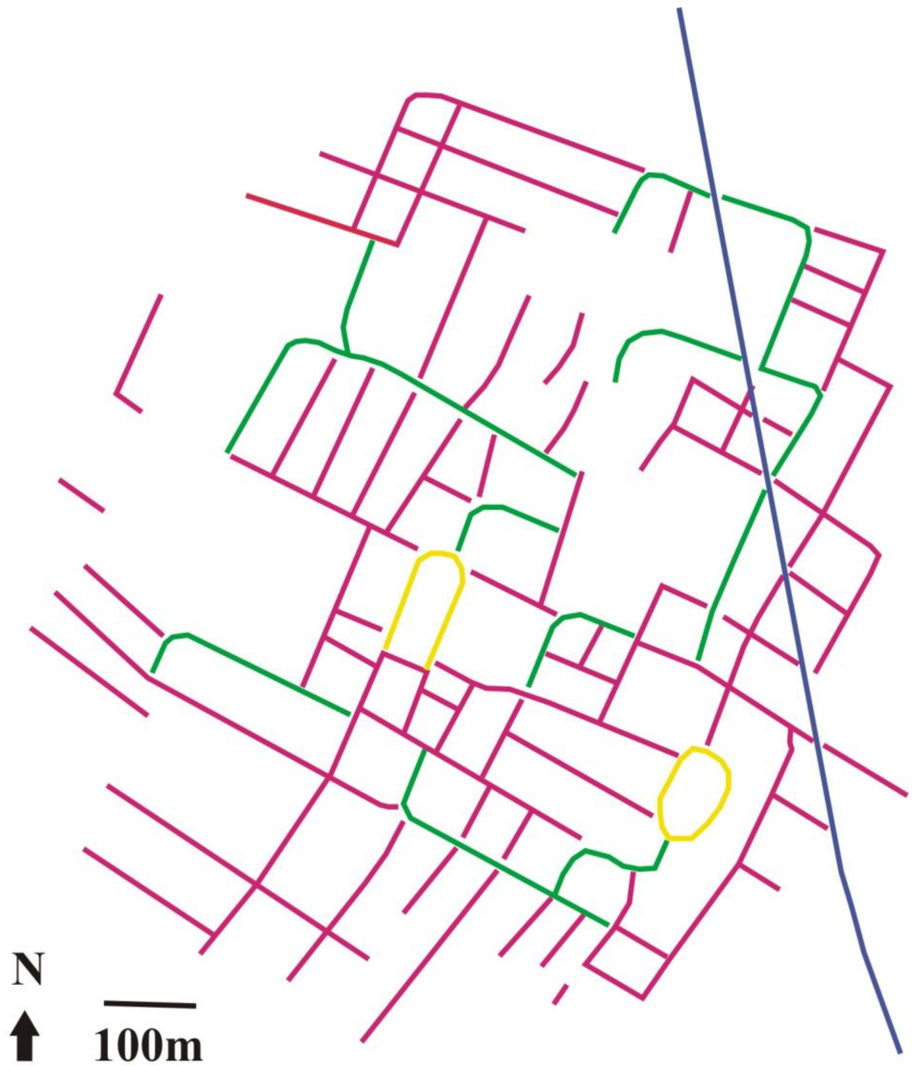


Figure 4.8 Phase relationship between earthworks on Milston Down, The colour sequence denotes the earliest in red, through green and yellow to blue, the latest

Overlying the grid fields are a number of more pronounced lynchets enclosing a smaller area (green in fig 4.8), but insufficient of these survive to state with certainty that they represent a cluster of aggregated fields. Although not recognised as such during the survey, post-survey analysis has also indicated the presence of two small enclosures (yellow in fig 4.8) overlying the grid field pattern but any chronological relationship between these and the possible aggregated fields remains uncertain.

A linear ditch skirts the eastern side of the area surveyed and can be clearly seen to slight both the 'early' coaxial field system and the later, potential, aggregated fields.

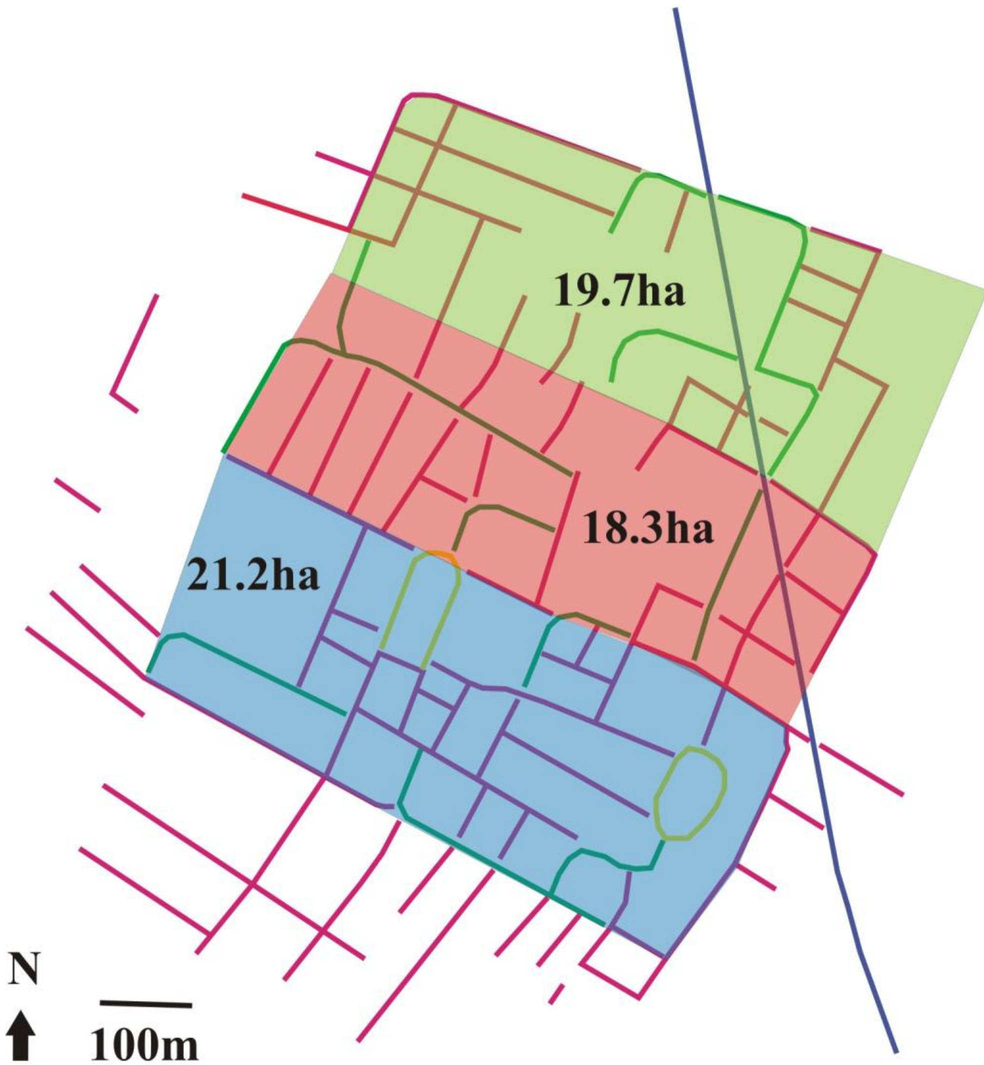


Figure 4.9 Theoretical subdivision of the early phase of the field system on Milston Down, and the areas of the resultant sub-units

Results from the survey of the possible settlement sites are shown as figures 4.10 and 4.11. All are situated in the immediate vicinity of the modern ranges, an area of intensive military use over a prolonged period and it is entirely possible that some or, indeed, all of these earthworks derive from that use. However, that shown as B in figure 4.11 produced a single sherd of post-Deverel-Rimbury type pottery and the enclosure shown as A yielded a horned scraper, a type usually assigned to the Late Bronze Age. In no case did the earthworks survive to a height of greater than 0.3m. Enclosure A (fig 4.11) comprises a simple bank, with disturbance of the south-west portion, but enclosures B and C both appear to have a south-eastern entrances and slight signs of external ditches, whilst the latter overlies a field boundary.

Figure 4.10 Position of three possible enclosures located during an analytical survey. NGRs: A - SU20184442, B - Su20164453 and C - SU20154462

4.6.4 Relative and absolute chronology

- On both Brigmerston and Milston Downs rectilinear systems of small, sub-rectangular fields are overlain by aggregated groups of fields
- On Brigmerston Down, and possibly also on Milston, these aggregations of fields may be associated with small enclosures
- On Brigmerston Down a scatter of pottery with a small Beaker component, some Deverel-Rimbury tradition but 80% Late Bronze Age may have come from a settlement associated with the earliest phase of the field systems
- On Milston Down both phases of the field system were slighted by a linear ditch complex

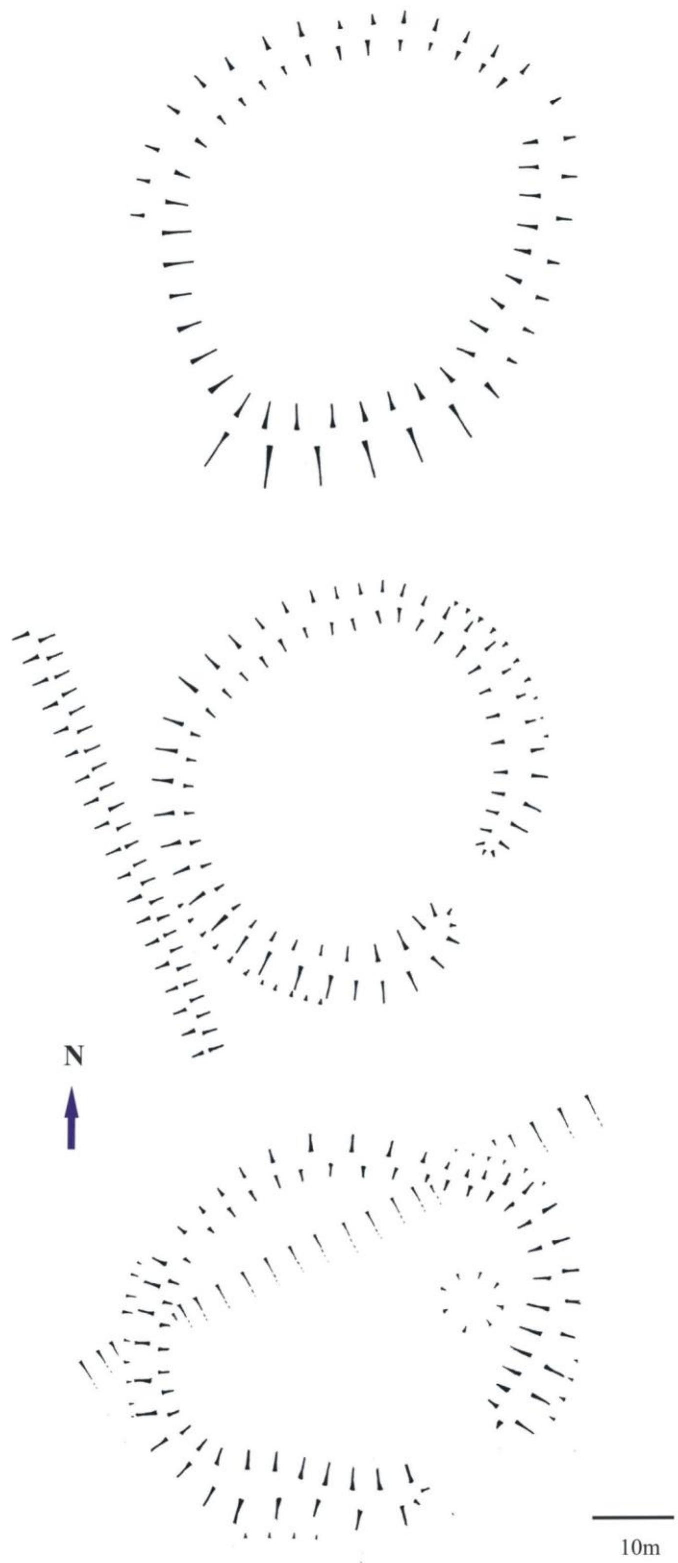


Figure 4.11 Survey of enclosures A (top) NGR SU20184462, B (middle) NGR SU20164453 and C (bottom) NGR SU20154462

4.7 Discussion of land use in the Nine Mile river valley during the 2nd and early 1st millennia BC

Little environmental evidence is available from the Nine Mile river valley but it seems likely that the area would have been extensively, if not intensively, farmed before the 2nd millennium BC. Molluscan analysis in both the Stonehenge (Allen *et al* 1990) and Avebury (Allen 2005) landscapes has suggested that small, short-lived clearances during the Early Neolithic gradually changed to a more generally open landscape by the end of that period. During phases of monument construction the requirement of surplus food for those engaged in building would probably have been fulfilled from the immediately local area and the scale of farming may have fluctuated throughout the 4th – 2nd millennia BC. Nevertheless, the extent of field systems on Salisbury Plain (McOmish *et al* 2002) suggests a considerable population. The midden site at East Chisenbury (McOmish *et al* 2010) and other, possible, similar sites in the Vale of Pewsey (Tubbs 2010) also suggest large scale farming, albeit stock raising, into the 1st millennium BC.

There was a substantial change in terms of the number of monuments during the first half of the 2nd millennium BC when round barrows, both scattered examples and cemeteries, proliferated (fig 4.4). The density of known sites between Stonehenge and Eversleigh reaches about 10 per sq km (Royal Commission for Historic Monuments [England] 1979, 427). From the west, the valley of the Nine Mile River is overlooked by the cemetery on Silk Hill, whilst major clusters exist to the east of the river at Milston Down, Bulford Down and Sling Camp. The cemetery known as Milston Down 1 lies on a flat-topped, west-facing spur between the field systems at Brigmerston Down and Milston Down – the area would seem ideal for cultivation but no fields have yet been located, and the existing funeral landscape appears to have been avoided. The source of the Nine Mile River, now marked by two ponds, attracted a cluster of barrows at the edge of the surrounding higher land.

However, despite this plethora of barrows there is sparse evidence of the accompanying settlements. Small amounts of Beaker pottery have been found throughout the study area (Bradley *et al* 1994, 71) but the earliest pottery found in any substantial amount is that of the Deverel-Rimbury tradition. Whilst a certain relationship cannot be established by this work, a temporal link between this pottery and the construction of coaxial field systems is strongly suggested by its presence on the supposed open settlement within the field system on Brigmerston Down (LDP 102, *ibid* figs 21 and 51) and from the closest collection point, some 1km north, to the field system on Milston Down (LDP 112, *ibid* figs 19 and 51). Some coaxial field systems cover several sq km, and it is not impossible that the areas described here represent fragments of a larger system, but the aerial photographic evidence combined with the continuous boundaries marking the northern limits of Brigmerston and Milston Downs encourages the belief that they represent two, probably of many, small units located within the valley. Despite their relatively small size both obey the alignment commonly, almost consistently, found in this area (McOmish *et al* 2002, fig 3.4).

Both systems can be divided into smaller portions of approximately 20ha, using boundaries perpendicular to this main axis. In practical terms, particularly on Brigmerston Down, this provides each holding with a share of land from ridge to ridge across the valley. Perhaps less pragmatically, it ensures that the boundaries defining the main axis cannot be seen as divisive, but as features which bind the separately farmed and, perhaps, separately held, fractions into a coherent whole.

It is not possible from this work to say that the development of aggregated field systems, the advent of enclosed settlements, and the reorganisation of land division marked by the construction of linear ditches are contemporary changes, but all post-date the coaxial field systems, and appear to be associated with post-Deverel-Rimbury tradition pottery.

The change from coaxial field systems to larger areas divided by linear ditches is usually considered to represent a change in emphasis from arable farming to stock raising. Unless the stock were either tethered or held in paddocks when management required their being close to the settlements, the aggregated fields may have been well fenced to protect remaining crop production from predation. On Brigmerston Down it is clear that some of these fields were ploughed – the earlier field boundaries had been ablated and ploughsoil had built up against the enclosure bank. No evidence of occupation has been recovered from either of the enclosures on Brigmerston Down, but the position of the earlier, western one in the centre of the aggregated fields suggests that it does represent a settlement, whilst the addition of the conjoined eastern enclosure may well relate to stock management. The failure to find any pottery at this location most likely results from the area having been taken out of modern cultivation.

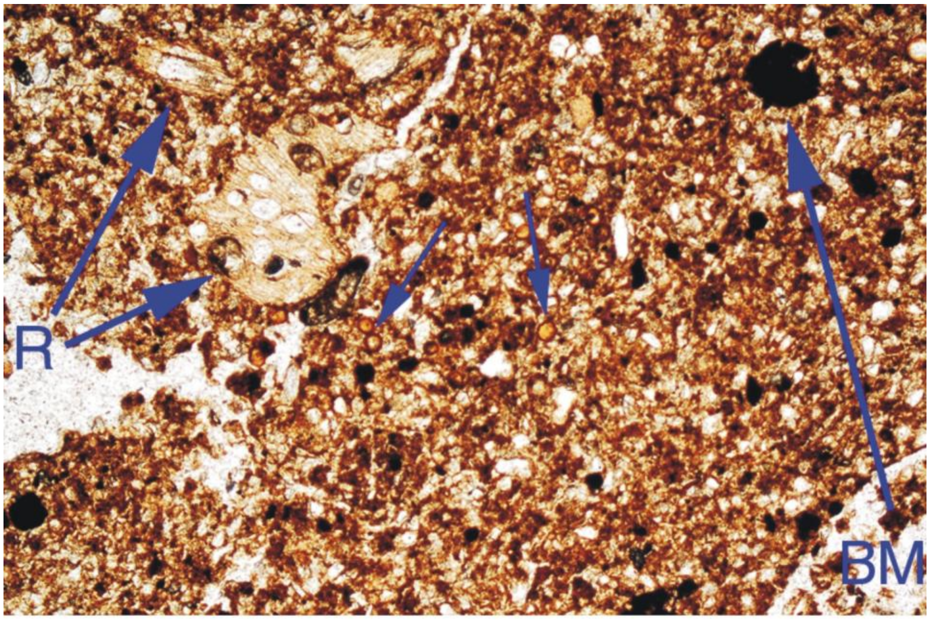
The overall impression of the upper reaches of the Nine Mile river valley is one of a land organised on a very local and intimate level, and exploited in specific zones, but then abandoned. Details of use during the Neolithic period are uncertain but the number of long barrows indicates a utilised landscape. However, it is the concentration of round barrows that is most notable - placed around the source of the river and on raised ground on either side, they dominate the valley. Notably, although there are a number of barrows on the flanks of Beacon Hill, there are none on the pronounced summit ridge; it seems possible that the integrity of the flat profile, when viewed from a distance, was deliberately preserved. Given this concentration of activity it is likely that by the time the first of the field systems whose above ground remains are still visible came to be constructed, the land had been farmed for many generations. Erosion may already have reduced the amount of topsoil on the slopes to the point where fertility had been noticeably affected, but manuring and, possibly, fallowing or even folding stock on depleted arable could have kept the soil in good heart.

The field systems and, presumably, their accompanying settlements, avoided both the burial areas and the bottom of the valley itself. This latter zone, to our eyes the most desirable and the location of most of the modern arable fields, is unlikely on this geology to have been water logged and may have been reserved for grazing. Areas set aside for woodland must also have existed within the surrounding landscape.

The slighting of a coaxial field system as seen on Milston Down shows not an end to the requirement for crop production, but a social change in the way in which land was held and exploited. This reorganisation of land division with small groups of aggregated fields surrounded by unenclosed land would suit a change in emphasis from arable to stock farming. However, a role for the linear ditch complexes in formalising pre-existing divisions between socio-political entities, as hinted at here by the differing coarseware pottery styles, is also likely.

Chapter 5

Land use on Plumpton Plain during the 2nd and early 1st millennia BC



Photomicrograph of ploughsoil (PP06, context 101) from lynchet on Plumpton Plain showing once-humic, fine silty clay loam soil, with root traces (R), an example of burned mineral material (BM), and fungal material (small arrows), possibly indicative of manuring (from report by Dr Richard Macphail)

5.1 Summary

This study area comprises a 3km wide transect running from the Weald to the coast which includes the Bronze Age settlement sites and field systems on Plumpton Plain. Detailed survey of this area shows large systems of sub-rectangular fields stretching between high, narrow ridges and, in one case, bounded such that a space for movement of stock or humans remained between the two systems. Overlying these was a series of smaller systems of fields looped one upon each other. A number of previously unrecognised possible settlement sites were also located. Within the wider context the settlements at Plumpton Plain and Buckland Bank show an unusual longevity of at least intermittent occupation from the Early Bronze Age to the end of the Romano-British period.

5.2 Definition of the study area

The study area crosses most of the various geological strata of south-east England from the Greensand and Gault Clay in the north, across the chalk of the South Downs and the superficial brickearth deposits of the coastal plain. The area comprises some $42km^2$ bounded by grid line TQ01 to the south, TQ35 to the west, TQ38 to the east and TQ15 to the north. Within this area the field system and settlements on Plumpton Plain and Moustone will be studied in detail and will be set within their wider context using published sources, unpublished fieldwork undertaken by Joyce Biggar and sites recorded on the East Sussex Historic Environment Record.

5.3 Rationale for selection of the study area

- The area crosses a range of geologies similar to those of the Central Surrey area but may enable any influence of coastal access to be assessed
- A considerable body of information about Bronze Age settlement in the area already exists but has not been synthesised
    - The details of fieldwork undertaken by Joyce Biggar in the 1970s remain largely unpublished but written and finds archives are available for study
- Analytical survey undertaken on the Plumpton Plain settlement (McOmish & Tuck 2004) was limited to the scheduled area but note was made that field system earthworks extended further

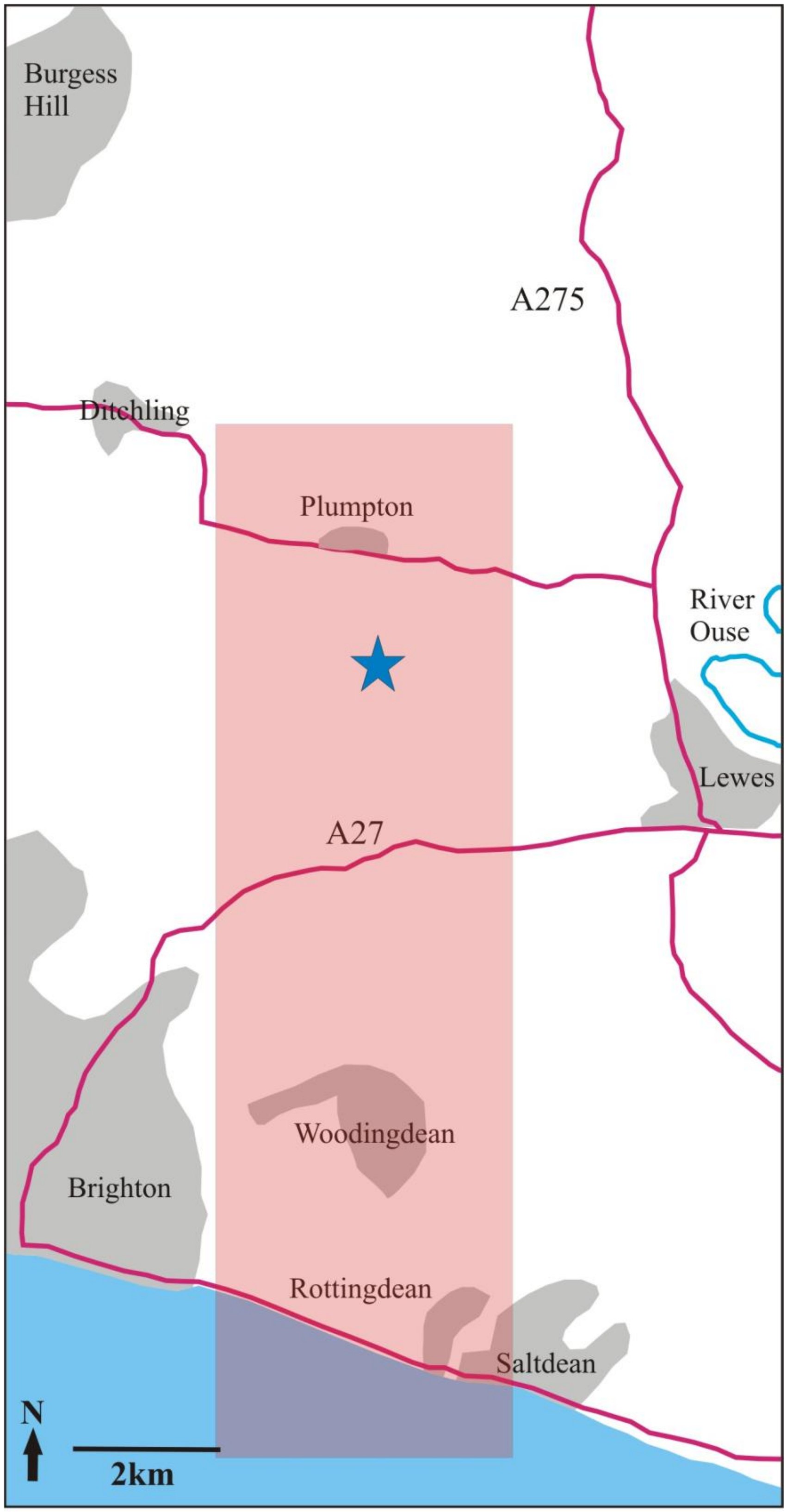


Figure 5.1 Location of Plumpton Plain, East Sussex, study area (red) with Plumpton Plain shown by a blue star

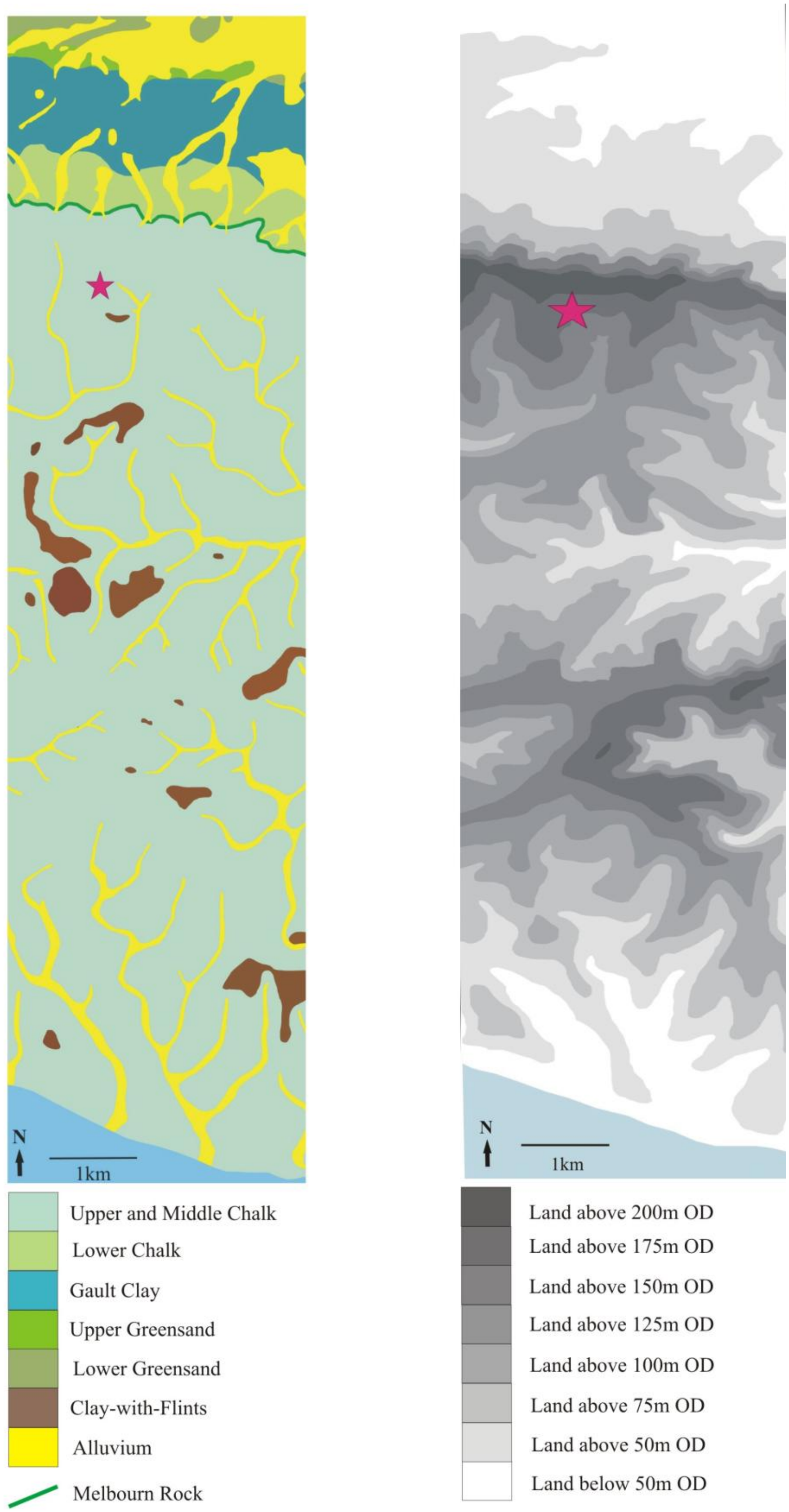


Figure 5.2 Geology (left) and topography (right) of Plumpton Plain study area

5.4 Geology and topography of the study area

The location of the study area is shown in figure 5.1 and the drift geology and topography in figure 5.2. Relevant points of note are:

- In Sussex, the greensand provides an area of light soil immediately north of the scarp slope of the downs
- The steep scarp of the South Downs is north-facing and the gentle dip-slope faces south towards the sea
    - In the period under study the downs would still have had a covering of *loess*, which has since been eroded, and would have had lighter, less calcareous and more fertile soils than at present (Catt 1978)
    - Much of the dip-slope comprises a number of long, finger-like spurs running approximately southwards from the main ridge of the downs
- Superficial deposits of clay-with-flints are relatively sparse but the spur on which the Plumpton Plain settlements are located bears such a capping
- The coastal plain which provides fertile, light soils farther west, is absent east of Brighton

5.5 Evidence of Bronze Age activity in the study area

The overwhelming amount of evidence on the East Sussex Historic Environment Record for Bronze Age activity comprises poorly dated barrows, settlements and field systems on the chalk of the South Downs. Many of these sites have been destroyed or severely damaged by ploughing since World War 2; of 129 barrow sites recorded 82 are now ploughed out or mutilated, many since a pre-war survey (Grinsell 1931).

Field systems, usually undated, are recorded from several areas; indeed, a survey of the area of the downs behind Brighton (Holleyman 1935) shows that of 168 sq km (65 square miles) some 23% bore visible earthworks. Many of these have now been ploughed and, although their remains are often still visible on aerial photographs, this two dimensional depiction seldom allows adaptations and different phases of construction to be identified. Bronze Age sites in the immediate area of Plumpton Plain, recorded on the East Sussex Historic Environment Record, are shown in figure 5.3 and are listed in appendix 3.

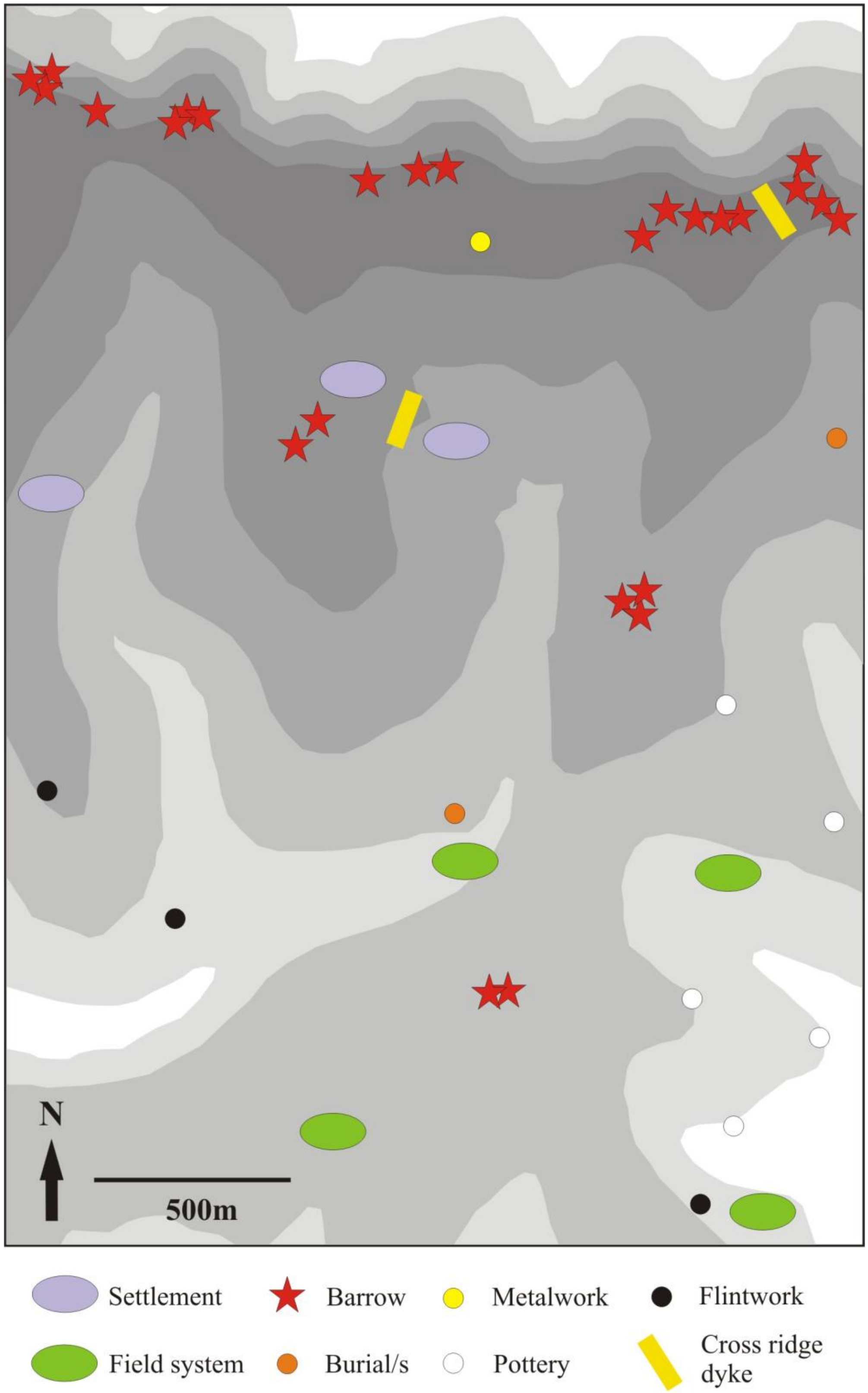


Figure 5.3 Distribution of Bronze Age sites within the immediate area of Plumpton Plain. Contours are shown at 25m intervals with land below 100m OD left white. Data from the East Sussex Historic Environment Record.

Earthworks of the complex of settlements and field systems on Plumpton Plain were noted on the Ordnance Survey 2nd edition 6-inch map of 1909 (sheet liii, NE), but were first subjected to detailed survey in the 1920s (Toms 1927). Toms also collected a number of artefacts including pottery, mainly of probable Middle Bronze Age date, but also including portions of a late phase Beaker vessel.

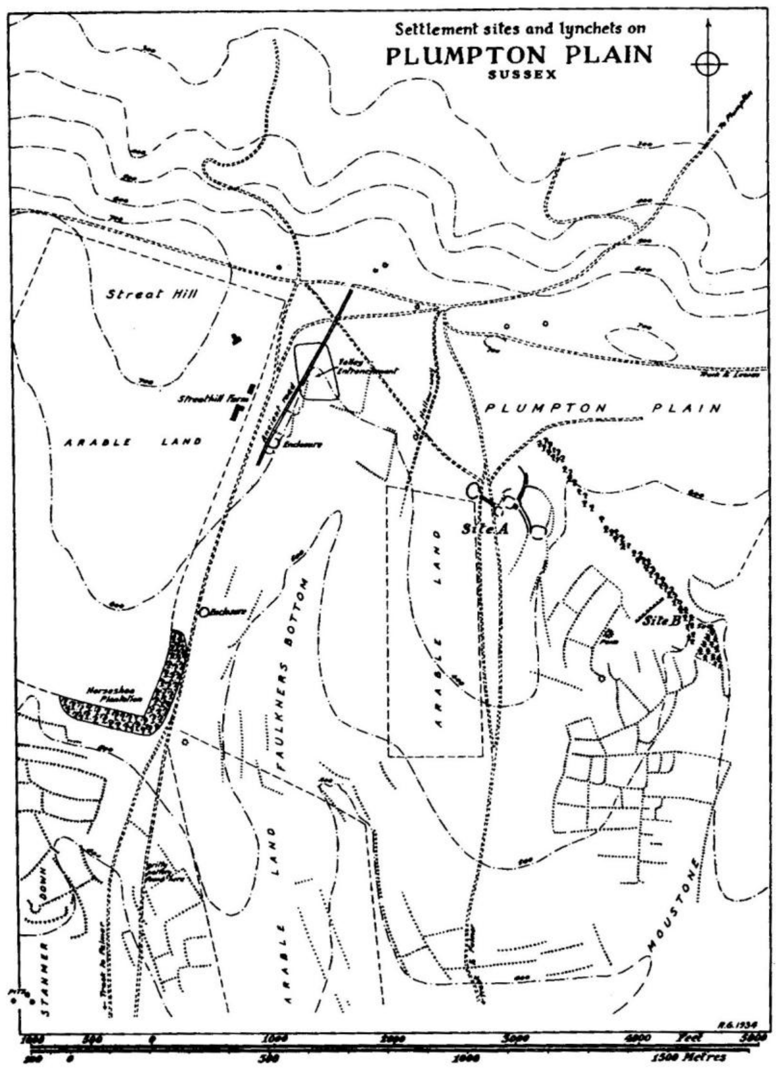


Figure 5.4 Plan of field systems on Plumpton Plain surveyed in the inter-war years (from Holleyman & Curwen 1935, figure 1)

A more detailed survey of the settlements and their wider context (fig 5.4; Holleyman & Curwen 1935, figure 1) was undertaken in the 1930s prior to excavation of the settlement area at a period before the destruction of large areas of standing earthworks by post-war ploughing. Analysis of pottery recovered at excavation (Hawkes 1935) led to a date for the enclosed settlements (Plumpton Plain A) of approximately 1000BC whilst the open settlement located farther down the slope was thought to be considerably later. More recent assessments of dating phases for the Late Bronze Age / Early Iron Age transition, based on local ceramic assemblages (Hamilton & Gregory 2000; Seager Thomas 2008), recognise Plumpton Plain A as producing Deverel-Rimbury pottery with a calendar date of *c.* 1700-*c*1150 cal BC. Plumpton Plain B produced post-Deverel-Rimbury ceramics in the plain-ware tradition with an overall date range of *c.* 1150-*c.* 500 cal BC, but with plain-ware limited to the period *c.* 1150-*c.* 950 cal BC. Placing the open settlement B at a later date than the enclosed settlement A is noted as a possible 'key development' of period 2 in Sussex predating a further phase of enclosed settlement in period 3 (Hamilton & Gregory 2000, table 1).

In the 1970s Joyce Biggar undertook fieldwalking in the areas of Balmer Huff, Balmer Down and Buckland Bank prior to their being put down to permanent pasture. This work was augmented by a small excavation under the guidance of Mr L Allen but remains largely unpublished (Biggar 1978; 1980). A typescript final report (Biggar 1977) and hand written and typed interim reports and summaries, and the finds archive, were deposited with the Sussex Archaeological Society. The majority of the pottery found was reported as dating to the Iron Age and Romano-British periods but some appears to have been Late Bronze Age.

In addition, Joyce Biggar seems to have located pottery recovered during excavation of the 'Circus' or 'Cursus' on Buckland Bank, thought to have been a Romano-British meeting place related to the nearby settlement, but with a 'Celtic' road running through it (Allcroft 1926). More modern interpretation would suggest that the 'circus' was a pond and some of the pottery may have derived from manuring scatters. Some of the pottery was Romano-British but the majority, described at the time as 'native ware', was thought to be Early Iron Age (Curwen 1926). Prehistoric pottery and worked flint from these two sources will be examined as part of this report (see below and appendix 3).

In 2004 three out of the four settlement sites comprising Plumpton Plain A were subjected to a detailed analytical survey (McOmish & Tuck 2004) (fig 5.5) and at this time it was noted that the scheduled area was surrounded by permanent arable except on the western side where the land had recently reverted to pasture. During this survey a probable fifth enclosure was recognised lying north-east of those previously known and severely damaged by later activity. In addition three possible building stances comprising a further unenclosed settlement were located some 190m south-east of enclosure 3 in an area of dense vegetation. Further possible stances were located between enclosures 3 and 5 where they may be related to a lynchet boundary underlying the bank of enclosure 3.

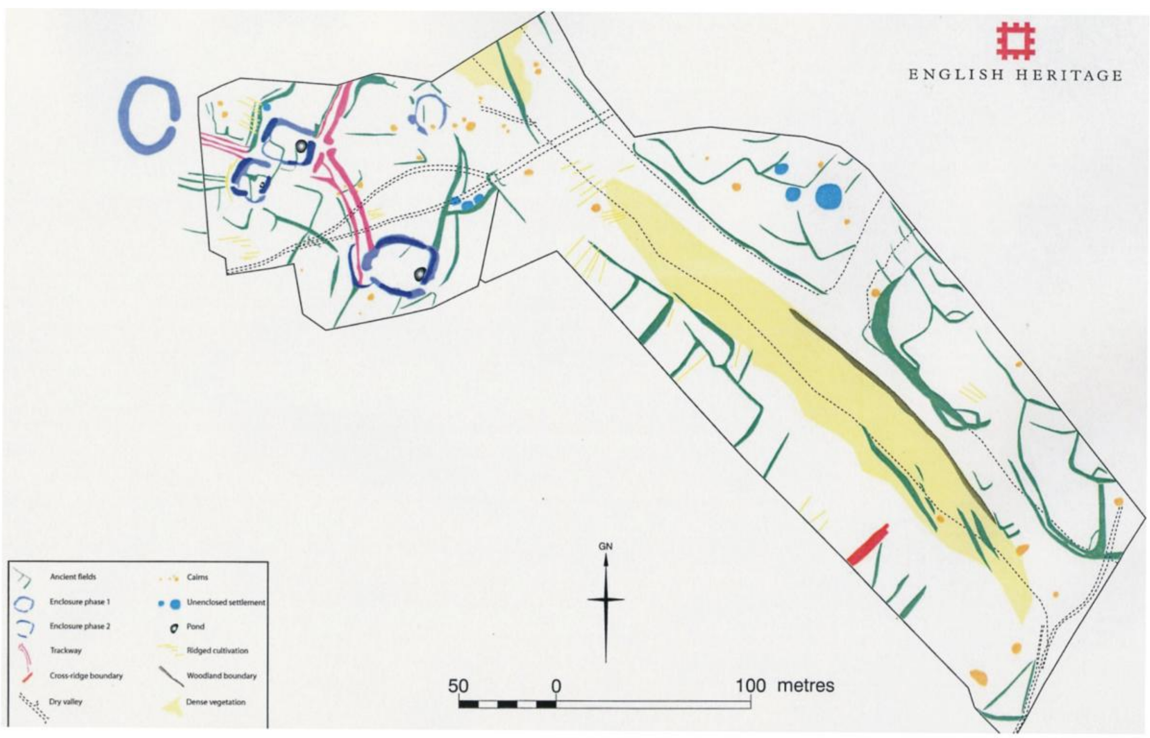


Figure 5.5 Interpretative plan of earthworks on Plumpton Plain (from McOmish & Tuck 2004)

Remains of field boundaries were noted extending away from the surveyed area in all directions. In general terms in each instance where a relationship existed between the earliest visible phase of the field system and the banks enclosing the settlements, the former underlay the latter; however, later fields could also be observed whose boundaries had built up against the enclosure banks. An area of fields was observed to the south of the enclosure complex which consisted of small, some just $25m^2$, rectangular fields laid out on a north-west / south-east alignment which respected the underlying topography. One of the boundaries of this system could be seen both underlying the banks of enclosure 2 and within the enclosure. This field system clearly continued west of the scheduled area. Associated with these fields, and a rare survival on the South Downs, are a number of clearance cairns which consisted of large flint nodules presumably removed from the fields to facilitate ploughing.

Two track-ways were noted; one which lead eastwards from enclosure 1 pre-dated the latest activity in the area, being blocked by the bank of enclosure 2, and may have been contemporary with the earliest phase of the field system. This track may originally have joined a major track-way which came to lie between enclosures 3 and 4 but which clearly pre-dated the first of these.

A cross ridge dyke had been constructed across the spur and passed between the settlements designated by Holleyman & Curwen (1935) as Plumpton Plain A and B but unfortunately no direct relationship could be observed between the dyke and either the settlements or their field systems.

In summary, although some clearance and agricultural use probably took place in the 4th and much of the 3rd millennia BC, in common with much of the South Downs, little sign remains other than scatters of worked flint with an area of Neolithic surface mining, possibly not coincidentally, underlying the Bronze Age settlement complex (McOmish & Tuck 2004, 30). What is abundantly clear is the intensification of use, including increasing findings of cereal pollen, in the late 3rd and early 2nd millennia. The settlements, field systems, track-ways and clearance cairns are of a type associated with the Middle Bronze Age to Late Bronze Age, a dating confirmed by excavation (Holleyman & Curwen 1935) although the finding of Beaker tradition pottery should not be forgotten. There are a number of round barrows surrounding Plumpton Plain which probably predate the known settlements. Many of these provide views to the north over the Weald and south to the coastal plain although views of the barrows are more restricted; from the settlement complex barrows would have punctuated the horizon to west and north (McOmish & Tuck 2004, 31).

A coaxial field system appears to have been farmed perhaps by those living in unenclosed settlements set among the fields. That the Bronze Age settlement enclosures slight earlier field boundaries is clear both from survey evidence (McOmish & Tuck 2004) and from excavation of ard marks, not recognised at the time, under the bank of enclosure 3 (Holleyman & Curwen 1935, fig 7). Although this arable use is probably Middle Bronze Age in date, the presence of earlier lithics found at excavation and during survey work (McOmish & Tuck 2004; English *et al* in press), and of Beaker tradition pottery mean that an earlier genesis is probable.

Moving to the wider area, an extensive overview of published evidence and information from the grey literature (Yates 2007) has synthesised the Bronze Age settlement pattern across the various *pays* of Sussex. Perhaps surprisingly no evidence of Bronze Age activity has been found close to the coast within the narrow band under study here, although farther west in Sussex, where a fertile coastal plain exists, it is clear that the resources of this region were intensively exploited. One site, to the east of the area under study, throws light on the external links available to the coastal area. At Shinewater, on the Willingdon Levels near Eastbourne, a series of timber causeways and platforms were excavated and exotic finds included Baltic amber, Kimmeridge shale, a bowl in the Thames valley tradition and a socketed axe paralleled in northern Germany and Holland (Greatorex 2003). This site is further considered in chapters 7 and 10.

Use of land north of the scarp of the downs has been found on greensand close to the study area sites at Hassocks (Butler 2000) and on the Hastings Beds of the High Weald at Ardingley (Stevens 1998); each site has produced Late Bronze Age / Early Iron Age pottery. At Warningore Farm close to the scarp slope of the downs, a narrow bladed, looped palstave, which may have been deliberately broken prior to deposition, was found and is dated to the later end of the Middle Bronze Age (Butler 1990). A bronze awl found near Novington Farm, also below the scarp, in style very similar to one found at Black

Patch (Drewett 1982) and dated to the Late Bronze Age, may be related to the Plumpton Plain settlements (Butler 1988). Fieldwalking at Novington Manor, also on low-lying greensand beneath the scarp slope, has produced a concentration of worked flint of Late Neolithic / Early Bronze Age date and burnt flint which may indicate a settlement site, together with a small amount of Late Bronze Age / Early Iron Age pottery (Butler 1989; 1992).

5.6 Field and other practical work

5.6.1 The Biggar archive

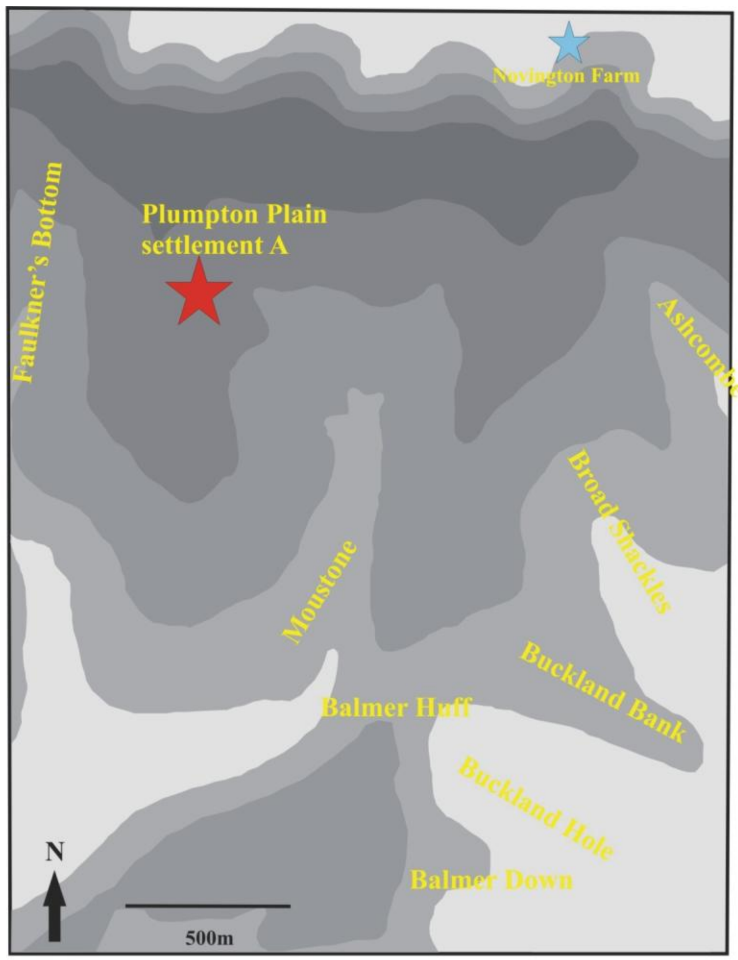


Figure 5.6 Topography and locations named in the text in the vicinity of the Bronze Age settlements on Plumpton Plain. The contours are shaded in divisions of 25m with the darkest above 200m OD and the palest below 75m OD.

Part of the area under study was field-walked by Joyce Biggar and assessment of her archive provides details of the human activity outside the field systems surveyed here, and from zones where above ground earthworks have been truncated by recent ploughing. The topographical location of sites described here is shown in figure 5.6. A spur running SW from the scarp of the South Downs, and dropping in height, narrows to produce a saddle, Buckland Bank, with a steep western side into Moustone and a gentler eastern slope into Buckland Hole. South of this saddle the spur rises again to a high point, Balmer Huff. The tip of an eastern spur from the root of the main spur, on the top of the scarp of the Downs, is cut off by a cross ridge dyke, effectively isolating a barrow cemetery, and a further group of round barrows, including Four Lord's Burgh are located at the point of the spur north of the Buckland Bank saddle.

Previous archaeological interventions had located an Romano-British cemetery at the head of Buckland Hole and an accompanying settlement appeared likely to have been situated SE of the 'circus', itself located at TQ 369101. In Buckland Hole a lynchetted field system may have been used during this period or during the Early Iron Age activity evidenced in the same area (Allcroft 1926, figure 5.9), though an earlier origin is probable.

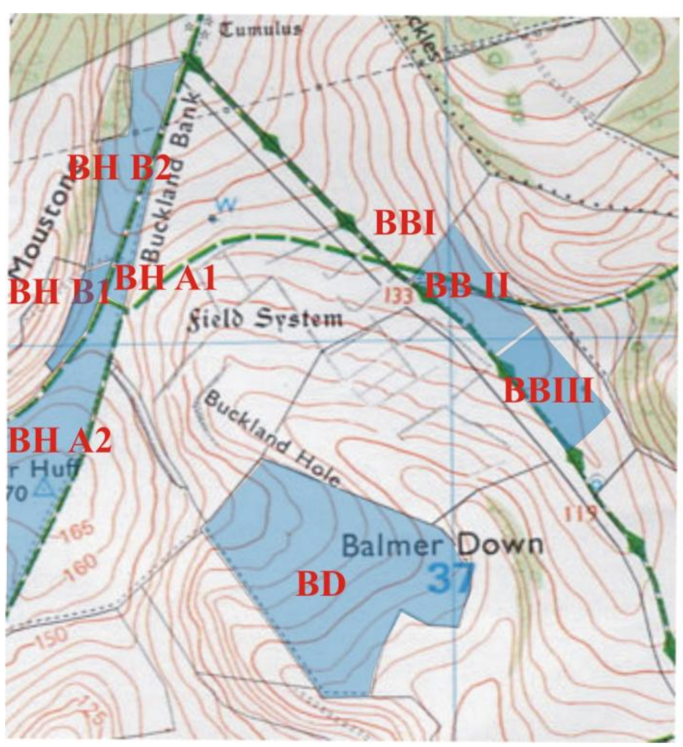


Figure 5.7 Location of fields walked by Joyce Biggar

BD - Balmer Down
BH - Balmer Huff
BB - Buckland Bank

Joyce Biggar's work involved walking fields on Buckland Bank, Balmer Huff and Balmer Down (fig 5.7); she collected worked and burnt flint, and pottery, of which a high proportion was Romano-British in date but only prehistoric finds will be assessed here. The *Final Report on Balmer Huff A & B and Buckland Bank II* (Biggar 1977) contains comments on soil conditions, number of sweeps, and other factors which may have affected the integrity of the collection, and her personal views 'as nothing would induce me to record any more flintwork' which is presumably why no figures appear for field BBII (fig 5.7) – for much of the time this indomitable lady had only a bicycle to transport herself and her finds from her home in Lewes. Two notes on this work also appeared (Biggar 1978; 1980).

On Buckland Bank two fields, BBII centred at TQ 37101105, and BBIII centred at TQ 37131088, were systematically walked in a series of grids; these were not of identical size, being related to a series of fence posts which may not have been equally spaced and have since been replaced, but few dimensions are given and the distribution plots, which assume that the grids were equal in size, are not necessarily accurate in terms of exact position. On the southern spur of Balmer Huff is the site of the deserted medieval settlement of Balmer but the fields reported here lie to the north of this. Two adjacent fields were subjected to gridded field walking, designated Field A and Field B, with the latter divided into a southern portion, Field B I and a northern, Field B II. The location of these fields is shown in figure 5.7. Cursory inspection was also made of Fields C, D and E but the position of these fields is not clear from the available archive.

Further work was undertaken on Balmer Down when Joyce Biggar saw a hand written note on Gurd's 25" plan of the area marking the possible position of a Romano-British settlement. The field, centred on TQ 367104, lies on a south-east facing spur to the south of Buckland Hole. This field was only informally walked but a large amount of pottery (mainly Romano-British), worked flint and quern fragments were recovered.

The finds from this work were deposited, in an eclectic assortment of containers, at Barbican House, Lewes. As part of this project the archive has now been brought up to modern standards, a catalogue produced, and the worked flints and prehistoric pottery subjected to expert report. It is intended that the Romano-British finds will be the subject of further work and publication elsewhere.

5.6.1.1 Finds reports from fieldwalking and excavation by Joyce Biggar

5.6.1.1.1 Prehistoric pot by Mike Seager Thomas

Only a summary of the report is presented here but the details are included in appendix 3.

All of the areas surveyed yielded numerically significant quantities of prehistoric pottery. The assemblages comprise mostly featureless body sherds, highly weathered in the case of the field walked material, unweathered in that of the excavated material. The traditions to which they belong are identifiable primarily through analogy with fabrics and fabric suites known from sites elsewhere in the county. Owing to the lack of clear stratification, a number of sherds in similar fabrics that occurred in different traditions were impossible to distinguish. Four broad groups, however, are definitely present: ‘early’ post-Deverel-Rimbury, dated to the Late Bronze Age, ‘late’ post-Deverel-Rimbury, dated to the end of the Late Bronze Age or the beginning of the Early Iron Age, saucepan pottery, dated to the Middle Iron Age, and East Sussex grog-tempered ware (East Sussex Ware), early variants of which occur both immediately before and immediately after the Roman conquest. In addition a handful of sherds suggest the possibility of proximate Deverel-Rimbury (Middle Bronze Age) and slightly later Early Iron Age activity. (for discussions of all these traditions in Sussex see Green 1980, Hamilton 1993, Seager Thomas 2005, 85 & table 2, and Seager Thomas 2008).

INTERPRETATIVE IMPLICATIONS

Coming from an area, which, with exception of the excavations on Plumpton Plain, is under-studied ceramically the prehistoric assemblage from the survey area fills a yawning gap in the known distributions of Late Bronze Age / Early Iron Age, Middle Iron Age and Late Iron Age / Early Romano-British activity locally.

Its distribution and relationship to the (mostly) earlier occupation on Plumpton Plain highlights the spatial separation locally of different phases of activity during the later second and first millennia BC: Middle Bronze Age and Late Bronze Age on Plumpton Plain and Balmer Huff, Late Bronze Age / Early Iron Age and Middle Iron Age and Late Iron Age on the spur of Buckland Bank. The ceramic repertoire during all four periods shows activity to have been intimately related to that on other contemporary Sussex sites, probably through trade and exchange of the widespread and non-local fabrics.

Finally, and most importantly in ceramic terms, the assemblage holds a clue to the Early Iron Age locally. Ceramics from this period are relatively rare and, in contrast to the situation evidenced here, occupation of Late Bronze Age sites and their immediate surroundings seldom appears to continue into this later period.

Although definitive Park Brow – Caesar's Camp, the ceramic tradition conventionally associated with this period in Sussex, is absent, the use of shelly and pisolithic fabrics within the survey area shows there to have been continuity locally in pottery procurement / manufacture *through* the Early and Middle parts of the Iron Age. This view is supported by the recovery from the survey area of a sherd in this fabric with Early Iron Age affinities.

5.6.1.1.2 Worked flint by Bertie Haken

The nature and period of all worked flint from the Biggar archive were identified by Bertie Haken and the full results are shown in appendix 3. Small amounts of Mesolithic and Neolithic flint are present in the assemblage but the great majority of the diagnostic pieces date to the Late Bronze Age, the most common tool form recovered being scrapers.

5.6.1.1.3 Fire cracked flint

A large amount of fire cracked flint was recovered from certain grids within fields on Buckland Bank - grid A3 (445 pieces) and E1 (645 pieces). The amounts suggest the possibility that the concentrations result from plough scattering of burnt mounds. A feature of this type was found at Church Field, Felpham in West Sussex (Holgate 1987) and concentrations thought likely to have originated from burnt mounds are known from near

Chichester Harbour (Cartwright 1984) and, rather closer to Plumpton Plain, from Berwick, East Sussex (Butler 2005). An alternative suggestion is provided by the excavation of a pit used for the disposal of burnt flint, possibly from an activity which results in the production of burnt mounds, at Yapton (Rudling 1987). Burnt mounds are generally considered to date to the prehistoric periods, often the Middle and Late Bronze Ages, and have been found in many areas of the British Isles (Barfield & Hodder 1989). Various interpretations of their genesis have been advanced but domestic cooking (Barfield 1991) or industrial (Drewett *et al* 1988, 111; Jeffrey 1991) sites and thus an association with settlement seem the most likely. Pieces of fire cracked flint were recovered from most of the grids walked on Balmer Huff but no concentrations were located. On Balmer Down fire cracked flint was not collected but its presence noted 'in no great quantity' (Biggar 1977, appendix III).

5.6.2 Survey of field system on Plumpton Plain

Visible earthworks of field systems between the south-western boundary of the settlement area on Plumpton Plain and the ridge to the east of Buckland Hole, and south from the scarp of the downs to Balmer Huff have been surveyed and the results interpolated with earlier surveys of Buckland Bank and the settlement area (McOmish & Tuck 2004), and with evidence from transcription of aerial photographs. This area comprises two main valleys, Moustone and Buckland Hole, re-entrant valleys adjoining the former, and ridges bounding and separating the valleys; the detailed topography is shown in figure 5.6.

The earthworks within pasture in the floor of the upper reach of Moustone were of considerable size and were surveyed by tape and offset, this divorced survey being located both with respect to hard features depicted on the relevant Ordnance Survey map and by use of a Global Positioning System. Within both present arable and pasture fields elsewhere ploughing had reduced the earthworks to between 0.1 and 0.5m in height and here survey could only be undertaken in conditions of bright, low-angled light and using points located by using a Global Positioning System. It is likely that fine detail had been destroyed above ground in these latter areas. Evidence of probable field boundaries visible on aerial photographs, obtained from the National Monuments Record, was transcribed and the overall results are shown in figure 5.8.

Figure 5.8 Field boundaries on Plumpton Plain and in Buckland Hole surveyed (solid lines) or from aerial photographs (dotted lines) and barrows (red stars)

At least two phases of field boundaries predating the modern survive as earthworks over much of the area surveyed. The earliest comprise two locales where rectangular fields arranged on a grid pattern can be seen, partly as earthworks and partly as soil marks on aerial photographs. Whilst only a portion of each system could be located, the remainder having been destroyed by more aggressive ploughing in the adjoining fields, each appears to have been coaxial in nature.

One system stretches from the ridge west of the settlement area, across Moustone valley, to the ridge west of Buckland Hole (red in fig 5.9). The field boundaries can be seen both as slight earthworks no more than 0.2m high, as soil marks in the modern arable field to the south of the settlement area (fig 5.11), and as lynchets up to 0.4m high on the steep pasture slopes of Moustone valley. Aerial photographs of the modern pasture to the south show that the area was ploughed in the 1960s and both here, and in the modern arable to the north of the settlement area, soil marks can be seen, but in the latter area these are fragmentary and unclear.

The main alignment of this system lies 10^0 east of north, contrasting with the second system, lying across Buckland Hole up to the ridge to its east with an alignment 40^0 east of north (red in fig 5.10). Here also, the boundaries of the earliest visible field system are mainly present only as soil marks, but again, they cross the floor of the valley whilst the later system was constructed on its sides. In neither case do these alignments appear to have been influenced by the local topography.

Unfortunately the above ground survival was not such as to allow any attempt to divide these systems into sub-units. Very few examples of individual fields survive sufficiently well for their size to be calculated; where parallel boundaries are visible they tend to be in the order of 100m apart, giving a field size of approximately 1ha. It is notable that these field boundaries appear on aerial photographs (figure 5.11), whilst those of the overlying ‘looped’ fields do not, although where not destroyed by ploughing these latter fields are bounded by lynchets of considerable height. The nature of the soil marks from the earlier system indicate the presence of both positive and negative lynchets.

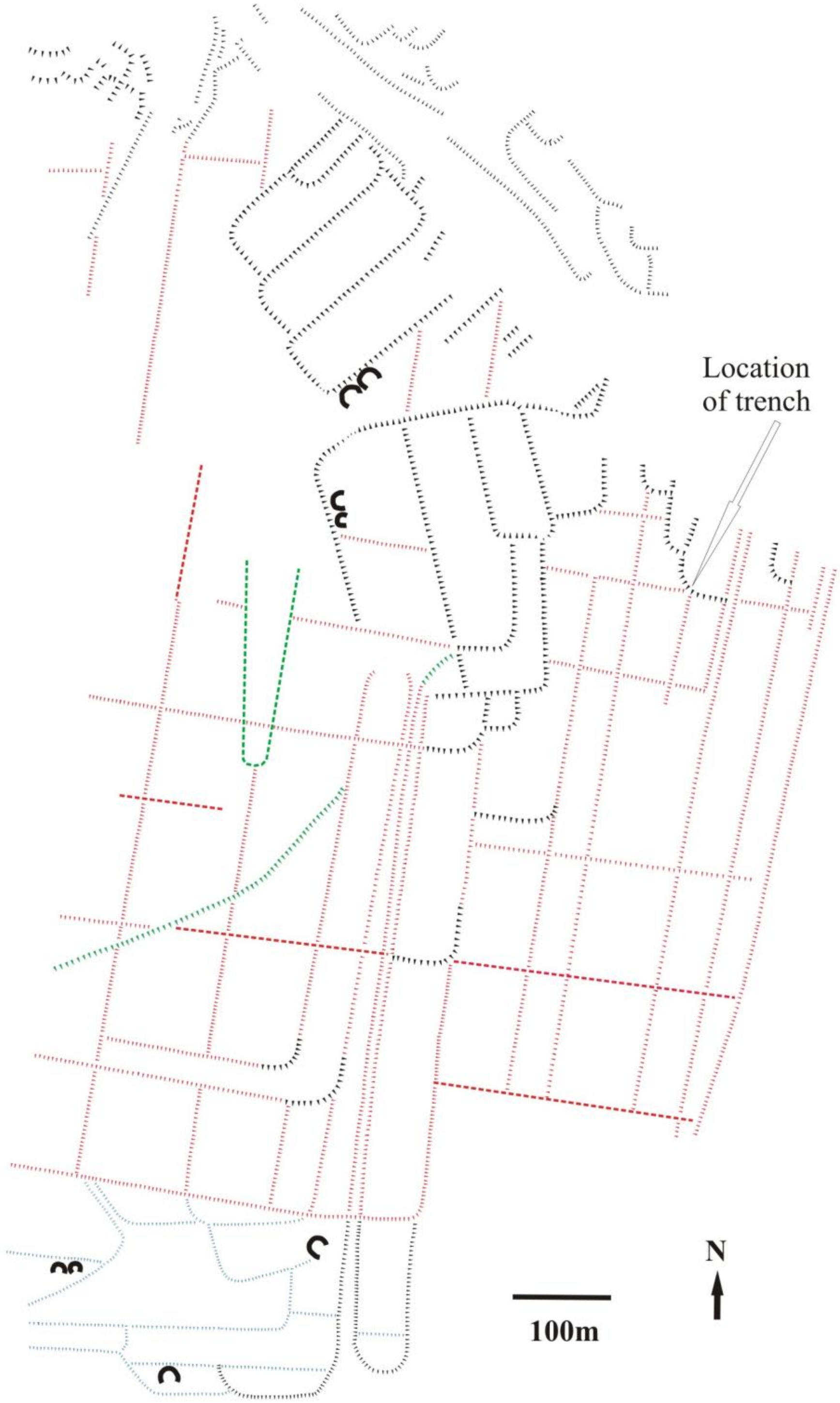


Figure 5.9 Postulated phase diagram of earthworks in Moustone, Plumpton Plain showing earliest boundaries in red, then black and green (latest) with those whose phase relationship was unclear in blue. Dotted lines represent boundaries seen in aerial photographs only.

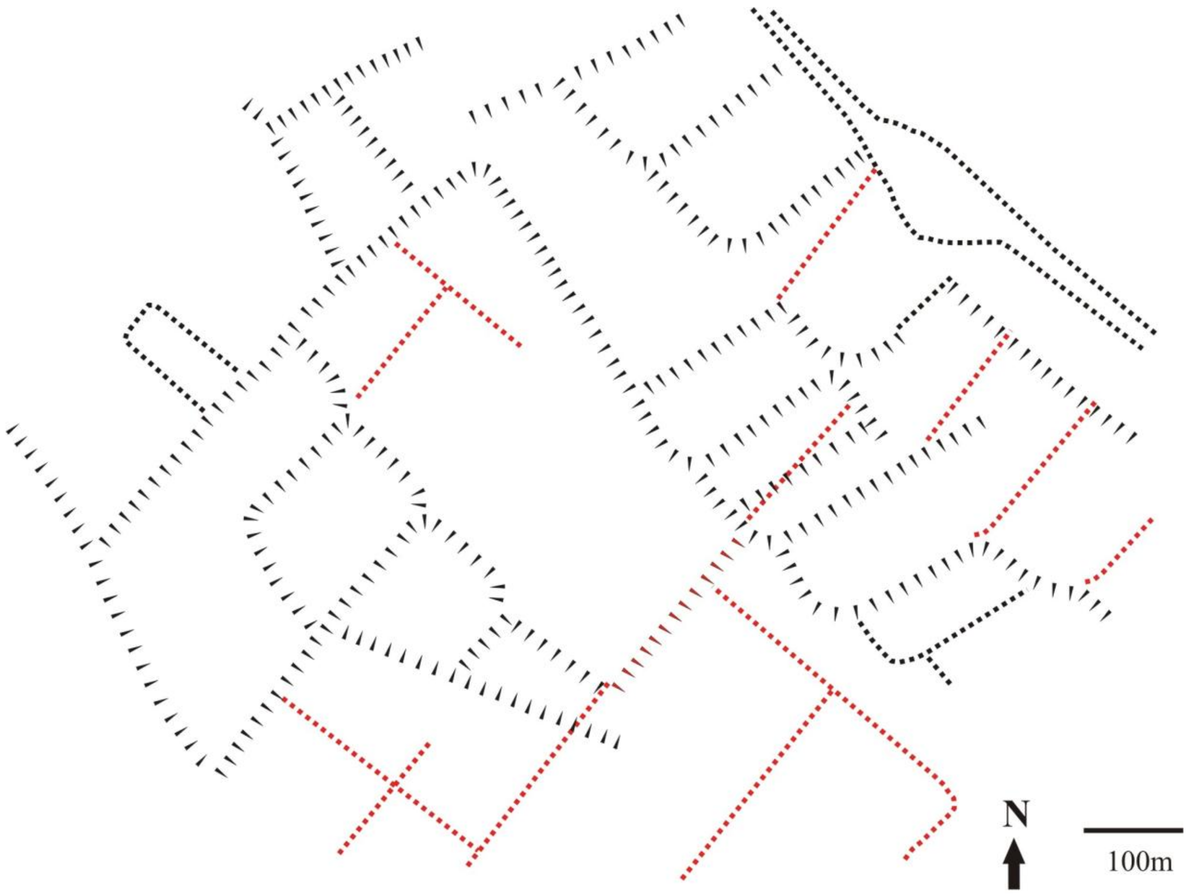


Figure 5.10 Field boundaries redrawn from early surveys of Buckland Hole (Holleyman 1935), and augmented with evidence from aerial survey (dotted lines). Postulated phasing into 'early' phase in red and 'later' phase in black

Overlying each system were a number of smaller systems of aggregated fields 'looped' onto each other, and situated on the valley slopes leaving both the highest ground and the floors of the valleys unenclosed. Just as the alignment of the coaxial systems changed on the ridge between them, a change which may have created a visual reflection of some underlying difference, so did the aggregated systems related to one valley or the other – none crossed the intervening ridge. These systems are shown in black in figures 5.9 and 5.10, and on aerial photographs in figure 5.12.

In the vicinity of the settlement there are at least three, and perhaps four, of these aggregated systems (fig 5.9). The least certain is that which may have lain to the north of the scheduled area, on the south-facing slope of what is now an arable field. Survey within the scheduled area (McOmish & Tuck 2004) recorded several curving lynchets which may represent the edge of 'looped' fields but neither earthworks nor soil marks survive on the modern arable. Partially within the scheduled area, but mainly to its south, and on the south-facing slope of a re-entrant valley at the head of Moustone, three fields lie adjoined and north of the cross ridge dyke, occupying an area of approximately 31.5ha.

Figure 5.11 Aerial photograph showing the rectilinear field system on Plumpton Plain. Photograph from Google Earth taken in 2005

Draped over the north-west facing slope of the same re-entrant valley, the south-east facing slope of Moustone valley, and the low ridge between them is another group of aggregated fields. Here, the group appears to have been constructed of at least four phases, firstly, four fields were 'looped' on to each other enclosing an area of 41.4ha, then, at an unknown period of time later, a further field of 6.2ha was added. Later again, another field was constructed continuing the line southwards into an area of modern pasture, but where earlier ploughing has destroyed much of the above ground evidence. A small field, no more than 0.12ha, was then built in the corner between the last two phases. Whilst the field system can be analysed in terms of order of construction of the fields it is, of course, not possible to judge the timescale of these developments – it may be that this group of aggregated fields was built in a single season but a period of centuries is also possible. However, the similar height of the lynchets surviving within the long-term pasture perhaps suggests a relatively short creation phase. The eastern portion of this group lies within an area of modern pasture and, with lynchets up to 1.5m high, represents the best preservation of these boundaries on Plumpton Plain.

On the opposite, west-facing side of Moustone valley a further group of aggregated fields is visible on the northern edge of the long-term pasture. The southern ends of three fields can be seen west of, and below, a terraced track-way with a further single field above. All the fields extend north into a modern ploughed field where above ground evidence has been destroyed and no soil marks appear on the relevant aerial photographs.

The separation between these groups of fields appears to have been deliberately enhanced either by their positioning relative to the local topography or by constructed features. The two south of the settlement area lie on either side of a re-entrant valley and this distinction may have been confirmed by the construction of a cross-ridge dyke, something of a misnomer in this case since it crosses a valley and also divides the settlement area itself, although its contemporaneity with any of these features is uncertain. These groups are separated from the one to the north by the settlement area, itself lying in the head of Moustone valley, and that valley also separates the two on its eastern flank, which are themselves separated by a terraced track-way.

The lynchets bounding these later systems are up to 1.5m high, and the underlying boundaries are seldom visible even as soil marks within these areas – either they have been destroyed by intensive ploughing or are too deeply buried beneath the later plough soil.

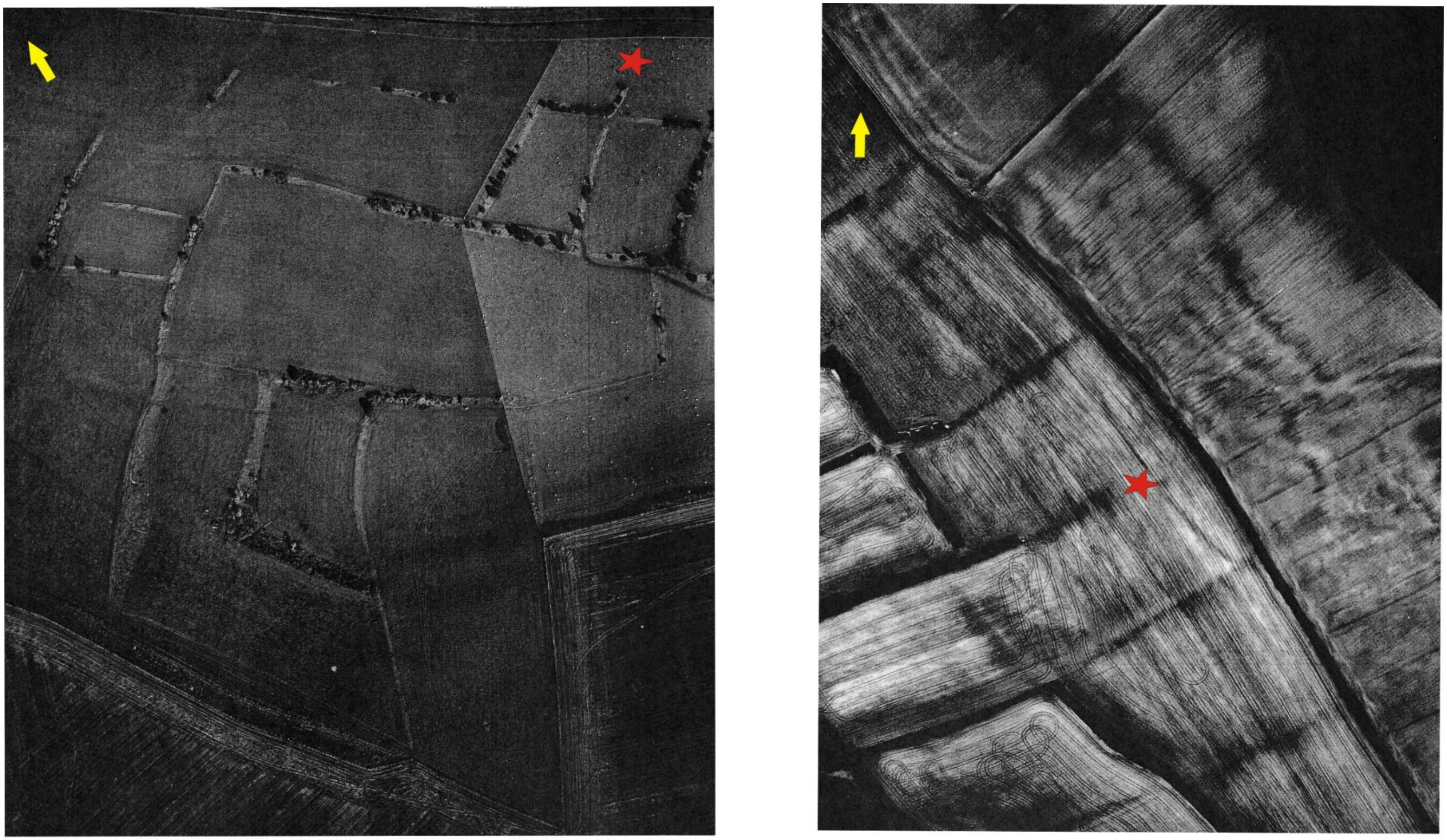


Figure 5.12 Aerial photographs of the field system in Buckland Hole. Left: the fields under pasture (NMR 21030/15 taken 10.11.2000); right: the field system under the plough (NMR 3610/119 taken in 1963). The yellow arrow indicates N and the red star a common point.

In Buckland Hole (fig 5.10) two of these systems of fields looped onto each other can be seen, one each side of the valley, the floor of the valley again being left free. Although the morphology of both systems is similar to that on Plumpton Plain, the proximity of Iron Age and Romano-British settlement suggests later use and possible adaptation of earlier field systems and further discussion of this area in a Bronze Age context would be ill advised.

On the high ground south of the scheduled area are one, or possibly two, isolated enclosures, long and narrow in shape, and overlying elements of the coaxial field system in that area. One is placed across, and appears to interrupt, the parish boundary, here marked by a pronounced bank. This seems unlikely to be a coincidence, and, although the necessary documentary research has not been undertaken to investigate later periods, this feature may have been some sort of stock enclosure or pound positioned while the downs were being used for intercommoning in, perhaps, the centuries around 1000AD or later (for example Blair 1978).

5.6.3 Excavation of a section across a lynchetted field boundary

A section 1m wide was excavated by hand (by the author and others, see acknowledgments) across one of the lynchets on the eastern side of Moustone at a point where one field boundary was considered to overlie another on the same north / south axis. The position of the trench in relation to the earthwork is shown in figures 5.9 and 5.13. Site code is MVP10. The aims of this intervention were firstly, to try to confirm the above ground evidence of a two phase boundary, and then to ascertain any differences in terms of farming practice between the phases. To this end column samples were taken (by David Lea), the soil micro-morphology investigated (by Richard Macphail). Finds were numbered and bagged separately and the find spot located in three dimensions.

5.6.3.1 Excavation results

5.6.3.1.1 Context report

The south-facing section of the trench is shown in figure 5.14 and a description of each context follows:

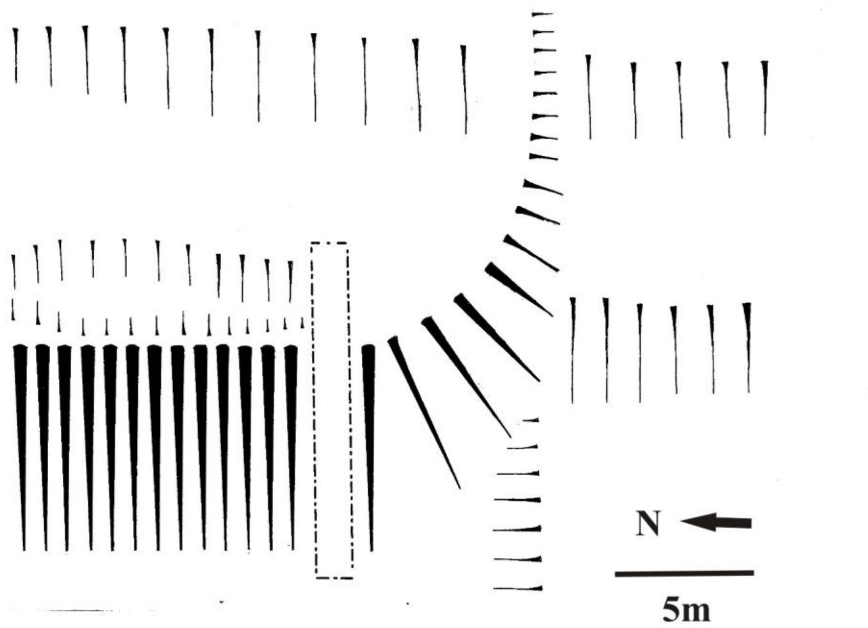


Figure 5.13 Relationship between excavated trench and earthworks in Moustone (see also fig 5.9)

Context 100

A dark brown, friable layer covering the whole trench with less than 5% inclusions of small (<8cm) pieces of broken flint, interpreted as a grazed pasture topsoil.

Context 101

A dark brown, friable layer covering the portion of the trench above the slope of the lynchet containing approximately 10% of small (<8cm) pieces of broken flint as inclusions, interpreted as a possible loamy plough-soil.

Context 102

A dark brown, compacted layer covering the upper portion of the slope of the lynchet containing approximately 60% of variable pieces of flint including large (>15cm) nodules and smaller nodules and broken pieces as inclusions, interpreted as a possible loamy plough-soil. The large flint nodules suggest firstly, clearance from the field to the field edge and secondly, that either chalk bedrock or clay-with-flint deposits were being ploughed rather than the Aeolian *loess* cover.

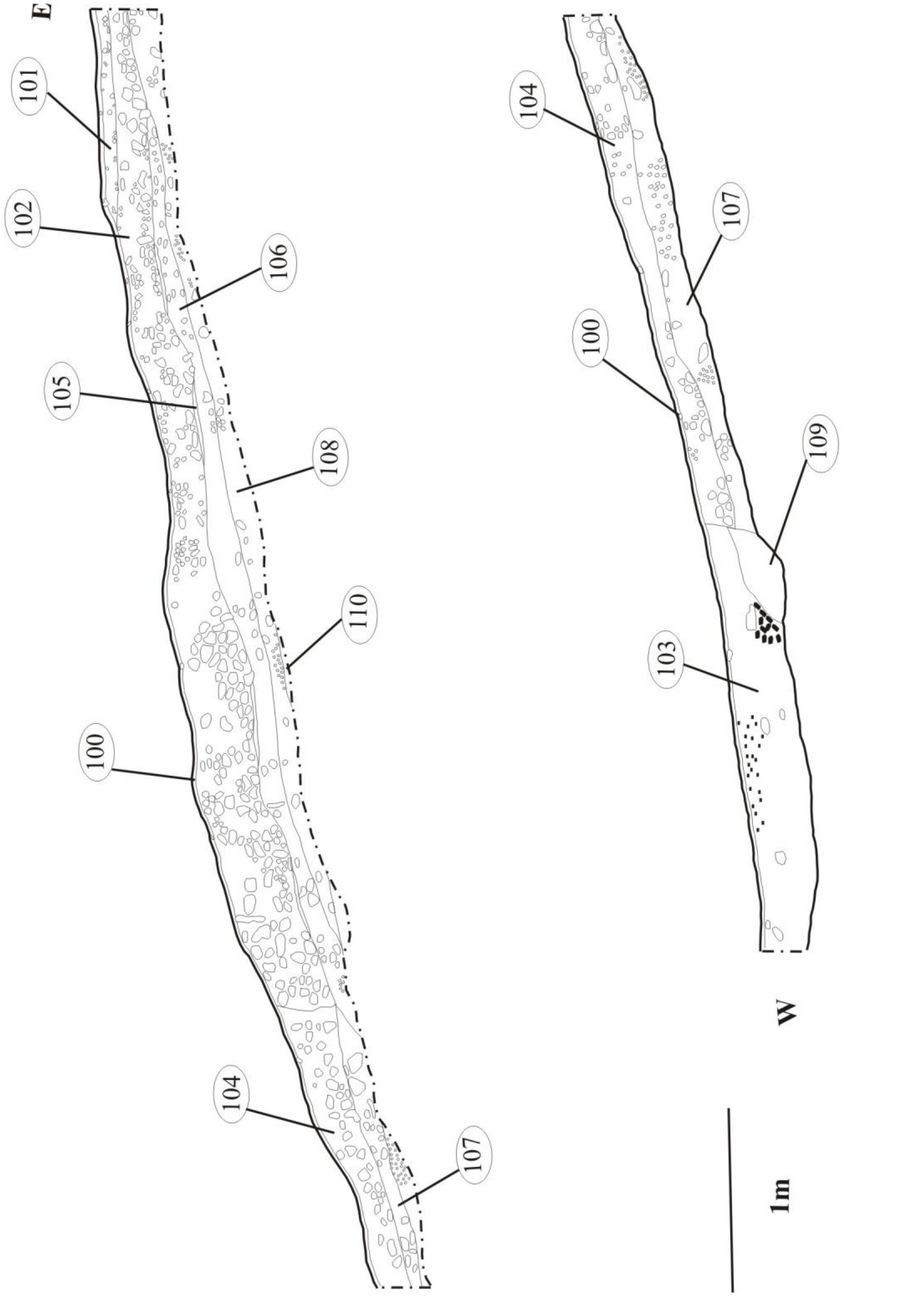


Figure 5.14 South facing section of trench across lynchet on east side of Moustone, Plumpton Plain, East Sussex
Drawn by Jen Newell and Rose Hooker

Context 103

A grey / brown, friable layer covering the portion of the trench below the slope of the lynchet containing <10% of chalk flecks and large amounts of charcoal and incompletely burnt brushwood as inclusions. Interpreted as a possible plough-soil in an area where the shallowness of the contemporary topsoil meant the ard point had been cutting into the chalk bedrock. Also the site of a modern bonfire which precluded sampling.

Context 104

A dark brown, compacted layer covering the lower portion of the slope of the lynchet containing approximately 40% variably sized flint and 10% chalk fleck as inclusions. Interpreted as a possible plough-soil but with less evidence of clearance than the upper portion of the lynchet.

Context 105

An orange / brown, compacted layer covering small areas of the slope of the lynchet and the area above it containing <5% small (<3cm) pieces of broken flint as inclusions. Context interpreted as a possible turf layer between two phases of lynchet formation.

Context 106

A dark brown, friable layer covering the upper portion of the lynchet slope containing approximately 30% medium (5-10cm) pieces of broken flint with a small number of nodules as inclusions. Interpreted as a possible plough-soil but, given the fewer number of smaller flint inclusions, generated at a lower energy than the overlying context 102.

Context 107

A dark brown, friable layer covering the lower portion of the slope of the lynchet containing approximately 20% medium (5-10cm) pieces of broken flint as inclusions. Interpreted as a possible plough-soil but, given the fewer number of smaller flint inclusions, generated at a lower energy than the overlying context 104.

Context 108

A dark brown, friable layer covering the upper portion of the slope of the lynchet containing approximately 30% medium (5-10cm) pieces of broken flint as inclusions. Interpreted as a possible plough-soil but, given the lack of flint nodules as inclusions, generated at a lower energy than the overlying context 106.

Context 109

A grey / white, compacted layer of abraded pieces of chalk covering the lower part of the lynchet. Context interpreted as an area of exposed chalk bedrock subjected to damage either by plough or by frost action.

Context 110

A very dark brown friable layer containing <5% chalk fleck as inclusions and encountered as intermittent, thin lenses lying above the chalk bedrock. Context interpreted as a possible palaeosoil dating to a period prior to formation of the lynchet.

Context 111

White, blocky chalk covering the length of the trench interpreted as frost fractured 'natural' chalk bedrock.

Context 112

An orange / brown deposit of compacted clayey loam within a possible tree hole or solution hollow. Interpreted as a high *loess* containing soil located in a relict feature predating lynchet formation.

5.6.3.1.2 Finds report

Two body sherds of pottery were located, one in context 102 and the other in context 104. Both were judged to lie within the post-Deverel-Rimbury tradition (Mike Seager Thomas pers comm.). A small assemblage of worked flint was recovered from contexts 102, 104, 106 and 107, all were waste pieces from a flake industry and, although none were considered diagnostic, all could be accommodated within the late prehistoric period.

5.6.3.1.3 Soil micro-morphology by Richard I Macphail

Institute of Archaeology, University College London

The only a summary of the conclusions from the report written by Dr Macphail is given here while the main text of the report, together with all illustrations, is given in appendix 3.

Conclusions

Eight thin sections, from five monolith samples, were analysed employing soil micromorphology and selective microchemical analysis employing SEM/EDAX. Lower lynchet soils (Contexts 101, 105, 106) were found to be mainly composed of a decalcified fine loam soil, with high coarse silt (loess) content. The latter is a drift deposit of Pleistocene origin which still covered the chalk in prehistory, both here and at nearby Ashcombe Bottom.

At Plumpton Plain, features of soil disturbance and slaking that are typical of unstable silty soils of arable colluvial origin across Europe, were recorded despite post-depositional *in situ* biological working affecting much of the buried soil. The large quantity of cracked angular flint suggests plough impact and high energy colluviation at times. Relict oxidised and part ferruginised fine organic matter is present, including fungal material, which may infer manuring inputs. Confirmation of this hypothesis requires a chemical study, however. Localised anaerobic conditions produced by burial also led to typical iron mottling.

A negative lynchet (Context 103) exposed the chalk substrate, producing calcareous soils where land snails and biogenic earthworm granules were preserved. Earthworm activity here also introduced burned soil into Context 103, from a recent bonfire.

5.6.3.2 Discussion of excavation results

In general terms, lynchets are formed by a build up of plough soil above a barrier, the positive lynchet, combined with a slippage of plough soil below the barrier, the negative lynchet. In this case the profile of the lynchet did not display the expected depth of plough-soil build-up, the maximum depth being in the order of 60cm. Instead a complex story of agricultural use can be suggested. The relict soil with a high *loessic* content lying in patches directly over the chalk bedrock (context 110) was identified by soil micromorphology as a plough-soil. Given that the original depth of *loess* is likely to have been considerable this probably represents only the remains of plough-soil from a period prior to development of the visible field boundaries.

This *loessic* layer was not seen on the lower portion of the slope of the lynchet and here a slump of fragmented chalk intermixed with what appeared to be a plough-soil (context 109) results from ploughing into the natural slope and the formation of the negative lynchet.

Above this lay three plough-soil contexts distinguishable only by the proportion of flint they contained. Over the lower part of the lynchet (context 107) the plough-soil contained relatively few plough shattered flints and no large nodules which appears to reflect episodes of ploughing, adjacent to the field edge and below a barrier which prevented large nodules, displaced by ploughing the field above or thrown during clearance, from rolling down the slope. A similarly nodule free plough-soil (context 108) occupied the upper portion of the lynchet slope but contained a rather higher amount of plough shattered pieces of flint. The plough-soil above this (context 106) did contain a few nodules and probably represents the field edge from the first phase of enclosure.

The layer overlying these (context 105) was thought at excavation to represent a turf layer marking the junction between the two phases of lynchet development but this was not confirmed by soil micromorphology and its origin is thus unclear.

Above this, and at the top of the lynchet a layer of loamy plough-soil containing very few flints (context 101) represents the latest arable use of the field above, and to the east of, the lynchet. The distribution of large flint nodules, suspended on a steep slope in contexts 102 and 106, is counter-intuitive, with the greater number of larger flints found on the upper portion of the lynchet slope. Both these contexts also contained fractured flints and the matrix is clearly a plough-soil derived from the field to the east. Presumably a somewhat permeable barrier had been placed along the slope allowing soil and small flints, but not nodules, to roll downhill. However, the position of this barrier, now half way down the lynchet, and the lack of any great depth to the positive lynchet despite the steep slope, suggests relatively non-intensive use of at least the eastern field.

In summary, although the division between soil build-up from two different episodes of ploughing was not visible in the soil micromorphology, differences in flint distribution encourage the view that this feature did represent overlying lynchets. The lack of depth suggests a lack of intensive use although removal of a volume of *loess* either during the first phase of enclosure or during an earlier, unenclosed agricultural episode, cannot be ruled out. By the time fields from the second phase of enclosure were being ploughed chalk bedrock was above plough depth below the lynchet and large flint nodules were being unearthed above it. Whilst no absolute dating evidence was obtained, all the artefacts recovered could be accommodated within the Bronze Age / Early Iron Age and there is no reason to believe that the area has not remained under permanent pasture in the intervening period.

5.6.4 Relative and absolute chronology

- Recent reassessment of the pottery from Plumpton Plain (Seager Thomas 2008) places the Deverel-Rimbury tradition pottery from Plumpton Plain A, the upper enclosed settlements, within the approximate date range 1700-1150 cal BC
    - A lynchet from the earlier, rectilinear field system underlies the enclosure bank of one of these settlements
- The groups of aggregated fields overlie the rectilinear system at every point where phasing is visible
- A number of the possible stances noted in the present arable field appear to have a spatial relationship with boundaries of the aggregated fields and this relationship may also be temporal
- The possible cross-dyke appears to be on a similar alignment to the boundaries of the aggregated fields immediately south-west of the scheduled area suggesting a possible temporal relationship with that system
- The parish boundary, presumably medieval, clearly slights both phases of field system

5.7 Discussion of land use on Plumpton Plain during the 2nd and early 1st millennia BC

It is unlikely that the field systems noted here represent the earliest use of the land for farming. An earlier presence is indicated by finding Neolithic flint working areas and even ‘Levalloisian-type cores’ (although these could have been later prehistoric [David

McOmish pers comm.] have been observed (McOmish & Tuck 2004, 29-31). A Cornish greenstone axe from the large arable field also evidences earlier activity (English *et al* in press).

The number of contemporary settlements, and, therefore, the population on Plumpton Plain at any one time, is uncertain but it is clear that there are more sites probably indicative of settlement than have previously been recognised.

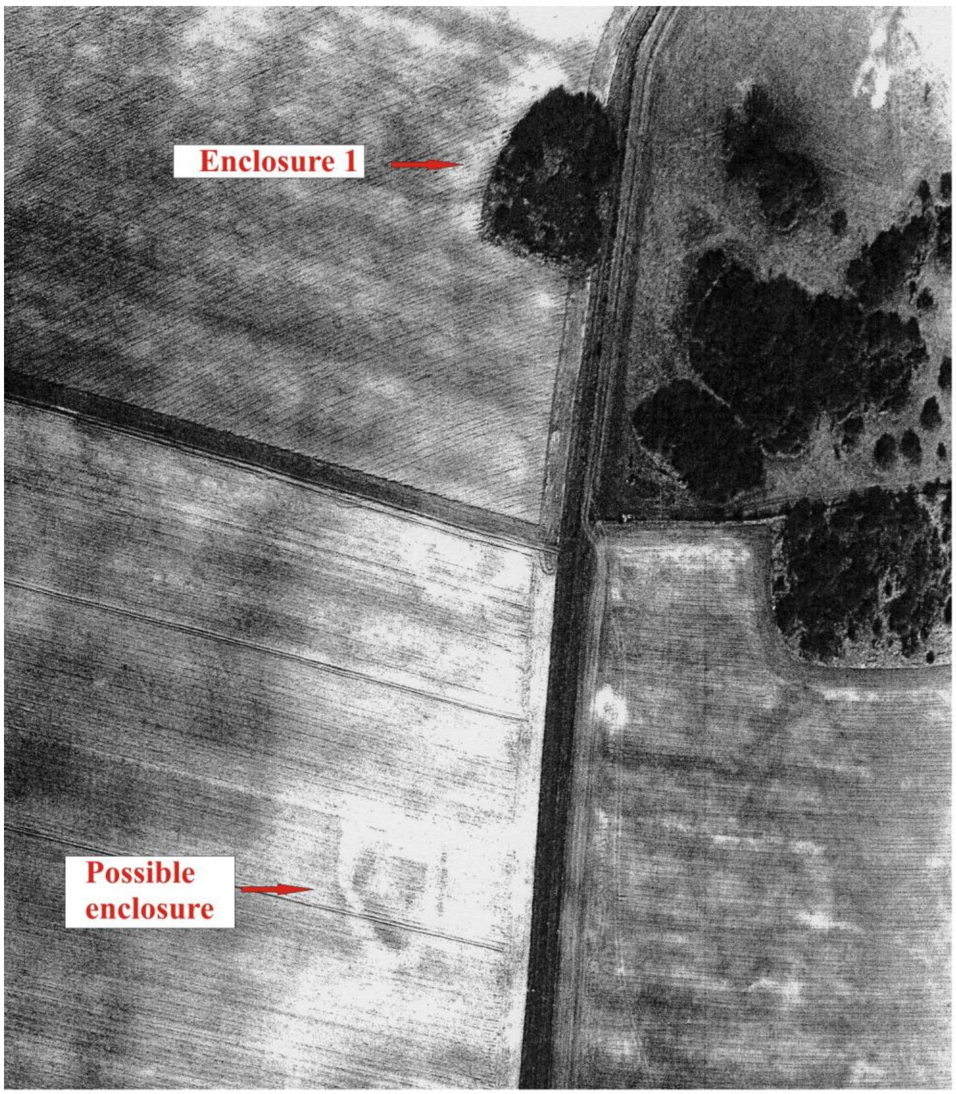


Figure 5.15 Possible enclosed settlement on the crest of the ridge south of Enclosure 1 (Toms 1927) (NMR3512/4/89)

Analytical survey revealed a number of unenclosed settlements within the scheduled area (McOmish & Tuck 2004) and the present work noted two loci where platforms terraced into the hillside may represent hut stances and a ploughed out feature visible on aerial photographs which may have been a further settlement enclosure (fig 5.15).

In Sussex there appears to have been a period of open settlements post-dating and ante-dating two periods when enclosures were constructed (Hamilton & Gregory 2000, table 1), a situation at variance with that in Wiltshire. On the chalk downs of Salisbury Plain open settlements associated with Deverel-Rimbury tradition ceramics were superseded by those surrounded by a bank and ditch, and these latter may remain in use up to, and in some cases after, the Roman Conquest (McOmish *et al* 2002, 67 *et seq*). It is also clear that in Wessex enclosed settlements might overlie open examples, as at Chisenbury Trendle (Cunnington 1932), that pre-existing settlements might become enclosed, and, in a number of examples, enclosures might overlie field boundaries.

Such an overlay of different phases is also seen at Plumpton Plain A by analytical survey (McOmish & Tuck 2004) and, although not recognised at the time, by excavation (Holleyman & Curwen 1935). Cutting III of enclosure III in site A was placed across the southern portion of the bank and produced a number of post holes and evidence of shallow, parallel furrows cut into the chalk (*ibid* figures 8 & 9). These furrows, probably ard marks, appear under the main body and the outer scarp of the bank, but not within the enclosure itself, and suggest that construction of the bank had encroached into an arable field. Two post holes occur outside the bank (nos 1 and 2), whilst a further three (nos 3-5) were located beneath the inner scarp of the bank and post-hole no 6, with an un-numbered feature, were within the enclosure. The authors felt that these postholes did not form a recognisable pattern but the portion of the bank overlying the area immediately north was not excavated, and it may be that these postholes represent some structure pre-dating construction of the bank. Unfortunately this trench failed to produce any diagnostic finds and the matter must remain unresolved but clearly the enclosure bank overlay earlier activity and may have been placed around an existing settlement.

The story of Middle Bronze Age settlement at Plumpton Plain A and Late Bronze Age at Plumpton Plain B (Holleyman & Curwen 1935) now seems simplistic, but pottery from excavations can be placed in the date ranges 1700 – 1150 cal BC and 1150 – 500 cal BC respectively, and the complexity of the field systems points to long-term, though not necessarily continuous, utilisation of the area.

The early, rectilinear field system on Plumpton Plain appears to have been deliberately placed between two ridges. The boundary on the western side of Balmer Huff, on an alignment dictated by the topography of the ridge, appears to delineate this system, and separate it from that in Buckland Hole, leaving a narrow passage along the ridge for movement between the two. This, and the different alignment of the two systems may suggest tenure by different communities. The Streathill ridge to the west of this system may similarly represent a north / south route through the enclosed lands. This marking of claimed land with visible boundaries appears to very deliberately separate communities, and the probable enclosure of more land than was needed to support the resident population may indicate concern that land which might be needed in the future could be claimed by others.

It is not possible to say whether or not the entire Plumpton Plain field system was laid out at the same time; the area may have been delineated and then sub-divided into blocks of fields as necessary. Only a single track, running from the south, is evidenced within the coaxial layout; this may have been part of the original design or may have been imposed later, but the relative position of east / west boundaries on either side suggest the former. The slight nature of the lynchets within this early system, even on the eastern slope of Moustone where there is no evidence of truncation by later ploughing, suggests that specific areas of the system were used neither intensively nor over a long period. That the crescent-shaped earthworks located within the field system represent settlement sites is uncertain. However, the presence of fire cracked flint and the lack of evidence from aerial photographs taken in 1947 that they were bomb craters suggest that this identification is correct. Their date, particularly relative to the early field system, is similarly uncertain but a scenario of blocks of fields within a large coaxial system used sequentially for relatively short periods of time, and each with a settlement, again short lived, may be posited. This seems a more likely picture, given the implications for population size, than use of the entire system by a number of settlements for a short period of time, followed by abandonment.

There is no evidence regarding the type of farming undertaken within the early field system but a mixed regime seems more likely at this date than specialised arable production. That lynchets formed on their boundaries suggests some arable use of the fields but the funnel-shaped entrance at the southern end of the track in reminiscent of those formed at the divide between enclosed land and open grazing. But it is clear that the layout became unsuitable either for a new form of farming or for a change in social organisation. The requirement was sufficient for the formal arrangement of the coaxial system, cast like a net across the entire landscape between the high ridges, to be broken up and sub-divided. Some of the old boundaries were used in part to create the new, but south of the scheduled area a different alignment, dictated by the topography of the re-entrant valley, necessitated complete remodelling.

The groups of aggregated fields, looped sequentially onto each other, have left more pronounced lynchets suggesting either more intensive or longer-lived arable use. However, excavation showed that, for one lynchet at least, this appearance of height was somewhat artefactual. Several characteristics of the second phase field system suggest an increased importance of stock management. The curved edges of the enclosed fields create a number of funnel-shapes, familiar as entrances to grazing areas and commons of much later periods. Keeping the valleys open would provide both wide areas for the movement of stock and richer grazing on the colluvial soils eroded from the slopes above. It is notable that Moustone valley still produces good grass used for grazing cattle whilst the surrounding slopes can only support sheep.

Again, it is not possible either to say whether or not all the groups of aggregated fields were in use at the same time, or to which settlements they related, but the larger earthworks associated with these later fields may suggest a more stable farming landscape. A movement towards the supremacy of stock could result from greater specialisation of particular settlements within the model of larger 'estates'.

The later fields represent a considerable reduction in the area enclosed and a less formal layout. A design driven, partially at least, by ideological considerations being replaced by one more closely suited to farming needs appears a strong possibility.

Whilst the differing alignments of the adjacent early field systems may have been used to emphasise the different identities of neighbouring groups the ceramic assemblage from the Middle Bronze Age to the Late Iron Age shows evidence of integration with other Sussex sites. The size of Early Bronze Age collared urns, found mainly in funerary contexts, is thought to bear a relationship to status (Woodward 1995) and this form of vessel is an insular tradition (Tomalin 1995). Deverel-Rimbury pottery, however, is found more widely distributed both in terms of domestic as well as funerary contexts in southern Britain, and as an indicator of cross-Channel links but within the tradition as a whole regional variations have been identified. However the sub-style attributed to the Sussex area (Ellison 1978) is now thought to have been part of a larger pan-regional tradition (Seager Thomas 2008). The alignment of field systems would have been a highly visible statement of identity, clear to travellers long before they reached a settlement, and more suited to a group within a society whose horizons were expanding.

In this area, and unusually, it is possible to see later use of the land. This may not represent continuity, a concept that cannot be examined with the currently available dating evidence, but the ceramic assemblage from fieldwalking in the adjoining area to the east by Joyce Biggar contains examples from every prehistoric period between Deverel-Rimbury and Early Sussex Grog-tempered wares, through into the Romano-British. A few sherds of Middle to Late Saxon pottery was probably associated with the pre-Domesday, but now deserted, village of Balmer, one of several located high on the downs. Why there should have been such an emphasis on this area and, indeed, whether or not it is unique, is uncertain, but the presence of a junction between (present) routes from the coast, over the ridges of Waterpit Hill, Balmer Huff / Buckland Bank and Balmer Down, and descending into the Weald by way of Warningore Borstal may have played a role.

In western Sussex the coastal plain provided light soils, sands, gravels and brick-earths, and here the coastline is thought to have been up to 2km seaward of the present. East of Brighton, however, the change in position of the coastline between the start of the 2nd millennium BC and the present is thought to have been far less, and the substantial rate of erosion of the chalk cliffs a recent phenomenon (Woodcock 2003). This lack of a coastal plain ensured use of the downs and, as recent developer funded excavation at Hassocks (Mullin *et al* 2010) has shown, the Lower Greensand to the north were extensively used for farming.

Here in the east enclosures on high ground are fewer in number than farther west. Ditchling Beacon, to the north-west and Wealden in its outlook, has been dated through pottery found in the matrix of the rampart to the Late Bronze Age / Early Iron Age (Hamilton 1980), although in this context the sherds could be residual and a relevant radiocarbon date has an unfortunately wide range of 902-340 cal BC (HAR-5935) (Rudling 1985). To the south-west Hollingbury is exceptional in Sussex in possibly providing evidence of intensive occupation, although only a small area of the interior has been excavated and the findings may be misleading (Curwen 1932; Holmes 1984). Here the rampart phase produced a pottery assemblage from a limited date range within the 6th century cal BC (Hamilton 1984) although the site appears to have been in use prior to the construction of the enclosure and local high status finds include an Amorican socketed axe (Thomas 1983) and a Sussex loop from nearby in Patching (White 1991). The now destroyed enclosure at Castle Hill, Newhaven, to the south-east (Field 1939; Hawkes 1939a), produced pottery, not necessarily associated with any construction phase, but in the post-Deverel-Rimbury decorated tradition dated to post *c* 800 cal BC. The Caburn, to the east of Plumpton Plain, was first enclosed during the Middle Iron Age with the rampart sealing Caburn I ware (Hawkes *ibid*) and Middle Iron Age pottery with a date range c.300-100 cal BC (Hamilton & Manley 1997), but was also the site of earlier activity producing post-Deverel-Rimbury decorated pottery.

The Plumpton Plain area may be exceptional but, in contrast with other sites, there is evidence of continued occupation of unenclosed sites which overlaps with the earliest phases of the surrounding hillforts and continues into the Romano-British period and later. A slightly shifting pattern of settlement seems more likely than any radical dislocation and continued use of the fields in Buckland Hole, close to Middle Iron Age occupation, seems probable. The lack of any later pottery, despite relatively large scale excavations, at either Plumpton Plain A or B, suggests abandonment of that occupation area, but continued use of the fields is, again, not impossible.

Chapter 6

Land use in Kingley Vale, near Chichester, West Sussex, during the 2nd and early 1st millennia BC

The bowl of Kingley Vale from the ridge of Bow Hill

6.1 Summary

Earthworks of multi-phase field systems and associated settlement sites have been surveyed. The earliest phase is represented by a rectilinear grid crossing the central spur and the two small combes within Kingley Vale, and stretching for an unknown distance south beneath present arable fields. Small areas appear to have been added to the east and west of the original grid. To north, west and east it climbs the lower slopes but is bounded by long, continuous lynchets leaving the ridges unenclosed. No settlement sites can be seen which are necessarily directly associated with this system. Overlying this grid are at least two groups of aggregated fields; these represent a decrease in the area enclosed and there are proven and probable settlement sites abutting the lynchets of this later system. This reorganisation left the ridge and the lower area of the vale apparently unenclosed and allowed access between the groups of fields. Cross dykes were built across the ridges bounding the vale to east and west, and further examples block other access points to the top of Bow Hill. The narrow ridge-like summit of Bow Hill bears a linear barrow cemetery and was also the focus of later prehistoric and Romano-British non-domestic activity.

6.2 Definition of the study area

Consideration of the evidence for 2nd millennium BC activity will be made over an area of 90 sq km, bounded west by SU77, east by SU87, north by SU15 and south by SU06. Within this detailed survey of the field system in Kingley Vale has been undertaken, and the results analysed in light of settlement patterns within the wider area.

6.3 Rationale for selection of the study area

- The topography and geology of Kingley Vale is not dissimilar from that of other case studies including Plumpton Plain and the area east of the Cuckmere in East Sussex
    - In contrast this area of West Sussex has a wide coastal plain to its immediate south, an area of more fertile soils which may have affected both the chronology and the nature of exploitation of the chalk downland
- Kingley Vale lies within the arc of Bow Hill, the summit of which bears a number of monuments dating from the beginning of the 2nd millennium BC to the Romano-British period

- The evidence for settlement activity has received a recent overview (Yates 2007) which provides a background to this more detailed study
- Kingley Vale lies in an intermediate position between the sites on Bulford Ranges and those in East Sussex, thereby presenting the opportunity, with other sites farther west, to examine regional variations in field system morphology

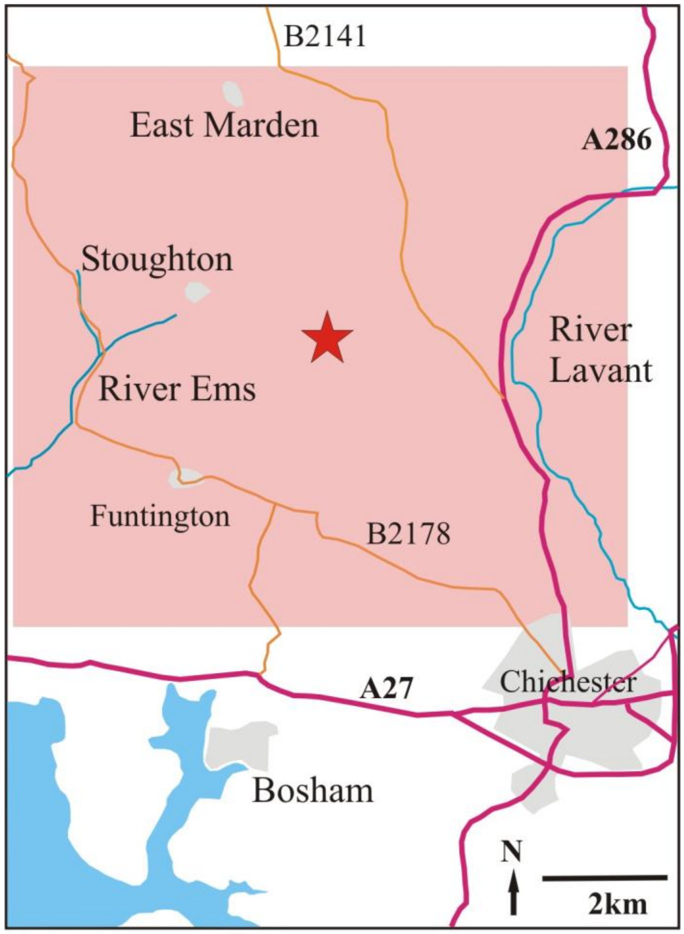


Figure 6.1 Location of Kingley Vale, West Sussex (red star) and the case study area (pale red)

6.4 Geology and topography of the study area

The location of the study area is shown in figure 6.1 and the geology and topography in figure 6.2. The study area stretches from the chalk of the South Downs, across the coastal plain between the rivers Ems and Lavant, towards the sea south of Chichester. In the north, the scarp slope of the downs lifts to the height of 170m OD at Bow Hill Farm, from whence

Figure 6.2 Drift geology (top) and topography (bottom) and the area round Kingley Vale, West Sussex with the location of the vale marked by a red star

the dip-slope descends as a series of spurs dissected by steep-sided valleys. One of these spurs, Bow Hill, attains a height of 206m OD. Much of the area on top of the downs carries a superficial deposit of clay-with-flints over Upper Chalk, here Seaford Chalk. Both the Ems and the Lavant arise on the dip-slope, the area to the north of the chalk downs draining eastwards into the Arun. Kingley Vale lies on a different member of Upper Chalk, Newhaven Chalk, which, with small local deposits of head and an outcrop of Tarrant Chalk, stretches south to the low-lying coastal plain. Here the Upper Chalk, Lower Chalk, and sandy clays of the Reading Beds are overlain by heads and gravels, and farther south by the aeolian deposit, brickearth.

6.5 Evidence of Bronze Age activity in the study area

6.5.1 The broad area

The locations of recorded sites either dated to the Bronze Age or of potential Bronze Age date are shown in figure 6.3. Despite the inclusion of data from 'grey' literature from development sites on the coastal plain (Yates 2007), the majority of sites recorded on the Chichester and District Historic Environment Record lie on higher ground above 75m OD. In most areas this is above the present and historic arable margin and may suggest preferential preservation.

The most notable distribution is that of barrows, which here mainly cluster in small cemeteries on the ends of south-facing spurs - examples include those on Lambsdown Hill and West Coppice, Funtington - as well as those known only from aerial photographs on Stoughton Down. There is also one well known linear cemetery stretching along the ridge of Bow Hill and this will be further described below. Cross-dykes also occur and again those on Bow Hill are of particular interest. Field systems, in the main not well dated, have been recorded, mainly from aerial photographic evidence, on the south-facing slopes of the chalk downs.

A number of enclosures and possible settlement sites are known, both in Kingley Vale itself and in the surrounding area and the locations of these are shown in figure 6.4. The area of a ditched, and possibly banked, enclosure underlying a Roman road at Rummages Barn, Binderton has produced a number of finds including Early Iron Age saddle querns (CD620) and a ring ditch visible on an aerial photograph has been identified as a possible ploughed

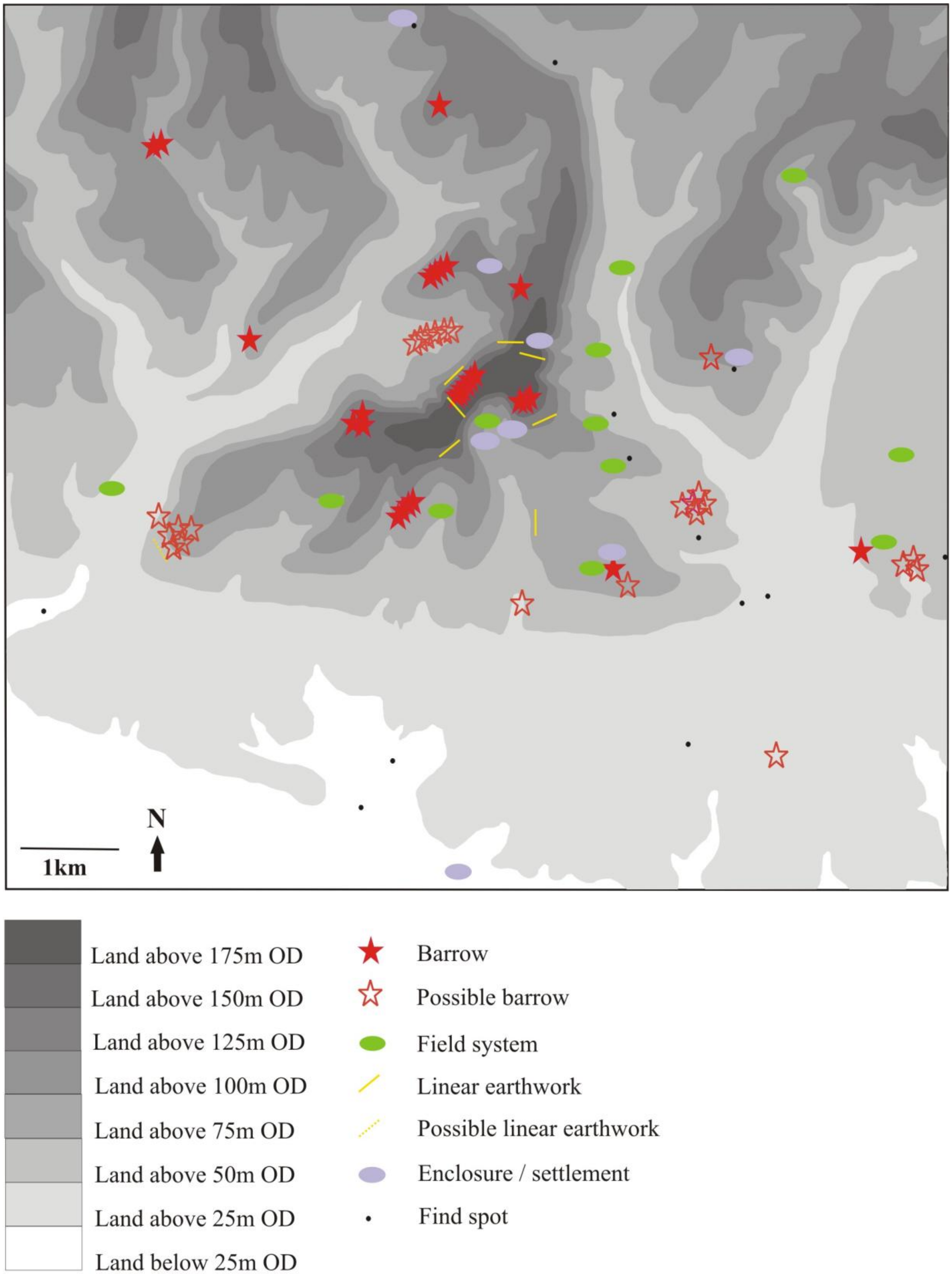


Figure 6.3 Bronze Age and possible Bronze Age sites and finds as recorded on the Chichester and District Historical Environment Record. For full data see Appendix 4

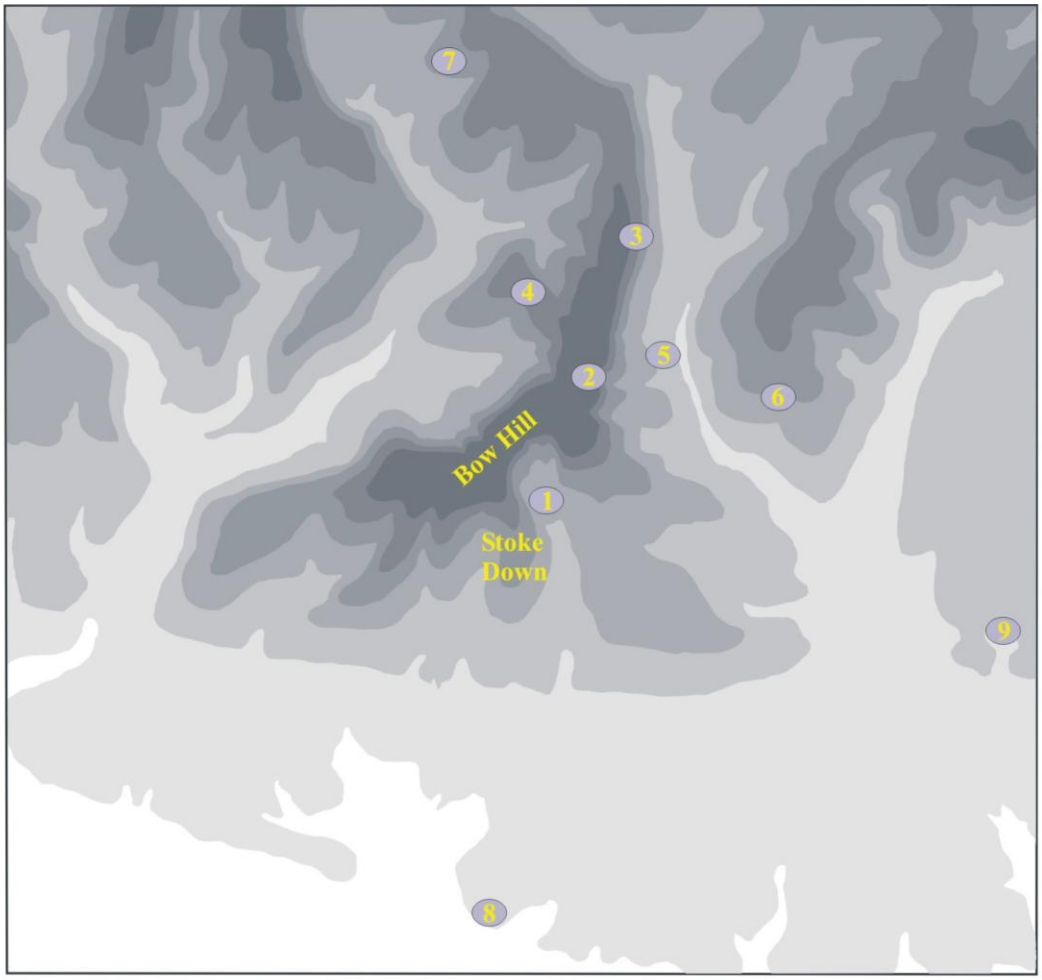


Figure 6.4 Settlement sites in the area around Kingley Vale mentioned in the text (for topographical key see figure 6.1):

1 - Kingley Vale	4 - Lambsdown Hill	7 - East Marden
2 - Bowhill Camp	5 - Dean Cottages	8 - Knapp Farm
3 - Goosehill Camp	6 - Rummages Barn	9 - Chalk pit Lane

out barrow (CD4435). Limited excavation produced pottery, mainly from the upper fills of the enclosure ditch (SU84741120; CD650), and dating to between the 7th and 5th centuries BC (Kenny 1985). A short distance west of this a 'Celtic' road running up Bow Hill from the area of Dean Cottages has been excavated (Curwen & Curwen 1925; area SU83201140; CD623). The road, described as a hollow-way running between 'lynchet-fields of Celtic type', proved to be unsurfaced and was provided with lateral ditches late in its life. Two sherds of 'coarse, flint-tempered pottery' were located, together with an amount identified as Romano-British. Bronze Age, and Iron Age and Romano-British pottery was recovered when the lynchets in this area were destroyed by bulldozing (CD626) but the nature of their recovery makes their use in dating lynchet formation unreliable.

At Chalkpit Lane, Lavant (Kenny 1993; Chadwick 2006; SU868095; CD2400, 2403, 5127, 5139 & 5151) there was evidence of occupation either intermittently or over a long period. A number of Early Bronze Age cremation burials, associated with Deverel-Rimbury tradition pottery, placed within ring ditches and possibly beneath small barrows, were located on the side of a slight valley. One of these ring ditches / barrows was later used as a sighting point for the laying out of a ditched system of land division. Further Middle Bronze Age urned cremations were located, one of which provided a radiocarbon date of 1420-1160 cal BC (NZA167699), but the nearby settlement post-dated these burials. That settlement, partially bounded by fences and ditches, was associated with local cereal production. During the Middle Bronze Age / Late Bronze Age a ditched drove-way ran roughly north - south between fields and postholes and palisades were also located.

The same excavation also revealed almost 50 pits of which seven produced Late Neolithic and Early Bronze Age pottery including Mortlake ware and a primary series collared urn, flint scrapers, antler, a carved chalk drum and a human cranium. A further pit produced a Sussex loop and a gilded bronze decorated annular armring considered to date to the Middle Bronze Age and three pits contained Late Bronze Age pottery vessels which had been full of fire cracked flints, a further seven pits contained fire-cracked flints alone. One pit produced a mixture of emmer, spelt and barley, and a radiocarbon date of 1010-800 cal BC (NZA-16502). The site, which later contained an unenclosed Iron Age settlement and evidence of Late Iron Age / early Romano-British activity, appears, in its earlier phases, to have been a long-lived ‘special’ area of some local importance.

A similar situation may have pertained at a further site at Oving, close to Chichester but just east of the present study area, where a Middle Bronze Age pot base contained 3.8kg of fire-cracked flint (Kenny 1992). Other apparently deliberate depositions of domestic objects or material include the burnt quern fragments from the floor of one of the Late Bronze Age round houses on New Barn Down, West Sussex (Curwen 1934). A review of deposits of fire cracked flint and other burnt stone including greensand, within pottery vessels in south-east Britain recognises these as part of a Late Bronze Age tradition of deposition which varied in both the type of component and its treatment (Seager Thomas 2010). In some cases all the contained matter had been burnt but in others unburnt artefacts were also included. These stones, whose colour changes notably on exposure to high temperatures, appear to take on a symbolic importance at the end of their functional lives, when their deposition most frequently associated with burial contexts but sometimes occurs on settlement sites. Brūck (2001) links the similarity in appearance of fire cracked flint and cremated bone with cooking and cremation in viewing each as a portion of the life cycles of people and their possessions. More recently this position has been seen to require some modification both by the experimental finding that flints used for cooking in water, so-called pot boilers, do not take on the characteristic appearance of fire cracked flint, and by the inclusion in a number of depositions of burnt sandstone, which appears red not white (Seager Thomas 2010). One possible interpretation of this combination, retaining the proposition that these assemblages symbolise life cycles, is that the red of burnt sandstone represents flesh whilst the white fire cracked flint resembles cremated bone, thus the combination symbolises a fragmented body, a mid-point between life and the 'total' death of skeletal remains. A different scenario could be posited from the use of sandstone, particularly Lodsworth Stone to produce saddle querns found on sites dated from the Middle Bronze Age onwards (Shaffrey & Roe 2011). Are the small pieces of burnt sandstone fragments of, or pieces representative of querns – and a reference to the agricultural cycle?

At Knapp Farm, Bosham, on the coastal plain, field-walking and excavation in advance of road development produced a multi-period site which included a number of inter-cutting pits of Late Bronze Age date (Gardiner 1987; SU81960605; CD1893). No evidence was found of structures but these may have lain outside the excavated area. The pits contained pottery, charcoal and fire cracked flint; the occurrence of sherds of the same vessel in spatially separated pits, together with the apparently careful deposition of one particular pot (in pit 329) was used to suggest that the site was 'closed down' by levelling prior to abandonment with possible symbolic placement of the nearly complete pot (Hamilton in

Gardiner 1987). Similar phenomena had been noted at an approximately contemporary site at Yapton (Hamilton in Rudling 1987); this latter site has a radiocarbon date of 824-777 cal BC and the Knapp Farm assemblage of post-Deverel-Rimbury tradition plain ware is thought to fall between the 10th and 8th centuries BC.

At East Marden excavation of a number of sections across a ditch produced a small pottery assemblage and led the excavators to place construction of the settlement enclosure ditch in the Early Iron Age although four sherds of Early Bronze Age pottery, including one from a collared urn, in the primary silts suggests activity at an earlier date (Down & Welch 1990; SU81291483; CD655).

On Lambsdown Hill a rectangular enclosure abuts a cross-dyke and is thought to be of Late Bronze Age date, although there appears to be no evidence for this assignation (SU82021237; CD604). Similarly lacking in dating evidence was a crouched inhumation burial found during building works at the White Horse pub, Chilgrove and preserved *in situ* (SU82761446; CD7131).

A little outside the study area is the banjo enclosure at Carne's Seat, Goodwood where field walking and limited excavation produced a small amount of Late Bronze Age / Early Iron Age pottery, not associated with any features (Holgate 1986; SU88760945). Commercially funded archaeological interventions, largely resulting from PPG16, have produced a number of sites on the coastal plain of Sussex; although none are within the area of this case study their presence is relevant to developments in the wider area (Yates 2007, 156-157). One just outside was at the site of the cattle market in Chichester (SU 865046; WSx HER 4496) where Middle Bronze Age pottery was associated with cultivation evidence.

At Ford Airfield a coaxial field system with the fields spaced between parallel drove-ways and a possible high status enclosure, produced Late Bronze Age pottery and radiocarbon dates from charcoal in a pit possibly overlying one of the drove-ways of 1130-820 cal BC (BETA-144445) and 1120-820 cal BC (BETA 144446). Food remains included emmer

(*Triticum dicoccum)*, spelt (*Triticum spelta*) and barley (*Hordeum vulgare*), and controlled movement of animals was envisaged (Clouston 2000).

6.5.2 The core area

The area to be studied in detail comprises Kingley Vale and its surrounding high ground, Bow Hill and Stoke Down. Bow Hill, a significant place within the local topography, with a wide viewshed particularly from the narrow ridge between its summit and Stoke Down, bears a number of monuments and has clearly been regarded as a special place over a long time frame. Set along the narrow ridge is a linear barrow cemetery, the Devil's Humps, comprising at least six mounds, two ditched bowl, two bell and two pond barrows. Three were excavated in 1792 and a campaign also took place in 1853, with further work in 1933 (CD HER), and an Early Bronze Age / Middle Bronze Age date has been assigned to the cemetery. A remarkable complex of cross-dykes delineates the summit of the ridge and, although little dating evidence exists for this class of monument as a whole, they are generally thought to relate to the Late Bronze Age. Two of these cross-dykes were reused as part of the rectangular enclosure known as Bow Hill Camp (Haskins 2009; SU82561164; CD577). This enclosure, with its simple east-facing entrance was thought by the survey team to possibly be medieval in date but recent excavation has shown it to date to the Iron Age (Dave McOmish pers comm.). The enclosure known as Goosehill Camp (Boyden 1956; SU830127) has been assigned on the basis of the ceramic assemblage to the 5th to 3rd centuries BC (Hamilton & Manley 1997). The summit of Bow Hill remained important into the Romano-British period when it became the site of a building, possibly a temple and evidence of activity around the barrow cemetery in the same period may well be of ritual significance (Williams 1997).

Stoke Clump (Cunliffe 1966; SU833094; CD1029), part of a ridge running south from the main mass of Bow Hill, has produced pottery over a long period including a collection made by Rev WA Shaw (*ibid*). The assemblage includes one sherd each from the Neolithic and Beaker periods but the main bulk has been assigned to the Early Iron Age (*ibid*). More recently this pottery has been placed within the final phase of the post-Deverel-Rimbury tradition, and therefore dated towards the end of the period c.1150-500 cal BC (Seager Thomas 2008).

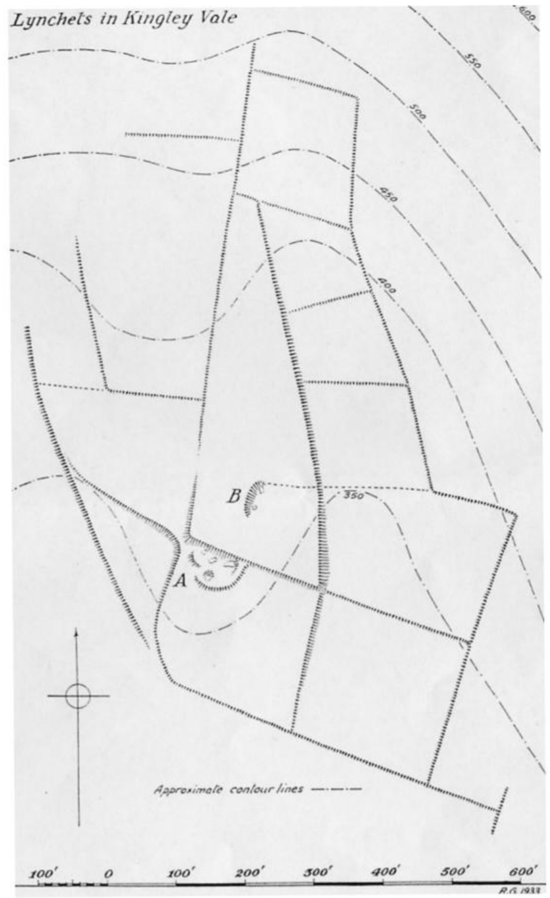


Figure 6.5 Field system and settlement sites in KingleyVale, West Sussex (Curwen 1934, fig 1)

Over the lower ground of Kingley Vale is a field system (area SU82261069; CD575) and settlement site(s) (SU8219910761 & SU82231077; CD588) which have been subjected to limited survey and excavation (Curwen 1934; fig 6.5). The field system lies across a small spur central within the vale and the valley to its east, and does not appear to encompass either the surrounding steep scarps or the lower ground to the south. One proven settlement site lies on the spur and a further possible site on its eastern flank. Excavation of the former, site A, produced few diagnostic finds. A pit (site I) contained what would now be recognised as a placed deposit comprising, in the lowest part of the fill, a bone awl and a perforated vessel, possibly either a lamp or a strainer, and, in the topsoil fragments of saddle querns, two hammerstones and flint flakes. Curwen was aware of Saxon parallels for this vessel and this later, Early Saxon, date has been confirmed (Welch 1983, 503-4). In a small hollow (site IV) were found 'four small sherds of coarse, friable and gritty pottery identical in quality and colour with the Late Bronze Age pottery from the New Barn Down site'. Pottery from New Barn Down is placed within the Deverel-Rimbury tradition (Seager Thomas 2008). The excavator expressed uncertainty over the period of the settlement and the surrounding field system, even considering a Romano-British date, but a single Romano-British sherd in the topsoil does not obscure the similarity with other prehistoric sites, and a genesis within either the Middle Bronze Age or, as Curwen suggested, the Late Bronze Age seems most likely.

A further possible settlement area (SU82021061; CD649) has been scheduled although no evidence of its origin, other than morphological, appears to be available, and World War 2 activity, particularly the blowing up of a tank, may be responsible for some of the earthworks (Dave Mercer pers comm.). Aerial photographs taken in the immediate post-war period unfortunately do not cover this area.

6.6 Analytical survey of the field systems

A level 3 analytical survey (Bowden 1999), using tape and offsets, was undertaken within the National Nature Reserve in Kingley Vale, covering the area over which lynchets could be located as above ground earthworks. Fixed points mainly related to the boundary fence but locational checks were made using a handheld GPS Eltek. A small area was not accessible due to fallen yew trees (*Taxus baccata)* and adventitious vegetation and fallen trees also limited observation on the steep slopes in the north-western section of the bowl. It is recognised that some data may have been lost in these areas but they comprise less than 5% total land surface. In addition to the field systems a probable settlement site was subjected to detailed survey to investigate its relationship with one of the field boundaries.

6.6.1 Survey results

Results of the survey of the field systems are shown in figure 6.6 and in an interpreted form in figure 6.7, and that of the probable settlement site in figure 6.8.

Figure 6.6 Results of an analytical survey of earthworks in Kingley Vale, West Sussex. Contours are shown at 10m intervals, with land below 65m OD left white.

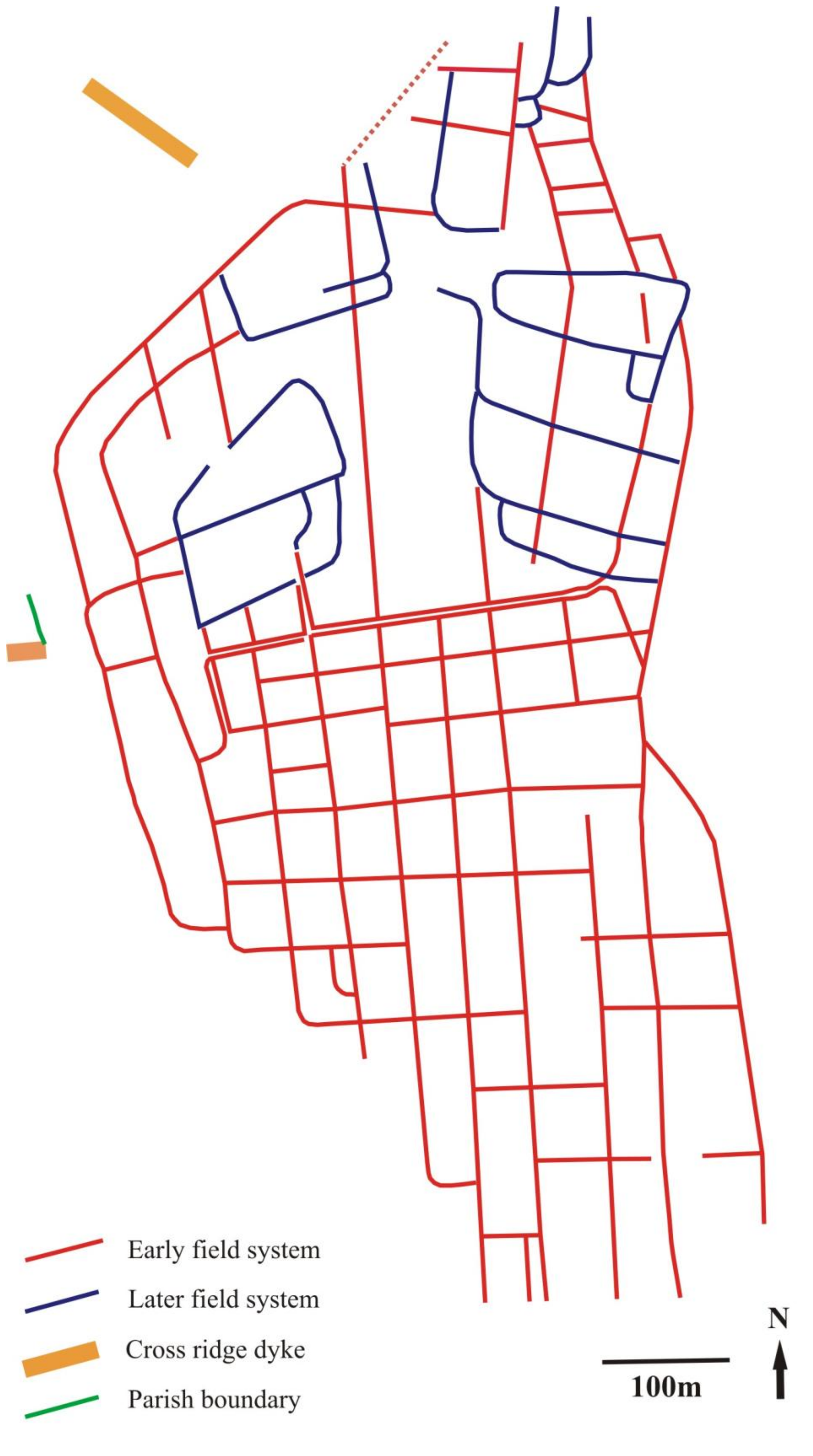


Figure 6.7 Phase relationships of earthworks recorded during an analytical survey at Kingley Vale, West Sussex

The earliest visible earthworks in Kingley Vale are the lynchets bounding the fields in a rectilinear grid, aligned north / south, crossing the central spur within the Vale, stretching up the sides of the ridges to west, north and east, and continuing across present arable fields to the south. In the central area individual lynchets have been traced for a distance of over 1km from the steep slopes below the summit of Bow Hill to beyond the southern boundary of the National Nature Reserve and these are crossed at right angles by a series of east / west boundaries. As the valley widens towards its southern end and below the curving western ridge extra rows of fields appear to have been added to the central band. Some of the southern fields in the western strips have notable rounded south-western corners suggesting a lack of intention to extend the field system westwards. A single strip was added outside the long eastern boundary. Within the head of the valley fields stretch onto steeper slopes than would seem likely to have been suitable for ploughing yet farther south, they do not extend up the lesser slopes.

Where a total of nine parallel north / south boundaries have been surveyed the distance between them averages 47m (47 ± 6m, mean ± SD; range 40-56m) whilst the distance between the east / west boundaries averages some 55m (55 ± 5; range 44-60; n = 9). The area of the fields where all boundaries had been located averages 2.5ha (2.5 ± 0.5ha; range 1.7 – 3.6ha; n = 37).

There appears to be a tendency for smaller fields to have been created on the steeper slopes in the head of the valley with the northern enclosures averaging 1.9ha in area against 2.7ha on the flatter ground to the south (1.9 ± 0.1, n = 12 vs 2.7 ± 0.4, n = 12, mean ± SD) but this difference fails to meet mathematical significance (Student's 't' test, one tailed, paired values, 95% confidence limits). Although there is some variability, probably due in part to the known episode of ploughing during World War 2, the lynchets associated with the earlier field system are slighter that those bounding later fields.

A single track can be seen running east / west through the fields and appears to be integral to the grid system. At both western and, particularly eastern, ends there are funnel entrances to this trackway. At both ends these lead into enclosed parcels of land and, whilst this may have been an intentional part of a stock handling system it is also possible that these areas were enclosed as part of the additive strips. A short length of track leads north to give access to an area including one of the later enclosed settlements (CD649).

This grid of rectilinear fields is overlain by a number of aggregated groups of fields which, in the majority of cases, are bounded by larger lynchets and, in some cases, have playing card shaped corners at their outer limits. One of these groups occupies the central, slight spur and the valley to its east, whilst a second lies to its west. None of these later fields were placed on the lower ground at the southern end of the Vale. These fields are more variable in area than those of the earlier system but overall tend to be larger (4.8±1.8ha, mean ± SD, n = 9). However, in totality, the aggregated fields represent a considerable decrease in enclosed land relative to the earlier coaxial grid, probably by a factor of at least four.

A number of possible settlement sites have also been located, although known extensive military use of the Vale from the late 19th century to WW2 may well be responsible for some of the scoops. However, those scattered within the fields of the early system in the southern portion of the Vale are within mature yew woods (*Taxus baccata*) and, in view of the lack of any apparent shrapnel damage to the trunks, are likely to be of considerable age and may represent prehistoric settlement sites. The finding of fire cracked flints in their general area adds some weight to this identification. These sites occur mainly in field corners and any phase relationship with the lynchets is not clear from surface evidence alone.

Three proven and possible settlement sites do relate specifically to the boundaries of the later, aggregated fields. One of these produced prehistoric, possibly Deverel-Rimbury tradition pottery (CD 508; SU82201076; Curwen 1934), a second (SU82001083) may have been the site where a tank was blown up during World War 2 (Dave Mercer pers comm.) and the visible earthworks may result solely from that event, whilst the third (CD 649; SU82021061) is that subjected to detailed survey (fig 6.8). Here a semi-circular, banked enclosure has been constructed abutting and post-dating the lynchet. The portion of the lynchet immediately north of the enclosure is steeper and narrower than those on either side; this may suggest either that the settlement was partially cut into the lynchet or that a portion of the field was specifically taken out of arable use after the enclosure had been constructed. Scoops located inside and immediately to the east of the enclosure may represent contemporary features or, given the amount of military activity in this area, later disturbance. There is access from the south by way of a track leading from that which runs through the earlier field system.

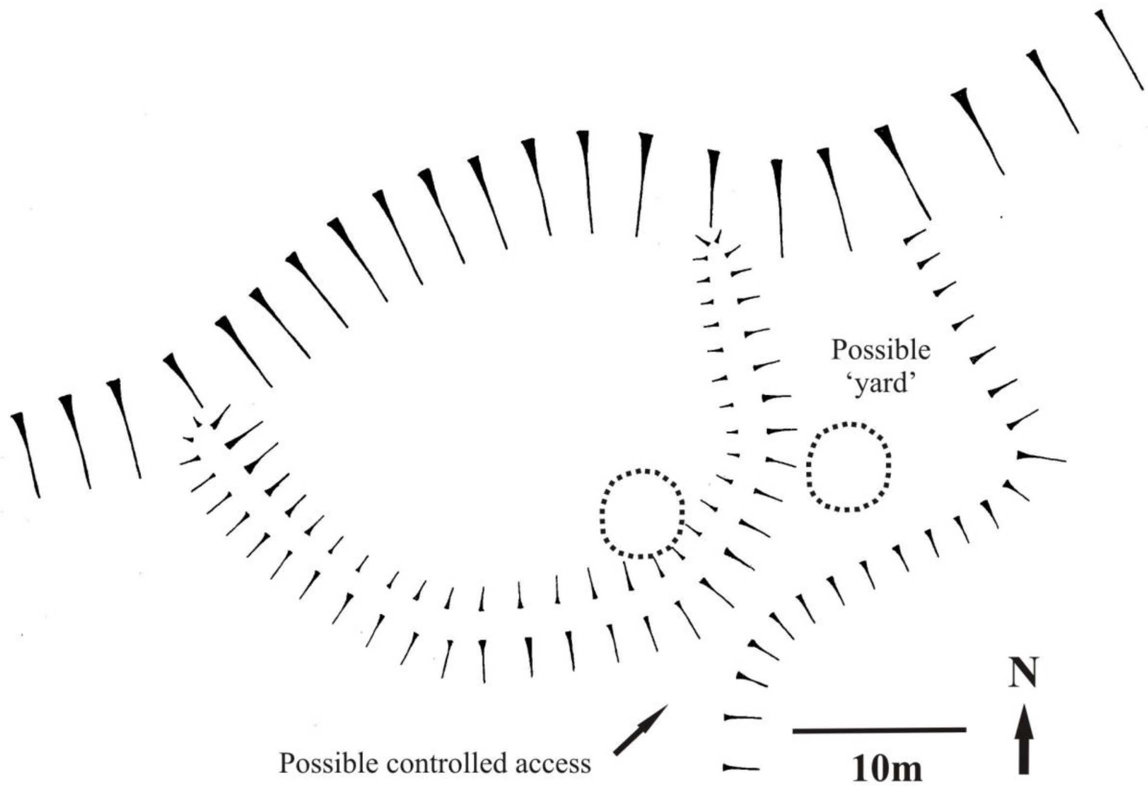


Figure 6.8 Survey of a probable enclosed settlement site, its relationship with a lynchet from the later field system and possible adaptation of a lynchet from the earlier field system (CD649; SU 82021061). The scoops indicated by dotted circles may result from later military activity

The two enclosures CD 508 and CD 649 bear a remarkable similarity to each other. Both are appended to the southern, down-slope sides of lynchets of different aggregated field systems and each has controlled access around its outer side created by a curving boundary approaching, but not abutting the enclosure bank. Gates or hurdles across these narrow points and the track approaching the western settlement would have allowed control of movement into a yard immediately adjacent to the habitation area. The sequence of development suggests an early field system used and modified at a later period. Whilst it is clear that the possible settlement site eventually cut into a field boundary from the later system, with the enclosure partially overlying the lower portion of the lynchet, it is possible that the settlement was originally open and the enclosure a later addition.

To the west of Kingley Vale two cross dykes have their eastern termini within the National Nature Reserve. The southern example (CD644) has been extended eastwards with a northern return comprising a relatively slight bank with a down-slope ditch, and this earthwork represents the boundary between Stoughton and Funtington parishes. Farther west however a major bank with up slope ditch and, westwards again, a double bank with a central ditch crosses the spur. A cursory inspection suggests this earthwork overlies the presumed prehistoric field system on Stoke Down and appears to have a previously unrecognised square enclosure, with approximately 100m sides, appended to its northern bank.

The northern cross-dyke (CD 580), also with its ditch up slope from the bank, crosses the same spur but encompasses three alignments in its 230m length. It is situated almost at the top of the spur immediately south-west of the westernmost barrow in the linear cemetery known as the Devil's Humps (CD562, 563, 570-573).

6.7 Pottery from Barnett Copse, Chalton, Hants

Although outside the study area this rare example of secure and early dating for a field system boundary has relevance to the wider area and is therefore included here.

Whilst an extensive survey of the area round Chalton, Hants was being undertaken an inurned cremation burial was accidentally exposed during forestry work and the pot and its contents recovered under rescue conditions. The site (area SU743157) has been mentioned in publication (Cunliffe 1973) but the form and fabric of the urn was only briefly described. The relevance here is that the burial was placed over a well-developed lynchet – a section drawing, photograph of the urn and fragments of the base are held by Portsmouth City Museum. Clearly of some status, the burial was furnished with a jet pendant, amber beads of both segmented and biconical type – unfortunately none of this assemblage nor the urn itself can now be found, but a photograph remains (fig 6.9) and its fragments have been assessed.

6.7.1 The urn from Barnett Copse, Chalton, Hants *by Mike Seager Thomas*

The main text of this report may be found in Appendix 4. In summary, the vessel is a biconical urn whose fabric probably dates to before *c.* 1700 cal BC.

Figure 6.9 Cremation urn from Barnett Copse, Chalton

6.8 Relative and absolute chronology

- The rectilinear field system pre-dates the agglomerated fields
    - A similar field system on Stoke Down can be seen to probably underlie a cross-ridge dyke
- The enclosure of a possible settlement site overlies one of the boundaries of one of the agglomerated fields

- A similar settlement site has produced pottery described as similar to that from New Barn Down which is Deverel-Rimbury tradition dated to between *c*1700 cal BC and *c*1150 cal BC

6.9 Discussion of land use in Kingley Vale during the 2nd and early 1st millennia BC

The remarkable state of preservation of earthworks on Bow Hill and in Kingley Vale allow construction of a conjectural narrative of landscape development over a period probably approaching a millennium.

The cluster of barrows on the eastern spur (CD 582-584) were excavated in 1859 and produced burial urns, described as having inverted overhanging rims, and now considered among the later of the collared urn series dated to the first half of the 2nd millennium BC (Longworth 1984, pl 215). Although archives from antiquarian investigations do not survive, the linear barrow cemetery decorating the high arc bounding the northern ridge overlooking Kingley Vale, known as the Devil's Humps, is likely to belong to the same period, and may predate the visible field systems and settlements.

The earliest visible field system, covering an area of at least 60ha, was draped over the central spur and stretched up the steep slopes. Although this system gives an impression of rigid formality, it is most unlikely that the entire area was under use for grain production at any one time. The yield of einkorn (*Triticum monococcum*) has been calculated from experimental crops as averaging 1.4 tonnes / hectare (Reynolds 1979, 59) – even a tenth of the visible field system could have produced 8.4 tonnes of grain with an average protein content of 17.5% dry weight (*ibid* 60). Allowing 45g protein per individual per day, this food source alone would be sufficient to provide the required amount of protein (although lacking the essential amino acid lysine) for some 90 adults. Given the prevalence of such field systems in the area this population figure is unlikely. The whole field system may not have been in use or even constructed at the same time – piecemeal development over a period of time but conforming to an existing template is equally possible. This field system cannot be securely dated and no settlements can be directly associated with it. The slight nature of the lynchets, even within yew woods of considerable age where they could not have been abraded by ploughing during World War 2, might suggest short-term, non-intensive or non-arable use. However, despite the age of the yews, it is not impossible that erosion of softer, perhaps loessic, topsoils through ploughing subsequent to the abandonment of the early field system reduced its lynchets to the low, chalk cut, remains now visible.

The early field system left only the high eastern and western ridges surrounding Kingley Vale unenclosed, presumably allowing access both for possible grazing on the highest portion of the downs, and for use by through traffic. Aerial photographic evidence suggests the presence of further rectilinear field systems in the valleys beyond both eastern and western spurs (Bradley 1971 fig 3). Whilst the main axis of the system in Kingley Vale is north / south that to the west, on Stoke Down, has an axis approximately 80^{o} and that on the eastern slopes of Bow Hill one of 20^{o} east of north. These alignments appear to be largely determined by the local topography but may also have served as community identifiers – certainly the rigour with which the alignment in Kingley Vale was observed suggests some strong cultural requirement. The question arises of the source of wood for any of these communities, assuming they were contemporary. Obtaining timber for construction, coppice wood for wattling and hurdle making, brushwood faggots for industrial and domestic heating would have been a constant necessity and, whilst the occasional requirement for the first of these would have made relatively distant production possible, frequent use of small-wood renders very local sources, in our terms at least, convenient. The Weald to the north could have provided timber and field boundaries marked by hedges would have been a source of brushwood but coppice wood, with the need to protect young shoots from grazing animals, is more efficiently grown in small parcels of land. Coppice stools could have been grown in some of the enclosed parcels, otherwise only the steep, north-facing slope of Bow Hill appears available.

It is not possible to say there was a hiatus between abandonment of the early field system and construction of its successor, but both cultural and economic requirements had fundamentally changed. The later boundaries sometimes directly overlie the earlier ones but more often do not and the ‘playing card’ shaped corners, if that was the original design, suggest enclosure from land considered previously unenclosed despite visible evidence to the contrary. However, erosion over two boundaries set at right angles might well produce a rounded corner. Clusters of fields left access for movement throughout the valley and the entire southern portion appears to have been left unenclosed. The larger lynchets suggest either more intensive or longer lasting use; these fields may represent the area of land actually necessary to support the population in terms of arable production. The lack of any formality in the layout is a clear break with the past, emphasised by the deliberate choice not, in most cases, to utilise the existing boundaries. Leaving both the flat ground at the southern end of the Vale and land between the agglomerates unenclosed suggests an increased requirement for movement, and for open grazing on the lusher vegetation, possibly indicating an increased importance for stock within the farming economy.

The two main aggregated field systems are associated with enclosed settlements - indeed, the similarity in layout between the two is remarkable. Detailed survey of the western settlement indicates that it post-dates development of its adjacent lynchet. Given the probable finding of Deverel-Rimbury tradition pottery at the eastern settlement (Curwen 1934) a tentative dating of *c*.1700-1150 cal BC may be assigned (Seager Thomas 2008), with both phases of field systems pre-dating those settlements.

Concern has already been expressed at the identification of the extreme eastern portion of the lower bank across the spur bounding the western side of Kingley Vale. Whilst the major earthwork is clearly a prehistoric cross-ridge dyke, the return may have been constructed *de novo* as a parish boundary or may represent medieval re-use of an earlier boundary. This, the upper cross-dyke on the same spur, and others in the area, have few visible phase relationships with other earthworks thus contra-indicating even relative dating, and all may not be contemporary. However, indications that the lower cross-dyke on the western spur overlies the field system on Stoke Down, whilst ‘British Camp’ on Bow Hill, which has produced Middle Iron Age pottery (Mark Roberts pers comm.), clearly reutilises two of the cross-ridge dykes, allows the tentative suggestion of a Late Bronze Age date for these earthworks. The complex of cross-ridge dykes on Bow Hill has received considerable attention and, with others on the South Down, is considered to control access to, and define areas of downland grazing (Bradley 1971). Those across the spurs to east and west of Kingley Vale combined with examples limiting access up the slopes from the north, do appear to isolate the main ridge of Bow Hill. It has been suggested (*ibid*) their presence might indicate that movement took place along tracks on lower ground, towards the coastal plain, but recognition of the southern extent of the field systems renders that less likely. Field observation of a major terrace-way placed along the contours on the south-facing slope below 'British Camp' (not surveyed) marks an undated route on high ground but skirting the summit of the main ridge. If the cross-ridge dykes were contemporary with the second phase field systems, unenclosed ground would have existed between them and the fields, albeit on very steep slopes. Movement along the ridge may have been made difficult rather than impossible – an indication of the arrangements for land division rather than a barrier to progress. However, assuming little tree cover, these white chalk constructions on high ground would have been highly visible from a distance and may have indicated permitted, though controlled, access points. The smaller aggregated field systems, located on lower ground, would have been less visible from a distance, particularly from the coastal plain, than the earlier rectilinear grid. The cross-ridge dykes, particularly if their chalk flanks were kept clear of vegetation, would therefore become visible indicators of a settled community in some way claiming rights to the land, rather than the field systems themselves. Certainly their careful positioning, across the flat topped ridges but ending on steep slopes on either side, acts as a considerable, though not absolute, barrier to progress.

The settlements and field systems in Kingley Vale are only part of a landscape remarkably well filled with evidence of Bronze Age activity, although few sites have provided sufficient dating evidence to examine their contemporaneity in any detail. What is clear however is that the density of use observable on the chalk downs is reflected by that on the wide coastal plain to the south. A notable cluster of sites close to Chichester including Drayton (Seager Thomas in prep), Claypit Lane, Westhampnett (Every & Mepham 2006), Westhampnett (BMW Factory) (Wessex Archaeology 2002a), Westbourne (Musson 1954) and Chichester Cattle Market (*ibid*), has produced collared or biconical urns dated to the first half of the 2nd millennium BC. Farther east sites at Waterford Gardens and Yapton Road, both in Climping (both Barber & Seager Thomas unpublished), at Ford Airfield (Hamilton 2004), Wickbourne, Littlehampton (Musson 1954; Gilkes 1992), Roundstone Lane, Angmering (Seager Thomas 2008) and close to the eastern end of the coastal plain at Charmandean, Worthing (Musson 1954; Seager Thomas 2008) have all produced these types of Early Bronze Age pottery. Whilst continuity in any literal sense cannot be proven, Deverl-Rimbury pottery, in Sussex dated to between *c*.1700-1150 cal BC, was also found at Drayton, Claypit Lane, Westhampnett, both the sites in Climping, Ford Airfield, Wickbourne, Roundstone Lane, Angmering and at a number of additional sites including East Beach, Selsey (Kenny 1989), Kingston Buci (Curwen & Hawkes 1931) and Centenary House, Worthing (Every & Mepham 2006). In all some 11 sites between Chichester and Worthing have produced collared or biconical urns, 16 Deverel-Rimbury tradition pottery, 18 post-Deverel-Rimbury plainware or developed plainware, but only five locations for post-Deverel-Rimbury decorated wares which bridge the Late Bronze Age / Early Iron Age transition and four for Middle Iron Age saucepan pots (Seager Thomas pers comm.).

This difference, seen elsewhere in the country, is difficult to discuss in the absence of any real information of the longevity of individual sites. It may be that the numerous Early Bronze Age and Middle Bronze Age sites were small and of short duration, to be followed by a more nucleated pattern of a smaller number of larger and longer-lived settlements. Equally this observed reduction in the number of settlements could reflect a move away from the coastal plain or a major reduction in the size of the population. However, even allowing for taphonomic processes, it is clear that a major change took place at very approximately the period of transition between post-Deverel-Rimbury plain ware and developed plain ware as the dominant ceramic form, and the currency of post-Deverel-Rimbury decorated pottery; the present view is that this change took place *c*. 800 cal BC or perhaps a little later (Seager Thomas 2008).

Dating of enclosures on higher ground is also less than certain. Several, both in Sussex (Hamilton & Manley 1997) and Surrey (Seager Thomas 2010), have produced evidence of post-Deverel-Rimbury or earlier pottery, but the contexts are frequently not necessarily related to the construction or occupation phases of the enclosures. Of those close to Kingley Vale, Bow Hill Camp has produced surface finds of Late Bronze Age and Middle Iron Age pottery (Mark Roberts & Dave McOmish pers comms) whilst Goosehill Camp has produced 5th to 3rd century BC pottery from low in the ditch fills (Boyden 1956; Hamilton 1977; Mark Roberts pers comm.). Further afield Harting Beacon has produced PDR decorated tradition pottery dated to post *c.* 800 cal BC from contexts clearly associated with the enclosure ditch (Morris 1978; Hamilton & Manley 1997; Seager Thomas 2008); Torberry has produced similar pottery (Cunliffe 1976), and from pits within the interior of the Trundle comes a mixed assemblage of Late Bronze Age and Middle Iron Age pottery – in both these cases the early occupation may well pre-date construction of the enclosure (Hamilton & Manley 1997). The location of 'early' hillforts set specifically to overlook the western end of the Weald in both Sussex (*ibid*) and Surrey (Hooker & English 2009) has lead to the suggestion that Wealden resources, possibly iron, had become important to the economy of the period. However, none of these enclosures have provided evidence of intensive occupation, although larger-scale investigation may change that interpretation, and the location of settlements occupied by the majority of the farming population remains uncertain.

In Kingley Vale this change in settlement pattern appears to be reflected in the abandonment of low-lying settlements (although a caveat here relates to the notably poor dating evidence). This does not necessitate any belief that the field systems were also abandoned; clearly they could have been farmed from settlements elsewhere. However, the impression is given of a formally organised landscape with resources from a number of different ecozones being fully utilised during the 2nd millennium BC. What is inescapable is that a change in field system morphology, possibly reflecting an increased interest in stock raising, took place. Major changes in settlement pattern may or may not have been contemporary, but the determining factors, be they demographic, socio-political or economic, require explanation.

Chapter 7

Land use east of the Cuckmere River, East Sussex, during the 2nd and early 1st millennia BC

Aerial photograph of field system on Lullington Heath taken by Major Allen *c.* 1930 and reproduced with the kind permission of the Sussex Arch Soc

7.1 Summary

Three areas were surveyed in detail, Tenantry Ground, Fore Down and Lullington Heath. On Tenantry Ground an aggregated field system of at least two phases underlay a cross ridge dyke and overlay rectilinear systems, again of at least two phases. These latter systems stretched down into the valleys on either side. On Fore Down the remains were less well preserved but several phases of field system could be observed and here a lynchet could be seen to underlie a barrow of presumed prehistoric date. On Lullington Heath, where loess still overlies the chalk, further rectilinear and aggregated systems were surveyed and some lynchets could be seen to have been overlain by settlement sites. Notably, the large aggregated system can be seen to have clear, topographically determined, outer boundaries. The wider area exhibits intensive use on the chalk downs, and considerable prosperity in terms of rich burials and metalwork hoards, when compared with Kingley Vale, in a portion of the south coast lacking the fertile agricultural land of the coastal plain.

7.2 Definition of the study area

The area comprises some 80sq km in East Sussex bounded on the north by grid line TQ07, on the south by TV95, on the west by TQ/TV51 and on the east by TQ/TV59. Within this wider area three largely contiguous portions lying between Windover Hill and Fore Down has been subjected to detailed survey and analysis.

7.3 Rationale for selection of the study area

- The area carries a large field system with good above-ground preservation
- A series of excellent aerial photographs by Major Allen survive which covers the few areas which have been subjected to modern ploughing
    - All aerial photographic evidence has been transcribed as a pilot project by the National Mapping Programme.
- The location provides an opportunity to study an area of the South Downs where there is now no coastal plain, although the exact position of the coast during the period under study is uncertain, but a wide resource base would have been provided by the Cuckmere estuary and valley

- A direct comparison is available at Black Patch, on the opposite side of the Cuckmere

- Some investigation of the settlement site on Fore Down has been undertaken
- Observation of a pipeline trench dug through the southern portion of the field system on Fore Down provides some stratigraphic evidence
- Neither of the above interventions have provided a substantial body of evidence of later occupation

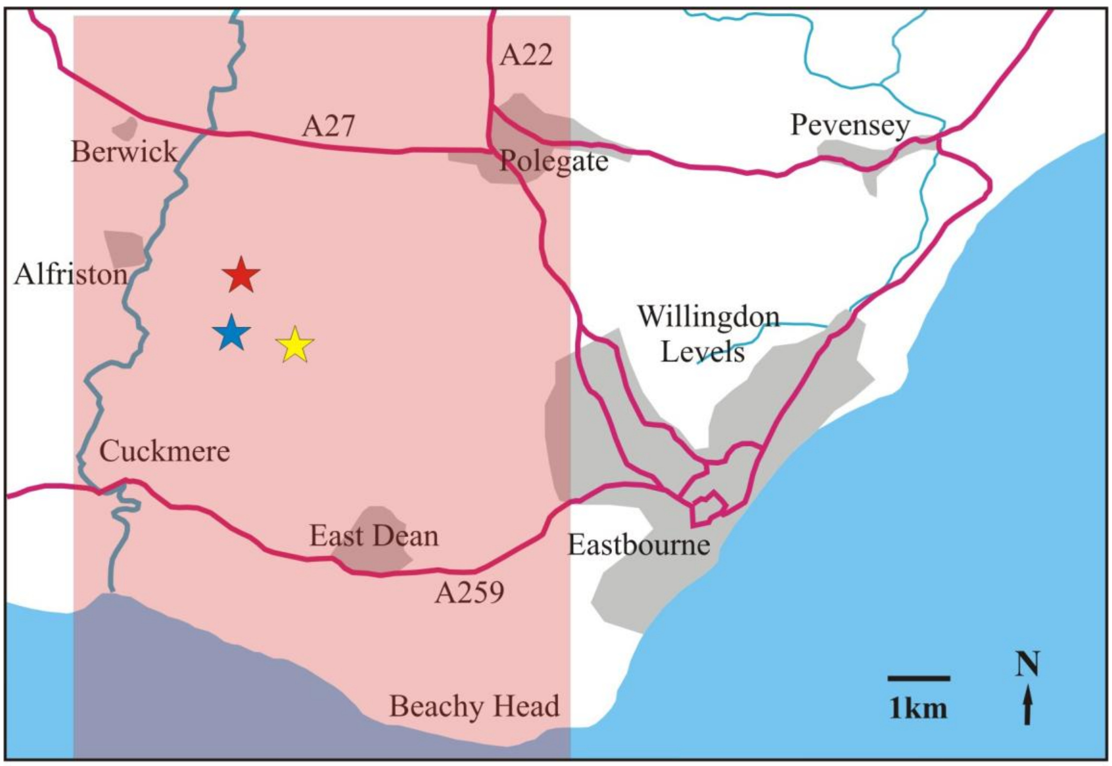


Figure 7.1 Location of the study area (red) east of the Cuckmere River, East Sussex showing positions of the detailed survey areas of Tenantry Ground (★), Fore Down (★) and Lullington Heath (★)

7.4 Location, geology and topography of the study area

The location of the study area is shown in figure 7.1 and the geology and topography in figures 7.2a and 7.2b respectively. The area stretches from the clay of the Low Weald in the north, over the South Downs to the coast at a point where the chalk ridge forms a cliff, the Seven Sisters and Beachy Head, up to 100m high.

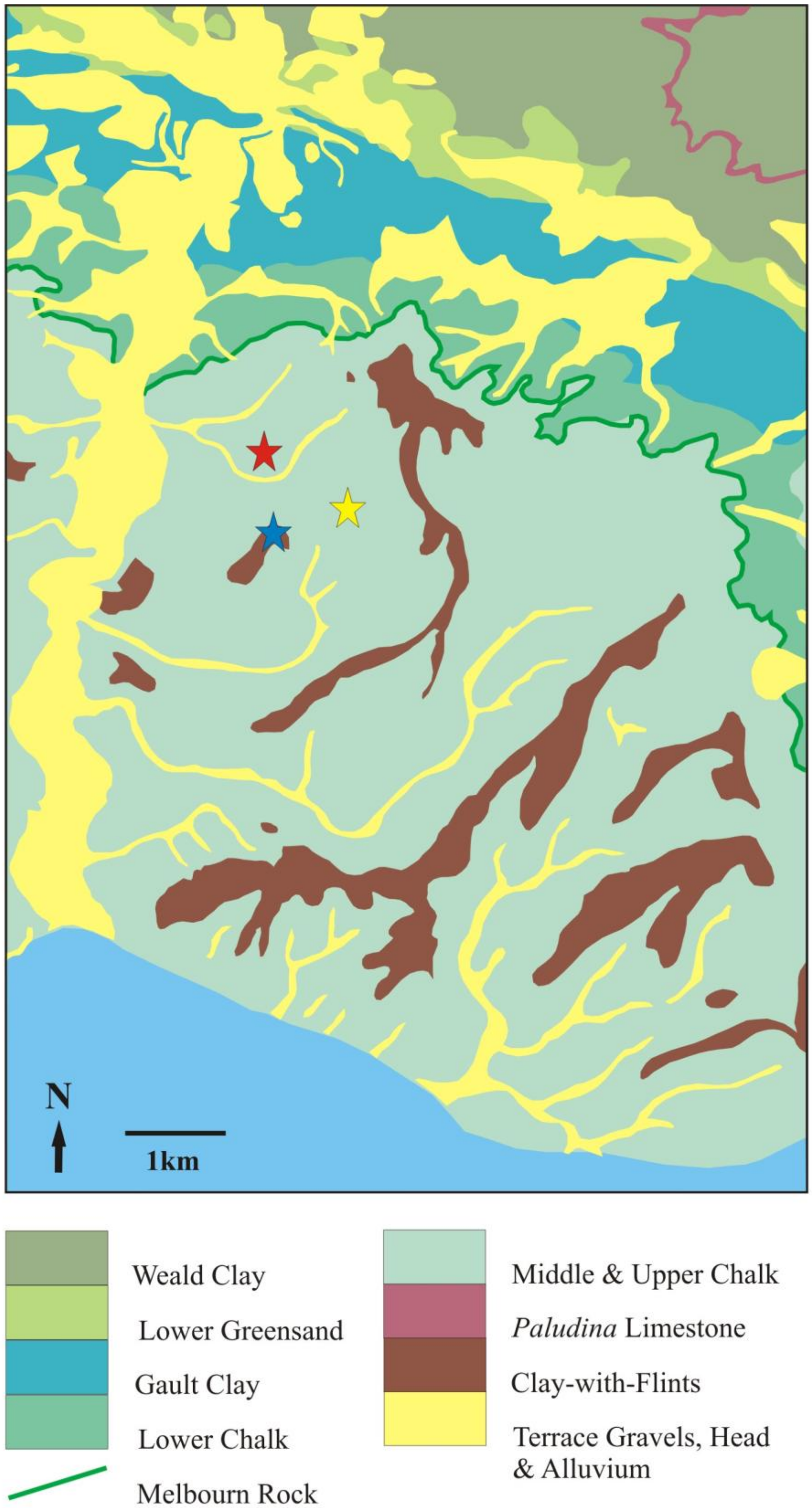


Figure 7.2a Solid and drift geology of the area east of the Cuckmere river showing the location of Tenantry Ground (★), Fore Down (★) and Lullington Heath (★) - (after BGS 1:50000 Series Sheets 319 and 334)

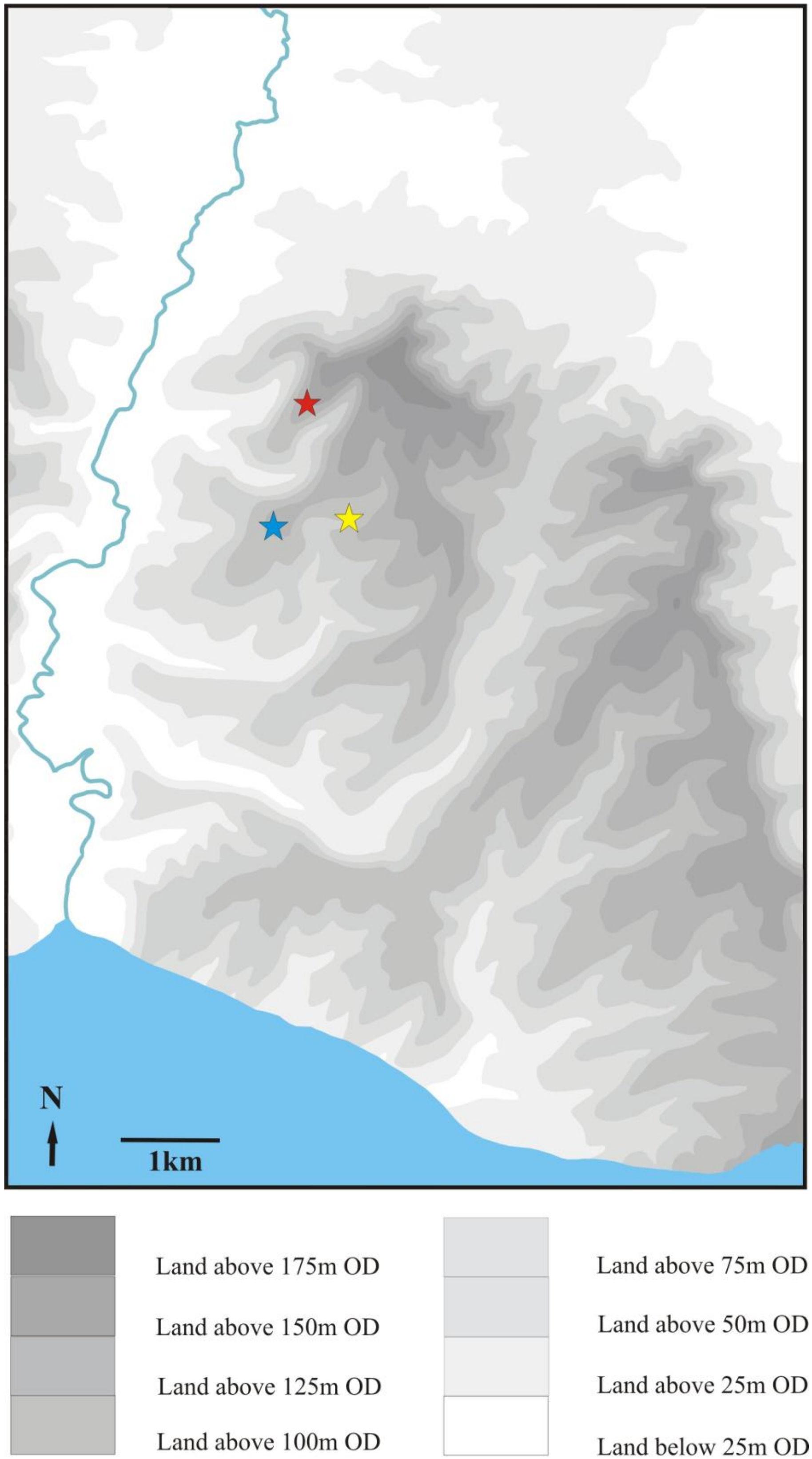


Figure 7.2b Topography of the area east of the Cuckmere river showing the location of Tenantry Ground (★), Fore Down (★) and Lullington Heath (★)

Towards the western side the area includes the wide valley of the Cuckmere with its alluvial deposits, and these also partially overlie the Lower Greensand which, together with a band of Gault Clay, separate the downs from the Low Weald. The block of chalk is bounded on the eastern side of the study area by a steep scarp overlooking the Willingdon Levels. The downs themselves, which reach 200m OD at Windover Hill and Coombe Hill, are dissected by a number of notably steep-sided valleys. On several of the ridges and summits of the downs the chalk is overlain by superficial deposits of Clay-with-Flints and a band of Melbourn Rock separates the Lower from the Middle and Upper Chalk. In the extreme north of the area the Weald Clay is interrupted by a narrow bank of *Paludina* limestone.

Although the detailed study area is situated on Upper Chalk, rendzina soils have developed and, particularly in the valleys, have formed relatively fertile and moisture retentive brown earths. On Lullington Heath decalcification of the loessic cover has enabled the development of a rare chalk heath vegetation (Burnham & Green 1983; Robinson 1999).

7.5 Evidence of Bronze Age activity in the study area

The area between the Weald and the sea, east of the Cuckmere river, provides evidence of extensive and successful exploitation for much of the 2nd millennium BC (figure 7.3a). It is just to the east of the zone of rich burials, clustered around the Hove barrow, and considered to date to the period 2000 – 1500 cal BC (Drewett *et al* 1988, fig 3.7).

A number of long and oval barrows occur within the wider study area with examples on Windover Hill and towards the south-western end of the Fore Down spur, and by analogy with other areas of the South Downs it is likely that at least shifting agriculture took place before the 2nd millennium BC.

Numerous barrows are nested on the ridges and spurs of the chalk but even here some areas are notably blank; given the availability of evidence from aerial photography there seems to be no reason for the distribution not to be genuine although work in progress by the National Mapping Programme may modulate that view. As along much of the length of the

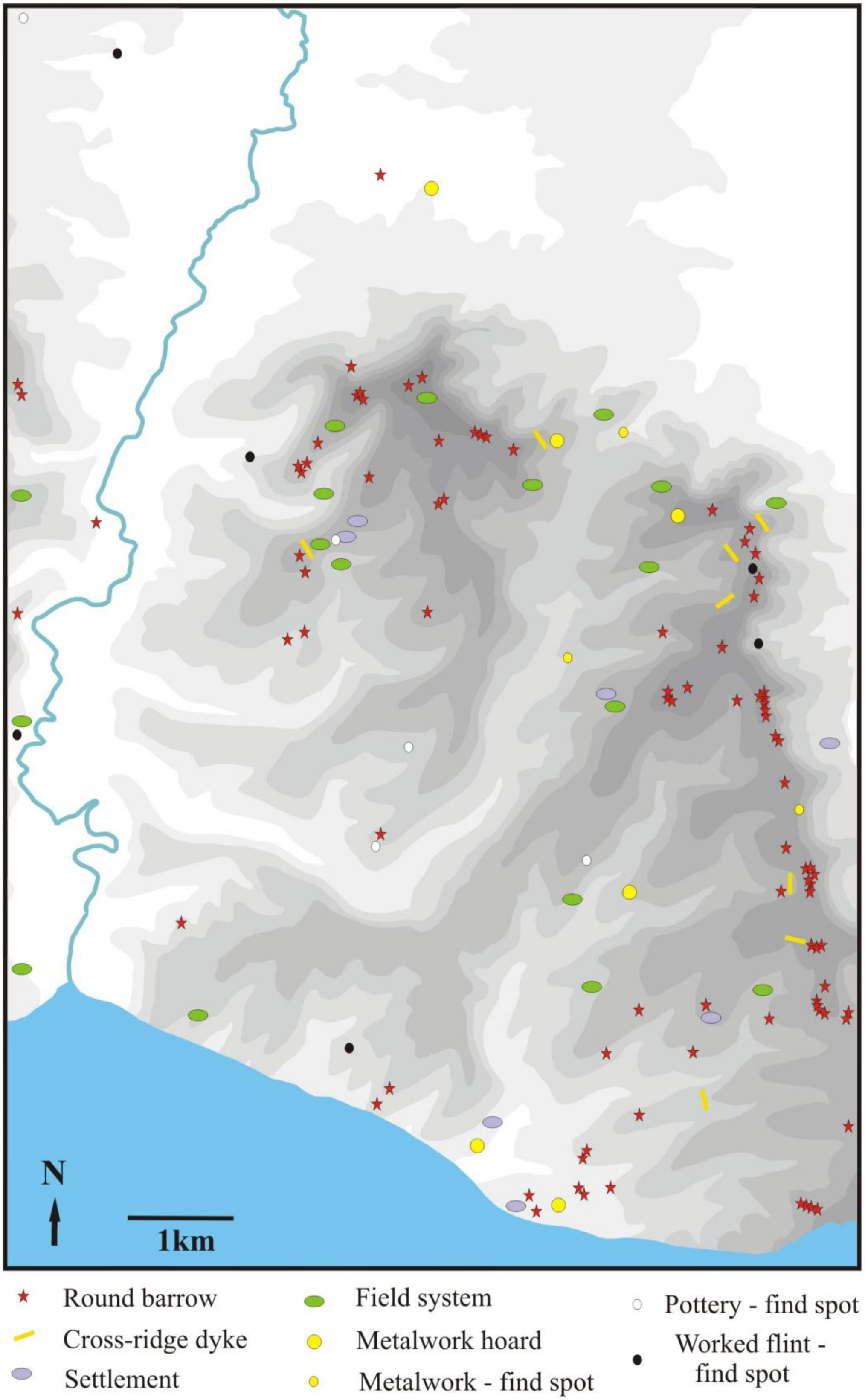


Figure 7.3a Bronze Age activity east of the Cuckmere river using information from the East Sussex Historic Environment Record. For topographic details see figure 7.2

South Downs barrows line the crest of the chalk, here, east of Windover Hill and there is an apparent gap where the ridge is lower at Filching Manor. However, the greatest concentration is along the crest of high ground running north / south on the west side of the Willingdon Levels – at the time of their construction these barrows would have faced east over an area of undrained marshland and abraded streams. Here, as elsewhere, a number of the barrows are located where a Clay-with-Flints capping overlies the chalk. Cross-ridge dykes are also concentrated on the spurs bounding the west side of the levels. Other barrows occur either singly or in small groups on the ends of spurs running in a south-western from the main ridge. Those on Tenantry Ground and Fore Down would have looked westwards over the Cuckmere River to the outline of the formidable scarp of the downs below Firle Beacon, the flat, dark Low Weald and south-westwards to the sea. Few barrows have been recognised, however, on the spurs closest to the Cuckmere on its eastern side particularly close to the sea, although apparently suitable topographic positions are present. This situation contrasts with the western side of the Cuckmere where several barrows overlook the valley. At the southern edge of the study area a number of barrows were sited on high ridges close to the modern coastline and some are known to have been lost to erosion.

The distribution of field systems noted on the Historic Environment Record is a visible underestimate. Indeed, a cursory inspection shows that it is difficult to find a substantial area of chalk where above-ground earthworks do not survive. On steep-sided valleys erosion has removed some evidence such that, unusually, it is the counter-contour boundaries which remain. Sufficient evidence can be seen around modern arable and from aerial photographs to suggest that these areas were used, although the lynchets have been ploughed flat by later use. It is certainly not the case that all the visible earthworks should be seen as relating to Bronze Age, or even prehistoric, field systems. Extensive use during the Romano-British period and the arable maxima of the 12th – 14th and 18th – 19th centuries will have partially modified and re-used and partially obliterated evidence of earlier use.

Several settlement sites are known and pottery scatters suggest the location of others though, again, the area covered by field systems suggests the presence of many more than are yet recognised. On Duttles Brow a multi-period site has been subjected to a fieldwalking survey (Chuter 2009). A Neolithic sandstone *polissoir* and a polished axe fragment signify early activity whilst Late Bronze Age / Early Iron Age pottery from within a field system indicates the probable presence of a settlement. The whole is overlain by extensive evidence of Romano-British activity and the later phase of the field system is considered to date to that later period although the reason for such dating is unclear. On Crapham Down a pit (MES549), 12ft (c.4m) deep, is recorded as having been filled with flint and at the bottom a few sherds of Early Iron Age pottery were found together with a number of animal bones and pieces of calcined flint. The presence of a later ‘occupation floor’ with a plain penannular brooch some 4ft (c.1.3m) from the surface of the pit suggests a shaft filled over a considerable period of time.

Two major coastal sites, Seaford Head to the west of the Cuckmere and Belle Tout to the east are now being severely eroded and it is unclear how far from the sea they would have been in the 2nd millennium BC. The present erosion rate of the chalk cliffs is in the order of 0.3-0.5m/year but can be as high as 1.25m/year at Seaford Head (Robinson & Williams 1983, 62). If such rates had been constant through time in 1000BC these coastal sites would have been at least 1km inland and possibly as far as 4km. However, it has also been suggested (Woodcock 2003) that this erosion is a relatively recent phenomenon and that the sites would have had commanding views over the Channel. Despite several archaeological interventions the chronology of neither site is clear. Seaford Head, with its extensive views to east and west along the coast and northwards into the Low Weald, encompasses an Early Bronze Age barrow and is thought to originate in the Late Bronze Age, but this dating rests on the discovery of a single rim sherd found in the secondary fill of the ditch (Bedwin 1986).

The situation at Belle Tout is even less clear. An enclosure producing Grooved Ware, Late Beaker and Food Vessel ceramics is considered to date to between *c.*2000 and *c.*1800BC (Bradley 1970; 1982). Evidence of structures, food production and craft activities suggest a mixed farming economy with only a Wealden Sandstone grinding stone and a shale bead hinting at wider contacts. However, the earthworks of the enclosure appear sharp for their supposed age and the dating could result from residual finds. The outer enclosure, weakly bounded but with a large interior of some 25ha, has produced little evidence to date its construction but Late Bronze Age pottery has been found in the interior suggesting at least activity at that date (Hamilton & Manley 1997) and it is understood that more recent, and not yet finally published, work by Miles Russell has not substantially altered this situation; notably unsatisfactory for a site undergoing rapid destruction through erosion. There appears to be some evidence of possible field boundaries within the interior and a very cursory examination suggests they may predate the outer enclosure. A detailed re-survey of the interior of the monument would be of value (from discussion with Dave McOmish).

The presence of a number of hoards attests the continuing importance of the area in the Late Bronze Age. On Pea Down discoveries in 1907 (MES3041) included two Sussex loops and three quoit-headed pins and, although a later brooch was also found, these items were likely to have been in circulation during the Middle Bronze Age. A considerably richer Late Bronze Age hoard (MES3111) was found in 1806 on the beach at Beachy Head, apparently close to Belle Tout. A later report (Chambers 1862; Turner 1863) suggests that the hoard was dug out of the cliff face after having been exposed by a fall, and had been buried in a dry valley immediately west of Belle Tout. The hoard included a sword hilt, winged and socketed axes, fragments of copper ingot and four gold bracelets. A hoard of four flanged axes (MES544), three of which appeared to have been deliberately broken, were found buried beneath a large stone, presumably as a votive deposit, within the matrix of a barrow, probably a bell barrow, near the Coombe Hill causewayed enclosure. A further hoard of Early Bronze Age flanged axes (MES7141) probably comes from the area of Teddard's Barn but from a disturbed context. A small hoard of flat and socketed axes together with bronze waste (MES7404) was recovered, again from disturbed contexts, close to Birling Manor.

Reverting to the area subjected to closer study, the land between Windover Hill and Fore Down presents a heavily dissected landscape of deep valleys and steep scarp slopes. It displays field evidence of intensive utilisation during the 2^{nd} and early 1^{st} millennia BC but, perhaps surprisingly, appears to have been largely abandoned since and to have undergone relatively little archaeological investigation, although there are a number of sites recognised mainly from above-ground evidence (figure 7.3b).

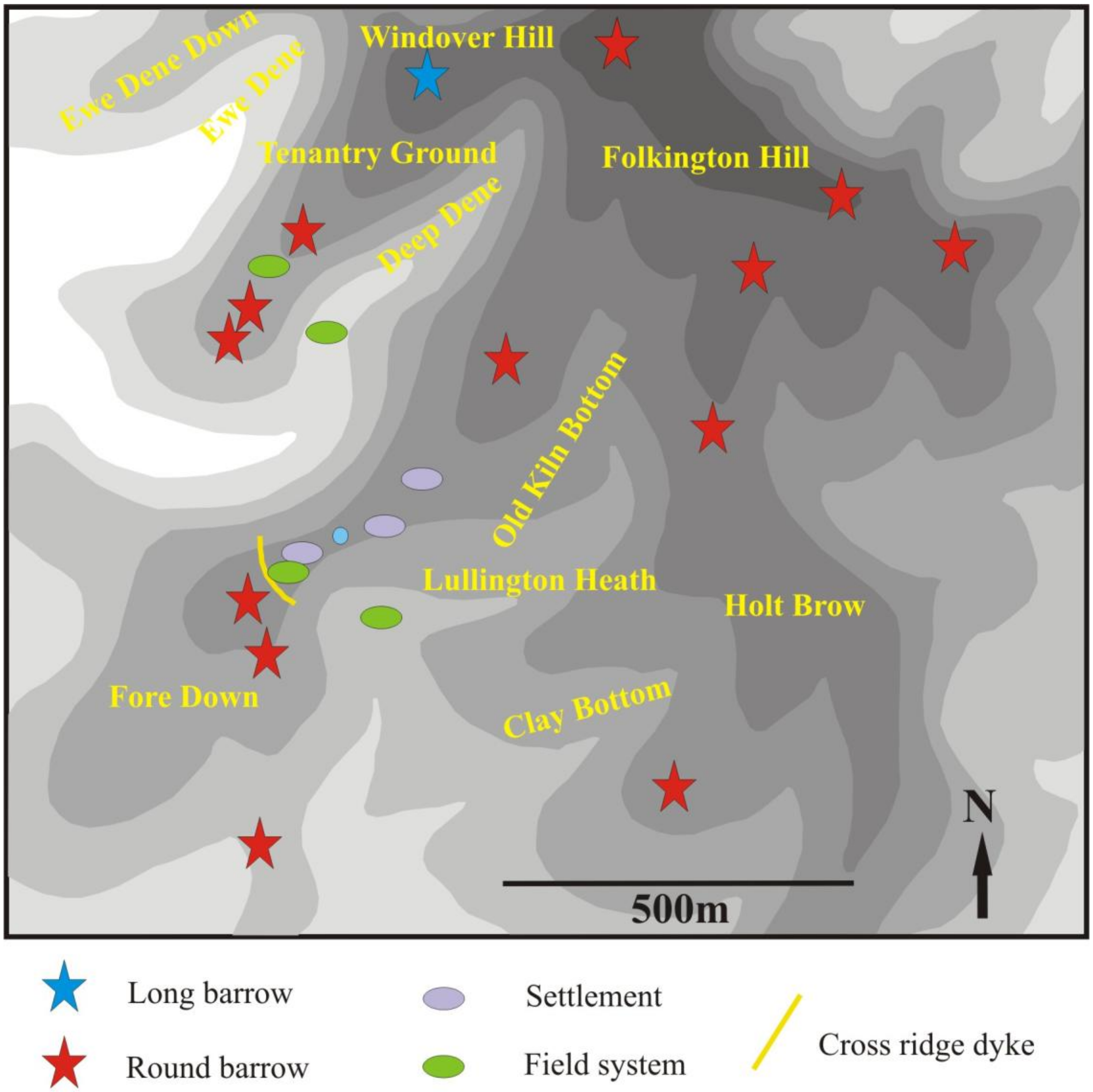


Figure 7.3b Late prehistoric sites in the area near Fore Down, Lullington using information from the East Sussex Historic Environment Record, and places mentioned in the text. The cyan dot is Old Winchester's Pond and contours are shown at 25m intervals with land below 50m OD in white

There are a number of round barrows, none of which have any recorded excavation evidence attached to them, but all of which are assumed to date to within the Late Neolithic – Middle Bronze Age periods. Some survive as clusters on the end of spurs, notably on Ewe Dene Down and on the end of the Fore Down Ridge, whilst the remainder occupy positions on high ground, either on Windover Hill or the spurs running from it. Of particular interest, given the observed relationship between single barrows and blocks of fields seen across the Cuckmere at Black Patch (Tapper forthcoming) are those spaced along the ridge east of Old Kiln Bottom, Holt Brow. The cluster on the end of the Fore Down ridge appears cut off by a cross-dyke and a possible cross-dyke cuts through that on Ewe Dene Down. Only one settlement area is known, dating to the Late Bronze Age / Early Iron Age, and sitting astride the Fore Down ridge on both sides of Old Winchester's Pond.

Excavation of a settlement site close to Old Winchester's Pond, on a narrow saddle of the Fore Down ridge, (TQ5402 0195; ESx HER MES2980) was undertaken by Rev Budgen but remains largely unpublished. In brief notes he reported the excavation of three hut sites of a short-lived settlement, 'peacefully deserted', and producing Hallstatt pottery (Budgen 1927; 1928; 1932). A more recent consideration of the pottery from these excavations places it within the Plainware division of the post-Deverel Rimbury tradition suggesting a date of *c*. 1150-950 cal BC (Seager Thomas 2008). The area was further investigated when a field situated east along the top of the ridge was ploughed, and fieldwalking produced a concentration of worked and fire-cracked flint, and pottery at a position close to Budgen's excavations (Chuter 1987). Five axe roughouts, considered to be Neolithic in form, were located but the majority of the worked flint was hard hammer-struck and of probable Late Bronze Age date. Pottery of two fabric types was found and both were considered comparable with that from Budgen's work. Scrub clearance to the west of Old Winchester's Pond revealed a further possible hut platform associated with pottery considered to date to the Early Iron Age (TQ 5391001917; ESx HER MES7317). Pottery from all these interventions has been subjected to further examination and is described below.

The recognition of a Romano-British site, probably a small farmstead, during fieldwalking on arable land to the immediate north-west of Fore Down, adds to the requirement for caution in ascribing all field boundaries to the prehistoric period.

A large hoard was recovered from an area of Gault Clay north of the scarp of the downs below Windover Hill in 1861 (Cooper 1862; MES4540). The hoard, which had been buried within a pottery vessel, was described as comprising 33 bronze axes, a complete mould and fragments of the blades of two daggers or spearheads, but examination of this hoard (Lewes Museum) suggests that the two blade fragments are more likely to have been from a Late Bronze Age leaf-shaped sword. Most of the 13 looped palstaves and the 17 looped and socketed axes are imperfect – some bear casting flaws and some are broken. What is however remarkable about this hoard is the number of miniaturised items, particularly among the socketed axes.

Figure 7.4 Aerial photograph taken by Major Allen showing Tenantry Ground with Deep Dene to the east (right). From an album presented to Sussex Archaeological Society by Curwen

This relatively sparse settlement evidence is in stark contrast to the extensive field systems which cover the surrounding slopes and valleys. Photographs were taken by Major Allen, prior to modern damage by ploughing and military activity, and the results transcribed by Curwen (album presented to Sussex Archaeological Society deposited at Barbican House, Lewes). An example of those taken of Lullington Heath is shown on the frontispiece of this chapter, of Tenantry Ground in figure 7.4, and part of a transcription of the whole area by the National Mapping Programme as figure 7.5. Present within the area are a number of blocks of rectilinear fields, possible tracks, and ring ditches some of which are known barrows but others may represent reduced examples. One field system is draped over Ewe Dene Down, the spur running south-west from Windover Hill, whilst another lies in the valley between there and the Fore Down ridge, known as Deep Dene. To the south of the Fore Down ridge two areas of fields can be seen in Old Kiln Bottom and the lower of these two blocks appears to continue in Clay Bottom and through Friston Forest. Some of the apparent gaps may be due to destruction by ploughing within the historic period, particularly in the valley bottoms, but the Fore Down ridge seems genuinely free. Some of the tracks may relate to these field systems but others may be of later date. The cross-dyke west of Old Winchester's Pond can be seen to truncate one of the fields.

In 2008 a wish to return part of Friston Forest to grazing necessitated the installation of a water supply and the pipeline crossed a number of lynchets known from aerial photography. Observation of the pipeline trench provided information on their structure, as well as information about the soil profiles and a limited amount of dating evidence (Butler 2008). The route of the pipeline is shown in figure 7.6. A total of 37 lynchets were cut by the pipeline trench but only two were recorded in detail. Although most of the features seen on aerial photographs were also observed in the trench, it is clear that considerably more boundaries are present than can be seen from either above ground or aerial photographic evidence. Of the 483 pieces of worked flint recovered approximately 20% were considered to date from the Early Neolithic period and the remainder, mainly hard-hammer struck flakes, from the Late Neolithic or Bronze Age. One sherd of pottery was thought to have been from the base of a Middle to Late Bronze Age vessel.

Figure 7.5 Field boundaries and other features in the Fore Down area from aerial photographic evidence - transcription from the National Mapping Programme (provided by Greg Chuter). Blue dot marks the position of Old Winchester's Pond; contour intervals 25m

Figure 7.6 Friston Forest showing field boundaries and other features plotted by the National Mapping Programme from aerial photographs ( ), the line of the Friston Forest Water Pipeline ( ) and the position, but neither the corrcct scale nor the orientation, of features exposed in the pipeline trench ( ) (after Butler 2008, fig 3). The blue circle represents the position of Old Winchester's Pond.

During the course of this work note was made of the structure of the lynchets and the soil stratification throughout the length of the trench. The size of the lynchets was described as between 'substantial' and 'discrete' and their presence was generally revealed by concentrations of flint nodules. There appears to have been no evidence that the field boundaries were constructed, rather than resulting from soil movement against and away from a barrier of some form.

One of the drawn sections is shown as figure 7.7; context 4 was recorded as 'a darker brown moist silty loam' and this probably represents a surviving portion of the palaeosoil under cultivation at the time the lynchet was formed. Mention of 'mid-orange brown silty loam' at various points along the trench suggests the presence of loessic soils. Whilst it is difficult to be certain without analysis of soil samples it seems probable that the field system was formed before the soils deteriorated to their present rendzinas. Whilst the dating evidence is, inevitably, far from conclusive, the lack of any recovered artefacts from periods later than the Bronze Age (except for World War 2 ammunition) encourages the belief that the field system, in this southern area at least, dates to the 2nd or early 1st millennium BC.

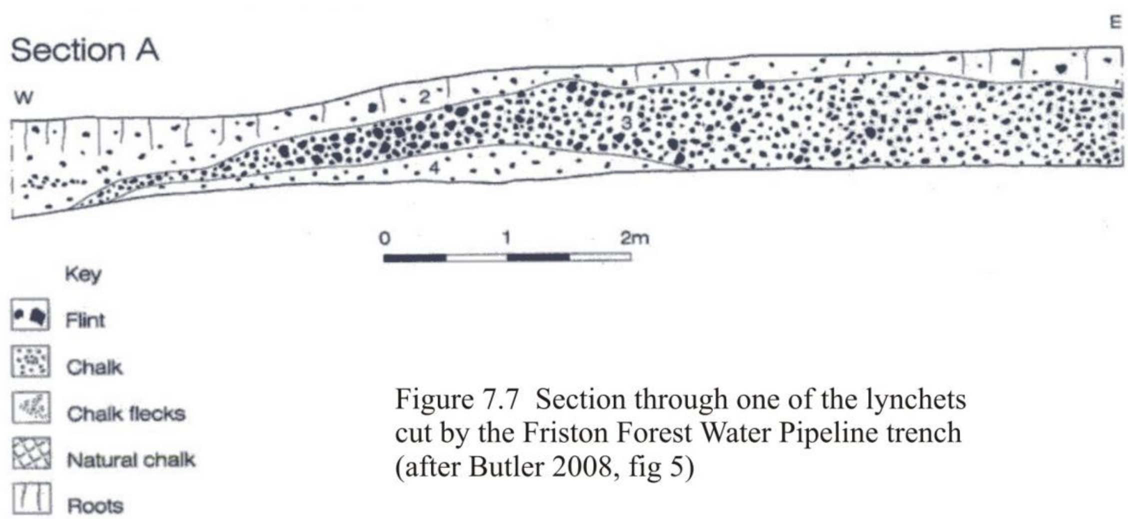


Figure 7.7 Section through one of the lynchets cut by the Friston Forest Water Pipeline trench (after Butler 2008, fig 5)

In the valley bottoms, particularly those in the west of the area under study relatively close to the settlements of Wilmington, Lullington and Litlington, some downland was ploughed during the arable maximum of the late 18th and early 19th centuries - some of these fields remain in use whilst others have reverted to pasture or have been abandoned, but are identifiable on 19th century maps..

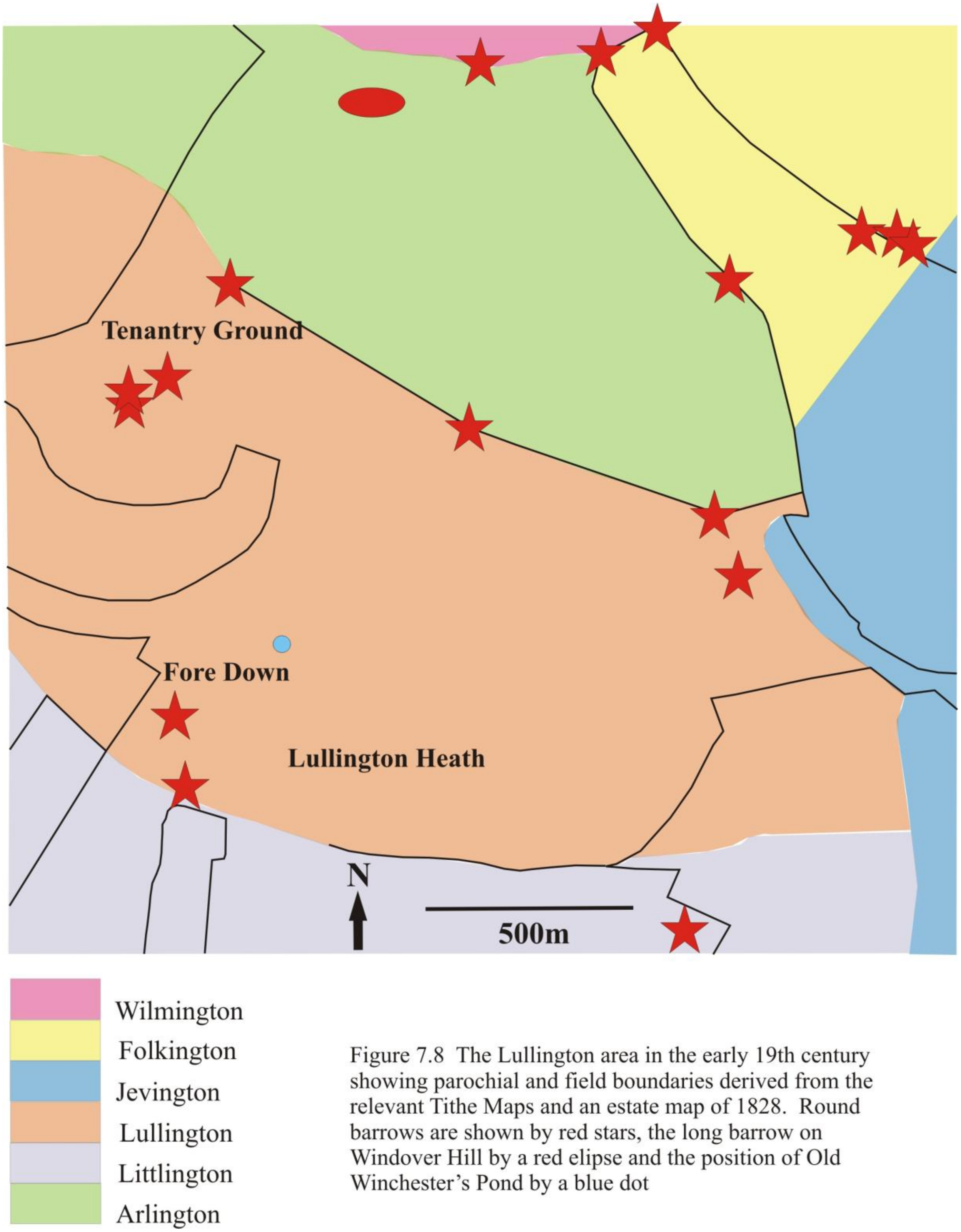


Figure 7.8 The Lullington area in the early 19th century showing parochial and field boundaries derived from the relevant Tithe Maps and an estate map of 1828. Round barrows are shown by red stars, the long barrow on Windover Hill by a red elipse and the position of Old Winchester's Pond by a blue dot

The extent of arable usage during the medieval period, particularly the arable maximum of the 13th and early 14th centuries is uncertain but, given the lack of well-drained land available for settlements in the Cuckmere valley, it is likely to have been considerable. Lullington was a relatively populous village in 1296 (Hudson 1910) and reduction in the size of the church and the village dates to the 18th century (Barr-Hamilton 1970). It has been suggested (Burleigh 1973) that a road ran from the present settlement towards Windover Hill and this would have given access to Ewe Dene and Deep Dene.

However, an admittedly somewhat cursory search through the surviving documents of the period did not identify any areas of downland under arable use and high medieval pottery is notable only for its absence. For elimination purposes, boundaries in use in the 19th century fields are shown in figure 7.8, and the parish boundaries taken from the Tithe Maps for Wilmington, Lullington, Litlington, Folkington and Arlington (maps deposited in East Sussex Record Office, Lewes) and a map of an estate in Lullington, Litlington and West Dean dated 1828 (copy lent by Clive Bean) are also identified.

7.6 Analytical survey of the field systems

A rapid overview of the study area led to the conclusion that for certain portions the preservation of above ground evidence was good, and that the field systems were multi-phase and complex. Other areas were covered with either deciduous and conifer plantation where the earthworks were masked by deep leaf mould and needle litter, or dense gorse and blackthorn scrub. Although aerial photographs taken of these latter areas before the vegetation growth had reached its present level indicated good preservation of field boundaries, it was felt that ground survey would be unlikely to produce further useful information. For that reason the survey was limited to three areas: a south-west spur running from the main ridge of the South Downs south of Windover Hill and known as Tenantry Ground; the south-western end of a long ridge similarly curving away from the main ridge and called Fore Down; and Lullington Heath, an area of calcareous heathland stretching from the narrow point of the Fore Down ridge and across the valley to its south onto a west-facing spur. In each case the valleys on either side of the spurs were also examined. The position of each of these areas is shown in figure 7.3.

Surveys were undertaken using tape and compass and tied to fixed points, primarily fence-lines. Survey was undertaken on the steep slope between Tenantry Ground and Deep Dene and here a correction of measurements taken on the slope to provide a horizontal measure was made using fixed points visible on high level vertical aerial photographs (GoogleEarth), a method which may have lead to increased error in these distances. Elsewhere thick gorse and buckthorn curtailed survey on portions of Tenantry Ground and Lullington Heath, and in a few locations deep grass may have masked slight earthworks. Colluviation completely masked features in Ewe Dene and may have reduced their visibility in Deep Dene and Old Kiln Bottom. However, much of the elevated area was grazed grassland and detailed survey was possible.

7.6.1 Survey results

7.6.1.1 Tenantry Ground

The survey results for Tenantry Ground are shown against topography in figure 7.9 and with the various phases identified in figure 7.10.

Tenantry Ground occupies a south-west facing spur with a steep-sided valley, Ewe Dene, to its north-west and an exceptionally steep-sided bowl, Deep Dene, to its south-east. The lower portions of Ewe Dene are still under cultivation and the flat bottom to the valley suggests the accumulation of a considerable depth of erosion products from ploughing of the valley sides. Rectangular enclosures occupying the higher portions of the valley and terraces on the lower slopes appear medieval in morphology (not surveyed). Although detailed documentary research has not been undertaken it is considered likely that any above ground evidence of the prehistoric field systems crossing the valley floor has been lost, and the area below the terracing was not subjected to detailed survey.

In contrast, the steep-sided Deep Dene is narrow bottomed, with little evidence of colluvial deposits, and, although some rectangular fields bounded by large lynchets are probable medieval in date, the underlying rectilinear system stretching from Tenantry Ground, across the valley, and for an uncertain but considerable distance eastwards is thought to be prehistoric in origin. The preservation east of the area subjected to detailed survey appears excellent and would repay further work – a cursory examination suggests a continuous rectilinear field system overlain on each spur by aggregated fields.

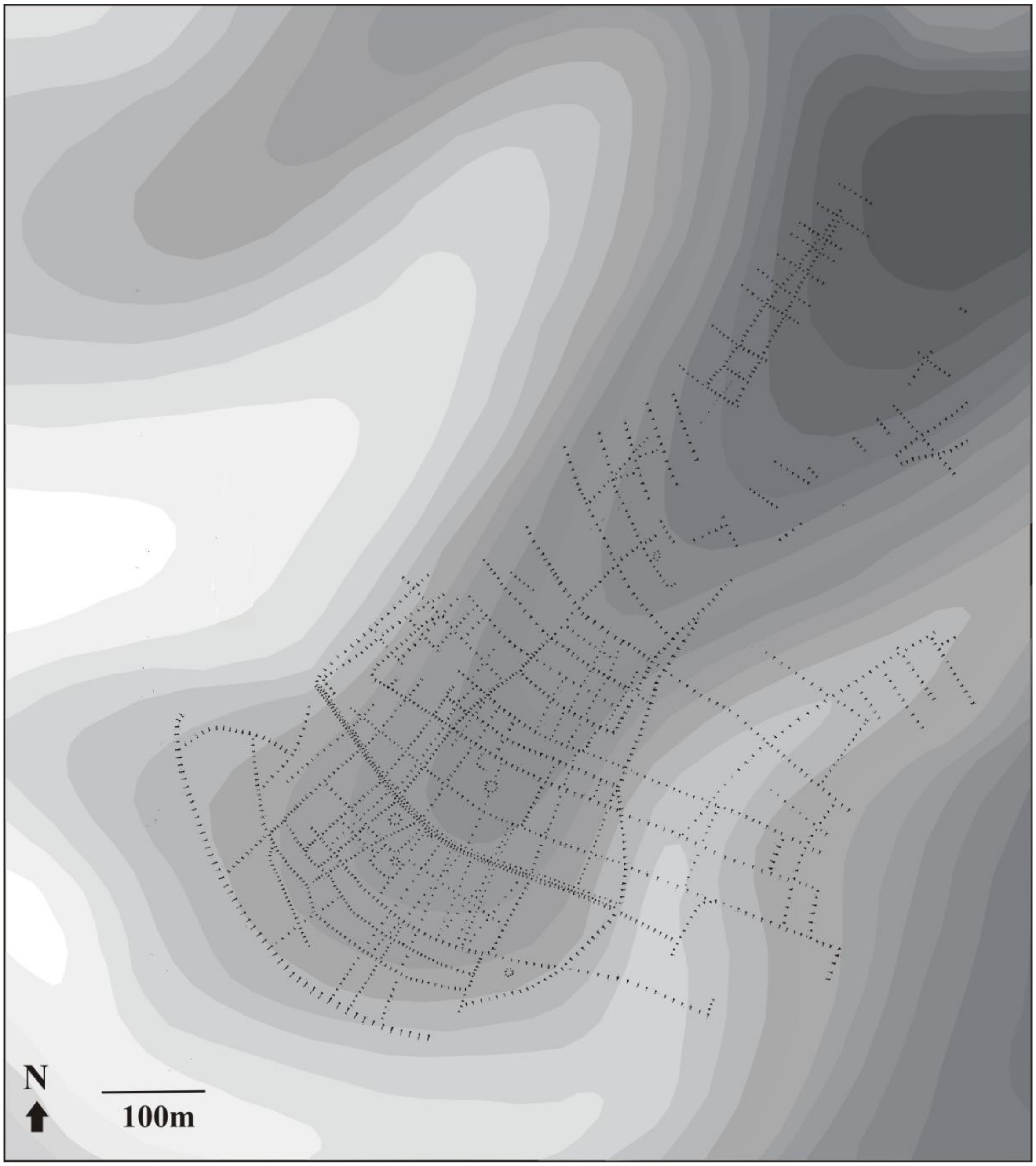


Figure 7.9 Analytical survey of the earthworks on Tenantry Ground, Arlington and Lullington, East Sussex. Contours are shown at 10m intervals with land below 35m OD shown white

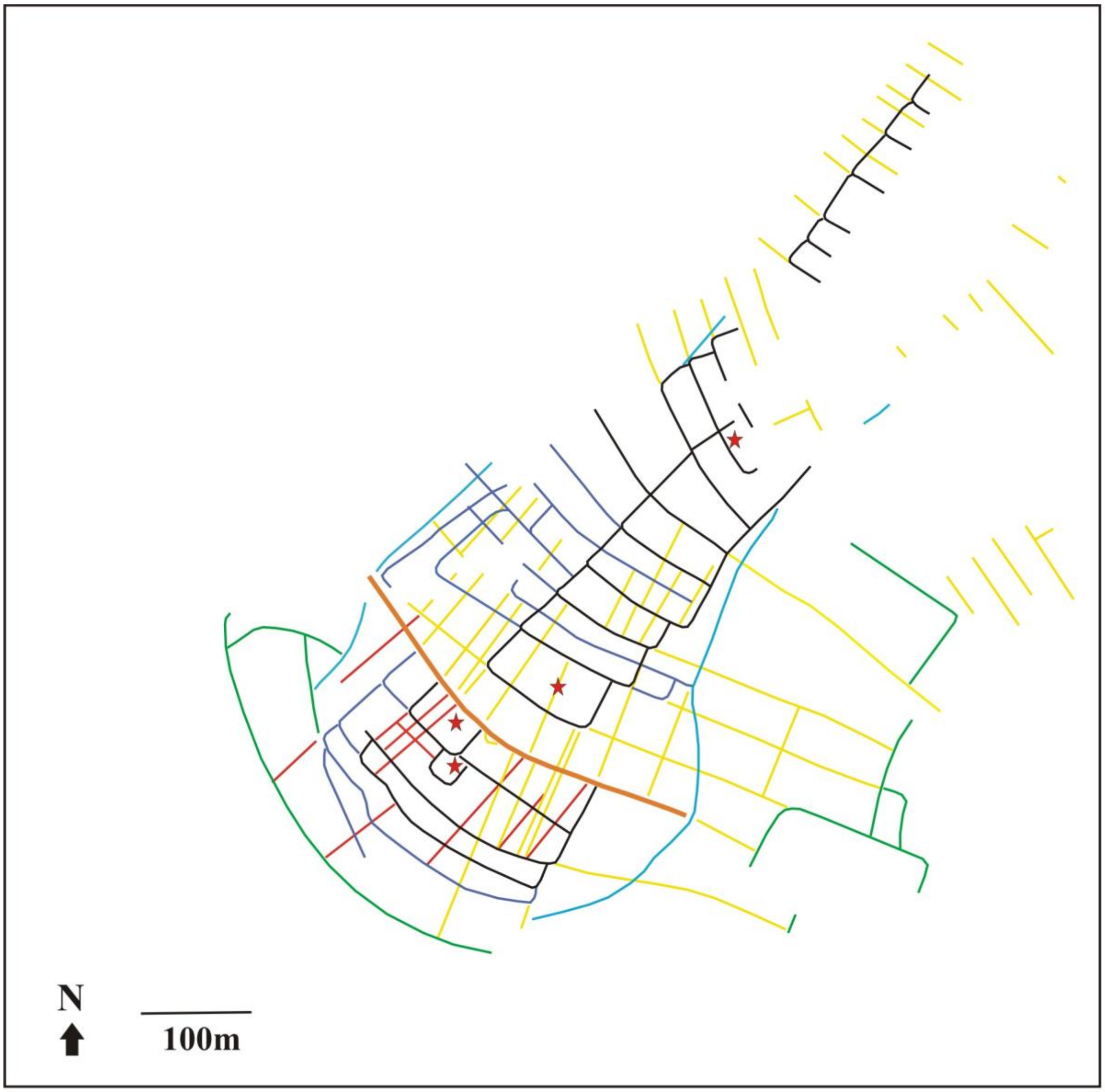


Figure 7.10 Suggested relative phasing of the field boundaries on Tenantry Ground. The earliest earthworks are shown in red followed successively by yellow, dark blue, black, orange (the cross ridge dyke) and green (most recent). The relationship of the outer boundary shown in turquoise with other earthworks is uncertain. The red stars indicate the position of round barrows.

The earliest field boundaries on Tenantry Ground are a series of slight lynchets, visible within later fields but extending beyond them onto the slopes on either side of the spur (red and yellow in fig 7.10). One lynchet from this series appears to underlie one of the barrows whilst, in all cases where a phase relationship is visible, they underlie both the larger lynchetted fields and the cross-ridge dyke. The majority of these boundaries can be assigned to one or the other of two phases of rectilinear fields set on slightly different alignments, 20^{o} and 35^{o} east of north. More boundaries (yellow in fig 7.10) lie on the lesser angle, and the boundaries crossing Deep Dene lie at right angles to this, 110^{o} east of north, which might suggest this to be the later of the two. Certainly this is the alignment which enables the boundaries to lie with the topography, perpendicular to the main axis of Deep Dene. Survival is insufficient to assess the size of the fields enclosed, although they appear to be small. These systems were bounded to the north-east and do not cover the top of the main ridge of the downs; any north-western boundary is masked by colluvial deposits and later cultivation in Ewe Dene, to the south-east the boundaries ascend onto the spur to the south-east of Deep Dene and appear to continue for some distance, and to the south-west they do not appear to descend the steep end of the spur. Although later activity may have masked boundaries crossing from the end of the spur to the north-facing, steep slope up to Old Winchester's Pond and Fore Down there is no sign of them on the slope itself, observed to be a frost hollow, whilst a boundary to the system on Fore Down can be seen towards the top of the slope.

Overlying these field boundaries are two, or possibly three, phases of long narrow fields stretching across the spur but not descending the slopes to the north-west and south-east (black and dark blue in fig 7.10). The boundaries of these fields are marked by relatively large lynchets and their down-slope outer corners are rounded, 'playing-card', in shape. The long boundaries of these fields, in general, directly overlie those of the earlier system whilst ploughing them has been sufficient to reduce, but not destroy the earlier boundaries aligned north-east / south-west.

Although fragmentary, a series of 'playing-card' corners can be seen to delimit fields effectively looped onto each other, their outer boundaries forming a more or less continuous north-western edge running above the steeper part of the slope into Ewe Dene. This series continues to the top of the spur although its alignment changes to curve with the land from the waist of the spur towards the top of Ewe Dene, thus fully utilising the flatter ground.

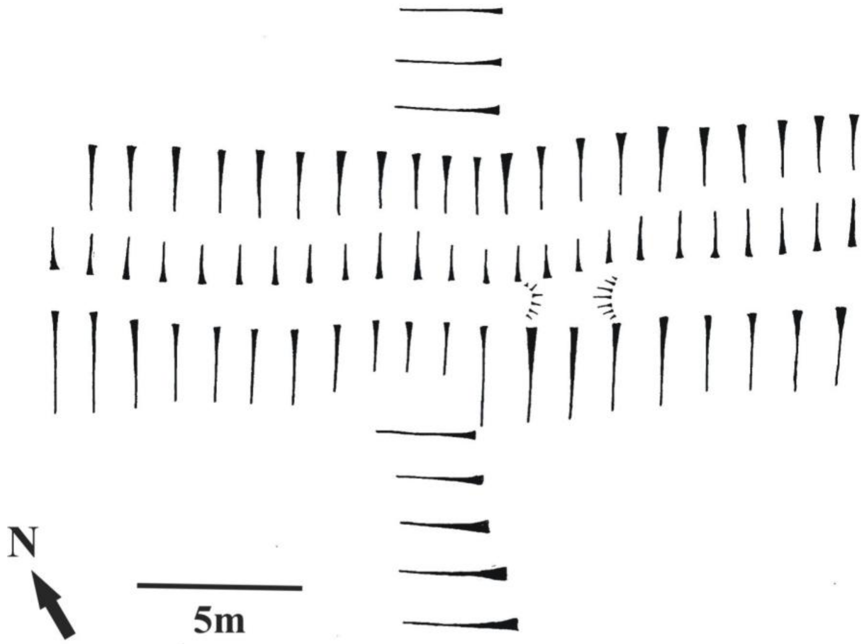


Figure 7.11 Survey of point where the ditch of the cross dyke on Tenantry Ground can be seen to cut a lynchet boundary

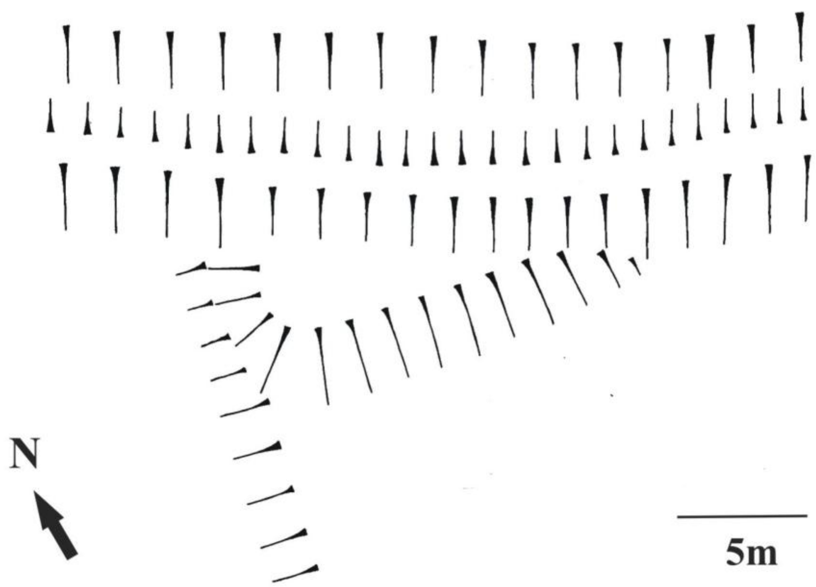


Figure 7.12 Survey of a location where the cross-dyke on Tenantry Ground can be seen to overlie either a field corner or a barrow

On the south-eastern side of the spur a continuous boundary is positioned just over the edge of the slope into Deep Dene (turquoise in fig 7.10). Over short lengths this may overlie a boundary from the earlier rectilinear field system, but in general it is at odds with that alignment and is governed strictly by the topography.

Further re-modelling resulted in a series of fields looped onto each other and occupying only the flattest ground on either side of the spine of the spur (black in fig 7.10). Again, the cross-spur boundaries of the rectilinear system remained in use, the contraction taking place within that framework by moving the side boundaries towards the centre of the spur. It is not possible to see whether the contractions on either side of the spur were contemporary or successive but the requirement seems to have been to use only the flatter ground, perhaps because that area had suffered less from erosion which must have been extreme on the slopes and may have removed most if not all the topsoil.

Overlying one of the boundaries which had remained in use from the earliest visible field system is a cross-ridge dyke, a low abraded bank with a ditch on its uphill side (orange in fig 7.10). This ditch can be seen to cut the lynchet marking the north-western boundary of one of the fields of the latest visible system (figure 7.11) and also a mound which may represent a field corner or, just possibly, a barrow (figure 7.12). The positioning of the cross-ridge dyke effectively divides the field system without putting any portion of it out of use, but it extends beyond the limits of the area apparently enclosed and cultivated at the time, stretching from above an erosion point on the north-west side of the spur onto the steep side of Deep Dene. This relatively minor earthwork seems unlikely to represent more than a local ‘property’ boundary, and the slight change in alignment of the field boundaries on either side may indicate that it enhanced an earlier land division.

7.6.1.2 Fore Down

Results of the analytical survey of earthworks on Fore Down are shown in figure 7.13 and phase relationships in figure 7.14. Survival of above ground evidence on Fore Down was less clear cut and survey of minor earthworks was limited by vegetation.

Figure 7.13 Analytical survey of the earthworks on Fore Down, East Sussex. Contours are shown at 10m intervals with land below 110m OD left white. The letter A indicates the position of the large barrow surveyed in figure 7.15

On the top of the spur the fragmentary remains of what may have been two rectilinear field systems were found; these are clearly set on differing alignments (red and yellow in fig 7.14). One of these field systems (yellow) underlies the cross ridge dyke (orange in fig 7.14).

Post-dating these boundaries are at least two phases of enclosure, differing in morphology but both clearly cut by the cross-ridge dyke. On the west- and north-facing slopes are a series of contour lynchets (dark blue in fig 7.14). The western origin of these is masked by woodland and may well have been destroyed by the fields shown on the estate map of 1828 and then under the plough, but they are visible, though not surveyed in detail, crossing the present arable on the lower slopes of the spur. The series is bounded at its lowest extent by a particularly large lynchet and this may represent a contemporary limit, but it is at least as likely to indicate the upper limit of later ploughing. There is a known Romano-British settlement in the ploughed field to the west of this large lynchet. The lynchets then follow eastwards along the contours at the top of the steep north-facing slope and to the north of Old Winchester's Pond before swinging northwards towards the head of Deep Dene.

Figure 7.14 Suggested relative phasing of earthworks on Fore Down. The earliest features are shown in red, followed successively by yellow, navy, black, turquoise, orange (the cross-ridge dyke) and green (most recent). The solid red star indicates the position of a certain, and hollow red stars the positions of possible barrows.

The eastern slope of Fore Down, dropping down into Old Kiln Bottom, bears a number of contour lynchets, again cut by the cross-ridge dyke, and, although dense vegetation prevented survey in some areas, they appear to run from the southern limit of the detailed survey area along the side of the ridge then turning east towards Lullington Heath. Just south of the dyke they appear to be overlain by larger lynchets, with the point of intersection marked by counter-contour boundaries and 'playing card' corners.

To the south-east of the large barrow, and overlying the remnants of the rectilinear field system are two enclosures, separated by a track with a funnel-shaped entrance from the north (turquoise in fig 7.14). The eastern of the pair appears to have had its northern margin overlain by a further enclosure which is cut, in turn, by the cross-ridge dyke. If this is true then the enclosures must be prehistoric in date (assuming a Late Bronze Age date for the dyke). However, the relationships are by no means clear and the morphology of these enclosures tends to suggest a post-Roman date; re-use of an earlier contour lynchet is a further possibility.

The cross-ridge dyke, a bank standing some 0.7m high with a ditch on its south-western side, describes an arc between the steep north-facing slope above Deep Dene and the east-facing slope above Old Kiln Bottom. At its south-eastern end the ditch is clearly dug into the back of a large lynchet whilst at its north-western end it cuts one contour lynchet before fading out among animal disturbance. No features other than modern tracks cut the cross-ridge dyke.

To the west of the large barrow lies an area of woodland, situated on Clay-with-Flints, and containing a number of probably relatively recent quarries. The area is delineated on all but its southern side, apparently by a lynchet rather than a wood-bank. A separation of woodland from open grazing would have been necessary for management of the former, but lynchet development suggests some arable use post-dating construction of the boundary. Only a single field boundary could be detected within the enclosure but depth of leaf mould may have masked further evidence.

The modern tracks present something of a problem in their interpretation. That from Lullington to Old Winchester's Pond, and the two which run eastward from the pond, clearly post-date both lynchets and the cross-ridge dyke. Given the scarcity of water, tracks along the ridge, to the pond, may well date from the medieval period if not before but these present east to west running tracks at least do not appear to be prehistoric in origin. Less straightforward is the interpretation of the track running south from Old Winchester's Pond towards Friston Forest. This was considered by Curwen to have been a prehistoric terrace-way set within the field systems. The present vehicular track is certainly set on a terrace but aerial photographs pre-dating imposition of this modern form still show a terrace lying between two lynchets (figure 7.16). The cross-ridge dyke appears to cut both lynchets defining the terrace-way, suggesting that the track does indeed pre-date the dyke, whose construction effectively blocked the track, but the route was later re-instated.

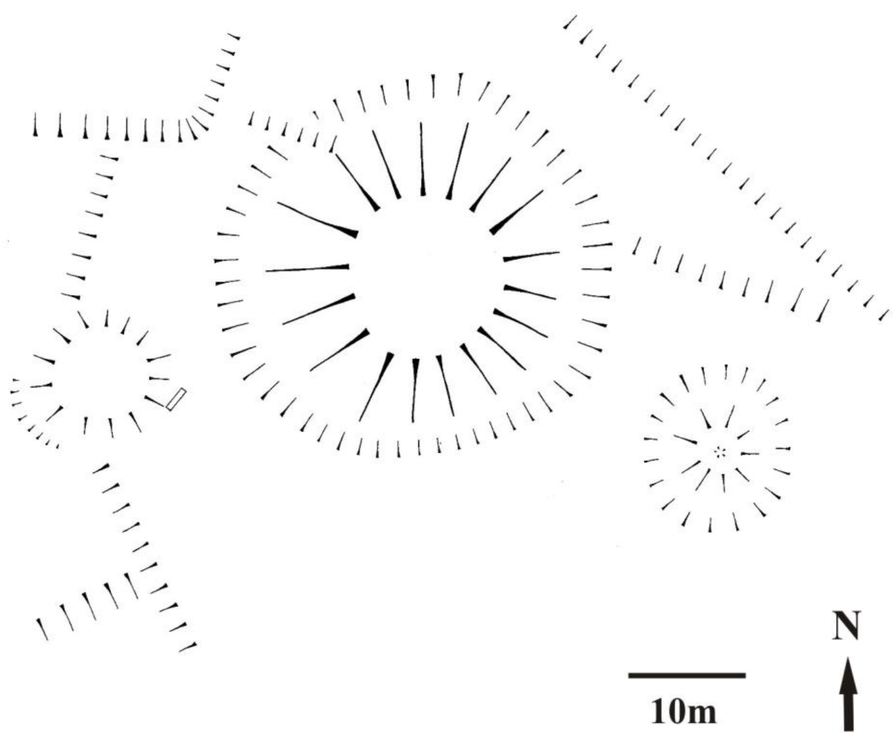


Figure 7.15 Measured survey of the known barrow (A in figure 7.13) and associated mounds and field boundaries on Fore Down, East Sussex

After survey of the field systems had been completed improved visibility of minor earthworks around the barrow due to heavy snow falls over winter 2010/11, and a suspicion that two mounds in its vicinity might be of some antiquity, encouraged a detailed survey of that area (fig 7.15).

The relationship between the large barrow and a field boundary abutting it north-west and south-east is uncertain since the ditch in the former quadrant has been extensively burrowed. However, the apparent finding of a lynchet overlying the ditch at that point might suggest that the field boundary was aligned on an existing mound. The origin of the small ditched mound to the south-east is uncertain, but its resemblance to a barrow is emphasised by a central depression, probably the result of grave-robbing or antiquarian activity. The small size might indicate a burial mound from later in prehistory or from the Anglo-Saxon period with the large barrow being used as a focus for later funerary activity. Similarly the mound to the south-west is also of unknown origin, but small mounds placed over prehistoric lynchets such that their size is enhanced when viewed from down-slope have been shown on Farthing Down, Surrey to be Anglo-Saxon in date (Barry Taylor pers comm.). Here its position over a field corner, or at least a change in alignment, would augment the visual effect.

7.6.1.3 Lullington Heath

Results of the analytical survey of earthworks on Lullington Heath are shown in figure 7.16 and in phased form in figure 7.17. Although in many areas these earthworks were well preserved, the presence of dense gorse and scrub woodland limited survey and this, together with small patches of long grass, means that locales remained unsurveyed and minor earthworks may have been missed.

There exists a series of aerial photographs of Lullington Heath, Tenantry Ground and the surrounding areas, mostly taken when the vegetation cover was less extensive than present. Some were taken by Major Allen and copies given to E Curwen who, in turn, donated them to the Sussex Archaeological Society (chapter frontispiece and figs 7.4 and 7.19a-c). Others were taken by the RAF in 1945 and 1955 (figs 7.18 and 7.21).and some of these have been used to extend the evidence from ground survey into areas of dense vegetation, and also fields where the above ground evidence has now been truncated by ploughing.

The earliest field boundaries are those of a probable rectilinear system, with a main alignment lying almost exactly north to south (red in fig 7.17). These features are most clearly visible over the top and to the south of the ridge between Old Kiln Bottom and Clay Bottom, where they emerge from beneath a continuous lynchet bounding the southern edge of the later, aggregated, system. A few short stretches of the early, north / south rectilinear system are also visible within the later fields. Field boundaries on this alignment can also be seen on aerial photographs to the east of Deep Dene and have been traced on the ground (but not surveyed) for a further approximate 1km eastwards. Informal walkover has also located similar features on Friston Hill, 1.6km to the south, and in the fields immediately east of Lullington Heath (area TQ 553015). Whilst it would be unwise to 'join the dots', it may be that this system, or a series of systems with a common alignment, cover an area of some 4sq km.

No clear relationship is visible between this rectilinear system and the contour lynchets (black in fig 7.17) stretching round the north- and north-west facing slopes between Deep Dene and the ridge bearing Old Winchester's Pond, or those on the east-facing slope between Fore Down and Lullington Heath.

Overlying part of the rectilinear field system is an aggregated system comprising long narrow bands of fields stretching from the ridge above Deep Dene, across Old Kiln Bottom, to the summit of the ridge between Old Kiln Bottom and Clay Bottom (dark blue in fig 7.17). These bands are aligned approximately north-west / south-east but curve across the slope on the north side of Old Kiln Bottom, perhaps in an attempt to reduce topsoil loss by erosion. The relatively large lynchets still remaining suggest either long-term or intensive ploughing of these fields, a suggestion which received confirmation from the form of some of the field corners. Large 'playing card' corners were probably formed by ploughing close to the field edge so that loose plough soil was deposited through or over the barrier in all directions giving the corner a rounded appearance. Other examples exist where ploughing in an arc round the internal angle of a corner produced deep scoops. Ploughing up one side of the field, round the corner, and along the adjacent edge, forming rounded corners and no headland, would enable the maximum area in these small fields to be placed under crop.

Figure 7.16 Analytical survey of the earthworks on Lullington Heath, Lullington, East Sussex
Contours are shown at 10m interval with land below 90m OD left white

Figure 7.17 Suggested relative phasing of the field boundaries on Lullington Heath. The earliest earthworks are shown in red followed successively by black, dark blue (with an outer boundary, which may be contemporary shown in turquoise) orange (settlement sites), pale green and dark green (most recent).

Figure 7.18 Aerial photograph of the field system on Lullington Heath taken prior to ploughing of the northern portion (RAF 82 1150 f21 0023 dated 1955 and reproduced by kind permission of the NMR)

A continuous boundary (turquoise in figs 7.17 and 7.20) runs along the north side of the ridge between Old Kiln Bottom and Clay Bottom, then descends the slope at the end of the spur and crosses the low-lying land before starting the climb up to Fore Down. Its north-western end was not located due to dense vegetation but, if it continued on the same line, it would pass close to the end of the cross-ridge dyke on Fore Down. No boundaries from the aggregated fields cross this boundary, to its south are the slight lynchets of the earlier rectilinear system and an enclosure which will be described below. This straight and uninterrupted boundary would appear to have been constructed as a clear limit to the later field system, leaving the ridge open for movement from the south towards Holt Brow and the top of the scarp of the South Downs at Wilmington Hill.

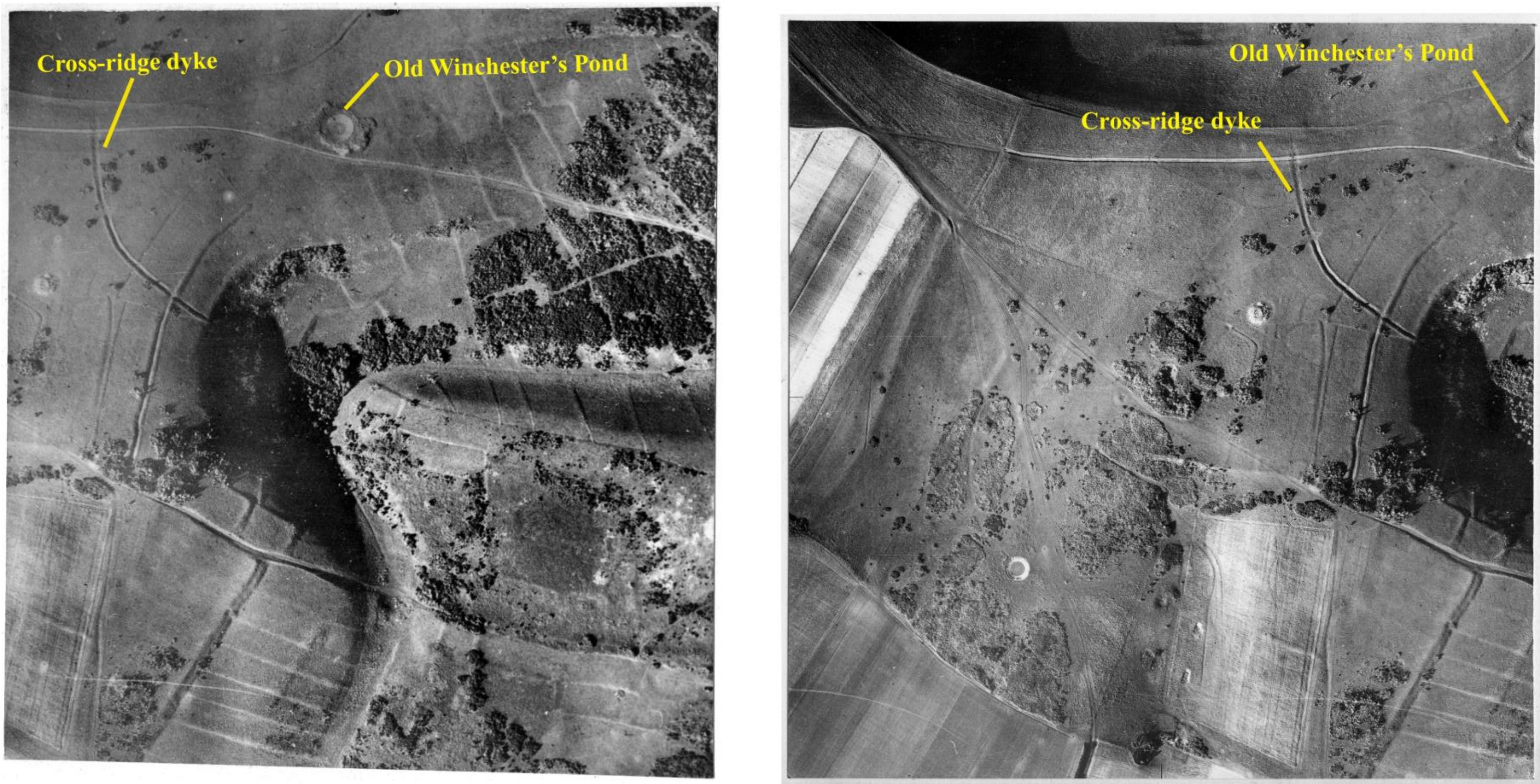


Figure 7.19a Aerial photographs of Old Kiln Bottom (left) and Fore Down (right) taken by Major Allen and reproduced with the kind permission of the Sussex Archaeological Society. For locations see figure 7.19c

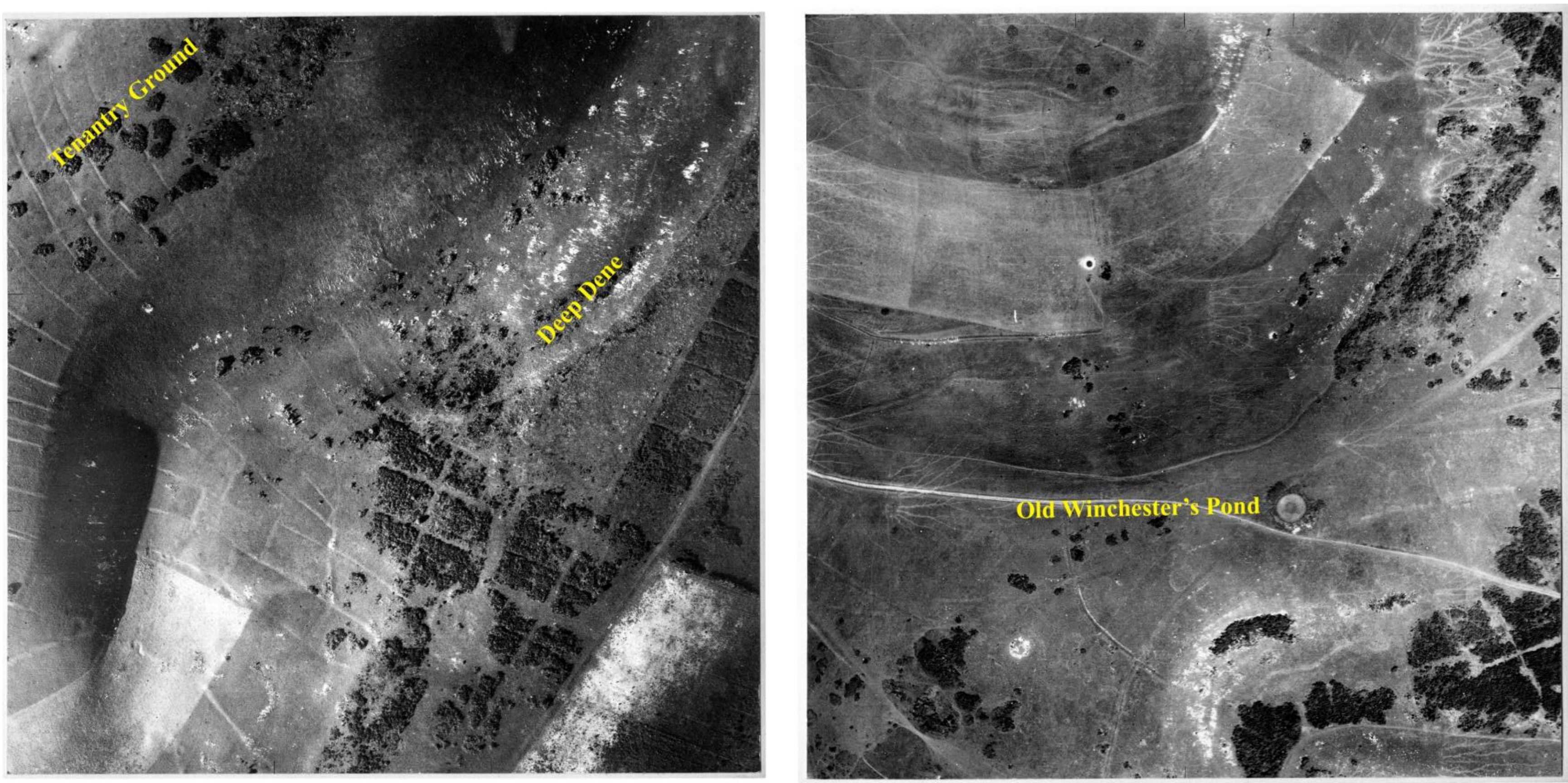


Figure 7.19b Aerial photographs of Deep Dene (left) and the area around Old Winchester's Pond (right) taken by Major Allen and reproduced with the kind permission of the Sussex Archaeological Society. For locations see figure 7.19c

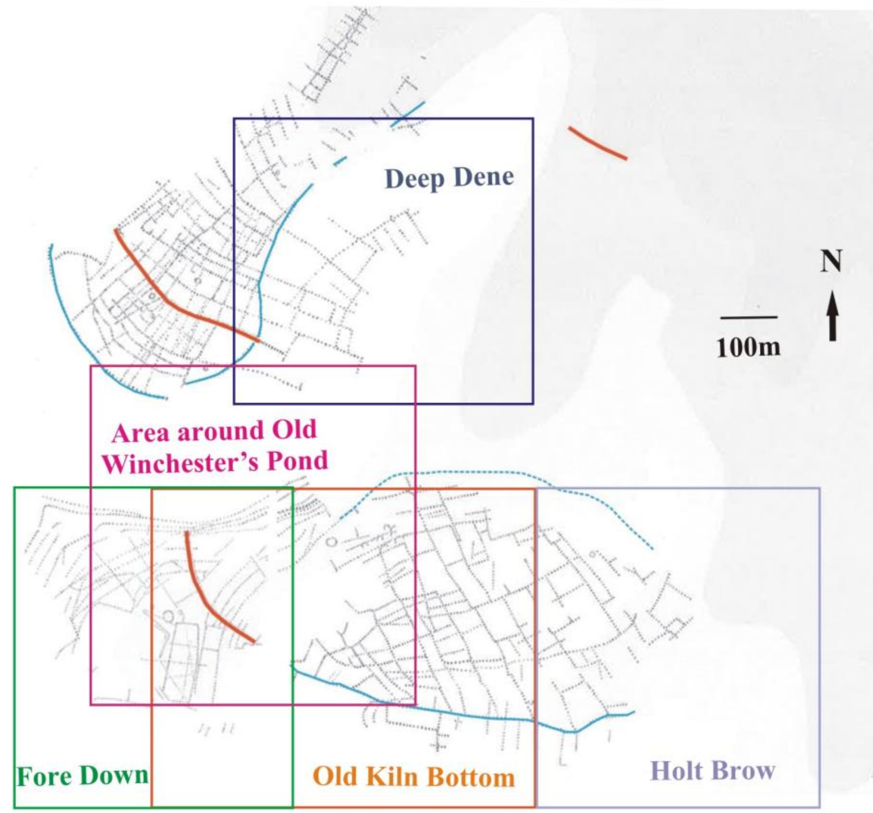


Figure 7.19c Aerial photograph of Holt Brow (left) taken by Major Allen and reproduced with the kind permission of the Sussex Archaeological Society and location of all aerial photographs shown in figure 7.19 (right)

However, the lack of any direct relationship between the continuous boundary and the aggregated fields means that the former could be a later feature dating to a period of reuse.

Aerial photographs show that this aggregated field system continued to fan around the gentle south and south-east facing slopes on the west side of Old Kiln Bottom into areas now under the plough. A further continuous boundary, mainly in a present arable field but visible in aerial photographs (fig 7.18) appears to bound the northern edge of this system (dotted turquoise line in fig 7.20), although more fields, probably earlier in date, can be seen to spread up the spur to the east of Deep Dene.

The form of these later fields is strikingly different from the aggregated systems seen thus far, and demonstrates a greater sense of formality in the arrangement. Indeed, it appears as an intermediate between the rigid formality of the rectilinear grids and the more organic growth of other agglomerated groups. It is possible that the strips of fields, traversing the local topography and thus each containing a portion of the available range of soil type, exposure to wind and rain, and risk of frost hollows, were farmed individually. They may represent a number of farms utilised at the same time or, possibly, sequentially, but if the former, the relatively large area enclosed could feed a population above a family or extended family.

The explanation presented here of aggregated fields overlying extensive regular systems, although probably correct in outline, is an over-simplification, particularly with respect to Lullington Heath. The ladder-like fields, crossing the track from Old Winchester's Pond and draped across the valley to the south show some signs of alteration and it is possible that the 'ladders' were split to leave the valley floor free, with further ploughing on the south-facing slope. However, the degree of vegetation cover and extensive animal burrowing prevented assessment of all the salient points and some questions of necessity remain unanswered.

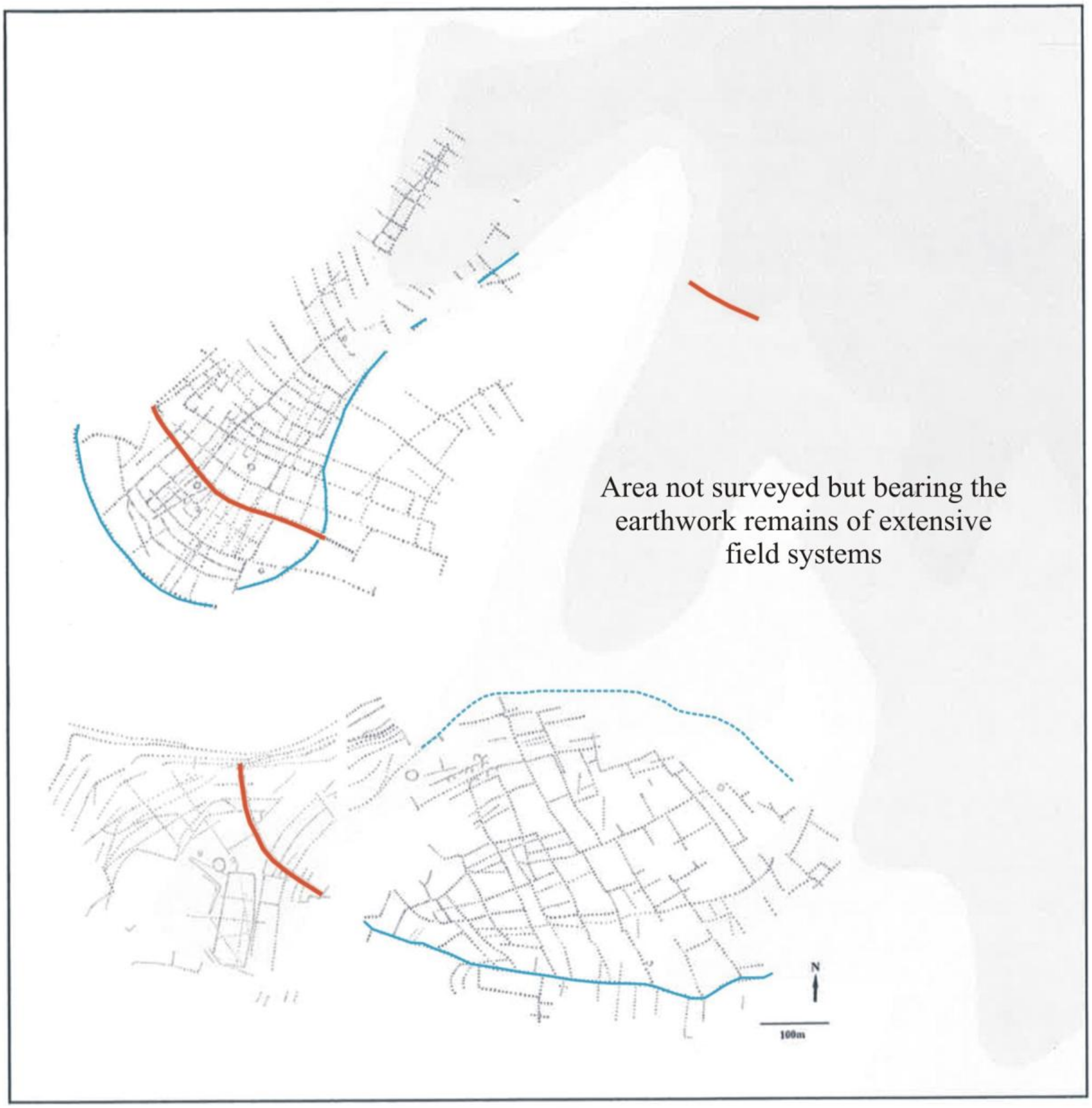


Figure 7.20 Relative location of the field systems on Tenantry Ground, Lullington Heath and Fore Down, East Sussex showing the position of major boundaries in turquoise (dotted line indicates information taken from aerial photographs only) and cross-ridge dykes in orange

A number of scoops probably representing settlement sites were noted to the east of Old Winchester's Pond and it is this area that was excavated by Rev Budgen in the 1920s. Given the disturbance caused by these interventions, and by later scrub clearance, it is not possible to be sure how many stances exist. However, the identification of at least seven seems secure and more may exist in the uncleared scrub around Old Winchester's Pond. Field walking in the arable field to the north and chance finds of pottery to the south-west suggest further settlement in these areas. Of the seven identified during the survey reported here, four, and a possible fifth, have their flat platforms dug into already developed lynchets of the aggregated field system. Pottery excavated by Rev Budgen, collected by Greg Chuter and also found during this survey has been assessed (see below) and placed within the early part of the post-Deverel-Rimbury tradition (*c.* 1150 – *c.* 500 cal BC). Both the rectilinear and aggregated field systems must predate these settlements, and the discovery of a few sherds of possible Deverel-Rimbury pottery farther down the hill may point to earlier settlements of a form which has not left visible above-ground evidence.

No cross-ridge dykes were located within the detailed survey area, although parts of the ridge between Old Kiln Bottom and Clay Bottom were not accessible due to vegetation cover. However, during an informal walkover a further possible example was noted east of Deep Dene and is described below.

Along the northern side of the valley bottom are a number of lynchets, one of which rises to some 2m high in places, which do not appear to conform to either of the field systems so far described (green in fig 7.17). These are later in date and may relate to Romano-British or medieval use of the valley bottom.

Lullington Heath as a whole, and the settlement area in particular, produced considerable amounts of fire-cracked and worked flint, none of which was retained, and a small assemblage of pottery described below.

7.7 The Pottery *by Mike Seager Thomas*

The main text of this report including a spreadsheet detailing finds locations, diagnostic features and spot dates is included in Appendix 5. In summary, the pottery retrieved during fieldwork reported here, that obtained by excavation and recently re-assessed (Budgen 1927; Curwen 1937; Seager Thomas 2008, table 1) and that located during field walking (Chuter 1987) forms an assemblege primarily of the post-Deverel-Rimbury tradition but with a few sherds possibly of the earlier Deverel-Rimbury style.

7.7 Relative and absolute chronology

7.7.1 Tenantry Ground

- The earliest visible fields are disposed as two rectilinear systems on slightly different alignments both of which are essentially dictated by the topography of the spur on which they are situated
    - One lynchet appears to underlie a barrow of presumed prehistoric date
- These systems are overlain by aggregated fields enclosing a smaller area
    - The aggregated systems were progressively remodelled to enclose smaller areas on flatter ground along the spine of the spur
- The final phase of the aggregated field systems was itself overlain by the construction of a cross-ridge dyke
- In the valleys on either side and around the end of the spur there is evidence of probable medieval enclosure and terracing
- Large amounts of worked flint are visible primarily in the up-throw from animal burrowing
    - Informal examination of those pieces considered diagnostic indicates that the great majority dates to the Late Bronze Age. Small amounts of Late Neolithic / Early Bronze Age, and a very few pieces dating to Mesolithic period were also noted
- Two pieces of pottery were similarly recovered from the spur of Tenantry Ground and a single piece from Deep Dene – all these were identified as post-Deverel-Rimbury (confirmed by Mike Seager Thomas)
    - Only a few sherds of Romano-British and medieval pottery were found and these were restricted to the floor of Deep Dene where late fields were shown during the survey to overlie those considered to be prehistoric in origin. Occasional pieces of World War 2 vintage ammunition were noted.

7.7.2 Fore Down

- The remnants of a rectilinear field system can be seen to predate directly lynchetted enclosures, and indirectly a cross-ridge dyke

- A series of contour lynchets post-date the rectilinear field system but pre-date the cross-ridge dyke and tracks running eastwards and westwards from Old Winchester's Pond
- Sub-rectangular enclosures post-date the rectilinear field system
    - A track with a funnel entrance at its northern end appears to be contemporary with enclosures on either side
- The cross-ridge dyke post-dates the series of contour lynchets
    - Although contour lynchets are not usually associated with prehistoric agriculture, in the Dorking Gap they have been shown to pre-date a Late Bronze Age hoard (chapter 3) and here they are cut by the northern extremity of the cross-ridge dyke.
- Earthworks surrounding woodland on Clay-with-Flints on the summit of the ridge appear to post-date the field systems
- A north-south track-way on the eastern side of the spur appears integral with the series of contour lynchets and pre-dates the cross-ridge dyke although that cut was later re-instated
- Two small mounds close to the large barrow post-date elements of the field systems and may date to the either the Late Bronze Age or the Anglo-Saxon period
- Large amounts of worked flint are visible primarily in the up-throw from animal burrowing and particularly in the area around the bowl barrow
    - Informal examination of those pieces considered diagnostic indicates that the great majority dates to the Bronze Age

7.7.3 Lullington Heath

- The earliest field boundaries comprise the fragmentary remains of a probable rectilinear system
    - These are visible at a few locations within the later agglomerated system and to the south, beyond its boundary
- The rectilinear system is overlain by several adjoining ladder-like aggregations
- The southern limit of these fields is marked by a continuous boundary whose position may relate to that of the cross-ridge dyke on Fore Down

- A number of settlement sites can be seen to have been cut into developed lynchets of this aggregated system
    - The area around these stances, and field walking to north and south-west, has recovered pottery from the earlier part of the post-Deverel-Rimbury tradition
- Possible later use of the Old Kiln Bottom may relate to the Romano-British or medieval periods

7.9 Discussion of land use east of the Cuckmere during the 2nd and early 1st millennia BC

Occasional finds of Mesolithic flintwork point to some pre-farming activity, whilst the presence of Late Neolithic / Early Bronze Age flints indicates that the area was probably farmed prior to the construction of the earliest visible field systems. Only rarely could a chronological phase relationship be established between barrows and field boundaries and, although on Tenantry Ground the former could be seen to overlie the latter in a single instance, it is thought that in general the fields systems were probably placed around the already existing landscape markers.

In common with findings in other case study areas, the earliest field systems on downland east of the Cuckmere are a series of very large rectilinear grids. Indeed, only small areas appear to have been left unenclosed; these are mainly situated on the steepest of north-facing slopes, for example between the end of the Tenantry Ground spur and Fore Down, or on small areas of Clay-with-Flints, as on Fore Down. Again these large systems stretch across neighbouring valleys and spurs, in this case running down the sides of Deep Dene where ploughing would seem virtually impossible. Here, unusually, it is the boundaries running parallel to the contours of the western side of the valley which have been lost, a marker of the degree of erosion from the steep sides. The relatively shallow colluvial deposits in the bottom of Deep Dene suggest the sides were not cultivated either intensively or over a long period. This impression of the scale of enclosure is emphasised by the finding during an informal walkover of rectilinear grids on a similar alignment on Friston Hill and close to Jevington.

Defined routes through the enclosed areas were notable by their absence and only movement along the main ridge of the South Downs appears to have been unimpeded. This is not to say that people and stock did not move, clearly there would have been a requirement to move stock to different grazing areas, to access Wealden and coastal resources, to exchange surplus production for exotic goods and to retain social contacts. Routes may have involved areas enclosed but not under crop with temporary gaps in field boundaries which have not left evidence above ground, land which had passed out of use, or zones not yet incorporated within the grid of fields.

Over the wider area it is notable that the density of known settlements from the Early Bronze Age / Middle Bronze Age does not approach that indicated as sustainable by the area of land apparently under cultivation. Long barrows attest a Late Neolithic presence and Belle Tout, although a somewhat puzzling site, clearly has a Beaker component. Round barrows abound, strung along the scarp edge of the downs and in clusters, possibly family-scale cemeteries on spurs overlooking and within the field system areas. The distribution along the north / south scarp overlooking the Willingdon Levels perhaps marks the same liminal zone as those along the main scarp. It has been suggested that territorial margins were places that societies might choose to emphasise their identity and to reassert that identity through time (Hill & Wileman 2002, 115-122; Mullin 2011). Lane Fox (1869) recognised the resemblance of the boundary between the downs and the Weald to that between cliffs and the sea; but the symbolism of these positions, overlooking resource rich but ‘other’ woods and marshland, is very different from those overlooking the domestic environment of farms and fields. Political territories may indeed be marked, but also, and possibly coincidentally, may be less pragmatic boundaries. However, contemporary settlements producing cordoned or biconical urns, food vessels or Deverel-Rimbury tradition pottery are rare indeed east of the Cuckmere.

Later development follows a similar pattern to other areas studied. The rectilinear fields were overlain by aggregated systems of fields enclosing a considerably smaller area. With no certain boundaries to the earlier systems it is not possible to assess the degree of contraction but an estimate would suggest that the area was reduced by at least a half. The location of these aggregated systems varied within the study area, with one located high on the Tenantry Ground spur and the other stretching across Old Kiln Bottom. Neither of these systems is of a form located before in this study. That on Tenantry Ground, with long narrow fields stretching across the spur, may have been designed to minimise the effects of erosion and the successive contractions from the steep slopes to west and east would seem to confirm this. Ploughing eventually came to be limited to the central flatter ground. On Lullington Heath (fig 7.18), a lighter soil with a high proportion of loess remaining, similar concerns may be apparent in the field system design. The sweep of the ladders would hold soil after ploughing and these side lynchets are particularly well developed.

The highest ground, along the top of the scarp of the downs and the upper levels of the spur bounding the east side of Deep Dene, remained unenclosed. It would appear that these ridges provided routes for through movement, a point emphasised by the continuous boundary, delimiting the field system, running along the ridge to the south of Old Kiln Bottom. Although the earlier fields occupied this ridge the only late feature is an enclosure towards the western end of the late field system and to the south of its boundary. This enclosure may relate to the need to keep stock penned away from the fields during movement. Although there is now no surface water the clay soils of Clay Bottom provide potential for lush grazing and aerial photographs (fig 7.5) indicate bounded tracks in the valley. Given its steep sides and abrupt end it is unlikely that Deep Dene would have been used for through movement. This system may also have been delimited to the north. Most of the fields visible on the ridge east of Deep Dene are part of the early system stretching from Tenantry Ground across the valley, but some also appear to represent an extension of the aggregated system on Lullington Heath. If this interpretation is correct, movement would still have been possible along the ridge, past the present position of Old Winchester’s Pond, and along the track to the east of Fore Down.

Ramp-like tracks climb diagonally across the slope out of Deep Dene onto Tenantry Ground and onto Fore Down. These major, cart-width, features are thought to relate to medieval use of the valley but an earlier origin cannot be ruled out.

Figure 7.21 Aerial photograph of the northern portion of the field system on Lullington Heath showing further field boundaries on the ridge east of Deep Dene and the position of the possible cross-ridge dyke (yellow line) (RAF 58 2321 f22 0044 dated 1957 and reproduced by kind permission of the National Monuments Record)

Both the cross-ridge dykes can be seen to post-date field boundaries but they occupy rather different locations. The example on Tenantry Ground acts to enhance an already existing field boundary and one which may have previously been of greater importance within the organisation of the entire system. Its position, carefully selected to run between steep slopes, serves to bisect the spur, but, given the very steep south-western end of the spur it seems unlikely that the dyke was placed across a through route. Relatively slight in construction, it would have been visible from the adjacent high ground but not from any distance. The cross-ridge dyke on Fore Down is a more substantial feature and exhibits no spatial relationship with the field system it slights. It does, however, have a clear relationship with a large barrow and two smaller mounds of unknown date or purpose. The large barrow occupies a position of some local importance on the highest point of the spur, and would have been visible from Tenantry Ground, Lullington Heath and, probably, the Cuckmere valley. The cross-ridge dyke was constructed in a curve across the flat top to the spur such that the outer side of the arc would have been visible over a wide arc from Tenantry Ground to Lullington Heath and the routes from the south. Neither the location nor the shape were dictated by any topographical considerations, and a wish for visibility both by local community from the settlements and the fields, and for travellers passing through the area, may have been the determining factor. The cross-ridge dyke separates the barrow(s) from the possibly contemporary settlement sites, emphasising the importance of the large barrow set on the highest point of the spur.

A possible third cross-ridge dyke was located during informal walking over the spur to the east of Deep Dene (figs 7.20 & 7.21). This is a slight earthwork comprising a low abraded bank with slight signs of a ditch on the uphill side and can be seen running to the west side of a crater of unknown, but probably recent origin (TQ 5463003104 to TQ 5473103071). This feature, if it is indeed a cross-ridge dyke, would have impeded access along the ridge to the south of Old Kiln Bottom to the main east to west running scarp top ridge of the downs

Taking a wider view, the area lies within one of considerable wealth during the Bronze Age. A notable cluster of rich Early Bronze Age burial sites, with the Hove barrow and its amber cup as the outstanding example, is centred on this portion of the Sussex coastal plain and chalk downs (Drewett *et al* 1988, fig 3.7). The distribution of these rare cups, in gold, silver, amber and shale, encompasses the south coast of Britain and Brittany and a few inland sites on the Continent and in Wessex (Needham *et al* 2006, fig 28).

In emphasising the importance of cross-Channel communications the term 'maritory' has been devised – a 'high flux sphere of maritime interaction' and a 'set of shared and reciprocal interests' (Needham 2009, fig 2.3). These influences and their effect on southern Britain will be discussed in chapter 10.

The concentration of round barrows along the scarp edges overlooking the Weald and the Willingdon Levels has already been noted. Elsewhere within the study area a number occupied high points close to the coast and several are known to have been lost to erosion. There are, however, some blank areas, particularly east of the lower reaches of the Cuckmere (fig 7.3a). Barrows have not been found on the northern side of Newbarn Hill, the ridges north and south of West Dean, or on Snap Hill or Middle Brow. Much of that area is currently under woodland and further sites may remain to be discovered.

Although this area of Sussex lacks a coastal plain, valuable resources would have been available from the estuaries and their attendant marshland. Little work has been undertaken in the Cuckmere valley but finds farther east are relevant. Excavation in the Willingdon Levels has produced sites with remarkable timber preservation including a number of trackways. One of these, the Dittons alignment (Greatorex 2003) has been dated to the period 1440 – 1319 cal BC (BM-3060, 3100 ± 50BP). Only a short length of these probable raised track-ways were found and it is not possible to judge whether they linked dryer islands in the marsh but a role in the exploitation of this productive environment is likely.

It is not possible to judge whether this was a prosperous area throughout the 2nd millennium BC but by the Late Bronze Age some importance is again visible. The enigmatic wooden platform at Shinewater Marsh in the Willingdon Levels has been subjected to only very limited investigation (*ibid*). It provides evidence for probable woodland management in the area, not surprising in view of the degree of enclosure within field systems. A remarkable assemblage has been recovered from a small area and includes a rare Class I single peg antler bridle piece, four amber beads, two lead 'purse' pendants, a fragment of a shale bracelet, a hafted bronze reed hook, and three socketed and one end-winged bronze axes. The exact function of the Shinewater platform is uncertain, but its position, set in a sheltered inlet just behind the coast, might suggest a role in a network of sea-borne transport during the 9th century BC. One of the socketed axes is of a type more usually found in northern Holland and north-west Germany, whilst both shale and amber were highly valued and traded materials.

Continuing interest in the scarp bounding the west side of the Willingdon Levels is evidenced in a number of cross-ridge dykes occurring across the east-facing spurs. These earthworks are poorly understood but a role as barriers, real or symbolic, seems likely. Their date of construction is uncertain but they are generally ascribed to the Late Bronze Age and, if that is correct in these cases, they are likely to have been contemporary with activity in the Levels evidenced by the Dittons alignments and the Shinewater platform. A marked separation between 'us', the farmers and pastoralists of open downland, and 'them', the marsh dwellers, appears to have been intended.

The Shinewater platform is thought to have been used for occupation but was clearly constructed in a physically challenging environment, requiring a large number of substantial oak posts to be driven into freshwater peat and the underlying marine clay (*ibid*). Some objects, recovered in pristine condition appear to have been buried in the peat indicating deliberate deposition rather than casual loss and the number of pieces of human bone recovered encouraged the excavator to speak of 'placing … human material … as a way of renewing or strengthening links between the inhabitants and their predecessors'. Some of the artefacts found were not local in origin placing Shinewater either as part of, or with access to, an extensive trading network; the Dittons trackways could have functioned both for distribution of imported goods and exploitation of the marshland environment. It would be interesting to know whether the cross-ridge dykes were visible from Shinewater itself, or from the marine approach. Were they seamarks to a landing place and its tracks inland, evidence of the strength and sophistication of the local population, ‘boundaries’ around some entrepôt, or, as mentioned above, a division between peoples with different interests, economies and identities?

However, in many cultures marshland is the haunt of spirits and monsters; Grendel, in the Anglo-Saxon poem *Beowulf* for example, it may be these less tangible dangers that necessitated the construction of barriers. The symbolic importance of natural places as interfaces with the spirit world is well established in British prehistory (Tilley 1994; Bradley 2000) and in ethnographic studies (Hirsh & O’Hanlon 1995; Ashmore & Knapp 1999).

What is surprising, yet again, is the apparent collapse in settlement activity during the Middle Iron Age / Late Iron Age. The field systems could have remained in use, although the lack of any finds of pottery from those periods would suggest at least a lack of manuring with domestic refuse. Seaford Head (TV 49509784; MES1699) may have been constructed during the Late Bronze Age and was in use later (Bedwin 1986). A site at Hawks Brow, just west of Seaford Head (TV 489985; MES1702) has produced evidence of occupation over a wide period but including small amounts of Early Iron Age pottery. The 6^{th} century BC site at Heathy Brow (TV 591964; MES690) was a coastal farmstead with an agricultural landscape of lynchets considered to be contemporary (Bedwin 1982). Settlement may have become nucleated around a relatively small number of centres; certainly the dispersed pattern of visible downland farmsteads seen within the study area during the 2^{nd} and early 1^{st} millennia was lost.

Chapter 8

Land use on Stockbridge Down, Hampshire during the 2nd and early 1st millennia BC

Field boundaries in the eastern valley on Stockbridge Down

8.1 Summary

Despite occupying only a small area the earthworks on Stockbridge Down provide a surprising chronological depth. Fragments of a rectilinear field system appear to be overlain by three groups of aggregated fields; two on the western spur are on different alignments and separated by a bank, whilst that on the east occupies a narrow valley and is bounded on the west by a linear ditch, which itself may overlie earlier field boundaries. Boundaries of the uppermost of the western groups are cut by the ditch of the Early Iron Age hillfort of Woolbury Rings and there is some suggestion that the same applies to the eastern group. That latter group also displays evidence of later use. The wider area exhibits considerable prehistoric activity in a zone supplying a wide range of resources. Its proximity to the Test valley provides access to an important route between the Solent, a core location for cross-Channel links, and the chalklands of Wessex.

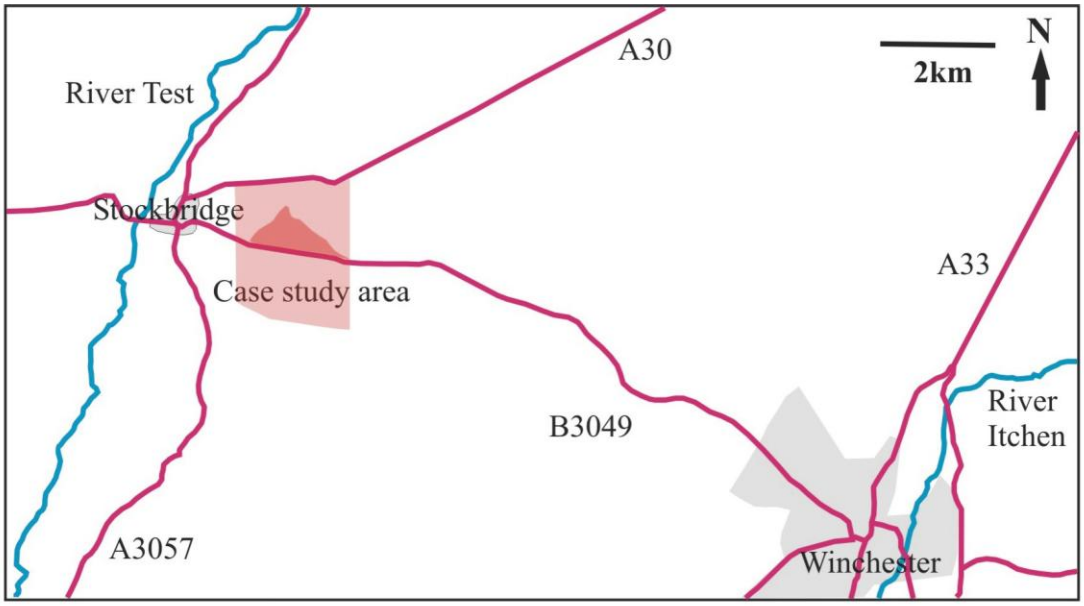
8.2 Definition of the study area

The triangular area of Stockbridge Down owned by the National Trust will form the focus of this case study and use will be made of existing surveys. Aerial transcription evidence alone will be used to examine ploughed out earthworks over the remainder of an area bounded on the north by the A30 and on the south by the B3049; the western and eastern limits of this wider area are defined by grid lines SU37 and SU39 respectively (fig 8.1).

8.3 Rationale for selection of the study area

- The area carries a field system, of more than one phase, with above ground preservation
- A number of aerial photographs survive which cover the few areas which have been subjected to modern ploughing
    - All aerial photographic evidence has been transcribed in response to the need to examine the environs of Danebury hillfort (Palmer 1984)
- A detailed analytical survey of the field system has already been undertaken (Bowen *et al* 1979; Eagles 1989) and the original results are available for study (English Heritage archives accession number AF0885724)

- Several excavations of specific monuments, including Woolbury hillfort and a number of barrows and other burials on the down, have taken place, and some of these have provided information about both dating and relative chronology of different portions of the field system
- The location, between field systems already studied in Sussex and Wiltshire, may provide an intermediate point if differences between those two areas appear to exist



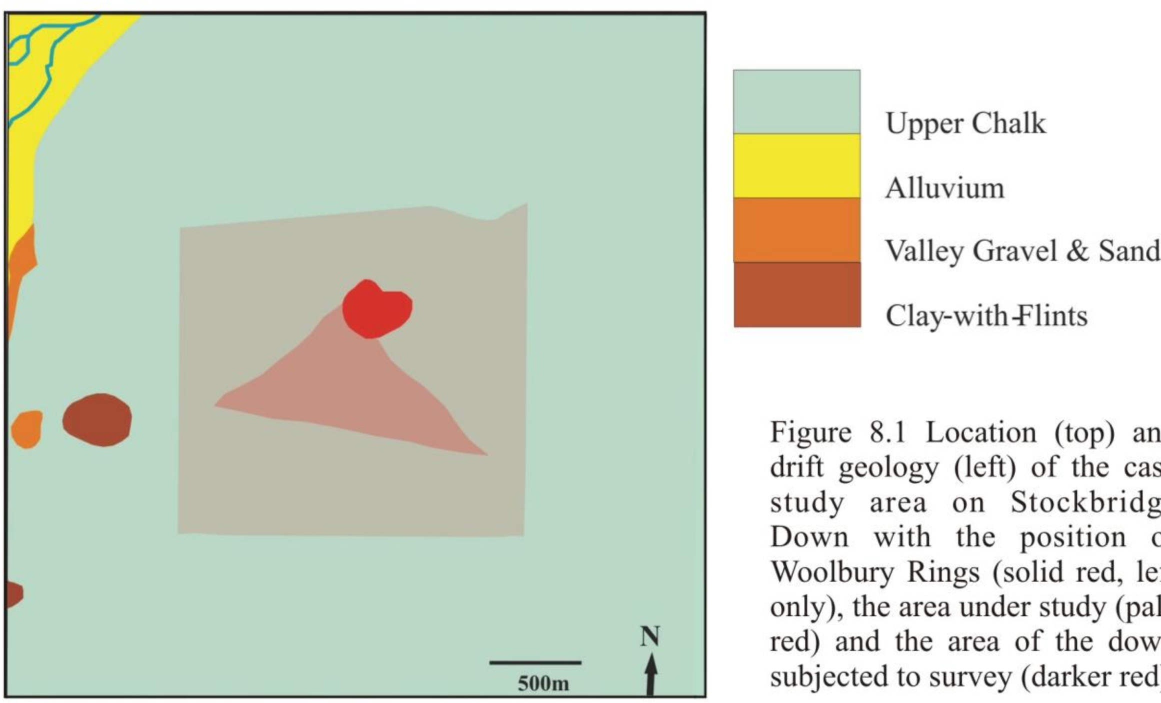
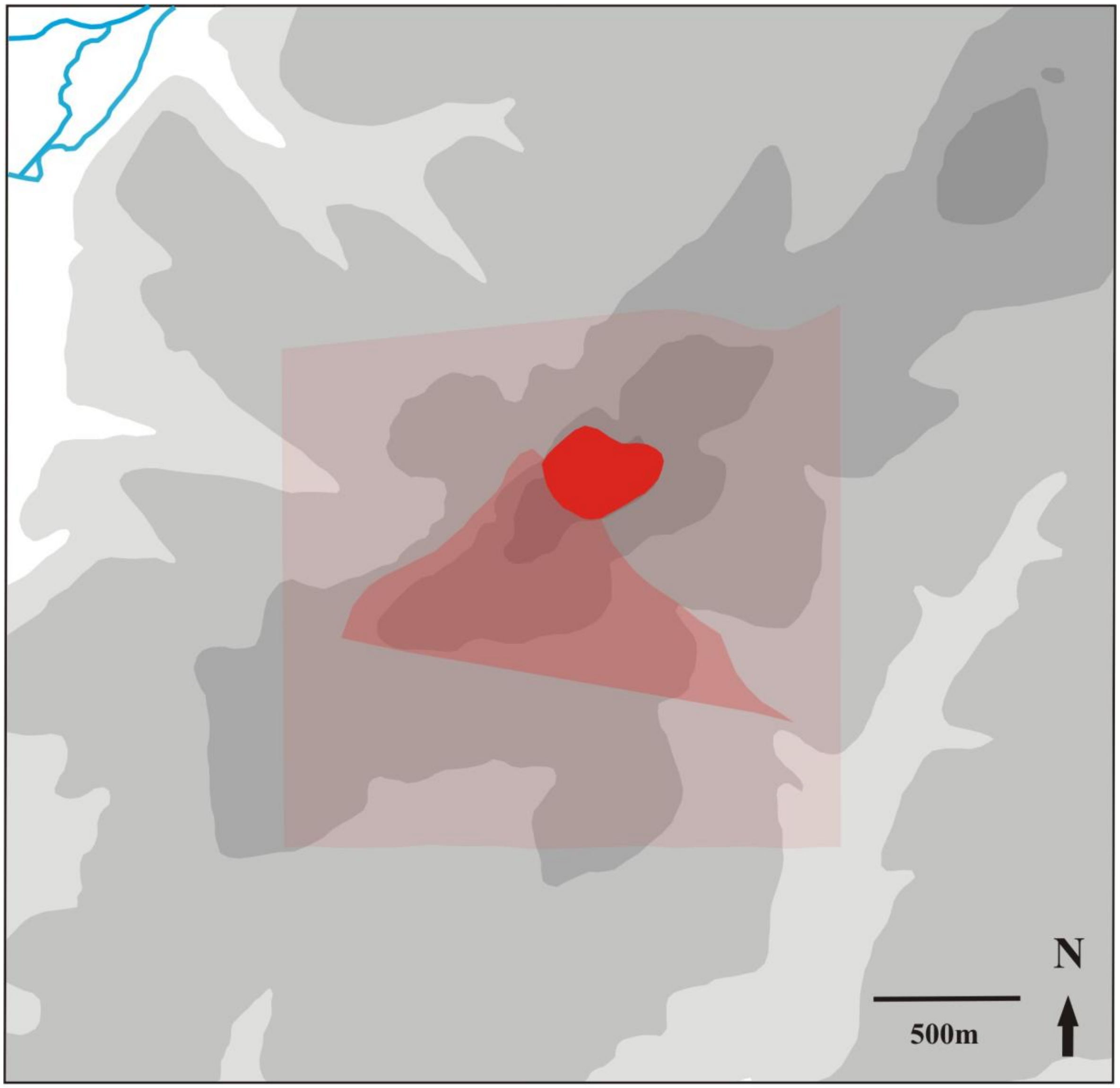


Figure 8.1 Location (top) and drift geology (left) of the case study area on Stockbridge Down with the position of Woolbury Rings (solid red, left only), the area under study (pale red) and the area of the down subjected to survey (darker red).



Land above 150m OD

Land above 125m OD

Land above 100m OD

Land above 75m OD

Land above 50m OD

Land below 50m OD

Figure 8.1 Topography of the area around Stockbridge Down with the position of the hillfort Woolbury Rings (solid red), of the area under study (pale red) and of the down (darker red)

8.4 Geology and topography of the study area

Location and drift geology of the area around Stockbridge Down are shown in figure 8.1, and the topography in figure 8.2. Stockbridge Down is part of the great chalk massif of central southern Britain and lies 2km east of one of the major rivers of the area, the Test. A ridge of high ground stretches south-west to north-east with, at its south-western end at a height of 158m OD, the Early Iron Age hillfort of Woolbury Rings. The field systems under study lie below Woolbury Rings on the south-eastern-facing slope of the ridge, and cover land crossing a spur overlooking the steep slope towards the Test, and in a small, steep-sided dry valley to its east. The drift geology is Upper Chalk with alluvial deposits in the Test valley and some small areas of superficial deposits of Clay-with-Flints – one such area not shown on British Geological Survey sheet 299 lies south-west of the hillfort and other small areas of cover may also have been omitted. Stockbridge Down is now a public open space in the guardianship of the National Trust and is mainly grassland with some light woodland and scrub particularly on the Clay-with-Flints areas, but surrounding this limited area are arable fields where the earthworks have been destroyed by ploughing.

8.5 Evidence of Bronze Age activity in the study area

Stockbridge Down has been the subject of several interventions throughout the 20th century. The first record appears to date to the period of World War 1 when a supposed 'British road' approaching Woolbury Rings was seen as part of a network connecting the hillfort with that on St Catherine's Hill, Winchester and thence with those on the South Downs (Williams-Freeman 1915, 233-235, 421). Banks surrounding the remainder of the plateau were considered to form an outer enclosure to the hillfort and other earthworks recognised as evidence of agriculture. Mention was also made of a then recent court case in which the lord of the manor had been unable to prove that Stockbridge Down had been under cultivation at any time during the existence of the manor, thus suggesting that the banks were of some age (*ibid* – original record not accessed).

Transcription of aerial photographs (Crawford & Keiller 1928, 154-156, plate XXV) showed the close relationship between the 'ladder' fields on the eastern portion of the down and Woolbury Rings. However, the ending of one boundary at the ditch of the hillfort was regarded as proof of an earlier date for the latter, rather than a possible truncation by the ditch. The ‘road’ to the hillfort entrance now became a ditched boundary between arable land to the east and pasture to the west. The ‘outer enclosure’ was re-interpreted as a further, western field system but, again, it was considered contemporary with or later than the hillfort.

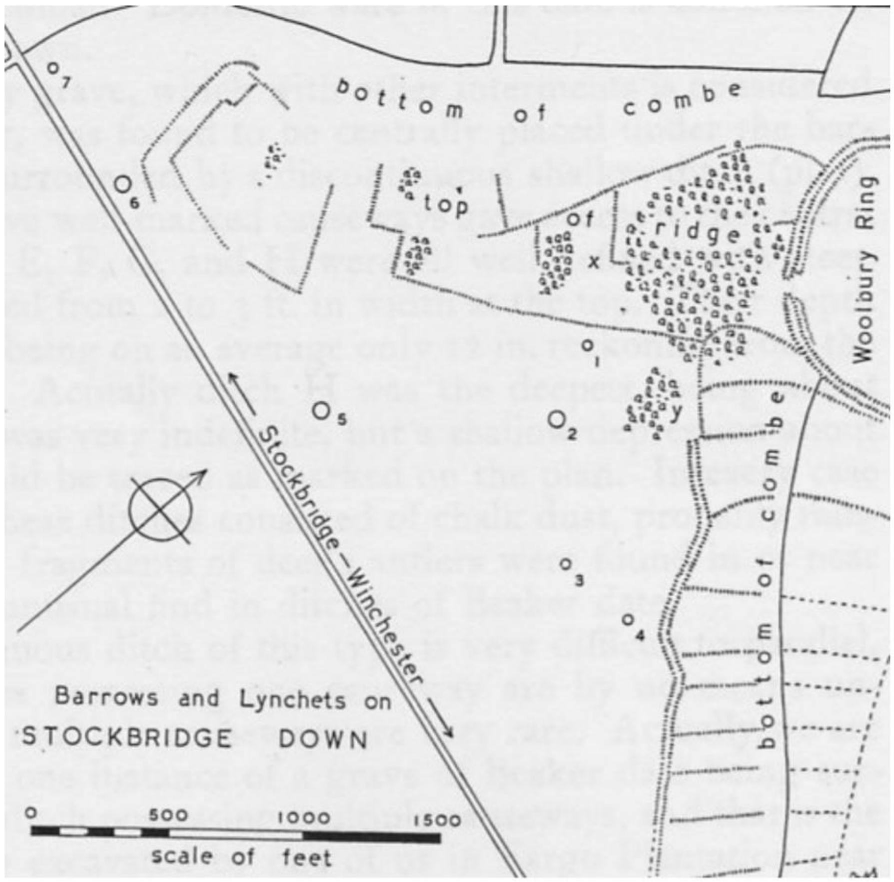


Figure 8.3 Plot of the earthworks on Stockbridge Down showing the location of the pit containing Middle Bronze Age pottery (X) (Stone & Gray Hill 1938), the excavated barrow (1) (Stone & Gray Hill 1940) and the Beaker burial (Y) (Stone 1948) (after this last reference fig 1).

A number of burials on Stockbridge Down were excavated during the 1930s and 1940s as a result of the antiquarian interests of the then landowner, N Gray Hill, and the approximate locations of these interventions are shown in figure 8.3. At a site within the western field system preparations for a bonfire to celebrate the Jubilee of George V in 1935 resulted in the discovery of an Anglo-Saxon execution cemetery (Gray Hill 1935-7), and during excavation a sherd of Bronze Age pottery was located in a rabbit scrape (Stone & Gray Hill 1938). Excavation of the area, (X in fig 8.3), located a large pit, hour-glass shaped in profile. The possibility that this in fact represented two inter-cutting pits, and the finding of a tennis ball and a live rabbit burrow in the lowest contexts reduces the validity of the interpretation as a single, undisturbed feature. However, the presence of molluscan species *Ena Montana*, *Helicodonta obvoluta,* and *Clausia rugosa*, indicative of undisturbed ancient woodland with a build up of leaf litter (Mike Allen pers comm.), suggest firstly, that the origins of the pit pre-date clearance of the Clay-with-Flints, and development of the western field system. Secondly, it would seem that the pottery from layer 2, above a turf line but presumably a deposition within a still visible depression, and with hints of a more open environment, post-dates clearance, but any chronological relationship with development of the field system is uncertain. The pottery, all of which could be described as coming from collared urns, would now be dated to the Early Bronze Age (2000-1500BC), rather than the Middle Bronze Age as it was in 1938 (Mike Seager Thomas pers comm.), was found together with apparently domestic debris including a bone awl, part of a sandstone quern, flint scrapers and fire-cracked flint. The 'mixed mould' layer overlying this deposit contained a few sherds of Romano-British pottery and may have derived from ploughing above the site of the pit.

Excavation of a small barrow lying to the east of this pit produced somewhat unexpected results (Stone & Gray Hill 1940). The primary burial of a young female, interred with a beaker and a copper awl, was found in a chalk cut grave surrounded by a discontinuous shallow ditch. In the grave fill were two inurned cremations and a further cremation, within an everted collared urn, had been deposited within a recess cut into a segment of the surrounding ditch. With this last cremation were a bronze awl and beads of calcite, faience, jet and lignite. The matrix of the surmounting barrow comprised flint nodules packed with only a small amount of soil, and from this were recovered sherds of Beaker pottery, splintered animal bone including sheep and small ox, part of an antler tine, burnt flint, part of a sandstone quernstone, and burnt bone, possibly human. Samples from a number of contexts related to the Beaker burial yielded molluscan species indicative of damp, undisturbed deciduous woodland.

A further burial, located right at the edge of what was to become the eastern field system (fig 8.3), was found to be severely disturbed (Stone 1948). The burial was that of an adult female interred with a beaker, but excavation failed to find any evidence of a surrounding ditch.

In summary, the Clay-with-Flints capping on the higher portions of Stockbridge Down appears to have remained uncleared until after *c*. 2000BC, but there is evidence of activity, intermittent or continuous, from the Beaker period, and of clearance, necessarily, prior to development of the western field system.

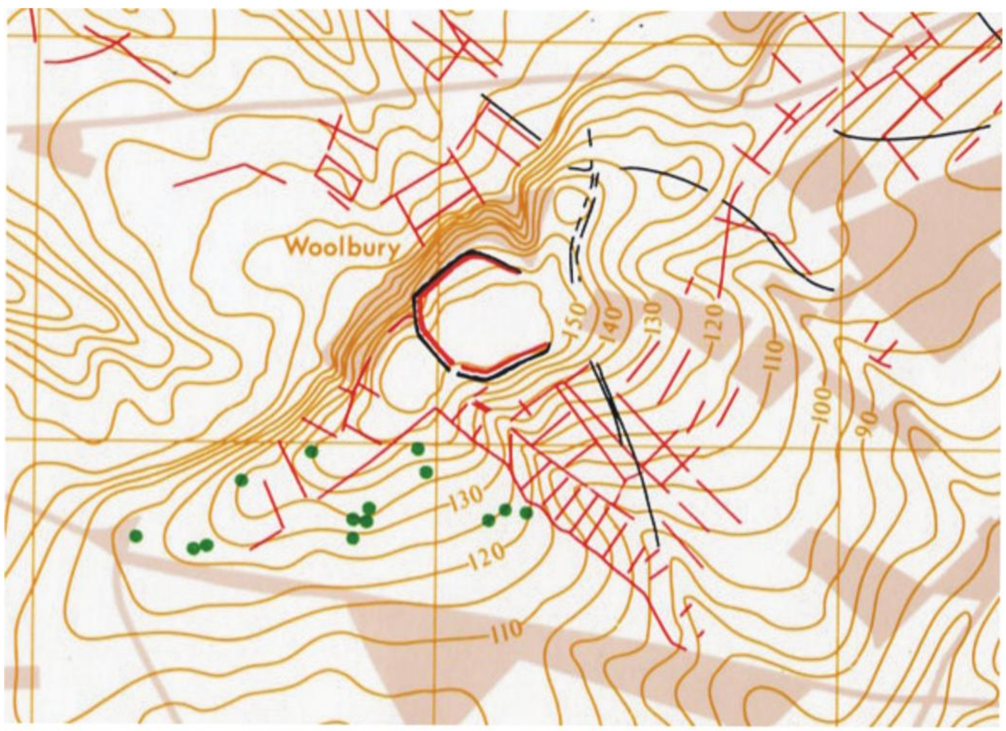


Figure 8.4 Transcription of aerial photographs of Stockbridge Down and its immediate vicinity (after Palmer 1984). ● Barrows or ring ditches, banks, ditches. Contours are at intervals of 5m and lines denote 1km grid squares.

The field systems themselves were subjected to limited survey before World War 2 (fig 8.3) but received considerable attention during the last quarter of the 20th century. Transcription of aerial photographs from a wide area around Danebury hillfort (Palmer 1984) includes Stockbridge Down (fig 8.4) and identifies a number of barrows or ring ditches, and both the western and eastern field systems, the latter bounded by a linear ditch. Further boundaries which may relate to those on Stockbridge Down can be seen in the fields to the north and east, where above ground evidence has been largely destroyed by ploughing.

The earthworks on Stockbridge Down were subjected to analytical survey in 1979 (Eagles 1989; figure 8.5) and it is the original large-scale drawing from this survey which has been utilised as a basis for the present fieldwork. Some 14 mounds were noted of which 11 were considered certain or possible barrows, one had been excavated in 1935 and 1936 with the finding of only relatively modern material (Gray Hill 1935-7), and the remainder were of uncertain origin.

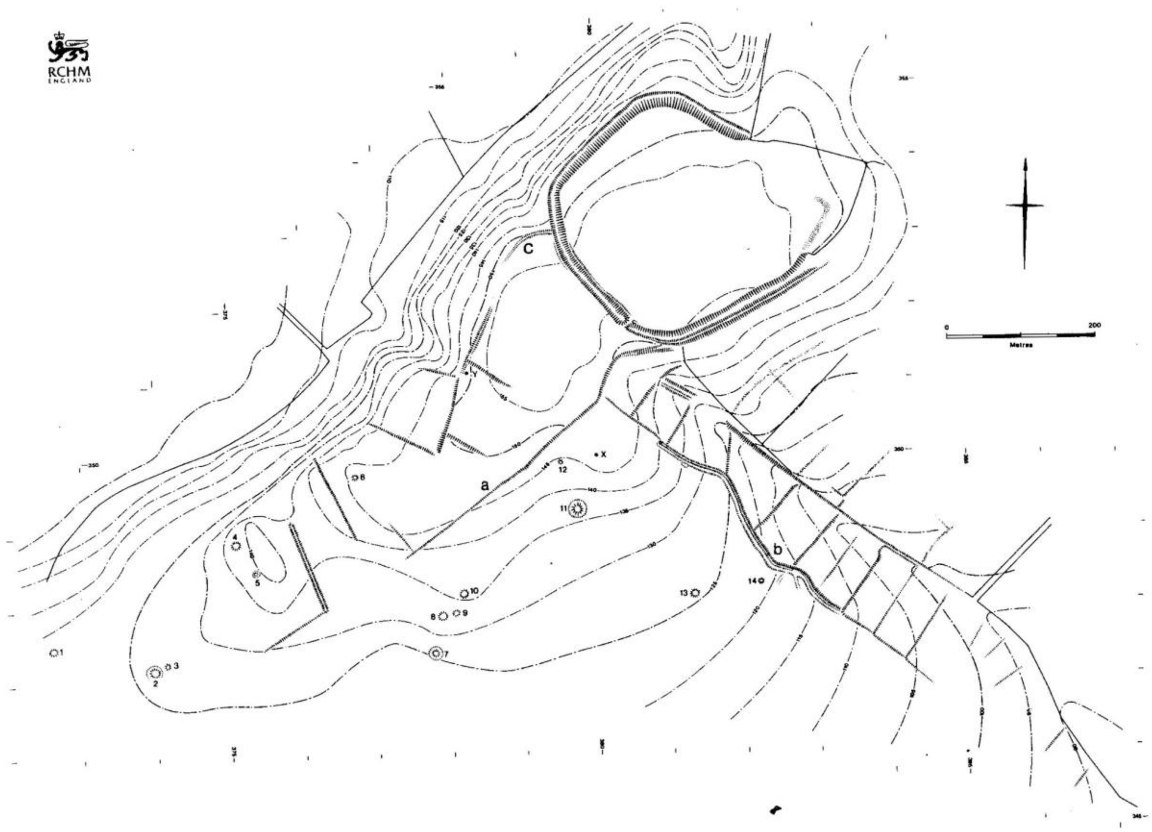


Figure 8.5 Analytical survey of the earthworks on Stockbridge Down (after Eagles 1989 fig 2)

The field systems were considered to have probably originated during the Bronze Age since portions could be seen to underlie the bank of the hillfort. The eastern system was interpreted as having a linear boundary to the south-west, beyond which there was no evidence of ploughing and the land may have been used as permanent pasture. Variation in the form of that linear suggests more than one phase of development, with a succession of at least seven fields of a 'ladder' system post-dating construction of, at least, the eastern bank of the linear bank and ditch. A possible Romano-British date was assigned to this 'ladder' system. The suggestion was made of a number of points where excavation might add further to the evidence of multiple phases of use.

Such excavation was undertaken as part of an investigation of sites in the vicinity of Danebury hillfort (Cunliffe 1990; Cunliffe & Poole 2000). Only one feature was considered to date to the Late Bronze Age, a short length of ditch (G2/3), outside and to the north-east of the hillfort ditch, which had been recut on at least one occasion, and had been truncated by ploughing in the Romano-British period. A 'slot' oriented south-west to north-east (F8) and possible quarrying (F30) were also considered to pre-date the hillfort (Cunliffe & Poole 2000, fig 1.5). The hillfort was considered to have been constructed in the middle of the 1st millennium BC and, after a period of abandonment, an enclosure was built within the interior which remained in use, not necessarily continuously, from the Late Iron Age through the Romano-British period.

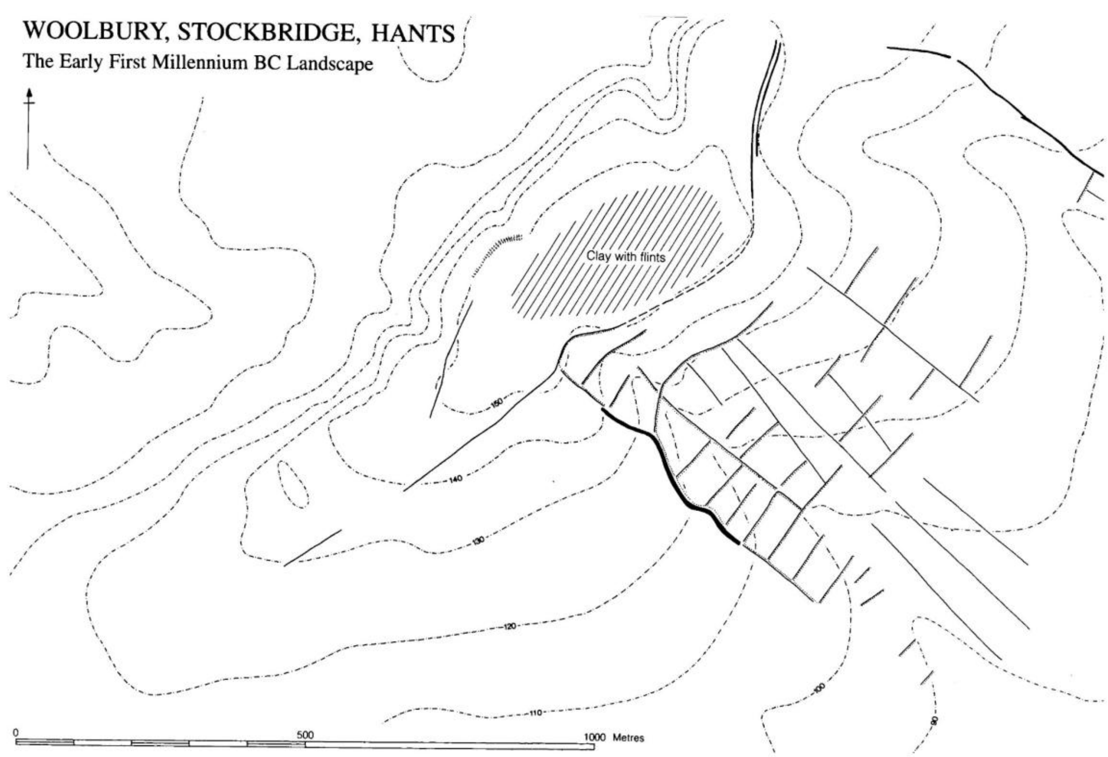


Figure 8.6 Earthworks considered to pre-date the Iron Age hillfort (after Cunliffe & Poole 2000 fig 1.34)

The eastern field system was interpreted as a coherent entity of fields bounded by linear ditch complexes, pre-dating the hillfort, but continuing in use after construction of that enclosure (*ibid* fig 1.34; fig 8.6). The spinal linear approaching from the north-east could be traced over several km and the fields were laid out between two parallel linears constructed at right angles to this, some 900m apart. Differences noted at excavation of the western linear boundary above and below the point where a major lynchet curves across the valley led to the suggestion that the field system had been extended uphill at some stage during its use.

No investigation of the western field system appears to have been undertaken.

In 1992 the number and condition of archaeological sites within the National Trust holding on Stockbridge Down were assessed and recommendations made for their conservation (Papworth 1992).

Considerable evidence exists of prehistoric activity in the wider area around Stockbridge Down. A Middle Bronze Age ditch and the post holes of a possible settlement site were excavated at Ashley, approximately 3km to the south of Stockbridge Down, and a 5th to 2nd centuries BC settlement was found some 1500m to its north-east (Neal 1980). An Late Iron Age enclosed settlement has also been located close by this last site (Wessex Archaeology 2008; Harding in prep).

8.6 Analytical survey of the field systems

The plan produced by Bruce Eagles was used as a basis for the survey and fieldwork undertaken with the intention of enhancing those results where appropriate. However, it rapidly became clear both that some areas, particularly the western spur, had not been covered in detail, and that clearance of scrub in the intervening period had increased accessibility. It was therefore decided to resurvey using tape and compass with continuing reference to the earlier work.

Fixed points, identifiable on Ordnance Survey maps, were located on the boundary and certain of the barrows for which accurate Global Positioning System points were available. In two areas detailed work was not undertaken – one small area within woodland on the western portion of the plateau had been heavily disturbed by later digging, probably for clay, and portions close to the linear ditch bounding the western side of the eastern aggregated field system were on steep, heavily vegetated slopes rendered insecure by animal activity and were deemed unsuitable for lone working.

During the course of the survey it became apparent that the upper portion of the field system in the eastern valley was of considerable complexity and that area was re-surveyed in greater detail and at a larger scale (1:500).

8.6.1 Survey results

The overall survey results are shown in figure 8.7 and in further detail in figures 8.8 (western spur), 8.9 (eastern valley) and 8.10 (relationship with Woolbury Rings).

The earliest visible field boundaries on Stockbridge Down are a small number of very slight, less than 15cm high, lynchets lying on the steeper, upper slopes close to the eastern valley and truncated by the western edge of the aggregated field system crossing that valley. Although fragmentary, these lynchets may represent the remains of a rectilinear field system. The full extent of this system, with its main axis aligned 30^{o} east of north, cannot now be determined - it may once have covered the entire central area and spread beyond the down but present arable land to north, west and east has destroyed such slight evidence. The southern portion of the down itself is more problematic. Some damage will have been caused when the road ran somewhat north of its present line, and also by gallops parallel to its northern edge, but much of the lower area appears ‘flat’, bears slightly different vegetation, and may have been ploughed relatively recently.

The spur stretching south-west from the plateau carries a number of more pronounced lynchets comprising two systems of fields looped onto each other and lying on slightly different alignments. At the top of the spur three boundaries are truncated by the ditch of

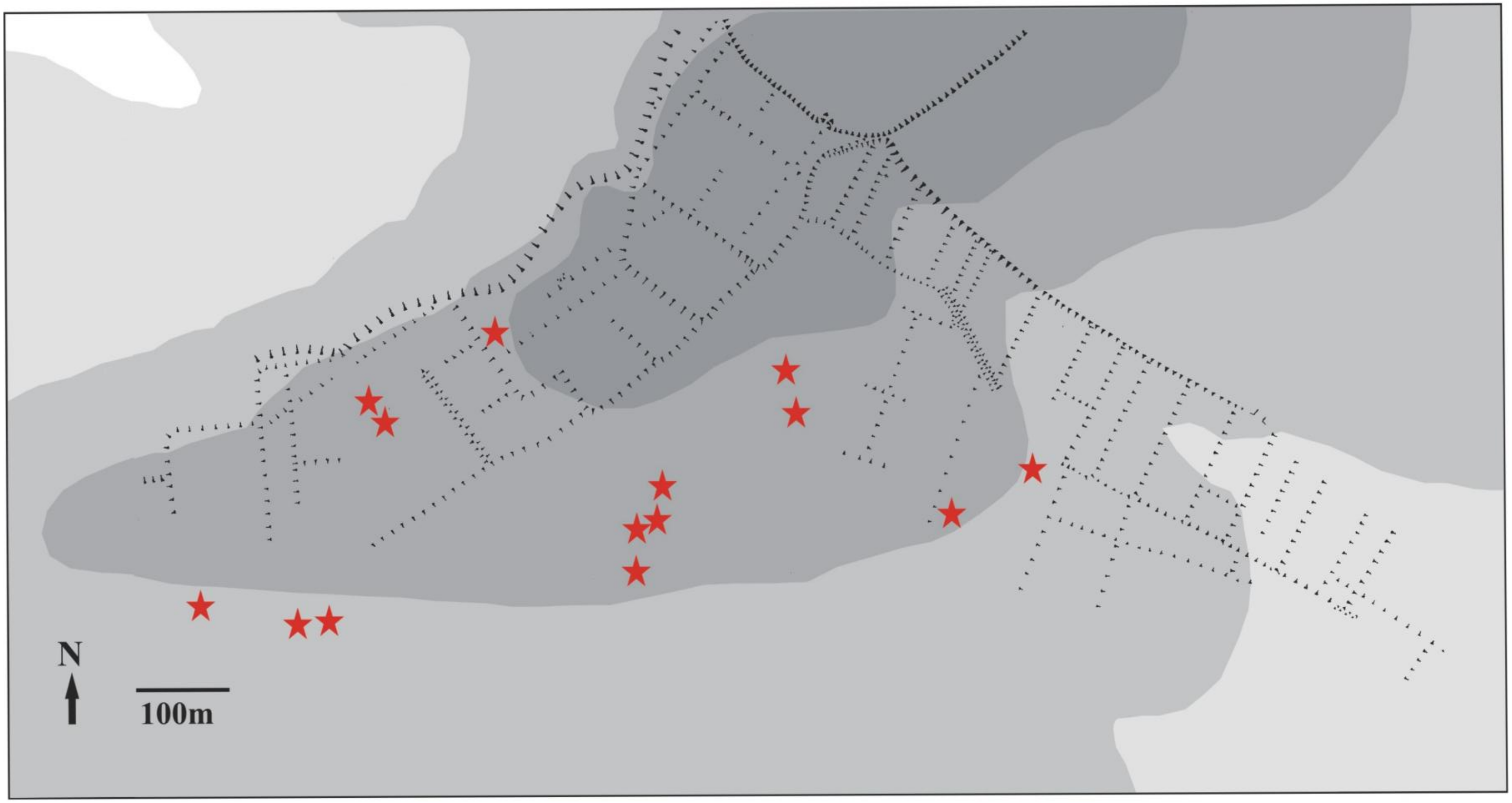


Figure 8.7 Analytical survey of earthworks on Stockbridge Down, Hampshire. Barrows indicated by red stars. Contours at 25m intervals, white shows land below 75m OD

the hillfort, Woolbury Rings, and this system, with an alignment guided by the topography and lying 40^{o} east of north, stretches down the spur towards a notable, but natural, knoll. Just to the north-east of this knoll is a constructed bank with an alignment similar to that of the upper set of aggregated fields. The knoll, distinctly barrow-shaped, bears two small barrows whilst to its south-west are the fragmentary remains of a further group of aggregated fields with a main axis running almost due east / west.

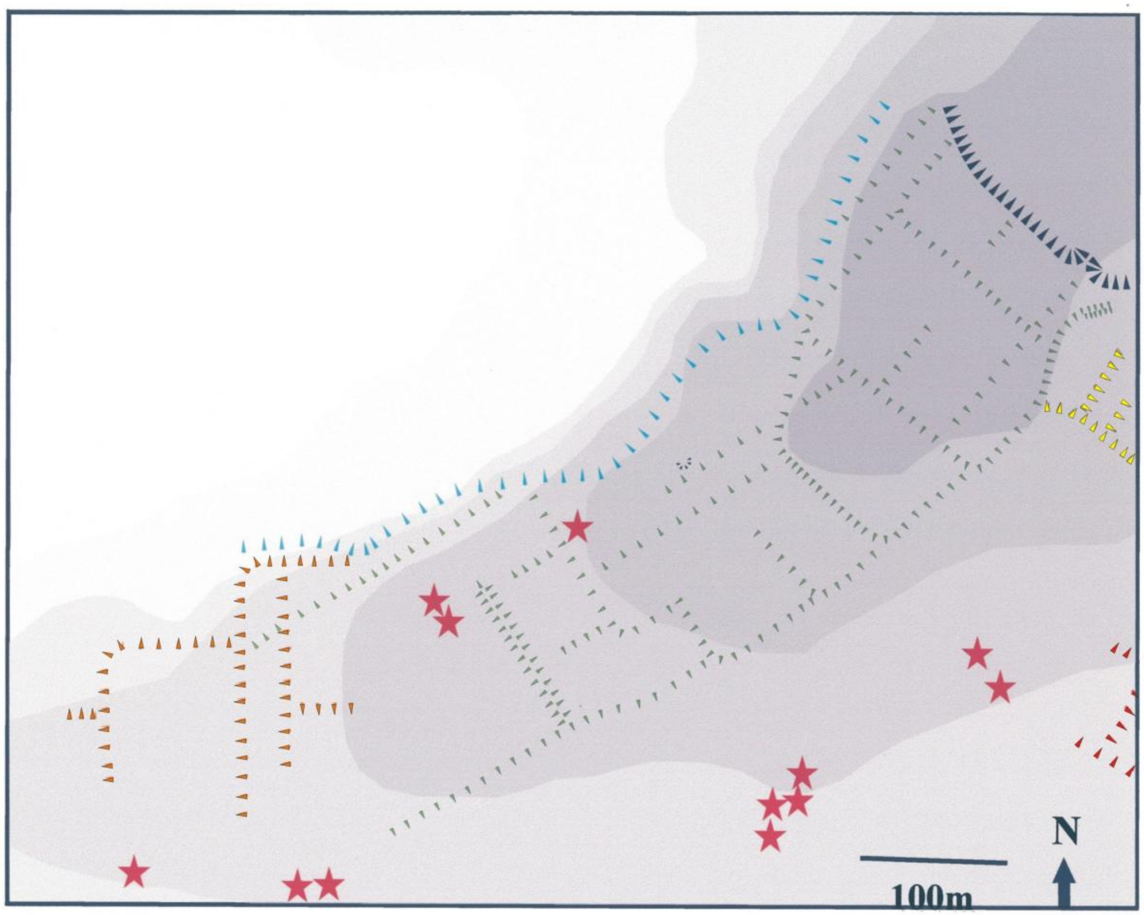


Figure 8.8 Field systems on the western spur of Stockbridge Down, Hampshire. The locations of barrows are shown as red stars, the rectilinear field system in red, aggregated systems in orange, green and yellow, the major boundary in blue and Woolbury Rings in black. Contours are shown at 10m intervals with land below 90m OD in white

The remains of this system are masked by disturbance due to various routes of the road and the gallops to its north. The north-west boundary of both these blocks of fields is marked by a large lynchet at the top of a steep slope, which is also the present property boundary and, presumably, also the edge of the historic manorial waste, and its date of origin cannot be determined. This edge is subject to erosion and the western extent of the prehistoric fields may have been truncated. The upper portion of the south-eastern boundary comprises successive boundaries of four fields looped onto each other with rounded south-eastern corners, whilst a fifth field on the same alignment is appended but within this composite boundary. The line then continues past the knoll, abutting the bank boundary, towards the lower group of fields.

The fields set within the eastern valley (fig 8.9) appear to have a longer and more complex history. That they overlie the rectilinear system to their west is clear, but their relationship with the linear bank and ditch on their south-western limit is not. The form of the linear suggests several phases to its construction, and in general the fields fit within that earthwork, with their boundaries abutting and plough soil piled against the bank. There are however three places where a different sequence is suggested. Firstly, on the lower slopes of the valley a number of 'playing card' corners are visible suggesting the fields were originally looped onto each other in a fashion similar to that on the western spur. Secondly, at a point north of barrow 14 (Eagles 1989, fig 2; fig 8.5) the bank of the linear complex rises at a point where the field boundary to its north-east abuts as though it had been constructed over a field corner. Thirdly, a small mound once visible to the west side of the linear ditch as the valley narrows towards the top (*ibid*) but now destroyed by animal burrowing may also represent an earlier field corner. Much of the area where relationships between the linear ditch complex and the field system may once have been seen has been heavily disturbed and this interpretation must remain speculative, but the imposition of the linear bank and ditch over a line comprising the south-western boundaries of a number of fields looped on to each other remains a possibility.

The north-eastern boundary of this field system, the present property boundary, is also problematic. Towards the bottom of the valley this boundary is represented by only a very slight lynchet, and here the field boundaries can be seen, both on aerial photographs (Palmer 1984; fig 8.4) and as variations in the height of the crop, to continue into the arable field to the north-east. Farther north-west, however, the size of the lynchet increases until, close to Woolbury Rings, it is between 3m and 4m high. Although field boundaries to the north-east are visible on aerial photographs (*ibid*) they are not continuous with those in the valley and, in view of the height difference, it is most unlikely that they belong to the same phase of activity. A different scenario must be posited.

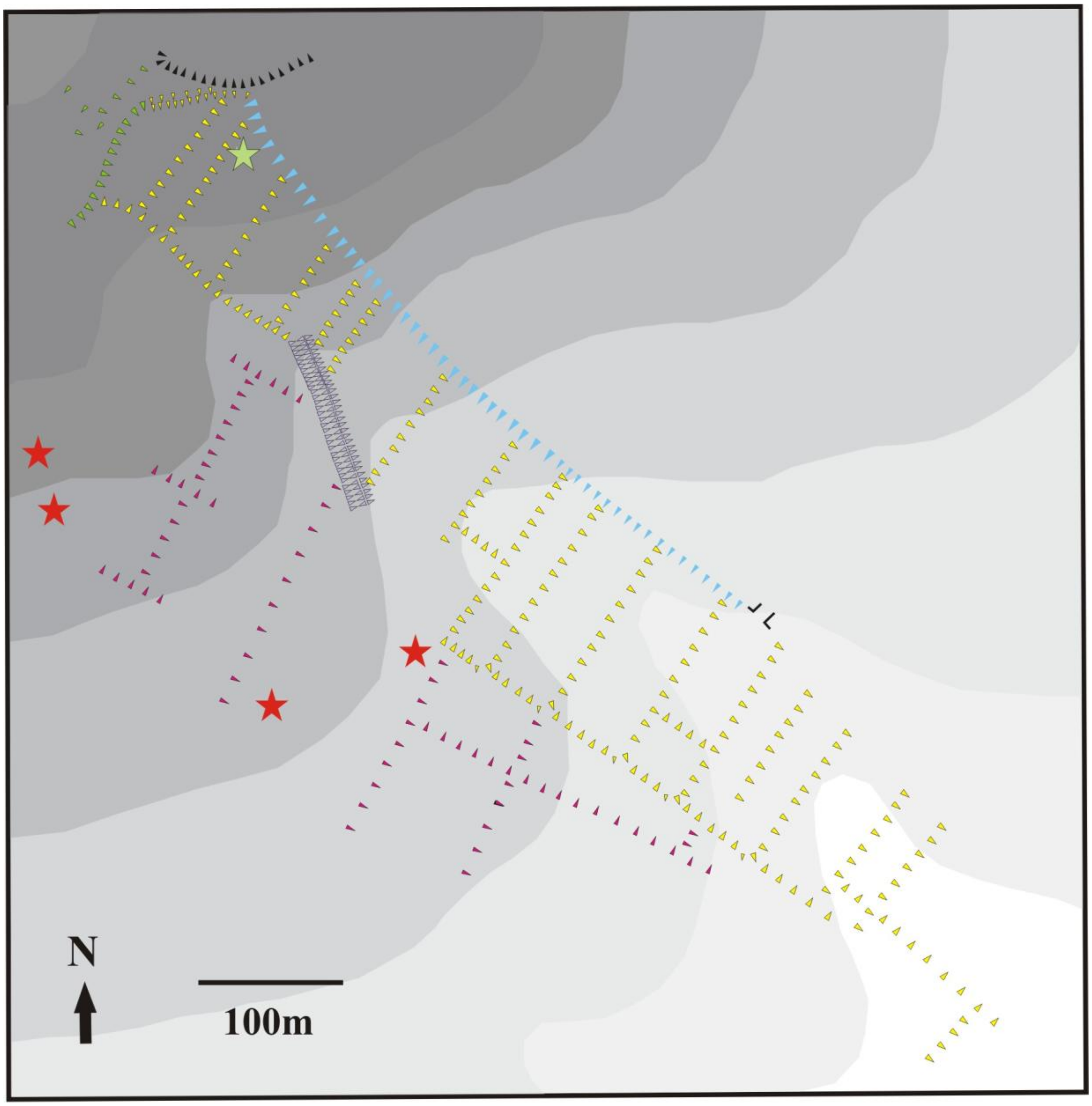


Figure 8.9 Field systems in the eastern valley on Stockbridge Down, Hampshire. The locations of barrows are shown as red stars and the possible spring site as a light green star. The rectinlinear field system is shown in red, aggregated systems in yellow and green, the present property boundary in blue, the linear ditch in lilac and Woolbury Rings in black. Contours are at 10m intervals with land below 90m OD in white

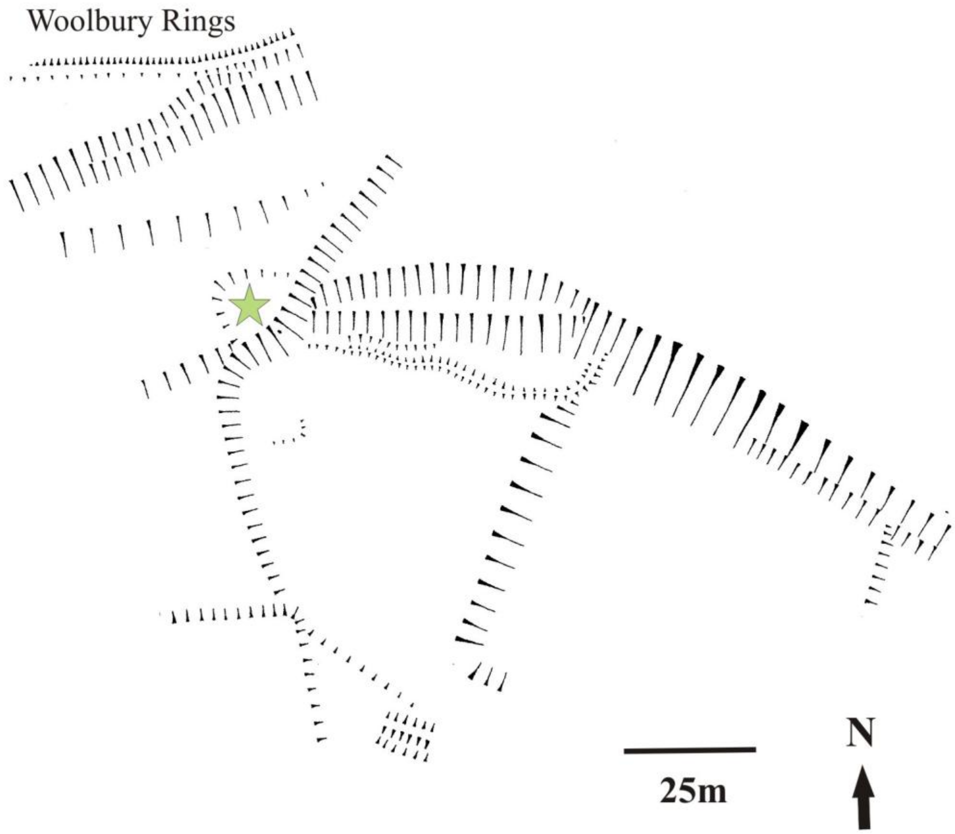


Figure 8.10 Survey of a small portion of the upper part of the field system in the eastern valley, undertaken as a separate exercise, to show the position of the spring point (★). Hachures to scale.

The top three fields are more or less level, being separated by large lynchets and having been cut into the eastern side of the valley. They are relatively small, are south-facing and are protected from the north and east. These adaptations cannot be dated but, from the alteration in direction of the uppermost lynchet as it approaches the ditch and rampart they seem likely to post-date construction of the hillfort. Their construction entailed considerable expenditure of labour and yet the depth of topsoil would have been at most slight - if crop production was intended then that crop must have been of high value. The modern vegetation (*Iris foetidissima*) suggests the presence of a spring point and the output appears to have been contained within an embanked channel and ducted into a pond (figs

8.9 and 8.10) but, although these features must post-date the cutting of the upper fields into the valley side, and their position taking water round the inner edge of those fields might suggest a functional relationship, dating evidence is not available. One possibility, though speculative, might be that the complex is Romano-British in date and, given the suitability of the chalk soil, the relative dryness, and the southern aspect, could have been used for growing vines. However, the location, dug into the hill with a backdrop of the rampart of Woolbury Rings and with extensive views towards the ridge of Beacon Hill (Ashley) in front might alternatively suggest either a spectacular approach to the hillfort or a theatrical locus without it.

8.7 Relative and absolute chronology

- The fragmentary remains of a probable rectilinear field system pre-date both the linear ditch complex and the aggregated or 'looped' field system to their north-east
- The aggregated field system in the eastern valley may predate the linear ditch complex which in places forms its western boundary, although this latter monument appears itself to comprise several phases
- The aggregated field system on the western spur clearly predates Woolbury Rings
    - The ditch of the hillfort is considered to have been constructed during the Early Iron Age or Middle Iron Age on the basis of pottery dated to the 1st century BC/AD having been found in the lower fillings (Cunliffe & Poole 2000, 43)
- Remodelling of the upper fields of the system in the eastern valley appear to post-date construction of the hillfort ditch
    - The measures put in place to control and conduct water from a possible spring point must post-date this re-modelling
- The large lynchets bounding Stockbridge Down to north-west and north-east cannot be dated
- No phase relationship between the field systems and the barrows and burials can be determined with certainty although two north to south boundaries comprising part of the lower of the western aggregated systems appear to have been aligned on barrows

8.8 Discussion of land use on Stockbridge Down during the 2nd and early 1st millennia BC

The remnant of chalk downland preserved as Stockbridge Down is in an ecozone of wide resource availability and, as a result, bears evidence of multi-period utility. Mesolithic flints have been found in the local area and a single find from the down itself, a flint core, is considered to belong to the Early Neolithic (Hants AHBR 55252). The presence of a relatively rich Beaker period burial suggests more activity and, possibly, some clearance by the end of the 3rd millennium BC. A change in environment shown by the molluscan evidence from a pit (Stone & Gray Hill 1938) may relate to further clearance, although it is not possible to judge the degree to which either the Clay-with-Flints capping or the chalk down were open. Whilst the accident of preservation may have played its part, the number of barrows on Stockbridge Down points towards extensive settlement in the vicinity and the use of this prominent point, overlooking the abraded streams of the Test valley and with its own elevated spring point, as a focus of interest, though not necessarily of total clearance.

Dating any of the field systems to the 2nd millennium BC is unproven and based primarily on their morphology. Whilst the aggregated fields on the upper portion of the western spur clearly pre-date construction of the ditch of Woolbury Rings that feature can only be said to pre-date pottery of 1st century BC / 1st century AD date found in the fill.

The survival of fragments of a rectilinear system in the central portion of the down indicates that the conclusions drawn of enclosed fields separated by pasture (Eagles 1989) may well be true for a later point in the sequence, but do not apply to the earliest visible agricultural use. The extent of this early system cannot be deduced from the available above ground evidence; the alignment is, however, similar to that of some of the features shown on the transcription of aerial photographs in the arable field to the north-east (Palmer 1984 [fig 8.4]; Cunliffe 2004 fig 2) suggesting that it may have been of considerable size.

The aggregated fields on the western spur can be divided into two groups based on their alignments although both appear to have been placed within common boundaries to the north-west and south-east. The north-western boundary has been affected by erosion but, given the steepness of the slope in that direction, a boundary on approximately the same line seems likely even if the present lynchet is of later date. The south-eastern boundary is marked by a lynchet clearly integral to at least the upper of the two groups of fields. The very approximate area enclosed in the upper fields, given that the north-eastern boundary is uncertain, is 10ha; there is insufficient information to calculate that for the lower. Of considerable interest is the constructed bank, north-east of the barrow bearing knoll and separating the two sets of fields. If the change in alignment has been used as an identifier between different groups rather than it being a response to the topography, a strong possibility given the relatively flat nature of the ground at the lower end of the spur, the building of the bank, together with the presence of the natural knoll might serve to strengthen that separation.

The similarity in morphology between the fields on the western spur and those in the eastern valley suggests, but certainly does not prove, a similarity in date. If this is correct, and the earlier rectilinear system originally spread over, and probably beyond, the zone between the aggregated groups, the area enclosed by these later systems represents a considerable contraction. As has been observed elsewhere the larger lynchets bounding the later fields must indicate either more intensive ploughing or use over a longer period. The western system, and probably also the eastern, stretch up the hill onto the area of Clay-with-Flints, a geology often considered to have been avoided (for example Moffat 1988).

If the observation that the linear ditch complex appears to overlie the field system in the eastern valley is correct this would imply an earlier date both for this system and, by analogy only, for those on the western spur. Linear ditches in Wessex are, as a generalisation, broadly dated as contemporary with the ceramic post-Deverel-Rimbury Plain Ware Phase and Potterne Transitional Phase, ie. between *c.* 1100 and *c.* 750BC (Cunliffe 2004). The imposition of the linear ditch would have served to emphasise the integrity of that group of fields as a defined entity without interfering with its use, part of a wholesale reorganisation of the landscape evidenced by the number of linears aligned on the top of the plateau. It is not possible to identify the number of potential phases in the construction of the linear ditch complex and the evidence may, indeed, have been lost due to extensive animal disturbance, but it is notable that, although alignment of groups of linear on high points which later bore enclosures or hillforts is well attested (for example McOmish *et al* 2002, fig 3.6), here some phases at least were aligned on a point farther west on the plateau.

The construction of Woolbury Rings is somewhat insecurely dated to the Middle Iron Age and evidence suggests that occupation was sparse (Cunliffe & Poole 2000, 25 *et seq*), but at least two enclosures within the interior, constructed during the Late Iron Age, were in use, either intermittently or continually, through most of the Romano-British period (*ibid*, 28 *et seq*). Given this longevity of occupation it is highly unlikely that the field systems were not re-used and the adaptations seen at the upper end of the system in the eastern valley may well relate to these periods.

Within the wider landscape Stockbridge Down is part of the central southern chalklands, an zone of extensive prehistoric use. Large scale projects involving transcription of aerial photographic cover of the environs of Danebury Hillfort (Palmer 1984), extensive survey of parts of the Marlborough Downs (Gingell 1992; McOmish 2005), Salisbury Plain during the Wessex Linear Ditches project (Bradley *et al* 1994), the surroundings of Stonehenge (RCHM[E] 1984; Richards 1990) and work on the Salisbury Plain Training Area (McOmish *et al* 2002) all attest both intensive use and preservation of evidence in the Wessex region. Much of the chalk was covered by field systems and continuation of this production through the 1st millennium BC supported the construction of a number of hillforts (Sharples 2010, 121 *et seq*). The valley of the Test to the west would have provided lush pasture and riverine resources and is also now recognised as part of a long-lasting axis of movement of early farming ideas (Shennan *et al* 2010), density of Neolithic and Early Bronze Age occupation (Field 2008) and communications throughout prehistory (Sherratt 1996). In view of this the density of prehistoric activity is not unexpected but the survival of field systems from the 2nd or early 1st millennium BC, suggesting as it does a lack of later ploughing other than within the defined fields, is perhaps more surprising. Items of Anglo-Saxon (Hants HER25231) or, possibly, Jutish (Hants HER29995) jewellery were apparently found in a rabbit scrape on one of the lynchets and an execution cemetery, probably of Late Saxon date (Hants HER25222), on the knoll overlooking the Roman road to Stockbridge, appear to be the limit of evidence for later activity. This lack of later ploughing or other destructive activity has preserved a remarkable sequence of earlier land use.

Chapter 9

Land use on Thundersbarrow Hill, West Sussex during the 2nd millennium BC

Hay harvest within the enclosures on Thundersbarrow Hill in Sept 1997
(Index no TQ 2208/10, reproduced with kind permission from the NMR)

9.1 Summary

Limited survey of the area around the multi-phase settlement on Thundersbarrow Hill shows a rectilinear field system underlying the aggregated system known as Thunder's Steps. The former system can be seen to extend north and south along the ridge and into the valleys on either side. The later field system comprises a number of fields looped onto each other, with tracks, not necessarily integral to the initial design, running between them from east to west. The track running along the ridge to the two prehistoric enclosures does not appear to be an original feature, and its date is uncertain. In the wider area the settlements on Thundersbarrow Hill can be seen to dominate a well-utilised area focussed on the estuary of the Adur to the south.

9.2 Definition of the study area

This case study comprises an area of 42 sq km in West Sussex stretching from the Low Weald to the coast and lying between grid lines TQ20 to the west, TQ26 to the east, TQ12 to the north and TQ05 to the south. Within this a smaller area, encompassing the ridge which bears the prehistoric enclosure known as Thundersbarrow and the valleys to west and east, will be subjected to limited survey and analysis.

9.3 Rationale for selection of study area

- The field system is intimately associated with two phases of enclosure which have undergone limited excavation and, therefore, dating
    - Unpublished data from excavation undertaken in the 1980s to assess damage due to ploughing, which include a section cut across one of the lynchets, have been made available (by David Rudling)
- The location of the site is unusual
    - Although many prehistoric enclosures are set in high, dominant positions, those at Thundersbarrow Hill are notably exposed and bleak
    - Both the enclosures and a portion of the field system close to them are very precisely set on small, and locally relatively rare, deposits of Clay-with-Flints, a geological position usually thought to have been avoided by prehistoric agriculturalists.

- The field system was surveyed in the period before World War 2 but has since been severely damaged by ploughing
    - A more detailed survey would therefore be of value whilst some above ground evidence remains
- The site overlooks a major river valley, that of the Adur, and has access to a wide resource base including the Low Weald and the coastal plain
    - Excavation, particularly in advance of alterations to the A27, has located a number of at least approximately contemporary settlement sites in the immediate vicinity

9.4 Geology and topography of the study area

The location of the study area is shown in figure 9.1 and the topography and geology in figures 9.2a and 9.2b respectively.

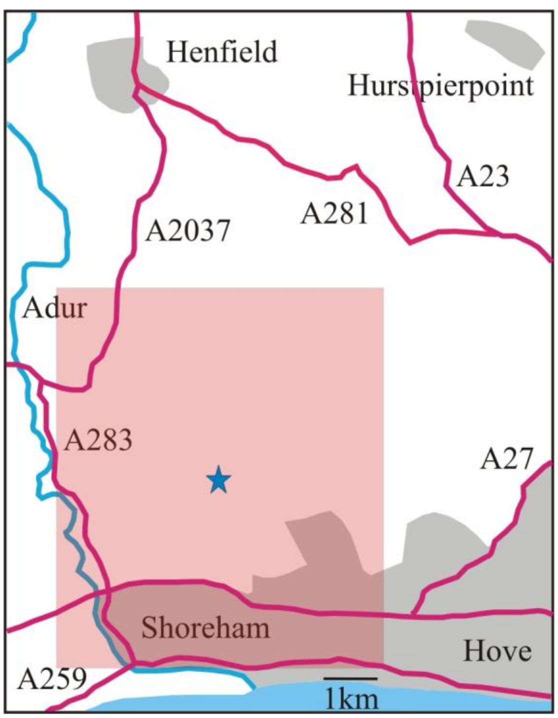


Figure 9.1 Location of the Thundersbarrow study area, West Sussex (in pale red) with a blue star marking the settlement area

The enclosures are set on a high chalk spur running south from the main ridge of the South Downs at 150m OD, and the field system known as Thunder's Steps is positioned along the ridge, immediately south of the enclosures.

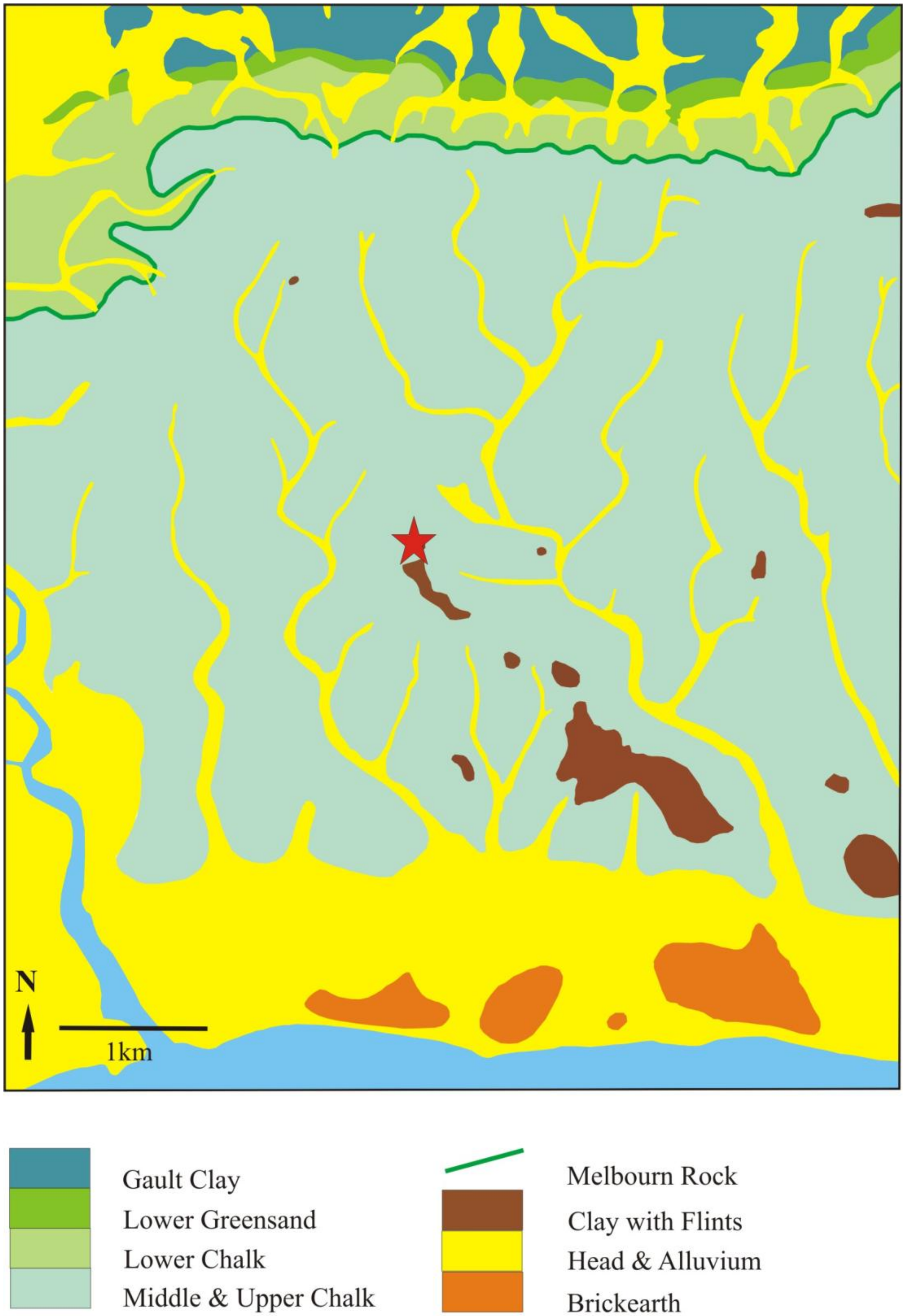


Figure 9.2a Solid and drift geology of the area around Thundersbarrow (★)

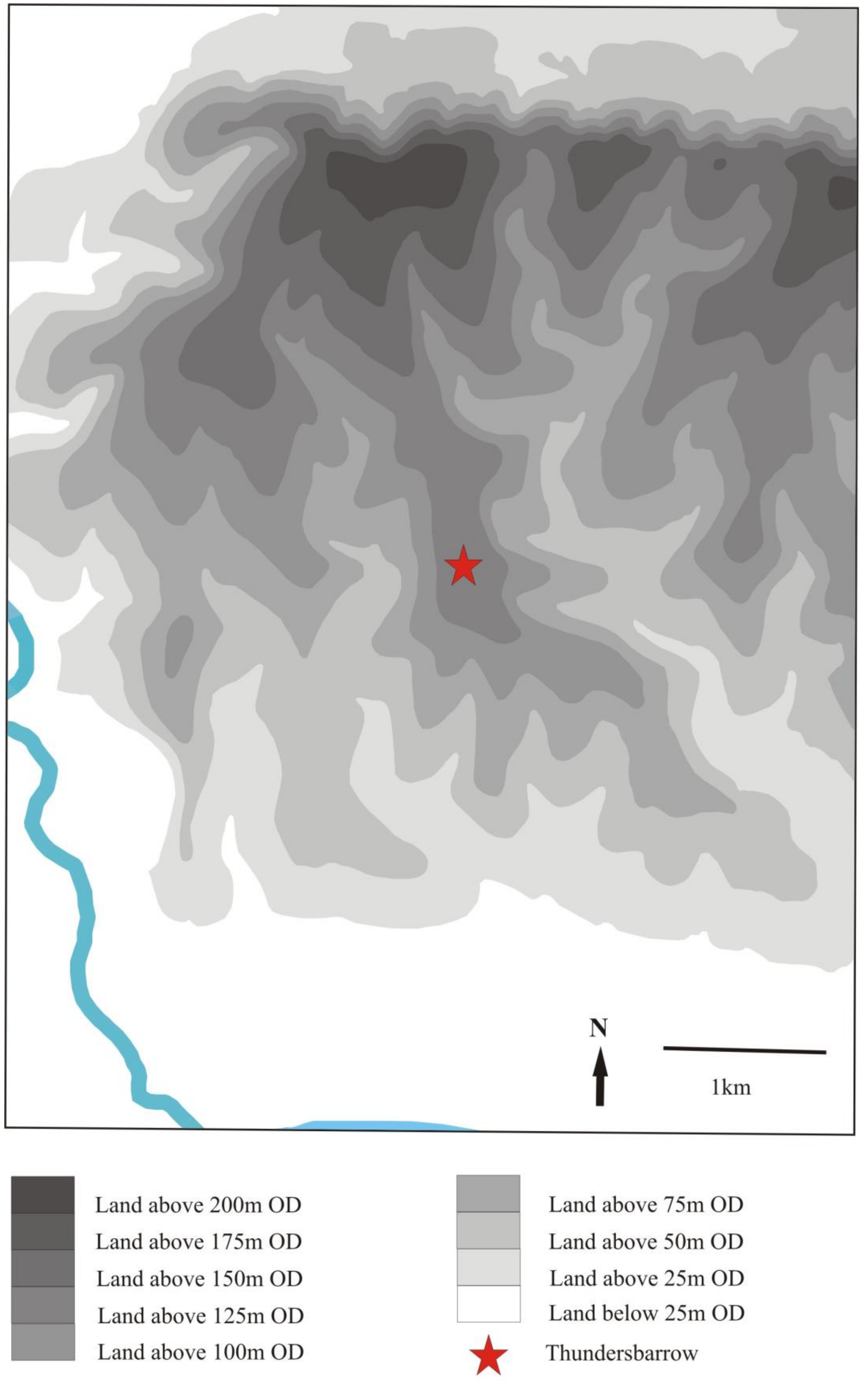


Figure 9.2b Topography of the area around Thundersbarrow, West Sussex

Aerial photographic and above ground evidence also indicate portions of the field system stretching into the valley to the east, and also possibly that to the west, of the spur. Although the surrounding geology is Upper and Middle Chalk, both enclosures and the fields known as Thunder's Steps are apparently specifically located on very small Clay-with-Flints deposits (it must be recognised that 1:50,000 British Geological Survey maps may not be sufficiently accurate in this regard).

To the north of the enclosures the land rises gradually to the main ridge of the South Downs, lying at approximately 200m OD, and then plunges precipitously to, successively, the Lower Greensand, Gault Clay which, outside the study area, borders the Weald Clay of the Low Weald. To the south the dip-slope of the downs gives way to the head deposits of the coastal plain, with occasional patches of brickearth overlying.

Some 2.5km to the west is the valley of the Adur, an area which would have provided diversification of the resource base but which would have been a considerable obstacle to east / west movement across the downs. To the east the block of chalk downs, dissected by a number steep-sided valleys running from north to south,, stretches a further 22km to the next major valley, that of the Ouse.

9.5 Evidence of Bronze Age activity in the study area

Sites known and recorded in the West Sussex Historic Environment Record are given in appendix 1 and those dated to the relevant periods shown in figure 9.3. Only one notable barrow cemetery has been located, that on Beeding Hill overlooking the northern end of the gap cut by the Adur through the South Downs. A number of pairs of and singleton barrows are scattered along the top of the scarp slope of the downs but there are relatively few on the spurs running southwards from the main ridge. The main spur within the study area, which terminates as Southwick Hill, carries only the large bowl barrow, Thundersbarrow, and its attendant enclosures and field systems. To its west a parallel spur has two barrows at its end at Slonk Hill, overlooking the coastal plain, and a settlement to their north. The spur overlooking the Adur valley apparently bears neither barrows nor settlement evidence.

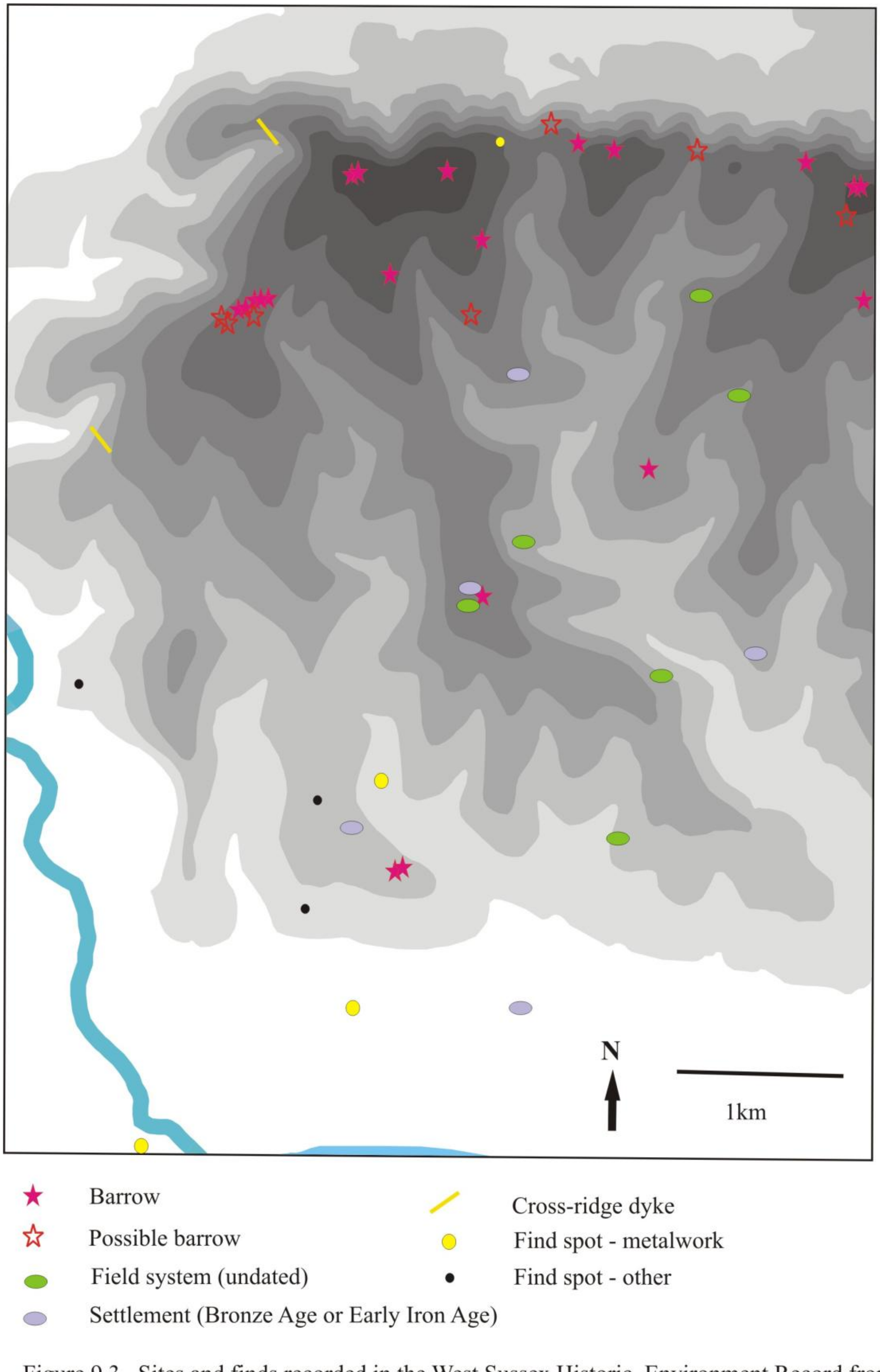


Figure 9.3 Sites and finds recorded in the West Sussex Historic Environment Record from the area around Thundersbarrow - Bronze Age unless otherwise stated. For details of the topography see figure 9.1)

On the coastal plain there was a settlement site (HER3671) at Kingston Buci which produced a Beaker and post-Deverel-Rimbury pottery (Curwen & Hawkes 1931). Development of the A27 / Brighton Bypass necessitated investigation of a number of sites in the southern portion of the study area (Rudling 2002). On the spur to the east of Thundersbarrow, ending in Cockroost Hill, is the settlement of Mile Oak. Cockroost Hill may have been the focus of early attention as a monument comprising two concentric rings of interrupted ditches has been located by aerial photography (Russell 2002). A Middle Bronze Age settlement of round houses with a date range of between 1400 and 1030 cal BC (Oxa-5108; Oxa-5109) may have post-dated portions of lynchetted field system (lynchets 1401 and 1403); lynchet 1403 appearing to underlie House 1. Whilst this relationship is shown in two figures (*ibid* figs 2.3 & 2.4), where the lynchet is drawn as surviving within the entrance to the house (north of feature 1562), it does not appear on the excavation plan (*ibid* fig 2.5) and the author suggests foundation of the settlement within a field system which continued in use after abandonment. During the Late Bronze Age further settlement, and more important, metal working evidence, was found but unfortunately radiocarbon dating for the latter is not available. A number of trenches excavated at Mile Oak Farm with the intention of investigating the field system/s failed to produce reliable dating evidence.

Investigation of lynchets on Southwick Hill (Beresford 2002; West Sussex HER 4366) produced evidence of two phases of field system, one, the earlier, defined by ditches, and the second by lynchets. Both systems run on alignments between north to south and north-east to south-west, but, unfortunately failed to produce dating evidence. Although only limited excavation took place, it was thought that the earlier system enclosed rectilinear fields whilst the later comprised contour lynchets on the south-west-facing slope of the spur. Combination of excavation and aerial photographic evidence suggested that these systems were linked to those extending from Thundersbarrow, some 1.5km to the north-west.

A recent review of data, particularly grey literature (Yates 2007, 156-157), did not produce any further evidence of field systems within the study area.

The main focus of activity on Thundersbarrow Hill lies on a slightly elevated area at a point where a number of spurs diverge from the main ridge, at a height of 150m OD. The place-name is of unknown antiquity but a round barrow lies close to the enclosures. Now partially destroyed and with a fence line running over it, the barrow had apparently already been mutilated by the construction of a pond before 1873, when prehistoric, Romano-British and Saxon pottery was found (Curwen 1933 quoting Crawford pers comm).

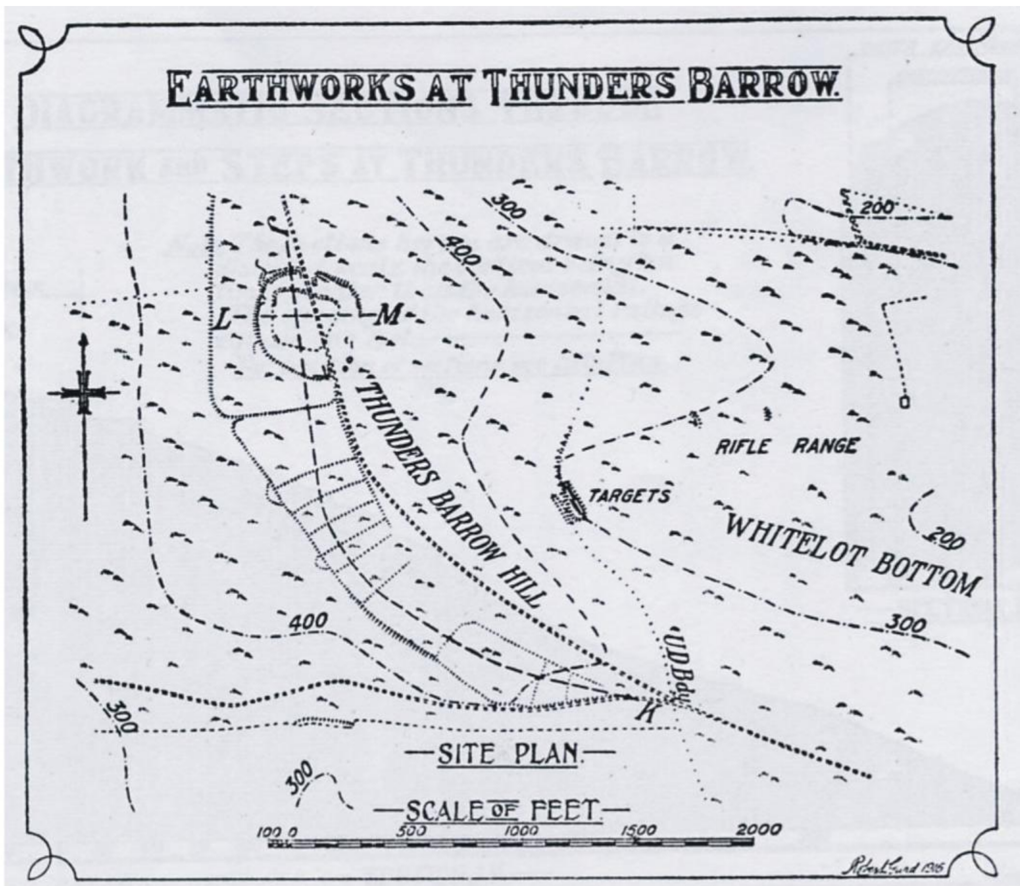


Figure 9.4 Survey of earthworks on Thundersbarrow Hill (after Gurd & Jacobs 1924)

The enclosures and their surroundings were surveyed in 1914-15 (Gurd & Jacobs 1924; fig 9.4), prior to their disturbance by wartime trench digging and bombing. The extent of this survey, which acknowledged that the inner enclosure had first been noted by Toms in 1912, was limited by the military authorities. Only the earthworks to the south of the enclosures were drawn in detail, but others to the east and west are mentioned. The authors are clear that the outer enclosure overlay field boundaries but considered that the apparent lack of an enclosure ditch indicated ploughing after abandonment of the 'camp'. A drawing by Gurd (in the collection described below) of a section through a lynchet on Thundersbarrow Hill dated 30.xi.18 is annotated to show that the cut was made through the 5th and 6th terraces of the 'Giant's Steps' by the military. Aerial photographs show considerable areas of practice trenches of the form in use after the commencement of hostilities in 1914 and common elsewhere, notably on Salisbury Plain (Brown & Field 2007).

Minor excavations took place in 1929 and recovered pottery described as 'late Hallstatt – La Tène I time (approximately fifth and fourth centuries BC)' (Curwen & Curwen 1930). The original site drawings from Curwen's excavation are held in the Sussex Archaeological Society's research collection at Barbican House, Lewes, and have been used for the following discussion unless otherwise stated. Curwen's work (1933) concentrated on relative chronology of the different components of the visible earthworks, field boundaries which he suspected represented more than one phase, the two enclosures, and the RB 'village' to their east. Two trenches were sited with the intention of investigating the relationships between the two enclosures and one of the lynchetted field boundaries.

Section A, on the western side, confirmed the earlier view that the large lynchet to the west had been formed mainly, if not entirely, by ploughing after construction of the outer enclosure bank with Early Iron Age pottery (probably now datable to the Late Bronze Age) found within the matrix of the positive lynchet. The outer enclosure bank had been constructed on a grass covered palaeo-surface but 'this old turf-line dips slightly over a slight, irregularly cut ditch or string of shallow pits' (*ibid*), features clearly shown on the drawing (fig 9.5) and whose fill was described as 'mould with flints'. These resemble examples found at Black Patch (Tapper forthcoming) where small pits filled with remnant Clay-with-Flints, either originating naturally or formed by roots of a possible hedge, had been preserved by an overlying lynchet. At Thundersbarrow they may indicate the position of a field boundary pre-dating the outer enclosure.

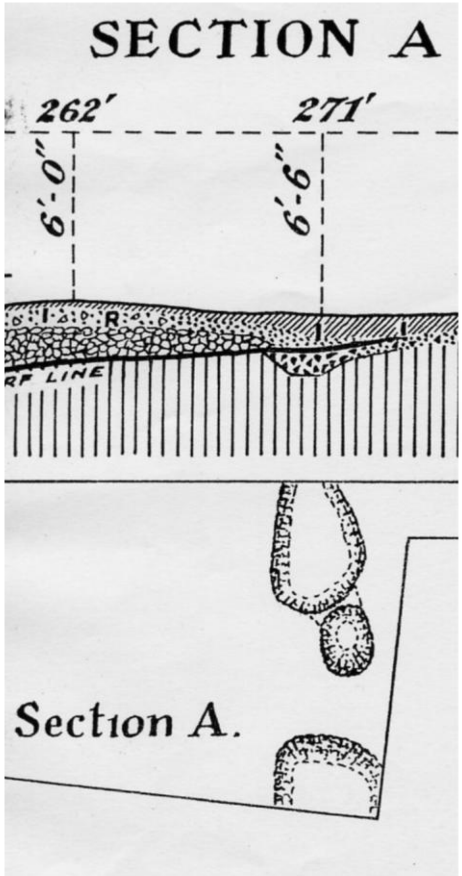


Figure 9.5 Part of section and plan drawing from excavation across enclosure banks in 1932 showing pits which may have been preserved by earlier field boundary (from drawing held by Sussex Archaeological Soc at Barbican House, Lewes). South facing section.

Section B (fig 9.6) was positioned to investigate the relationship between a lynchet approaching from the west curving towards, and thought to underlie, the outer enclosure bank. Excavation in fact indicated that the lynchet post-dated the outer enclosure ditch but that a small ditch, running parallel to the northern side of the inner enclosure and truncated to the west by two north to south lynchets, appeared to predate the outer enclosure ditch.

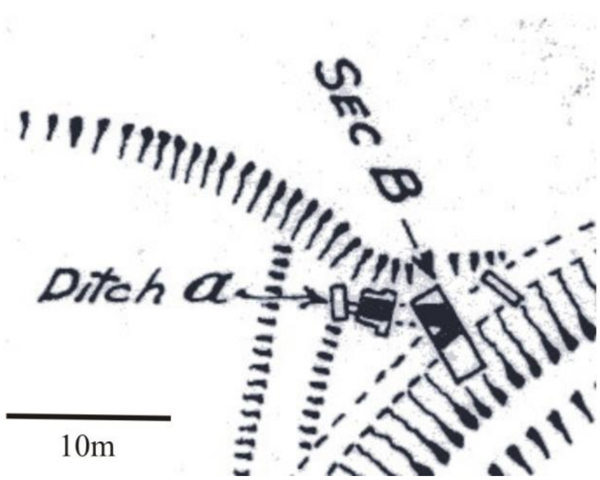


Figure 9.6 North-west corner of outer enclosure excavated in 1932 showing ditch then thought to pre-date enclosure bank and truncated by lynchets which run from north to south (from drawing held at Barbican House, Lewes by Sussex Archaeological Society.

During this work the earlier survey was extended to show a field system lying obliquely to Thunder's Steps, to their west, and, possibly, overlain by them. Small platforms protruding from the western edge of Thunder's Steps were thought to represent the corners of earlier fields (fig 9.4).

This system was associated with two trackways running towards sites at Kingston Buci and Slonk Hill whilst the main track running to the east of Thunder's Steps is directed towards Southwick Hill. The area to the east of Thundersbarrow, leading down into Whitelot Bottom, could also be seen to carry a system of sub-rectangular fields but here much had been slighted by strip lynchets of probable medieval date. Although no earthworks could be seen to the north of the enclosures, a survey of a lynchetted field system north along the ridge on the southern slopes of Truleigh Hill included a track running in the direction of Thundersbarrow Hill (Williamson 1924). This track also appears to extend towards the north and down the scarp slope of the downs to provide access to the greensand and beyond to the clays of the Low Weald.

The majority of the artefacts recovered during this work related to the Romano-British settlement to the east of the enclosures. However the prehistoric pottery, then described as late Hallstatt – La Tène I, is now recognised as part of the developed plainware – decorated continuum within the post-Deverel-Rimbury tradition and dating to the later end of the period *c*. 1150-500 cal BC (Seager Thomas 2008).

By 1985 ploughing had severely reduced Thunder's Steps, the interior of the enclosures were being ploughed, and the condition of the monument complex, already badly damaged by military and agricultural processes, caused concern. Geophysical survey and minor excavation aimed at quantifying the damage was undertaken (Rudling 1986; forthcoming).

A section across the ditch of the inner enclosure produced pottery of the 8th century BC from the upper fills, and a radiocarbon date of 1680-1320 cal BC (HAR-8182) from a portion of antler located on the floor of the ditch. The context for which this early date was obtained did not contain other dateable artefacts but a dump from the middle fills produced an assemblage dated to *c.* 10th – 9th century BC (Hamilton in Rudling forthcoming). Re-investigation of the small ditch located by Curwen (ditch a, fig 9.6) confirmed that it was cut by the outer enclosure ditch. The outer enclosure was tentatively dated, on the basis of pottery from the ditch fills from both Curwen's excavation and that of 1985, to the 6th – 5th centuries BC. At no point were stratigraphic relationships between either of the enclosures and the boundaries of the field system/s clarified.

A number of trenches were positioned to section lynchets to the south and west of the enclosures. Only the major lynchet to the west of the enclosures produced a well stratified collection of pottery and examination of this led to the conclusion that the initiation of lynchet formation may have taken place during the Early Iron Age but much of the build up probably related to the Romano-British settlement to the east of the enclosures.

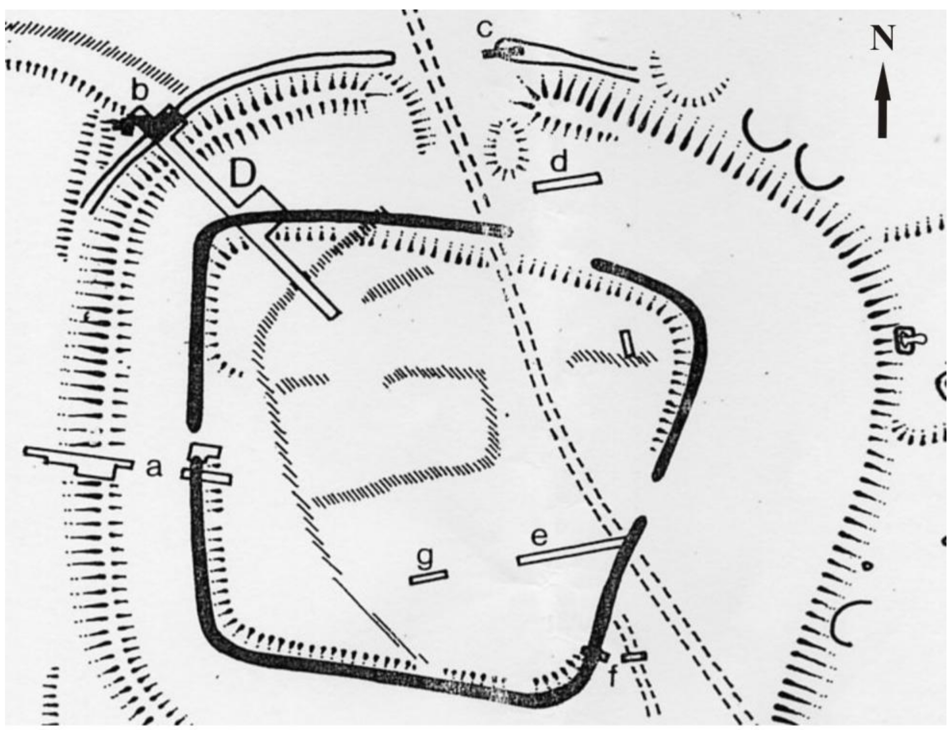


Figure 9.7 Results of geophysical survey (diagonal hatch) within the inner enclosure on Thundersbarrow Hill (Rudling 1986)

The section across this lynchet was subjected to environmental sampling (Thompson 1986). In summary, the pre-lynchet environment was one of open grassland, and the matrix of the early portion of the lynchet, as with the later, was a plough soil formed of sediments from further upslope. A considerable period of stable grassland separated these two phases which may have represented settlement abandonment.

Geophysical survey produced evidence of features within the inner enclosure (figure 9.7), one of which appears, as drawn, to cut the bank of the inner enclosure. However, this same feature was shown during the excavation (trench D plan) to possibly comprise an interrupted ditch or row of pits similar to that found beneath the outer bank during Curwen's excavation (Curwen 1933; figure 9.5). The features located during the geophysical survey could represent either settlement or field boundaries.

9.6 Analytical survey of the field systems

Survey of the field systems on the spur of Thundersbarrow Hill and the valleys either side was limited both by the vegetation cover and the damage to the above ground evidence. The fieldwork was undertaken in July and August after a spring drought followed by a period of cold weather. This had precluded the possibility of obtaining two crops of hay from the area around the enclosures and on the side of the eastern valley and the single crop was being harvested late to ensure maximal growth. Land to the east of Thunder's Steps is covered by scrub and brambles and could not be accessed; that to the south, arable land in the post-war decades, is now owned by the National Trust and is under scrub and light tree cover. Whilst access to this area is possible, existing aerial photographs were considered likely to show more information than that which could be gained from ground survey.

Damage to the above ground evidence during the 20th century is greater here than in any other area studied. Military activity during the early years of World War 1 (noted above) resulted in extensive areas of disturbance to the south-west of Thunder's Steps and subsequent ploughing has made differentiation between field boundaries and trench systems impossible. In addition and as noted by Curwen (1933), it is not certain which of the tracks and hollows visible within the area of Thunder's Steps result from any period prior to World War 1.

However, much of the damage has been caused by ploughing, mainly during the 1960s and later. Aerial photographs from the period show the interior of the enclosures under arable cultivation and excavation during the 1980s (Rudling 1986; forthcoming) located plough marks over much of the area. From the point of view of this study it is the extensive damage to the field systems which is most regrettable, with even Thunder's Steps, once sufficiently notable in an area of extensive field systems to be ascribed to a god, now reduced almost to invisibility.

For these reasons survey was limited to addressing specific questions raised both by previous work on the site and work in other places undertaken during this study. Any visible phase relationships between Thunder's Steps and the field systems to east and west were examined as was the track running approximately north / south, either through or as an integral part of, the later system. Possible boundaries to the whole system known as Thunder's Steps, particularly at its southern end, and the relationship of such boundaries and the earlier system /s were sought.

The alignments of possible rectilinear systems underlying the major looped system were investigated to determine the likelihood of a single, extensive, system straddling the spur and the valleys on either side. A rapid assessment was also made of the presence of any visible field boundaries to the north of the prehistoric enclosures, and transcription evidence from aerial photographs (for example fig 9.8) was used to enhance the ground survey particularly to the south of Thunder's Steps in an area now under shrub cover.

A rapid scan of online resources, Google Earth and Bing indicate extensive field systems beyond the area under detailed study in all directions. It is hoped that a return to Thundersbarrow when vegetation conditions are more amenable will allow some further information to be obtained but the losses cannot be recovered.

9.6.1 Survey results

The survey results are shown in figure 9.9, their relative chronology in figure 9.10 and the location of places mentioned in the text in figure 9.11. It is clear that the earthworks surveyed by Toms, and later by Gurd and Jacobs (1924) and by Gurd (in Curwen 1933) are only a small portion of those still visible in the fields further north and south, and on either side of the Thundersbarrow ridge. The systems display considerable complexity and time-depth.

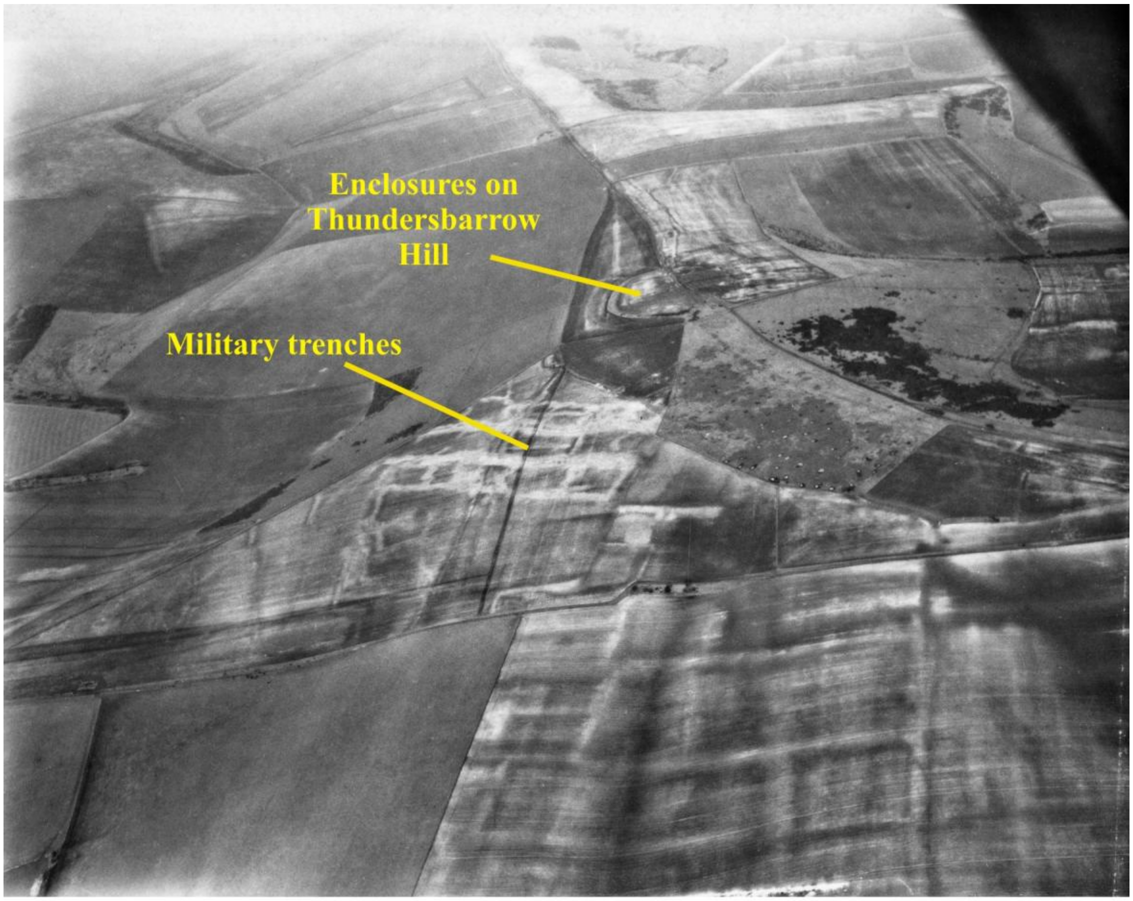


Figure 9.8 Aerial photograph of Thundersbarrow Hill from the south in 1964 (JRB 9705 01 reproduced with kind permission from the National Monument Record, ©Boyden Coll)

The earliest visible boundaries are those of a rectilinear field system (red in fig 9.10). These were apparently not recognised in 1918 (Gurd & Jacobs 1924), though that work had been truncated by the military authorities, but were added to the previous survey and published later (Curwen 1933). This system is aligned 10^{o} east of north and clearly underlies the looped system running down the ridge, with corners from the earlier fields protruding from below the later and appearing as small platforms. The area to the west and south-west has been heavily disturbed by the military activity visible on aerial photographs and some slight scarps found during this survey relate to these trenches. The field boundaries shown on aerial photographs (for example fig 9.8) cover a subsidiary ridge running southwards and here it is possible to judge their maximum size as approximately 100m x 100m (1ha), considerably larger than those noted in other case studies.

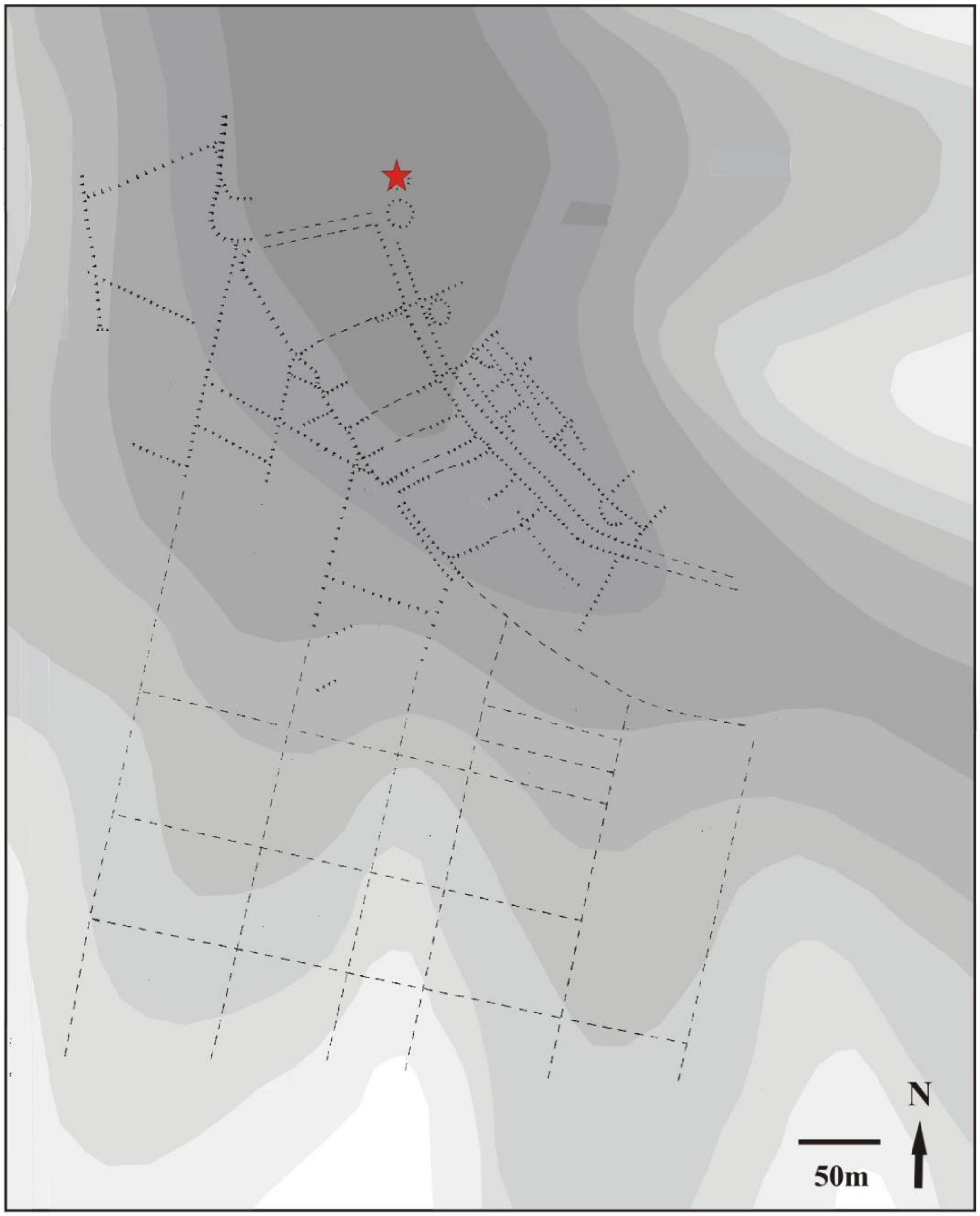


Figure 9.9 Results of an analytical survey of the earthworks on Thundersbarrow Hill, West Sussex. Contours are shown at 10m intervals with land under 70m OD left white. The red star depicts the position of Thunder's Barrow

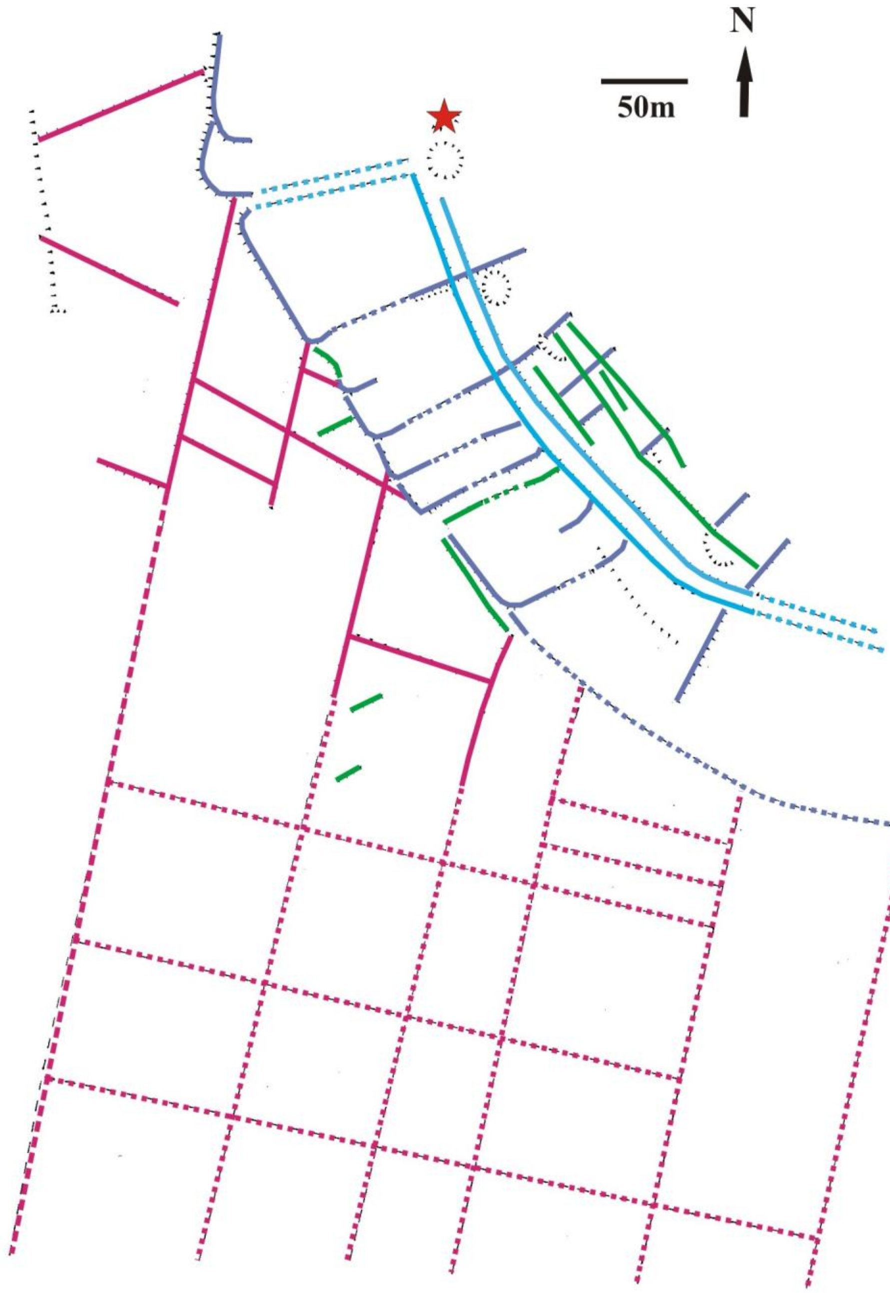


Figure 9.10 Suggested phase relationships between earthworks on Thundersbarrow Hill. The earliest are shown in red, then dark blue, turquoise and green, the most recent. Dotted lines denote features derived from a sketched transcription of aerial photographs only, the red star shows the position of Thunder's Barrow

Limited examination of fields under crop and of aerial photographs indicates that boundaries on this alignment continue to the north as far as the Monarch's Way (TQ227091), around 800m north of the Thundersbarrow enclosures. To the west the earthworks disappear under colluvial deposits in Mossy Bottom but some are visible on a similar alignment emerging on the east-facing slope beyond. To the south aerial photographic evidence indicates the presence, as soil marks, of boundaries on all three of the subsidiary spurs running south from the main ridge. No obvious enclosing boundary can be seen and the soil marks run out where the colluvial deposits increase in depth; these may well relate to the boundaries excavated on Southwick Hill (Beresford 2002).

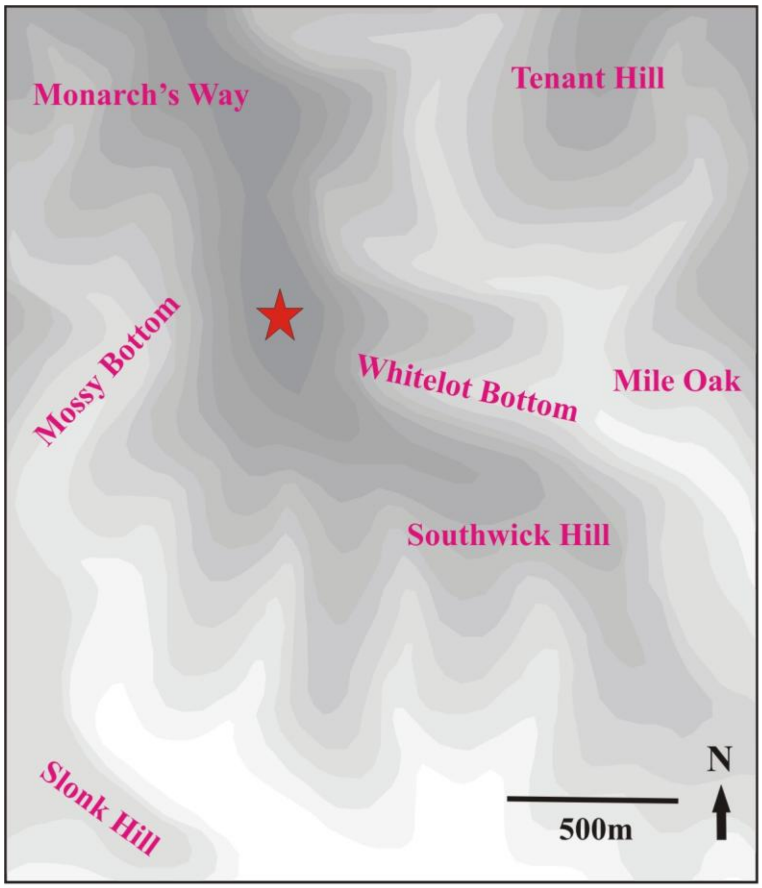


Figure 9.11 Location of places mentioned in the text. Contours at 10m intervals with land below 40m OD in white. Thundersbarrow enclosures marked by star

Major boundaries have been seen continuing down the Thundersbarrow ridge and these probably belong to the later system. However, a large lynchet bounds the top of the north-facing slope of the spur and slighter earthworks run approximately north to south down that steep slope. Here the slope into Whitelot Bottom reaches a gradient of approximately 30% in places; in other areas, Fore Down for example, north-facing slopes with such steep gradients do not appear to have been ploughed. To the west, soil marks and crop marks in pasture, again on an approximate north to south alignment, can be seen in a field on the west-facing slope of Tenant Hill (TQ 237088). If all these boundaries relate to a single system, and that is by no means certain, then an area of at least some 2km x 2km (400ha) was enclosed.

Overlying this is the field system known as Thunder's, or The Giant's, Steps (dark blue in fig 9.10); this system has clearly been subject to adaptation and alteration throughout its period of use. The northern portion of this system, immediately surrounding the two enclosures, could not be studied since it was under crop; unfortunately this means that little can be added to existing opinion on the relationship between the two set of earthworks. The large lynchet to the west of the enclosures appears to have been part of this system although it has been enhanced both by its re-use as a modern and historic property boundary, and by its re-use in part as the parish boundary between Shoreham and Upper Beeding and the administrative boundary between Adur and Mid-Sussex Districts. Slight earthworks were noted between this boundary and the enclosures (Curwen 1933) suggesting that they were constructed within existing fields, and two lynchets noted crossing the modern track to the north may indicate that this later field system stretched further up the ridge. South of the enclosures, the south-western boundary of the field system is marked by a series of rounded corners with two break points at which track-ways appear to cross the system. The northern of these was noted in earlier surveys and is probably of antiquity but the southern can be seen to have been caused by excavation of military trenches.

A major question in the development of this field system relates to the track-way running through the fields along the crest of the ridge (turquoise in fig 9.10). The lynchet bounding the south-western side of the track includes a number of rounded corners to fields to its south-west, and the track leads to what may be an original entrance to the outer enclosure. However, the route of this track-way was also in use in the 1870s (Ordnance Survey 25" map surveyed in 1873 and used as the basis for later surveys [Gurd & Jacobs 1924; fig 9.4]) and for an unknown period before. This use will certainly have enhanced any previous terracing and may indeed have created the breaches in the northern and southern sides of the enclosure. That this route is of some antiquity seems clear – its relationship with the double lynchetted track-way immediately south of the outer enclosure (turquoise in fig 9.10) is that of routes in contemporary use. However, in a number of instances the field boundaries to its west are matched to its east and, in two cases, slight earthworks can be seen crossing the track. This strongly suggests that the track-way was imposed upon an already existing field system rather than being integral with the original design. That rounded corners built up against the south-western edge of the track demonstrates that the fields on that side at least either remained in use or were re-used at a subsequent date.

This suggests that the first phase of fields overlying the rectilinear system comprised a series of long narrow enclosures draped across the ridge from the observed boundary on the south-west facing slope, to an as yet unknown position among the deep vegetation to the north-east. Gurd's additions (Curwen 1933) to his earlier survey (Gurd & Jacobs 1924) indicate an intermittent boundary to fields north-east of the track-way which, if it did bound an entire series, would give an approximate width of fields across the ridge of 200m. This may also relate to a major boundary observed but not surveyed edging the top of the north-facing slope at the Slonk Hill end of the ridge. If this is correct the second visible phase of field systems stretches for at least 900m south, and an unknown distance north of the enclosures.

The track-way running up the crest of the spur can now be seen as a later reorganisation of movement through the area. The date of its imposition remains uncertain but it may well be contemporary with the re-use of land to its south-west, resulting in the enhanced lynchets of Thunder's Steps. The east to west double-lynchetted track-way immediately south of the outer enclosure may be contemporary but the second example noted on this survey between the fifth and sixth fields down the ridge probably resulted from early 20th century military activity mentioned by Gurd (Gurd & Jacobs 1924).

This military activity caused a large area of disturbance on the south-west-facing slopes south of the enclosures and a number of slight scarps, with alignments at variance of those of the field systems (green in fig 9.10), are probably the edges of trench systems visible on aerial photographs. A number of slight scarps running more or less parallel to, and between the double lynchetted track-way and the modern track (green in fig 9.10) are of unknown aetiology but may represent gradual movement of the track north-eastwards to its present position. Various hollows may be dry ponds, and two such were identified by Gurd. However, the same survey also identified a number of bomb craters and Curwen's (1933) comment that 'certain parts of the hill are peppered over with large and small bomb craters which still appear as ragged cavities, but which will one day be difficult to distinguish from more ancient pits' has proved prescient.

9.7 Relative and absolute chronology

- The earliest visible earthworks comprise a rectilinear field system which covers a large area in all directions from Thundersbarrow Hill
    - This system predates the larger later enclosure but may be contemporary with the inner enclosure which has a Middle Bronze Age date
- The rectilinear system is overlain by a series of fields running down the ridge
    - This system probably originated in the Late Bronze Age but part at least was intensively reused in the Romano-British period
    - The fields may have been draped across the ridge on either side of, and pre-dating, the double lynchetted track-way
- The double lynchetted track-way seems to have been imposed through the later field system, either to provide access to the later enclosure or to the Romano-British area
- One boundary of the later phase field system was re-used as an ecclesiastical and administrative boundary
- Military activity, some dating to the early years of World War 1, took place on the south-western slope of the ridge and possibly elsewhere

9.8 Discussion of land use on Thundersbarrow Hill during the 2nd and early 1st millennia BC

The overall impression gained from this survey is of an organised and intensive use of the landscape around a dominant focus on Thundersbarrow Hill, intermittently at least, during much of the 2nd and 1st millennia BC.

Middle Phase Beaker pottery, dated to around 2000BC, has been found close by at Kingston Buci and Shoreham (Drewett *et al* 1988, 68), and late collared urn material at Slonk Hill at the end of the Thundersbarrow ridge. Early Bronze Age activity resulted in a number of barrows along the scarp edge of the downs to the north but relatively few examples on the southern spurs. The single large Thunder's Barrow marked this high point with its vista from the ridge of the downs, across the estuary of the Adur, and out into the Channel. This landmark, close to sheltered moorings in the estuary, could have one of the many which facilitated prehistoric cross-Channel and coastal trade (Wilkes 2007). Exchange of goods, whether by trade or as diplomatic gifts, provided a means of emphasizing the social position those who controlled landing places and routes from the coast. The importance of contacts across this narrow part of the Channel are underlined by the recognition that objects found in the Low Countries appeared to have travelled there not across the North Sea but indirectly by way of France (Fontijn 2009). This concept will be further addressed in the discussion.

It is again notable that certain areas, in this case the spur of land to the immediate east of the Adur estuary, are not known to have been used for barrow construction.

The earliest enclosure, with a last cleaning of the ditch dated to between the 17th and 14th centuries BC, is of a remarkably early date. Although the main period of occupation is later, with pottery from sealed contexts dating to the 10th to 9th centuries BC (Hamilton in Rudling forthcoming) the earlier date is similar to that from another enclosure on a high point with visibility over the Channel. At Highdown, some 13km to the west, an enclosure in use from *c*1400 – *c*600BC has been assigned the role of distribution centre (Ellison 1981) and this function as an adjunct to long-distance trade will be further discussed in Chapter 10.

The chronological relationship between the early, rectilinear, field system and the early enclosure is uncertain, but their proximity and the assumed status of the enclosure suggest an economic interdependence, and therefore contemporaneity. The scale of land enclosed is, again, more than seems necessary to produce sufficient food for the likely local population. Here, however, there is some density of settlement with the Middle Bronze Age site at Mile Oak within sight some 1.5km to the south-west, and that at Kingston Buci 2.5km to the south. The enclosures on Thundersbarrow Hill are set at a point where spurs bearing these two settlements leave the main ridge.

The amount of land enclosed left only the highest portions of the downs above the scarp face for grazing and timber production, although the river valley could have provided the former and the Low Weald the latter. Here, even a steep north-facing slope was included within the field system. No tracks are obvious either in the field or on aerial photographs but some allowance must have been made for both local and longer distance movement.

The overlying fields draped over the ridge represent a considerable decrease in the area of land enclosed. Other similar systems may occur elsewhere in the vicinity and, in the absence of boundaries to the rectilinear system it is not possible to estimate the degree of reduction, but it appears to be considerable. Although situated on the ground most prone to erosion, the design of the fields would have prevented further decrease in fertility through loss of topsoil. Their morphology is similar to that on Tenantry Ground (Chapter 7) and there it is thought that they date to the prehistoric period, probably the Late Bronze Age / Early Iron Age. Here the situation is less clear with ample evidence of Romano-British agricultural activity, including corn drying, at the settlement to the immediate east of the prehistoric enclosures (Curwen 1933).

Excavation of a section across the large lynchet to the west of the enclosures (Rudling forthcoming) produced sufficient pottery to allow some attempt at dating its genesis and later use (Hamilton in *ibid*). All Late Bronze Age sherds recovered were considered to be residual but the lower layers contained a mixture of Late Bronze Age and Early Iron Age pottery whilst the lowest context contained Early Iron Age with a single Late Bronze Age sherd. This strongly indicates the genesis of this lynchet, part of the later phase system, lies in the Early Iron Age and may be contemporary with the construction of the outer enclosure, probably during the 6th to 5th centuries BC. It is not possible to say whether or not there was a hiatus between the two phases of field system but on pottery evidence from limited excavation this appears possible. Re-use of the land around the enclosures in the Romano-British period is evidenced by the major, upper portions of the lynchet containing pottery of that date.

It is ploughing of this period which probably resulted in the large lynchets of the field system known as Thunder's Steps and, from observations made prior to the recent plough damage, they were considerably higher to the south-west of the double lynchetted track-way. It may well be that the route came into use, or at least was delineated, as an approach to the Romano-British settlement and that only a portion of the existing, visible, field system was brought back into use as arable land.

However, from the pottery evidence, there would appear to have been a cessation of land-use between the Early Iron Age enclosure and second phase field system and the development of the settlement to the east of that enclosure and re-use of the fields during the Romano-British period, a period of some 500 years.

A contrast with other areas of Sussex is the apparent relative lack of cross-ridge dykes. Only one is known, cutting across the narrow saddle west of Tottington Mount (fig 9.3) and isolating a spur overlooking the Adur valley as it cuts through the scarp of the downs, and the wide, low-lying marshy area north of the river gap. This may have been placed to monitor movement at a point where the river could be crossed and a high route along the scarp edge accessed. Certainly this point was of importance in later periods – Anglo-Saxon Port Cuthman (Steyning), and later Bramber, were situated as inland ports where an east to west land route crossed the Adur at the highest point where it was still navigable by sea-going boats.

The hiatus between Late Bronze Age / Early Iron Age and Late Iron Age / Romano-British activity over the wider area is less pronounced than in other areas. During the Late Bronze Age occupation evidence was extensive and, although the acreage under the plough had decreased, the land was still formally enclosed and settled. Whilst there is no evidence of occupation on the Thundersbarrow ridge, a little to the south-west at Slonk Hill an unenclosed farmstead survived from the 6th to the 1st century BC (Hartridge 1978). Evidence was found of mixed farming, with an increasing emphasis on sheep rearing as the period progressed; maintenance of animals into maturity for production of fleece, milk and use as traction suggested that fodder was available for overwintering the stock. Use of marine resources in the form of shellfish, and evidence of both copper alloy and iron production suggest a relatively self-sufficient and prosperous establishment.

Situated between the hillforts of Cissbury and Chanctonbury to the west, the Devil's Dyke to the north and Hollingbury to the east, all visible from Thundersbarrow Hill, and with access to riverine and marine resources, iron ore from the Weald and possible coastal and cross-Channel links, this area was well placed for use during the Iron Age and, indeed, into the Romano-British period. However, it is still the overwhelming scale of enclosure by the early field system which leaves a lasting impression.

Chapter 10

Discussion

10.1 The pattern

Analytical survey of the above ground evidence of a small number of field systems, mainly on the chalk of southern and south-eastern Britain, has produced a remarkably consistent general pattern, both in morphology and in change in that morphology over time.

The earliest visible field boundaries form rectilinear grids which are draped over valleys and spurs leaving, in general, only high ridges unenclosed. The main alignment of these systems is somewhat east of north, although on the South Downs at least this respects the prevailing topography of the spurs running south from the main ridge. On Whitmoor Common and, possibly, Tenantry Ground, two phases of similar field systems were constructed, the one overlying the other, but on different alignments. In some areas, Kingley Vale and Plumpton Plain for example, adjacent systems were set out on slightly different orientations. The grids of fields may be set within a continuous outer boundary (Kingley Vale and Plumpton Plain). The lynchets of these systems tend to be slight, even where they do not appear to have been truncated by later ploughing (for example the eastern side of Moustone) and there is little evidence of change or adaptation. No settlements can be shown with any certainty to be contemporary with these field systems, although the early enclosure at Thundersbarrow is a possible example. Where excavation has taken place on the North and South Downs, the boundaries appear to have had little underlying structure; certainly they did not include ditches. In a few cases (Tenantry Ground and, possibly, Fore Down) field boundaries can be seen to underlie barrows of probable prehistoric date although, given the presence of Anglo-Saxon burial mounds in the same area, caution must be exercised in the use of this relative chronology.

Most of these early rectilinear systems were overlain by groups of aggregated fields of variable morphology. However, the superficial sands of Whitmoor Common seem to have been abandoned, possibly because the increasingly infertile heathland became less attractive than the adjacent heavy clays. On Brigmerston and, probably, Milston Downs in Wiltshire, fields were grouped together but on Plumpton Plain and on Tenantry Ground fields were successively looped onto each other. At these two sites the sequential nature of the fields is clear with the boundaries of successive fields staggered (Plumpton Plain and

Tenantry Ground), but elsewhere (Thundersbarrow and, possibly, the eastern valley on Stockbridge Down) it is possible that the rounded corners were caused by ploughing round an arc in the corner of the up-hill field with loose soil spilling over or through the corner barrier. Intermediate forms were found in Kingley Vale and on Lullington Heath. The number of case studies reported here is insufficient to judge whether this represents regional or chronological variation, or, indeed, no consistent pattern – personal choice could have played a role. These later field systems represent a considerable contraction in the area of land enclosed; no case study has provided enough evidence of the extent of the earlier systems to calculate the degree of this reduction with precision but at least 50% and possibly as high as 75% seems likely. These systems generally do not cross valley floors but may be placed on valley sides or across spurs; in all cases they enable considerably freer movement both within and through the area. Their lynchets are usually far larger than those of the earlier systems and the rounded, 'playing card' shape of their outer corners add emphasis to the interpretation that the areas beyond them was not ploughed.

Enclosed and unenclosed settlements were placed across the boundaries of the earliest field systems too often for this to be coincidence but it is seldom possible to prove contemporaneity with the later aggregated fields – Brigmerston Down is an exception here.

Wider landscape divisions, created by a network of linear ditches, also post-date the rectilinear field systems although, again, contemporaneity with the aggregated fields cannot generally be proven. On Brigmerston, Milston and Stockbridge Downs large areas were delineated by bank and ditch complexes, the Wessex linear ditches, and at the last mentioned site it is possible that a linear was constructed overlying the boundaries of a sequence of aggregated fields. In Sussex possible divisions are signalled by so-called cross-ridge dykes which can, in a number of cases, be seen to post-date field systems, but which are, in general, notably poorly dated.

The final phase appears in many cases to have been abandonment of arable land and of substantial settlements. Stockbridge Down and Thundersbarrow have produced evidence of substantial later use of the areas, but despite examination of upthrow from animal burrows and, in the case of Whitmoor Common and Plumpton Plain, excavation, there is little to indicate subsequent land use other than for pasture.

Each of these three changes involved a major and labour intensive reorganisation of large areas of land over, it appears, much of southern and south-eastern Britain. The timing of these events will be further discussed below but is likely to fall within the seventeen centuries between 2400 and 700BC. The aim of the remainder of this discussion will be to attempt to identify the drivers underlying the changes and to set them within the wider socio-political and economic framework of the Bronze Age and Early Iron Age.

At this stage it seems necessary to emphasise differences in the nature of evidence used in this report and that often used elsewhere, particularly from excavation in areas where above ground earthworks will have been truncated. Where lynchets on chalk downland have been sectioned (for example Heathy Brow [Drewett 1982, figure 6], Mickleham Downs [Currie 2000], Black Patch [Tapper forthcoming], Plumpton Plain [this report]) they have, in general, been found to lack underlying structure and would not survive medieval and modern development on, say, the coastal plain of Sussex. By contrast, on the numerous sites excavated under the auspices of PPG16 where fragments of field system have been located (synthesised in Yates 2007) or on the rare occasions when exposure of large areas allows the pattern to be viewed (Framework Archaeology 2006; 2010; Hart forthcoming) the evidence has taken the form of ditches. This difference may relate to the soil type – development sites tend to be on river gravels and alluvia or on the brickearths of the coastal plain – or it may depend on either function or date of the features. Whilst this disparity cannot be resolved it does need to be acknowledged.

10.2 The investigative process

Landscape archaeology, a term degraded by overuse, can be said to link geographical models, through cultural studies, with the human environment, and as such has a long genesis. In borrowing both techniques and philosophical concepts from other disciplines it has developed as a number of interacting traditions, but any piece of interpretation should be placed within one or more of those traditions.

The earliest surveyed plan of an archaeological site in England is taken to be that of Avebury created by John Aubrey in 1663 (Welfare 1989), and Wiltshire also provided the background for many of William Stukeley's early 18th century plans and vistas (Piggott 1985). The 19th century saw plans of earthworks appearing in a range of county-based volumes including the Victoria County Histories, and in the early 20th century this work was placed on a more formal basis with the creation in 1908 of the three Royal Commissions on Ancient and Historical Monuments of England, Scotland and Wales (Bowden 1999, 21). However, early landscape surveyors tended to produce maps and lists of 'sites'; Rev AC Smith's *Guide to the British and Roman Antiquities of the North Wiltshire Downs* published in 1884 is a prime example of a local intensive study to be placed beside the extensive *Earthworks of England* by Hadrian Allcroft published in 1908. These volumes, useful as they are to modern researchers in terms of recording monuments now lost or damaged, were essentially gazetteers and their authors made little attempt to 'people the landscape'. Survey and recording continued into the 20th century when OGS Crawford, trained as a geographer and a committed Marxist, became Archaeological Officer for the Ordnance Survey. There he set up a division responsible for the accurate depiction of antiquities, and also recognised the potential of aerial photography for archaeology. This tradition has continued though the Royal Commissions and, for the last decade, the Archaeological Survey and Investigation Teams of English Heritage, but these modern workers have widened their remit to encompass cultural concepts

A further strand is represented by the 'English (or 'Scottish' or 'Welsh') Traveller', an individual who journeyed, observed, noted, was curious, and reported on a wide range of aspects of the land through which he (usually) passed. Daniel Defoe (*c.* 1660-1731) travelled extensively in later life and wrote an account of the state of the country he saw in *Tour Through the Whole Island of Great Britain* (1724-27). This pursuit, with an added emphasis on the time dimension of landscape development, formalized and professionalized, evolved into the umbrella discipline of historical geography of which Harold Fox and, perhaps most famously, WG Hoskins, author of *The Making of the English Landscape* published in 1955, were early exponents. Place-name studies came to be seen as relevant to landscape archaeology rather than simply the province of philologists

(Dodgson 1966; Fellows-Jensen 1985; Gelling 1984; Gelling & Coles 2000). In more recent years a dichotomy has developed with, on one side, those who favour an over-arching approach as exemplified by *An Atlas of Rural Settlement in England* (Roberts & Wrathmell 2000), and historic landscape characterization projects (for example Cornwall County Council 1996). Countering these are cogent pleas for more detailed evidence to be sought before misleading generalizations are made, best expressed by Christopher Taylor (2001, 161):

> "Another desire is for more detailed regional studies. Although it has always been axiomatic that landscape history in based on the results of such studies, the inevitable drive for generalization and synthesis has meant that local and regional differences have often been smoothed over or ignored. Yet no matter how awkward the results of such studies may be to the theories of the generalists, they remain fundamental to landscape history."

Gordon Childe explored a different route, linking material culture with both human communities and spatial areas. Although he too was interested in the ideas of Karl Marx, Childe's legacy has been claimed by both processual (Falkener 2007) and post-processual (Ucko 1990) archaeologists. In describing his own earlier work, *The Dawn of European Civilisation*, published in 1925, he said that it "aimed at distilling from archaeological remains a preliterate substitute for the conventional politico-military history with cultures, instead of statesmen, as actors, and migrations in place of battles" (Childe 1958).

This recognition that the landscape we see results from interactions between the natural environment and human societies working within their cultural imperatives was also a concept embraced by geographers like Carl Sauer (1889-1975). In his seminal work '*The morphology of landscape'*, also published in 1925, he rejected environmental determinism, then the prevailing theory among geographers, in favour of stating that "the task of geography is conceived as the establishment of a critical system which embraces the phenomenology of landscape, in order to grasp in all of its meaning and colour the varied terrestrial scene".

During the middle of the 20th century these three strands coalesced with a number of inputs from other disciplines including anthropology and the hard sciences. The complexity and time-depth of the remaining signs of use of the landscape over millennia led to the use and over-use of the term ‘palimpsest’ (previously more commonly seen as a description of re-used parchments or monumental brasses). Although only concentrating on the post-Roman landscape, Aston and Rowley (1974, 14) were able to say:

> “The landscape is a palimpsest on to which each generation inscribed its own impressions and removed some of the marks of earlier generations. Constructions of one age are often overlain, modified or erased by the work of another. The present patchwork nature of settlement and patterns of agriculture has evolved as a result of thousands of years of human endeavour, producing a landscape which possesses not only a beauty associated with long and slow development, but an inexhaustible store of information about many kinds of human activity in the past”.

Many large-scale survey projects have now been undertaken, transforming our understanding of that complexity and time-depth. The hinterland of major monuments has been examined, setting the sites within their contexts, for example the Danebury Environs Project (Cunliffe & Poole 2000a) and the Stonehenge Environs Project (RCHM[E] 1984; Richards 1990). Large areas with good above ground preservation like Exmoor (Riley *et al* 2002), the Marlborough Downs (Gingell 1992), Fyfield and Overton Downs (Wilts) (Fowler 2000) and Salisbury Plain (McOmish *et al* 2002) have been surveyed. Occasionally excavation on a landscape scale has been undertaken and has shown the same complexity in areas like Heathrow Airport, where it seemed unlikely to have survived (Framework Archaeology 2010) and in the Fens (Pryor *et al* 2002; Pryor & Barnforth 2010). Infrastructure projects often provide transects across the landscape not biased by archaeological concerns. Improving the Irish road system (O’Sullivan & Stanley 2005), the water supply for an area of the Sussex coast (Hart forthcoming) and the cross-Channel rail link (Glass 1999) not only locate new sites but also register areas of the landscape with little or no evidence of activity.

Attempts at understanding human relationships with artefacts and with the landscape have followed a number of strands of thinking, most of which originate in other disciplines, and which vary in their adherence to the field evidence. Borrowing from developments in geography, history and anthropology, the possibility was mooted that artefacts might have had more than practical significance and could be considered to have their own biographies (Hodder 1982). Parallels have been drawn between the cycle of life – birth, reproduction and death – and both the life-cycle of pottery vessels and quern-stones – manufacture, use, destruction and deposition (Brück 2001) and the farming year – ploughing, sowing, tending and harvest (Johnston 2000; Williams 2003). Ethnographic evidence of the procurement of flint by tribes in North America, which involves social sanction and suitable rituals, has been used to interpret archaeological evidence from flint mines on the South Downs (Topping 2004).

The phenomenological approach took the view that the meaning with which landscapes had been invested in the past could, perhaps, still be experienced (Tilley 1994) and the same concept could also be applied to settlements (Pollard 1999). The concept of landscape as a cultural concept, endowed with meaning from ancestral memories and mythologies, and expounded by Childe and Sauer, was continued in the 1990s (Bradley 1991a; Bender 1993; Barrett 1994). The importance of distinctive natural features, caves, rocky outcrops and springs for example, may be imbued with meaning (Kelley & Francis 1994; Humphrey 1995; Sunderstrom 1996; Bradley 2000). Liminal zones, places between one world and the next, are now recognised as having been given meaning in the past. Votive deposition of metal objects in marshes, between earth and water, particularly during the Bronze Age and Iron Age (Bradley 1990), and the execution of criminals in high places, between earth and sky during the Late Saxon period (Reynolds 1999) exemplify this hypothesis. Imbuing the stone carried from a particular outcrop in Wales to take its place at Stonehenge with healing properties (Darvill & Wainwright 2011) adds to this view of the past. Many such suggestions are, of course, beyond proof, but ethnographic studies of belief structures in places like Papua New Guinea (Bayliss-Smith 2007) and North America (Topping 2010) suggest that we should not underestimate the complexity of beliefs in pre-literate societies.

A division has developed between those who study the 'material' landscape and those who 'experience' the 'mental' version (Bender 1993; Ashmore & Knapp 1999). The accusation was made that landscape archaeology has, largely through Hoskins, become a pupil of the Romantic Movement of the 19th century, but has, at the same time, become over-empirical and over-concerned with 'reconstruction' (Johnson 2006). Whilst accepting that recognition of the complexity and time-depth of prehistoric landscapes had triggered development of methods aimed at understanding the societies that created and used them (*ibid* 136 *et seq*), he nevertheless condemns those who see 'the need to get their boots muddy' (*ibid* 34-69).

In a rejoinder (Fleming 2007) the origins of landscape archaeology are traced, not to the romanticism of the 19th century, but to the spirit of scientific curiosity, prevalent at the same time. Pointing to OGS Crawford and others and, from them Collin Bowen, Peter Fowler and Chris Taylor, as intermediaries, Fleming accepts the need for a variety of methods and concepts to aid any understanding of past landscapes and their creators. But he asks 'does the site really have to be cleared by wrecking-ball and bulldozer, before the bright new edifice of post-processual landscape archaeology can be constructed?'

The suggestion of the development of an absolute split between field practitioners and theorists (Johnson 2007) was not explicitly denied (Fleming 2008), but the latter author does ask for a more considered view of the aims of past workers, rather than using hindsight to criticise their direction of travel. In a memorable sentence he says 'to describe Hoskins' perspective as "angst-ridden, conservative, anti-modernist, post-Imperial, and Little Englander" (Bender 1998, 28), may nail him down ideologically, but it does scant justice to his scholarly aims and achievements, or his influence within our discipline'.

The depth of this division is surely over-stated. Indeed, the title of a recent book *The Death of Archaeological Theory?* (Bintliff & Pearce 2011) hints that a more nuanced approach is necessary. With an advertised intention of discussing the need for archaeologists to be freed from those who preach the primacy of any single model, the requirement for a greater recognition of intellectual fashion, and a possible retreat from post-processualism and postmodernism to a more scientifically based, rationalist view, this suggests a new, and perhaps less confrontational, agenda. The final sentence 'The rumours of the 'Death of Theory' have indeed been exaggerated' theory is not dead, it is just more pragmatic, less partisan, more open – it has become *bricolage*' (Pearce 2011) says it all.

Whatever current theoretical framework is used to interpret the results of landscape survey, the evidence is a finite resource which is under constant threat of degradation. Evidence once recorded can be re-interpreted - once destroyed it is lost forever. During the following discussion it will become clear to most readers that this author is firmly of the 'muddy boots' brigade, but the complexity and time-depth of the physical evidence of such 'simple' features as groups of fields, revealed though analytical survey, tells a story. It is for us to try to understand that story, using whatever interpretative tools and concepts are at our disposal.

10.3 The process of enclosure

It has become a given that early agriculture was shifting in nature – woodland clearance was followed by exploitation of the land until decreasing fertility forced removal to new areas, and that enclosure of fields marked a change to a more permanent form of landscape organisation. Whilst 'shifting' and 'permanent' are simply the extreme ends of a continuum, experimental work suggests early agriculture could have successfully utilised cleared land for a considerable period. In Germany weed suites within grain crops grown on land cleared by 'slash-and-burn' contained pollen and seeds from perennial plants remnant from the original woodland for at least 6 years after clearance (Rösch 1998), whilst data from 262 *Linearbandkeramik* sites on the loess belt from Belgium to Poland indicated the presence not of these perennial weeds, but of annual weeds of disturbance (Bogaard 2002). Similarly, Early Neolithic sites in Ireland produce weed suites recovered with cereal deposits in which the *taxa* represented are from annual plants preferring disturbed soil conditions (Whitehouse 2011). In southern Britain, no decrease in crop yield was noted when prehistoric wheat was grown on the same plots for 20 years without addition of any form of manure on chalk *rendzina* (Butser Ancient Farm, unpublished data). However, whilst land may have been in use for longer than is generally accepted, there does not appear to have been a requirement to enclose plots by means which left a mark in the archaeological record, although early examples like those in Ireland (Cooney 2000) may yet prove to have had wider currency.

It is unlikely that enclosure was the first event in the agricultural history of any of the areas under study. Brigmerston and Milston Downs are within the Stonehenge landscape and may well have been exploited as a resource to support those who constructed that monument complex; all the case study areas except Stockbridge Down and Whitmoor Common have long or oval barrows in the immediate vicinity and all have round barrows within or close to the field systems. Implements including a greenstone axe from Cornwall and knapping debris underlie the field system on Plumpton Plain (McOmish & Tuck 2003; English *et al* 2012) and the podzolisation process had been initiated before the field banks were built on Whitmoor Common either by trampling or ploughing. Colluvial deposits, evidence of valley side ploughing and dated to the Late Neolithic, have been found at a number of locations on the South Downs (for example Allen 1995), in Dorset (for example French *et al* 2003) and elsewhere. Lines of stake holes may indicate fields defined by fences but the advent of coaxial field systems changed the landscape to a degree that has not happened since – the impact would have been both visual and immediate and would have changed the way in which the land could have been negotiated. Routes would have existed and been recognised before; tramping through crops would surely always have been discouraged, but now they were constrained to a narrow path between permanent man-made barriers. In many cases entry onto the track would have been from a point from which the exit could not be seen, and no variation in route would have been possible over several km, an hour or more's walk, during which time progress could be noted and monitored.

This level of control, and separation from open land would have been novel but would become, in terms even of folk memory perhaps, permanent. However, when the first field systems were devised there are likely to have been doubters. Even if the change was seen as a response to a real or perceived challenge there was only anecdotal evidence, perhaps from overseas, that all the necessary conditions for food production in the coming year were in place. It shows a level of confidence in the future and a willingness to bind people to the land in a defined spatial relationship with each other (Field 2008a). Farming had been the primary method of food production for many centuries and the problems inherent in over-grazing and over-cropping, decreasing fertility, disease build-up, soil compaction or soil erosion among them, would have been recognised – they had, after all, underlain the need for shifting agriculture. In practical terms, it shows a trust in their farming techniques to overcome these problems and, in less practical terms, a belief that the spirits of their ancestors and the land would accede to the change in the nature of this bond.

The traveller was now an outsider – probably still a welcome trader with his exotic goods and stories of other places, or a neighbour moving stock to seasonal grazing – but still someone whose track was predetermined and who could, if necessary, be watched. The relationship between farmer and farmed, and farmer and traveller, had changed irrevocably.

The design of these field systems is striking in its formality. The areas are bounded but it is not possible to be certain at what point in the life of the system the boundary was constructed. Although a rectilinear grid is relatively simple for us to construct – sighting between posts to construct straight lines, visual right angles, and knotted rope between the lines to achieve parallelism, achieving the desired result over variable and sometimes steep topography would have required co-operation between a number of people, practice, and trial and error. In the cases surveyed here there is little sign of entrances into fields and in only a few cases are tracks between the fields present. There is also little evidence of adaptation within the grid; with lynchets in most cases less than 0.5m high and often less than 0.2m minor details may well have been missed, and gaps in hedges, for example, would leave little sign above ground.

Nevertheless, the impression is given, correctly or not, of a design where form mattered rather than the practicalities of everyday farming life. This great act of enclosure, however gradually it took place both in terms of individual systems and over the wide-spread area over which it came to hold sway, was not an organic development. It involved skill, purpose and levels of control which will now be discussed.

Two major questions need to be addressed. Why did people come to believe that it was right, that they had the right, to place barriers across the land, particularly since it is this marking which seems to have represented permanence rather than the construction of more substantial settlements? Why was this form of rigid, formal fields, with corners which would be difficult to plough, chosen; and why, despite its apparent longevity, is there so little evidence of adaptation?

The right to enclose a large area may have had to be given and received, and the questions arise of who or what was perceived as 'owning' the land, and the nature of the covenant that allowed its allocation and use. Also, the rectilinear grid is unlikely to have developed organically; once adopted it may well have become tradition, but the origin seems unlikely to have been strictly pragmatic. Recent thinking has tended to decry the importance of these considerations: the concept of a 'planned' landscape on Dartmoor has been challenged and replaced by one whereby the coaxial reave systems are seen as 'reflexive' in their regard for earlier ties of occupation and tenure rather than 'transformative' (Johnston 2005). These two concepts are surely not mutually exclusive. Enclosure did not take place in some *tabula rasa*; the alignment of the field boundaries at Heathrow Terminal 5 certainly respects that of the cursus (Framework Archaeology 2006) and many systems observe the underlying topography. But the similarity in form of coaxial field systems over a wide area of southern Britain points to a new mindset, not a sweeping away of the past at some year zero, but a fundamental change in the attitude to, and organisation of, land. Piecemeal enclosure and adaptations within systems have also been emphasised (Wickstead 2008) but, again, this does not obviate the clear overall adherence to the accepted design.

Hunter /gatherer communities have been studied by anthropologists in some detail, but the changing nature of the relationship between man and the natural world with the development of farming appears to have received less attention. Modern hunting communities seldom take prey 'as of right' but need the assent of the animal to become human food, a permission which is always granted (Ingold 1986). Taking a harvest from the soil might require a similar permission. The Q'eqchi' people of Guatemala, swidden farmers who cultivate maize but also hunt (Gonzalo 1999), believe that all resources, domesticated and wild, plant and animal, organic and inorganic, are owned by the god Tzuultak'á. The importance of land is suggested by the name of the god which incorporates the words for 'hill' and 'valley'. Tzuultak'á permits use of the resources providing the necessary rituals have been enacted but wrongdoing may be punished by failed harvest or a shortage of prey. In Israel also land was considered to be owned by god who allowed its use by man; here present political and cultural concerns may influence understanding of past beliefs (Kark 1992).

Field boundaries serve practical purposes, of which probably the most important is separation of crops and herbivorous animals, particularly if management necessitates movement of stock to obtain water, or to and from non-permanent grazing areas through fields with growing crops. Folding of stock on stubble or on fields left fallow to increase fertility, the use of pigs to break up compacted ground and to remove roots, or of sheep or goats to graze scrub or rank fields are all techniques which would leave little trace in the archaeological record, and may have been used in prehistory and all would have required careful control of the stock. However, these are all needs which would have been present before the Early Bronze Age and all had been met, possibly by use of moveable hurdles or of tethering. It is the permanence of the new system which marks the change.

Studying the ditched field systems at Kuk in Papua New Guinea (Bayliss-Smith 2007), systems whose morphology closely resembles the rectilinear pattern observed here, the author identifies six possible reasons for their construction:

- Ditches as a symbol of property in the landscape
- Ditches as a reflection of economic rationality
- Ditches as the outcome of social inequality
- Ditches as a response to population crisis
- Ditches as an investment in future security
- Ditches as an adaptation to climate change

Although the lynchets forming the boundaries of the early field systems on chalk downland do not appear to have been associated with ditches (Currie 2000, Tapper forthcoming; Barry Taylor pers comm.; chapter 5), there is no reason to assume that ditches *per se* necessarily purposes, other than for drainage, that non-ditched boundaries did not. The reasons for the construction of the ditches at Kuk will therefore be tested for possible relevance to the situation in Early Bronze Age southern Britain.

At its most basic the enclosure of land implies some form of claim, not necessarily ownership in the form we understand, but at least a differentiation between owned and not owned, ‘ours’ and ‘theirs’, perhaps ownership in severalty or in common. Hunter / gatherer communities exploit the resources of a specific area of land, a territory, usually with recognised, although not marked, boundaries. Even with an economy based on agriculture mixed with hunting and gathering, the need to collect a harvest, given the time and labour invested in preparing, sowing and weeding land, would be likely to focus the imperatives of territoriality on smaller and more closely defined areas. Arresting the observable decline in yield as fertility decreased (although the speed at which this happened is much debated), and the success and probable failure of mitigation strategies, are unlikely to have been regarded as purely practical matters. Bounding the land gave visible expression to that focus, and also facilitated investment of the land with the identity of those who farmed it.

A specific boundary earthwork, rather than the outer edge of the outer field, as seen in Kingley Vale and on Plumpton Plain, calls attention to the enclosure of an area rather than the piecemeal intake of land as required. There is no evidence that the boundary came early in the sequence of constructing the system, and it may have been a late, or even final, addition; indeed, centuries may have elapsed with the originators of the field system having no concept of that aspect of its final form.

In some areas, Kingley Vale, the Fore Down and Tenantry Ground area and Plumpton Plain in particular, virtually all the available land was eventually enclosed, leaving only highest ground along some spurs and the main ridge of the South Downs free for movement. It is difficult to draw any conclusion other than that land pressure, real or perceived, underlay the inclusion of steep and eroding slopes, and, in the case of Whitmoor Common, land with visibly decreasing fertility, and this aspect will be amplified below.

In the areas under study the proportion of land enclosed is staggering. Although it seems most unlikely that the whole area of coaxial fields was in use for crop production at any one time, all the field boundaries on chalk soils that could be observed in detail were lynchets created by ploughing on a slope, suggesting that each field was, for a period at least, under cultivation. All the lynchets were relatively slight and, although many may have been truncated by later ploughing, fields on the steepest slopes – the north-western side of Deep Dene for example drops 65m in 160m (a 40.6% gradient) and the steep east-facing slope of Thundersbarrow Hill reaches 30% – were surely not used intensively. An economic argument would recognise that, whilst large areas might have been required if the areas farmed shifted within the bounded zones, inclusion of land which must have been recognised at the time as usable only under extreme pressure should indicate some stress, or a perceived risk of future stress, within society. Alternatively, the visual continuity of the grid of enclosures may have had an importance that overrode the difficulties in ploughing steep slopes, indeed, that very difficulty could be seen as enhancing the spiritual value of the labour involved in construction.

Two concerns seem apposite, firstly, an increase in population and secondly, a decrease in crop yield.

Population change is notoriously difficult to see in the archaeological record – even the approximate 35-50% decrease in 18 months caused by infectious illness, the Black Death (Daniell 1998, 189 *et seq*), left little direct evidence. However, ploughing steep slopes and the use of exhausted land is seen as a response to the increase in population from the 9th to the 14th centuries AD (Hare 1994), and some abandonment of agriculturally marginal land after the Black Death is attested both in the field and in the documentary record (for example English & Brown 2009) – a situation reminiscent of that seen in the period under study here.

It is accepted that population levels increased in the European Early Neolithic and considerations of Darwinian evolutionary theory, life history theory (Hawkes & Paine 2006) and behavioural ecology (Winterhalder & Smith 2000) have resulted in a more general view to be taken of reasons for population change (Shennan 2009) which may be relevant to other periods within British prehistory. Population increase results from a combination of an innate need to maximize reproductive success (to increase the number of children surviving to adulthood), and a series of decisions made by individuals that children have value in themselves rather than simply as an increased labour force. Population tends to increase rapidly given the required circumstances but not, in general, up to or over the carrying capacity of the land, such that starvation becomes likely, but to a point of balance at which the available resources are being exploited sustainably (Paleston & Tuljapurkar 2008). The trigger which allows the decisions to be made that more children can be successfully raised, and are thus worth the investment required, can appear simple – provision of wells within villages increased fertility in an Ethiopian village by reducing the energy load on women who had previously carried water a considerable distance (Gibson & Mace 2006).

If, from this, the large area enclosed within the rectilinear field systems in any way relates to population size, a new condition or conditions must have prevailed. There could have been either a biological ‘push’ mechanism (Lambert 2009), population increase requiring more land under cultivation and providing the labour to work it, or a ‘pull’ mechanism, more efficient land use enabling the survival of a larger population. Discussion of these points, which necessitates a view on the date of their genesis, will be undertaken below.

Efforts to maintain soil fertility are in evidence in Britain and in Europe including manuring of sandy soils (Simpson *et al* 1998) and crop rotation (Schmidl & Oeggl 2005) and recent work at the Middle Bronze Age settlement of Black Patch on the South Downs has identified a probable slurry pit (Tapper forthcoming). Whilst such techniques were in regular use the mechanisms underlying their efficacy would not have been understood – was there any guarantee that they would always work or might yields fail and the land become exhausted? Again, a perception of future risk may have encouraged claiming and enclosing more land than was immediately required.

However, the slight nature of the lynchets bounding these early fields may indicate only light use. Although the boundaries which were overlain by later fields at any period between the Late Bronze Age and the present will have been truncated by ploughing, even those on the steep eastern side of Moustone and other areas which appear to have remained under permanent pasture are less than 0.5m high. A study of colluvial erosion in dry valleys on the South Downs (Wilkinson 1993; - *et al* 2002) showed considerable variation in both morphology and date. In Cockroost, within the Thundersbarrow landscape (chapter 9), only a shallow depth of colluvium was present despite the steepness of the valley sides. This area is visibly within a rectilinear field system which was not surveyed but which may be continuous with that to the east of the Thundersbarrow ridge. The authors (*ibid*) observe that 'a possible explanation for this is that the surrounding slopes were seldom under cultivation'. Similarly, in Sweetpatch Valley, farther to the east, colluviation, with an onset dated to 2140-1690 cal BC (OxA-2994 & OxA-2995, both 3560±80BP), was considered slight, and to probably represent only short-lived agricultural events prior to *c*1000 cal BC. This is an area where field systems are visible as soil marks, although they may date to the 1st millennium BC rather than earlier. Areas where only slight depths of colluvium in the bottom of steep-sided valleys marked by lynchets may indicate, as suggested here, a lack of intensive arable use, but it must be borne in mind that colluvium resulting from light, *loessic*, soils may have been swept further down the valley. Also, recognition that colluviation tends to result mainly from high energy storm episodes, particularly on fields with winter sown crops (Boardman 1992), could explain its relative lack if the crops in these early fields were spring sown.

Enclosure may indicate recognition of an increasing population and a perception of risk of a shortage of land rather than overpopulation itself. The presence of other people in the next valley, thus limiting the possibility of moving on, perhaps the signs of abandoned and weed ridden fields nearby where fertility had not been adequately maintained, and an awareness of groups having to exploit more difficult soils could trigger a mindset where 'our' land needed to be defined in case of need in the future.

There is little evidence of climate change in north-west Europe during the middle centuries of the 2nd millennium BC, but there is evidence of a period of bad weather at that time. Study of raised bog deposits in Sweden and geochemical investigations of sediments in Tunisia both suggest a major episode *c.* 1500BC. The cause of this is uncertain but glassy spherules found in Tunisia which resemble those from the K/T horizon and may have resulted from an asteroid or comet strike in the eastern Atlantic (Franzén & Larsson 1998). Similar findings point to a further crisis in 1000 – 950BC, and these are seen to overlie a natural cycle of poor weather which occurs on a *c.* 550 year periodicity with minima at *c.* 2100 BC, *c.* 1500BC, *c.* 950BC, *c.* 400BC and into succeeding periods. A period of poor weather *c.* 1628BC is also by Irish tree-ring data and thought to have resulted from cometary debris (Baillie 1999). The degree to which these events would have affected farming communities in southern Britain is uncertain, but either direct experience or stories from elsewhere may have made a consolidation of land claims a wise insurance against an uncertain future in the middle of the 2nd millennium BC.

Of the reasons for the construction of ditched boundaries outlined above (Bayliss-Smith 2007) the first, a symbol of property in the landscape, may explain the genesis of these large rectilinear systems. Their proliferation over the following centuries seems more likely to result from population increase, a real or perceived land pressure and, from that, as an investment in future food security.

Boundaries themselves can accrue meaning. They are, by definition, liminal zones, and have been seen as suitable places for a Middle Bronze Age cremation burial at Chalton (chapter 6) and for the deposition of a Late Bronze Age hoard of bronzes in the Mole Gap, a deposition marked by a cairn of flint nodules patinated white from burial in chalk (chapter 3). At Gwithian (Cornwall) one boundary of a field system had been used for burial whilst another had been covered with white quartz – a material which was not available immediately locally (Nowakowski *et al* 2008). In the Mole Gap and at Gwithian these markers would have acted as visible reminders for the living of past events. The colour white is increasingly recognised as significant: small pieces of broken quartz covered areas beside carved slabs at Torbhlaren (Jones 2010) and at Ben Lawers (Bradley 2010) both in Scotland; the sarsens at Stonehenge and other monuments, and the split trunks at Seahenge, would have appeared pale when the faces internal to the ring had been freshly shaped (Darvill & Wainwright 2011). Chalkland barrows would have been white when first sealed, and those of heathland a pale gold. It has been suggested that the aim of excarnation was to expose white bones so that the spirit could escape the coloured, polluting, dead flesh and continue on its journey (Parker Pearson & Ramilisonina 1998). In modern Western Christian culture white is associated with purity and black with death, but in many cultures white is the colour of mourning. In the British Neolithic and Bronze Age white seems associated with ceremonial places - striking public places, and places sometimes of death, monumentalism and memorialisation. On the downs removal of turf or even simple clearance of chalk patinated flint nodules would have created white boundaries, and the cairn within which the hoard was buried beside the swallow holes of the Mole Gap was of patinated nodules with the addition of one pink (non-local rhyolite) pebble. The use of field boundaries for burial, hoard deposition and, occasionally their furnishing with a white covering, seems to hint at a greater significance. It may be that particular boundaries, property boundaries for example, were suitable for treatment in this way. Associations with death, but perhaps more pertinently, the ancestors, and, from that, appropriation, inheritance, lineage and permanence, may have been expressed through such actions.

In a mathematical modelling exercise a number of cultural, environmental and demographic parameters were compared with the aim of predicting development of complexity within society (Gavrilets *et al* 2010). Two conditions stood out, longevity of the chieftain and a smooth method of transition, and probability of success in war. The construction and use of large field systems can be seen as an expression of a complex society, and the importance of lineage, whether familial or organised in some other way, seen in the boundary burials.

That the annual cycle of crop production can be seen as a metaphor for the longer cycle of life and death has already been noted (Williams 2003). The similarity between burial cairns and field clearance cairns links memorialisation of the dead with the bringing into life and use of new fields (Johnston 2000). In some cases clearance cairns have been found to have incorporated fragments of human remains, possibly an event which marked the breaking in of new land and of monumentalising tenure for future generations (Johnston 2001). That this practice dates to the very late 3rd and early 2nd millennia BC places it at the start in mainland Britain of enclosing land for farming (see below). Somewhat later, the incorporation of human skeletal material within the matrix of midden sites (McOmish *et al* 2010), evidence of feasting on farming surplus despite a waste, to our eyes, of the means of maintaining soil fertility, again links the cycle of human life with that of the agricultural year. Given this linkage between agriculture, land tenure and human life cycles, the overlying of field boundaries being taken out of use with new and continuing settlements, seen so often during this work, can be recognised as tipping the balance between change and continuity. Again, field systems can be seen as invested with the identity of families or, more probably, larger groups.

The regular grid of fields within the boundaries are unusual in terms of later field systems; only the strip systems of Late Saxon and Medieval England and the fields created when they were enclosed are similarly formally organised. Indeed, straight lines are relatively rare in landscape organisation and are usually imposed rather than developed organically. Major Roman roads, together with towns, formed the basis of the administrative power of a city based state which had acquired a large empire, railway lines and modern motorways are constructed by a combination of private and public money, but by permission of Parliament, the open fields were imposed through strong lordship (Faith 1999) and the later enclosure of those fields by a combination of national and local power. All these linear constructs were ‘top down’ changes, imposed by secular powers, and, in many cases, slighted what went before. During most of European prehistory the majority of monuments were either circular or ovoid but a number of linear types exist from the Neolithic period. Cursuses, stone and timber rows and pit alignments resulted from a perceived spiritual requirement, albeit transmitted through human mediators, and again the requirement came from 'outside' the, in modern terms, exigensies of every-day life. Similarly, the grid pattern of these early field systems is likely to have resulted from some perceived external requirement. This imposition need not have been in any way dictatorial; ideas and means of accomplishment would have required discussion and agreement, but it seems unlikely that so many communities would have come to adopt similar patterns of land organisation without some external suggestion which was adopted at a supra-regional level. Straight lines can be seen as a denial of, or control over nature (Field 2004b), but this seems at odds with what we understand of the mindset of early agriculturalists. Perhaps the concept of the grid as a net, holding the land in trust or, more pragmatically, retaining the light, fertile topsoil, is more apposite.

Coaxial field systems cover large areas of land and little work appears to have been undertaken to try to understand the manner in which they were administered. The possibility that they can be seen as a series of smaller units invites some speculation on both the way in which the field system was organised and the socio-political structures which underlay the arrangements.

Division of land into units possibly farmed by individual families, noted here on Whitmoor Common and Brigmerston Down, has also been recognised elsewhere. At Perry Oaks, development of Terminal 5 for Heathrow Airport necessitated large-scale excavation and a portion of a coaxial field system was recorded. As on Whitmoor Common, some boundaries seemed more important than others (Framework Archaeology 2006, 94-97). In this case the north to south boundaries were laid out first, probably between 2000 and 1700BC, and were better maintained and later developed into trackways, encouraging the excavators to consider these as dividing individual holdings. Unfortunately without clearly identifiable east to west boundaries to the holdings the area enclosed cannot be calculated but with distances between the north to south boundaries of between 100 and 250m a similar size to those on Whitmoor Common and Brigmerston Down is not unlikely. In the Netherlands a different method has been used to determine the amount of land assigned to a single settlement (Jongste 2008). Here the land available has been numerically divided between the number of known settlements, assuming each settlement to have been occupied for at least 25 years with the following results (*ibid*, Table 8.5):

Site	**Region**		**Land per household (ha)**	
		Arable	**Pasture**	**Total**
Bovenkarspel	Coastal	8.2	20	28.2
Drenthe	Sands	11.7	32	43.7
Eigenblok	River alluvium	12.5-15.0	8.3-10.0	18.8

Whilst this data rests on a number of assumptions, all of which could be questioned, the areas under discussion are not dissimilar to those hypothesised in this study.

If these are indeed familial sub-units it is unlikely that all were in use at the same time; such intensive use would infer a population far larger than is thought to have existed at any time in pre-history or early history. Sequential use by one or two families within the wider group may have taken place over centuries, with the internal divisions within the sub-units constructed as necessary.

This change to farming within a field system would have imposed upon society a requirement for a code of practice to regulate those living within this new environment and ensure that relationships between individuals, families and kin enabled a smooth running of the farming economy. At least three layers of organisation can be glimpsed in the morphology of the early rectilinear systems although it is possible that these overlap. The day to day arrangements needed to farm the small subunits could have been made by those who farmed them; whether or not these were familial units which were owned or tenanted, decisions on exact timing of sowing and reaping, stock movement and management for example could have been made by a head of household or by discussion within the unit. Provision and maintenance of the boundaries would have become a social responsibility and may have been arranged on the basis of good neighbourliness but it would also have provided a way of avoiding conflict. Only if the blocks were worked by bonded labour would the organisation be likely to be undertaken at a higher level. These blocks appear to have remained constant through time and possibly imply some form of inheritance, if not within kin groups, then at least in terms of a productive farming unit.

Above this level, some sort of mechanism would have to be in place to ensure sharing of common resources. The areas enclosed left little room for, in particular, timber production; recognition that, in some areas at least, field systems extended onto Clay-with-Flints, probably precludes the general use of these areas. Hangers on steep ground could have been carefully managed for everyday needs but hut construction required some larger scantling timber. Although required less frequently, bringing large trunks from farther away would have been a considerable task; if this entailed use of the bostals up the scarp slope of the South Downs it may have been a co-operative task with the timber being prepared close to the area where it was felled to minimise the weight carried. Local production would surely have been preferable, and stands of close-grown trees, ideal for the production of rafters, may have occupied small unenclosed areas. But again, agreement would have been necessary to ensure equitable use of this valuable and necessary resource. The position of tracks allowing access to water and arrangements for sharing, possibly, of common grazing could have been discussed between those who farmed the enclosed area or may have been imposed on the system as a whole. Again, the common good may have provided an impetus, but an accepted framework within which disputes could be resolved would necessarily have prevented damage to others by those who did not accept their social responsibilities.

The exact mechanism cannot be recovered but a number of models exist, one of the first of which is the formalist perspective of Adam Smith’s *Wealth of Nations* (1776). Ethnographic studies show a range of socio-political and economic changes underlying the development of complex societies and these are frequently used in attempts to bridge the gap between material culture and the human experience.

The Machiguenga of Peru lived in family groups in small hamlets and, although they had the necessary technology, did not develop economies fully reliant on farming until a lack of resources forced that change. If disputes over the few shared resources arose within

Machiguenga hamlets they were settled by discussion between the male heads of each household. With farming came larger settlements and a more stratified society; tighter control over resources was exercised on behalf each larger, interdependent group. The result has been an increasingly protectionist approach, a creation of boundaries (fences) to declare private ownership and a reluctance to interact with neighbouring groups (Johnson & Earle 2000, 90-120). In this situation dispute resolution, involving a greater number of families each under greater stress, becomes more difficult and warfare becomes more likely (Carneiro 1970). This situation may be reflected both in the bounding of coaxial field systems and the group identity expressed in differing alignments between adjacent systems as seen in the Kingley Vale area (chapter 6). Something similar has been observed in the Flag Fen Basin where fields were laid out differently on either side of a droveway suggested that the route may have formed a local boundary (Pryor 1980; 2001, 416).

Change in group size and organisation is paralleled by a change in attitude towards property, including land. Societies organised on the basis of familial groups, like the San of South Africa, take an ambiguous and flexible stance (Lee 1979). There are no divisions into bounded territory and most resources are willingly shared, only certain examples, water-holes for the San (*ibid*) and pine-nut groves for the Native North American Shoshone (Murphy & Steward 1956) for example, are traditionally controlled by certain individuals or families, and even then access is usually granted, but with the obligation to reciprocate. As with the Machiguenga (above), the emergence of larger groups, tribes or clans, necessitates a radical change in attitude to land ownership. The Tesmbaga of New Guinea stake out their boundaries in a ceremony involving all those with rights to the land enclosed, thus publicly demonstrating their agreement (Rappaport 1967). Simple chiefdoms like the Trobriand Islanders, living off the east coast of New Guinea, invest ownership of agricultural land in the chief, a respected member of the clan but not necessarily an inherited position. However, effective control at a lower level, with leaders of small groups both allocating land to households and ‘owning’ the magic needed to ensure successful harvest (Malinowski 1935). It is only with complex chiefdoms, the Hawaiian Islands prior to their ‘discovery’ by Cook in 1778 for example, that the paramount chief becomes the primary landowner who distributes land holdings to his family and supporters in war (Kirch 1984).

This apparent linear development is simplistic in the extreme, but, at a superficial level at least, has relevance to changes in land divisions observed from the Late Neolithic to the Early Iron Age in north-west Europe. At Thy in Denmark, a Late Neolithic subsistence farming economy underpinned a social structure based on exchange of prestige goods. However, since wealth accumulation could only be modest, the goods exchanged were of local materials – flint daggers, strike-a-lights and arrowheads, and ceramic vessels – often imitating styles of the Beaker tradition but made locally. In the Early Bronze Age however, prestige goods changed to items which had to be made by specialists from non-local materials and imported, fine swords and jewellery for example. Control of pasture land now became important, since cattle products, particularly hides, were exported as part of the exchange. The status of the chieftains was dependent on land ownership. In Denmark these chieftaincies proved short-lived, maintaining privileges access to long-distance trade was difficult and, with the collapse of the prestige good exchange networks, society retrenched and intensified its agricultural production (Earle *et al* 1998).

A study of neighbouring areas in southern Britain, Wessex and the Thames Valley, both uses these observations to interpret the archaeological evidence, and sounds a warning against overarching, generalised interpretations (Bradley 1991b). In Wessex the development of field systems and, later, linear boundaries, is seen as a rejection of a landscape organised by relationships with ceremonial and symbolic structures, and its replacement by one of physically defined territories. In turn, decline in Wessex, possibly caused by erosion of the fertile covering of *loess* enabled the Thames Valley to form new alliances, gain access to prestige goods networks and develop a system of territories centred on ringworks (Yates 1999). In both areas control over land and its produce underlay economic change, but that change took different trajectories.

These developments may explain the need to enclose land and develop field systems, and also suggest organisational framework within which they could be used. But above this must have been a layer of authority which determined the overall morphology of the field system and passed on the skills necessary for its production. Whilst decisions may have been made communally or have been imposed they were clearly in place from the start of construction – although field systems may have been additive they maintain overall pattern and alignment. This could have involved tradition – this is how we have always organised our land, but traditions have to have a genesis and the rigidity of the coaxial layout implies a powerful basis to that tradition.

Over short distances at least, the construction of parallel lines and right angles is technically simple – looking along a line of upright posts ensures straightness, parallelism can be achieved using string to maintain the distance between two lines and the human eye is a good judge of a right angle. Visualising the end product, and transmitting that vision is more difficult. The initial spread of the idea may have involved travelling surveyors but the methods and the reason behind them would quickly have become part of the wisdom and identity of the group.

In some areas, Sussex for example, the alignment appears to have been influenced, if not determined, by the topography, with alignments along the contours of steep-sided, south-east-facing chalk spurs. On Salisbury Plain, the relative larger-scale topography does not appear to have been as important and many field systems were laid out with a main alignment east of north (McOmish *et al* 2002, fig 3.4) – this seems to have had little to do with practical benefits but may have accorded with a contemporary cosmology. In some cases linear barrow cemeteries have been shown to address the setting sun, linking the dead with diurnal and seasonal rhythms (Garwood 2007). The preferred alignment of field systems places the long axis facing into the rising sun, as do contemporary doorways, thus linking the living with dawn light, re-birth and fertility.

On Whitmoor Common and, possibly, Tenantry Ground, two rectilinear systems overlie each other on slightly different alignments despite the visibility of the early boundaries. On the former site, the second alignment would have allowed more intensive use of the land and formalised the route through the field system to water, a route named as the Gryme's

Dyche and shown by trace element analysis (Dolan *et al* 2004) to have been used as a drove way. A growing importance of stock as opposed to arable may underlie this change, particularly as the fields of the later phase were clearly not intensively ploughed since the boundaries of the earlier phase survived within them despite the soft sandy nature of the soil. On Tenantry Ground, however, there is no apparent reason for the change in alignment. These changes, together with the observation that field systems in adjacent valleys to Kingley Vale and Plumpton Plain were constructed on slightly different alignments, and the apparent change in alignment on either side of the cross-ridge dyke on Tenantry Ground, together suggest subtle differences may have been used to enhance the investment of identity on a particular area of land.

This containing or enclosing of the land probably represents the greatest visual change wrought by man on his rural environment. Although the development of lynchets indicates that all parts must have been ploughed at least intermittently, for much of the time most of the individual fields would not have been under crop. A changing patchwork of ploughed land, arable, stubble, fallow, grazing stock and weedy 'set aside' between straight lines of hedges, fences or even simple grass baulks lay as a visible symbol of man's control over the land in the present and into the future. Whatever had changed within society to necessitate this metaphor in everyday life is uncertain but the complexity of managing such a system must have impacted on every aspect of social organisation. Any decision made in the design of these rectilinear field systems would have affected all those involved in the use of the fields and in the production of food for the whole community. The decisions have to result in a field system that 'works', both in terms of both production and the socio-political requirements of that culture, and clearly did so since they were present over a wide area and for many centuries, possibly a millennium.

But those imperatives changed and, for a second time, the way in which land was organised was radically altered. The amount of land enclosed decreased substantially as the rectilinear field systems were overlain with small areas of aggregated fields. Some of these, Brigmerston Down and Kingley Vale for example, comprise small groups whilst others consist of long chains of fields looped sequentially onto each other. Of this latter type there may be two rows with outer ‘playing card’ corners and a pair of continuous straight inner lynchets bounding a track through the system as on Stockbridge Down and Thundersbarrow Hill, or the fields may form groups on valley sides as on Plumpton Plain and in Buckland Hole, or draped over a spur as on Tenantry Ground or across a valley as on Lullington Heath. These differences appear to be a response to the immediately local topography – the valley sides at Tenantry Ground are too steep for convenient use whilst those on Plumpton Plain and the eastern side of Stockbridge Down are more gentle, but the spurs to the west of Stockbridge Down and on Tenantry Ground are relatively flat. The change marks a withdrawal from the topographically marginal land, the steepest of the valley sides. The variable morphology of these field systems does not appear to have a regional basis within the area of southern Britain studied. The aggregates in the Nine Mile River valley on Salisbury find their closest parallel in Kingley Vale, West Sussex whilst the ‘looped’ ladder system at Thundersbarrow Hill, West Sussex bears a striking similarity to that on Stockbridge Down, Hampshire and to a further example surveyed by Royal Commission on the Historical Monuments of England at Dunch Hill on Salisbury Plain, Wiltshire (McOmish *et al* 2002, fig 10.1).

The lynchets bounding these later fields tend to be larger, in some cases much larger, than those of the earlier rectilinear systems. This should imply either more regular ploughing or a longer period of use but the visible survival of earlier boundaries within the later fields in the majority of cases studied militate against this unless the former boundaries were deliberately respected.

The form of the systems strongly suggests an increasing interest in stock raising and management. Larger areas were left clear for movement including, in most cases, the valley bottoms where water retaining alluvial deposits produce the lushest grazing. The funnel-shaped entrances, seen much later at the margins of common land, both facilitate control of stock entering a narrow track between enclosed land, and allow an immediate spread on the release of stock from confinement. These smaller enclosed areas are closer to what we understand as individual, possibly family run, farms, with arable fields surrounded by open areas of grazing and associated with settlement sites. They sit within an increasingly hierarchical range of settlement types but, although again there is insufficient evidence of longevity and contemporaneity, the amount of food produced would accord more closely with the size of population thought to have existed at the time. This population size may be a real decrease relative to that supported by the rectilinear systems, or the imperative of demonstrating enclosure of large areas may have eased. Greater belief in their ability to maintain fertility could enable a withdrawal from land recognised as marginal, but neither of these factors necessitated a complete remodelling of the field systems – abandonment of certain areas would have sufficed.

Division of the larger landscape is overt in Wessex where the linear ditches are sufficiently well preserved on the Salisbury Plain Training Area and the Marlborough Downs among other areas to enable reconstruction of the system. Similar features have been studied in other areas, the Tabular Hills (Spratt 1989) and the Wolds (Fenton-Thomas 2003) in Yorkshire for example, but in Sussex, despite excellent preservation, this type of feature does not appear. The farthest east that linear ditches have, as yet, been recognised is close to the West Sussex / Hampshire border on Butser Hill, and they have not been identified with certainty in Surrey, although further transcription of aerial photographs by the National Mapping Programme may correct this impression. Cross-ridge dykes, a somewhat generic term for a highly variable landscape feature, may, in some cases, serve the same purpose particularly when skilfully combined with the more dissected landscape of the South Downs. Draping the bank, with its usually up-slope ditch, so that it reaches a point where a valley side steepens, as on the western spur at Kingley Vale, across Tenantry Ground or across Fore Down, enables a relatively short earthwork to block, if only symbolically, a route to downland grazing. Boundaries do not have to form an impassable barrier – the white of a chalk bank, if kept clear of vegetation, had been used to define areas since the ritual monuments of the Neolithic period.

Similar changes in landscape organisation were also taking place on the other side of the English Channel. At Saint-Vigor-d'Ymonville (Seine Maritime) a Middle to Late Bronze Age settlement set within an enclosure with adjacent fields was bounded to the west by larger areas of land contained with what are considered to be ranch boundaries (Lepaumier *et al* 2005). The site is set on a promontory and the authors suggest stock could have ranged widely over the marais excluded from the settlement area by banks surmounted with high hedges.

With these later field systems and with several of the ditched systems seen elsewhere and an increasing concern with control over access to water is indicated. On Whitmoor Common the alterations in alignment of the later system, perpendicular to the stream, may have been designed to allow stock to be driven from grazing areas beyond the arable fields to water; phosphate analysis suggested that the track, Gryme's Dyche, had been used as a droveway (Dolan *et al* 2004).

This relationship with water sources is not straightforward – on Brigmerston Down a linear earthwork was constructed parallel to the Nine Mile River effectively isolating the field system and settlement area from their water supply. In other areas water-holes were constructed and carefully maintained despite the proximity of a natural water source. On the west London gravels, holdings thought to represent individual farmsteads were each provided with water-holes. In some cases these were late insertions into the landscape, some designed with ramps for animal use and others from which water could be drawn by bucket, between 3260 ± 57BP and 2569 ± 62BP (Framework Archaeology 2006, fig 3.3), this despite water being available from the Colne close-by. At Swalecliffe in Kent a complex of 17 wells, probably used sequentially and with a time-frame lying between 1210 and c.700BC, lay adjacent to open water. In the Runfold and Tongham area of Surrey, an ecozone set where the Blackwater skirts the western end of the Hog's Back (chapter 3), multi-period sites excavated in advance of gravel extraction have provided evidence of Middle Bronze Age activity, and a number of wells probably dated to the Middle to Late Iron Age set within a mixed farming landscape (Poulton 2004; Rebecca Lambert pers comm).

Whilst practical reasons for separating human from animal supplies are obvious, the motive underlying construction of water-holes for animal use, rather than allowing stock to use the river, is less clear. It may be that previous communal arrangements were seen as inadequate given the amount of water now required and that, with reorganisation of the land into smaller arable units divided by grazing land, each unit was held responsible for its own water supply. At Heathrow Terminal 5 this situation does appear to have occurred: one of the consequences of the decision to use the main axis of the coaxial field system as the basis for later tracks thought to separate individual holdings parallel to the Colne was to effectively bar their direct access to water, something that would clearly have been recognised at the time (Framework Archaeology 2010, 143). Both waterholes (Framework Archaeology 2010, 159 and others) and flowing water (Bradley 1990) were considered suitable locations for votive deposition, and differences in the ways in which each could be used may have had a basis in the contemporary cosmology.

That stock had become of prime importance has been recognised for some time; the linear earthworks in Wessex and elsewhere are known as ‘ranch boundaries’ and their users described as ‘Wessex cowboys’ (Cunliffe 2004). Recognition of ‘midden sites’ has enabled a glimpse to be seen of the scale of stock production. East Chisenbury midden (McOmish 1996) is estimated, from a small sample excavated, to contain the skeletal remains of in the order of 255,000 sheep, 125,000 lambs, 60,000 cattle and 45,000 pigs deposited over a period of about 100 years (although assessment of a larger number of samples for radio-carbon dates with Bayesian statistical analysis may amend this period [Richard Madgwick pers comm]). Many of the bones were fragmented either through butchery or by gnawing by dogs, and horses and dogs were also eaten. Soil microanalysis indicated the presence of large amounts of faecal material, much of it ashed, a high proportion of which came from sheep / goats but with human also present. The amount of straw incorporated suggests the presence of waste from pens or byres. Charred remains from economic plants included bread wheat (*Triticum aestivum* type), spelt (*Triticum spelta*), emmer / spelt glume base (*Triticum dicoccum / spelta*), Barley *(Hordeum* sp), rye (*Secale cereale*), oats (*Avena* sp), hazel nut shells (*Corylus avellana*) and large legume fragments, probably ‘Celtic’ beans. The presence of free-threshing bread wheat, relatively unusual in sites of this period, has been noted in ritual deposits on other sites. Pottery analysis indicated that a small proportion of the sherds present had come from non-local production sites. The sherds had not been exposed to weathering prior to deposition and the differences in the types of vessel placed together in separate layers led to the suggestion that a ‘complex set of relationships’ was being expressed. Dating of the ceramics suggest that the site was in use from *c.* 800 to *c.* 650BC. Tools for cloth manufacture and leather working and evidence of bone and antler working attest some industrial production. Layers of chalk encountered within the matrix of the midden may represent attempts to consolidate or protect the growing accumulation or, from their white colour, to improve its visibility. The mound is located in a prominent position and an observation by Frances Raymond, when talking about settlement sites (given as a pers comm in McOmish *et al* 2010) that ‘there was a move towards locations with wider views that might have been an expression of the increasing important / prominence of relationships between, rather than within, communities’ seems prescient. Material may have been gathered elsewhere, stored, and then brought to the midden site, or large numbers of people brought grain, cooking pots, live animals with their fodder and bedding and craft tools to this central locus. But the scale and the communal involvement are telling; the authors remind us of Biblical feasts and modern rock festivals.

Within the Pewsey Vale a further nine certain and three possible ‘black-earth’ sites are known (Tubbs 2011). Most have not been fully investigated and it is far from certain that any are as large as, or are contemporary with, East Chisenbury, indeed such an apparent prevalence of contemporary sites seems inherently unlikely. Nevertheless, substantial flocks and herds must have been maintained in order to supply surplus stock on anything like this scale.

A number of similar sites in southern Britain have been the subject of large-scale archaeological interventions. At Potterne (Lawson 2000) a site covering more than 3ha appears to have been in use for a longer period, *c.* 1200 – *c.* 550BC. The mound was constructed on an eroded subsoil, perhaps indicating ‘cleansing’ prior to its special use, and activity in the area was spatially organised. A ‘road’, pits, post-holes and hearths suggesting domestic buildings, and evidence of metal working in addition to other crafts were also located. Here the lower portion of the matrix of the midden deposit contained large amounts of animal dung together with coarse charcoal, fused ash and heavily burnt bone. A preponderance of plain-ware post-Deverel-Rimbury ceramics, and copper alloy objects from the Penard metalworking tradition, together with three radiocarbon dates, place this primary period of accumulation of the midden material soon after *c.* 1200BC. The upper, and larger, layers also contained large amounts of material from domestic, agricultural and herding activity including coprolitic material from sheep, pigs, cattle and dogs. These later deposits dated to the 9th century BC.

The majority of middens so far identified are on the chalklands of Wessex, but two distant from this area shed further light on the development and use of the sites. At Runnymede Bridge (Surrey) an area of refuse disposal, area 16, was excavated as part of a multiple period site close to the Thames (Needham & Spence 1996). Radiocarbon dating placed deposition to a period between 250 and 430 years (68% probability) during the 9th to 5th centuries BC. Analysis of the animal bones from Late Bronze Age contexts (Serjeantson 1996) showed the main species to be sheep, cattle and pigs and, although sheep were the most numerous identified (40.5%), most meat would have come from cattle (27.6%) and pigs (29.2%). These two latter species are identified as important to Celtic society from law codes and legends of the early 1st millennium AD; cattle for beauty and milk, not meat, production, and pigs and wild boar for communal hog roasts. The site, controlling as it does traffic along the Thames corridor, produced evidence of high status, and a role as a gathering place for feasting, exchange, and taking part or observing ceremonial events was postulated. Stabling of horses may have been one of the specialised activities which took place at this 'nodal' site.

At Llanmaes in the Vale of Glamorgan the bones from a midden site have been the subject of intensive study (Madgwick *et al* in press [a]; in press [b]). At this site a high percentage of the skeletal material, some 74% Minimum Number of Individuals, derived from pigs, over double the percentage seen at other midden sites at Whitecross Farm (Wallingford), Runnymede bridge, Potterne and Whitchurch). These sites in turn contrast with contemporary non-midden sites where pigs usually provide less than 10% of the skeletal material. At Llanmaes isotopic analysis indicates that a number of the individual pigs had not been fed on material from the immediate vicinity of the midden. A number of scenarios may be posited; the animals were brought live from a distance and killed on site, they may have been killed close to their home areas and only the meat transported, or sufficient fodder may have been carried from distant pastures to feed the animals from weaning to slaughter. Given the omnivorous diet of pigs the last of these three suggestions seems the least likely explanation, but the first cannot be differentiated with any certainty from the direct evidence. Long-distance droving of pigs, not necessarily transhumance (Turner in prep), is well attested during the Late Saxon and Medieval periods, and, given the evidence of penning and preponderance of dung in midden matrices, this is the more likely explanation.

Further insight into the treatment of stock at midden sites can be gained from the element composition of the pig bones from Llanmaes (Madgwick 2008). Of the limb elements 88% derived from the fore-limb, and of these 79% were right-sided. This disparity was not observed in other species. The evidence from Llanmaes of formalised, and perhaps ritualised, practices in the processing, consumption and deposition of a single of species of animal, with individuals probably brought from far away, emphasises the difference between midden sites and ‘routine’ disposal of ‘rubbish’.

Production of stock for use as meat in feasting contexts continued into the Late Iron Age. At Hallaton (Leic) (Score & Browning 2010) an area of animal bone deposition outside a shrine complex contained pits in which the skeletal remains showed selectivity based on both species and age. Here again, pigs were the dominant species but at this site the right fore limb was under-represented. During this later period, pigs dominate the bone assemblage at a number of sacred sites in south-east Britain including Chanctonbury, West Sussex (Rudling 2008, 115), Hayling Island, Hants (King 2006) and Wanborough, Surrey (Williams 2008); and pigs are associated with feasting, war and the underworld (Green 1992, 18). Evidence from some Late Bronze Age to Early Iron Age midden sites suggests this favouring of pork was of considerable longevity.

A study of deer hunting during the Middle Anglo-Saxon period (Sykes 2010) shows that bones from different parts of the carcass were found on rural, elite and religious sites, suggesting social differentiation in the distribution of the kill. Perhaps unsurprisingly, rural sites produced the poorest joints, lower jaws and shanks, whilst prime cuts went to religious houses. Only with post-modern irony do we serve shepherd's pie at competitive dinner parties!

Increasing emphasis on stock raising imposes different priorities in land use and can also create a very different society. The 'ranch' boundaries patrolled by Cunliffe's (2004) 'Wessex cowboys' divided the land into large grazing areas. Stronger boundaries would have been needed to keep the stock out of fields in use for crop production, as would access to water on a daily basis and, given the propensity of cattle to trample and pollute open water, perhaps the advantage of separating sources used by stock and by humans would have been recognised. The number of young animals whose remains have been found on some midden sites points to the need to over-winter large numbers of pregnant females – both cattle and sheep are short day breeders and will abort if malnourished during gestation. Storage of fodder and its provision either in the grazing areas or to stalled animals would have needed specialised buildings and increased labour requirements particularly in periods of bad weather. These requirements are met by the new design in field system and excavation has shown evidence of further characteristics of stock management in the form of sorting gates and funnel entrances onto open grazing at Peacehaven (East Sussex) (Hart forthcoming) and in the complex use of lush fenland grazing (Pryor 1996).

The break with the past did not go unrecognised; placing settlements over or cut into existing field boundaries has been observed too often to be coincidental, and has already been mentioned. Re-use of boundaries from the old system as part of the new could have been a pragmatic choice to reduce the labour involved, but a step running through a settlement or perhaps even through a building would have created practical and structural difficulties. An act of incorporation, involving the past within the present, instead of rejection of the ancestral world and all the risks that entailed, may explain this observation.

Although iron came into use by the earlier part of the 1st millennium BC production was small-scale and its use was apparently not common in southern Britain before the 3rd century BC (Ehrenreich 1994). This lack of early use should not be overstated; the comparison with the amount of bronze is distorted by an increasing amount of that metal becoming redundant and being deposited and therefore visible, whilst iron may have been intensively recycled (Needham 2007). But, in contrast with the ores of copper and tin, iron ore is widely available in southern Britain (Salter & Ehrenreich 1984, 147-148; Ehrenreich 1985, 16-19) and metal objects would have been made locally (Sharples 2007) – production no longer entailed long-distance trade agreements, and access to products would have been more difficult to control (Bradley 2007, 232). If command over production of particular items cannot be restricted by an elite, those items are unlikely to attain high status, a position never held by iron despite its novelty and utility. Indeed, there is a general lack of material culture associated with the Early Iron Age and weapons and jewellery are seldom found. This need not suggest a general collapse, the archaeological record tends to be biased towards high status goods in non-perishable fabrics, and, if the exchange spheres are separated (Rowlands 1980) then local trading networks could have continued in use. But for the elite, status and identity had to be defined in other ways (Sharples 2007).

One possibility is that control over labour, rather than the ownership of elite goods, acted as a mark of status, and the use of that labour to create bounded enclosures gave visible identities to members of the elite (Sharples 2007). Early hillforts, now dated in Sussex to the Late Bronze Age (Hamilton & Manley 1997), were products of that labour placed in dominant positions in the landscape emphasizing the power of the communities that created them. In contrast with those who created coaxial field systems as markers of land ownership, their successors saw iconic monuments and conspicuous consumption as their social identifiers. The ownership of stock, horse riding with its attendant paraphernalia, and the provision of ostentatious feasts, doubtless accompanied by alcohol, music and story telling, also became the currency by which status was expressed. All these forms of wealth are portable and horse borne raiders driving off a herd of cattle have greater *panache* than the slow loading and movement of carts of grain. Changes can be seen in the nature of society exemplified in types or settlement and in artefact assemblages – these changes show, above all else, an increase in the tendency towards aggression.

An increasing tendency towards nucleation of settlement, increasing evidence of settlement hierarchy and the location of high status settlements in dominant locations, not in itself new, can be seen within the area under consideration. In Sussex the earliest 'hillforts' can be dated to the Late Bronze Age (taken as *c*. 1000 – *c*. 750 cal BC) (Hamilton & Gregory 2000). Their ramparts served to emphasise separatism and hierarchy (Bowden & McOmish 1987; 1989) but their power and defensive potential would have been understood within a militarised society. Weapon technology advanced from relatively ineffectual bronze rapiers to heavy slashing swords and such items were seen as suitable for deposition in water, particularly close to the confluences of east-flowing rivers like the Kennet and the Thames (Darvill 1987, fig 69).

Evidence of warfare itself, rather than the need to prepare for a perceived risk, needs more consideration than it is usually given. By the Late Iron Age and possibly the Middle Iron Age, such evidence comes from a number of sources. Written sources from classical historians cannot be taken at face value; Gaius Cornelius Tacitus in his *Germania*, for example, gave hearsay evidence of the Continental situation during the 1st century AD, and the relevance, if any, of these descriptions to Britain at the beginning of the 1st millennium BC is uncertain. On the Continent physical evidence is widespread, particularly in *Gallia Belgica*, but much of this dates to the Late pre-Roman Iron Age and relates to the Caesarian invasions. Whilst the evidence from southern Britain is less clear cut there is a general acceptance that warfare in the centuries before the Claudian invasion was 'real'. In an examination of the evidential basis on which the probability of war might be acknowledged (Wileman 2009), a number of correlates were identified, and the Late Bronze Age in the Middle Thames Valley used as a case study. Here it was notable that the correlates for preparation for warfare, including field system and settlement abandonment, were stronger than those resulting from actual aggression. The point is made that, although war was still a possibility, the event may have been averted, for a while at least.

In all the case studies reported here abandonment, or at least a hiatus in utilisation, takes place after the Late Bronze Age to Early Iron Age transition and other explanations must be suggested. Nucleation of settlement has been mentioned above; most settlements set among or close to field systems show little evidence of occupation into the Early Iron Age. Abandonment of field systems presents problems of both definition and recognition. Some, for example at Woodcorner Farm to the north of Whitmoor Common, are in use today but that does not necessarily mean they have been in continual use since the Middle Bronze Age. Boundaries, fossilised in the landscape, could be seen as convenient and re-used at any period and many, if not most field systems have probably been thus re-used. What is clear is that if the Late Bronze Age to Early Iron Age field systems continued in use manuring practices changed, and domestic debris, which included pot sherds, was no longer used. Pottery later than the post-Deverel-Rimbury tradition, and earlier than Late Iron Age, is seldom found stratified within the matrix of lynchets and there is no reason to believe that it would not have survived as well as that made during earlier or later periods.

Arable farming clearly continued but we have difficulty in ‘seeing’ its fields if, indeed, there were any. A population collapse is possible, but the lack of evidence may be more perceived than real. In Kent, excavation in advance of development of linear infrastructure routes has shown variations in the density of settlement during the Early Iron Age and, although several areas of Middle Iron Age activity were located, structures were rare and probably ephemeral (Champion 2011). What seems more likely is that, with the primacy of stock as a source and expression of wealth, and a mobile, raiding culture, focus, in terms of labour, identity and status, turned to the hilltop enclosures. More stock meant that manure to retain soil fertility was available from non-domestic contexts, possibly simply from folding animals on fallow areas. The old fields may have remained in use without addition of household rubbish, and therefore contemporary pottery, perhaps taken to build middens, leaving only residual Bronze Age to Early Iron Age artefacts being deposited within the lynchets.

However, the type of land where above ground earthworks survive is, of course, that which has since been used primarily for grazing. A movement towards the supremacy of stock on downland sites could result from greater specialisation of particular settlements within the model of larger ‘estates’. Crop production, might be undertaken on more fertile soils, precisely those used since, particularly after the downs had been subject to erosion, whilst stock predominated on the chalk leaving little trace.

In the Late Iron Age coaxial field systems were again being constructed (for example Giles 2007) and southern Britain produced sufficient grain to export a surplus (Jones & Mattingly 1990, 57). By that time division of the country into large tribal areas would suggest that land would have been in the gift of the paramount chieftains, through a hierarchy of his trusted family and followers (Kirch 1984).

10.4 Chronology, causation and context

Our inability to provide accurate dates for the construction of field boundaries, even less field systems, bedevils attempts to place their genesis, their remodelling and their abandonment within the wider framework of socio-political and economic change.

The generally accepted date for the genesis of the earliest coaxial systems lies in the range 1800-1600BC but recent work is pointing to an earlier date. Field boundaries, mainly in Dorset, have been assigned dates from radio-carbon measurements of stratified sequences and, to a lesser extent, by Optical Stimulated Luminescance with the earliest pre-dating 2000BC and possibly as early as 2400BC for developed lynchets (Mike Allen pers comm). On Thanet a coaxial field system, with ditched boundaries has provided dates for the first ditch infilling of 1910-1750 cal BC (at 95% probability; 1880-1770 cal BC at 68%) and a recutting of the ditch of 1860-1690 cal BC (at 95% probability; 1870-1680 cal BC at 68%). A grain of emmer wheat and a spelt glume base from probably associated features gave radiocarbon dates of 1890-1690 cal BC (at 95% probability, SUERC-32250 and 32886) (Barclay *et al* 2011). At Newark Road, Peterborough, in the Flag Fen Basin a radiocarbon date associated with an inhumation burial of 3030-2500 cal BC (at 95% probability HAR-780) provides a very early date for the start of use of the area of the central field system but not necessarily of the field system itself, there being no direct relationship between the burial and the ditch system (Pryor 1980; Bayliss & Pryor 2001). Other dates place the use of the field system within the date range *c.* 1700 to *c.* 800 cal BC (UB-676, 1690-1400 cal

BC; UB-677, 1430-800 cal BC; HAR-785 1300-910 cal BC, all at 95% confidence limit) (Bayliss & Pryor 2001, table 16.1, fig 16.4).

Whilst it is not yet possible to say whether these are exceptionally early, and apply only to southern Britain, placement within the Beaker Period is of major importance. And yet placement within a period of mobility of people and ideas on a European scale, suspected for some time by a small coterie, seems right. The increased marking of visible status through ownership and, presumably, display of personal items – gold jewellery, wristguards, copper and bronze objects, the ‘new’ ceramic, highly decorated and, in the main finely made, beakers – which spread throughout and beyond Europe from Algeria to Norway and Ireland to Hungary marks a move towards an increasingly complex and hierarchical society. Rather earlier than we had thought, competition for objects might have led to a need to claim and husband the most basic of resources, land.

Whether coaxial field systems, or indeed field systems in general, were an insular development or were a cultural development adopted from the Continent is uncertain. Given the problems in dating the earthworks and, particularly, the lack of a tradition in landscape archaeology in Belgium and France, the relative dating of the earliest examples in Britain and on the Continent is unclear. However, the distribution of coaxial field systems in southern Britain, stretching from West Penwith, Cornwall over the moors, chalkland, coastal plains and river valleys of south-western, central southern, south-eastern and eastern Britain as far north as East Anglia (for example Yates 2007, fig 12.2) strongly suggests a Continental origin. Contact across the southern North Sea, and the Channel from the Dover Straits to the Western Approaches, could have provided the necessary links.

Alpine space was restructured from *c.* 2500 BC when the first substantial, stone structures were built to facilitate use of high altitude pastures, and influencing routes to and between them (Walsh & Mocci 2011). This intensification was contemporary with movement of the centres of copper ore mining from the Massif Central into the Alps and seems to signal an increasing importance of trade and exchange of animal products. Work in north-western France is starting to identify field systems associated with single farms and clusters of farmsteads and to date the complexes to the middle of the 2nd millennium BC. At Tatihou, now an island but probably then an area of relatively high ground, fields surrounded an open settlement whilst at Nonant investigation in advance of development of some 200ha produced plans of two contemporary farms within sub-rectangular enclosures both associated with field systems (Marcigny & Ghesquière 2008). Both these sites close to the north Normandy coast produced Deverel-Rimbury style pottery but at St Vaast la Houge, on Tatihou, finds of imported Deverel-Rimbury and Trevisker pottery attest cross-Channel contacts (Marcigny 2008). Whilst in general these sites appear later than the earliest found in Britain, there is a general view that field systems in northern France originate *c.* 1800 BC (Cyril Marcigny pers comm); given the problem with assigning a date to this development a probable model suggests a cultural spread of the concept of permanent visible enclosure of land from the Continent to Britain.

Cross-Channel links, included within a framework of increasing exchange networks, are evidenced long before the beginning of the 2nd millennium BC but varied in their nature and intensity. Although there was little cultural linkage, a limited number of high status items or materials travelled between southern Scandinavia, Armorica and southern Britain (Jockenhövel 2004). This movement of objects, not 'trade' in the sense that we understand it, but a one-sided need by the recipient community or individual with no balancing need to export, was 'a form of raiding' (Needham 2000). Amber found in southern Britain had travelled far from its source but much of the workmanship involved in turning it into objects of high status appears to have been local (Beck & Shennan 1991). This type of connection need not infer any common cultural linkage as might be expected between peer-polity relationships.

The changing relationship between communities on either side of the Channel is exemplified by developments in the incorporation of items within Beaker grave groups in southern Britain (Needham 2005). Between *c.* 2500 and *c.* 2250 cal BC few Beaker goods are found in grave assemblages – any individuals who crossed the Channel retained their own specialised identity, and were assimilated only slowly into the burial rituals of the indigenous culture. Later, from *c.* 2250-1950 cal BC, *the fission horizon*, this Beaker identity became more widespread and was itself more subject to diversification. By *c.* 1950-1700/1600 cal BC few grave assemblages are purely Beaker in content and a greater cultural mix is evident. This chronology appears to mirror the period of occurrence of the first coaxial field systems described above. The earliest are probably dated within Needham's *fission horizon*, suggesting an advent linked to the spread of Bell Beakers from the Continent with acceptance and general use delayed until later in the 2nd millennium BC. The apparent lack of settlements contemporary with these earliest systems may be addressed, partially at least, by the observation of Beaker activity, possibly associated with settlement, beneath colluvial deposits in the dry valleys of the South Downs and elsewhere on the chalklands of southern Britain (Allen 2005c).

Social inequality was an early explanation for the genesis of the Dartmoor reaves (Fleming 1978, a view that one man (probably) had the right to order division of a large area of land. The same author has since modified this argument (Fleming 1987; 1988) and the observation of a relative lack in differentiation in wealth expressed by grave goods has also been noted (Bradley 2007, 160). However, in a model of wealth distribution under contrasting modes of 'Margin' and 'Best-price', agricultural economies were seen as delayed-return systems (Bentley *et al* 2005). Land ownership, if to the exclusion of others, tends to divorce the majority from the fruits of their labour (Barnard & Woodburn 1987). This, under the 'Best-price' model, tends towards a hierarchical society with the wealth concentrated in only a few hands. Although used in the original paper to explain ideological differences between hunter-gatherers and agricultural colonists, the model may have relevance when examining the ownership of prestige items during the Beaker period if agricultural products. In a modelling exercise based on archaeological information from Early Bronze Age south-east Arabia the relationship between specialisation and wealth inequality has been explored (Rouse & Weeks 2011). Here the specialists, those involved in copper smelting, ceramic production, oasis agriculture and baked steatite bead manufacture, accumulated wealth which they were then able to use to procure exotic goods from elsewhere in the region; textiles, semi-precious stones and ivory, for example. Wealth inequality through control of land, and therefore of its produce, may yet have its place in explaining the agency through which new ideas and goods from Beaker specialists might be exploited.

The ability to obtain prestige items from other than local sources may have depended on ‘straight forward’ trade as we understand the term, but is more likely to have involved a network of exchange between individuals of perceived equal status. This diplomatic gift exchange, of ‘non-local raw materials, exotic artefacts and esoteric knowledge – but also people, for example, marriage partners, adoptees, ambassadors, interns or craftsmen’ would have served to demonstrate the mutual status of a small group of individuals at the very top of the hierarchy within cross-Channel ‘maritories’ (Needham 2009).

Closer links appeared a little later and continued, in the metalwork traditions particularly, throughout the Bronze Age (Burgess 1968) but, on the British side of the Channel, these links involve, among others, a region based on recovery of Willerby and Arreton stage metalwork which stretched along the southern coast from Cornwall to Kent (Needham 2006, fig 38). Notably, this region excludes Wessex – although the ritual centres of Wessex continued to attract prestige items, or perhaps more importantly far-travelled materials with special qualities, like amber with its electro-magnetic properties (Helms 1998). Access to the area could have been controlled by coastal communities around Hengistbury Head, the Solent and Portsmouth / Chichester, an area with numerous safe anchorages.

Identification of landing places is notoriously difficult given the ephemeral nature of any structures and the rare conditions under which they are likely to be preserved. A different approach, studying the requirement for such locations, has recognised a number of characteristics (Wilkes 2007):

- Favourable tides and currents
- Prominent landmark visible from the sea
- Approaches free from obstacles
- Safe anchorage sheltered from prevailing westerlies

- Capacity for secure storage of high value imports and exports
- Access to navigable rivers for forward movement of goods and people

Although this piece of work relates to sea journeys during the Iron Age there is no reason to doubt that these concerns pertained in earlier prehistory and, indeed, to any period pre-dating electronic aids. 'Nodal' points are identified along the entire south coast (*ibid* fig 12.1*)* but on the eastern portion Poole Harbour, Hengistbury Head and Christchurch Harbour, the Solent, and Portsmouth and Pagham Harbours are noted. Along the Sussex coast the estuaries of the rivers Arun, Adur and Ouse, Pevensey Bay, Coombe Haven / Bulverhythe, Fairlight Cove and Rye Harbour are high-lighted as are further locations on the southern coast of Kent as far east as Dover. Note has already been made of the possible role of Thunder's Barrow (chapter 9) as a seamark and the wealth of graves in an area centred on Hove. The amber cup from the Hove barrow is one of a small number in gold, silver, jet and shale which exemplify contacts within the Channel maritory, contacts facilitated by the development of plank-sewn boats in the early 2nd millennium BC (Wright 2004). Looking at the shore from close to these potential anchorages the traveller would have seen a newly enclosed and formally organised landscape of fields. Assurance, surely, that these people were 'civilised', 'like us' and understanding of the requirements of modern cultural exchange.

Work close to the 6th century Merovingian *emporium* of Quentovic in the Canche estuary has produced extensive evidence of prehistoric activity in an area ideally positioned for cross-Channel contacts (Philippe 2009). At Mont-Bagarre near Étaples, some 5km up the estuary, a large oval enclosure with three entrances, produced pottery more overtly in the British tradition than that from contemporary local sites, which in Britain would be dated to the period *c.* 2000 - *c.* 1700BC (Desfossés 2000, 39-40). A nearby but later enclosure, dated to the 19th to 16th centuries BC, and with a period of expansion between the 17th and 15th centuries BC, also produced pottery with strong cross-Channel references. Occupation continued and the later phases produced pottery reminiscent of British Deverel-Rimbury tradition (*ibid*). Whether the people who lived at these Canche estuary sites were British recipients of trade from British or were British colonists cannot be determined, but contact over several centuries places this sheltered estuary as a possible point of linkage with the Sussex coast, particularly the area of high status burials around Hove (Drewett *et al* 1988, fig 3.7).

If indeed the earliest field systems do date to the Beaker period, Needham's (1996) periods 2/3 as already discussed, then they were probably few in number. A *fission period,* when a rapid change in Beaker form has been identified along the southern side of the Channel (Needham 2005) may also relate to the time when they first occurred; at first they may have been limited to their Continental predecessors and to Wessex, then still an area of prime spiritual importance, probably on a European scale. A spread of the new and highly visible marker of status during the Channel Bronze Age to encompass wider coastal areas of southern Britain and the Continent may be postulated. Inevitably, high status objects trickle down the social scale to be replaced at the top by the latest products of the newest technologies, and field systems were no exception. The coaxial arrangement was clearly successful in terms of food production and became part of the general landscape, with many systems being formed during the middle centuries of the 2nd millennium BC. Despite the change of burial practice, the second phase on Whitmoor Common (chapter 3), constructed on a palaeosoil dated to the 14th to 12th century BC, may well have been one of the last; for a period of at least eight centuries the division of land into a formal grid marked the agricultural landscape of southern Britain.

If this chronology is correct and the great expansion of coaxial field systems took place in the middle centuries of the 2nd millennium BC this more general reorganisation, and possibly democratisation, took place against a background of major change in other aspects of society. In the Early Bronze Age the British Isles, with their sources of gold, tin and copper, produced bronze before areas close-by in Europe (Bradley 2007, 156). An extensive network of sea routes facilitated movement of both raw materials, and a few finished products, with, in this study area, an emphasis on control of the export of Cornish tin (Sherratt 1996). Burial of the dead in barrows situated on higher ground, but with a concern for overlooking water sources, provided a visual link with the living and, possibly, a right through ancestry to exploit the land for food production.

By *c.* 1650 BC Britain had lost its pre-eminence in metal production, ore sources on mainland Europe were increasingly exploited and, despite the availability of local supplies, Continental metals were imported into southern Britain. From *c.* 1500 BC there appears to have been an increase in settlement activity, with substantial buildings associated with larger artefact assemblages. Some areas were abandoned - the rab soils of the south-western moors became acidic and waterlogged, and rivers became clogged by erosion products and flooding increased (French 2003, chapters 6-10). Mitigation strategies included specialised use of marginal land. Riverine grazing areas beside the Thames (Sidell *et al* 2002) and low-lying areas like the Somerset Levels (Coles & Coles 1986) and the fens (Hall & Coles 1994) were accessed, possibly only seasonally, by brushwood causeways. Use of heavier soils, London Clay (Lambert 2008) and Weald Clay (Wells 2005), for example, and the instances noted here of fields extending on to areas of Clay-with-Flints (Stockbridge Down [chapter 8] and Thundersbarrow Hill [chapter 9]) (*contra* Moffat 1988) add to the impression of a system under some pressure. This pressure, perceived or real, due to deterioration of certain types of land, and perhaps increasing population, may underlie the increased claiming of land by extending the area enclosed in field systems and the bounding of those systems. Certainly some of the aspects of land use recorded here, use of marginal land including heavy soils and steep slopes, the relative lack of land for grazing and timber production have resonance when compared to the situation in the 12th and 13th centuries AD – an example of population stress only released through the agencies of the Great European Famine and the Black Death (Dyer 2002, 228-254).

Although the wholesale change in emphasis towards stock farming is thought to have taken place at a later date (see below), some settlements appear to have developed specialisations during the Middle Bronze Age. At Peacehaven the extensive area with its ditched boundaries designed for stock handling and management, and its contemporary settlements, dates firmly to the Middle Bronze Age (Hart forthcoming). Although situated on top of the South Downs, overlooking the Channel, the chalk is here overlain by Woolwich Beds, an Eocene deposit of clay up to 10m deep (Gallois & Edmunds 1965, 48) and more difficult to cultivate. In the Fens this specialisation was earlier in date, with land divisions suitable for controlling stock laid out at right-angles to the wetlands, and radiocarbon dated to around

1800 BC (Pryor 1998, 89 *et seq*). They remained in use, probably as part of a transhumance pattern, until approximately 900 BC when the fen became too wet for use as summer grazing. Analysis of pig and sheep husbandry south of the Thames (Serjeantson 2007) also shows some evidence of specialisation on some sites, with both sheep and cattle kept for milk production in the Late Bronze Age.

Nevertheless, most of the evidence places the settlements most likely to have been associated with the later field systems approximately within the period of production of post-Deverel-Rimbury pottery, *c.* 1150 – *c.* 500 cal BC (Seager Thomas 2008). More precise dating within this period is not possible given the nature of the available evidence. Although some pottery has been recovered it is, in general, not from sealed contexts and is certainly not securely placed in relation to the construction of any of the field systems. Settlements cut into or overlying lynchets from the second phase of the field systems described here have produced post-Deverel-Rimbury plainware (Fore Down, Plumpton Plain B), developed plainware (Plumpton Plain B, Thundersbarrow, Black Patch [Drewett 1973; Tapper forthcoming]) and decorated ware (Thundersbarrow, Black Patch). By definition these settlements, whose genesis may cover a wide time span, post-date development of the field boundaries. Given the length of time over which coaxial field systems were constructed and used there is no reason to postulate a rapid transition to those more suited to a stock-based economy. However, within the area studied the change appears to have been universal, the only exception being Whitmoor Common where deterioration of soil structure on superficial Eocene sands probably lead to abandonment, or, at least, use only for rough grazing.

Other changes during this period seem to have taken place over a shorter horizon. The abandonment of large quantities of bronze in hoards containing Ewart style metalwork has long been recognised (Burgess 1979). The reasons for this increase in deposition are obscure but seem to indicate some crisis, either evidence of a change in the way status was expressed or a perceived need for extra propitiation of the gods. The scale, however, was considerable, with Ewart metalwork being deposited at a rate in the region of five times that of the preceding Penard and Wilburton traditions (Needham 2007, fig 6). Ewart metalwork dates to the period *c.* 1020-800 BC with 'mature' Ewart, found in many hoards, post-dating *c.* 920 BC, and contemporary with post-Deverel-Rimbury decorated ceramics (*ibid* fig 2). A perhaps justifiable speculation might then place abandonment of the agglomerated field systems, with their overlying settlements, roughly contemporary with Stuart Needham's (2007) 'Great Divide' at *c.* 800 BC.

Climatic change is often suggested as the driver for changes seen during this period, with colder and wetter weather causing silting of river valleys and having a deleterious effect on farmed landscapes. The evidence is variable and dating extremely difficult – many of the observed changes are down-stream events; it is also apposite that, whilst rain and cold might cause abandonment of the moors of the south-west, lower slopes on the chalk downs of central southern and south-eastern Britain would benefit from extra rainfall. The reason for the downturn is uncertain but asteroid or comet impact has again been implicated (Franzén & Larsson 1998). This change, occurring at *c.* 850 BC, may have been relatively abrupt (van Geel *et al* 1998). If, as thought, the cause was a combination of low solar radiance with a high intensity of cosmic ray flux, the results would have been observed at the time in the form of an atmospheric veil, increased rain and cloudiness and decreased temperature (*ibid*). Occurring within living, or at least folk, memory, these changes may well have been too rapid for mitigation strategies available at the time to have taken effect, and may have precipitated social and economic dislocation. In Britain it is thought that average temperatures in the 2nd millennium BC were about 1^{o}C warmer than those of the present day, and that the climate cooled during the early 1st millennium BC (Tinsley &Grigson 1981). Whilst the degree of cooling would have had little effect on modern crop growth in areas below *c.* 300m OD, prehistoric grain, with some 3000 fewer years to adapt, may well have been more vulnerable.

10.5 In summary

Two cycles of field construction and use have been observed. A few examples of enclosure seem to have started in the centuries around 2000BC, followed by a peak period in the middle of the 2nd millennium BC when huge areas were included within rectilinear grids.

These grids were replaced, often overlain, by smaller agglomerated systems about 1000BC or a little later, only for most to be abandoned during the Early Iron Age.

The possible causes for these periods of growth and collapse have been discussed, but polities in general can be seen to go through such stochastic cycles. Using communities from the circum-Alpine Late Neolithic and a range of archaeological and environmental parameters, the size of populations is noted as fundamental to understanding cultural persistence (Shennan 2000). Small communities may be more mobile and subject to take-over, with their cultures dissipated, whilst larger groups have greater stability. Populations are dynamic, and in the Chalain / Clairvaux region the correlation between changes in population size and fluctuations in ^{14}C concentrations indicate climate change as a causal factor (Arbogast *et al* 1996; Pétrequin 1996). However, these lake-edge settlements would have been particularly susceptible to the effects of climate change and, although climate in the Holocene is now known to have been more variable than had been assumed (O'Brien *et al* 1995; Bond *et al* 1997), the effect on the chalklands of southern Britain may well have been less pronounced.

Mathematical modelling of interactions between chieftain led communities (Gavrilets *et al* 2010) indicates that the most powerful drivers of collapse are social - defeat in warfare, rebellion by sub-chiefs and fragmentation following the death of the paramount chief – notably the conditions we tend to emphasise, overpopulation and climatic deterioration, appeared less effective.

Population increase, enabled by an adequate supply of food and resulting from personal decisions, may have resulted in a perceived need to claim land and to define the areas claimed. A profound social change towards a raiding culture, with the ownership of stock rather than bronze and land denoting status, resulted in a reorganisation of the farming landscape. The causes underlying this change are unclear, but the result appears to have been an increase in aggression and eventual population collapse and concomitant settlement abandonment.

10.6 Finally

Although the work presented here has provided some information about the changes made to field systems during the 2nd and early 1st millennia BC it has, perhaps inevitably not provided answers to all the questions posited, but has posed further queries in need of solution. A greater understanding of the effects of climatic fluctuations on different geologies, and finer resolution of the timing of those variations would assist. Better dating of field systems in general and of their components in particular is essential. The need for present food security is likely to result in ploughing more of our permanent grazing land and destruction of our primary evidence. Protection of the best preserved field systems, in their entirety, and over differing environmental regions, is necessary if future generations are to be enabled to read their story.

Conclusions

Survey of the above ground evidence for prehistoric field systems in a number of areas of southern and south-eastern Britain has shown evidence of the deliberate construction of different phases, one overlying the other, rather than adaptation of existing patterns.

The earliest systems, preserved only in agriculturally marginal, upland areas, are represented by the enclosure of large areas within highly formally organised, rectilinear grids. These grids are draped across the topography but where routes for movement can be seen they are generally along the scarp edge of the downs and ridges running from it. The main alignment tends to be just east of north and, although governed to a large extent by the local topography, slight differences in adjacent field systems may have been used as a signal of group identity. Possibly by chance, given the general lie of the land, this alignment ensures that the main axes present their length towards the south-east, the direction also faced by doors and porches of contemporary round houses. The manner in which these large areas were used is uncertain, but the entire area may not have been enclosed as a single event. Piecemeal additions may have been made but the form of the grid was scrupulously maintained. In a few cases some of the grid of fields can be divided into smaller units as a size suitable to maintain a family, and this may introduce the concept of inherited land. A considerable level of social organisation would have been required to create the systems and to ensure agreed routes of access to communal resources.

It seems unlikely that the sole, or perhaps even the primary, purpose of these systems was agricultural. People had been growing crops on plots for two thousand years without any perceived necessity either to permanently mark their individual boundaries or to organise them into formal systems. These rectilinear grids of fields appear to have their genesis on both sides of the Channel around 2000 BC or a little earlier, at a time when cross-Channel trade underpinned the development of elites who demonstrated their status by the possession of prestige objects. If field systems can be regarded as objects, their visibility, sometimes from the river or coastal routes, could have signalled an understanding of the prevailing orthodoxy by those in the area. As such, they can take their place within an assemblage of goods designed to enhance the reputation of the recipients of cross-Channel trade. The concept of a maritory, an economic rather than a cultural union, may account for the distribution of early systems in Wessex and the south-east.

By the middle of the 2^{nd} millennium BC field systems were no longer new, their availability had trickled down the social strata, and their prevalence suggests at least a perception of land pressure, caused either by population increase or by decreasing fertility. Even if used piecemeal, and allowing for periods of fallow, the carrying capacity of the land if used to grow high protein content grain would have provided nourishment for a greater population considered probable at the time. In addition, field systems were constructed on slopes too steep to be ploughed with ease, and where erosion would have rapidly removed topsoil. On Whitmoor Common both phases of field system were constructed on land where podzol development was sufficiently well advanced to have visible effects on the vegetation and to have reduced crop yield. The land may not have been needed in strictly practical terms, the requirement was to mark areas as owned in case of necessity at some time in the future.

By the turn of the 2^{nd} to the 1^{st} millennium BC these requirements had changed. Smaller, less formally organised, agglomerations of fields were constructed over those of the previous generations. Some boundaries were re-used, others created *de novo*. The past was not forgotten – in acts of incorporation new settlements were constructed directly over the earlier lynchets, despite the inconvenience that may have caused. These smaller systems, with areas of open land around them, avoided the lusher grazing in the valley floors and their design seems most suitable for a stock-based economy. In Wessex, and as far east as eastern Hampshire, wider areas were enclosed by linear ditch complexes placing the enclosed fields with their settlements within defined zones of open grazing land. In Sussex, where the natural topography is more dissected, the same function may have been fulfilled by cross-ridge dykes. This term is generic for a monument type, largely undated, and probably constructed for a range of purposes. Some cross ridge dykes block, visually and symbolically if not strictly practically, the ridges previously left free for movement.

The change from regarding land, immobile and permanently marked, as a visual show of wealth to stock, mobile and more easily acquired through raiding, resulted in a different culture. Instead of agreements on land division being formally arranged, social cohesion could be maintained though a system of patronage and gift-giving. Ostentatious and competitive social gatherings, at set places with people and stock attending from far and wide, with meat to feast on, alcohol to drink, and doubtless story-telling and music, trading in goods and marriage partners, resulted in the sites we know as middens. These sites, with their high coprolitic content, attest the primacy of stock since they are a clear statement of the ability of the community to waste, in our terms, their main source of manure.

Whilst the mobility of a raiding culture with its ability to appropriate portable, or at least drivable, wealth is likely to lead to an increase in aggression within society, it does not make warfare a necessity. At an uncertain date, but possibly around 800 BC a third change occurred in the majority of the areas studied. Field systems and their settlements appear to have been abandoned; however, it is possible that nucleation of settlements accompanied by a change in manuring practice such that domestic sources, which include pottery, were no longer used. Given the increased amount of manure available from the change in the stock / crop ratio, piles left to mature in the fields or even folding may have superceded the need to collect every scrap from close to settlements. Certainly pot sherds from the Early to Middle Iron Age are seldom found within the matrices of lynchets.

There remain many uncertainties, not least in converting relative to absolute chronologies. A ‘wish list’:

- If the early fields are to be accepted as late Beaker in date more well-dated examples are needed
    - If the distribution in southern Britain does reflect a Continental origin, early, and similarly well-dated examples need to be identified across the Channel
    - The dating of field systems needs to be subjected to greater rigour that it frequently receives
- The origins of settlement sites producing Deverel-Rimbury tradition pottery need to be clarified

    - A number produce very small amounts of Beaker style pottery which may point to an earlier genesis
    - The present broad periods to which particular pottery styles are assigned need to be narrowed and the possibility of regional variations examined
- The possibility of multiple, possibly shifting, unenclosed settlements set within the early fields needs to be addressed
    - Development, and therefore developer funding, rarely provides for large-scale, open area excavation of agriculturally marginal land
        - Sites on this type of land are under greater threat as food security is recognised as a major issue
        - Only Peacehaven (Hart forthcoming) and Blackpatch (Drewett 1982b; Tapper forthcoming) meet this requirement
- If contemporary settlement sites were not positioned within the early fields, and, given the scale of the systems, where were they?
- The later settlements, set within small areas of agglomerated fields, and often overlying or cut into earlier lynchets, seldom appear to have survived beyond *c.* 800 BC
    - Is the apparent dearth of Early to Middle Iron Age settlement sites 'real', and, if so, did it result from population collapse or a different cause?

This work is limited to zones where above ground evidence is well preserved, by definition those later regarded as marginal and not subjected to intensive ploughing. It is therefore not possible to say with certainty that the pattern observed here was a general one in the later prehistoric period, but the similarity of the pattern within the study areas selected suggests that it was at least widespread.

Where sections have been excavated across lynchets formed on chalk downland, as part of this report and by others, little or no structure has been found. They therefore leave no below ground evidence, and are totally destroyed by ploughing or other truncation of their visible earthworks. Phase differences can only occasionally be seen as soil marks on aerial photographs, and even on open land only the larger examples are visible. LiDAR has yet to be fully tested in terms of detecting very minor earthworks, less than 0.2m high, particularly in dense vegetation including gorse, heather and conifer plantations.

Field systems, ubiquitous and inconsequential though they may seem, still have a story to tell. Further analytical survey, and statutary protection of the best preserved examples is strongly recommended.

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Appendix 1

Data relating to BA sites in the Central Surrey study area (chapter 3) derived from the Surrey HER and the PAS

District	Parish	Site Name		NGR	Find type	Date
Mole Valley	Abinger	Leaser's Barn	TQ	11114815	Barrow (possible)	EBA
Mole Valley	Abinger		TQ	10204680	Flint	EBA
Mole Valley	Abinger		TQ	11204830	Pottery	EBA
Mole Valley	Abinger	Abinger Manor	TQ	11174587	Flint	BA
Guildford	Albury	Weston Wood	TQ	05544830	Settlement	LBA
Guildford	Albury		TQ	04004800	Metalwork	BA
Guildford	Albury	Blackheath	TQ	03004600	Flint	BA
Guildford	Albury	Newlands Corner	TQ	04504921	Barrow (certain)	EBA
Guildford	Albury	Farley Heath	TQ	05304470	Hoard	LBA
Guildford	Albury	Farley Heath	TQ	05304470	Flint	EBA
Guildford	Albury	Farley Heath	TQ	05004400	Metalwork	BA
Guildford	Albury	Lockner's Holt	TQ	04394664	Flint	EBA
Guildford	Albury	Home Farm	TQ	17104970	Flint	EBA
Guildford	Albury		TQ	03004500	Flint	EBA
Guildford	Albury		TQ	03004500	Flint	EBA
Guildford	Artington	St Catherine's Hill	SU	99004800	Metalwork	BA
Mole Valley	Great Bookham	Bookham Common	TQ	12505600	Metalwork	BA
Mole Valley	Little Bookham	Church	TQ	12305492	Pottery	BA
Guildford	East Clandon		TQ	03005100	Metalwork	LBA
Guildford	West Clandon		TQ	03005100	Pottery	LBA
Guildford	West Clandon		TQ	03005100	Metalwork	LBA
Guildford	West Clandon		TQ	03005100	Metalwork	LBA
Guildford	West Clandon		TQ	03005100	Pottery	LBA
Guildford	West Clandon		TQ	03005100	Metalwork	LBA
Guildford	West Clandon		TQ	03005100	Metalwork	LBA
Mole Valley	Dorking	Glory Wood	TQ	17124854	Barrow (certain)	EBA
Mole Valley	Dorking		TQ	16834884	Flint	BA
Mole Valley	Dorking		TQ	17454967	Flint	BA
Mole Valley	Dorking	Bury Hill	TQ	15004800	Flint	BA
Mole Valley	Dorking	Lower Boxhill Farm	TQ	18155040	Flint	BA
Mole Valley	Dorking	Westcott	TQ	14204918	Flint	EBA
Mole Valley	Dorking	Milton Heath	TQ	15294890	Barrow (certain)	EBA
Mole Valley	Dorking	Milton Brook	TQ	15104870	Pottery	BA
Mole Valley	Dorking	Deepdene	TQ	17104970	Pottery	LBA

Guildford	Effingham	Standard Hill	TQ	11405280	Barrow (possible)	EBA
Guildford	Fetcham	Bockett's Farm	TQ	15805480	Pottery	BA
Waverley	Godalming	Farncombe	SU	97804510	Metalwork	EBA
Waverley	Godalming	Binscombe Lane	SU	96874584	Flint	EBA
Waverley	Godalming	Northbrook	SU	95704520	Flint	BA
Waverley	Godalming		SU	96454504	Quern	BA
Waverley	Godalming		SU	97004300	Metalwork	BA
Waverley	Godalming		SU	97004300	Pottery	BA
Waverley	Godalming	Charterhouse	SU	96404485	Flint	BA
Waverley	Godalming		SU	97704450	Metalwork	LBA
Waverley	Godalming		SU	95484501	Flint	BA
Waverley	Godalming		SU	97904470	Metalwork	LBA
Guildford	Guildford	Henley Grove	SU	98304890	Burial/s	BA
Guildford	Guildford		SU	99364818	Metalwork	LBA
Guildford	Guildford	Merrow Downs	TQ	02704980	Barrow (certain)	EBA
Guildford	Guildford	Tyting Farm	TQ	02134858	Barrow (possible)	EBA
Guildford	Guildford	Burwood Farm	TQ	02404920	Metalwork	LBA
Guildford	Guildford	Burwood Farm	TQ	02404920	Metalwork	LBA
Guildford	Guildford	Burwood Farm	TQ	02404920	Metalwork	LBA
Guildford	Guildford	Burwood Farm	TQ	02404920	Metalwork	LBA
Guildford	Guildford	Burwood Farm	TQ	02404920	Metalwork	LBA
Guildford	Guildford	Burwood Farm	TQ	02404920	Metalwork	MBA
Guildford	Guildford		SU	99004900	Metalwork	LBA
Guildford	Guildford	Stoke Hospital	SU	99835017	Metalwork	LBA
Guildford	Guildford	Stoke Hospital	SU	99005000	Metalwork	MBA
Guildford	Guildford	Manor Farm	SU	96654954	Settlement	LBA
Guildford	Guildford	Abbotswood	TQ	00805170	Flint	BA
Guildford	Guildford	Britannia	SU	99514914	Flint	BA
Guildford	Guildford	Burpham	TQ	00975212	Pottery	LBA
Mole Valley	Headley	Cherkley Wood	TQ	19135444	Settlement	MBA
Mole Valley	Holmwood	Westcott	TQ	13804780	Flint	BA
Guildford	East Horsley	Chalk Lane	TQ	09575153	Flint	EBA
Guildford	West Horsley		TQ	08005200	Metalwork	MBA
Guildford	St Martha's	St Martha's Hill	TQ	02134858	Barrow (possible)	EBA
Mole Valley	Leatherhead		TQ	16565525	Flint	EBA
Mole Valley	Leatherhead	Hambleton Wood	TQ	19205580	Barrow (possible)	EBA
Mole Valley	Leatherhead	Cherkeley Court	TQ	18215470	Barrow (certain)	EBA
Mole Valley	Leatherhead	Cherkeley Court	TQ	18395467	Barrow (certain)	EBA
Mole Valley	Leatherhead	Cherkeley Court	TQ	18515469	Barrow (certain)	EBA
Mole Valley	Leatherhead	Cherkeley Court	TQ	18585471	Barrow (certain)	EBA
Mole Valley	Leatherhead	Cherkeley Court	TQ	18545465	Barrow (possible)	EBA
Mole Valley	Leatherhead	Cherkeley Court	TQ	18485462	Barrow (possible)	EBA

Mole Valley	Leatherhead	Cherkeley Court	TQ	18005500	Boundary	MBA
Mole Valley	Leatherhead		TQ	18485504	Quern	BA
Mole Valley	Leatherhead		TQ	18295468	Barrow (possible)	EBA
Mole Valley	Leatherhead		TQ	18165463	Burial/s	MBA
Mole Valley	Leatherhead	Vicarage	TQ	16555618	Pottery	LBA
Mole Valley	Leatherhead		TQ	10006000	Flint	EBA
Mole Valley	Mickleham		TQ	18055122	Barrow (certain)	EBA
Mole Valley	Mickleham		TQ	18055122	Barrow (certain)	EBA
Mole Valley	Mickleham	Box Hill	TQ	18585133	Barrow (certain)	EBA
Mole Valley	Mickleham	Westhumble Chapel	TQ	16005193	Pottery	MBA
Mole Valley	Mickleham		TQ	15905370	Hoard	LBA
Mole Valley	Mickleham	Long Ride	TQ	18505380	Boundary	MBA
Mole Valley	Milton		TQ	18065122	Barrow (certain)	EBA
Mole Valley	Milton	Coast Hill	TQ	13004820	Hoard	LBA
Mole Valley	Milton		TQ	15004800	Metalwork	LBA
Guildford	Normandy	Henley Park	SU	93805260	Metalwork	LBA
Guildford	Pirbright	Manor House	SU	94265563	Pottery	BA
Guildford	Puttenham	Puttenham Heath	SU	94004760	Flint	EBA
Guildford	Puttenham	Hog's Back	SU	92614825	Barrow (certain)	EBA
Guildford	Puttenham	Shoelands	SU	91404760	Flint	EBA
Guildford	Puttenham	Frowsbury	SU	93894769	Barrow (certain)	EBA
Guildford	Puttenham	Rodsall	SU	92104570	Flint	LBA
Guildford	Puttenham	Puttenham Heath	SU	91684692	Flint	EBA
Guildford	Puttenham	Golf Course	SU	93874774	Flint	BA
Guildford	Ripley		TQ	03705641	Flint	EBA
Guildford	Ripley		TQ	04505530	Flint	EBA
Guildford	Shackleford	St Mary's	SU	94404490	Flint	EBA
Guildford	Shackleford	Eashing Mill	SU	94574371	Environmental	BA
Guildford	Shalford		SU	98004600	Flint	EBA
Guildford	Shalford	Tillingbourne Rd	TQ	00634727	Metalwork	MBA
Guildford	Shalford	Peasmarsh	SU	98004600	Flint	EBA
Guildford	Shere	Tower Hill	TQ	08704680	Flint	BA
Guildford	Shere		TQ	09154639	Flint	EBA
Guildford	Shere	The Ridgeway	TQ	07434378	Flint	EBA
Guildford	Shere	Shere Heath	TQ	07084695	Barrow (possible)	EBA
Guildford	Shere	Fulvenden Farm	TQ	09554662	Pottery	EBA
Guildford	Shere	Fulvens Farm	TQ	09824640	Flint	EBA
Guildford	Shere	Burrows Cross	TQ	08234669	Metalwork	LBA
Guildford	St Martha's	St Martha's Hill	TQ	02804830	Flint	BA
Guildford	St Martha's	St Martha's Hill	TQ	02804820	Pottery	BA
Guildford	St Martha's	St Martha's Hill	TQ	02814833	Barrow (possible)	EBA
Guildford	St Martha's	St Martha's Hill	TQ	02814833	Barrow (possible)	EBA

Guildford	St Martha's	Blackheath	TQ	03904620	Barrow (possible)	EBA
Waverley	Thursley	Thursley Common	SU	91154200	Flint	BA
Guildford	Wanborough		SU	93674903	Metalwork	LBA
Guildford	Wanborough		SU	94294687	Flint	EBA
Guildford	Wanborough	Hog's Back	SU	93794838	Barrow (certain)	EBA
Woking	Woking	Westfield	TQ	00505630	Pottery	LBA
Waverley	Wonersh	Postford Farm	TQ	04394664	Flint	BA
Waverley	Wonersh	Hallams	TQ	03804545	Burial/s	BA
Waverley	Wonersh	Jalna	TQ	02944606	Metalwork	EBA
Waverley	Wonersh		TQ	05754270	Metalwork	MBA
Waverley	Wonersh		TQ	03704400	Settlement	LBA
Waverley	Wonersh		TQ	01004500	Flint	EBA
Guildford	Worplesdon	Broad Street	SU	97405090	Metalwork	MBA
Guildford	Worplesdon		SU	99255320	Flint	BA
Guildford	Worplesdon	Whitmoor Common	SU	98635333	Barrow (certain)	EBA
Guildford	Worplesdon	Whitmoor Common	SU	99685368	Barrow (certain)	EBA
Guildford	Worplesdon	Whitmoor Common	SU	98505350	Boundary	MBA
Mole Valley	Wotton		TQ	11694806	Barrow (possible)	EBA
Mole Valley	Wotton		TQ	12904800	Metalwork	LBA
Mole Valley	Wotton	Sandy Meadow	TQ	11504830	Flint	EBA
Mole Valley	Wotton	Deerleap Wood	TQ	11834803	Barrow (certain)	EBA

Pottery from excavation on the *Shepehale* and Long Ride and field walking west of the Mole (by Mike Seager Thomas)

For the pottery excavated on the *Shepehale* (Currie 2000) a number of fabrics were identified (below) and a probable MBA or LBA date assigned but none of the pieces were sufficiently diagnostic to provide greater certainty:

3 sherds grog tempered dark brown fabric
7 sherds coarse flint, grog and possibly charcoal tempered fabric
4 sherds coarse flint tempered fabric
3 sherds moderately fine flint tempered red brown fabric

That recovered during excavation of test pits on the Long Ride was all from the first millennium BC, including some definite LBA and MIA, but mostly probably LBA/EIA:

TP1 - fine sandy, fine flint-tempered fabric as below TP2 — LBA/EIA

TP2 - a range of slightly different fine sandy, fine to medium flint-tempered fabrics suggests LBA/EIA to EIA but there is also a coarser flint-tempered fabric which could be earlier and fragments of MIA calcitic rock-tempered fabric - LBA to MIA

TP3 - fine sandy, fine flint-tempered fabric as above (2). One slightly coarser fabric has a groggy 'feel' (it might in fact be siderite), which would be consistent with the proposed LBA/EIA date - LBA/EIA

TP4 - thin-bodied, fingered sherd in medium to coarse flint-tempered fabric – LBA pottery recovered during fieldwalking west of the Mole included 8 sherds, possibly from the same vessel, of a medium to coarse flint tempered fabric dating to the LBA.

Appendix 2

Data relating to BA sites in the Nine Mile River study area (chapter 4) derived from the Wiltshire HER

HER no.	District	Parish	Site Name		NGR	Description
SU24SW601	Salisbury	Bulford	Beacon Hill	SU	20454414	Bowl barrow
SU24SW602	Salisbury	Bulford	Beacon Hill	SU	20534413	Bowl barrow
SU24SW603	Salisbury	Bulford	Beacon Hill	SU	20444409	Bowl barrow
SU24SW609	Salisbury	Bulford	Beacon Hill	SU	20874417	Bowl barrow
SU24NW642	Salisbury	Bulford	Beacon Hill	SU	21314515	Bowl barrow
SU14SE622	Salisbury	Bulford	Bulford	SU	19444467	Bowl barrow
SU14SE610	Salisbury	Bulford	Bulford Down	SU	19884463	Bowl barrow
SU14SE611	Salisbury	Bulford	Bulford Down	SU	19794461	Barrow
SU14SE612	Salisbury	Bulford	Bulford Down	SU	19774468	Barrow
SU14SE613	Salisbury	Bulford	Bulford Down	SU	19734458	Barrow
SU14SE614	Salisbury	Bulford	Bulford Down	SU	19684458	Barrow
SU14SE615	Salisbury	Bulford	Bulford Down	SU	19624460	Barrow
SU14SE616	Salisbury	Bulford	Bulford Down	SU	19734463	Barrow
SU14SE617	Salisbury	Bulford	Bulford Down	SU	19734467	Barrow
SU14SE618	Salisbury	Bulford	Bulford Down	SU	19794468	Barrow
SU14SE619	Salisbury	Bulford	Bulford Down	SU	19834467	Barrow
SU14SE620	Salisbury	Bulford	Bulford Down	SU	19554464	Barrow
SU14SE621	Salisbury	Bulford	Bulford Down	SU	19554473	Barrow
SU14SE623	Salisbury	Bulford	Bulford Down	SU	19504475	Bowl barrow
SU14SE624	Salisbury	Bulford	Bulford Down	SU	19344477	Barrow
SU14SE625	Salisbury	Bulford	Bulford Down	SU	19404486	Barrow
SU14SE788	Salisbury	Bulford	Bulford Down	SU	19584457	Circular cropmark
SU24NW635	Salisbury	Bulford	Bulford Down	SU	20064528	Bowl barrow
SU24NW636	Salisbury	Bulford	Bulford Down	SU	20014530	Bowl barrow
SU24NW637	Salisbury	Bulford	Bulford Down	SU	20004530	Bowl barrow
SU24NW638	Salisbury	Bulford	Bulford Down	SU	20014532	Bowl barrow
SU24NW639	Salisbury	Bulford	Bulford Down	SU	20024536	Disc barrow
SU24NW640	Salisbury	Bulford	Bulford Down	SU	20134525	Bowl barrow
SU24NW641	Salisbury	Bulford	Bulford Down	SU	20094520	Bowl barrow
SU24SW600	Salisbury	Bulford	Bulford Down	SU	20214422	Bowl barrow
SU24SW604	Salisbury	Bulford	Bulford Down	SU	20514448	Bowl barrow
SU24SW605	Salisbury	Bulford	Bulford Down	SU	20664440	Bowl barrow
SU24SW606	Salisbury	Bulford	Bulford Down	SU	20764432	Bowl barrow
SU24SW607	Salisbury	Bulford	Bulford Down	SU	20784431	Bowl barrow
SU24SW608	Salisbury	Bulford	Bulford Down	SU	20794434	Bowl barrow
SU24SW614	Salisbury	Bulford	Bulford Down	SU	20304475	Field system
SU24SW630	Salisbury	Bulford	Bulford Down	SU	20054403	Ditch
SU24SW620	Salisbury	Bulford	Bulford Down	SU	21014417	Linear ditch

SU24NW650	Salisbury	Milston	Devil's Ditch	SU	21674731	Linear ditch
SU14SE765	Salisbury	Bulford	Sling Camp	SU	19804430	Field system
SU14SE763	Salisbury	Bulford	Sling Camp	SU	19344480	Circular cropmark
SU14SE764	Salisbury	Bulford	Sling Camp	SU	19254481	Circular cropmark
SU14SE797	Salisbury	Bulford	Sling Camp	SU	19454475	Cropmark encl
SU14SE154	Salisbury	Bulford	Sling Camp	SU	19324448	Spearhead
SU24SW621	Salisbury	Bulford	Hill Copse	SU	20904465	Cropmark encl
SU14NE615	Salisbury	Bulford	Milston Firs	SU	19824501	Bowl barrow
SU14NE618	Salisbury	Bulford	Milston Firs	SU	19464508	Bowl barrow
SU14NE616	Salisbury	Bulford	Milston Firs	SU	19934511	Bowl barrow
SU14NE617	Salisbury	Bulford	Milston Firs	SU	19894519	Bowl barrow
SU14SE627	Salisbury	Bulford	Sling Camp	SU	19014437	Bowl barrow
SU14SE628	Salisbury	Bulford	Sling Camp	SU	19034444	Bowl barrow
SU14SE629	Salisbury	Bulford	Sling Camp	SU	19164443	Disc barrow
SU14SE630	Salisbury	Bulford	Sling Camp	SU	19104447	Barrow
SU14SE631	Salisbury	Bulford	Sling Camp	SU	19064530	Disc barrow
SU14SE632	Salisbury	Bulford	Sling Camp	SU	19154451	Bowl barrow
SU14SE633	Salisbury	Bulford	Sling Camp	SU	19254443	Barrow
SU14SE634	Salisbury	Bulford	Sling Camp	SU	19324435	Barrow
SU14NE785	Salisbury	Bulford	Milston Firs	SU	19704544	Field system
SU24NW634	Salisbury	Bulford	Milston	SU	20084563	Bowl barrow
SU24SW620	Salisbury	Bulford	Bulford Down	SU	21014417	Linear ditch
SU24NW736	Salisbury	Milston	Tidworth Camp	SU	21804770	Linear ditch
SU24NW737	Salisbury	Milston	Tidworth Camp	SU	22364797	Linear ditch
SU24NW738	Salisbury	Milston	Tidworth Camp	SU	22764789	Linear ditch
SU24NW153	Salisbury	Milston	Dunch Hill	SU	20574858	Settlement
SU24NW662	Salisbury	Milston	Dunch Hill	SU	21294854	Linear ditch
SU24NW705	Salisbury	Milston	Dunch Hill	SU	21784746	Field system
SU24NW715	Salisbury	Milston	Clarendon Hill	SU	21744883	Linear ditch
SU24NW700	Salisbury	Milston	Tidworth Camp	SU	22244757	Ring ditch
SU24NW659	Salisbury	Milston	Dunch Hill	SU	21364874	Barrow
SU24NW701	Salisbury	Milston	Dunch Hill	SU	21364846	Field system
SU24NW651	Salisbury	Milston	Tidworth Camp	SU	22164688	Barrow
SU24NW709	Salisbury	Milston	Tidworth Camp	SU	22034683	Field system
SU24NW697	Salisbury	Milston	Hare Warren	SU	21614739	Barrow
SU24NW151	Salisbury	Milston	Home Farm	SU	22494738	Burials
SU24NW673	Salisbury	Milston	Long Hill	SU	21664873	Barrow
SU24NW703	Salisbury	Milston	Long Hill	SU	21414855	Linear ditch
SU24NW658	Salisbury	Milston	Dunch Hill	SU	21284872	Barrow
SU24NW658	Salisbury	Milston	Dunch Hill	SU	21394890	Enclosure
SU24NW734	Salisbury	Milston	Low Tidworth Farm	SU	22214729	Linear ditch
SU24NW682	Salisbury	Milston	Seven Barrows	SU	21724877	Barrow
SU24NW684	Salisbury	Milston	Dunch Hill	SU	21274796	Bowl barrow

SU24NW685	Salisbury	Milston	Dunch Hill	SU	21284794	Bowl barrow
SU24NW706	Salisbury	Milston	Home Farm	SU	22244712	Enclosure
SU24NW681	Salisbury	Milston	Seven Barrows	SU	21934860	Ring ditch
SU24NW649	Salisbury	Milston	Cross Belt	SU	22174598	Linear ditch
SU24NW698	Salisbury	Milston	Tidworth Camp	SU	22214756	Linear ditch
SU24NW699	Salisbury	Milston	Tidworth Camp	SU	22224756	Ring ditch
SU24NW657	Salisbury	Milston	Cross Belt	SU	22794617	Linear ditch
SU24NW669	Salisbury	Milston	Seven Barrows	SU	21824879	Bowl barrow
SU24NW686	Salisbury	Milston	Seven Barrows	SU	21834863	Barrow
SU24NW687	Salisbury	Milston	Seven Barrows	SU	21824866	Barrow
SU24NW688	Salisbury	Milston	Seven Barrows	SU	21824869	Barrow
SU24NW689	Salisbury	Milston	Seven Barrows	SU	21824872	Barrow
SU24NW690	Salisbury	Milston	Seven Barrows	SU	21824874	Barrow
SU24NW691	Salisbury	Milston	Seven Barrows	SU	21894876	Barrow
SU24NW693	Salisbury	Milston	Seven Barrows	SU	21874871	Barrow
SU24NW694	Salisbury	Milston	Seven Barrows	SU	21884867	Barrow
SU24NW695	Salisbury	Milston	Seven Barrows	SU	21884864	Barrow
SU24NW710	Salisbury	Milston	Seven Barrows	SU	21884873	Bowl barrow
SU24NW680	Salisbury	Milston	Clarendon Hill	SU	21994874	Ring ditch
SU24NW643	Salisbury	Milston	Brigmerston Down	SU	20474736	Enclosure
SU24NW645	Salisbury	Milston	Brigmerston Down	SU	20374740	Enclosure
SU24NW646	Salisbury	Milston	Brigmerston Down	SU	20794764	Enclosure
SU24NW652	Salisbury	Milston	Brigmerston Down	SU	20314746	Circular cropmark
SU24NW668	Salisbury	Milston	Brigmerston Down	SU	20874863	Linear ditch
SU24NW606	Salisbury	Milston	Brigmerston Firs	SU	20194765	Bowl barrow
SU24NW607	Salisbury	Milston	Brigmerston Firs	SU	20264762	Bowl barrow
SU24NW608	Salisbury	Milston	Brigmerston Firs	SU	20234766	Disc barrow
SU24NE710	Salisbury	Milston	Milston Down	SU	19654661	Bowl barrow
SU14NE699	Salisbury	Milston	Down Barn	SU	19424663	Ring ditch
SU14NE700	Salisbury	Milston	Down Barn	SU	19454665	Ring ditch
SU14NE711	Salisbury	Milston	Down Barn	SU	19484659	Bowl barrow
SU14NE717	Salisbury	Milston	Down Barn	SU	19224678	Bowl barrow
SU14NE718	Salisbury	Milston	Down Barn	SU	19254674	Bowl barrow
SU14NE719	Salisbury	Milston	Down Barn	SU	19404672	Bowl barrow
SU14NE720	Salisbury	Milston	Down Barn	SU	19294671	Barrow
SU14NE734	Salisbury	Milston	Silk Hill	SU	19174702	Bowl barrow
SU24NW609	Salisbury	Milston	Hare Warren	SU	21574717	Bowl barrow
SU24NW610	Salisbury	Milston	Hare Warren	SU	21664717	Bowl barrow
SU24NW611	Salisbury	Milston	Hare Warren	SU	21684718	Bowl barrow
SU24NW612	Salisbury	Milston	Hare Warren	SU	21704713	Bowl barrow
SU24NW150	Salisbury	Milston	Milston Down	SU	20204600	Beaker pottery
SU24NW150	Salisbury	Milston	Milston Down	SU	20204600	BA pottery
SU24NW613	Salisbury	Milston	Milston Down	SU	20284597	Bowl barrow

SU24NW614	Salisbury	Milston	Milston Down	SU	20354595	Bowl barrow
SU24NW615	Salisbury	Milston	Milston Down	SU	20404574	Bowl barrow
SU24NW616	Salisbury	Milston	Milston Down	SU	20364601	Bowl barrow
SU24NW617	Salisbury	Milston	Milston Down	SU	20344606	Bowl barrow
SU24NW618	Salisbury	Milston	Milston Down	SU	20394611	Bowl barrow
SU24NW619	Salisbury	Milston	Milston Down	SU	20464606	Bowl barrow
SU24NW620	Salisbury	Milston	Milston Down	SU	20494608	Bowl barrow
SU24NW621	Salisbury	Milston	Milston Down	SU	20444577	Bowl barrow
SU24NW622	Salisbury	Milston	Milston Down	SU	20784672	Bowl barrow
SU24NW623	Salisbury	Milston	Milston Down	SU	20814668	Bowl barrow
SU24NW624	Salisbury	Milston	Milston Down	SU	20864662	Bowl barrow
SU24NW625	Salisbury	Milston	Milston Down	SU	20864658	Bowl barrow
SU24NW626	Salisbury	Milston	Milston Down	SU	21074652	Bowl barrow
SU24NW627	Salisbury	Milston	Milston Down	SU	21164661	Bowl barrow
SU24NW628	Salisbury	Milston	Milston Down	SU	21194664	Bowl barrow
SU24NW629	Salisbury	Milston	Milston Down	SU	21254664	Bowl barrow
SU24NW647	Salisbury	Milston	Milston Down	SU	20734658	Square enclosure
SU24NW656	Salisbury	Milston	Dunch Hill	SU	20914769	Field system
SU14NE831	Salisbury	Milston	Milston Firs	SU	19784666	Field system
SU24NW676	Salisbury	Milston	Hare Warren	SU	21414714	Field system
SU24NW633	Salisbury	Milston	Parkhouse Camp	SU	21714607	Bowl barrow
SU24NW653	Salisbury	Milston	Brigmerston Down	SU	20894697	Disc barrow
SU14NE729	Salisbury	Milston	Silk Hill	SU	19034690	Bowl barrow
SU14NE736	Salisbury	Milston	Silk Hill	SU	19074703	Disc barrow
SU14NE737	Salisbury	Milston	Silk Hill	SU	19134703	Disc barrow
SU14NE738	Salisbury	Milston	Silk Hill	SU	19194702	Disc barrow
SU14NE704	Salisbury	Milston	Goat Wood	SU	19644734	Disc barrow
SU14NE849	Salisbury	Milston	Goat Wood	SU	19704736	Linear ditch
SU14NE730	Salisbury	Milston	Silk Hill	SU	19704687	Bowl barrow
SU14NE731	Salisbury	Milston	Silk Hill	SU	19174687	Bowl barrow
SU14NE732	Salisbury	Milston	Silk Hill	SU	19104689	Disc barrow
SU14NE733	Salisbury	Milston	Silk Hill	SU	19074687	Pond barrow
SU14NE712	Salisbury	Milston	Down Barn	SU	19194653	Bowl barrow
SU14NE713	Salisbury	Milston	Down Barn	SU	19204651	Bowl barrow
SU14NE714	Salisbury	Milston	Down Barn	SU	19534640	Bowl barrow
SU14NE715	Salisbury	Milston	Down Barn	SU	19084630	Bowl barrow
SU14NE697	Salisbury	Milston	Goat Wood	SU	19604743	Ring ditch
SU24NW634	Salisbury	Milston	Milston Down	SU	20084563	Bowl barrow
SU24NW630	Salisbury	Milston	The Belt	SU	21444663	Bowl barrow
SU24NW631	Salisbury	Milston	The Belt	SU	21504660	Bowl barrow
SU24NW632	Salisbury	Milston	The Belt	SU	21564653	Bowl barrow
SU24NW677	Salisbury	Milston	The Belt	SU	21614663	Field system

Appendix 3

Data relating to BA sites in the Plumpton Plain study area (chapter 5) derived from the East Sussex HER and from field walking by Joyce Biggar, and details of soil micromorphology undertaken by Dr Richard Macphail

Sites and finds from the East Sussex HER

Site No	District	Parish	Site Name		NGR	Description
MES199	B'ton & Hove	Ovingdean	Wick Bottom	TQ	34950459	Inurned burial
MES202	B'ton & Hove	Brighton	Roedean Cres	TQ	34530347	Burials
MES230	B'ton & Hove	Brighton	Brighton	TQ	36380277	Two bowl barrows
MES234	B'ton & Hove	Brighton	Brighton	TQ	35610455	Bowl barrow
MES236	B'ton & Hove	Brighton	Brighton	TQ	37510441	Bowl barrow
MES237	B'ton & Hove	Brighton	Ovingdean Road	TQ	35850410	Burials
MES239	B'ton & Hove	Saltdean	Loess Barn	TQ	38520331	Barrow
MES241	B'ton & Hove	Brighton	Saltdean Park	TQ	38080211	Clearance cairns
MES242	B'ton & Hove	Brighton	Brighton	TQ	36310317	Bowl barrow
MES243	B'ton & Hove	Woodingdean	Balsdean Farm	TQ	37000430	Field system
MES245	B'ton & Hove	Brighton	Saltdean	TQ	38200340	Field system
MES247	B'ton & Hove	Ovingdean	Cattle Hill	TQ	32500350	Field system
MES340	B'ton & Hove	Brighton	Bullock Hill	TQ	37270612	Cross-ridge dyke
MES341	Lewes	Kingston	Castle Hill	TQ	37650680	Cross-ridge dyke
MES343	B'ton & Hove	Brighton	Balsdean	TQ	37790598	Flintwork
MES343	B'ton & Hove	Brighton	Balsdean	TQ	37790598	Pottery
MES344	B'ton & Hove	Brighton	Upper Bevendean	TQ	35500620	Flintwork
MES345	B'ton & Hove	Brighton	Bullock Hill	TQ	37300610	Field system
MES346	B'ton & Hove	Woodingdean	The Bostal	TQ	37200540	Barrow cemetery
MES347	B'ton & Hove	Brighton	Brighton	TQ	37360531	Two bowl barrows
MES349	B'ton & Hove	Brighton	Castle Hill	TQ	37810662	Two bowl barrows
MES471	B'ton & Hove	Brighton	Rottingdean	TQ	37570238	Pottery
MES472	B'ton & Hove	Woodingdean	Woodingdean Farm	TQ	36600452	Two barrows
MES1254	Lewes	Westmeston	The Beeches	TQ	36851258	Cross-ridge dyke
MES1254	Lewes	Westmeston	The Beeches	TQ	36851258	Barrow
MES1255	Lewes	East Chiltington	Warningore Bostal	TQ	38161223	Barrow cemetery
MES1256	Lewes	Chailey		TQ	37581240	Two bowl barrows
MES1319	Lewes	East Chiltington	Black Cap	TQ	37301260	Flintwork
MES1323	Lewes	East Chiltington	Black Cap	TQ	37501230	Cross-ridge dyke
MES1324	Lewes	East Chiltington	Plumpton Plain	TQ	36951258	Barrow cemetery
MES1328	Lewes	East Chiltington	Warningore Farm	TQ	37611292	Metalwork
MES1330	Lewes	East Chiltington	Novington Manor	TQ	37001350	Settlement
MES1347	Lewes	Falmer		TQ	13171086	Flintwork
MES1349	Lewes	Falmer		TQ	13471030	Bowl barrow
MES1350	Lewes	Falmer		TQ	37221082	Bowl barrow

MES1353	Lewes	Falmer		TQ	35601030	Field system
MES1355	Lewes	Falmer		TQ	36161070	Bowl barrow
MES1356	Lewes	Falmer	Balmer Farm	TQ	36001110	Burials
MES1358	Lewes	Falmer	Four Lord's Burgh	TQ	36501166	Barrow cemetery
MES1360	Lewes	Falmer	Buckland Bank	TQ	36881095	Pottery
MES1361	Lewes	Falmer	Buckland Bank	TQ	36881095	Field system
MES1367	Lewes	Falmer	Falmer Hill	TQ	35581750	Bowl barrow
MES1369	Lewes	Falmer	Loose Bottom	TQ	36520800	Pottery
MES1370	Lewes	Falmer	Newmarket Bottom	TQ	36760663	Bowl barrow
MES1372	Lewes	Falmer		TQ	37500960	Field system
MES1378	Lewes	Falmer		TQ	35800970	Field system
MES1384	Lewes	Falmer	Balmer Down	TQ	36701040	Pottery
MES1387	Lewes	Falmer	Balmer Huff	TQ	36151070	Pottery
MES1388	Lewes	Falmer	Buckland Bank	TQ	37021104	Pottery
MES1494	Lewes	Hamsey	Old Lewes Racecourse	TQ	38251159	Bowl barrow
MES1495	Lewes	Hamsey	Mount Harry	TQ	38211195	Bowl barrow
MES1496	Lewes	Hamsey	Cuckoo Bottom	TQ	38311128	Three bowl barrows
MES1498	Lewes	Hamsey		TQ	38651207	Bowl barrow
MES1499	Lewes	Hamsey		TQ	38901200	Three bowl barrows
MES1500	Lewes	Hamsey		TQ	38761198	Bowl barrow
MES1501	Lewes	Hamsey		TQ	38761182	Bowl barrow
MES1502	Lewes	Hamsey	Coombe Plantation	TQ	38861169	Bowl barrow
MES1503	Lewes	Hamsey	Old Lewes Racecourse	TQ	38871158	Bowl barrow
MES1514	Lewes	Hamsey	Mount Harry	TQ	38031225	Two bowl barrows
MES1515	Lewes	Hamsey	Mount Harry	TQ	38301220	Barrow cemetery
MES1518	Lewes	Hamsey	Mount Harry	TQ	38701180	Cross-ridge dyke
MES1530	Lewes	Iford	Bird Brow	TQ	38470691	Bowl barrow
MES1530	Lewes	Iford	Bird Brow	TQ	38470691	Inurned burials
MES1531	Lewes	Iford		TQ	38480622	Cross-ridge dyke
MES1532	Lewes	Iford		TQ	38600638	Platform barrow
MES1533	Lewes	Iford		TQ	35000700	Metalwork
MES1533	Lewes	Iford		TQ	35000700	Burials
MES1534	Lewes	Iford		TQ	38260512	Two bowl barrows
MES1535	Lewes	Iford	Broadpit Pond	TQ	38750658	Bowl barrow
MES1544	Lewes	Iford		TQ	39000560	Field system
MES1550	Lewes	Kingston	Newmarket Hill	TQ	36600737	Bowl barrow
MES1553	Lewes	Kingston	Jugg's Road	TQ	37380744	Barrow cemetery
MES1554	Lewes	Kingston	Castle Hill	TQ	37620724	Two bowl barrows
MES1555	Lewes	Kingston		TQ	38230789	Bowl barrow
MES1556	Lewes	Kingston		TQ	38500760	Barrow cemetery
MES1558	Lewes	Kingston	Upper Bevendean	TQ	35960651	Flintwork
MES1678	Lewes	Lewes	Old Lewes	TQ	38771007	Two bowl barrows

			Racecourse			
MES1862	Lewes	Plumpton	Lentridge Farm	TQ	36001300	Metalwork
MES1866	Lewes	Plumpton	Black Cap	TQ	37181258	Cross-ridge dyke
MES1867	Lewes	Plumpton	Plumpton Plain	TQ	35401280	Barrow cemetery
MES1868	Lewes	Plumpton	Plumpton Plain	TQ	35531271	Bowl barrow
MES1870	Lewes	Plumpton	Plumpton Plain	TQ	35791266	Barrow cemetery
MES1872	Lewes	Plumpton		TQ	36611256	Barrow cemetery
MES1873	Lewes	Plumpton	Plumpton Plain	TQ	35951267	Barrow cemetery
MES1874	Lewes	Plumpton	Plumpton Plain	TQ	36101250	Metalwork
MES1875	Lewes	Plumpton	Horseshoe Plantation	TQ	35001195	Settlement
MES1876	Lewes	Plumpton	Plumpton Plain	TQ	35711205	Two round barrows
MES1877	Lewes	Plumpton	Plumpton Plain	TQ	35701220	Settlement
MES1884	Lewes	Plumpton	Horseshoe Plantation	TQ	35001195	Flintwork
MES1888	Lewes	Plumpton	Plumpton Plain	TQ	37001300	Metalwork
MES1998	Lewes	St Ann Without		TQ	38311099	Barrow
MES1999	Lewes	St Ann Without	Old Lewes Racecourse	TQ	38351117	Bowl barrow
MES2000	Lewes	St Ann Without		TQ	38451032	Bowl barrow
MES2001	Lewes	St Ann Without	Cuckoo Bottom	TQ	38801100	Barrow
MES2001	Lewes	St Ann Without	Cuckoo Bottom	TQ	38801100	Inurned burials
MES2003	Lewes	Plumpton		TQ	36001100	Field system
MES2007	Lewes	St Ann Without	Scabby Brow	TQ	38800880	Field system
MES2009	Lewes	St Ann Without	Houndean	TQ	39100980	Field system
MES2011	Lewes	St Ann Without		TQ	37440883	Bowl barrow
MES2013	Lewes	St Ann Without	Houndean	TQ	38900990	Settlement
MES2016	Lewes	St Ann Without	Ashcombe	TQ	38001060	Settlement
MES2017	Lewes	St John Without	Boxholt Bottom	TQ	37001200	Barrow
MES2017	Lewes	St John Without	Boxholt Bottom	TQ	37001200	Inurned burials
MES2022	Lewes	St John Without	Black Cap	TQ	37731235	Two round barrows
MES2027	Lewes	Westmeston		TQ	34491310	Trackway
MES2028	Lewes	Streat	Streat Hill	TQ	34881283	Two bowl barrows
MES2029	Lewes	Streat	Streat Hill	TQ	35191280	Bowl barrow
MES2065	Lewes	Westmeston	Western Brow	TQ	34331285	Barrow cemetery
MES7255	Lewes	Falmer	New Barn	TQ	36810868	Field system
MES7255	Lewes	Falmer	New Barn	TQ	36810868	Trackway
MES7256	Lewes	Falmer	Newmarket Hill	TQ	35960712	Barrow
MES7257	Lewes	Kingston	Newmarket Hill	TQ	36610725	Field system
MES7259	B'ton & Hove	Brighton	Balsdean Pumping Stat'n	TQ	37540469	Three barrows
MES7485	Lewes	Plumpton	Horseshoe Plantation	TQ	34921179	Flintwork

Catalogue of finds deposited by Miss Joyce Biggar at Lewes Museum

Museum no.	Site name / Code	Site grid	Material	Type of piece	No pieces
1976.10.1	Balmer Huff / BH	B I 0-15	Pot	Sherds	10
1976.10.1	Balmer Huff / BH	B I 0-15	Pot	Rim	1
1976.10.2	Balmer Huff / BH	B I 15-20	Pot	Sherds	17
1976.10.2	Balmer Huff / BH	B I 15-20	Pot	Rim	2
1976.10.3	Balmer Huff / BH	B I 20-25	Pot	Sherds	10
1976.10.4	Balmer Huff / BH	B I 25-30	Pot	Sherds	31
1976.10.4	Balmer Huff / BH	B I 25-30	Pot	Rim	2
1976.10.5	Balmer Huff / BH	B I 30-35	Pot	Sherds	25
1976.10.6	Balmer Huff / BH	B I 35-40	Pot	Sherds	52
1976.10.6	Balmer Huff / BH	B I 35-40	Pot	Rim	9
1976.10.6	Balmer Huff / BH	B I 35-40	Pot	Base	1
1976.10.7	Balmer Huff / BH	B I 40-45	Pot	Sherds	37
1976.10.8	Balmer Huff / BH	B I 45-50	Pot	Sherds	34
1976.10.8	Balmer Huff / BH	B I 45-50	Pot	Rim	3
1976.10.8	Balmer Huff / BH	B I 45-50	Pot	Base	1
1976.10.9	Balmer Huff / BH	B I 50-55	Pot	Sherds	8
1976.10.9	Balmer Huff / BH	B I 50-55	Pot	Rim	1
1976.10.10	Balmer Huff / BH	A II	Pot	Sherds	8
1976.10.11	Balmer Huff / BH	A II 0-15	Pot	Sherds	13
1976.10.12	Balmer Huff / BH	A II 15-20	Pot	Sherds	31
1976.10.12	Balmer Huff / BH	A II 15-20	Pot	Rim	4
1976.10.12	Balmer Huff / BH	A II 15-20	Pot	Base	3
1976.10.13	Balmer Huff / BH	A II 20-25	Pot	Sherds	10
1976.10.13	Balmer Huff / BH	A II 20-25	Pot	Rim	1
1976.10.14	Balmer Huff / BH	A II 25-30	Pot	Sherds	32
1976.10.14	Balmer Huff / BH	A II 25-30	Pot	Rim	5
1976.10.14	Balmer Huff / BH	A II 25-30	Pot	Base	2
1976.10.15	Balmer Huff / BH	A II 30-35	Pot	Sherds	135
1976.10.15	Balmer Huff / BH	A II 30-35	Pot	Rim	23
1976.10.15	Balmer Huff / BH	A II 30-35	Pot	Base	20
1976.10.16	Balmer Huff / BH	A II 35-40	Pot	Sherds	184
1976.10.16	Balmer Huff / BH	A II 35-40	Pot	Rim	29
1976.10.16	Balmer Huff / BH	A II 35-40	Pot	Base	11
1976.10.17	Balmer Huff / BH	A II 40-45	Pot	Sherds	242
1976.10.17	Balmer Huff / BH	A II 40-45	Pot	Rim	32
1976.10.17	Balmer Huff / BH	A II 40-45	Pot	Base	19
1976.10.18	Balmer Huff / BH	A II 45-50	Pot	Sherds	141
1976.10.18	Balmer Huff / BH	A II 45-50	Pot	Rim	22
1976.10.18	Balmer Huff / BH	A II 45-50	Pot	Base	12
1976.10.19	Balmer Huff / BH	A II 50-55	Pot	Sherds	71
1976.10.19	Balmer Huff / BH	A II 50-55	Pot	Rim	11
1976.10.19	Balmer Huff / BH	A II 50-55	Pot	Base	6
1976.10.20	Balmer Huff / BH	A II 66-60	Pot	Sherds	81
1976.10.20	Balmer Huff / BH	A II 66-60	Pot	Rim	9
1976.10.20	Balmer Huff / BH	A II 66-60	Pot	Base	5
1976.10.21	Balmer Huff / BH	A II 60-65	Pot	Sherds	78
1976.10.21	Balmer Huff / BH	A II 60-65	Pot	Rim	15
1976.10.21	Balmer Huff / BH	A II 60-65	Pot	Base	2

1976.10.22	Balmer Huff / BH	A II 65-70	Pot	Sherds	23
1976.10.23	Balmer Huff / BH	A II 70-75	Pot	Sherds	15
1976.10.23	Balmer Huff / BH	A II 70-75	Pot	Rim	6
1976.10.23	Balmer Huff / BH	A II 70-75	Pot	Base	2
1976.10.24	Balmer Huff / BH	A II 75-	Pot	Sherds	2
1976.10.25	Balmer Huff / BH		Pot	Samian	41
1976.10.26	Balmer Huff / BH	A I	Pot	Sherds	11
1976.10.27	Balmer Huff / BH	C	Pot	Sherds	34
1976.10.27	Balmer Huff / BH	C	Pot	Rim	3
1976.10.27	Balmer Huff / BH	C	Pot	Base	2
1976.10.28	Balmer Huff / BH	A	Pot	Sherds	48
1976.10.28	Balmer Huff / BH	A	Pot	Rim	6
1976.10.28	Balmer Huff / BH	A	Pot	Base	3
1976.10.29	Balmer Huff / BH	A II 15-20	Pot	Nene Valley	1
1976.10.30	Balmer Huff / BH	A II 19-20	Pot	New Forest	1
1976.10.31	Balmer Huff / BH	A II 30-35	Pot	Nene Valley	2
1976.10.32	Balmer Huff / BH	A II 30.4	Pot	Rouletted	1
1976.10.32	Balmer Huff / BH	A II 30.4	Pot	Base	1
1976.10.33	Balmer Huff / BH	A II 30-35	Pot	Nene Valley	1
1976.10.34	Balmer Huff / BH	A II 35-40	Pot	New Forest	1
1976.10.34	Balmer Huff / BH	A II 35-40	Pot	New Forest	1
1976.10.35	Balmer Huff / BH	A II 35-40	Pot	Imported Roman	1
1976.10.36	Balmer Huff / BH	A II 35-40	Pot	Nail punched	1
1976.10.37	Balmer Huff / BH	A II 35-40	Pot	SE 'B' "eye brow"	1
1976.10.38	Balmer Huff / BH	A II 40.2	Pot	Nene Valley	1
1976.10.39	Balmer Huff / BH	A II 40-45	Pot	Decorated	1
1976.10.40	Balmer Huff / BH	A II 40.42	Pot	Lug	1
1976.10.41	Balmer Huff / BH	A II 40-45	Plaster	Painted	1
1976.10.42	Balmer Huff / BH	A II 40-45	Pot	Decorated	1
1976.10.43	Balmer Huff / BH	A II 45-50	Pot	Decorated	1
1976.10.44	Balmer Huff / BH	A II 45-50	Pot	Finger pinched cordon	2
1976.10.45	Balmer Huff / BH	A II 45-50	Pot	Decorated	1
1976.10.46	Balmer Huff / BH	A II 50-55	Pot	Rouletted / colour coat	3
1976.10.47	Balmer Huff / BH	A II 50-55	Pot	Colour coated	1
1976.10.47	Balmer Huff / BH	A II 50-55	Pot	Rim	1
1976.10.48	Balmer Huff / BH	A II 50-55	Pot	Decorated	1
1976.10.49	Balmer Huff / BH	A II 50-55	Pot	SE 'B'	1
1976.10.50	Balmer Huff / BH	A II 55-60	Pot	New Forest	1
1976.10.51	Balmer Huff / BH	A II 55-60	Pot	Samian	1
1976.10.52	Balmer Huff / BH	A II 60-65	Pot	Finger pinched cordon	2
1976.10.53	Balmer Huff / BH	A II 60-65	Pot	SE 'B'	1
1976.10.54	Balmer Huff / BH	A II 60-65	Pot	Decorated	1
1976.10.55	Balmer Huff / BH	A II 70-75	Pot	Rim	2
1976.10.56	Balmer Huff / BH	A II	Pot	Decorated	1
1976.10.57	Balmer Huff / BH	B I 15-20	Pot	Samian	1
1976.10.58	Balmer Huff / BH	B I 20-25	Pot	Samian	1
1976.10.59	Balmer Huff / BH	B I 30-35	Pot	Samian	2
1976.10.60	Balmer Huff / BH	B I 30-35	Pot	New Forest	1
1976.10.61	Balmer Huff / BH	B I 35-40	Pot	Mortarium	1
1976.10.62	Balmer Huff / BH	B I 35-40	Pot	Samian	2

1976.10.63	Balmer Huff / BH	B I 35-40	Pot	Rouletted	1
1976.10.64	Balmer Huff / BH	B I 35-40	Pot	SE 'B'	1
1976.10.65	Balmer Huff / BH	B I 40-45	Pot	Samian	1
1976.10.66	Balmer Huff / BH	B I 40-45	Pot	Imitation Samian	1
1976.10.67	Balmer Huff / BH	A II 0-5	Flint		3
1976.10.68	Balmer Huff / BH	A II 5-10	Flint		11
1976.10.69	Balmer Huff / BH	A II 10-15	Flint		5
1976.10.70	Balmer Huff / BH	A II 15-20	Flint		3
1976.10.71	Balmer Huff / BH	A II 20-25	Flint		9
1976.10.72	Balmer Huff / BH	A II 25-30	Flint		6
1976.10.73	Balmer Huff / BH	A II 30-35	Flint		7
1976.10.74	Balmer Huff / BH	A II 35-40	Flint		3
1976.10.75	Balmer Huff / BH	A II 40-45	Flint		4
1976.10.76	Balmer Huff / BH	A II 45-50	Flint		3
1976.10.77	Balmer Huff / BH	A II 50-55	Flint		5
1976.10.78	Balmer Huff / BH	A II 55-60	Flint		1
1976.10.79	Balmer Huff / BH	A II 50-58	Flint		1
1976.10.80	Balmer Huff / BH	A II 60-65	Flint		3
1976.10.81	Balmer Huff / BH	A II 31-54	Flint		2
1976.10.82	Balmer Huff / BH	A II 70-75	Flint		3
1976.10.83	Balmer Huff / BH	A II 0-5	Flint		7
1976.10.84	Balmer Huff / BH	A II 5-10	Flint		11
1976.10.85	Balmer Huff / BH	A II 10-15	Flint		12
1976.10.86	Balmer Huff / BH	A II 15-20	Flint		8
1976.10.87	Balmer Huff / BH	A II 20-25	Flint		6
1976.10.88	Balmer Huff / BH	A II 25-30	Flint		7
1976.10.89	Balmer Huff / BH	A II 30-35	Flint		5
1976.10.90	Balmer Huff / BH	A II 31-54	Flint		4
1976.10.91	Balmer Huff / BH	A II 35-40	Flint		1
1976.10.92	Balmer Huff / BH	A II 40-45	Flint		5
1976.10.93	Balmer Huff / BH	A II 45-50	Flint		1
1976.10.94	Balmer Huff / BH	A II 60-65	Flint		3
1976.10.95	Balmer Huff / BH	A II 65-70	Flint		2
1976.10.96	Balmer Huff / BH	A II 70-75	Flint		5
1976.10.97	Balmer Huff / BH	A II 100W	Flint		1
1976.10.98	Balmer Huff / BH	B I 5-10	Flint		4
1976.10.99	Balmer Huff / BH	B I 10-15	Flint		5
1976.10.100	Balmer Huff / BH	B I 15-20	Flint		5
1976.10.101	Balmer Huff / BH	B I 20-25	Flint		8
1976.10.102	Balmer Huff / BH	B I 25-30	Flint		8
1976.10.103	Balmer Huff / BH	B I 30-35	Flint		3
1976.10.104	Balmer Huff / BH	B I 35-40	Flint		7
1976.10.105	Balmer Huff / BH	B I 40-45	Flint		3
1976.10.106	Balmer Huff / BH	B I 45-50	Flint		4
1976.10.107	Balmer Huff / BH	B I 50-58	Flint		4
1076.10.108	Balmer Huff / BH	A I 0-5	Flint		4
1076.10.109	Balmer Huff / BH	A I 5-10	Flint		7
1976.10.110	Balmer Huff / BH	A I 10-15	Flint		23
1976.10.111	Balmer Huff / BH	A I 15-20	Flint		8
1976.10.112	Balmer Huff / BH	A I 20-25	Flint		5

1976.10.113	Balmer Huff / BH	A I 25-30	Flint	2
1976.10.114	Balmer Huff / BH	A I 31-54	Flint	3
1976.10.115	Balmer Huff / BH	A II 0-5	Flint	7
1976.10.116	Balmer Huff / BH	A II 5-10	Flint	3
1976.10.117	Balmer Huff / BH	A II 10-15	Flint	16
1976.10.118	Balmer Huff / BH	A II 15-20	Flint	21
1976.10.119	Balmer Huff / BH	A II 20-25	Flint	17
1976.10.120	Balmer Huff / BH	A II 25-30	Flint	8
1976.10.121	Balmer Huff / BH	A II 30-35	Flint	20
1976.10.122	Balmer Huff / BH	A II 35-40	Flint	7
1976.10.123	Balmer Huff / BH	A II 40-45	Flint	19
1976.10.124	Balmer Huff / BH	A II 45-50	Flint	9
1976.10.125	Balmer Huff / BH	A II 50-55	Flint	11
1976.10.126	Balmer Huff / BH	A II 55-60	Flint	24
1976.10.127	Balmer Huff / BH	A II 60-65	Flint	9
1976.10.128	Balmer Huff / BH	A II 65-70	Flint	17
1976.10.129	Balmer Huff / BH	A II 70-75	Flint	14
1976.10.130	Balmer Huff / BH	A II 75 +	Flint	1
1976.10.131	Balmer Huff / BH	B I 5-10	Flint	1
1976.10.132	Balmer Huff / BH	B I 10-15	Flint	1
1976.10.133	Balmer Huff / BH	B I 15-20	Flint	3
1976.10.134	Balmer Huff / BH	B I 20-25	Flint	6
1976.10.135	Balmer Huff / BH	B I 25-30	Flint	4
1976.10.136	Balmer Huff / BH	B I 30-35	Flint	9
1976.10.137	Balmer Huff / BH	B I 35-40	Flint	7
1976.10.138	Balmer Huff / BH	B I 40-45	Flint	2
1976.10.139	Balmer Huff / BH	B I 45-50	Flint	3
1976.10.140	Balmer Huff / BH	B I 50-55	Flint	4
1976.10.141	Balmer Huff / BH	A I 0-5	Flint	19
1976.10.142	Balmer Huff / BH	A I 5-10	Flint	20
1976.10.143	Balmer Huff / BH	A I 10-15	Flint	17
1976.10.144	Balmer Huff / BH	A I 15-20	Flint	6
1976.10.145	Balmer Huff / BH	A I 20-25	Flint	4
1976.10.146	Balmer Huff / BH	A I 25-30	Flint	3
1976.10.147	Balmer Huff / BH	A I 30-35	Flint	2
1976.10.148	Balmer Huff / BH	A I 31-54	Flint	10
1976.10.149	Balmer Huff / BH	A II 0-5	Flint	2
1976.10.150	Balmer Huff / BH	A II 5-10	Flint	8
1976.10.151	Balmer Huff / BH	A II 10-15	Flint	10
1976.10.152	Balmer Huff / BH	A II 15-20	Flint	16
1976.10.153	Balmer Huff / BH	A II 20-25	Flint	12
1976.10.154	Balmer Huff / BH	A II 25-30	Flint	10
1976.10.155	Balmer Huff / BH	A II 30-35	Flint	10
1976.10.156	Balmer Huff / BH	A II 35-40	Flint	10
1976.10.157	Balmer Huff / BH	A II 40-45	Flint	7
1976.10.158	Balmer Huff / BH	A II 45-50	Flint	7
1976.10.159	Balmer Huff / BH	A II 50-55	Flint	7
1976.10.160	Balmer Huff / BH	A II 55-60	Flint	14
1976.10.161	Balmer Huff / BH	A II 60-65	Flint	13
1976.10.162	Balmer Huff / BH	A II 65-70	Flint	10

1976.10.163	Balmer Huff / BH	A II 70-75	Flint		16
1976.10.164	Balmer Huff / BH	A II 75 +	Flint		1
1976.11.1	Buckland Bank / BB / II	E1	Pot		
1976.11.2	Buckland Bank / BB / II	E1	Pot	Sherds	9
1976.11.3	Buckland Bank / BB / II	E1	Pot	Sherds	9
1976.11.4	Buckland Bank / BB / II	E1	Pot	Crumbs	
1976.11.5	Buckland Bank / BB / II	E1	Pot	Sherds	42
1976.11.6	Buckland Bank / BB / II	E1	Pot	Sherds	18
1976.11.7	Buckland Bank / BB / II	E1	Pot	Sherds	49
1976.11.7	Buckland Bank / BB / II	E1	Pot	Bases	2
1976.11.8	Buckland Bank / BB / II	E1	Pot	Sherds	11
1976.11.9	Buckland Bank / BB / II	E1	Pot	Sherds	9
1976.11.10	Buckland Bank / BB / II	E1			1
1976.11.11	Buckland Bank / BB / II	E1	Tile		11
1976.11.12	Buckland Bank / BB / II	E1	Pot	Sherds	1
1976.11.13	Buckland Bank / BB / II	E1	Pot	Sherds	10
1976.11.14	Buckland Bank / BB / II	E1	Pot	Sherds	15
1976.11.15	Buckland Bank / BB / II	E1	Pot	Sherds	4
1976.11.16	Buckland Bank / BB / II	E1	Pot	Sherds	6
1976.11.17	Buckland Bank / BB / II	E1	Pot	Sherds	4
1976.11.17	Buckland Bank / BB / II	E1	Pot	Rims	1
1976.11.18	Buckland Bank / BB / II	E1	Pot	Sherds	15
1976.11.18	Buckland Bank / BB / II	E1	Pot	Rims	3
1976.11.18	Buckland Bank / BB / II	E1	Pot	Bases	1
1976.11.19	Buckland Bank / BB / II	E1	Pot	Crumbs	
1976.11.20	Buckland Bank / BB / II	E1	Pot	Sherds	62
1976.11.21	Buckland Bank / BB / II	E1	Flint		21
1976.11.22	Buckland Bank / BB / II	A1	Pot	Sherds	5
1976.11.22	Buckland Bank / BB / II	A1	Pot	Rims	2
1976.11.23	Buckland Bank / BB / II	A2	Pot	Sherds	6
1976.11.23	Buckland Bank / BB / II	A2	Pot	Bases	1
1976.11.24	Buckland Bank / BB / II	A3	Pot	Sherds	13
1976.11.24	Buckland Bank / BB / II	A3	Pot	Bases	1
1976.11.24	Buckland Bank / BB / II	A3	Pot	Rims	1
1976.11.25	Buckland Bank / BB / II	B1	Pot	Sherds	4
1976.11.26	Buckland Bank / BB / II	B2	Pot	Sherds	4
1976.11.27	Buckland Bank / BB / II	B3	Pot	Sherds	4
1976.11.28	Buckland Bank / BB / II	C1	Pot	Sherds	9
1976.11.28	Buckland Bank / BB / II	C1	Pot	Rims	1
1976.11.29	Buckland Bank / BB / II	C2	Pot	Sherds	27
1976.11.30	Buckland Bank / BB / II	C3	Pot	Sherds	20
1976.11.31	Buckland Bank / BB / II	D1	Pot	Sherds	17
1976.11.32	Buckland Bank / BB / II	D2	Pot	Sherds	26
1976.11.33	Buckland Bank / BB / II	D3	Pot	Sherds	30
1976.11.34	Buckland Bank / BB / II	E1	Pot	Sherds	20
1976.11.34	Buckland Bank / BB / II	E1	Pot	Bases	1
1976.11.35	Buckland Bank / BB / II	E2	Pot	Sherds	29
1976.11.36	Buckland Bank / BB / II	E3	Pot	Sherds	13
1976.11.37	Buckland Bank / BB / II	F1	Pot	Sherds	39

1976.11.37	Buckland Bank / BB / II	F1	Pot	Rims	1
1976.11.37	Buckland Bank / BB / II	F1	Pot	Bases	2
1976.11.38	Buckland Bank / BB / II	F2	Pot	Sherds	27
1976.11.38	Buckland Bank / BB / II	F2	Pot	Bases	1
1976.11.39	Buckland Bank / BB / II	F3	Pot	Sherds	10
1976.11.39	Buckland Bank / BB / II	F3	Pot	Rims	2
1976.11.40	Buckland Bank / BB / III	G1	Pot	Sherds	46
1976.11.40	Buckland Bank / BB / III	G1	Pot	Rims	3
1976.11.40	Buckland Bank / BB / III	G1	Pot	Bases	3
1976.11.41	Buckland Bank / BB / III	G2	Pot	Sherds	18
1976.11.41	Buckland Bank / BB / III	G2	Pot	Rims	5
1976.11.41	Buckland Bank / BB / III	G2	Pot	Bases	2
1976.11.42	Buckland Bank / BB / III	G3	Pot	Sherds	11
1976.11.42	Buckland Bank / BB / III	G3	Pot	Rims	2
1976.11.43	Buckland Bank / BB / III	H1	Pot	Sherds	81
1976.11.43	Buckland Bank / BB / III	H1	Pot	Rims	16
1976.11.43	Buckland Bank / BB / III	H1	Pot	Bases	8
1976.11.43	Buckland Bank / BB / III	H1	Pot	Samian	2
1976.11.44	Buckland Bank / BB / III	H2	Pot	Sherds	75
1976.11.44	Buckland Bank / BB / III	H2	Pot	Rims	16
1976.11.44	Buckland Bank / BB / III	H2	Pot	Bases	6
1976.11.44	Buckland Bank / BB / III	H2	Pot	Samian	2
1976.11.45	Buckland Bank / BB / III	H3	Pot	Sherds	33
1976.11.45	Buckland Bank / BB / III	H3	Pot	Rims	7
1976.11.45	Buckland Bank / BB / III	H3	Pot	Bases	2
1976.11.46	Buckland Bank / BB / III	J1	Pot	Sherds	163
1976.11.46	Buckland Bank / BB / III	J1	Pot	Rims	15
1976.11.46	Buckland Bank / BB / III	J1	Pot	Bases	11
1976.11.46	Buckland Bank / BB / III	J1	Pot	Samian	5
1976.11.47	Buckland Bank / BB / III	J2	Pot	Sherds	148
1976.11.47	Buckland Bank / BB / III	J2	Pot	Rims	17
1976.11.47	Buckland Bank / BB / III	J2	Pot	Bases	13
1976.11.47	Buckland Bank / BB / III	J2	Pot	Samian	6
1976.11.47	Buckland Bank / BB / III	J2	Pot	Decorated	1
1976.11.48	Buckland Bank / BB / III	J3	Pot	Sherds	24
1976.11.48	Buckland Bank / BB / III	J3	Pot	Rims	4
1976.11.48	Buckland Bank / BB / III	J3	Pot	Bases	2
1976.11.49	Buckland Bank / BB / III	K1	Pot	Sherds	72
1976.11.49	Buckland Bank / BB / III	K1	Pot	Rims	9
1976.11.49	Buckland Bank / BB / III	K1	Pot	Bases	5
1976.11.49	Buckland Bank / BB / III	K1	Pot	Samian	3
1976.11.50	Buckland Bank / BB / III	K2	Pot	Sherds	110
1976.11.50	Buckland Bank / BB / III	K2	Pot	Rims	14
1976.11.50	Buckland Bank / BB / III	K2	Pot	Bases	8
1976.11.50	Buckland Bank / BB / III	K2	Pot	Samian	1
1976.11.51	Buckland Bank / BB / III	K3	Pot	Sherds	26
1976.11.51	Buckland Bank / BB / III	K3	Pot	Rims	5
1976.11.51	Buckland Bank / BB / III	K3	Pot	Bases	1
1976.11.52	Buckland Bank / BB / III	L1	Pot	Sherds	3
1976.11.52	Buckland Bank / BB / III	L1	Pot	Bases	1

1976.11.53	Buckland Bank / BB / III	L2	Pot	Sherds	14
1976.11.53	Buckland Bank / BB / III	L2	Pot	Rims	3
1976.11.54	Buckland Bank / BB / III	L3	Pot	Sherds	2
1976.11.55	Buckland Bank / BB / III	M1	Pot	Bases	1
1976.11.56	Buckland Bank / BB / III	All	Baked clay		26
1976.11.57	Buckland Bank / BB / V		Pot	Sherds	5
1976.11.57	Buckland Bank / BB / V		Pot	Samian	1
1976.11.57	Buckland Bank / BB / V		Tile		1
1976.11.58	Buckland Bank / BB / VI		Pot	Sherds	4
1976.11.59	Buckland Bank / BB / X	E	Pot	Sherds	12
1976.11.59	Buckland Bank / BB / X	E	Pot	Rims	2
1976.11.59	Buckland Bank / BB / X	E	Pot	Bases	2
1976.11.60	Buckland Bank / BB / X	F	Pot	Sherds	51
1976.11.60	Buckland Bank / BB / X	F	Pot	Rims	6
1976.11.60	Buckland Bank / BB / X	F	Pot	Bases	2
1976.11.61	Buckland Bank / BB / X	G	Pot	Sherds	206
1976.11.61	Buckland Bank / BB / X	G	Pot	Rims	27
1976.11.61	Buckland Bank / BB / X	G	Pot	Bases	13
1976.11.62	Buckland Bank / BB / X	G	Quern		1
1976.11.63	Buckland Bank / BB / X	H	Pot	Sherds	9
1976.11.63	Buckland Bank / BB / X	H	Pot	Rims	3
1976.11.63	Buckland Bank / BB / X	H	Pot	Bases	1
1976.11.64	Buckland Bank / BB / X	J	Pot	Sherds	3
1976.11.65	Buckland Bank / BB / III	H1	Hearthstone		1
1976.11.66	Buckland Bank / BB / III	J1	Hearthstone		1
1976.11.67	Buckland Bank / BB / II	A3	Pot	Samian	2
1976.11.67	Buckland Bank / BB / II	A3	Pot	SE 'B'	1
1976.11.67	Buckland Bank / BB / II	A3	Pot	Colander	1
1976.11.67	Buckland Bank / BB / II	A3	Pot	12th - 13th cent AD	1
1976.11.68	Buckland Bank / BB / II	C2	Pot	Samian	1
1976.11.68	Buckland Bank / BB / II	C2	Pot	Samian mortarium	1
1976.11.69	Buckland Bank / BB / II	D1	Pot	Colour coated	1
1976.11.70	Buckland Bank / BB / II	D2	Pot	Colour coated	1
1976.11.71	Buckland Bank / BB / II	F1	Pot	Samian	7
1976.11.71	Buckland Bank / BB / II	F1	Pot	Kimmeridge / Caburn	1
1976.11.72	Buckland Bank / BB / II	F2	Pot	Samian	2
1976.11.73	Buckland Bank / BB / II	F3	Pot	Decorated	1
1976.11.74	Buckland Bank / BB / III	G	Pot	Decorated	1
1976.11.74	Buckland Bank / BB / III	G1	Pot	Decorated	1
1976.11.74	Buckland Bank / BB / III	G1	Pot	SE 'B'	1
1976.11.75	Buckland Bank / BB / III	G3	Pot	Medieval	1
1976.11.76	Buckland Bank / BB / III	G3	Pot	Decorated	1
1976.11.77	Buckland Bank / BB / III	H1	Pot	SE 'B'	1
1976.11.77	Buckland Bank / BB / III	H1	Pot	Decorated	1
1976.11.77	Buckland Bank / BB / III	H1	Pot	Decorated	1
1976.11.78	Buckland Bank / BB / III	H2	Pot	Decorated	1
1976.11.78	Buckland Bank / BB / III	H2	Pot	Decorated	1
1976.11.79	Buckland Bank / BB / III	J1	Pot	Decorated	1
1976.11.79	Buckland Bank / BB / III	J1	Pot	Decorated	1
1976.11.79	Buckland Bank / BB / III	J1	Pot	New Forest	1

1976.11.79	Buckland Bank / BB / III	J1	Pot	Slashed cordon	1
1976.11.79	Buckland Bank / BB / III	J1	Pot	Decorated	1
1976.11.79	Buckland Bank / BB / III	J1	Pot	Rims	1
1976.11.79	Buckland Bank / BB / III	J1	Metal		1
1976.11.80	Buckland Bank / BB / III	K1	Pot	Decorated	1
1976.11.80	Buckland Bank / BB / III	K1	Pot	Neck jug	1
1976.11.80	Buckland Bank / BB / III	K1	Pot	Decorated	1
1976.11.81	Buckland Bank / BB / III	K2	Pot	Sherds	4
1976.11.81	Buckland Bank / BB / III	K2	Pot	Cordon	1
1976.11.81	Buckland Bank / BB / III	K2	Pot	Decorated	1
1976.11.81	Buckland Bank / BB / III	K2	Pot	12-13th cent AD	1
1976.11.81	Buckland Bank / BB / III	K2	Pot	New Forest	1
1976.11.81	Buckland Bank / BB / III	K2	Pot	Rims	1
1976.11.81	Buckland Bank / BB / III	K2	Pot	Mortarium	1
1976.11.82	Buckland Bank / BB / III	K3	Pot	Samian	3
1976.11.82	Buckland Bank / BB / III	K3	Pot	Rouletted	2
1976.11.82	Buckland Bank / BB / III	K3	Pot	Slashed cordon	1
1976.11.82	Buckland Bank / BB / III	K3	Pot	Strap handle	1
1976.11.82	Buckland Bank / BB / III	K3	Pot	Slash decoration	1
1976.11.83	Buckland Bank / BB / II	A1	Flint		9
1976.11.84	Buckland Bank / BB / II	A2	Flint		9
1976.11.85	Buckland Bank / BB / II	A3	Flint		38
1976.11.86	Buckland Bank / BB / II	B1	Flint		1
1976.11.87	Buckland Bank / BB / II	B2	Flint		5
1976.11.88	Buckland Bank / BB / II	B3	Flint		1
1976.11.89	Buckland Bank / BB / II	C1	Flint		1
1976.11.90	Buckland Bank / BB / II	C2	Flint		12
1976.11.91	Buckland Bank / BB / II	C3	Flint		28
1976.11.92	Buckland Bank / BB / II	D1	Flint		3
1976.11.93	Buckland Bank / BB / II	D2	Flint		2
1976.11.94	Buckland Bank / BB / II	D3	Flint		24
1976.11.95	Buckland Bank / BB / II	E1	Flint		2
1976.11.96	Buckland Bank / BB / II	E2	Flint		9
1976.11.97	Buckland Bank / BB / II	E3	Flint		11
1976.11.98	Buckland Bank / BB / II	F1	Flint		8
1976.11.99	Buckland Bank / BB / II	F2	Flint		8
1976.11.100	Buckland Bank / BB / II	F3	Flint		11
1976.11.101	Buckland Bank / BB / III	G1	Flint		1
1976.11.102	Buckland Bank / BB / III	G2	Flint		4
1976.11.103	Buckland Bank / BB / III	G3	Flint		3
1976.11.104	Buckland Bank / BB / III	H2	Flint		1
1976.11.105	Buckland Bank / BB / III	J1	Flint		2
1976.11.106	Buckland Bank / BB / III	L1	Flint		1
1976.11.197	Buckland Bank / BB / III	L2	Flint		2
1976.11.108	Buckland Bank / BB / III	L3	Flint		1
1976.11.109	Buckland Bank / BB / III	M3	Flint		2
1976.11.110	Buckland Bank / BB / III	_	Flint		6
1976.11.111	Buckland Bank / BB / II	A1	Flint		1
1976.11.112	Buckland Bank / BB / II	A2	Flint		5
1976.11.113	Buckland Bank / BB / II	A3	Flint		10

1976.11.114	Buckland Bank / BB / II	B1	Flint		2
1976.11.115	Buckland Bank / BB / II	B2	Flint		4
1976.11.116	Buckland Bank / BB / II	B3	Flint		1
1976.11.117	Buckland Bank / BB / II	C1	Flint		3
1976.11.118	Buckland Bank / BB / II	C3	Flint		6
1976.11.119	Buckland Bank / BB / II	D1	Flint		1
1976.11.120	Buckland Bank / BB / II	D2	Flint		1
1976.11.121	Buckland Bank / BB / II	D3	Flint		5
1976.11.122	Buckland Bank / BB / II	E1	Flint		3
1976.11.123	Buckland Bank / BB / II	E2	Flint		1
1976.11.124	Buckland Bank / BB / II	E3	Flint		10
1976.11.125	Buckland Bank / BB / II	F1	Flint		5
1976.11.126	Buckland Bank / BB / II	F2	Flint		2
1976.11.127	Buckland Bank / BB / II	F3	Flint		2
1976.11.128	Buckland Bank / BB / III	K3	Flint		1
1976.11.129	Buckland Bank / BB / III	_	Flint		2
1976.11.130	Buckland Bank / BB / II	A1	Flint		8
1976.11.131	Buckland Bank / BB / II	A2	Flint		13
1976.11.132	Buckland Bank / BB / II	A3	Flint		15
1976.11.133	Buckland Bank / BB / II	A4	Flint		4
1976.11.134	Buckland Bank / BB / II	A5	Flint		1
1976.11.135	Buckland Bank / BB / II	B1	Flint		7
1976.11.136	Buckland Bank / BB / II	B2	Flint		12
1976.11.137	Buckland Bank / BB / II	C1	Flint		7
1976.11.138	Buckland Bank / BB / II	C2	Flint		8
1976.11.139	Buckland Bank / BB / II	C3	Flint		20
1976.11.140	Buckland Bank / BB / II	D1	Flint		10
1976.11.141	Buckland Bank / BB / II	D2	Flint		12
1976.11.142	Buckland Bank / BB / II	D3	Flint		9
1976.11.143	Buckland Bank / BB / II	E1	Flint		13
1976.11.144	Buckland Bank / BB / II	E2	Flint		17
1976.11.145	Buckland Bank / BB / II	E3	Flint		11
1976.11.146	Buckland Bank / BB / II	F1	Flint		12
1976.11.147	Buckland Bank / BB / II	F2	Flint		29
1976.11.148	Buckland Bank / BB / II	F3	Flint		11
1976.14.1	Balmer Down / BD		Pot	Sherds	307
1976.14.1	Balmer Down / BD		Pot	Rims	70
1976.14.1	Balmer Down / BD		Pot	Bases	24
1976.14.2	Balmer Down / BD		Pot	Sherds	264
1976.14.2	Balmer Down / BD		Pot	Rims	89
1976.14.2	Balmer Down / BD		Pot	Bases	30
1976.14.3	Balmer Down / BD		Pot	Sherds	49
1976.14.3	Balmer Down / BD		Pot	Rims	11
1976.14.3	Balmer Down / BD		Pot	Bases	8
1976.14.3	Balmer Down / BD		Pot	Decorated	1
1976.14.4	Balmer Down / BD		Pot	Sherds	11
1976.14.4	Balmer Down / BD		Pot	Rims	4
1976.14.5	Balmer Down / BD		Pot	Sherds	244
1976.14.6	Balmer Down / BD		Pot	Sherds	27

1976.14.7	Balmer Down / BD	Pot	Sherds	
1976.14.8	Balmer Down / BD	Pot	Sherds	47
1978.14.8	Balmer Down / BD	Pot	Rims	13
1978.14.9	Balmer Down / BD	Pot	Sherds	195
1976.14.10	Balmer Down / BD	Pot	IA stamped	1
1976.14.11	Balmer Down / BD	Pot	IA Decorated	1
1976.14.12	Balmer Down / BD	Pot	RB decorated	1
1976.14.13	Balmer Down / BD	Pot	RB decorated	1
1976.14.14	Balmer Down / BD	Pot	RB finger impr	1
1976.14.15	Balmer Down / BD	Pot	RB decorated	1
1976.14.16	Balmer Down / BD	Pot	Rims	1
1976.14.17	Balmer Down / BD	Pot	RB fine red	2
1976.15.18	Balmer Down / BD	Pot	7th-6th C BC	1
1976.14.19	Balmer Down / BD	Pot	RB decorated	1
1976.14.20	Balmer Down / BD	Pot	RB colander	1
1976.14.21	Balmer Down / BD	Pot	RB mortaria	2
1976.14.22	Balmer Down / BD	Pot	New Forest	6
1976.14.22	Balmer Down / BD	Pot	New Forest rims	2
1976.14.22	Balmer Down / BD	Pot	New Forest base	1
1976.14.23	Balmer Down / BD	Pot	Samian mortar.	1
1976.14.24	Balmer Down / BD	Pot	RB fine sherds	9
1976.14.24	Balmer Down / BD	Pot	RB fine rims	2
1976.14.25	Balmer Down / BD	Pot	Raised cordon	9
1976.14.26	Balmer Down / BD	Pot	Samian sherds	32
1976.14.26	Balmer Down / BD	Pot	Samian rims	5
1976.14.26	Balmer Down / BD	Pot	Samian bases	2
1976.14.26	Balmer Down / BD	Pot	Dec. Samian	1
1976.14.27	Balmer Down / BD	RB tile		47
1976.14.28	Balmer Down / BD	Fired clay		4
1976.14.29	Balmer Down / BD	Sarsen	? some quern frags	9
1976.14.30	Balmer Down / BD	Polisher	Fine grained stone	1
1976.14.31	Balmer Down / BD	Sarsen	Burnt	4
1976.14.32	Balmer Down / BD	Pebbles	Burnt	2
1976.14.33	Balmer Down / BD	Sarsen		3
1976.14.34	Balmer Down / BD		Part of whetstone	1
1976.14.35	Balmer Down / BD	Flint		23

Spot dating prehistoric pot from Buckland Bank, Balmer Huff & Balmer Down by Mike Seager Thomas

Museum no.	Field	Grid	DR	PDR	LPDR	LPDR / MIA	MIA	ESGT
Balmer Huff								
1976.10.2	BI	15-20	0	3	0	0	0	0
1976.10.3	BI	20-25	0	4	0	0	0	0
1976.10.4	BI	25-30	0	10	1	0	0	0
1976.10.5	BI	30-35	0	1	0	0	0	0
1976.10.6	BI	35-40	0	2	0	0	0	0
1976.10.8	BI	45-50	1	0	0	0	0	0
1976.10.9	BI	50-55	0	1	0	0	0	1
1976.10.12	AII	15-20	0	1	0	0	0	3
1976.10.15	AII	30-35	0	1	0	0	0	6
1976.10.16	AII	35-40	0	0	0	0	0	16
1976.10.17	AII	40-45	0	2	1	0	0	13
1976.10.18	AII	45-50	0	0	1	0	0	0
1976.10.19	AII	50-55	0	0	0	0	0	5
1976.10.26	AI		1	0	0	0	0	0
1976.10.27	C		0	0	0	0	0	2
1976.10.36	AII	35-40	0	0	1	0	0	0
1976.10.37	AII	35-40	0	0	0	0	0	1
1976.10.39	AII	40-45	0	0	0	0	0	1
1976.10.42	AII	40-45	0	0	0	0	0	1
1976.10.44	AII	45-50	0	0	0	0	0	2
1976.10.45	AII	45-50	0	0	0	0	0	1
1976.10.48	AII	50-55	0	0	0	0	0	1
1976.10.49	AII	50-55	0	0	0	0	0	0
1976.10.52	AII	60-65	0	0	0	0	0	1
1976.10.53	AII	60-65	0	0	0	0	0	1
1976.10.56	AII		0	0	0	0	0	1
1976.10.58	BI	35-40	0	0	0	0	0	1
Buckland Bank								
1976.11.1-20	BB/II	E1	0	0	c.300	0	0	0
1976.11.10	BB/II	E1	0	0	0	0	0	0
1976.11.17	BB/II	E1	0	0	0	0	0	4
1976.11.22	BB/II	A1	0	1	2	0	0	5
1976.11.23	BB/II	A2	0	0	0	0	0	0
1976.11.24	BB/II	A3	0	0	5	0	0	7
1976.11.25	BB/II	B1	0	0	2	1	0	1
1976.11.26	BB/II	B2	0	0	2	0	0	2
1976.11.27	BB/II	B3	0	0	2	0	0	0
1976.11.28	BB/II	C1	0	0	6	0	0	3
1976.11.29	BB/II	C2	0	0	5	1	0	11
1976.11.30	BB/II	C3	0	0	7	2	0	1
1976.11.31	BB/II	D1	0	3	12	0	0	0
1976.11.32	BB/II	D2	0	2	5	1	0	9
1976.11.33	BB/II	D3	0	0	12	1	0	11

1976.11.34	BB/II	E1	0	1	6	0	0	6
1976.11.35	BB/II	E2	0	1	12	0	0	10
1976.11.36	BB/II	E3	0	3	4	1	0	3
1976.11.37	BB/II	F1	0	0	18	0	0	21
1976.11.38	BB/II	F2	0	0	14	0	0	11
1976.11.39	BB/II	F3	0	0	7	0	0	5
1976.11.40	BB/III	G1	0	2	1	1	0	44
1976.11.41	BB/III	G2	0	0	3	0	1	14
1976.11.42	BB/III	G3	0	1	0	0	0	8
1976.11.43	BB/III	H1	0	0	0	0	1	1
1976.11.44	BB/III	H2	0	0	1	0	0	7
1976.11.45	BB/III	H3	0	0	1	0	0	8
1976.11.46	BB/III	J1	0	0	0	0	0	14
1976.11.47	BB/III	J2	0	0	1	0	0	1
1976.11.48	BB/III	J3	0	0	0	0	0	0
1976.11.49	BB/III	K1	0	1	6	0	0	6
1976.11.50	BB/III	K2	0	0	2	1	1	7
1976.11.51	BB/III	K3	0	0	0	0	0	4
1976.11.52	BB/III	L1	0	0	0	0	?1	0
1976.11.53	BB/III	L2	0	0	0	0	0	0
1976.11.59	BB/X	E	0	0	4	0	0	0
1976.11.61	BB/X	G	0	0	7	0	0	19
1976.11.67	BB/II	A3	0	0	0	0	1	0
1976.11.71	BB/II	F1	0	0	1	0	0	0
1976.11.73	BB/II	F3	0	0	0	0	0	1
1976.11.74	BB/III	G1	0	0	0	0	0	3
1976.11.77	BB/III	H1	0	0	0	0	0	3
1976.11.78	BB/III	H2	0	0	0	0	0	2
1976.11.79	BB/III	J1	0	0	0	0	0	3
1976.11.80	BB/III	K1	0	0	0	1	0	1
1976.11.81	BB/III		0	0	0	0	0	6
1976.11.82	BB/III	K3	0	0	0	0	0	2

From Allcroft & Toms 1924/25

LEWSA1935.36	.13.1 = 22	15	0	0	0	1	0	7
LEWSA1935.36	.15.1 = 45		0	0	0	0	45	0
LEWSA1935.36	.11.1 = 39	40	0	4	7	1	0	0
LEWSA1935.36	.10.1 = 44	44	10	12	0	4	12	0
LEWSA1935.36	.3.1 = 25	2	0	1	0	0	0	1
LEWSA1935.36	.7.1 = 20	37	0	3	0	4	0	13
LEWSA1935.36	.19.10 - 3	4	0	0	0	0	3	0
LEWSA1935.36	.6.1 = 5	5	0	0	4	0	1	0
LEWSA1935.36	.7.1 = 8		0	0	0	9	0	0
LEWSA1935.36	.9.1 = 22	22	0	0	1	0	18	0
LEWSA1935.36	.5.1 = 4	4	0	0	2	1	0	1
LEWSA1935.36	.4.1 = 24	23	0	0	4	0	0	0

Balmer Down

1976.14.2	BD		0	1	1	0	0	1
1976.14.7	BD		0	0	1	0	0	0

1976.14.8	BD	0	10	22	1	1	1
1976.14.10	BD	0	0	0	0	0	1
1976.14.11	BD	0	0	0	0	0	1
1976.14.12	BD	0	0	0	0	0	1
1976.14.13	BD	0	0	0	0	0	1
1976.14.14	BD	0	0	0	0	0	1
1976.14.16	BD	0	0	0	0	0	1
1976.14.18	BD	0	0	1	0	0	0
1976.14.19	BD	0	0	0	0	0	1
1976.14.25	BD	0	0	0	0	0	9

Prehistoric pot from fieldwalking by Joyce Biggar *by Mike Seager Thomas*

EARLY POST DEVEREL-RIMBURY

Most early PDR fabrics locally are flint-tempered. As the tradition developed, however, a wide range of new fabrics was added to them. PDR flint-tempered fabrics were present throughout the survey area but only around Balmer Huff did they occur by themselves. This site is less than a kilometre away from Plumpton Plain B. Consisting of mostly undecorated PDR pottery but incorporating some developed forms, the pottery assemblage from there is assigned to the end of the early ‘plain ware’ phase of the tradition, dated to between 1150 and 950 cal BC, and it is suggested that the group from Balmer Huff is of broadly similar date. This early date is supported by the presence within the assemblage of two sherds in a coarsely flint-tempered fabric that could belong to either the PDR or the preceding Deverel-Rimbury pottery tradition.

LATE POST DEVEREL-RIMBURY

The principal ceramic marker for this period locally is a range of sparsely flint tempered fabrics with glauconite / pisolithic iron oxide inclusions, absent from assemblages of PDR plain wares, such as that from Plumpton Plain B, but present in abundance in later decorated assemblages like those from the Caburn and Hollingbury Camp. These late PDR assemblages belong to a period *after* 800 cal BC. Three sherds from or associated with this group are of particular note – a fragment of decorated ‘Caburn’ ware and part of a round shouldered jar or bowl of later Early Iron Age type, both in pisolithic fabrics, and a finger tip impressed shoulder in a wholly grog-tempered fabric new to Sussex but widespread in contemporary Continental assemblages. The distribution of sparsely flint-tempered pisolithic fabrics was focused on Buckland Bank II, but they were present in small quantities across the whole of the survey area.

SAUCEPAN AND ASSOCIATED POTTERY

Two fabrics, shelly and pisolithic, dominate the Middle Iron Age assemblage. Both have close late PDR fabric parallels within the assemblage as a whole but their later credentials within the survey area are vouchsafed for by their isolation within a number of otherwise unambiguous Middle Iron Age sherd groups, by a distinctly Middle Iron Age rim sherd in an analogous shelly *and* pisolithic fabric, and by close parallels in stratified assemblages of saucepan pottery from other East Sussex sites, notably Bishopstone, the Caburn and Norton. Also present are two actual saucepan pot rims, one in a flint tempered fabric, unusual in East Sussex assemblages but recurrent in those from West Sussex, and one in a widespread East Sussex fabric (calcite) (fig 6). Saucepan pottery is currently dated to between the 4th and the end of the 2nd centuries cal BC. The bulk of this material comes from the area of Allcroft and Toms' excavations and the field walked fields immediately adjacent to it.

EAST SUSSEX GROG-TEMPERED WARE

The greater part of the assemblage comprises East Sussex grog-tempered ware (East Sussex Ware). Given the number and range of Roman sherds recovered from the survey area a large proportion of these are likely to be Romano-British. Many of the chronologically disgnostic feature sherds, however, are of types that straddle the conquest and some of these might be of Late Iron Age date. These include finger-tipped cordons, tooled chevrons and 'eyebrow', circular stamps etc. Large assemblages of East Sussex grog-tempered ware were recovered from all parts of the survey area except Balmer Down, with the densest concentration, which includes many diagnostically early sherds, focusing on the interface between Buckland Bank II and Buckland Bank III, close to the area identified above as a focus of Middle Iron Age pottery.

Spot dating of worked flint from fieldwalking by Joyce Biggar (by Bertie Haken)

Museum No	Site grid	No pieces	Spot Date	Tools
1976.10.67	A II 0-5	3	LBA	
1976.10.68	A II 5-10	11	LBA,	2 cores reused as hammerstones, 1 chopper
1976.10.69	A II 10-15	5	LBA	1 chopper
1976.10.70	A II 15-20	3	LBA,	1 hammerstone, 1 chopper
1976.10.71	A II 20-25	9	LBA, 1 LNEBA	
1976.10.72	A II 25-30	6	LBA	1 hammerstone (fired cracked)
1976.10.73	A II 30-35	7	LBA	1 chopper
1976.10.74	A II 35-40	3	LBA	
1976.10.75	A II 40-45	4	LBA	
1976.10.76	A II 45-50	3	LBA, 1 LNEBA	
1976.10.77	A II 50-55	5	LBA	
1976.10.78	A II 55-60	1	LBA	
1976.10.79	A II 50-58	1	LBA	
1976.10.80	A II 60-65	3	LBA	
1976.10.81	A II 31-54	2	LBA, 1 LNEBA	
1976.10.82	A II 70-75	3	LBA, 1 LNEBA	
1976.10.83	A II 0-5	7	LBA	1 chopper
1976.10.84	A II 5-10	11	LBA, 1 LNEBA	1 LBA piercer on ENEO flake, 1 chopper
1976.10.85	A II 10-15	12	LBA	
1976.10.86	A II 15-20	8	LBA	
1976.10.87	A II 20-25	6	LBA	
1976.10.88	A II 25-30	7	LBA	1 ENEO hammerstone, 2 possible choppers
1976.10.89	A II 30-35	5	LBA	
1976.10.90	A II 31-54	4	LBA	1 possible chopper
1976.10.91	A II 35-40	1	LBA	
1976.10.92	A II 40-45	5	LBA	1 hammerstone (beach pebble)
1976.10.93	A II 45-50	1	LBA	
1976.10.94	A II 60-65	3	LBA	
1976.10.95	A II 65-70	2	LBA	
1976.10.96	A II 70-75	5	LBA	1 possible chopper
1976.10.97	A II 100W	1	LBA	
1976.10.98	B I 5-10	4	LBA	
1976.10.99	B I 10-15	5	LBA, 2 flakes LNEBA	
1976.10.100	B I 15-20	5	1, LNEBA	
1976.10.101	B I 20-25	8	1, LNEBA	
1976.10.102	B I 25-30	8	LBA	
1976.10.103	B I 30-35	3	LBA	
1976.10.104	B I 35-40	7	LBA	3 MESO / ENEO blades
1976.10.105	B I 40-45	3	LBA	
1976.10.106	B I 45-50	4	LBA	
1976.10.107	B I 50-58	4	LBA	
1076.10.108	A I 0-5	4	LBA	
1076.10.109	A I 5-10	7	LBA	

1976.10.110	A I 10-15	23	LBA, 2 LNEBA	
1976.10.111	A I 15-20	8	LBA	
1976.10.112	A I 20-25	5	LBA	
1976.10.113	A I 25-30	2	LBA	
1976.10.114	A I 31-54	3	LBA	
1976.10.115	A II 0-5	7	LBA, 1 LNEBA	
1976.10.116	A II 5-10	3	LBA	
1976.10.117	A II 10-15	16	LBA	
1976.10.118	A II 15-20	21	LBA	
1976.10.119	A II 20-25	17	LBA, 2 LNEBA	
1976.10.120	A II 25-30	8	LBA	
1976.10.121	A II 30-35	20	LBA	
1976.10.122	A II 35-40	7	LBA	1 ENEO blade fragment
1976.10.123	A II 40-45	19	LBA	
1976.10.124	A II 45-50	9	LBA	
1976.10.125	A II 50-55	11	LBA	
1976.10.126	A II 55-60	24	LBA	
1976.10.127	A II 60-65	9	LBA, 1 ENEO	
1976.10.128	A II 65-70	17	LBA	
1976.10.129	A II 70-75	14	LBA	
1976.10.130	A II 75 +	1	LBA	
1976.10.131	B I 5-10	1	LBA	1 side scraper
1976.10.132	B I 10-15	1	LBA	
1976.10.133	B I 15-20	3	LBA	1 side / end scraper
1976.10.134	B I 20-25	6	LBA	1 cutting flake, 1 end scraper, 1 piercer, 1 hollow scraper
1976.10.135	B I 25-30	4	LBA	1 side scraper
1976.10.136	B I 30-35	9	LBA	1 cutting flake, 1 side scraper, 2 end scrapers, 1 retouched flake
1976.10.137	B I 35-40	7	LBA	1 cutting flake, 1 ENEO end scraper, 1 piercer
1976.10.138	B I 40-45	2	LBA	1 ENEO end scraper
1976.10.139	B I 45-50	3	LBA	1 end scraper, 1 side / end scraper, 1 retouched flake
1976.10.140	B I 50-55	4	LBA	2 side scrapers, 1 end scraper, 1 piercer
1976.10.141	A I 0-5	19	LBA	1 side scraper, 4 end scrapers, 2 side / end scrapers, 1 piercer, 1 hollow scraper
1976.10.142	A I 5-10	20	LBA	1 side scraper, 3 end scrapers, 4 side / end scrapers
1976.10.143	A I 10-15	17	LBA	2 cutting flakes, 3 side scrapers, 2 end scrapers, 2 side / end scrapers
1976.10.144	A I 15-20	6	LBA	2 side / end scrapers, 2 piercers
1976.10.145	A I 20-25	4	LBA	1 cutting flake, 1 retouched flake
1976.10.146	A I 25-30	3	LBA	1 end scraper
1976.10.147	A I 30-35	2	LBA	1 ENEO side / end scraper
1976.10.148	A I 31-54	10	LBA	3 end scrapers, 1 side / end scraper
1976.10.149	A II 0-5	2	LBA	1 end scraper
1976.10.150	A II 5-10	8	LBA	2 side / end scrapers

1976.10.151	A II 10-15	10	LBA	2 side scrapers. 1 end scraper, 2 hollow scrapers
1976.10.152	A II 15-20	16	LBA	4 side scrapers, 1 end scraper, 1 side / end scraper
1976.10.153	A II 20-25	12	LBA	3 cutting flakes, 1 side scraper, 1 end scraper, 1 side / end scraper
1976.10.154	A II 25-30	10	LBA	1 cutting flake, 1 side scraper, 3 end scrapers (1 ENEO)
1976.10.155	A II 30-35	10	LBA	2 cutting flakes, 1 side scraper, 1 side / end scraper, 1 retouched flake, 1 hollow scraper
1976.10.156	A II 35-40	10	LBA	3 cutting flakes, 2 side / end scrapers
1976.10.157	A II 40-45	7	LBA	2 side scrapers, 1 retouched flake
1976.10.158	A II 45-50	7	LBA	2 side scrapers, 2 side / end scrapers
1976.10.159	A II 50-55	7	LBA	2 side scrapers, 1 piercer, 2 hollow scrapers
1976.10.160	A II 55-60	14	LBA	1 cutting flake, 2 side scrapers, end scraper, 1 retouched flake
1976.10.161	A II 60-65	13	LBA	4 cutting flakes, 1 side scraper, 3 end scrapers, 1 piercer, 2 hollow scrapers, 1 chopper
1976.10.162	A II 65-70	10	LBA	3 cutting flakes, 1 side scraper, 1 hollow scraper, 1 ENEO knife
1976.10.163	A II 70-75	17	LBA	3 cutting flakes, 8 side scrapers, 2 end scrapers, 1 ENEO notched scraper, 3 possible choppers
1976.10.164	A II 75 +	1	LBA	1 waisted tool
1976.11.83	A1	9	LBA	2 cutting flakes, 3 end scrapers (1 ENEO), 1 piercer, 2 notched scrapers, 1 chopper
1976.11.84	A2	9	LBA	3 cutting flakes, 2 side scrapers, 2 end scrapers, 1 piercer, 1 ENEO knife
1976.11.85	A3	38	LBA	8 cutting flakes (1 using older flake), 5 side scrapers (1 ENEO), 7 end scrapers (1 ENEO), 1 ENEO double ended scraper, 2 hollow scrapers, 3 knives (2 MESO, 1 ENEO), 1 ENEO notched scraper, 1 chopper
1976.11.86	B1	1	LBA	1 scraper / piercer
1976.11.87	B2	5	LBA	1 cutting flake, 2 side scrapers, 2 end scrapers (1ENEO)
1976.11.88	B3	1	LBA	1 cutting flake
1976.11.89	C1	1	LBA	1 ENEO side scraper
1976.11.90	C2	12	LBA	2 cutting flakes, 4 side scrapers, 3 ENEO end scrapers, 2 hollow scrapers
1976.11.91	C3	28	LBA	5 cutting flakes, 2 side scrapers, 1 end scraper, 2 retouched flakes, 1 hollow scraper, 4 notched scrapers (2 ENEO), 1 chopper
1976.11.92	D1	3	LBA	2 cutting flakes, 2 notched scrappers
1976.11.93	D2	2	LBA	7 cutting flakes, 3 side scrapers (1 ENEO), 2 end scrapers (1 ENEO), 1 retouched flake, 1 hollow scraper, 1 chopper

1976.11.94	D3	24	LBA	1 hollow scraper, 1 chopper
1976.11.95	E1	2	LBA	1 cutting flake, 1 end scraper
1976.11.96	E2	9	LBA	3 cutting flakes, 1 retouched flake, 1 ENEO knife
1976.11.97	E3	11	LBA	1 cutting flake, 1 notched scraper
1976.11.98	F1	8	LBA	2 cutting flakes, 3 end scrapers (1 ENEO), 1 hollow scraper, 1 ENEO knife
1976.11.99	F2	8	LBA	1 cutting flake, 3 side scrapers, 1 ENEO side / end scraper, 1 ENEO horseshoe scraper, 1 piercer
1976.11.100	F3	11	LBA	3 cutting flakes, 1 side scraper, 1 end scraper, 1 ENEO end /notched scraper, 1 hollow scraper
1976.11.101	G1	1	LBA	1 ENEO blade fragment, 1 ENEO end scraper, 2 retouched flakes
1976.11.102	G2	4	LBA	1 ENEO end scraper
1976.11.103	G3	3	LBA	1 ENEO disc scraper, 1 ENEO knife
1976.11.104	H2	1	LBA	1 end scraper
1976.11.105	J1	2	LBA	1 ENEO end scraper, 1 ENEO knife
1976.11.106	L1	1	LBA	1 end scraper
1976.11.197	L2	2	LBA	1 chopper
1976.11.108	L3	1	LBA	1 side scraper
1976.11.109	M3	2	LBA	
1976.11.110	_	6	LBA	1 cutting flake, 1 ENEO side / end scraper
1976.11.111	A1	1	LBA	1 hammerstone
1976.11.112	A2	5	LBA, 1Core ENEO	
1976.11.113	A3	10	LBA, 1 Core MESO,1 ENEO	1 NEO blade, 1 end scraper, 1 ENEO piercer
1976.11.114	B1	2	LBA	2 end scrapers
1976.11.115	B2	4	LBA 1 core ENEO	1 chopper
1976.11.116	B3	1	LBA	1 cutting flake
1976.11.117	C1	3	LBA	2 hammerstones, 1 pick
1976.11.118	C3	6	LBA	1 cutting flake
1976.11.119	D1	1	LBA	
1976.11.120	D2	1	LBA	
1976.11.121	D3	5	LBA	1 retouched blade
1976.11.122	E1	3	LBA	
1976.11.123	E2	1	LBA	1 end scraper
1976.11.124	E3	10	LBA	
1976.11.125	F1	5	LBA	3 hammerstones
1976.11.126	F2	2	LBA	
1976.11.127	F3	2	LBA	
1976.11.128	K3	1	LBA	
1976.11.129	_	2	LBA	1 ENEO end scraper
1976.11.130	A1	8	LBA	1 cutting flake
1976.11.131	A2	13	LBA, 2 ENEO flakes	1 MESO / ENEO blade

1976.11.132	A3	15	LBA	
1976.11.133	A4	4	LBA	
1976.11.134	A5	1	LBA	
1976.11.135	B1	7	LBA	
1976.11.136	B2	12	LBA	1 MESO / ENEO blade
1976.11.137	C1	7	LBA	
1976.11.138	C2	8	LBA	
1976.11.139	C3	20	LBA	
1976.11.140	D1	10	LBA	1 hollow scraper
1976.11.141	D2	12	LBA 2 ENEO flakes	
1976.11.142	D3	9	LBA	
1976.11.143	E1	13	LBA 3 ENEO flakes	
1976.11.144	E2	17	LBA 1 ENEO flake	1 ENEO knife
1976.11.145	E3	11	LBA	2 ENEO blades
1976.11.146	F1	12	LBA	
1976.11.147	F2	29	LBA	
1976.11.148	F3	11	LBA	2 ENEO blades, ENEO knife
1976.14.35		23	LBA	1 MESO / ENEO blade, 6 cutting flakes, 3 side scrapers (2 ENEO), 3 end scrapers (2 ENEO), 2 side / end scrapers

Data from soil micromorphology report by Richard I Macphail on samples obtained from excavation of a section across a lynchet in Moustone

Summary

Eight thin sections, from five monolith samples, were analysed employing soil micromorphology and selective microchemical analysis employing SEM/EDAX. Lower lynchet soils (Contexts 101, 105, 106) were found to be mainly composed of a decalcified fine loam soil, with high coarse silt (loess) content. The latter is a drift deposit of Pleistocene origin which still covered the chalk in prehistory, both here and at nearby Ashcombe Bottom. At Plumpton Plain, features of soil disturbance and slaking that are typical of unstable silty soils of arable colluvial origin across Europe, were recorded despite post-depositional *in situ* biological working affecting much of the buried soil. The large quantity of cracked angular flint suggests plough impact and high energy colluviation at times. Relict oxidised and partferruginised fine organic matter is present, including fungal material, which may infer manuring inputs. Confirmation of this hypothesis requires a chemical study, however. Localised anaerobic conditions produced by burial also led to typical iron mottling. A negative lynchet (Context 103) exposed the chalk substrate, producing calcareous soils where land snails and biogenic earthworm granules were preserved. Earthworm activity here also introduced burned soil into Context 103, from a recent bonfire. The report is supported by 3 tables and 20 figures, and a CD-Rom archive.

Introduction

Six ~10-20 cm-long monoliths from a probable Bronze Age lynchet at Plumpton Plain, near Lewes, Sussex, were received from Judie English. The samples had been collected from along a ~10 m long section of the lynchet, sloping down from East to West (J. English, pers. comm). These soil monolith samples were the subject of a soil micromorphology study (Goldberg & Macphail, 2006).

Methods and samples

Five monoliths were selected for study. These were taken from the lower part of the lynchet, from the upper slope (SS09) down-slope, namely: SS09, SS10, SS16, SS20 of the south facing section. SS06 was collected from the east facing section. The five monolith samples (Tables 1 and 2) were sub-sampled (PP6, PP9A, PP9B PP10A, PP9B, PP16A, PP16B and PP20) and impregnated with a clear polyester resin acetone mixture (Fig 1); samples were then topped up with resin, ahead of curing and slabbing for 75x50 mm-size thin section manufacture by Spectrum Petrographics, Vancouver, Washington, USA (Goldberg & Macphail, 2006; Murphy, 1986) (Figs 4-5). Thin sections were further polished with 1,000 grit papers, scanned with a flatbed scanner, and analysed using a petrological microscope under plane polarised light (PPL), crossed polarised light (XPL), oblique incident light (OIL) and using fluorescent microscopy (blue light – BL), at magnifications ranging from x1 to x200/400. Samples M9B and M16B were also analysed employing SEM/EDAX (see Table 2 and Fig 20).

Thin sections were described, ascribed soil microfabric types (MFTs) and microfacies types (MFTs) (see Tables 1 and 3), and counted according to established methods (Bullock *et al*., 1985; Courty, 2001; Courty *et al*., 1989; Macphail & Cruise, 2001). In addition, previous soil micromorphological studies at nearby Beaker and Iron Age Ashcombe Bottom provided useful analogues (Allen, 1994; Allen, 2005a; Macphail, 1992).

Results

Results are presented in Tables 1-3, illustrated in Figs 1-20, and supported by material on the accompanying CD-Rom. 16 characteristics were identified and counted from the 8 thin sections analysed.

South-facing section 101, 105 (PP06): This is a very stony non-calcareous fine sandy silt loam, with very abundant coarse angular flints. It has a total excremental microfabric with very abundant organo-mineral excrements. The fine fabric includes rare fine charcoal and often, the ferruginised remains of humic/fungal/ amorphous organic matter (Figs 6-9). The basal 'layer' (105) includes examples of calcareous soil (burrowed-in from below?). Both Contexts 101 and 105 (see below) are probable ploughsoil colluvial 'layers, where biological working has almost completely homogenised any earlier-formed textural pedofeatures that relate to tillage soil disturbance and colluviation (see below). Humic matter has become mineralised, but may possibly include remains of organic manuring (as indicated by relict fungal activity).

Monolith PP09, Context 105 (PP09B): This is a homogeneous non-calcareous fine sandy silt loam, with few small angular flints; rooted with woody (shrubs) roots (4mm) (Figs 1-3, 10). Fine fabric includes patchy textural intercalations and matrix and very dusty void coatings. A 3 sand-size example of probable βclay (from long weathered chalk?; Fig 11) and a 1.5mm-size possible iron fragment are present. This appears to be a ploughsoil colluvium, with fewer flints than above (PP09A, Context 101) and down-slope (cf PP10, PP16), as suggested by matrix coatings and infills (see below). Soil erosion may include βclay from the chalk substrate; this long weathered clay is found in association with chalk (Catt, 1986), and was an important colluvial component as an eroded material at nearby Ashcombe Bottom (Macphail, 1992). The relatively stone-free nature of this context suggests that it is a low energy hillwash colluvium.

Context 101 (PP09A): This context is a homogeneous non-calcareous fine sandy silt loam, but differs by including very many large angular flints (Figs 1-2); it is finely rooted. The fine fabric includes rare patchy textural intercalations, and matrix and very dusty void coatings. Rare charcoal is present. Here the upper ploughsoil colluvium, as suggested by the remains of matrix coatings and infills (see below), contains many more flints than below (cf PP09B) and is more like PP10 and PP16. It thus seems to be a higher energy colluvium containing plough-fractured (?) flints.

Context 106 (PP10B): This is an extremely heterogeneous fine sandy silt loam with both calcareous and non-calcareous soil, chalk stones and much very coarse cracked and angular flint stones (>50mm). Rare fine charcoal and burned/rubefied fine mineral material is present. Amorphous organic matter is included in some chalky fine soil. Occasional matrix void infills and coatings occur in association with intercalations and embedded grains/charcoal, and closed vughs (Figs 12-13). Different soil materials are sometimes biologically worked into aggregates (Fig 12). This is another example of stony colluvium where plough erosion has mixed different soil materials and fractured flints. Matrix coatings and associated features testify to tillage disturbance and muddy hillwash deposition (French, 2003; Gebhardt, 1992; Goldberg & Macphail, 2006; Jongerius, 1970, 1983; Macphail, 1992; Macphail *et al*., 1990). Chalky soil with amorphous organic matter inclusions could indicate surface burrowing by insects (cf Overton Down, Macphail & Cruise, 1996).

Context 101 (PP10A): This context is very heterogeneous, as below (106), with abundant thin to very broad (small mammal?) burrows, more intimately mixed soil materials (biogenic calcite present, is of probable earthworm origin) (Figs 14-15). It is similarly stony with chalk gravel and coarse flint stones. Both decalcified and calcareous silty soil show intercalations and associated very dusty clay void coatings and infills. This is the partially burrow-mixed remains of hillwash colluvium, and associated tillage affects. Cultivation led to soil slaking and textural pedofeature formation (see below).

Context 110 PP16B): This is a homogeneous well-sorted and non-calcareous fine sandy silt loam, with much anomalous angular cracked flint (max 17mm). Trace amounts of very fine charcoal. Abundant iron impregnation of relict humic content occurs (Figs 4, 16-17). Rare silty elutriation (45.6% Si, 97.7% SiO2), and clay and silt coatings/infills (15.3% Al, 15.6% Si, 6.94% Fe; Table 2, Fig 20). It has a total biological microfabric. This is decalcified fine drift soil (loess) of possible colluvial origin, in a subsoil hollow, but now almost totally biologically worked. Mottling and fine nodules are due to soil burial and localised anaerobic conditions (Lindbo et al., 2010), for example as found at the Experimental Earthwork at Overton Down, Wiltshire (Crowther *et al*., 1996).

Context 106 (PP16A): This is a generally homogeneous well-sorted and non-calcareous fine sandy silt loam, with much anomalous angular cracked flint (max 45mm). Trace amounts of very fine charcoal, and abundant iron and ferromanganese impregnation of relict humic content, were recorded. It is strongly rooted (max 4mm), with many thin burrows, and abundant thin and broad organo-mineral excrements This is decalcified fine drift soil (loess) of possible ploughsoil colluvial origin, but now totally biologically worked. Mottling and fine nodules are due to soil burial and localised anaerobic conditions at this part of the lynchet (see PP16B). Rooting and burrowing have introduced small amounts of calcareous soil.

Context 103 (PP20): This is a chalk stone-rich, humic and generally mainly decalcified fine sandy silt loam, with inclusions of occasional very fine charcoal (Fig 5). Very few very humic soil peds (A1h) with much charcoal, charred organic matter and burned flint are present (Figs 18-19). Earthworm granules, slug plates and land snails were noted, along with trace amounts of calcitic root pseudomorphs. Biological activity is indicated by both thin and broad burrowing, and abundant very thin organic excrements and broad organo-mineral excrements.

This is predominantly a humic and mainly decalcified Ah12 soil, with small amounts of background charred organic matter, and downward mixing of very humic A1h soil, with much charred organic matter and examples of burned flint (fireplace/burned surface source). This appears to be the location of a negative lynchet that exposed the chalk substrate, hence the chalky soil here. Anomalous burned soil has probably been earthworm-worked down profile from a 'bonfire' (J. English pers. comm.).

Discussion

Local soils and studies

Local soils are mapped as typical brown calcareous earths formed on chalky drift and chalk, and include around 60% silt from loess inputs (Coombe soil series, Coombe 2 soil association (Catt, 1978; Jarvis *et al*., 1983, 1984) (See elutriated silts, Fig 20, Table 2). Studies here at Plumpton Plain and locally at Ashcombe Bottom show that in prehistory the soils were noncalcareous fine loams, and have only become calcareous due to erosion and exposure of the chalk through agricultural activity and associated arable soil erosion; Beaker Period cultivation and cultivation-induced colluviation was identified at Ashcombe Bottom (Allen, 2005a; Macphail, 1992; Macphail *et al*., 1990).

Plumpton Plain

The buried lynchet soils at Plumpton Plain (101, 105, 106) show textural pedofeature traits of physically unstable soils that slake due to rain splash especially when disturbed by tillage, hence the matrix intercalations, and void infills and coatings (elutriated silts shown to comprise 97.7% SiO_2); other loess soils across Europe are similarly unstable (Fedoroff *et al*., 2010; Gebhardt, 1990; Henning & Macphail, 2004; Imeson & Jungerius, 1976; Kwaad & Mücher, 1977, 1979; Mücher & de Ploey, 1977). It is difficult to ascertain how organic these soils were, because of post-burial oxidation, but it is clear that some humic matter has become mineralised by iron compounds. This is typical of buried soils and relates to localized anaerobic conditions; for example it was investigated at the Overton Down Experimental Earthwork, where iron mottling was recorded (Bell *et al*., 1996; Crowther *et al*., 1996). Some organic inclusions and fungal material may suggest that manuring with dung could have taken place, but this hypothesis would need testing through chemical measurements of organic matter and phosphate. The lack of humic matter in arable soils makes them less stable compared to pasture topsoils for example, and as erosion progresses, poorly humic subsoils become exposed (see references previously cited above). The result is colluvial soil accretion down slope (Farres *et al*., 1992) and formation of a lynchet(s). These soils were then worked by biological activity and only patchy pedofeature evidence of this soil slaking, deposition and tillage remains.

Stone-rich fan deposits may also contribute to colluvial soils, as the result of shortlived high energy erosional and depositional events (Allen, 1988, 1994), but at Plumpton Plain the ubiquity of sharply angular cracked flints may suggest plough impact was also contributory to the stony nature of some contexts. Negative lynchet erosion, and exposure of the chalk and chalky soil development, was noted in Context 103. Such deep erosion at negative lynchets and exposure of the geological substrate is not uncommon (cf. Romano-British field system at Chysauster, Cornwall; Smith *et al*., 1996). It can also be noted at the location of sample SS20, that soil from a bonfire had been worked down profile into Context 103.

Table 1 Plumpton Plain soil micromorphology samples

Monolith	**Thin section**	**Relative depth (mm)**	**Context**	**MFT**	**SMT**	**Voids**	**Chalk stones**	**Flint c sand**
PP6	M6	260-335	101, 105	B1	1a1, 3a1	45%		aaaaa
PP9	PPM9A	220-295	101	B2	3a1	50%		aaaaa
PP9	PPM9B	295-370	105	B2	3a1	40%		aaa
PP10	PPM10A	310-390	101	C2	1a1, 1a2, 1a3, 3a1, 3a2	40%	ff	aaaaa
PP10	PPM10B	410-485	106	C1	1a1, 1a2, 1a3, 3a1, 3a2	45%	ff	aaaaa
PP16	PPM16A	280-335	106	B2	3a1, 1a1	50%	*	aaaaa
PP16	PPM16B	375-450	110	B1	3a1	45%		aaaaa
PP20	PPM20	5-80?	103	A1	1a1, 2a1, 2a2	60%	fff	a

Monolith	**Thin section**	**Burned material**	**Charcoal**	**Context**	**Land snail shell**	**Earthworm granules**	**Roots**	**Matrix coatings**
PP6	M6	a	a	101. 105				
PP9	PPM9A	a	a	101			aa	a
PP9	PPM9B	a	a	105			aa	aa
PP10	PPM10A	a	a	101		a*	a	aa
PP10	PPM10B	a	a	106	a-1		aa	aa
PP16	PPM16A	a*	a*	106	a-1		aaaa	
PP16	PPM16B	a*	a*	110				
PP20	PPM20	a*	a	103	a	a	a	

Monolith	**Thin section**	**Fe (Fe/Mn) mots**	**2ndary CaCO3**	**Thin burrows**	**Thin OM excr.**	**Broad OM excr.**
PP6	M6	aa		aaa	aaaaa	aaaaa
PP9	PPM9A	aa		aaa	aaaa	aaaa
PP9	PPM9B	aa		aa	aaa	aaaa
PP10	PPM10A	aa		aaaa	aaaa	aaaa
PP10	PPM10B	aa		aaa	aaa	aaa
PP16	PPM16A	aaaa		aaa	aaaa	aaaaa
PP16	PPM16B	aaaa		aaa	aaa	aaaaa
PP20	PPM20		a	aaa	aaaa	aaaa

* - very few 0-5%, f - few 5-15%, ff - frequent 15-30%, fff - common 30-50%, ffff - dominant 50-70%, fffff - very dominant >70%

a - rare <2%, a* 1%, a-1 single occurrence, aa - occasional 2-5%, aaa - many 5-10%, aaaa - abundant 10-20%, aaaa - very abundant >20%

Table 2 Plumpton Plain: SEM / EDAX analysis of M9b and 16B (% element; analysed areas and spots (see archive for full details)

	Na	Mg	Al	Si	S	K	Ca	Ti	Mn	Fe
M9B										
Ironstone fragment			2.25	2.83			0.48			69.2 89.0 FeO
M16B Elutriated ('washed') silts			0.64	45.6 97.7% SiO2			0.34			0.53
ditto			2.57	42.8			0.48			2.34
Soil matrix		0.67	6.79	36.1		1.11	1.21	0.49		4.59
ditto		0.66	6.32	36.1	0.47	0.89	0.96			4.19
Silty void coating			4.13	40.1		9.34	0.86			2.90
Clayey (root) channel coating	0.84		15.3	15.6	6.91	0.33	7.13			6.94

Table 3 Plumpton Plain; soil micromorphology (description and preliminary interpretations

Microfacies type (MFT) **Soil microfabric type (MST)**	**Sample number**	**Depth (relative depth)** **Soil micromorphology (SM)** **EDAX; SEM/EDAX**	**Preliminary interpretation and comments**
MFT B1	PP6	260-335mm	101, 105
SMT 1a1, 3a1 .		SM: mainly homogeneous SMT 3a1, with small amounts of 1a1 in lower part (105)	Very stoney non-calcareous fine sandy silt loam, with very abundant coarse angular flints Total excremental
		Structure: fragmented prismatic with fine to medium subangular blocky and some crumbs, 45% voids, simple and complex packing voids and intraped fine channels *Coarse mineral*: as PP16B, with dominant coarse angular flints (<40mm)	microfabric with very abundant organo-mineral excrements. Fine fabric includes rare fine chacoal and often the ferruginixsed remains of humic / fungal / amorphous organic matter. Basal layer includes examples of calcareous soil (burrowed from below?).
		Coarse organic and anthropogenic: rare charcoal (max 0.5mm); occasional fungal material, some often ferruginised, rare amorphous OM fine fragments *Fine fabric*: SMT 1a1, 3a1; *Pedofeatures:*amorphous; many fine nodules and diffuse Fe impregnations	*Probable ploughsoil colluvial layers, where biological working have completely homogenised any earlier formed textural pedofeatures. Humic matter has become mineralised,* *but many possibly include remains of organic manuring* .

		Fabric; many thin burrows *Excrements;* very abundant thin and broad organomineral excrements, including 1a1 material	
MFT B2 SMT 3a1	PP9A	220-295mm SM; homogeneous SMT 3a1 *Structure:*as below, 50% voids as below *Coarse material*; as below, very abundant coarse angular flints (>45mm) *Coarse organic & anthropogenic;* occasional fine root traces; fine charcial and trace amounts of rubefied burnt minerals; rare traces of fungal material (sclerotia) *Fine fabric*; 3a1 *Pedofeatures*; *testural;* rare dusty clay matric void coatings and intercalations' *amorphous*;,many fine to medium diffuse Fe impregnative mottles and nnodules *Fabric*; partially burrow homogenised, with many fine burrows *Excrements*; partial excremental fabric, with many very thin, thin and very abundant broad organo-mineral excrements associated with roots	101, Homogeneous non'calcareous fine candy silt loam, with very many large angular flints, finely rooted. Fine fabric includes rare patchy textural intercalations and matrix and very dusty void coatings. Rare charcoal is present. . . *This appears to be an upper plough soil colluvium, with many more flints than below (cf PP10, PP16), as suggested by the remains of matrix coatings and infills.*
MFT B2 SMT 3a1	PP9B	295-370mm SM; homogeneous SMT 3a1 *Structure*; fragmented fine prismatic and subangular blocky, with crumb; 40% voids, simple and complex packing voids, fine intrapedal channels *Coarse mineral;* moderately poorly sorted coarse silt-fine sand, with many subrounded and cracked angular flint (max 15mm); example of sand size βclay (from long weathered chalk?) and ironstone gravel *Coarse organic and anthropogenic;* many cracked flint (max 15mm), trace amounts of fine charcoal,; occasional woody roots (4mm); possible iron fragment (opaqu, reddish brown under OIL; 1.5mm); rare fine root traces *Fine fabric;*SMT3a1	105, Homogeneous non-calcareous fine sandy silt loam, with very few small angular flints; rooted with woody (shrub)roots (4mm). Fine fabric includes patchy textural intercalations and dusty void coatings. A sandwich size example of probable βclay (from long weathered chalk?) and a 1.5mm-size iron fragment are present. . . *This appears to be a plough soil colluvium with fewer flints than down-slope (PP10, PP16), as suggested by matrix coatings and infills. Soil erosion may include βclay from the chalk substrate. It is possible that the 'iron fragment' is from a plough.*

		Pedofeatures; textural; occasional dusty clay / matrix void coatings and intercalations; *amorphous;* abundant fine to medium diffuse Fe impregnative mottles and nodules *Fabric;* partially burrow homogenised *Excrements;* partial excremental fabric, with very thin, thin and very abundant broad organo-mineral excrements; very thin organic excrements associated with roots EDAX; ironstone composed of 89.0% FeO	
MFT C2 SMT: 1a1, 1a2, 1a3, 3a1, 3a2	PP10A	310-390mm SM; very heterogeneous, as PP10B below, but more finely mixed by burrowing. *Structure;* prismatic / coarse subangular fragmenting into subangular blocky with fine subangular blocky and crumbs (very broad burrows); 45% voids, simple and complex voids; intraped channels and vughs, including closed vughs *Coarse mineral;* as below with frequent chalky gravel *Coarse organic and anthropogenic;* as below, examples of biogenic calcite (earthworms?) *Fine fabric;* as below *Pedofeatures; textural;* occasional matrix and very dusty clay void infills and coatings with associated inercalations, and closed fine vughs; *anorphous; occasional iron impregnations and nodules* *Fabric;* abundant thin burrows; occasional very broad (15mm) burrows *Excrements;* abundant very thin, thin and broad organo-mineral excrements	101, Very heterogeneous, as below, with abundant thin to very broad (small mammal?) burrows. More intimately mixing soil materials (biogenic calcitepresent is of probable earthworm origin). It is similarly stoney with chalk gravel and coarse flint stones. Both decalcified and calcareous silty soil show intercalations and associated very dusty clay void coatings and infills . . *Partially burrow-mixed remains of hillwash colluvium, and associated tillage effects; soil slaking and textural pedofeature formation.*
MFT C1 SMT: 1a1, 1a2, 1a3, 3a1, 3a2	PP10B	410-485mm SM; very heterogeneous with common SMT 3a1, frequent 1a1, 1a3 and a few 3a2	106, Extremely heterogeneous fine sandy silt loam with both calcareous and non-calcaleous soil, chalk stones and much

		Structure; prismatic fragmenting into subangular blocky with fine subangular blocky and crumbs; 45% voids, simple and complex voids, intraped channels and vughs, including closed vughs	very coarse cracked and angular flint stones (>50mm). Rare fine charcoal and burned / rubefied fine mineral material is present. Amorphous organic matter is included in some chalky fine soil. Occasional matrix void infills and
		Coarse mineral; as PP16, with few rounded chalk sand, gravel and stones (max 15mm), very abundant angular cracked flint (>50mm)	coatings occur in association with intercalations and embedded grains / charcoal, and closed vughs. Different soil materials are sometimes biologically worked into aggregates.
		Coarse organic and anthropogenic; example of land snail shell, rare fine charcoal and fine rubefied burned materials	
		Fine fabric; SMT 1a2; cloudy grey (PPL), moderately high interference colours (open porphyric, crystallitic b-fabric, XPL), grey to greyish brown (OIL), includes fine amorphous OM; SMT 1a3; brown speckled and dotted (PPL), moderate interference colours (porphyric, crystallitic b-fabric, XPL), orange brown (OIL), weak humic staining, occasional very fine amorphous OM and rare charred OM; SMT 3a2; as 3a1, but with C:F 95:15	*Stoney colluvium where plough erosion has mixed different soil materials and fractured flints. Matrix coatings and associated features testify to tillage disturbance and muddy hillwash deposition. Chalky soil with amorphous organic matter inclusions could indicate surface burrowing by insects (cf Overton Down).*
		Pedofeatures; testural; occasional matrix void infills (400μm) and coatings with associated intercalations, and closed fine vughs and embedded material, including charcoal; *amorphous;* occasional iron impregnations and nodules *Fabric;* many thin burrows *Excrements;* many thin and broad organo-mineral excrements	
MFT B1 SMT 3a1	PP16A	280-355mm SM; Generally homogeneous with very dominant SMT 3a1 with very few 1a1	106, Generally homogeneous well-sorted and non-calcareous fine sandy silt
		*Structure;*fine subangular blocky and crumb fragmented from weak medium prismatic; 50% voids, simple and complex packing voids, fine intrapedal channels	loam, with much anomolous angular cracked flint (max 45mm). Trace amounts of very fine charcoal. Abundant iron and ferr-manganese impregnation of relict humic content.
		Coarse mineral; as below with angular cracked flint up to 45mm; example of chalk gravel	Strongly rooted (max 4mm), with mnay thin burrows, abundant thin and broad organo-mineral excrements.

		Coarse organic and anthropogenic; example of shell; very abundant roots (max 4mm); rare trace of charcoal *Fine fabric*; SMT1a1 and 3a1 *Pedofeatures; amorphous;* abundant fine to medium diffuse Fe impregnative mottles and nodules *Fabric;* many thin burrows *Excrements;* abundant thin and broad organo-mineral excrements	*Decalcified fine drift soil (loess) in subsoil hollow, of possible ploughsoil colluvial origin but now totally biologically worked. Mottling and fine nodules are due to soil burial and localised anaerobic conditions Rooting and burrowing have introduced small amounts of calcareous soil*
MFT B2 SMT 1a1, 3a1	PP16B	375-450mm SM; homogeneous SMT 3a1 *Structure;*fine subangular blocky (and crumb?) fragmented from weak medium prismatic; 45% voids, simple and complex packing voids; fine intrapedal channels *Coarse mineral;*poorly sorted coarse silt-fine sand, with frequent sub-rounded and cracked angular flint (max 17mm) *Coarse organic and anthropogeni inclusions;* abundant cracked flint (max 17mm), trace amlounts of fine charcoal *Fine fabric;* SMT 3a1; dusty brown and darkish brown (PPL), very low interference colours (close porphytic, stipple speckled b-fabric, XPL), orange brown (OIL), humic stained with occasional amorphous and rare charred OM, trace amlunts of fine rubefied mineral *Pedofeatures; textural;* rare thin dusty clay void coatings, intercalations of elutriated (washed) silts, and silty infills / coatings; *amorphous;* abundant fine to medium diffuse Fe impregnative mottles and nodules. *Fabric;* burrow homogenised *Excrements;* total excremental fabric, with very thin, thin and very abundant broad organo-mineral excrements EDAX: elutriated silts (45.6% Si, 97.7% SiO2), iron-stained clay coating (15.3% Al, 15.6% Si, 6.94% Fe)	110, Homogeneous well-sorted and non-calcareous fine sandy silt loam, with much anomolous angular cracked flint (max 17mm). Trace amounts of very fine charcoal. Abundant iron impregnation of relict humic content. Rare silty elutriation (45.6% Si, 97.7% SiO2), and clay and silt coatings / infills (15.3% Al, 15.6% Si, 6.94% Fe). Total biological microfabric. *Decalcified fine drift soil (loess), of possible colluvial origin, but now almost totally biologically worked. Mottling and fine nodules are due to soil burial and localised anaerobic conditions.*
MFT A1	PP20	5-80mm	103,

SMT 1a1, 2a1, 2a2	SM; moderately heterogeneous with dominant SMT 1a1, few 2a1 and 2a2 *Structure;* very open subangular blocky and crumb; 60% voids, poorly accommodated planar voids, simple packing voids, intrapedal fine channels *Coarse minerals;* c:F (Coarse : Fine limit at 10mm), very poorly sorted coarse silt fine sand-size quartz and feldspar, with very few coarse sand and small gravel-size flint (3mm), common chalk stones (subrounded, max 25mm) *Coarse organic and anthropogenic inclusions;* occasional roots and root remains - some woody (4mm); rare fine charcoal (rg in 2a2, max 350μm); rare angular flint flakes?, possible flint flake (burned; 3mm); trace amounts of burned mineral including flint; rare earthworm grnaules and trace amounts of slug plates; rare shell and land snail (2mm) *Fine fabric;* SMT 1a1; cloudy to pale brown to brown (PPL), low to very high interference colours (open porphyric, crystallitic b-fabric, XPL); darkins brown (OIL), humic with occasional amorphous and charred very fine OM; SMT2a1: brown to dark brown sometimes dotted (PPL), very low interference colours (open porphyric, stipple speckled b-fabric, XPL), brown to darkish browm (OIL), humic with occasional amorphous and charred OM; SMT 2a2: blackish to reddish brown, dotted (thinly burrowed) (PPL), very low interference colours to isotropic (open porphyric, crystallitic b-fabric, XPL), blackish brown (OIL), very humic, very many fine charcoal and amorphous OM; charred reddish and blackened amorphous OM *Pedofeatures, crystalline:* rare calcitic impregnations and root pseudomorphs *Fabric;* occasional very thin burrows *Excrements;* abundant very thin and thin organic excrements; abundant broad organo-mineral excrements	Chalk stone-rich, humic and generally mainly decalcified fine sandy silt loam, with inclusions of occasional very fine charcoal. Very few very humic soil peds (A1h) with much charcoal, charred organic matter and burned flint present. Earthworm granules, slug plates and land snails present, along with trace amounts of calcitic root pseudomorphs. Biological activity indicated by both thin and broad burrowing, and abundant very thin organic excrements and broad organo-mineral excrements *Predominantly humic and mainly decalcified Ah12 soil material, with small amounts of background charred OM, and possible trace amounts of flint (flakes), and downward mixing of very humic A1h soil, withmuch charred OM and examples of burned flint (fireplace / burned surface) source. Negative lynchet has exposed the chalk substrate, hence the chalky soil here; burned soil is probably earthworm-worked down profile from 'bonfire'.*

Appendix 4

Data relating to BA sites in the Kingley Vale study area (chapter 6) derived from the Chichester and District HER

Site No	Parish	Site Name		NGR	Site type	Date
CD95	Stoughton	Lordington	SU	78520957	4 ring ditches, possible barrows	BA
CD121	Westbourne	Racton Park Farm	SU	77770868	Furnished inhumation burial	EBA
CD138	Stoughton	Lordington	SU	78200995	Field system	Uncertain
CD332	Stoughton	Bow Hill	SU	82001100	Pottery	EIA
CD376	Compton	Grevitt's Copse	SU	78611354	Bowl barrow	BA
CD377	Compton	Grevitt's Copse	SU	78621355	Bowl barrow	BA
CD392	Stoughton	Lordington	SU	78241016	Field system	BA/EIA
CD400	Stoughton	Inholmes Wood	SU	79631157	Barrow	BA
CD519	Marden	North Marden	SU	80911544	Field system	Uncertain
CD562	Stoughton	Devil's Humps	SU	81911103	Pond barrow	BA
CD563	Stoughton	Devil's Humps	SU	81951103	Pond barrow	BA
CD570	Stoughton	Devil's Humps	SU	81891102	Bell barrow	BA
CD571	Stoughton	Devil's Humps	SU	82051115	Bowl barrow	BA
CD572	Stoughton	Devil's Humps	SU	81931105	Bell barrow	BA
CD573	Stoughton	Devil's Humps	SU	82101117	Bowl barrow	BA
CD575	Funtington	Kingley Vale	SU	82261069	Field system	BA
CD577	Stoughton	Bow Hill Camp	SU	82561164	Enclosure	LBA/EIA
CD580	Stoughton	Bow Hill	SU	81891096	Cross-ridge dyke	BA/IA
CD582	Stoughton	Bow Hill	SU	82491096	Saucer barrow	BA
CD583	Stoughton	Bow Hill	SU	82471096	Bowl barrow	BA
CD584	Stoughton	Bow Hill	SU	82461091	Bowl barrow	BA
CD588	Lavant	Kingley Vale	SU	82201076	Settlement	LBA
CD589	Stoughton	Stoughton Diwn	SU	81481177	Ring ditch, possible barrow	BA
CD590	Stoughton	Stoughton Diwn	SU	81361168	Ring ditch, possible barrow	BA
CD591	Stoughton	Stoughton Diwn	SU	81511180	Ring ditch, possible barrow	BA
CD592	Stoughton	Stoughton Diwn	SU	81441174	Ring ditch, possible barrow	BA
CD593	Stoughton	Stoughton Diwn	SU	81541178	Ring ditch, possible barrow	BA
CD594	Stoughton	Stoughton Diwn	SU	81321171	Ring ditch, possible barrow	BA
CD595	Stoughton	Asdean Down	SU	80751074	Bell barrow	BA
CD596	Stoughton	Asdean Down	SU	89771085	Bell barrow	BA
CD597	Stoughton	Asdean Down	SU	80791076	Bowl barrow	BA
CD598	Stoughton	Lambsdown Hill	SU	81461221	Bowl barrow	BA
CD599	Stoughton	Lambsdown Hill	SU	81451221	Bowl barrow	BA
CD600	Stoughton	Lambsdown Hill	SU	81441220	Bowl barrow	BA
CD601	Stoughton	Lambsdown Hill	SU	81431219	Bowl barrow	BA
CD603	Stoughton	Lambsdown Hill	SU	82021237	Cross-ridge dyke	BA
CD604	Stoughton	Lambsdown Hill	SU	82021237	Enclosure	LBA

CD607	Stoughton	Stoughton Diwn	SU	82241209	Barrow	BA
CD620	West Dean	Rummages Barn	SU	84611129	Saddle querns	EIA
CD623	West Dean	Bow Hill	SU	83201140	Field system	Uncertain
CD626	West Dean	Bow Hill	SU	83001180	Pottery	BA
CD628	Lavant	Lavant	SU	83201072	Field system	IA
CD630	Lavant	Crow's Hall Farm	SU	83291081	Spearhead	LBA
CD640	Lavant	Well Down Farm	SU	83511044	Pottery	EIA
CD641	Lavant	Slate Barn	SU	83451025	Field system	Uncertain
CD649	Funtington	Kingley Vale	SU	82021061	Settlement	LBA
CD650	West Dean	Rummages Barn	SU	84741120	Enclosure	EIA
CD655	Marden	East Marden	SU	81291483	Settlement	BA/IA
CD837	Lavant	Lavant	SU	83991039	Ring	MBA
CD1022	Funtington	Funtington Down	SU	80400990	Field system	Uncertain
CD1023	Funtington	Down's Farm	SU	81310947	Field system	Uncertain
CD1025	Funtington	West Coppice	SU	81060985	Barrow	BA/AS
CD1026	Funtington	West Coppice	SU	81980983	Barrow	BA/AS
CD1027	Funtington	West Coppice	SU	81970985	Barrow	BA/AS
CD1028	Funtington	West Coppice	SU	81990982	Barrow	BA/AS
CD1029	Funtington	Stoke Clump	SU	83400940	Pottery	EIA
CD1030	Funtington	Stoke Down	SU	82620974	Linear bank & ditch	BA
CD1038	Lavant	Langford Farm	SU	84220999	5 ring ditches, possible barrows	BA
CD1043	Funtington	Stoke Down	SU	82301980	Worked flint	EBA
CD1044	Funtington	Stoke Clump	SU	83560936	Ring ditch, possible barrow	BA
CD1046	Funtington	Stoke Clump	SU	83300950	Settlement	EIA
CD1047	Funtington	Stoke Clump	SU	83100960	Pottery	EIA
CD1048	Funtington	Stoke Clump	SU	83300950	Pottery	Beaker
CD1050	Funtington	Stoke Clump	SU	83420945	Bowl barrow	BA
CD1068	Funtington	Stoke Clump	SU	83300940	Field system	Uncertain
CD1086	Funtington	Kingley Vale	SU	82400870	Possible palstave	BA
CD1087	Lavant	Oldwick Farm	SU	84300740	Spearhead	BA
CD1095	Funtington	Bosham Stream	SU	80880678	Spearhead	MBA
CD1102	Funtington	Kingley Vale	SU	82350985	Linear earthwork	Uncertain
CD1110	Funtington	West Ashling	SU	81180738	Hoard	MBA
CD1220	West Dean	Hasler's Lane	SU	83501230	Field system	Uncertain
CD1221	West Dean	Double Barn	SU	85101360	Field system	Uncertain
CD1223	West Dean	Arboretum	SU	87091169	Field system	Uncertain
CD1270	Lavant	Haye's Down	SU	86201030	Field system	BA
CD1893	Bosham	Knapp Farm	SU	81940609	Settlement	LBA
CD2344	Lavant	Staple Lane	SU	86100960	Field system	Uncertain
CD2393	Lavant	Lavant	SU	85000800	Cauldron	BA
CD2400	Lavant	Chalk Pit Lane	SU	86950945	Pits	LBA
CD2403	Lavant	Chalk Pit Lane	SU	87030937	Pits	EBA
CD2480	Lavant	Mid-Lavant	SU	85000900	Spearhead	MBA

CD2977	Lavant	Trumley	SU	84800893	Axe	EBA
CD3018	Funtington	Stoke Clump	SU	83050945	Field system	Uncertain
CD3177	Lavant	Langford Farm	SU	84270955	Axe	MBA
CD3307	Marden	East Marden	SU	81291483	Pottery	EBA
CD4142	Stoughton	Lordington	SU	78730948	Possible cross-ridge dyke	LBA
CD4435	West Dean	Rummages Barn	SU	84361146	Ring ditch, possible barrow	BA
CD4512	Lavant	Staple Lane	SU	85960958	Barrow	MBA
CD4534	Lavant	Hunter's Race Farm	SU	85150717	Possible barrow	BA
CD5127	Lavant	Chalk Pit Lane	SU	86340938	Ring ditch, possible barrow	BA
CD5139	Lavant	Chalk Pit Lane	SU	86220948	Ring ditch, possible barrow	BA
CD5151	Lavant	Chalk Pit Lane	SU	86310962	Ring ditch, possible barrow	BA
CD5234	Stoughton	Hare's Lane	SU	78880941	Ring ditch, possible barrow	BA
CD7131	West Dean	Chilgrove	SU	82761446	Inhumation burial	BA
CD7963	Stoughton	Lordington	SU	78500966	Ring ditch, possible barrow	BA
CD7964	Stoughton	Lordington	SU	78540963	4 ring ditches, possible barrows	BA
CD7967	Funtington	West Stoke	SU	82620881	Ring ditch, possible barrow	BA

Appendix 5

Data relating to BA sites in the Fore Down (east of the Cuckmere River) study area (chapter 7) derived from the East Sussex HER

Site No	District	Parish	Site Name	NGR		Site type
MES544	Eastbourne	Eastbourne	Combe Hill	TQ	573022	Bowl barrow
MES544	Eastbourne	Eastbourne	Combe Hill	TQ	573022	Metalwork hoard
MES4801	Wealden	Selmeston	Selmeston Sandpit	TQ	512068	LBA ditch or two parallel ditches
MES4801	Wealden	Selmeston	Selmeston Sandpit	TQ	512068	LBA bucket urn
MES4545	Wealden	Long Man	Folkington Hill	TQ	55390294	Bowl barrow
MES4545	Wealden	Long Man	Folkington Hill	TQ	55460293	Barrow
MES4545	Wealden	Long Man	Folkington Hill	TQ	55490292	Bowl barrow
MES5087	Wealden	Willingdon & Jevington	Duttles Brow	TQ	565005	Settlement
MES5087	Wealden	Willingdon & Jevington	Duttles Brow	TQ	565005	Field system
MES2980	Wealden	Cuckmere Valley	Fore Down	TQ	54020195	Settlement
MES8488	Wealden	East Dean & Friston	Friston Hill	TQ	541017	Field system
MES521	Wealden	Willingdon & Jevington	Willingdon Hill	TQ	57700096	Bowl barrow
MES521	Wealden	Willingdon & Jevington	Willingdon Hill	TQ	57700096	Bowl barrow
MES531	Eastbourne	Eastbourne	Willingdon Cottages	TQ	57210050	Bowl barrow
MES531	Eastbourne	Eastbourne	Willingdon Cottages	TQ	57250047	Bowl barrow
MES531	Eastbourne	Eastbourne	Willingdon Cottages	TQ	57210053	Bowl barrow
MES2769	Wealden	Arlington	Windover Hill	TQ	54220325	Bowl barrow
MES2769	Wealden	Arlington	Windover Hill	TQ	54280326	Bowl barrow
MES813	Wealden	Willingdon & Jevington	Combe Hill	TQ	57620224	Disc barrow
MES2991	Wealden	Arlington	Deep Dean	TQ	541025	Field system
MES535	Eastbourne	Eastbourne	Greenstreet Barn	TQ	58720007	Settlement
MES4540	Wealden	Long Man	Wilmington Green	TQ	549052	Metalwork hoard
MES4528	Wealden	Arlington	Windover Hill	TQ	54480335	Platform barrow
MES519	Eastbourne	Eastbourne	Cold Crouch	TQ	57950207	Bowl barrow
MES5061	Wealden	Willingdon & Jevington	Willingdon Bottom	TQ	570016	Field system
MES2761	Wealden	Arlington	Deep Dean	TQ	53860282	Bowl barrow
MES2761	Wealden	Arlington	Deep Dean	TQ	53600256	Bowl barrow
MES2761	Wealden	Arlington	Deep Dean	TQ	53500251	Bowl barrow
MES2761	Wealden	Arlington	Deep Dean	TQ	53700158	Bowl barrow
MES5076	Wealden	Willingdon & Jevington	Folkington Hill	TQ	55730279	Bowl barrow
MES528	Eastbourne	Eastbourne	Willingdon Hill	TQ	57390058	Bowl barrow
MES523	Eastbourne	Eastbourne	Butts Brow	TQ	58030161	Barrow
MES4536	Wealden	Long Man	Folkington Hill	TQ	55070291	Barrow
MES2748	Wealden	Arlington	Burst House Farm	TQ	518021	Barrow
MES2759	Wealden	Arlington	Ewe Dean Down	TQ	541025	Field system
MES2981	Wealden	Cuckmere Valley	Old Kiln Bottom	TQ	53740194	Linear earthwork

MES2679	Wealden	Alfriston	Winton Hill	TQ	50870372	Barrow
MES2679	Wealden	Alfriston	Winton Hill	TQ	50890368	Barrow
MES552	Eastbourne	Eastbourne	Beachy Brow	TV	58309969	Bowl barrow
MES4546	Wealden	Arlington	Tenantry Ground	TQ	55160273	Bowl barrow
MES4535	Eastbourne	Eastbourne	Foxholes Brow	TQ	58110054	Bowl barrow
MES4535	Eastbourne	Eastbourne	Foxholes Brow	TQ	58010052	Bowl barrow
MES2624	Wealden	Alciston	North of Black Patch	TQ	50000438	Bowl barrow
MES2624	Wealden	Alciston	North of Black Patch	TQ	50070436	Bowl barrow
MES2624	Wealden	Alciston	North of Black Patch	TQ	505044	Bowl barrow
MES2819	Wealden	Berwick	Berwick Common	TQ	520065	Barbed and tanged arrowhead
MES2988	Wealden	Cuckmere Valley	Snap Hill	TQ	548000	Pottery
MES522	Eastbourne	Eastbourne	South of Beehive Plantation	TQ	57990143	Bowl barrow
MES532	Eastbourne	Eastbourne	Foxholes Brow	TQ	58070063	Bowl barrow
MES2689	Wealden	Alfriston	France Bottom	TQ	50910390	Cross- ridge dyke
MES2633	Wealden	Alciston	Bostal Hill	TQ	497047	Bowl barrow
MES4530	Wealden	Arlington	Wilmington Hill	TQ	54740338	Bowl barrow
MES3001	Wealden	Cuckmere Valley	Holt brow	TQ	55090205	Bowl barrow
MES1565	Lewes	Lewes	High and Over	TQ	51030124	Bowl barrow
MES3017	Wealden	Cuckmere Valley	Charleston Bottom	TQ	53550061	Bowl barrow
MES4531	Wealden	Long Man	Wilmington Hill	TQ	54850344	Bowl barrow
MES2677	Wealden	Alfriston	Above Berwick Chalkpit	TQ	50620403	Bowl barrow
MES2677	Wealden	Alfriston	Above Berwick Chalkpit	TQ	50630402	Bowl barrow
MES2677	Wealden	Alfriston	Above Berwick Chalkpit	TQ	50610403	Bowl barrow
MES536	Eastbourne	Eastbourne	Foxholes Brow	TQ	58210003	Bowl barrow
MES536	Eastbourne	Eastbourne	Foxholes Brow	TQ	58220002	Bowl barrow
MES2998	Wealden	Cuckmere Valley	Fore Down	TQ	537017	Field system
MES526	Eastbourne	Eastbourne	Foxholes Brow	TQ	58010070	Bowl barrow
MES2676	Wealden	Alfriston	Above Berwick Chalkpit	TQ	50450416	Bowl barrow
MES2676	Wealden	Alfriston	Above Berwick Chalkpit	TQ	50460414	Bowl barrow
MES2676	Wealden	Alfriston	Above Berwick Chalkpit	TQ	50480413	Bowl barrow
MES530	Eastbourne	Eastbourne	Foxholes Brow	TQ	58090042	Bowl barrow
MES704	Wealden	Alciston	Willingdon Hill	TV	588982	Cross-ridge dyke
MES2678	Wealden	Alfriston	Winton Hill	TQ	50800382	Bowl barrow
MES4526	Wealden	Arlington	Windover Hill	TQ	53970353	Bowl barrow
MES525	Eastbourne	Eastbourne	Foxholes Brow	TQ	57880079	Bowl barrow
MES2625	Wealden	Alciston	Bostal Hill	TQ	59230428	Bowl barrow
MES656	Eastbourne	Eastbourne	Babylon Track	TQ	57900180	Cross-ridge dyke
MES2682	Wealden	Alfriston		TQ	51180324	Bowl barrow
MES2982	Wealden	Cuckmere Valley		TQ	53710178	Bowl barrow
MES5064	Eastbourne	Eastbourne	Helling Down	TQ	572024	Field system
MES5074	Wealden	Willingdon & Jevington		TQ	566031	Field system
MES2750	Wealden	Arlington	Fore Down	TQ	54460246	Barrow
MES802	Eastbourne	Eastbourne	Butts Brow	TQ	583022	Field system
MES2685	Wealden	Alfriston		TQ	50240355	Bowl barrow

MES2675	Wealden	Alfriston	Front Hill	TQ	5003	Barrow
MES3000	Wealden	Cuckmere Valley	Holt Brow	TQ	55040228	Bowl barrow
MES1745	Lewes	Lewes	Folkington Hill	TQ	55900280	Cross-ridge dyke
MES2681	Wealden	Alfriston		TQ	51060336	Bowl barrow
MES2751	Wealden	Arlington	Alfriston area	TQ	5103	Socketed axe
MES2707	Wealden	Alfriston	France Bottom	TQ	508028	Field system
MES2816	Wealden	Berwick	Berwick Brickyard	TQ	525072	Socketed spear head
MES2983	Wealden	Cuckmere Valley		TQ	537016	Bowl barrow
MES5070	Wealden	Willingdon & Jevington		TQ	5601	Barbed and tanged arrowhead
MES543	Eastbourne	Eastbourne	Helling Down	TQ	572024	Field system
MES2690	Wealden	Alfriston		TQ	502922	Bowl barrow
MES806	Eastbourne	Eastbourne	Butts Brow	TQ	581021	Cross-ridge dyke
MES2984	Wealden	Cuckmere Valley	Friston Forest	TQ	537010	Bowl barrow
MES2985	Wealden	Cuckmere Valley		TQ	549012	Bowl barrow
MES2708	Wealden	Alfriston	The Rails	TQ	510023	Field system
MES783	Eastbourne	Eastbourne	Willingdon Hill	TQ	578013	Cross-ridge dyke
MES7331	Wealden	Berwick	Pound Place	TQ	523054	Burnt mound
MES2752	Wealden	Arlington	Alfriston area	TQ	5103	Socketed gouge
MES781	Eastbourne	Eastbourne	Cold Crouch	TQ	579019	Bowl barrow
MES2684	Wealden	Alfriston		TQ	50030359	Barrow
MES7317	Wealden	Cuckmere Valley	Old Winchester's Pond	TQ	539019	Pottery
MES8127	Wealden	Willingdon & Jevington	Butts Brow	TQ	580016	Flint scatter
MES788	Eastbourne	Eastbourne	Cold Crouch	TQ	578022	Bowl barrow
MES31	Lewes	Seaford	Hindover Hill	TQ	510008	Field system
MES7332	Wealden	Berwick	Beacon View	TQ	525061	Burnt mound
MES2760	Wealden	Alfriston		TQ	507021	Field system
MES7138	Wealden	Willingdon & Jevington	Harewick Bottom	TQ	563008	Metalwork
MES7368	Wealden	Long Man	Tenantry Ground	TQ	534027	Flint scatter
MES7298	Wealden	Long Man	Home Farm	TQ	544053	Bowl barrow
MES7141	Wealden	Willingdon & Jevington	Teddards brow	TQ	562028	Possible metalwork hoard
MES6996	Wealden	Willingdon & Jevington	Little Filching	TQ	567029	Metalwork
MES6937	Eastbourne	Eastbourne		TQ	581010	Flint scatter
MES16199	Eastbourne	Eastbourne	Foxholes Brow	TQ	58090042	Saucer barrow
MES6939	Wealden	Long Man	Holt Bottom	TQ	559024	Field system
MES16275	Wealden	Cuckmere Valley	Fore Down	TQ	543019	Field system and trackway
MES16274	Wealden	Long Man	Windover Hill	TQ	547027	Field system
MES16681	Wealden	Alfriston		TQ	507013	
MES3111	Eastbourne	Eastbourne	Beachy Head	TV	562955	Metalwork hoard
MES3052	Wealden	East Dean & Friston	Bette Tout	TV	557956	Settlement
MES3068	Wealden	East Dean & Friston	Bailey's Hill, Crowlink	TV	54449659	Bowl barrow

MES3068	Wealden	East Dean & Friston	Bailey's Hill, Crowlink	TV	54499664	Bowl barrow
MES3053	Wealden	East Dean & Friston	Belle Tout	TV	55949582	Bowl barrow
MES565	Eastbourne	Eastbourne	Pashley	TV	58589816	Bowl barrow
MES565	Eastbourne	Eastbourne	Pashley	TV	58649817	Bowl barrow
MES565	Eastbourne	Eastbourne	Pashley	TV	58619815	Bowl barrow
MES3005	Wealden	Cuckmere Valley	Seven Sisters	TV	527974	Field system
MES549	Eastbourne	Eastbourne	Crapham Down	TV	57509712	Bowl barrow
MES549	Eastbourne	Eastbourne	Crapham Down	TV	57509712	Settlement
MES3051	Wealden	East Dean & Friston	Belle Tout	TV	560955	Bowl barrow
MES591	Eastbourne	Eastbourne	Beachy Head	TV	58549573	Bowl barrow
MES591	Eastbourne	Eastbourne	Beachy Head	TV	58569572	Bowl barrow
MES591	Eastbourne	Eastbourne	Beachy Head	TV	58589570	Bowl barrow
MES591	Eastbourne	Eastbourne	Beachy Head	TV	58599567	Bowl barrow
MES562	Eastbourne	Eastbourne	Beachy Brow	TV	58519889	Bowl barrow
MES562	Eastbourne	Eastbourne	Beachy Brow	TV	58599882	Bowl barrow
MES594	Eastbourne	Eastbourne	Beachy Brow	TV	58549878	Bowl barrow
MES594	Eastbourne	Eastbourne	Beachy Brow	TV	58549883	Bowl barrow
MES572	Eastbourne	Eastbourne	Longland Road	TV	591995	Pottery
MES3058	Wealden	East Dean & Friston	Eastdean Down	TV	56549890	Pottery
MES585	Eastbourne	Eastbourne	Beachy Brow	TV	58579860	Cross-ridge dyke
MES3041	Wealden	East Dean & Friston	Pea Down	TV	569986	Metalwork hoard
MES606	Eastbourne	Eastbourne	Bullock Down	TV	5896	Pottery
MES564	Eastbourne	Eastbourne	Pashley Hill	TV	58579821	Cross-ridgedyke
MES552	Eastbourne	Eastbourne	Beachy Brow	TV	58309969	Bowl barrow
MES3070	Wealden	East Dean & Friston	Friston Hill	TV	545991	Pottery
MES595	Eastbourne	Eastbourne	Eastdean Down	TV	565978	Field system
MES554	Eastbourne	Eastbourne		TV	58399919	Bowl barrow
MES583	Eastbourne	Eastbourne	Crapham Down	TV	576976	Barrow
MES3011	Wealden	Cuckmere Valley	Newbarn Bottom	TV	52639835	Bowl barrow
MES3040	Wealden	East Dean & Friston	Summerdown	TV	56259860	Field system
MES685	Eastbourne	Eastbourne	Cornish Farm	TV	564962	Bowl barrow
MES550	Eastbourne	Eastbourne	Long Down	TV	56989655	Bowl barrow
MES571	Eastbourne	Eastbourne	Beachy Head	TV	5895	Pottery
MES8492	Eastbourne	Eastbourne	Cross Levels Way	TV		Pottery and ditch
MES7404	Wealden	East Dean & Friston	Birling Manor	TV	556962	Metalwork hoard
MES3055	Wealden	East Dean & Friston	Frost Hilll	TV	564958	Barrow
MES563	Eastbourne	Eastbourne	Downs Golf Course	TV	58569863	Bowl barrow
MES563	Eastbourne	Eastbourne	Downs Golf Course	TV	58569861	Bowl barrow
MES587	Eastbourne	Eastbourne	Frost Hilll	TV	56709588	Bowl barrow
MES739	Eastbourne	Eastbourne	Long Down	TV	574966	Burial
MES570	Eastbourne	Eastbourne		TV	58929746	Barrow
MES580	Eastbourne	Eastbourne	Warren Hill	TV	58729779	Barrow

MES7405	Wealden	East Dean & Friston	Birling Manor	TV	556964	Settlement
MES755	Eastbourne	Eastbourne	Eldon Bottom	TV	571993	
MES553	Eastbourne	Eastbourne	Beachy Brow	TV	58409945	Metalwork
MES7407	Wealden	East Dean & Friston	Birling Manor	TV	558962	Settlement
MES761	Eastbourne	Eastbourne	Crapham Bottom	TV		Field system
MES3066	Wealden	East Dean & Friston	Friston Hill	TV	54519918	Bowl barrow
MES683	Eastbourne	Eastbourne	Cornish Farm	TV	563962	Barrow
MES3102	Wealden	East Dean & Friston	Birling Farm	TV	555971	Metalwork
MES3042	Wealden	East Dean & Friston	Horseshoe Plantation	TV	56299584	Barrow
MES677	Eastbourne	Eastbourne	Bulling Dean	TV	579959	Trackway
MES584	Eastbourne	Eastbourne	Bullock Down	TV	58899650	Barrow
MES690	Eastbourne	Eastbourne	Heathy Brow	TV	591964	Settlement
MES561	Eastbourne	Eastbourne	Downs Golf Course	TV	585989	Barrow
MES16378	Eastbourne	Eastbourne	Ocklynge School	TV		Pottery
MES703	Eastbourne	Eastbourne	Long Down	TV	576967	Cross-ridge dyke
MES691	Eastbourne	Eastbourne	Bullock Down	TV	591972	Barrow
MES709	Eastbourne	Eastbourne	Middle Brow	TV	586975	Barrow
MES712	Eastbourne	Eastbourne	Brample Bottom	TV	567972	Barrow
MES714	Eastbourne	Eastbourne	Long Down	TV	573963	
MES710	Eastbourne	Eastbourne	Middle Brow	TV	582974	Barrow
MES711	Eastbourne	Eastbourne	Warren Hill	TV	589974	Barrow
MES741	Eastbourne	Eastbourne	Long Down	TV	569966	Barrow
MES754	Eastbourne	Eastbourne	Downs Golf Course	TV	585987	Barrow
MES707	Eastbourne	Eastbourne	Middle Brow	TV	587976	Barrow
MES622	Eastbourne	Eastbourne	Eastbourne Beach	TV	5999	Metalwork
MES581	Eastbourne	Eastbourne		TV	5999	Flint axe
MES15494	Lewes	Seaford	Brockhole Down	TQ	511001	Flint scatter
MES8680	Wealden	East Dean & Friston	Flagstaff Brow	TV	542972	Flint scatter
MES15440	Lewes	Seaford	South Hill	TV	511979	Field system
MES16275	Wealden	Cuckmere Valley	Fore Down	TQ	543019	Trackway

Appendix 6

Data relating to BA sites in the Stockbridge Down study area (chapter 8) derived from the Hampshire HER

Site No	District	Parish	Site Name		NGR	Site type	Date
24813	Test Valley	Stockbridge	Stockbridge Down	SU	3835	Inhumation	BA
24815	Test Valley	Stockbridge Little		SU	3836	Inhumation	Beaker
24897	Test Valley	Sombourne		SU	3936	Barrow	EBA
24902	Test Valley	Stockbridge Little	Stockbridge Down	SU	3735	Settlement	MBA
24910	Test Valley	Sombourne	Woolbury Ring	SU		Hillfort	EIA
24915	Test Valley	Stockbridge		SU	3635	Barrow	EBA
24916	Test Valley	Stockbridge		SU	3635	Barrow	EBA
25057	Test Valley	Stockbridge	Stockbridge Down	SU	3834	Barrow	EBA
25058	Test Valley	Stockbridge		SU	3834	Barrow	EBA
25059	Test Valley	Stockbridge	Stockbridge Down	SU	3734	Barrow	EBA
25060	Test Valley	Stockbridge		SU	3734	Barrow	EBA
25061	Test Valley	Stockbridge		SU	3734	Barrow	EBA
25062	Test Valley	Stockbridge	Stockbridge Down	SU	3734	Barrow	EBA
25063	Test Valley	Stockbridge	Stockbridge Down	SU	3734	Barrow	EBA
25064	Test Valley	Stockbridge	Stockbridge Down	SU	3734	Barrow	EBA
25065	Test Valley	Stockbridge	Stockbridge Down	SU	3734	Barrow	EBA
25066	Test Valley	Stockbridge	Stockbridge Down	SU	3734	Barrow	EBA
25087	Test Valley	Stockbridge	Stockbridge Down	SU	3734	Barrow	EBA
25095	Test Valley	Stockbridge		SU	3734	Barrow	EBA
25096	Test Valley	Stockbridge		SU	3734	Barrow	EBA
25103	Test Valley	Stockbridge	Stockbridge Down	SU	3734	Barrow	EBA
25104	Test Valley	Stockbridge	Stockbridge Down	SU	3734	Barrow	EBA
25105	Test Valley	Stockbridge		SU	3734	Inhumation	EBA
25106	Test Valley	Stockbridge Little		SU	3734	Cremations	MBA
25114	Test Valley	Sombourne Little		SU	3933	Pit	IA
25128	Test Valley	Sombourne Little		SU	3933	Pit	IA
25152	Test Valley	Sombourne		SU	3832	Settlement	EIA/MIA
25205	Test Valley	Stockbridge Little		SU	3635	Oval barrow	
25220	Test Valley	Sombourne		SU	3933	Flints	BA
25230	Test Valley	Stockbridge	Green Place	SU	3734	Barrow	EBA
25249	Test Valley	Stockbridge		SU	3834	Linear boundary	LBA
28541	Test Valley	Stockbridge		SU	3634	Enclosure	IA
28542	Test Valley	Stockbridge		SU	3634	Enclosure	IA
28543	Test Valley	Stockbridge Little		SU	3634	Trackway	IA
28547	Test Valley	Sombourne Little		SU	3933	Enclosure	IA
28548	Test Valley	Sombourne		SU	3933	Pit	IA
29486	Test Valley	Stockbridge		SU	3635	Enclosure	IA

28900	Test Valley	Stockbridge		SU	3734	Possible barrow	EBA
29487	Test Valley	Stockbridge		SU	3635	Ring ditch	EBA
29524	Test Valley	Stockbridge		SU	3635	Enclosure	IA
29525	Test Valley	Stockbridge		SU	3635	Enclosure	IA
29531	Test Valley	Little Sombourne		SU	3835	Linear boundary	LBA
29533	Test Valley	Little Sombourne		SU	3835	Field system	LBA
29534	Test Valley	Little Sombourne		SU	3835	Linear boundary	LBA
29537	Test Valley	Little Sombourne		SU	3835	Ring ditch	EBA
29971	Test Valley	Little Sombourne		SU	3835	Field system	LBA
29990	Test Valley	Stockbridge		SU	3636	Field system	LBA
29993	Test Valley	Stockbridge		SU	3835	Field system	LBA
	Test Valley			SU	3835	Linear boundary	LBA
29994	Test Valley	Stockbridge		SU	3835	Field system	LBA
54407	Test Valley	Little Sombourne	North Park Farm	SU	3733	Settlement	IA
	Test Valley			SU	3733	Field system	LBA
58132	Test Valley	Little Sombourne	Sombourne Park Farm	SU	3733	Enclosure	EIA/LIA
59811	Test Valley	Stockbridge		SU	3636	Field system	LBA
59812	Test Valley	Stockbridge		SU	3534	Field system	LBA
60725	Test Valley	Stockbridge	Woolbury Rings	SU	3735	Linear boundary	LBA
60726	Test Valley	Stockbridge	Woolbury Rings	SU	3835	Linear boundary	LBA

Appendix 7

Data relating to BA sites in the Thundersbarrow Hill study area (chapter 9) derived from the West Sussex HER

Site No	District	Parish	Site Name		NGR	Site type	Date
3201	Adur	Coombes	Cow Bottom	TQ	18800703	Field system & pottery	EIA/RB
3527	Horsham	Bramber	Bramber Castle	TQ	18551070	Coin	LIA
3496	Horsham	Bramber	Bramber Castle	TQ	18501070	Spearhead	LBA
3664	Horsham	Upper Beeding	Thundersbarrow Hill	TQ	23230964	Field system & pottery	EIA/RB
3669	Adur	Kingston by Sea	Shoreham	TQ	23300580	Settlement	EIA/RB
3671	Adur	Kingston by Sea	Shoreham	TQ	23250584	Settlement	EBA/LBA
3693	Adur	Southwick	Whitelot Bottom	TQ	23000800	Hoard	EIA/RB
3695	Adur	Shoreham	Buckingham Bottom	TQ	21000500	Axe	EBA
3697	Adur	Shoreham	Shoreham	TQ	21000500	Coins	LIA
3708	Adur	Shoreham	Holmbush	TQ	23000600	Coin	LIA
3713	Adur	Shoreham	Upper Shoreham Road	TQ	22260585	Axe	LBA
3717	Adur	Shoreham	Mill Hill	TQ	21280660	Burial & pottery	LIA
3723	Horsham	Upper Beeding	Beeding Hill	TQ	20750913	Cross-ridge dyke	
3732	Mid Sussex	Poynings	Devil's Dyke	TQ	25770947	Barrow	BA
3733	Mid Sussex	Newtimber	Black Burgh	TQ	27000980	Field system	Prehist
3826	Horsham	Upper Beeding	Edburton	TQ	23001100	Arrow head	BA
3827	Mid Sussex	Fulking	Perching Hill	TQ	24201006	Field system	Prehist
3870	Mid Sussex	Newtimber	Pond Brow	TQ	27001040	Field system	Prehist
3872	Mid Sussex	Fulking	Adder Bottom	TQ	25401020	Field system	Prehist
3876	Mid Sussex	Poynings	Devil's Dyke	TQ	26001100	Burial & pottery	EBA
3883	Mid Sussex	Newtimber	East Hill	TQ	27001100	Arrowhead	BA
3886	Mid Sussex	Poynings	Devil's Dyke	TQ	25001000	Palstave	BA
3887	Mid Sussex	Poynings	Hangleton Down	TQ	26001000	Palstaves	BA
3890	Mid Sussex	Newtimber	East Hill	TQ	27001100	Flat axe	BA
3891	Mid Sussex	Newtimber	Saddlescombe	TQ	27001100	Flint dagger	EBA
3895	Mid Sussex	Poynings	Devil's Dyke	TQ	26001000	Flint knife	BA
3896	Mid Sussex	Poynings	Jeffrey's Point	TQ	26001000	Flint knife	BA
3911	Mid Sussex	Poynings	Devil's Dyke	TQ	25601070	Coin	LIA
3917	Mid Sussex	Poynings	Devil's Dyke Station	TQ	26001000	Flint knife	EBA
3919	Mid Sussex	Newtimber	Patch Piece	TQ	27701190	Flint dagger	EBA
4345	Adur	Southwick	Roman villa	TQ	24460565	Pottery	IA
4369	Mid Sussex	Newtimber	Black Burgh	TQ	26970964	Bowl barrow	BA
3665	Mid Sussex	Fulking	Tenant Hill	TQ	23920909	Bowl barrow	BA
3675	Adur	Shoreham	Slonk Hill	TQ	22000705	Burial & pottery	EBA
3676	Adur	Shoreham	Slonk Hill	TQ	22150698	Settlement	EIA
3679	Horsham	Upper Beeding	Tenant Hill	TQ	23600890	Settlement	IA
3705	Mid Sussex	Fulking	Tenant Hill	TQ	23930890	Settlement	IA/RB
3728	Adur	Southwick	Thundersbarrow Hill	TQ	22970831	Pottery	IA

4349	Adur	Shoreham	Slonk Hill	TQ	22490663	Barrow	EBA
4350	Adur	Shoreham	Slonk Hill	TQ	22470662	Barrow	EBA
4353	Adur	Shoreham	Slonk Hill	TQ	22470662	Settlement	EIA/LIA
4357	Horsham	Upper Beeding	Beeding Hill	TQ	21540999	Bowl barrow	BA
4359	Horsham	Upper Beeding	Beeding Hill	TQ	21520994	Bowl barrow	BA
4365	Horsham	Upper Beeding	Truleigh Hill	TQ	23100960	Settlement	EIA/RB
3816	Horsham	Upper Beeding	Beeding Hill	TQ	21571002	Bowl barrow	BA
3817	Horsham	Upper Beeding	Beeding Hill	TQ	21611006	Barrow	BA
3818	Horsham	Upper Beeding	Beeding Hill	TQ	21711017	Barrow	BA
3823	Horsham	Upper Beeding	Truleigh Hill	TQ	22161081	Barrow	BA
3824	Horsham	Upper Beeding	Truleigh Hill	TQ	22171080	Barrow	BA
3833	Horsham	Upper Beeding	Truleigh Hill	TQ	22731079	Barrow	BA
3839	Horsham	Upper Beeding	Tottington Mount	TQ	21791110	Cross-ridge dyke	Prehist
3846	Mid Sussex	Fulking	Fulking Hill	TQ	25161084	Bowl barrow	BA
3839	Horsham	Upper Beeding	Tottington Mount	TQ	21801111	Cross-ridge dyke	Prehist
3846	Mid Sussex	Fulking	Fulking Hill	TQ	25161074	Barrow	BA
3847	Mid Sussex	Fulking	Fulking Hill	TQ	25081066	Possible barrow	BA
3848	Mid Sussex	Poynings	Devil's Dyke	TQ	25961065	Bowl barrow	BA
3849	Mid Sussex	Poynings	Devil's Dyke	TQ	26071067	Bowl barrow	BA
3850	Mid Sussex	Newtimber	Devil's Dyke	TQ	26641040	Pond barrow	BA
3908	Mid Sussex	Newtimber	Pond Brow	TQ	26621022	Burial	BA
3155	Adur	Coombes	Steep Down	TQ	17780683	Cross-ridge dyke	Prehist
3663	Horsham	Upper Beeding	Truleigh Hill	TQ	22880997	Possible barrow	BA
3815	Mid Sussex	Fulking	Edburton Hill	TQ	24131098	Possible barrow	BA
3835	Mid Sussex	Fulking	Edburton Hill	TQ	24191094	Enclosure	IA/RB
3843	Mid Sussex	Poynings	Devil's Dyke	TQ	26571123	Pottery	BA
3897	Mid Sussex	Newtimber	Summer Down	TQ	26601090	Cross-ridge dyke	Prehist
4292	Horsham	Upper Beeding	Beeding Hill	TQ	21450977	Enclosure	IA/RB
4294	Horsham	Upper Beeding	Truleigh Hill	TQ	22031037	Bowl barrow	BA
4295	Horsham	Upper Beeding	Truleigh Hill	TQ	22781039	Barrow	BA
4360	Horsham	Upper Beeding	Beeding Hill	TQ	21500990	Possible barrow	BA
4361	Horsham	Upper Beeding	Beeding Hill	TQ	21430991	Possible barrow	BA
3196	Adur	Coombes	Winding Bottom	TQ	18001780	Field system	Prehist
5228	Horsham	Bramber	Botolph's	TQ	19500910	Salt working	Prehist
5614	Adur	Southwick	Holmbush School	TQ	23750665	Settlement	IA/RB
4380	Mid Sussex	Poynings	Devil's Dyke	TQ	25991107	Hillfort	IA
4383	Mid Sussex	Newtimber	Summer Down	TQ	26951105	Bowl barrow	BA
4384	Mid Sussex	Newtimber	Summer Down	TQ	27001109	Bowl barrow	BA
4385	Mid Sussex	Newtimber	Summer Down	TQ	27041111	Bowl barrow	BA
5907	Adur	Shoreham	Erringham valley	TQ	20501770	Flint fabricator	BA
3894	Mid Sussex	Poynings	Devil's Dyke Farm	TQ	26001000	Flint dagger	EBA
3661	Mid Sussex	Fulking	Tenant Hill	TQ	24400910	Field system	Prehist

3698	Adur	Southwick	Mossy Bottom	TQ	22300610	Bronze axe	LBA
3715	Adur	Shoreham	Ravensbourne Ave	TQ	21960637	Burial	EBA
3807	Mid Sussex	Fulking	Perching Hill	TQ	24781091	Bowl barrow	BA
3168	Adur	Coombes	Coombe Head	TQ	18211847	Possible barrow	BA
3734	Adur	Southwick	Fishersgate	TQ	25330541	Pottery	LBA
3844	Mid Sussex	Fulking	Fulking Hill	TQ	25231007	Bowl barrow	BA
3731	Mid Sussex	Poynings	Devil's Dyke	TQ	25851940	Bowl barrow	BA
4346	Adur	Southwick	Thundersbarrow Hill	TQ	22900840	Hillfort	IA
4347	Adur	Southwick	Thundersbarrow Hill	TQ	22900840	Settlement	IA/RB
4356	Adur	Southwick	Thundersbarrow Hill	TQ	22970832	Bowl barrow	BA
4366	Adur	Southwick	Thundersbarrow Hill	TQ	22900850	Field system	Prehist
3804	Mid Sussex	Fulking	Edburton Hill	TQ	23691093	Bowl barrow	BA
3810	Horsham	Upper Beeding	Edburton Hill	TQ	23371096	Bowl barrow	BA
3808	Horsham	Upper Beeding	Edburton Hill	TQ	23321126	Possible barrow	BA
4362	Horsham	Upper Beeding	Beeding Hill	TQ	21430986	Possible barrow	BA
6799	Adur	Shoreham	Devil's Dyke	TQ	25911108	Pottery	IA
7245	Mid Sussex	Newtimber	Devil's Dyke Road	TQ	27210958	Worked flint	Prehist
5237	Adur	Coombes	Applesham	TQ	19400720	Bronze Handle	LIA
5619	Adur	Southwick	Southwick Hill	TQ	23850695	Field system	Prehist
7265	Mid Sussex	Poynings		TQ	25931222	Metalwork	LIA