SOLENT THAMES RESEARCH FRAMEWORK RESOURCE ASSESSMENT
THE LATER BRONZE AGE AND IRON AGE PERIOD

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Background

Studies carried out for the Solent Thames Research Framework

The study for Buckinghamshire was written by Sandy Kidd; Oxfordshire by Tim Allen; Berkshire by Steve Ford; Hampshire by Dave Allen; and Isle of Wight by Ruth Waller. Environmental background was supplied by Michael Allen.

Regional and national research context

There have been various previous reviews of different aspects of late prehistory in the area, and various conferences have outlined key research issues. Some are now becoming quite elderly but are still useful despite no longer being fully up to date, and they all vary in geographical scope, and few span the full period covered here (cf Barrett and Bradley 1980; Brück 2001; Cunliffe and Miles 1984; Fitzpatrick and Morris 1994; Champion and Collis 1996; Haselgrove and Pope 2007; Haselgrove and Moore 2007; Lambrick with Robinson 2009). *Understanding the British Iron Age an Agenda for Action* (Haselgrove *et al.* 2000) is the most recent attempt at a national research framework for the latter half of the period.

Nature of evidence base

General Scale and Character of investigations

The way in which later prehistoric sites and finds are recorded in county Historic Environment or Sites and Monuments Records is rather variable and not always easy to extract, so the following figures give only a broad brush indication of the scale of the known resource. To give some perspective, the Buckinghamshire figures for the period represent up to about 10 % of entries in the HER.

County	Later Bronze Age	Iron Age
Buckinghamshire & Milton Keynes	144	1622
Oxfordshire	42 (but 897 gen BA)	485
Berkshire	*Not obtained*	*Not obtained*
Hampshire	*Not obtained*	*Not obtained*
Isle of Wight	31	118

Another way of looking at this is through the records of *The Later Prehistoric Pottery Gazetteer* (www.arch.soton.ac.uk/Projects). Compiled in 1999, this provides the following breakdown of collections in the Solent Thames area.

County	No Sites/ collections	% Published
Buckinghamshire & Milton Keynes	261	21.8

Oxfordshire*	195	33.8
Berkshire*	272	31.8
Hampshire	387	20.4
Isle of Wight	57	14

** NB the low figure for Oxfordshire compared with Berkshire is because many sites in the Vale of White Horse and some in South Oxfordshire are listed according to pre-1974 county boundaries under Berkshire.*

In terms of large excavations, of 27 substantive open area excavations in Buckinghamshire, 15 have been fully published, whilst a further 9 are progressing towards publication. In Oxfordshire at least 30 major area excavations, including some complete excavations of settlements, have either been published or are very close to publication. In Berkshire there have been about 20 substantial excavations, the majority of which have been published. Hampshire has around 25 substantive sites, mostly from the chalk and mostly published. On the Isle of Wight most excavations have mostly been small scale though the enclosure at Knighton produced a reasonably substantial collection of pottery. Of specific sites, Danebury, which yielded 158,000 sherds, is exceptional in the whole Solent Thames Area, not only for its pottery.

History of investigation

In Buckinghamshire later prehistoric sites have been recognised since the 19th century, but there was little pioneering excavation.

In Oxfordshire later prehistoric sites have been recorded since the 16th century, when Leland wrote about the earthworks on Castle Hill, Little Wittenham (Leland 1964. 120; Gelling 1974, 128). Interest and knowledge grew from the mid-19th century onwards, with the excavations of Stephen Stone at Standlake (1847) and Boyd Dawkins (1862; 1864) and Rolleston (1884) at Yarnton. There was increasing concern at the destruction of prehistoric monuments in the later 19th century, and the levelling of part of the earthworks at Dyke Hills, near Dorchester-upon-Thames became a particular cause célèbre in the campaign that led to the passing of the first Ancient Monuments Act in 1882 (Lane-Fox 1870; Cook and Rowley 1985, 18-20).

Some of Hampshire's prominent Iron Age earthworks received honourable mention in the 17th and 18th centuries from Camden, Aubrey and Stukeley, but it was not until the second half of the 19th century that excavation on an Iron Age site took place, with Augustus Franks' work in 1858 at Danbury and Dr J C Stevens report of a number of 'pit-dwellings' (probably storage pits) at Hurstbourne railway station (Cunliffe 2000, 10; Stevens 1888, 25).

On the Isle of Wight much evidence gathered by antiquaries remains unreliable e.g. Late Bronze Age urnfields. Very little new data from this period recovered in the intervening years.

The development of aerial photography, notably by Major W G Allen in the Thames Valley and O G S Crawford in Wessex in the 1920s and 1930s, followed by Derek Riley, J K St Joseph, Arnold Baker and others, led to an explosion of information about buried sites on the river gravels and chalk, and to a lesser extent on limestone and other free-draining soils. New discoveries continue to be made, even in well-surveyed areas (Featherstone and Bewley 2000). Many undated cropmark sites are probably of later Bronze Age or Iron Age origin, though dating on purely morphological grounds is of very variable reliability.

Other non-intrusive site prospection and recording techniques (fieldwalking, earthwork survey and geophysics) have also played their part in enhancing the record.

In the late 1950s and 1960s when magnetometry was first being developed, the use of geophysics coupled with targeted excavation was pioneered by the Oxford University Archaeological Society in a

series of hillfort investigations in Oxfordshire and south Northamptonshire. In recent years a similar approach with more sophisticated modern equipment has been revived with the Wessex hillfort project (Payne *et al.* 2006) and work along the Berkshire Downs and at Little Wittenham (Miles *et al.* 2003; Lock *et al.* 2005; Allen *et al.* forthcoming b).

Approaches to excavations have also changed over the years, many early ones being small-scale trenches or salvage areas, the scale gradually increasing especially through the 1970s to 1990s. A few excavations such as Danebury and Gravelly Guy reflect very complete recovery of material from large area excavations, but most reflect less complete levels of sampling, and in recent years the trend has been towards recording much larger areas with lower levels of sampling. However, there has been relatively little academic research into the pros and cons of sampling strategies since the 1980s.

Biases in geographical coverage of investigation

In Buckinghamshire there has been a heavy bias in excavation towards the Milton Keynes area and along the Thames valley, but also more recently around Aylesbury, which remains an area of growth.

For a long while the pressure of development in Oxfordshire was most evident in the gravel and sandpits of the valleys, but development around towns like Bicester and Banbury has provided new foci for archaeological investigation. Understanding of the Cotswolds in later prehistory still lags behind that of the valley. While recent work along the Ridgeway and outlying chalk hills has started to redress the balance for the Berkshire Downs, this has still been of a somewhat restricted character. Recent work on the Corallian Ridge and in the Vale of White Horse has also begun to fill out the picture.

In Berkshire there has again been a major concentration of investigation on the middle Thames and lower Kennet gravels, especially in the areas west of Reading and between Maidenhead and Slough. There has been growing investigation in some parts of the tertiary beds e.g. in the vicinity of Burghfield, but still only limited work on the dip slope of the Berkshire Downs compared with the recent focus of research along the Ridgeway in Oxfordshire.

In Hampshire the study of chalkland sites (around Danebury, Andover, Basingstoke, and down the M3 corridor past Winchester) has held a pre-eminent position in the study of late prehistory not only in the county but nationally. In the non-calcareous parts of the county field surveys, gravel quarrying, road building and urban development have added to the picture, although in comparatively sporadic fashion, except for the major late Iron Age regional tribal centre at Calleva Atrebatum (Silchester).

In the Isle of Wight most work has again concentrated on the central chalk ridge where most sites are known, but there has been an increasing amount of work in recent years on the coastal areas.

An important aspect of the geographical coverage has been the interplay between development-led archaeology and university and other research projects which have made a major contribution to rectifying some of the biases, and in some instances have provided the backbone of research, notably for the Cotswolds, the Chilterns, the Berkshire Downs and outlying hills, Silchester, parts of the Hampshire chalk and the coastal plain.

Taking these patterns overall, it is clear that there are substantial geographical biases in the record, but useful progress has been made in recent years to begin to redress these.

A further important feature of the Solent Thames area as a resource for studying later prehistory is that includes several of the most intensively studied local areas for late prehistoric archaeology in Britain. Particularly notable in this respect are the areas around Milton Keynes (Buckinghamshire); Stanton Harcourt, Cassington/Yarnton and Abingdon (Oxfordshire); the Lower Kennet valley (Berkshire); Silchester, and Danebury and its environs (Hampshire). Some other areas with a more recent history of major investigations, such as the Maidenhead to Slough section of the middle Thames valley

(Buckinghamshire and Berkshire) are emerging as further important foci of investigations. These various 'hotspots' of later prehistoric archaeology thus provide an excellent resource for comparative studies across the Solent Thames area, which is especially valuable in the wider context of its variability in settlement patterns, land use and cultural associations that are gradually becoming better understood.

Chronology

The dating of most sites still rests on ceramic typology as few produce other dateable finds. The chronology of the later Bronze and Iron Ages in the Solent Thames area can be divided by broad pottery styles into the following main phases, though these are not equally clear-cut, nor necessarily contemporaneous across the area:

i. Deverel Rimbury (globular and bucket urns) 1700-1500 to 1200-1000 BC
ii. Post- Deverel Rimbury (plain ware) 1200-1000 to 850-750 BC
iii. Late Bronze Age to earliest Iron Age (decorated ware akin to All Cannings Cross) 850-750 to c600
iv. Early Iron Age (angular vessels) c600 to 400-350
v. Middle Iron Age (slack-profiled assemblages, globular bowls and jars or saucepan pots) 400-350 to 100 to 50AD
vi. Late Iron Age (handmade and wheel-turned vessels, especially necked jars and bowls) 100-50 to 50AD

On current understanding these broad phases break down across the Solent Thames area as follows:

	Deverel Rimbury	Post DR Plainware	LBA/EIA	EIA	MIA	LIA
N Buckingh amshire	1500-1000	1000-800	800-300		400-50AD	50-50AD
Oxfordsh ire	1600-1100	1100-800	800-600	600-350	350-0/50AD	50-50AD
S Buckingh amshire/ Berkshire	1700-1200	1200-850	850-400		400-100	100-50AD
Hampshir e/ Isle of Wight	1600-1100	1100-800	800-600	600-350	350-100 (D)250-100	100-50AD (D)50-50AD

(D) = additional ceramic phases in the Danebury sequence

For the later Bronze Age the ceramic phasing is based on pioneering work carried out in the late 1970's (Barrett 1980) which drew on several of the sites excavated at that time at Runnymede (Longley 1976) and in the Kennet Valley (Bradley *et al.* 1980) for which radiocarbon dates were available. However, while the basic identification of a later Bronze Age ceramic tradition remains unchallenged, Elaine Morris (forthcoming) has suggested that in the light of many more recent radiocarbon dates the long-standing 'sequence' in which late Bronze Age 'plain ware' is seen as a distinct phase from Deverel Rimbury and decorated late Bronze Age pottery looks increasingly dubious. There appears to be more of an overlap of plain ware with the more distinctive earlier and later styles between which there may have been less separation than has been supposed.

There is also significant regional variation in ceramic chronologies and the issues that arise for interpretation. In northern Buckinghamshire the model used is generally that of David Knight (1984, 2002) which sees the Deverel Rimbury phase as somewhat later than other parts of the area, while there are difficulties in distinguishing a clear latest Bronze Age/ earliest Iron Age phase, and some overlap between early to middle and middle to late Iron Age characteristics where more up-to-date styles do not always seem to be present.

Similar issues arise for Berkshire, and also apply to Oxfordshire for the middle to late Iron Age where it is suspected that at some sites middle Iron Age styles may have lasted almost until the Roman conquest, even though on others late Iron Age pottery was being introduced 100 years earlier.

In Hampshire the detailed sequence at Danebury has allowed the middle and later Iron Age to be subdivided, giving six rather than three or four ceramic phases for the Iron Age (Cunliffe and Poole 1991b).

However, it must be stressed that the available chronological framework indicated in the table above provides only approximate dating. Danebury is exceptional and while it has greatly clarified the middle to late Iron Age ceramic sequence at least for central Hampshire, the vast proportion of the Solent Thames area have seen no systematic attempts to refine or provide secure absolute dating for the basic sequences first defined 20 years ago or more (Barrett 1980; De Roche 1977; 1978; Lambrick 1984; Saunders 1971; Knight 1984; 2002).

Scientific dating

Over the last thirty years radiocarbon dating has been applied, mostly very sporadically to many later prehistoric sites in the Solent Thames area. This has resulted in a growing body of determinations from an increasingly wide range of sites and contexts, though most of them have tended to be burials and other specific deposits rather than defining sequences. For example in Buckinghamshire radiocarbon dating has used on about 40% of open area excavations with between 2 and 4 dates per site. Amongst a growing plethora of determinations, very few significant programmes of radiocarbon dating have been undertaken, Yarnton (Oxfordshire) Runnymede (just outside the area in Surrey) and Danebury (Hampshire) being the main exceptions.

The radiocarbon curve has a particularly pronounced wiggle between 800 and 400 cal BC and this has severely limited the use of radiocarbon dating. However, improvements in pre-treatment of samples, the development of AMS dating and high-precision approaches and the dating multiple samples have established a variety of means of reducing the error margins. The application of Bayesian statistical analysis can also significantly refine the precision of the dating where samples can be put into series. An example of effective application of such methods is the dating of the middle Iron Age cemetery at Yarnton (Hey *et al.* 1999).

Other forms of scientific dating, such as Optical Stimulated Luminescence dating, Thermo-luminescence dating and Thermo-remanent Magnetic dating, have all been used on occasion, but the accuracy of these types of dating (at best offering 5-10% accuracy, i.e. ± 200 years, and often with ranges of 500 years or so) is of rather limited value. Nevertheless, the use of OSL dating for the Uffington White Horse is a particularly interesting application (Miles *et al.* 2003).

Dendrochronology was used to date some of the repairs to the waterfront structures at Testwood Lakes to the 1450s BC, but in most cases preserved timbers such as those of structures at Runnymede, Dorney and Whitecross Farm Wallingford have proved to have too few rings to allow successful dating.

Metalwork
A national programme for close scientific dating of some individual items or deposits has taken place, including some from the Solent Thames area, which has led to a very much clearer chronology for Bronze Age metalwork, which is especially important for interpreting individual items, hoards and river finds and their wider social and economic implications (Needham *et al.* 1997; Needham 2007). There has not been a comparable effort to date Iron Age weaponry and other metalwork, not least because of problems with the calibration curve.

However, the scarcity of Bronze Age and Iron Age metalwork on most ordinary settlement sites together with the potential for redeposition and curation as heirlooms or scrap metal means that such metalwork is usually of only limited use for general dating settlement sites. The role of brooches, potentially datable to within 50 years, has been of value in relation to Iron Age ceramics at Danebury, but again they are not numerous on most settlements.

The development of coinage towards the end of the period presents similar issues as very few occur in well-stratified contexts, and their chronological value is probably more in the context of the political and economic power of new ruling elites of late Iron Age than as routine numismatic dating evidence of later periods (Gwilt & Haselgrove 1997; Creighton 2000).

Other chronologically distinctive artefacts
There are a number of types of object which, although not especially sensitive to change over long periods, are sufficiently common to be useful chronological markers. These include the distinctively late Bronze Age perforated clay slabs which occur in the middle Thames valley and the switch from cylindrical or pyramidal 'loomweights' in the middle to late Bronze Age to triangular ones in the Iron Age. Other distinctively Iron Age objects such as weaving combs and grooved and polished metapodials can be helpful indicators.

Inheritance

The period reviewed here represents the transition from 'monument dominated landscapes and mobile settlement patterns to that of more permanent settlement and a greater emphasis on agricultural production' (English Heritage 1991, 36). It has been considered that the onset of the Middle Bronze Age defined this in cultural terms and, more importantly in physical evidence terms (Ellison 1981) and this view has tended to persist (e.g. Yates 2007). But there is no reason to expect such a transition to be synchronous everywhere, and there is growing evidence that it was not.

Landscape
In general terms it is clear that in many areas a relatively open landscape was inherited from the earlier Bronze Age as suggested by the pollen sequence from Little Marlow (Richmond *et al.*, 2006) and Sydlings Copse, Oxfordshire (Day 1993) and molluscs from barrows in the Ouse and Ouzel valleys at Milton Keynes (Green, 1974), and pollen from peat on tertiary sands and clays in the Newbury area and New Forest. On the Isle of Wight pollen evidence shows large scale woodland clearance during the Bronze Age creating downland and heathland around the central and southern chalk where the barrow cemeteries were situated.

Broad patterns of clearance and landuse appear to have influenced the character of later settlement, as at Stanton Harcourt, Oxfordshire (Lambrick 1992b; Lambrick and Allen 2004). A similar avoidance has been argued for the barrow cemetery at Radley, where Iron Age settlements are numerous in the surrounding area, but not within the area of the cemetery itself (Allen 2000, 11-12).

Barrows were also utilised in the setting out of Late Bronze Age/Iron Age boundary ditches and field systems or given apparent 'special status' as at Mount Farm Dorchester (Lambrick 1979; 2008) Reading Business Park (Moore and Jennings 1992), Dorney (Allen *et al.* 2000) and a number of sites in Hampshire (Cook and Dacre 1985, 7; Cunliffe 2000, 159).

Settlement pattern
The idea of a pattern of 'settlement' before the middle Bronze Age raises one of the most fundamental issues for the period, since there is very little evidence of permanent settlement. Life-styles were dominated by patterns of 'residential mobility' (Barrett 1991; ü 2001) and the influence of such mobility on how communities interacted and shared resources is a fundamental part of the inheritance from earlier periods that is likely to have influenced how land came to be divided, enclosed and settled over the 1,500 years in which more permanently settled farming developed.

Many later prehistoric sites produce rather ephemeral traces of earlier activity, as in the case of several later Bronze Age enclosures and settlements like Ivinghoe Beacon, Rams Hill and Taplow Court (Brown, 2001; Cotton and Frere, 1968; Needham and Ambers 1994; Allen and Lamdin-Wymark, 2000). Several enclosed settlements and forts in Hampshire have evidence of at least some earlier prehistoric activity.

It seems clear that major late prehistoric enclosed forts settlements and other sites were often sited in places that had seen some significant earlier use, but major monuments tended to be avoided – and in some cases clearly respected and reused.

Funerary and Ceremonial Monuments and Customs
Examples of round barrows attracting Middle Bronze Age (Deverel-Rimbury) secondary burials have long been known and are now widely recognised across the Solent Thames area (Green, 1974; Allen *et al.* 2000; Barclay and Halpin 1999, 162-3 and 167; Hamlin 1963, 7-9; Barclay *et al.*. 1995, 94-5; Lambrick 1978; Butterworth and Lobb 1992; Piggott 1938; McGregor, 1962; Walker *et al.*, 2000; Entwhistle 2001). At Kimpton, Hampshire a standing sarsen stone (subsequently broken) was the focal point of the remarkably long-lived (2100 to 600 BC) urn cemetery (Dacre and Ellison 1981).

There is little evidence for stone and timber circles attracting particular respect or reuse in later prehistory (e.g. Lambrick 1988), but there may be a continuing tradition of constructing of post-circles in the Upper Thames Valley (Allen and Robinson 2009).

Although in general the tradition of building major ceremonial and funerary monuments died out, some earlier prehistoric ceremonial like henges and barrows continued to be respected. However, it is noticeable that cursuses were not. At Dorchester-on-Thames a field system (probably of Middle Bronze Age date) was aligned on the Big Rings henge but cut across the more ancient cursus ditches (Whittle *et al.* 1992) a pattern also evident just outside the area at Lechlade (Glos) and Staines (Surrey). It thus seems likely that whatever sacred traditions were once associated with these enigmatic enclosures, they had not survived.

Some ancient monuments that were visible as earthworks were reused at much later periods. For example some long barrows in Hampshire apparently served as *loci consecrati* for Late Iron Age and Romano-British communities (Massey 2006), and a similar phenomenon is evident at Uffington (Miles *et al.* 2003). At some Hampshire barrows large quantities of abraded Roman pottery were placed on barrows or in their ditches as votive deposits, but it is uncertain to what extent this implies continuous veneration throughout the later prehistoric period (Knocker 1963; Cook and Dacre 1985)

Landscape and land use

General Environment

Molluscs and pollen together with field systems, droveways and the large-scale land-division like the Chiltern Grims Ditch suggest extensive clearance by the middle/late Iron Age and before. The appearance of beech at Little Marlow, both as pollen and fuel, and also at Taplow (Coleman and Collard, 2005) suggests that Chiltern beech woods could have originated during 1st millennium BC.

Based upon environmental evidence from the floodplain of the Upper Thames Valley, there is a well-established model for the chronology of clearance and runoff leading to flooding and later alluviation within later prehistory in Oxfordshire (Robinson and Lambrick 1984; Robinson 1992a; Robinson 1992b; Lambrick 1992b). The pattern in the Middle Thames is rather different (Lambrick with Robinson 2009).

On the Berkshire Downs and their outliers evidence from both Rams Hill and Castle Hill suggests cleared grassland and periodic regeneration on the chalk in the late Bronze Age. On the Hampshire chalk there is good evidence from sites like Easton Lane and Twyford Down both of clearance and some regeneration and of long-established grassland with some arable, but probably with localised stands of ancient woodland. During the Iron Age the landscape became much more open dominated by mixed farming.

Pollen evidence from sites in the New Forest where Bronze Age burnt mounds and barrows are numerous, indicates a rapid decline in soil fertility and onset of acidic heathland conditions.

On the Isle of Wight pollen evidence shows large scale woodland clearance during the Bronze Age creating downland and heathland around the central and southern chalk where the barrow cemeteries were situated. Such clearance seems to have persisted into the later prehistoric period. The midden sites and hearths on the south coast indicate use of a mix of land based and marine resources in both periods

Clearance, woodlands and the wilder landscape

Much effort is put in to defining the presence of open or farmed (pasture and tilled) landscapes, often bounded by lynchets, field boundaries, linear ditches and droveways, but little attention is paid to the wider and wilder landscape, which still provided key and important economic resources; woodland, pannage, wilder graze, browse, soft fruits and berries etc. There is a need to define the presence, nature and management of woodland. This remained a key resource for timber for construction, the manufacture of artefacts and probably more importantly as fuel for domestic fires and furnaces.

Climate and Climatic Change

This period experienced climatic change i.e. from a warmer drier climate in the Bronze Age to a wetter climate in the Iron Age. It would be useful to explore how this is manifested in terms of fields, farming, crop production, selection of cereal types, animal husbandry etc. and their regional variation. This diversity, however, may be masked by rationality and selection or market centres etc.

Soils, erosion and alluviation

Increased erosion and run off, as a result of vegetation clearance and or cultivation have been indicated to result in alluviation within the Thames and Great Ouse valleys. The sediments have largely been used as a vehicle for the recovery of proxy palaeoenvironmental data – and to date relatively little work has been done on the sediments themselves. The types and quantities of soil eroded may help to elucidate prehistoric farming methods. We are reminded of the fine calcareous loessic silts in the Kennet Valley which blanket many square kilometres of the floodplain indicating significant depletion of soils and sediment resources on the interfluves.

Colluvial studies have been highly profitable in determining palaeoenvironments (e.g. Bell 1982; Allen 1992) and defining sites and whole periods of evidence not otherwise recorded in the archaeological record (See Allen 2005). These have however largely concentrated in the southern chalklands, and little comparable work has been undertake on Berkshire and Marlborough Downs and the Chilterns, although in the latter clear important sites are present and related to, buried by hillwash or alluvium (e.g. Aston Clinton, Buckinghamshire; Masefield 2008), from which the environmental

evidence provides the environmental context of the floodplain and its settlement and occupation parameters (e.g. Allen 2008b).

The establishment of barrow cemeteries, for instance, on higher land has been deterministically (or probabilistically) argued to be, in part, associated with soil thinning and degradation in these locations rendering them less agriculturally viable, but this has not been tested. There may be implications for pre- and post barrow construction agriculture.

Land divisions

The discussion of the landscape at local or subregional scales is in part defined by political or socio-economic land division (e.g. Wessex Linear ditches etc.), and these boundaries may have political and economic functions. It has been suggested that these boundaries were principally for stock management. Indeed they are likely to be more or less directly related to farming economies and farming estates; but to make statements that they are, for instance, for stock management seems somewhat facetious without good site and intra regional data-bases and a series of local landscape-specific socio-economic interpretations. This, therefore, begs the question about the precise nature, and balance, of Middle Bronze Age to Late Iron Age farming economies; i.e. proportions of cereal cultivation vs fields for dairy herds or meat herds for each 'landscape unit'. Attempting to define these changing (or rotating) uses is challenging and forces us to examine the precise role and function fields and field systems, rather than just blandly apply a label and not consider the use in agronomy terms. This has been exemplified by Pryor's observations of the form of fields and their entrances in East Anglian field systems, and their design for stock (sheep) management (Pryor 1996). Is there evidence of intra-regional specialists in terms of crop production, animal herds and other wider economies.

The abandonment of land – evidence for regeneration

The evidence for vegetation regeneration can be, and has been, taken as an indicator of abandonment or lessening of intensity of land-use. But here the scale of vegetation regeneration needs to be careful and specific examination. Vegetation regeneration in large ditches (e.g. Balksbury, Hampshire; Allen 2001), could be argued to represent lessening intensity of use of the immediately surrounding land, but conversely it could be local regeneration restricted to the monuments' ditch. Such vegetation growth would not necessarily restrict the ditches function as a barrier. The presence of species such as hawthorn, brambles or nettles could actually increase is efficacy and a barrier and deterrent. Here it is necessary for the palaeoenvironmentalists to carefully examine the ditch and bank profile, the taphonomy of the sediments and their included proxy palaeoenvironmental indicators and provide interpretation on an appropriate scale. On a wider scale field boundaries are often the location of palaeoenvironmental evidence, and certainly some information may indeed be related to the field which it bounds. But some of that data may also reflect the highly local micro-environment of the field boundary. Indeed in some cases molluscan (e.g. Alington, Dorchester, Dorset) evidence and plant remains (Twyford Down, Winchester, Hampshire, Clapham 2000) may suggest that these may have supported longer rank vegetation, become overgrown, or even been hedged. Hedges not only bound areas but can exclude animals but also provide important browsing for cattle.

Hedged boundaries have rarely been significantly considered in prehistory despite the prevalence of hedging in the landscape from at least the medieval period. The recognition of hedges may be difficult archaeologically, especially if they stand on banks or lynchets. Though a number of lynchets that have been sectioned and recorded in relative detail tend to show some stratification rather than extensive distribution by roots, or animals burrowing into them. From a palaeoenvironmental perspective, this question has been addressed on the chalk, and land snails from Alington Avenue, Dorset (Allen 2002) and charred remains from Twyford Down, Hampshire (Clapham 2000) have suggested the presence of hedges.

Large scale territorial land division

A large scale land division may be either political/communal boundary and/or connected with large scale stock management.

The major linear earthworks on the Chilterns collectively known as Grims Ditch form a major land boundary running for c 27.5km on high ground between Bradenham and Pitstone in three discontinuous sections. Limited trenching has produced small fragments of Iron Age pottery, and some evidence of grassland.

The Berkshire Grims Ditch along the crest of the Downs overlooking the Vale of the White Horse probably acted as a similar territorial boundary (Ford 1982a) whereas other linear ditches following the generally north-south ridges on the downs to the south may have been smaller community subdivisions (Ford 1982b). The so-called 'Wessex Linear' ditches in Hampshire and Wiltshire are similarly thought to be concerned with defining rather than defending territory (Cunliffe 2000).

A new stage of constructing large scale dyke systems marking territorial areas is evident in the late Iron Age. The South Oxfordshire Grims Ditch crossing the end of the Chilterns east of Wallingford, and the Aves Ditch east of the Cherwell are thought to be late Iron Age territorial boundaries (Cromarty *et al.*. 2006; Sauer 1999; Sauer 2005), and their locations bear some correspondence to the distributions of Late Iron Age coins (Sellwood 1984; Allen 2000; Lambrick 2008). The Grims Bank at Aldermaston may be another territorial boundary of this date possibly related to the oppidum at Calleva Atrebatum, but recent investigation failed to provide good dating evidence (Astill 1980).

Land division and fields on the chalk and limestone hills

A single ditch and droveway high on the Cotswolds at Rollright hints at late Bronze Age or early Iron Age fields, but virtually nothing is known of the potential extent or character of such field systems.

In the Chilterns, several small linear earthworks are known on the Chiltern scarp, notably at Whiteleaf Hill (Hey *et al.* 2007; Wise, 1991), presumed to be later Bronze Age/early Iron Age local territorial boundaries by analogy with "cross ridge dykes" found in the eastern Chilterns (Bryant and Burleigh, 1995). A possibly similar pattern of cross ridge dykes is evident on the ridge between the Kennet and Enborne to the south of Newbury, though they are as yet undated.

Large linear boundary ditches dating to the late Bronze Age are known on the Berkshire Downs, forming `ranch' boundaries. Late Bronze Age linear ditches have been found at Alfred's Castle, apparently associated with extensive field system (Gosden and Lock 2001). A lynchet sealed by the early Iron Age rampart at Rams Hill (Bradley and Ellison 1975) is good evidence of the existence of late Bronze Age or early Iron Age arable fields on the Berkshire Downs, but most of the very extensive rectilinear and coaxial field systems are thought to be late Iron Age or Roman in origin (Bowden *et al.*. 1993).

The chalklands of Hampshire, along with much of Wessex, saw a major transition between 1600 and 800 BC from an open to an enclosed landscape. In the Middle Bronze Age, coaxial field systems were set out, with ridge-top linear ditches sometimes providing a base line. Trackways and rectilinear enclosures were also created but contemporary settlements were apparently rare and unenclosed. Pre-existing round barrows were either left alone, presumably in areas of pasture, or employed as laying-out markers (Crawford and Keiller 1928, 154; Cunliffe 2000, 159; Cook and Dacre 1985, 7).

In the Late Bronze Age new linear ditch systems were created. These sometimes related to what already existed, either man-made features or focal points like hilltops, but sometimes cut across established fields to create new tracts of territory (Bowen 1978, Bradley *et al.* 1994). Many of which survived into and throughout the Iron Age as new types of enclosure were established, either large as at Balksbury, Winklebury and Danebury or small as at New Buildings (and possibly) Meon Hill and Old Down Farm (Cunliffe 2000, 154).

At Easton Down a middle to late Bronze Age boundary that had been part of a field system seems to have persisted as a boundary through to the middle Iron Age. In many other cases late prehistoric linear boundaries lasted even longer and some still survive as parish boundaries and along trackways.

On the Isle of Wight there are four field systems dated on stylistic grounds to the Iron Age to Roman periods and an earthwork (?stock) enclosure dated to the Iron Age on typological grounds, but again not securely dated.

Land division and fields on the river gravels and clay vales

The pattern of late prehistoric land division in the river valley and vales of the Solent Thames area tends to be somewhat different. Middle to late Bronze Age ditched field systems have been investigated in the Middle Thames and Lower Kennet and Colne valleys in southern Buckinghamshire and northern Berkshire, including Kingsmead, Horton (WA 2006), Dorney Rowing Lake (Allen & Mitchell, 2001) The Lea, Denham (Coleman *et al.*, 2004), Weir Bank Stud Farm, Bray (Barnes and Cleal 1995) Reading Business Park and Green Park (Moore and Jennings 1992; Brossler 2004) and Moores Farm (Yates 1999).

Parts of Middle and Late Bronze Age field systems are also increasingly being found in the southern part of Oxfordshire on the gravels round Dorchester, Didcot, Appleford and Radley, and also further west along the foot of the Upper Greensand bench in the Vale of White Horse (Lambrick 1992; Ruben and Ford 1992; Booth forthcoming; Mudd 1995; Hearne 2000).

Some of these rectilinear fields were established on co-axial layouts in which some sub-division appears to have taken place, but others were more agglomerative with evidence of phases of accretion. But there seems to have been very little development in later prehistory, though some fields (e.g. at Appleford and Denham) were redefined in the Roman period. There are different views as to whether such fields were entirely abandoned or continued in use as hedged enclosures without their ditches being recut (Yates 1999; 2001; 2007; Lambrick 2008).

So far such fields seem to be lacking on the Corallian Ridge and on the gravels to the north, though possible early Iron Age fields have been found at Lady Lamb Farm and Lechlade just outside the area. Early fields are also absent so far from clay vales, and have not yet been found on the Tertiary sands and clays of Berkshire and Hampshire.

A separate process of land division and enclosure appears to have developed in the Iron Age. Buckinghamshire Oxfordshire and Berkshire have several examples of pit alignments (though not as many as adjacent counties of Warwickshire, Northamptonshire and Bedfordshire). Including some Upper Thames examples in Gloucestershire, they appear to range in date from late Bronze Age to late Iron Age (Powell *et al.* 2009; Boyle *et al.* 1998; Ford *et al.* 2003; Williams and Zeepvat 1994). Numerous undated examples are known from air photography, of which one example at Northfield Farm runs for nearly 1 km (Baker 2002). In many cases they appear to divide up areas of gravel terrace as if partitioning out areas of broadly common character. The evidence consistently suggests that they were dug as open pits left to silt up naturally, and some evidence suggests that they remained visible as earthworks for many centuries (Powell *et al.* forthcoming). The best explanation of these much-debated features is that they acted as permeable boundaries (perhaps denoting local land rights) rather than being physical barriers.

There is also increasing evidence of ditched boundaries dividing up the river valleys, including so-called meander cut-off boundaries defining large areas of dry ground surrounded by watercourses, as at Lechlade, Culham and Dorney (Boyle *et al.* 1998; T Allen pers comm). Other examples of early to middle Iron Age ditched land divisions anything from 250 to over 800m long near Aylesbury,

Bicester, Yarnton and Little Wittenham (Parkhouse and Bonner 1997; Ellis *et al.* 2000; Hey *et al.* forthcoming b, Allen *et al.* forthcoming). These can variously be seen as demarcating areas of settlement or paddocks from more open areas, dividing areas of different intensity of landuse, or acting as boundaries between farming settlements.

Ditched fields, paddocks and trackways are generally rather rare for the Iron Age in the river valleys and other non-chalkland parts of the Solent Thames area, and mainly appear to be associated with pastoral farming. Apart from an unusual early Iron Age droveway with attached fields at Wickham, most are middle to late Iron Age probably used for stock management (Williams, and Zeepvat 1994; Stevens 2004; Lambrick 1979; Birbeck *et al.*. 2001; Bourne 2002). Extensive paddocks also appear to be part of some low-lying middle Iron Age pastoral farmsteads such as Port Meadow (Lambrick and MacDonald 1985), and there are small paddocks or cultivation plots adjacent to some settlement enclosures (Allen and Robinson 1993; Allen 1990a; Hey 1995; Cromarty *et al.* 1999). By the late Iron Age large areas of rectilinear ditched enclosures paddocks or "closes" become evident (Williams and Zeepvat, 1994; Parkhouse and Bonner). A late Iron Age co-axial field system is known from Arborfield (Lobb and Morris, 1991-3).

Away from the chalk in Hampshire the background picture is less clear, but a wide range of sites and finds shows that the exploitation of heathland, river valleys and coastal fringe were significant in their own way. On the heathland soils of the New Forest enclosures and fields are rare but not unknown (Pasmore 2000).

Farming

Archaeologists have been good at defining, recording and mapping field systems especially across the chalk of southern England (Bowen 1961; Palmer 1984), but less attention has been paid to defining their use and how they operated, as Pryor has done, for instance in the fens (1996). Such information is surely crucial to the understanding of farming communities and their economy. It has largely been ***assumed***, but not proven (or even questioned), that they were for crops, and indeed tillage and soil disturbance are required to create lynches (see below), but that does not necessitate exclusivity in their use (Allen 2008a). We also assume that field systems would have operated some form rotation of arable, fallow and pasture but few, if any, attempts have been made to examine or test this. Indeed the use of land snail analysis to detect and differentiate between similar open dry habitats such as grazed or trampled grassland and prehistoric arable habitats, is not always easy, nor even always possible (Evans 1972), but with the greater use of species diversity indices and other statistical devises, combined with the increasing body of soil/sediment and snail data, this is an area that should at least be tackled.

Clear permanent farming settlements can be seen across the Thames-Solent region from the Isle of Wight to Buckinghamshire by the Middle Bronze. The raison d'être and modus operandi of these settlements and the societies as a whole is largely based around the farming economy – so now chronologies are being advanced ***within*** this period, and commercial archaeology is increasing the number and distributions of sites; often in areas where academic archaeological research had not previously been directed (e.g. The Thames Valley, see Yates 1999; 2007). It is time to define the farming economies of specific farm units, the land units, and ultimately to examine the possibility, if not the probability of regional variation and specialisation and complex trade economies of secondary products and materials less readily seen in the material archaeological evidence.

Neither crops nor livestock alone make a farm – the economy is based on combinations and proportions of both, and of potential trade and exchange at the local, regional and extra-regional scale

Animal husbandry

A similar approach needs to be taken with the farm animals via the faunal remains. The presence and rise of smaller paddocks is seen in some areas associated with larger enclosures such as at Weir Bank Stud Farm Bray, Berkshire (Barnes & Cleal 1995), and at Heathrow Terminal 5, yet little study of precisely how they function has been conducted or attempted by, again comparison with interpretations of sheep paddocks in the fens by Pryor (1996) may be relevant.

Significant changes in animal husbandry in particular occur *within* the Iron Age (Hambleton 1999; undat.; Maltby 2002) so we should not view this as a single period but should attempt to examine chronological (Early Middle and Late) and spatial changes and variations. Again in some part this may represent intra-regional specialisation. In particular larger, better studied and better dated assemblages are needed from areas off the chalk.

For the middle Bronze Age faunal remains are generally scarce, though with isolated exceptions, and animal bones are much more common in many late Bronze Age and Iron Age assemblages. In general in the later Bronze Age the usual domesticated animals occur with cattle dominating both the number of bones recovered and meat weight. Horse rarely occurs before the late Bronze Age when it becomes fairly regularly present in low numbers (<5%). Pigs were unusually dominant in a small assemblage at Pingewood (Bowden and Johnson 1986), and more significantly were common in much larger collections of bones from Whitecross Farm and (just outside the area) Runnymede, perhaps indicating the special status of these riverside middens.

In Buckinghamshire there are few large Iron Age animal bone assemblages and no strong chronological trends. Cattle are most common, for meat and dairy production (Holmes and Rielly, 1994) and traction (Dobney and Jaques, 1996). Sheep are second most common, and pig was unusually numerous at middle Bronze Age Walton Lodge (19.5%); late Bronze Age Bancroft (30.5%) and late Iron Age Bierton (22%), possibly due to special status. Horse bones account for 10% to 26% on middle/late Iron Age sites at Milton Keynes, suggesting some settlements focussed on horse raising.

A comparison of the evidence for Iron Age animal husbandry in the Upper Thames valley and the Hampshire chalk has been carried out by Hambleton (1999), who is currently reviewing the evidence more widely across the SE region. Her principal conclusion in 1999 was that although the husbandry of sheep and pigs were similar, the different strategy for cattle husbandry in the Upper Thames valley (more cattle probably kept in larger herds with fewer surviving till old age for traction and secondary products) argues against Cunliffe's (1991 a) view that Wessex and the Upper Thames Valley had essentially the same pattern of pastoral farming. Lambrick (2008) has reviewed the proportion of species representation in relation to different topographical parts of the Upper Thames valley, showing both differences over time, but also much more variation in species proportion within topographical zones than has previously been supposed.

Throughout the period wild species such as red and roe deer are rare (with a high presence in a small assemblage at Anslows Cottages being a notable exception). They occur regularly enough in small numbers to show that their low presence declines from c. 5% to less than 1-2% over the period. Various birds and mammals are known, of which bones, feathers and fur as well as meat may have been obtained if they were not casual bones from dead individuals.

Although one of two Late Bronze Age foreshore structures at Wootton-Quarr on the Isle of Wight is interpreted as a fish trap, fish bones are rare on later prehistoric settlements. They do occasionally occur, sometimes in hillforts and/or special deposits (as at Watkins Farm, Castle Hill and Danebury) perhaps reflecting feasting or ceremonial or religious activities. But for general purposes and there was probably a taboo against eating fish throughout the period (Dobney and Ervynck 2007).

Crop husbandry

At a more specific and economic level the proportions, range and diversity of cereal and other plant crops need to be defined in a consistent manner enabling inter- and intra-site and regional comparison

Before we can make detailed interpretations and reconstructions about farming economies, some re-engagement with data taphonomies is required. To what extent does the, sometimes sparse, assemblages really reflect the crop husbandry rather than the processes and activities conducted on site. How much of the assemblage presence and composition of the recovered assemblages a result of accidental, non-functional and non-representative potentially accidental charring events. How much is species representation (or under representation) reliant on the nature of, or necessity to process the crop in a way that involves heat or fire? What biases lead to crop waste being discarded into fires? If specific activities are routinely confined to specific areas such as fields, open areas with enclosures, threshing areas, or within buildings (roundhouses) then significant biases will occur. Comprehending this range of *modi operandi* will enable us to engage more fully and holistically with the economies we are searching to reconstruct.

What is driving the changes seen from emmer to spelt predominating cereals from the Bronze Age? Is this due to climatic changes, changing soils as result of degradation and erosion, economic choice or cultural preference? Is the increased presence in legumes (e.g. horse bean, celtic bean, peas etc), which are first seen in the earlier Bronze Age, but become more predominant in the Iron Age, a social or economic one?

Evidence for cereals (spelt wheat and six-row hulled barley) has been recovered from a large number of settlements within the Solent Thames area. Spelt wheat has now been found in middle Bronze Age contexts both at Appleford Sidings and at Yarnton, a grain from the latter giving a radiocarbon date of 1740-1410 cal BC. Oats, and occasionally rye are also recorded, but seldom in sufficient quantity to suggest they were being deliberately planted and grown. The introduction of bread wheat as a main crop occurred on some sites in the late Iron Age, as shown at Barton Court Farm (Miles 1986).

In terms of other crops, flax was also found at middle to late Bronze Age settlements in the Middle and Upper Thames valley, but it does not occur in Iron Age ones, possibly suggesting a switch to wool and animal fats as the preferred sources of yarn and oils. Good evidence for other crops is scarce, but probably include opium poppy (e.g. at Whitecross Farm in the late Bronze Age), peas and field beans. More doubtful is the growing of brassicas (e.g. wild turnip), which occur in sufficient numbers on some Hampshire sites to suggest they were deliberately grown, but occur only at a low level elsewhere (Gill Campbell, Mark Robinson pers comms).

A striking feature of the later Bronze Age is a switch in emphasis from growing emmer to spelt wheat, which became predominant across the whole Solent Thames area and beyond by the early Iron Age. There has been much debate about the reasons for this change, usually in the context of autumn sowing. Experiments by Mark Robinson (Lambrick with Robinson 2009) suggest that the complete dominance of spelt over emmer could have arisen from recurrent autumn sowing of ‘maslin’ crops mixing the two wheats, which would have resulted in spelt producing bigger yields, quite quickly displacing emmer in the resultant resown crops.

Other areas of ongoing debate concern the possibility of extrapolating changing trends of soil fertility and drainage from the weeds species associated with crop remains, and the extent to which it is possible to discern communities that were the main arable ‘producers’ from others who may have mainly been ‘consumers’. Much of this remains open to question (not least because of the complex taphonomic factors that influence the character of charred crop and weeds remains as found in the ground). It may be doubted whether the character of charred crop remains alone is sufficient to provide answers.

While there is much to debate about the detailed interpretation of relatively rich charred plant assemblages, an even more fundamental issue is what the overall occurrence and character of some very sparse assemblages may say about the extent and character of later prehistoric arable farming.

On some later Bronze Age and Iron Age sites charred crop remains are very rare, and occasionally are more like earlier prehistoric samples than typical Iron Age ones. Many features are devoid of such material with only occasional concentrations, as at Hartshill Copse where 90% of the 2289 charred plant remains recovered came from a single context (Collard *et al.*, 2006, 378). A near absence of charred crop remains seems to persist well into the Iron Age in some areas and this seems commonest in the middle Thames valley, where querns are also relatively infrequent. One possibility is that earlier practices of crop husbandry on a small horticultural scale for family consumption may have persisted for some farming communities long after larger scale farming had taken off in parts of the Upper Thames gravels and Hampshire chalk, which may have acted as the bread basket of a wider region.

Subsistence and surplus

There have been some attempts (e.g. Lambrick and Allen 2004; Cunliffe and Poole 2000a, b) to use experimental and other data coupled with indicators of land availability to try to model whether farming settlements are likely to have been self-sufficient in agricultural terms or would have been generating a surplus. This approach is seldom feasible where settlements are incompletely excavated and there is little or no way of estimating the extent and character of the land they farmed, but the overall indications are that while the exchange of prestige goods was an important economic driver in the late Bronze Age, the production and exchange of an agricultural surplus became a much more important driving force in the Iron Age.

Settlement Patterns and Social Organisation

Regionalism

The idea of regional cultural identity in later prehistory has been a topic of much debate, stemming partly from ideas prevalent in the middle of the 20th century about different waves of continental immigrants. Cunliffe (1974 onwards) has long propounded the concept of more home-grown ceramic 'style zones,' and while this approach has been questioned and challenged (e.g. Collis 1994,1996, Hill 1995), no alternative models for regional variation in the development of ceramic traditions has been developed. There are also hints at more localised differences in stylistic design that may be relevant (Lambrick 1984a or b?), and fabric analysis has shown a number of chronological trends or preferences that are consistent from one site to another in particular areas. These reflect broad preferences (e.g. in the use of calcined flint or quartzite or broad character of filler) as well as differences in local geology, but the possible complexity of how recurrent variation may reflect 'regional' variation at very different geographical and cultural scales has not been fully explored.

Some other indications of regional variation, such as the distribution of 'banjo' enclosures, have been altered by subsequent survey. The clearest indication of regional cultural entities comes from the distribution of late Iron Age tribal coinage, but here again there are significant complexities in the interpretation of the economic and political role of coinage at this period and the extent to which they reflect cultural, tribal, economic or political regions – or how far back any regional divisions can be traced (Hazelgrove 1989; Creighton 2000).

Settlement Forms and Hierarchies?

Traditionally, defensive enclosures, enclosed farmsteads and open settlements have been seen as reflecting a hierarchy of settlement forms reflecting different social status and/or relationships. However, the role of defensive enclosures as settlements is clearly very variable and a more pertinent way of looking at this may be the extent to which the need for communal labour and its organisation reflected social groups and hierarchies controlling supply of labour. For example interesting issues have been raised in the case of Alfred's Castle (Oxfordshire) which has ditches like those of a hillfort, but in size and location is much more like an settlement enclosure (Gosden and Lock 2001.

Across the Solent Thames area as a whole there is considerable variety in the distribution and character of late prehistoric enclosures. For example, they are much commoner on the Hampshire chalk and the Cotswolds than in the Thames valley. Some have very little trace of settlement activity, others were clearly permanent farms of some importance. They differ greatly in date, size and form, some being very simple others much more substantial. For example two large rectilinear enclosures in the Test valley at Flint Farm (Cunliffe and Poole 2008) and Fir Hill, Bossington (Brown *et al.*, forthcoming) were earlier than 'Danebury Environs' model of settlement change would have predicted, and the Bossington site, on clay with flints, included an unusual early Iron Age triple-ditched enclosure c 25m diameter not known from the air photographs.

Although morphologically some particularly distinctive 'types' of enclosure occur, detailed analysis has repeatedly shown that even the most obvious of these (such as 'banjo' enclosures) are seldom as clear-cut as first appears from the crude snapshot impressions of form provided by air photography.

There has been much discussion about the socio-economic and cosmological symbolism of enclosure ditches round settlements (e.g. Hingley 1984; 1999; Hill 1995; Collis 1996;) and whether the apparent increase in such enclosures from around 400 cal BC is indicative of a change in social relationships (Moore 2006; Hill 2007). However, the idea that physical boundedness in the form of ditches was especially indicative of social relations is problematic. Sharply defined boundaries not defined by ditches are evident in some open settlements (Lambrick and Allen 2004), and the character (and even presence or absence) of settlement within enclosures is very variable. In some cases enclosed settlements had unenclosed phases. Some sites like banjo enclosures with highly developed ditch systems attached to some (e.g. Featherstone and Bewley 2000) are immensely more elaborate than very simple forms.

While ditches are archaeologically rewarding features that can reveal abstract concerns about boundaries as well as practical needs, it can be argued that archaeologists' fixation on their symbolic meaning has distracted attention from the great variability in size, permanence, longevity, form and relationship to other settlements which may have been much more significant socially than the increasingly tired and over-simplistic distinction between 'enclosed' and 'unenclosed' forms.

The Emergence of Permanent Settlement

During the late prehistoric period scattered farmsteads and sometimes villages increasingly came to replace much more ephemeral traces of domestic and farming activity, but rather little attention has been paid to quite how, when and why the emergence of settled farming communities came about – or over how long a period and whether or not it was synchronous across different areas.

Lambrick (2008) has suggested that in the Thames valley the transition from earlier Bronze Age residential mobility to later prehistoric farms, settlement groups and villages may have occurred quite gradually and by no means synchronously, and was not obviously associated with the enclosure of land into fields. Initially the coalescing of domestic occupation may have taken the form of recurrent but highly scattered occupation across extensive areas (both within and separate from enclosed field systems), which in due course gave way to more compact, organised settlement forms (e.g. at Reading Business Park (Berkshire) or Cassington West (Oxfordshire). By the early to middle Iron Age compact tightly constrained settlements, often indicative of more permanent year-round settlement were typically located on topographical and/or landuse divisions. In the middle Iron Age the integration of settlement and landuse was even more strongly emphasised in the appearance of pastoral farmsteads on low-lying land, occasionally including short-lived seasonal occupation of floodable land, as at Farmoor (Lambrick with Robinson 1979). Some slight traces of late prehistoric domestic activity not dissimilar to earlier periods may indicate that residential mobility never really died out, but on the other hand the emergence of compact farm units closely integrated into landuse management may reflect a transition (occurring at different time up and down the valley) from an essentially family-based form of agriculture to one that was rather more communal in character.

While ideas about the development of late prehistoric settlement in the Thames valley have been coloured by the emergence of open settlements along the valley floor, and their contrast with the Cotswolds, the picture on the chalk south of the Thames valley has been equally coloured by the predominance of ideas rooted in how major communal enclosures (late Bronze Age hilltop enclosures and hillforts) developed together with enclosed settlements, with many examples from the middle Bronze Age. Nonetheless, the character of widely scattered sparse middle Bronze Age occupation over large areas such as that at Chalton, as compared with more compact forms of settlement that emerged later in the Iron Age may reflect a similar pattern. Similarly, the presence of low levels of later Bronze Age occupation on the sites of Iron Age enclosed settlements (which in some cases are also characterised by quite sparse levels of occupation, suggest a sequence of change in the basic character and permanence of settlement that has yet to be fully unravelled.

Changing and developing farming economies

The developing nature of agriculture and farming is likely to have a direct effect, if not principal reason, for increase permanence and the emergence of more permanent settlements structures from the Middle Bronze Age, but the chronology of change is likely to differ across the region. It is imperative that we attempt to establish in both relative (proportional) and absolute terms the nature of the component farming elements (crops, livestock) etc vs the presence and economic significance of wild foods (i.e. non cultivars – berries, fruits, hunted animals etc).

If we subscribe to the fact that farming became more established, larger areas were managed landscapes then the impact of this should be seen in wider landscape evidence such as broader pollen spectra, and changes in the nature and quantity of erosion products in the form of colluvium, alluvium and aeolian deposits. Attempts to quantify this by Favis-Mortlock *al*. (1997) suggest that significant increases in erosion seem to be of Iron Age date. Good though this study is, it is to date just one study using one method of quantifying and dating sediment products. Even the dataset used is open to re-interpretation, and certainly more stringent chronological control. Favis Matlocks excellent work only examined colluvium – where as Burrin and Scaife (Burrin & Scaife 1984; 1988; Scaife & Burrin 1992) clearly show that this is just one part of large sediment history which ultimately includes both alluvial and marine sediment records.

So what happened in the Middle Bronze Age where traditionally there is a great transition in farming? Is it evident in direct evidence (animals and cereal remains) or indirect evidence (colluvial sequences)? The upper Allen Valley apparently demonstrates that whatever transpired at this time in terms of field system development, there is no evidence for agrarian intensification. These findings are certainly pertinent to the debate about the historical significance of the rise of coaxial (and other) field systems, and the overall transition to the more partitioned landscape of the first millennium, as discussed perhaps most notably by John Barrett in *Fragments from Antiquity* (1994). As in so many other areas of Britain, we are left wondering how, and how far, we may use environmental ‘signatures’—and indeed ‘field systems’ to understand the relationship between, and relative importance of, cereal cultivation, animal husbandry, woodland management and so on Francis Pryor, for one, has not been afraid to postulate ‘community stockyards’ and the handling of immense flocks of sheep within coaxial field systems (1996).

As well as the change in farming and settlement, during the period there were also changes in artefact and ceramic i.e. Deverell-Rimbury, post-Deverell-Rimbury, All Cannings Cross, and succession through Iron Age ceramic typologies. These two strands of activity (economy and artefact production) may be related or essentially mutually exclusive, but this has not been explored. In addition to change within the Later Bronze Age and Iron Age, change between the Iron Age and Romano-British periods is relevant (Van der Veen & O’Connor 1998).

Social Hierarchies within Settlements

Material evidence of status is ambiguous and does not seem to correlate much with settlement form. For example the quality of pottery and other finds from Watkins Farm, and its subsequent reconfiguration in the Roman period (again with rather high quality pottery) contrasts with the otherwise similar enclosed farmstead nearby at Mingies Ditch, and is more like the large open settlement at Gravelly Guy (Lambrick and Allen 2004). Especially large or elaborate round houses can occur within defensive forts and both enclosed and open settlements at various periods (e.g. Bancroft, Milton Keynes; Dunston Park, Thatcham), and may reflect a variety of social significances, in some cases probably as much communal as individual.

The Role of Communal and Defensive Enclosures

One way in which some distinction can be made in site hierarchies – though this does not equate to settlements – is that some entailed large scale earthworks, best seen as communal undertakings. To some extent this is a relative consideration: what may have been a large undertaking for a small late Bronze Age community would have been trivial for a more populous Iron Age one.

Cunliffe (2005) has suggested that a communal enclosure or hillfort is best thought of as *"an enclosed place constructed in a highly-visible location to serve as a focus (if sporadic) for communal activity."* As such, they share common characteristics of enclosure, visibility and communal functions, but may fulfil very different roles, which can include:

- The act of building as a demonstration of group cohesion
- Enclosure used for communal pastoral activities
- Defined space for social/religious interactions
- Storage for communal surplus
- Settlement for a community on a cyclic basis
- Settlement for a community on a permanent basis
- Settlement for elite and entourage
- Focus for redistribution and production
- Defence in time of unrest
- Territorial marker

For Wessex, Cunliffe (2005) has summarised the evidence as follows:

- Most of the hillforts built in the 6th to 5th centuries BC continued to be developed to the 2nd century BC, although this need not imply continuous use
- Many of the hillforts built in the 5th–4th century BC were short-lived
- There appears to have been a period in the early 3rd century BC when forts with two gates had one blocked
- The few distinctive late hillforts, of the early 1st century BC, did not develop from earlier forts (although in the case of Bury Hill 2 it occupied part of the site of a long-abandoned early fort)

The results from excavation and the Wessex Hillfort geophysical surveys suggest that five broadly defined arrangements of internal can be identified:

- No recognisable activity
- Limited pit scatters usually clustered in discrete areas
- Dense, even pit scatters
- Zones of pits interspersed with circular structures
- Complexes of enclosures associated with circular structures and pits

But in the northern part of the Solent Thames area – including the Berkshire Downs the pattern is not so clear, and in particular there is very little evidence for similar patterns of 'developed hillforts' and

dense organised patterns of internal activity. This may well be because the trajectory of social economic and political development was rather different, with the broad characteristics of the earlier forms lasting longer.

Late Bronze Age hilltop and valley enclosures

The late Bronze Age hilltop enclosures at Rams Hill, Castle Hill, Little Wittenham and Taplow Court all lie within early Iron Age hillforts. A Late Bronze Age date has also been suggested for the early palisade at Blewburton Hill (Harding 1976b) but is not proven, while much of the pottery from Chastleton appears to belong to the latest Bronze Age or earliest Iron Age. In Buckinghamshire it is possible, but by no means certain that the late Bronze Age settlement at Ivinghoe Beacon was within a defensive enclosure.

Reconsideration of the radiocarbon evidence suggests that Rams Hill originated in the last quarter of the 2nd millennium cal. BC, with Phase 2 between 1070 and 890 cal BC, whereas the dating from Castle Hill lies between 1050 and 900 cal. BC (Needham and Ambers 1994; Allen and Lamdin-Whymark 2005). Both Rams Hill and Taplow consisted of a series of palisades and dump defences. The enclosure at Castle Hill has contemporary settlement 200m away on the plateau below the hill, and a similar situation may exist at Taplow (Collard *et al.* 2006). In both cases concentrations of contemporary metalwork have been recovered from the reaches of the Thames that they overlook. It would not be at all surprising if there were not other comparable sites (Windsor being an obvious potential example) but the evidence for the much quoted possible example of Marshall's Hill, Reading (Bradley 1984, 121) is dubious (see Seaby 1932).

The possibly pallisaded island midden sites at Runnymede and Whitecross Farm might fall into a similar category of enclosures on the valley floor, while Ford (1991, 316) has suggested one at Eton Wick, though this is far less clear.

Whereas the late Bronze Age hilltop enclosures Rams Hill, Castle Hill (Oxfordshire) and Taplow Court (Buckinghamshire) are all quite small enclosures of c. 1ha (as are the riverine sites), the possible example at Bozedown (Berkshire) and those on the Hampshire Downs such as Balksbury, Danebury (outer enclosure) and Walbury (Berkshire), were much larger enclosures of over 10ha. The Balksbury enclosure was constructed in the 9th or 8th century and continued in use for about 200 years, with at least two refurbishments, but with only very sparse evidence of fourposters and possible roundhouses inside. There is so far no evidence for Late Bronze Age hilltop enclosures in The Isle of Wight.

Late Bronze Age hilltop enclosures were probably not permanently occupied though they often have evidence of at least some domestic occupation with a thin scatter of pits, roundhouses and four posters. At Balksbury and Ivinghoe (if it was enclosed) there were rich midden deposits but this need not indicate permanent occupation (see below). Both Rams Hill and Winklebury have evidence of periodic remodelling or refurbishment, possibly with intervening periods of abandonment, and at Rams Hill, Castle Hill and Balksbury the late Bronze Age enclosures seem to have been abandoned before they were replaced by the much larger Iron Age fortifications.

Hillforts

In Buckinghamshire seventeen "hillforts" can be identified with confidence whilst a further five possible examples are known (8.5 to 1 hectare). There are three possible undated valley forts. Two forts are definitely early (Ivinghoe and Taplow Court) with evidence of occupation; some others are suspected. The hillforts at Aylesbury (Farley, 1986b), Cholesbury (Kimble, 1933) and Danesfield, Medmenham (Keevil and Campbell, 1991) were occupied during the middle Iron Age but only Cholesbury has late Iron Age occupation. The nature and scale of internal occupation is nowhere clear due to the limited internal areas investigated and somewhat disappointing results from geophysical survey.

In Oxfordshire there are about 27 Iron Age forts. A scatter of them occurs on the Cotswold dipslope and on the Corallian ridge and chalk outliers within the valley south of the Thames. The greatest concentration of is to be found along the scarp of the Berkshire Downs and outlying hills, with one fort at Bozedown east of the Thames. There are also valley forts at Burroway Brook and Cherbury Camp, as well as the late Iron Age enclosed oppida at Cassington Big Ring, Abingdon and Dyke Hills, Dorchester-on-Thames.

Including those which superseded late Bronze Age defensive enclosures, most investigated hillforts in Oxfordshire appear to be of Early Iron Age origin. Blewburton, Castle Hill and Segsbury clearly continued in use into the Middle Iron Age, and Cherbury and Madmarston may only have been created in the Middle Iron Age. Most are around 6 ha in size, but Bozedown Camp, Segsbury Camp and Cherbury Camp are much larger, c. 10 ha. Segsbury may have post dated the earliest Iron Age hillforts on the Ridgeway, possibly reflecting the emergence of a larger community than the more numerous but smaller early sites (Lock *et al.*. 2005, 140-141).

In Berkshire seven hillforts are now included within the county boundary but none of these has been investigated to any great extent. Their distribution, mainly across the better soils of West Berkshire is largely what might be expected, and the hillfort at Caesars Camp on the poor heathland soils of south east Berkshire may be connected with the exploitation of iron deposits found in Tertiary geological outcrops nearby (Ford 1987, 80).

There are about 40 hillforts in Hampshire (Hogg 1979), of which 10 have seen some form of excavation. Although the combined work at all the others would comfortably fit within the 2.5ha investigated at Danebury, significant areas have been examined at Winklebury, Balksbury, Woolbury and Bury Hill. Most appear to have been built by the 5th century BC and they display a significant range of diversity in terms of chronological development and internal settlement and other features, with Danebury acting as a type site in displaying all the stages of development and yet being unusual in doing so. The Danebury Environs and Wessex Hillfort projects have done much to demonstrate the great variety of sequence and levels and kinds of internal occupation (Cunliffe 2005).

On the Isle of Wight there are Iron Age defensive sites at Yaverland and an unfinished promontory fort at Chillerton Down. A potential Iron Age hillfort with post settings for roundhouses overlooks and may have controlled trade coming into Bembridge Harbour.

Valley forts

Forts in valley floor locations include Burroway on the Thames floodplain, with evidence of timber framed rampart and of early Iron Age origin, and Cherbury, probably of early/middle Iron Age origin on a spur of land defined by two streams on the Corallian dip slope at Pusey.

Valley locations become a key element of major defensible sites in the middle to Late Iron Age in the Upper Thames area, with Abingdon Vineyard (c.25ha) and Dyke Hills, Dorchester (33ha) on the Thames and Salmonsbury (22.5ha) on the Windrush just outside the area (Allen 1993; Allen in Henig and Booth 2000; Dunning 1976). Cassington Big Rings is a fourth, smaller enclosure (c10ha) of rather different character and probably unfinished (Case 1982b). The dating of the defences at Salmondsbury is probably middle to late Iron Age, Abingdon later middle Iron Age to early Roman and Cassington late Iron Age to very early Roman. The dating for Dyke Hills is still uncertain. While no exactly comparable sites are identifiable in Buckinghamshire, Berkshire or the Isle of Wight, the site of Oldbury predating the Roman town at Winchester, overlooked by the earlier fort on St Catherines Hill, bears some resemblance to the sequence at Castle Hill Little Wittenham and Dyke Hills preceding the Roman town at Dorchester on Thames.

Internal Activity in Forts

Geophysical surveys have now been carried out upon a wide range of hillforts in the Solent Thames area, pioneered in the early days of magnetometry at Madmarston and Rainsborough (Fowler 1960; Avery at al, 1967, Appendix 1) with more recent systematic surveys at other forts on the Cotswolds, at Cherbury on the Corallian Ridge, at Castle Hill, Little Wittenham, various Chiltern forts, several along the Ridgeway and a significant number on the Wessex chalk (Lang forthcoming; Allen *et al.* forthcoming; Gover 2000;Payne, Corney and Cunliffe 2006).

These and aerial photography suggest that most of the Oxfordshire hillforts did not contain very dense internal activity, although Segsbury has a fair concentration of pits towards the centre of the interior, together with a spread of penannular ditched enclosures. At Ivinghoe there remains an issue of whether the fairly dense late Bronze Age and early Iron Age occupation is actually an earlier open settlement (Brown 2001).

In Hampshire the very dense pit clusters and lines of four-post structures of so-called `developed hillforts' like Danebury contrast with earlier and other sites with much sparser indications of settlement. Thus within the Danebury study area most forts were short-lived, whereas Danebury itself was refortified at various stages up until its abandonment in the late middle Iron Age, by when its interior had become a dense mass of pits, houses and other features respecting clearly established roads. It is thought that it may have developed a 'special relationship' with the New Buildings complex, where the limited evidence of internal use despite substantial defences suggests a different role for some forts, perhaps with the developed Danebury acting as a stronghold, massive communal store and political centre surrounded by more symbolic territorial markers (Cunliffe 2000). One of the results of the Wessex Hillfort project has been to show that rather few forts had such densely occupied interiors as Danebury (Payne, Corney and Cunliffe 2006).

It has long been recognised that Iron Age forts (and perhaps some of their late Bronze Age predecessors) were also sacred places where a good deal of ritualistic communal activity took place. At Castle Hill a very large Early Iron Age pit was found containing evidence of feasting, and there was a high occurrence of human remains, including complete bodies, partly mutilated remains and single placed bones. While the fort was largely abandoned in terms of occupation, the ramparts, interior and the immediate surroundings remained a place of burial into the Roman period. At Uffington aspects of the probable communal use of the fort in association with the maintenance of the White Horse may well have been the foundation of traditions that lasted into the modern era. At Blewburton, the burial of a man with a horse associated with a pot split above and below the burial with an adze-hammer beneath were found in the hillfort ditch. At Aylesbury a remarkable complex of human burials associated with the remains of kids and lambs has been recorded. Danebury has produced a very considerable number of human burials, both complete, partial mutilated and fragmentary, as well as possible shrine structures.

The richness of this evidence and related results from large scale excavation of Danebury together with a few other forts like Winklebury and various enclosed settlements has formed the basis of several important individual research projects, and a very extensive long-running debate has developed about the interpretation of the evidence, much of which goes to the heart of the nature of Iron Age society (e.g. Hill 1995, 1996; Collis 1996; Cunliffe 2005)

The substantial achievements of mainly non-development led archaeological research projects like Danebury, Danebury Environs, Wessex Hillforts, Uffington and the Ridgeway and the Wittenhams, together with smaller scale projects, make the Solent Thames area a particularly rich resources for hillfort studies. The results have begun to show both similarities and great variety in how hillforts developed and were used, both chronologically and regionally; but the sheer richness and variety of the evidence now available leaves a great deal still to be learnt about what this tells us of late prehistoric society.

External settlement

In one sense a major missing ingredient in all of this, which has only recently started to be rectified is the role of external settlements. A number of forts in the northern half of the Solent Thames area are now known to have significant external settlements, as at Madmarston, Castle Hill and Cherbury in Oxfordshire and perhaps Taplow in Buckinghamshire. Only those at Castle Hill and Taplow have been investigated by excavation. The Castle Hill external settlement at 700 m long and 200-300 m wide, is one of the largest late prehistoric settlements known in the Thames Valley, with evidence of extensive pits, paddocks, four posters and roundhouses.

However, the extent to which Iron Age forts had external settlements may well be under-estimated since surveys such as the recent Wessex Hillfort project (Payne *et al.* 2006) seldom cover external areas as thoroughly as interiors. Where they did, there are some indications of external activity, though not necessarily on the scale of the examples such as castle Hill.

Middens

The most notable aspect of these late Bronze Age to early Iron Age sites are the thick deposits of artefact-rich dark soil that sometimes cover significant areas and often (though not always) share distinctive characteristics of high status objects, human skull fragments, animal bone suggestive of meat consumption and many late Bronze Age bronze objects. There is much debate about their possible roles as trading emporia engaged in the distribution of valuable bronze metalwork or perhaps more likely, ceremonial gathering places engaged in communal recycling of material culture (Needham 1991).

Runnymede Bridge (Longley 1980; Needham 1991) located on a former island in the Thames on the easternmost edge of the Solent Thames area, was surrounded by wooden revetments and perhaps a standing pallisaded enclosure, possibly with landing stages for boats. Whitecross Farm, near Wallingford seems to have been similar, but on a much smaller scale.

The hillfort at Castle Hill, Little Wittenham (Oxfordshire) has an external midden of late Bronze Age to early Iron Age date, up to 0.4m deep and at least 50m (possibly 100m) across, with a chalk and pebble platform, clay spreads and postholes forming an horizon within it (Rhodes 1948; Wessex Archaeology 2004; Allen *et al.*. Forthcoming which one?). Lambrick (2008) suggests that the rich early to middle Iron Age site at Woodeaton 0.15 to 0.4m thick and perhaps up to 120m or more across is likely to be a similar sort of site (cf Harding 1987).

In Buckinghamshire, the late Bronze Age occupation horizon with an important collection of late Bronze Age metalwork at Ivinghoe may be a similar kind of deposit. In Hampshire the accumulation of rich colluvial deposits at Balksbury and possibly Winklebury may be equated with these types of late Bronze Age/Early Iron Age 'midden' deposits. On the Isle of Wight a possible late Bronze Age midden site has been investigated at Bidden.

Apart from Runnymede no middens are yet known that compare in size with the major midden sites like All Cannings Cross, Potterne, Chisenbury in the Vale of Pewsey, Wiltshire. Nevertheless they share a number of similar characteristics. However, the scale of these sites and richness of deposits is very variable, and it is not yet clear how far there is a sharp distinction between them and the more regular occurrence of smaller scale midden-like deposits within and around settlements. These are often 'trapped' within the backfill of large features such as waterholes, as at Green Park (Brossler *et al.* 2004), and sometimes as general settlement edge deposits as at Cassington West (Hey forthcoming).

Midden sites, such as those reported from the Isle of Wight (e.g. Undercliff) provide good, but unexploited palaeoenvironmental resources. Deposits sites, such Potterne, East Chisenbury and Stanton St Bernard in Wiltshire are enigmatic, and similar sites have yet to be fully identified within the Solent Thames region. However, we should be aware of the possibility, and be prepared to for

clearly directed and targeted archaeological and palaeoenvironmental research to elucidate, date, longevity, activities and function.

Burnt mounds

These heaps of fire cracked flint most often to be found close to water and are often thought to be cooking places utilised by mobile transhumant groups, though many other possible uses (including saunas and cloth-making have been put forward).

A large burnt mound was dated by association with Late Bronze Age pottery at Green Park, Reading but sealed a pit with a C14 date of 880-860 Cal BC (Brossler *et al.* 2004, 39) and at Barkham Square, Wokingham the mound was dated by two C14 determinations of 1400-800 and 810-410 Cal BC (Torrance and Ford 2003, 93). A very much smaller 'mound' at Turnpike School, Newbury produced a C14 date of 1000-800 Cal BC (Pine forthcoming).

At least 300 Burnt Mound sites are recorded in the New Forest, (Pasmore and Pallister 1967, Buckley 1988; O'Drisceoil, 1988; Pasmore 2000), and they also occur elsewhere, as at Harbridge in the Avon Valley (Shennan 1999) or Hatch near Old Basing (Oram 2006). Few seem to conform to the 'model' type of burnt mound with a trough surrounded by a crescent-shaped heap of discarded burnt stone (Raymond 1987; Oram 2006). Mainly late Bronze Age, there is increasing evidence for burnt mounds from the earlier Bronze Age and even the late Neolithic (Beamish and Ripper 2000). Middle Bronze Age dates of 1454-1370 Cal BC (KIA26695) was obtained from a burnt mound deposit at Greywell Road, Basingstoke (Oram 2006).

The chronology of burnt mounds has now been shown to be much wider than anticipated, spanning the earlier Bronze Age to iron Age (if not Romano-British periods) at least. The application of good radiometric dating and Bayesian modelling will enable a chronology to be better defined, but possibly more significantly the longevity of use of any one site or even location with burnt mound complex. The function of these may vary over time, and function still remains a key question. Considered application of lipid residues and other chemical analyses might help define, or negate various potential practices.

Burnt flint is also significant at some burial sites, including Mount Farm and Field Farm, and has been found with Deverel-Rimbury vessels at Langstone Harbour (Allen and Gardiner 2000) and on Twyford Down (Walker and Farwell 2000).

The built environment

The ground plans of hundreds of buildings of the later Bronze Age and Iron Age have been excavated across the area, and a number of studies have reviewed their form and possible practical and cosmological reasons that underpinned their design (Allen *et al.* 1984; Fitzpatrick and Morris 1994; Brück 199a; Parker Pearson 1993; Oswald 1997; Pope 2007).

In very general terms a number of broad chronological trends appear to apply to most of the Solent Thames area, with relatively straightforward simple post built roundhouses (occasionally with porch/vestibule structures marking their entrances) evident from the middle Bronze Age onwards (e.g. at Yarnton (Oxfordshire), Weir Bank Stud (Berkshire), Chalton (Hampshire). Post-built houses become much commoner and with some larger examples in the later Bronze Age and into the early Iron Age, as exemplified by examples at Bancroft (Buckinghamshire) Stanton Harcourt and Cassington (Oxfordshire) Dunston Park (Berkshire), Balksbury, Old Down Farm and Winnal Down (Hampshire). The Bancroft example, 18.6m across with three post-rings surrounded by a drainage gully and structured deposits of late Bronze Age ceramics, a saddle quern and pig bones is exceptional (Williams and Zeepvat, 1994).

In the Middle Iron Age there appears to be a wide range of variation both in construction type (post-built, stake- and plank-walled and probably turf-constructed) and the more common provision of drainage gullies or small enclosures surrounding them. The sequence of especially well-preserved buildings stratified within the Iron Age quarry hollows at Danebury remains exceptional for the detail revealed of different construction methods including the possibility of impermanent basket-built construction. For the most part this is within a more restricted size range, but with much less regular evidence of earth-fast posts. Since there is no good evidence of any particular technical advance, this seems to be part of a change in fashion in which posts ceased to be as decoratively or symbolically important.

The large number of ground plans now available offers the potential for more insights into stylistic or symbolic fashions and details of design. For example some houses have axial or paired posts, and Lambrick (with Robinson 2009) has note how some later Bronze Age houses have entrances that taper outwards, whereas most Iron Age ones are splayed outwards suggesting rather different social indications of privacy or welcome. Apart from structural evidence, there is increasing evidence from the distribution of artefacts and small pits etc how the use of buildings reflect both cosmological and practical aspects of design. This is especially striking for example at Hartshill Copse (Collard *et al.* 2006). There is also growing evidence of external as well as internal living, as at Mingies Ditch and Weir Bank Stud Farm.

There is now growing evidence for large rectangular buildings, often with over a dozen postholes as exemplified from recent work at Cassington (LBA) Yarnton (E/MIA) and Radley (IA) (Hey *et al.* forthcoming; Cotswold Archaeology 2004). Possible D-shaped structures of late Bronze Age and Early Iron Age date have been identified at Yarnton (Hey and Timby forthcoming); also semicircular ones there and at Farmoor (Lambrick with Robinson 1979) and Little Wittenham (Allen *et al.*. forthcoming which one?). Nevertheless, rectangular buildings are still very unusual in later prehistory and it is by no means certain what they were used for.

In the late Iron Age the normal form of buildings is still far from certain; although there is quite good evidence for the continuation of roundhouses (e.g. at Park Farm Binfield (Berkshire)), any evidence of houses is far less common than earlier in the Iron Age. The possibility that there was more use of rectangular sleeper beam construction is one possibility that is partly evidence in the admittedly exceptional case of Calleva (Silchester).

Four-post structures are more numerous than was the case and a variety of such structure with differing numbers of posts have been identified at Hill Farm outside Castle Hill, Little Wittenham (Allen *et al.*. Forthcoming b). Lambrick (with Robinson 2009) has observed the a number of probably pastoral settlements in the Upper Thames valley such as Mingies Ditch and Groundwell Farm have a particular form of four post structures with very large postholes (denoted as ‘mega-posters’). The postholes are sometimes linked by trenches, and at Groundwell Farm these are very similar to rectangular sets of parallel trenches, though it is not clear what they were for. The use of four posters remains somewhat uncertain, and while some are associated with charred crop remains, their very common association with settlements that have an emphasis on pastoral farming suggests that they were certainly not always granaries.

Funerary customs

Over the period the means of disposing of the dead varied, with rites involving cremation becoming uncommon by the early Iron Age, and recurring in the late Iron Age mainly as a result of new cultural influences alongside older ones. However, although this is archaeologically distinctive, it is not clear that it was a primary consideration in how the human remains were treated compared with other factors such as where remains were disposed of, whether or not deaths were natural, and the likelihood that most dead people were not accorded formal burial. For much of the Iron Age it is suspected that

most bodies were exposed and may have been scattered into the environment and if this was partly concerned with the removal of corruptible flesh the apparent contrast with cremation may have been less significant than first appears. The complexities of interpreting human remains that are found are thus compounded by relative ignorance about how the majority of dead people may have been treated and what superstitions and beliefs were paramount.

Funerary monuments

A small number of round barrows are recorded with secondary cremation burials ('urnfields') such as Mound 1 in the Lambourn Seven Barrows where 112 cremation burials (and one child inhumation) were recorded (Case 1956), and Standlake, with mostly unurned cremations. However these are unusually large, and smaller groups of half a dozen cremations and/or inhumations, as at Field Farm Burghfield (Berkshire), Stanton Harcourt and Mount farm (Oxfordshire) and Eton Rowing Course are more typical. Amongst the latest instances of continued use of funerary monuments are some late Bronze Age burials at Barrow Hills (Oxfordshire).

Satellite burials, i.e. single burials on the margins of ring ditches of middle or earlier Bronze Age date are also recorded as at Mount Farm, Oxfordshire (Lambrick 1979), Heron's House and Field Farm Burghfield (Bradley and Richards 1979; Butterworth and Lobb 1992), and Eton Rowing Course (Allen *et al.* 2000).

Over the northern part of the Solent Thames area very few barrows were newly built in the Middle Bronze Age but a number are known for Berkshire and south Buckinghamshire, notably a small 1.8m high barrow at Sunningdale with 25 urned cremations, and ring ditches of possible middle Bronze Age origin at Cippenham near Slough, Field Farm Burghfield and Eton Rowing Course.

In general barrows with primary Deverel Rimbury burials are very much commoner closer to the Deverel Rimbury heartland in Dorset and South Wiltshire, and to some extent Hampshire – as exemplified by Chandlers Ford (Entwistle 2001).

Flat cemeteries

Several middle Bronze Age flat cremation cemeteries are known from the Solent Thames area, mostly southwards from the middle Thames. A middle Bronze Age cemetery of about 15 Deverel-Rimbury urned cremations at Stokenchurch is one of the most northerly. Some are old finds of large cemeteries such as Dummer, Hampshire, with over 70 inverted urns (Ellison 1980), medium sized groups like Sulham Berkshire with 17 surviving of a potentially larger group (Barrett 1973), but others were only very small, as with the five urns at Shortheath Lane, Sulhamstead (Butterworth and Lobb 1992). Some of the cremations are not burials as such but are token deposits of pyre debris. A noticeable feature of later Bronze Age urnfields is that almost all large ones were late nineteenth or early twentieth century discoveries, suggesting some bias in discovery processes.

In Hampshire both Easton Down (R7) and Twyford Down have revealed mixed rite cemeteries. At Easton Down the sequence is unclear but at Twyford Down two phases of burial could be distinguished, both involving cremation and inhumation burials associated with Deverel Rimbury pottery (Walker and Farwell 2000). On the Isle of Wight known later Bronze Age urnfield sites (with 40, 70 and 11 urns respectively) show a different distribution from earlier barrows with only Rew Down on the Middle to Upper Chalk.

Iron Age cemeteries are very much rarer than Bronze Age urnfields, but a small number have been found in recent years, including a middle Iron Age example of 35 at Yarnton in Oxfordshire. In Hampshire 18 early Iron Age burials (mostly adolescents an children) occurred in clusters at Winnal Down; 28 middle Iron Age burials were found in an Iron Age quarry at Suddern Farm; and at Owlesbury a cemetery of 16 mainly late Iron Age burials were founding a cemetery that continued in use into the early Roman period (Hey *et al.* forthcoming; Cunliffe and Poole 2000, vol 2, pt 3, 153-74;

Fasham 1985; Collis 1994, 108). The reasons for these unusual cemeteries are obscure, though for Yarnton it is suggested that they might be victims of disease. The Winnal Down burials were in small clusters around the settlement and small groups of burials are know on other sites, such as three close to a boundary between two areas of settlement at Berwick Salome (Oxfordshire).

The occasional use of Iron Age buildings as formal burial places is suggested three associated with a post-built roundhouse at Spring Road Abingdon (Allen and Kemash 2009) and two in the stake walled building at Frilford (Harding 1987).

Isolated burials and human remains within fields and near boundaries

A significant number of single urned cremation burials have been recorded across the Solent Thames area (Ellison 1980), one recent example being at Old Way Lane, Cippenham (Ford *et al.* 2003, 105). Apparently isolated late Bronze Age and Iron Age burials also occur, such a s recent find of a bagged or bound body at Sutton Courtenay, Oxfordshire (Gill Hey pers comm).

These cases may reflect a practice of disposing of human remains individually or in small clusters in open areas or in and around fields, as apparently the case with small urnfields at the Eton Rowing Course (Buckinghamshire), and Appleford Sidings (Oxfordshire) and more isolated examples at Weir Bank Stud Farm, Reading Business Park and Green Park, Reading (Berkshire) and The Lea, Denham (Buckinghamshire). A cluster of late Bronze examples were associated with ditches running into a palaeochannel at Marsh Lane East on the Maidenhead-Windsor flood channel (Allen *et al.* forthcoming). At Twyford Down some of the cremation vessels were arranged in two alignments at regular interval (Walker and Farwell 2000), which might be suggestive of an association with an above ground hedge or fence line.

Iron Age inhumations in or close to ditches outside settlements have been recorded just outside the area at Roughground Farm, Lechlade and Horcott in Gloucestershire. At Watchfied (Oxfordshire) a double inhumation of a woman and child was placed within a funnel entrance area of a field system, with another burial of a young woman and perinatal infant close to one of the boundaries.

Burials in and around settlements

Apart from the relatively clustered groups of burials occurring as cemeteries, or more isolated burials associated with boundaries human remains were often disposed of in and around settlements, often in a manner that suggests a degree of ritualistic behaviour.

Burials in or close to the boundaries of enclosed settlements and hillforts are well-attested (cf Hill 1995), and some such as a possibly severed head at Aylesbury and a double burial of a woman and child at Cassington Big Ring could be foundation sacrifices. The remarkable burial of a man and a horse with a ritually broken pot and an adze hammer at Blewburton might be a closing deposit.

Both the occurrence and character of these remains suggest that activities connected with disposal of the dead were especially associated with communal enclosures, some hillforts like Danebury and Castle Hill being particularly prolific. These include cases of mutilation and very possibly ritual killing. However, none of this was confined to such places.

Double inhumations, often of women and children (conceivably mothers and their offspring), which could reflect ritual killings have been found in a variety of contexts pits within hillforts at Castle Hill Little Wittenham (Allen *et al.* forthcoming) and Danebury (Cunliffe and Poole 1994, 421); the ditch of Cassington Big Ring (Case 1982b); and two graves associated with a field system at Watchfield (Birkbeck 2001). Other double or multiple burials include infants or adults and infants at Old Down Farm and Winnal Down (Wait 1985, 372-3, 376-83).

The practice of disposing of human remains in and around ordinary farming settlements can be traced back at least to the late Bronze Age with cremations and inhumations occurring for example at Cassington West and Reading Business Park. There are a few instances of early Iron Age cremations associated with houses at Yarnton, but for the most part Iron Age remains found in settlements are a mixture of single bones, partial bodies and complete inhumations. The extent to which some individual bones represent accidental deposition (e.g. of curated fragments from excarnated bodies) is debatable; the placing of some (especially skull fragments) was clearly deliberate.

The rate of occurrence of human remains within farming settlements is highly variable in the Upper Thames valley, sites like Gravelly Guy, Mount Farm and Bourton on the Water (just into Gloucestershire) having much greater densities of human remains than comparable sites such as Ashville, Yarnton or Coxwell Road Faringdon (Lambrick with Robinson 2009). In Buckinghamshire such pit burials have not so far been found, despite the extent of work at Milton Keynes, suggesting some regional variation in the practice. Elsewhere the practice seems to have become commoner through the early to middle Iron Age, but is much less common in the late Iron Age.

Detailed burial practices were examined by Wait (1985) demonstrating a substantial degree of variation in detailed practice (including for example whether graves were dug and how bodies were disposed of on the bottom or within the fill of storage pits or ditches and how they were oriented).

Human remains in watery places

Langstone Harbour was demonstrably used as a flat cremation cemetery most cases utilising urns that were large and heavy and probably made more or less on the spot. Several urns containing only burnt flint were found in soft mud on the foreshore, and other scatters of burnt flint could represent remains of funerary pyres and which was used as temper for the urns (Allen and Gardiner 2000; esp. fig. 64).

Bradley and Gordon (1988) reviewed the evidence of human skulls recovered from the Thames, of which nearly 300 survive and several more were reported with original finds of metalwork. It is noticeable that while animal bones had been retained there were very few other human bones, including mandibles or cervical vertebrae, suggesting that the skulls had been selected already in a defleshed, disarticulated condition, for deposition in the river. There was a bias towards prime adult males aged between 25 and 35. Four out of six skulls that were radiocarbon dated were late Bronze Age.

Excavation of a former Thames channel at Eton Rowing Course has shown that complete pots, human and animal skulls and other bones were being placed on sandbanks within the river in a location traversed by a sequence of wooden structures. In this case the human bones included long bones that had been cracked to extract marrow, strongly suggesting cannibalism (Allen *et al.* 2000).

Other associations of human remains with watery places include several instances of usually fragmentary bones being found in the backfilling of waterholes. One of the most unusual examples is the whole skeleton of a young woman in a late Bronze Age waterholes at Watkins Farm, Northmoor, Oxfordshire (Allen 1990).

Wider interpretations and social attitudes

Since Whimster (1981) Wilson (1981) and Wait (1985) undertook their various reviews of Iron Age burial practice the amount of data available has grown enormously, and although on the whole their conclusions have stood the test of time quite well, a good deal more could now be gleaned than was then the case. There has been much discussion of how Iron Age burial practices reflect social and religious attitudes, but the ways in which concerns for the environment and social groups rather than the prestige of individuals was expressed has generally been reinforced in recent years.

There is now much more evidence for some of the more gruesome aspects of human society and perhaps a greater indication that the preferred normative right was for the body an spirit to be released into the environment, perhaps with some watery places being specially appropriate for commemorating a warrior elite. The social opposite of that prestige may be reflected in some of the evidence of how people buried in and around settlements were treated, their bodies not released into the wider environment, but at least sometimes the victim of sacrifice. The amount of data on health and stature now available has yet to be explored fully. Lambrick (with Robinson 2009) has compared the burials in the Yarnton cemetery and figures for stature in other cemeteries and Danebury, to suggest that those chosen for burial in settlements were socially and perhaps economically disadvantaged, with more evidence of poor nutrition and an undue proportion of women and young adults.

There are now more instances of grave goods which may relate to the manner in which people were buried; many more examples of double inhumations, mutilations and smashed or butchered bones with which to explore issues of human sacrifice and possible evidence of cannibalism; and more scope for re-examining the detailed positioning of burials, how this varied regionally, and whether for example the association with storage pits is related to fertility and renewal (related to crop storage), or waste and discard (related to possible secondary use as latrines). There is also more scope now for exploring cultural trends in terms of the continuance of traditional practices alongside new influences, both through the later Bronze Age and in the late Iron Age.

Ceremony, ritual and religion

The construction of ceremonial monuments had largely ceased by the middle Bronze Age, though many were at least respected. In the later Bronze Age and Iron Age major communal enclosures and forts would have acted as major communal ceremonial and religious centres . From what is known of late prehistoric religion a good deal of importance was attached to natural features and groves that are difficult to identify archaeologically.

Amongst later Bronze Age ceremonial structures are a possible group of post rings in the upper Thames valley (at Spring Road, Standlake and perhaps Gravelly Guy and Lechlade) and an impressive pair of diagonally crossing palisade screens associated with the early ironworking site at Hartshill Copse. At Yarnton ditches and rows of slots may have been aligned on a sacred tree. All of these are notable as odd structures rather than having clearly associated votive deposits

At Danebury there was a succession of four rectangular structures interpreted as successive shrines in the middle of the hillfort, though they were not directly associated with votive offerings.

Iron Age shrines have been suggested as predating Romano-British temples at Frilford and Woodeaton (Oxfordshire) of which Woodeaton is very circumstantial, relying principally on a possible pre-Roman palisade temenos and suitable finds. Recent unpublished geophysical evidence and the recognition of the site as an important midden has increased the likelihood of an Iron Age religious centre here but it is far from proved. The case for Frilford was questioned (having previously been accepted) by Dennis Harding (1987) but the presence of a votive ploughshare in a curious set of post holes, and two burials in the stake-walled house, both beneath Romano British structures is still highly unusual. The absence of late Iron Age material is not an objection to Roman reuse of a site known to be sacred (Lambrick with Robinson 2009)

By far the most convincing case of an Iron Age shrine predating a Romano-celtic one is Hayling Island, where an Iron Age circular structure 8m in diameter centrally placed within a courtyard 22m square defined by a ditch and lengths of palisade or hedge predated a well-built Roman temple building of similar form. Post holes and a central pit that could have held some sort of object of veneration were found, and within the courtyard there were patches of burning. Unlike other possible examples there were numerous objects such as horse gear, weaponry, brooches and currency bars,

many showing signs of deliberate breakage. The almost complete absence of cattle bones in the faunal remains suggests that they were deliberately excluded.

There are a number of other possible shrine like structures such as an undated setting of four posts in an 8.4m diameter penannular ditch at Aston Clinton where nearby pits contained a deposit of concertina pots and a middle Bronze Age skull. A rather similar arrangement was found at the Eton Rowing Course (Allen *et al.* 2000) while a late Iron Age setting at Smiths Field consisted of a penannular gully 20m across enclosing a shallow square gully c.10m across with a horse burial at one corner surrounding a setting of posts 4m square with a small pit or scoop set off-centre within it (Allen, 2000, 20, fig 1.11).

Warfare, defences and military installations

Weaponry and Trappings of War

That "heroic" behaviour and conflict was part of life in this period can hardly be doubted but there is little physical evidence for large-scale warfare. The trappings of warfare, are widespread with artefactual remains, such as swords and daggers from both the Bronze Age and Iron Ages. The River Thames has been an especially rich source of late prehistoric weaponry as a result of ritualistic deposition.

Jill York's analysis of bronze objects from the Thames showed that many were damaged, and some of that damage was probably the result of fighting, as in the case of the bronze shield from Clifton Hamden punctured by a Bronze Age spear. But much of the damage (bending and breaking swords and spears etc) was probably ritualistic and symbolic – in effect 'killing' the weapon. Similar evidence has emerged from analysis of bronze sword blades in Hampshire which has suggested that some were used in hand to hand combat, though the examples in the Andover (Varndell) and Blackmoor (Colquhoun) hoards appear to have had a ritual beating before their deposition.

To a large extent such river deposition was symbolic and it is doubtful if any was the direct result of battle or combat, though at Dorchester-on-Thames a male human pelvis was found with a late Bronze Age spearhead embedded in it (Ehrenburg, 1977). At Danebury there were numerous skeletons with sometimes lethal wounds from weaponry, but the context of their death (warfare, personal combat or sacrifice) not entirely clear.

There is a distinct absence of archery equipment, but slingstones would certainly have been used as projectiles in human combat. Apart from the well-known slingers position in the main entrance to Danebury, there are numerous examples there and at other hillforts of caches and hoards of slingstones collected to be ready for use. Although slingstones occur quite commonly in very small numbers on settlements, where they could have been used for hunting or for personal protection, there is a clear distinction between this and the hoards of hundreds or thousands found on defensive sites.

A small number of sites from the late Bronze Age onwards (cf Runnymede) have produced horse equipment and it is possible that these can be considered as being of military significance, as also applies to the sparse evidence for chariots, though their actual use in warfare is not directly evident. There is evidence from Bury Hill for use of the later fort as a possible 'chariot school' (Cunliffe and Poole 2000b), and late Iron Age coins depict local Atrebatic rulers as mounted warriors.

Iron Age defences and evidence of possible use in warfare

Whatever the other copious evidence for the complex roles of hillforts, they were designed at least in principle and almost certainly in practice to be defensible. But it is important to appreciate that this may have been both symbolic and practical. For example, so-called 'guard chambers' at the entrances to some hillforts may have had multiple roles – and indeed in this instance their use for military

purposes rather then symbolic or general use in relation to the comings and goings through hillfort entrances has recently been questioned (Bowden2006).

Most Buckinghamshire hillforts have only a single rampart and, so far as is known, simple gateways. Ivinghoe and Taplow show evidence of timber-framed phases that in the latter case was succeeded by a dump rampart.

In Oxfordshire timber-framed or revetted box-ramparts are known from Uffington Castle, Segsbury and Blewburton on the Berkshire Downs, and at Burroway Brook in the valley. Stone faced ramparts occur at Rainsborough, Bladon Castle, and Cherbury, while sarsen revetments are known at Uffington and Segsbury. Simple dump ramparts typically followed the timber-framed phases at several sites and a simple dump rampart is known from Madmarston. Entrances have been investigated at Rainsborough, at Cherbury, Blewburton Hill and to some extent Uffington. Multivallate defences like those at Cherbury (probably middle Iron Age) and Rainsborough (unusually early Iron Age) is rarer than the 'developed' hillforts of Wessex.

Broadly speaking these patterns of development follow much the same pattern as that of the more numerous and varied forts of Wessex, where more numerous excavations have allowed the development of a general model for how defences developed (Cunliffe2005):

Enclosure type	*Characteristics*	*Ceramic phase*	*Date*	*Example*
Early 1	vertical faced rampart	cp 2 3	6th–5th BC	Bury Hill 1
Early 2	glacis rampart	cp 3	5th–4th BC	Quarley Hill
Developed 1	entrances modified	cp 4/5 6	4th–3rd BC	Beacon Hill
Developed 2	one gate; ramparts and gate enhanced	cp 7	3rd–2nd BC	Danebury 5
Late	circular and multivallate	cp 7	late 2nd BC-early 1st AD	Bury Hill 2

While arguments about the role of a developed hillfort, like Danebury, will continue, there is evidence, in the form of weapons, skeletons with wounds and gates destroyed by burning to suggest that the elaborate fortifications were not just for show. Particularly striking is the pit with 11,300 sling stones (River Test pebbles) found near the east gate. Recent excavations at various forts in the Thames valley including Uffington, Segsbury and possibly Castle Hill have likewise revealed caches of sling stones (albeit on a smaller scale) which occur only sporadically on farming settlements. Whatever their symbolic role as strongholds, forts were designed and armed for defence.

There is a growing number of hillforts in southern England where wholesale burning appears to have taken place. These include Rainsborough (just in Northamptonshire) Taplow (Buckinghamshire), Bladon Castle (Oxfordshire) and (from the extreme magnetic signature of a section of its southern rampart) possibly Perborough Castle (Berkshire). The valley fort at Burroway Brook (Oxfordshire) has a charred corduroy of timbers underlying an entire circuit of collapsed reddened gravel and soil ramparts that had once been timber-laced. While it is not known if the cause of such burning in each case was the result of attack, slighting or accident, these must have been major events and the vulnerability of timber laced ramparts to fire might have been a factor in their eventual abandonment in favour of dump ramparts of *glacis* form.

Material culture

Within settlements, the evidence of day-to-day material culture in the form of pottery and craft objects show a significant degree of variation in quality of materials, finish and decoration that suggest important differences in the social roles that material objects played that are familiar today.

In general terms there is very good evidence of highly complicated structured deposition and special deposits of animal skeletons, skulls and limbs, querns, spindlewhorls, metalwork, pottery and other objects, burnt stone and chalk lumps and in waterlogged deposits, wooden objects. Some of these deposits occur within ordinary settlement sites as well as more obvious 'special' locations. The variation and contexts of such deposits, and their occasional association with human remains presents a highly complex picture reflecting a mixture of the rituals and beliefs that may have directly resulted in such deposits and various depositional processes from deliberate deposition to relatively random discard of waste from special activities, to hoarding for later recovery (Wait 1985, Hill 1995; Lambrick and Allen 2004).

Middle to late Bronze Age metalwork has been found across the whole area in the form of isolated finds, a few hoards and site finds. A number of summaries of classes of objects and reports on hoards have been published for Buckinghamshire (e.g. Farley 1972; 1973; 1991), and for Hampshire (Lawson 1999), but Oxfordshire, Berkshire and the Isle of Wight lack up-to-date reviews.

Excavations of hoards include a late Bronze Age hoard of 2 gold torcs and 3 gold bracelets were found in a Post-Deverel Rimbury plainware pot dated 1150-800BC at Monkston, Milton Keynes, not obviously associated with other contemporary activity (Needham, 2002); a middle Bronze Age hoard of gold torcs and bracelets at Crow Down, Berkshire, possibly within a structure, but not fully investigated (Varndell. G *et al.* 2007); and a late Bronze Age hoard of socketed axes found at the entrance of a round house at Tower Hill, Oxfordshire (Miles *et al.* 2003). The late Bronze Age Petters Sportsfield hoard lies just outside the Solent Thames area near Runnymede.

Iron Age hoards are generally less common and have not received so much attention. However, Hingley (2006) has recently reviewed the occurrence of iron currency bars in hoards which include several across the Solent Thames area, suggesting that they often occur in association with boundaries. Individual hoards include the remarkable 'Salisbury hoard' of votive miniatures from Hampshire (Stead and Renfrew 2000). Others include a number containing horse gear, such as pairs of bits from Wytham and Hagbourne Hill (Oxfordshire).

A great deal of evidence of highly valued objects comes from those deposited in watery places, most notably the Thames, but also some coastal contexts. There have been several studies of or including this material, which have discussed at length the complex issues concerning the character of the material found (often weaponry) and the possible circumstances and meaning of its deposition (Eherenberg 1975; Wait 1985; Yorke 2002; Bradley and Gordon 1988; Bradley 1990; Thomas 1999). But with the exception of Bradley's (1990) wide ranging study of such deposition across NW Europe, these studies have almost all been confined to particular periods (Bronze Age or Iron Age or subdivisions between them). There has thus been relatively little detailed consideration of the phenomenon from a more general prehistoric perspective.

Crafts, trade and industry

Workshops

To a large extent craft would have been carried to in ordinary houses – or in some cases house-like buildings were perhaps built as workshops. For example there is excellent evidence of this at Hartshill Copse where there is very good evidence of different stages of metal working being carried out in two adjacent roundhouses which also had complementary characteristics in terms of the quantity and character of other finds (Collard *et al.* 2006). But in general it is very difficult to distinguish purpose-built workshops. There are a number of cases of D-shaped post built structures in the Upper Thames valley that have been interpreted in this light, and this might also apply to some rectangular structures and west-facing roundhouses. Recently a most unusual sunken-floored sub-rectangular building 3 m long and 2 m wide, supported on four posts has been found. It had an entrance ramp at one end and pitched stone hearth cells or ovens overlying an original hearth at the other. It was associated with

large pieces of perhaps 10-12 early Iron Age angular vessels, but there is no evidence of what craft activities it may have been used for (Booth and Allen pers. comm.)

Metalworking

An increasing number of ordinary Late Bronze Age settlement sites as well as high status ones contain evidence of bronze metalworking with items such as a casting drips, an unused rivet, crucibles, mould fragments (usually for spearheads and axes), a possible tuyere and occasional casting failures such as a mis-cast razor still in its clay mould from Runnymede Bridge (Bowden *et al.* 1993 Bradley *et al.* 1980, 244, Moore and Jennings 1992, 87; Needham 1991). Apart from the character of hoards like that at Tower Hill (Miles *et al.* 2003) there are possible hints of the existence itinerant craftsmen from objects such as part of a syenite mould for a typically south-western 'Sugoursey' style axe recently found at Castle Hill Little Wittenham, similar to an earlier find from Patters Sports Field, Surrey.

There is good evidence of bronze working continuing on settlement sites into the Iron Age (Northover 1984, 1995), though by then bronze metalwork had ceased to have anything the economic importance it had had in the late Bronze Age (Needham and Burgess 1980; Needham 2007). Nevertheless, the high technical craftsmanship in La Tene weaponry, horsegear, mirrors and other objects, emphasise the continued value of metalwork as prestige goods. An unusual later indication of metalworking linked to high status exchange is the late Iron Age evidence of manufacture of silver bars (or ingots) and other silver and gold smelts on the Isle of Wight.

The late Bronze Age ironworking site on tertiary geological outcrops Hartshill Copse Upper Bucklebury is of international importance, enhanced by evidence of early Iron Age site nearby at Coopers Farm, Dunston Park (Collard *et al.* 2006; Fitzpatrick 1995). At Hartshill, 17 radiocarbon dates securely date the earliest iron working activity to the 10th century BC, pre-dating previous evidence for ironworking in the British Isles by three centuries. A pair of post built roundhouses/workshops, respected by ceremonial fencelines, were associated with slag and hammerscale revealing clear differences of work areas. A later enclosed settlement dated to the 5th century Cal BC also produced iron slag and hammerscale. Further areas of ironworking nearby at Dunston Park were dated to the 7th century BC.

In the mid to late Iron Age various sites lying close to Caesar's Camp have produced evidence of iron production, prompting the suggestion of an association between the fort and these iron working sites (Lobb and Morris 1991-3; Hammond, forthcoming; Pine 2003).

In Buckinghamshire the most substantial (but still limited) excavated evidence for iron smelting and smithing comes from Aston Clinton Bypass from late Iron Age contexts. There is an old, somewhat doubtful evidence of smelting at Cholesbury hillfort.

While evidence of Iron Age iron smelting is now less rare than it was at the time of Salter and Eherenreich's (1984) review for central southern England, their observation that almost all domestic settlements had some evidence of smithing has if anything been reinforced. However, there needs to be some qualification to this because it has become increasingly clear that slag-like material that might in the past have been taken to indicate smithing can arise from other high temperature activities or events such as structures being destroyed by intense fires (e.g. Salter 2004). Sampling for hammer scale and higher density slags which are more reliable indicators of smithing activity, has become more routine in recent years.

Pottery

Direct evidence for pottery production in terms of firing sites and wasters remains largely elusive until the very end of the Late Iron Age, when the first small temporary kilns appear e.g. in the Upper Thames Valley at Yarnton Cassington and Hanborough. Distorted, over-fired, spalled and cracked pottery occurs fairly frequently (and flawed pots were often used as funerary urns) but it is very

seldom possible to pin-point on site pottery manufacture (though at Runnymede it has been suggested that there is evidence of querns being used to prepare calcined flint as pottery temper).

The ability to control firing temperatures is shown by fineware vessels of both the early and middle Iron Age, some using inlay and slip decoration for the first time in many centuries, suggesting a reasonably high level of craftsmanship. In the Iron Age there is considerable variability in fabrics in many parts of the Solent Thames area, suggesting that a wide variety of clays were exploited on a fairly opportunistic basis, but these distributions and trends through time are not well understood.

Stone working

Quarrying, in particular to obtain stone used as 'pot boilers' and also to win stones suitable to make into querns and rubbers would have been a significant craft. Making objects from stone was also noteworthy. While querns may have been finished at the quarry, roughout spindle whorls (e.g. of Malmstone at Little Wittenham, shale or coal at Bourton-on-the-Water in the Cotswolds and of chalk at Gravelly Guy, Stanton Harcourt) show how stone was both procured locally and transported over long distances in a relatively robust state to avoid breakage before being worked into more delicate objects.

Bone and antler working

Bone and antler working was ubiquitous and was a principal source of tools for other crafts. Techniques developed to some extent, e.g. through use of drills and saws in the Iron Age. Lambrick (with Robinson 2009) has suggested that the degree to which bones were shaped polished and decorated to make tools (as with so-called weaving combs compared with unshaped bobbins etc) may say something about the role of the implement as a symbol of social status in families, and perhaps the symbolic role of the crafts for which they were used.

Leather, cordage and textiles

Although many later prehistoric implements are thought to be associated with these crafts, in only very few cases (e.g. spindle whorls, needles and perhaps bobbins) is their function clear. The use of combs for teasing wool, weaving, skin cleaning, personal toiletry or other activities is still not entirely clear; while there seems to be little question about the function of later Bronze Age cylindrical 'loomweights' the theory that Iron Age triangular 'loomweights' were really 'oven bricks' (Cunliffe and Poole 1991b) is beginning to be quoted as unquestioningly as their former attribution, though this is not yet fully accepted. The use of the highly distinctive and quite common polished and grooved sheep medapodials remains as obscure as ever.

Finds of cordage (as opposed to objects that clearly required it) are very rare indeed. Like wise, there are only very few finds of later prehistoric leather from the area, and they are not well preserved (e.g. Allen 1990a). Actual textiles are also still very rare, as is evidence for aspects of their fabrication such as fulling and dyeing.

Woodworking

The range of woodworking tools became wider in the late Bronze Age and Iron Age with the introduction of chisels, saws, drills and files. There is also a growing plethora of preserved worked wood and woodworking debris, both from riverbed and foreshore structures and preserved objects such as wooden bowls. Significant preserved structures have been found at Whitecross Farm (Oxfordshire) Eton/Dorney (Buckinghamshire), Runnymede, Anslows Cottages (Berkshire) and Testwood Lakes (Hampshire).

An increasingly wide range of bowls and other wooden objects have been found in recent years, including the earliest wooden ard share in Britain from Dorney (Buckinghamshire). However, this still does not compare with the incomparable richness of finds form sites like Glastonbury and Mere in the Somerset levels, or Fengate in the Fens of East Anglia.

Markets, centres of exchange and trade

The existence of 'markets' or centres of exchange in prehistory has been a matter of debate, especially in relation to hillforts and midden sites as 'redistribution centres' or 'entrepôts.' While the quantity range and quality of objects found is often suggestive of high status, it is much less clear exactly what this means in terms of why objects were brought to these sites, and to what extent forts like Danebury acted as massive stores for redistribution of agricultural produce (Cunliffe 1995). Hill (1995, 1996) has questioned whether this interpretation of Danebury is overstated, and it is clear that many hilltop enclosures and hillforts do not have such evidence: many contain settlements no more elaborate or dense than some contemporary non-defensive enclosed and open settlements (Cunliffe, 2005); it is increasingly clear that some artefacts that might be taken to be indicative of a more central market role (such as being centres of specialist crafts like metalworking) are not always present and do not occur much more than on some ordinary settlements.

Needham (Lambrick with Robinson 2009) has similarly argued that contrary to tempting theories there is rather little to suggest that riverside midden sites were primarily entrepots for river trade. He sees them more as high status communal meeting places, involved with a lot of recycling and processing of material brought in, but not specifically related to river trade.

The function of defensive and communal sites as centres of exchange seems to have been variable and is probably better seen as a by-product of their wider communal role than as their primary raison d'etre. In the later Iron Age with more indication of centralising economic political and social power, the role of late Iron Age enclosures and oppida in controlling trade and exchange may have become more overt, as reflected in the side range of traded goods that tend to occur on these sites. This is perhaps clearest of all in the case of Hengistbury Head where the defended headland clearly acted as an important port (Cunliffe 1987).

The principal indication of trade and exchange is the distribution of objects that came from distant sources. In Buckinghamshire, for example, there are later Bonze Age ornaments of continental origin, as there are across the Solent Thames area. Dorset shale, Wealden greensand querns and some late Iron Age ceramics all indicate regional exchange networks. In Oxfordshire querns were produced both locally and were coming from the Derbyshire, the Welsh Marches, the Forest of Dean, the Downs and Sussex. Although some of these materials may have been transported by river, there is some evidence that the Thames acted more as a boundary than a conduit of exchange. Briquetage from Droitwitch (along with Malvernian pottery) is found almost exclusively north of the Thames and west of the Cherwell, whereas briquetage from Hampshire and Dorset reached areas south of the river (e.g. Abingdon and Castle Hill).

In Berkshire and Hampshire broadly similar trends apply with querns travelling significant distances (e.g. from Lodsworth, E Sussex) even though sarsen was often a perfectly good local material. Shale roughouts and finished objects, briquetage, metal objects and ceramics again all point to well-developed extensive trading networks in which agricultural produce is likely to have been a key basis for exchange.

On the Isle of Wight tantalising glimpses of social, economic, maritime trade and other linkages are revealed by Iron Age coinage and currency bars. There is evidence of trade in ceramics, including typical Glastonbury wares, pottery in the St Catherine's Hill/Worthy Down tradition, imported Gallo-Belgic finewares and amphorae and other material comparable to pottery from Hengistbury Head.

Transport and communication

As evidenced by trauma on cattle bones first noted at Ashville, Abingdon (Wilson in Parrington 1978) oxen or steers were probably the main draft animals on the farm and for transporting goods. However, the evidence of prestige attached to horses and horse gear, and possibilities of horse breeding areas in Oxfordshire and Milton Keynes suggest that horse riding and horse-drawn vehicles were relatively high status forms of transport. Recent work by Bendrey (2007) has revealed new diagnostic evidence for horse bitting which may give these animals a wider role. Cart and chariot fittings (nave rings and linch pins) and harness gear are familiar finds from a range of sites. Finds of pairs of Iron Age horse bits such as those at Wytham and Hagbourne Hill, (Oxfordshire) are also indicative of horse-drawn vehicles, as are moderately common metal detecting finds of terret rings. The high quality craftsmanship involved, including bimetal working and elaborate decoration on some of these objects is good evidence of the prestige attached to equine transport.

Physical remains of transport routes tend not to survive well except in localised places where hollow ways, causeways or waterlogged remains of bridges, jetties or landing stages have been buried in conditions conducive to survival. A number of structures have been in the rivers Test (Testwood, Hampshire), and Kennet (Anslows Cottages, Berkshire) and the Thames in Berkshire (Runneymede), Buckinghamshire (Eton/Dorney) and Oxfordshire (Whitecross Farm), and in current intertidal location (Langstone Harbour, Hampshire). These have vet high palaeoenvironmental and chronological resources enabling detailed site chronologies and reconstructions. Palaeoenvironmental studies at the local level should provide information on depth, flow, substrate and vegetation regimes of the water and its margins.

Amongst the main prehistoric trackways in Southern England, the traditional explanation of Icknield Way as a route alongside the chalk escarpment from Wessex to East Anglia has been questioned (Harrison, 2003). At Aston Clinton no trace of it was found, and there was nothing to say that it might not be a post-medieval creation (RPS, 2005). Although such routeways might be better understood as loosely defined "zones of movement," the emerging pattern of territories seems to be better defined by regularly spaced hillforts, trackways and cross-ridge dykes running perpendicular to the Chiltern scarp. Bull (1993) suggested that a "bi-axial" pattern of roads and trackways across the Chilterns and north Buckinghamshire may have pre-dated the Roman road network, and similar networks have been noted in the Hertfordshire Chilterns extending into Buckinghamshire (Williamson, 2002).

Very similar issues arise for the Ridgeway, the best known of all 'prehistoric' trackways in Britain running along the scarp of the Berkshire and Marlborough Downs. There is growing evidence of ditches crossing its course, not only at Uffington (Miles *et al.* 2003) but also at several other points along its route, often revealed by deep rutting and occasionally exposure in ditches and as crop- or soilmark evidence– as has also been observed at the southern end of the Ridgeway at Avebury. However, Gary Lock and colleagues have found that several Iron Age hillforts lie on a line theoretically defining the most efficient route travel along the Ridgeway, which in several cases, including Uffington, is not the present day course of the Ridgeway (Miles *et al.* 2003), though this does not entirely disprove the other signs that it may not be as ancient as has traditionally been supposed. Very comparable cross ridge hollow-ways and boundaries link the Vale of White Horse to the Berkshire Downs, but as yet have not been shown to have prehistoric origins.

Another celebrated ancient trackway crossing the Solent Thames area is the Harroway crossing Hampshire linking Salisbury Plain with the Downs of Surrey and Kent (Williams-Freeman 1915, Hawkes 1925, Crawford 1960, 78).

At more local level throughout the Solent Thames area there was almost certainly a more extensive network of tracks and droveways linking fields farmsteads and communal gathering places, than is evident from the ditches (and presumably hedges), hollow ways and lynchets that survive as archaeological features. These are often best preserved either under floodplain alluvium or colluvial hillwash, such as a 'lost' trackway of Iron Age origin traced along an historic parish boundary perpendicular to the Chilterns between Aylesbury and Chesham (Green and Kidd 2006); a late Bronze

Age road metalled with flint gravel at New Buildings which incorporating a gate or barrier has been investigated (Cunliffe 2000, 19); a pre-Roman ford crossing the Padbury Brook at Thornborough in the Ouse valley (Johnson 1975); or the causeways crossing the Upper Thames floodplain at Yarnton, Farmoor and Thrupp (Lambrick 2008)

The former Thames channel at Dorney Rowing Lake was crossed by six wooden pile-built bridges and two possible jetties variously of middle Bronze Age, to middle Iron Age date. Piles embedded in a silted channel at Whitecross Farm, Wallingford may either have been for two successive bridges or jetties (or a single more elaborate jetty). A late Bronze Age jetties or bridges were found and a possible landing stage dated to 840-410 Cal BC was found at Anslows Cottages, Burghfield (Butterworth and Lobb 1992). Other cases of revetted river banks, as at Boveney Court (Campbell 1992) may be similar.

The use of the Thames and its tributaries for river transport may be suggested by traded goods, and there are possible 19th century discoveries of log boats attributed to the Bronze Age at Marlow and Wooburn (Clinch, 1905), though as yet there are no modern confirmed cases of prehistoric river craft.

Other potential causeways have been noted in Langstone Harbour (Allen and Gardiner 2000), and waterlogged remains of timber bridges and causeways dating from 1600 to 1450BC have been found at Testwood Lakes, Totton, where one find of special significance was a cleat from a plank boat capable of cross-Channel journeys (Van de Noort *et al.* in press).

Sea crossings in the early part of the period can be inferred from finds such as the numerous bronze hoards of northern French type (Lawson 1999). By the Iron Age, trade with the Continent was well established with Christchurch Harbour and Hengistbury Head having an important role (Cunliffe 1987; Cunliffe and de Jersey 1997). The Isle of Wight was also well placed to play a role in both the Atlantic and Central European trade routes, but the available evidence has not been reviewed in recent years.

Legacy

Much of the Solent Thames area was intensively settled and farmed by the end of the Iron Age, though some areas like the middle Thames gravels may only have been gradually re-expanding after a relatively stagnant period of development after the late Bronze Age. To the north-east and south east there were emergent kingly rulers who had sought a peaceful and prosperous relationship with Rome, there is little evidence for Roman military activity. Silchester was probably deliberately created as a major centre that had already adopted the trappings of a Roman town and its manners, but more generally many late Iron Age sites continued to be occupied into the Roman period, and indeed beyond. But even in the less overtly pro Roman areas of Dobunnic tribal interest to the west the same pattern of uninterrupted development seems apparent. So far as there was any major disruption of settlement it had been in the late Iron Age and was to be in the mid Roman period, not the time of the conquest.

In Buckinghamshire evidence from the Roman nucleated sites is variable: Fleet Marston has some mid 1st century occupation which probably pre-dates the conquest (Cox, 1997) whilst at Magiovinium a pre-conquest field system was found on a different alignment to Watling Street and the later fields (Neal, 1987).

Within the area of Atrebatic influence in Hampshire both Winchester and Silchester developed from major late Iron Age settlements, and in Oxfordshire on the putative border between three major tribal areas the same is true of the rather smaller probable Roman town at Abingdon, while at Dorchester the Roman fort and town was established a short way from the Dyke Hills enclosure. The massive territorial area defined by the North Oxfordshire Grims Ditch was probably never completed, but was nevertheless notable for a cluster of early villas which may indicate some special legacy of land rights (Copeland 1988; Lambrick 2008).

Many of the practices of pit burials and disposal of bodies in and alongside boundaries and within settlements continued well into the Roman period alongside more Romanised rituals. Early Roman cremation rites (e.g. at Bancroft, Thornborough and Wendover) developed from the Aylesford-Swarling culture indicating a continuity of belief also found with the worship of "Taranis" at Wavendon Gate. Similar continuity of burial rites is evident also in Hampshire.

Except at Danesborough (Buckinghamshire), Alfreds Castle (Oxfordshire) and Tidbury (Hampshire) there is rather little evidence for Roman use of hillforts, though both at Uffington and Castle Hill some tradition of religious use seems to have survived, as reflected in the presence of Roman cemeteries immediately adjacent, which is also suspected for Tidbury and Ashley's Copse in Hampshire. Saxon reuse is likewise less common than in western Britain, but the high status burial within the Taplow fort which at that stage was still a prominent earthwork is a notable exception. Saxon activity is also well-attested at Uffington where the traditions of scouring the White Horse lasted well into the post-medieval period (Miles *et al.* 2003), while in Buckinghamshire the reuse of hillforts as the location of a number of medieval churches has been noted (Kidd, 2004)

Longer-term legacies can also be suggested by the survival of the co-axial patterns of trackways of the Chilterns into modern times, and perhaps even by the evidence for supposed Roman or earlier origins for early medieval multiple estates (Reed, 1979, 71-77). Many prehistoric boundaries seem to have survived as later parish boundaries on the chalk.

But the biggest legacies of all from this period were less directly tangible, yet far more substantial: it was in the late prehistoric period that the first fields and fully settled farms emerged within an almost fully managed landscape; it was also the first time that a kind of politics that would be relatively familiar in modern terms emerged out of a kind of social interaction that would have seemed very odd to us now. Although subsequent periods also saw major transformations it is not yet entirely clear exactly how much can be traced back to this early emergence of a society in which control and management of land and territory had become so important – and even fewer where it is possible to see what may be real living legacies like the common grazing of Port Meadow just outside Oxford and the enduring symbol of identity that the White Horse has become.

Abbreviations

AM	Ashmolean Museum
Archaeol J	The Archaeological Journal
BAJ	*Berkshire Archaeological Journal*
BAR	British Archaeological Reports
BBOAJ	*Berks Bucks and Oxon Archaeological Journal*
BL	British Library
Bodl. Lib.	Bodleian Library, University of Oxford
CBA	Council for British Archaeology
CBA9	*Council for British Archaeology Group 9 Newsletter*
CUCAP	Cambridge University Collection of Aerial Photographs
NMR	National Monuments Record
OA	Oxford Archaeology
OUCA	Oxford University Committee for Archaeology
PCRG	Prehistoric Ceramics Research Group
PPS	*Proceedings of the Prehistoric Society*
RCHME	Royal Commission on the Historical Monuments of England
RIB	*Roman Inscriptions of Britain*
SyAC	*Surrey Archaeological Collections*
SMA	*South Midlands Archaeology*
SMR	Sites and Monuments Record
TBGAS	*Transactions of the Bristol and Gloucestershire Archaeological Society*
TVAS	Thames Valley Archaeological Services
VCH	Victoria County History (the Victoria History of the Counties of England)
WANHM	*Wiltshire Archaeological and Natural History Magazine*

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