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A probable prehistoric field system on Whitmoor Common, Worplesdon

Background

Whitmoor Common is part of the extensive sandy heath that characterises the land on the borders of Surrey, Hampshire and Berkshire (fig 1). As such, it is a marginal area in modern agricultural terms and a 'zone of preservation' in archaeological terminology (Taylor 1972), where survival of above-ground features might be expected. Two barrows are known to have existed on Whitmoor Common and both were excavated by Lane-Fox (later General Pitt Rivers); the finds are now deposited in the Pitt Rivers Museum, Oxford and a partial archive in Salisbury and South Wiltshire Museum (Saunders 1980; English 2011).

No evidence of human activity has been found on Whitmoor Common dating to between the late prehistoric and medieval periods. During the medieval and post-medieval periods the common was an area of waste divided between two manors – Worplesdon and Burpham (or Burgham) – and there is no evidence that other than a few small assarts and purprestures the heath was subject to division or enclosure, although the recovery of a sherd of Tudor green glazed pottery (Stuart Needham, pers comm) suggests some form of use. Customs of the Manor of Worplesdon survive from 1562 (SHC: G97/6/12) and in a perambulation of the bounds a linear ditch transversing the common from north to south was described as 'a diche called Grymes diche'. The same feature was named by Aubrey (1718, 326) the 'great old trench'. The appellation as the 'Grymes diche' is of interest. This name was usually given to an earthwork, the origins of which had been forgotten and were therefore mysterious; that this should be the case by 1562 suggests that the ditch may be earlier than medieval and was not a boundary in use or in memory by that date.

In the 1970s a rapid survey undertaken by a local man, Geoffrey Thomas, and reported to Dr Stuart Needham, noted a number of banks, parallel to and at right angles to the Grymes diche, which appeared to be portions of a field system. Dr Needham followed up with informal fieldwork between 1977 and 1979, making notes on boundaries across the whole of Whitmoor Common and Jordan Hill. No surveyed plan was undertaken, but he recognised the likely Bronze Age character of the system (Needham 1987, 131) and that the modern field layout to the north of the brook might perpetuate the ancient system. The possibility of a pre-medieval field system surviving as a series of standing earthworks on sandy heathland encouraged the undertaking of a detailed survey augmented by small-scale excavation. Samples were collected for multi-elemental and environmental analysis. The results from the former technology have been published and suggest, first, that the buried soil beneath the portion of the field system examined was coeval with that beneath one of the barrows and, secondly, that the linear ditch, the Grymes diche, had been an important droveway for livestock at some time (Dolan *et al* 2004).

Results of the analytical survey, palynology and radiocarbon dating of palaeosols sealed beneath the banks of both phases of a two-phase field system, and discussed within the context of Bronze Age field systems in south-east Britain, have been published (English 2013). The aim of this note is to provide information about the common to a more local audience.

Geology and topography

Whitmoor Common is primarily an area of lowland heath, a habitat type for which Surrey remains, despite degradation in recent decades, an important location. With the exception of Jordan Hill, the common lies at an elevation of between 30 and 40m OD (fig 2). It is situated on the Eocene sands of the Bagshot Beds and is mainly an area of light, well-drained, acid sand. Inappropriate cultivation, thought in other heathland areas to include clearance of deciduous woodlands followed by arable agriculture during the prehistoric period (Dimbleby

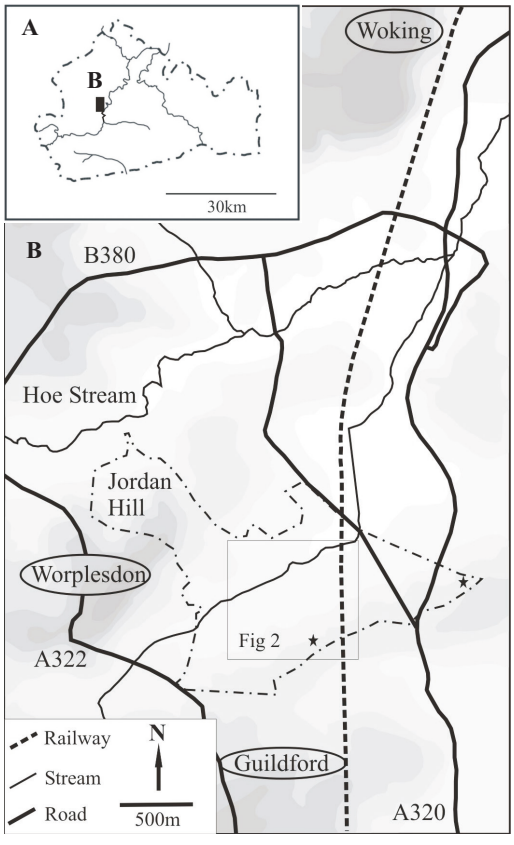

Fig 1 Whitmoor Common,Worplesdon. Location and topography. The outline of the common is shown in figure 1b and the position of barrows marked with stars. The contour lines are drawn at 5m intervals with land below 30m OD remaining white.

1962), has resulted in development of a stagnogley podzol. Jordan Hill, to the north-west of the main area of the heath, rises to 55m OD and on this elevated area a strongly eluviated humo-ferric podzol exists.

A small stream crosses the common from west to east, and to the west of the railway line the area is wet and frequently under water. This area may always have been wet heathland, but it seems more likely that the drainage has been interrupted by the embankment of the railway line.

Analytical survey

The main part of the level 3 survey was undertaken, using the tape-and-offset method (Bowden 1999, 62–3), in 1999–2000 with data added in 2005 after fire and vegetation management improved visibility in some areas of the common. The survey located a series of banks, most of which were between 15 and 20cm high, with occasional traces of an accompanying ditch. These are depicted in line form only since the depth of vegetation and the shifting nature of their sandy matrices precluded identification of any phase relationships other than by variations in their alignments (fig 2).

The banks appear to represent two phases of a rectilinear field system on different alignments. At none of the intersections between banks from different phases does sufficient above-ground evidence survive to determine their relative phasing, but the fact that only a few slight banks survive of the system aligned 70º west of north suggests that they belong to an earlier phase that has largely been destroyed by later land use. The later phase, aligned 20º west of north, comprises both sub-rectangular and strip fields, and its axis curves slightly towards the west at the northern end of the common becoming at right angles to the small (un-named) stream. The tithe map for Worplesdon parish (SHC: WOR/10/1/1–3) shows fields similar in alignment to those on the common immediately north of the present common boundary, and both extant boundaries and visible earthworks in fields up to 1km north of these (centred at SU 983 548) suggest the field system may have extended for a considerable distance in that direction. The 'great old trench' noted by Aubrey (1718, 326) was 'about 600 yds long' (550m) *c* 1911 (*VCH 3*, 390), considerably longer than the portion that still survives as the Grymes diche, again suggesting that only a fragment of a once larger system is now visible.

Excavation

Sections were cut across the bank boundaries in 1995 (Ellis 1996) and in 2000 (Dolan *et al* 2004; English 2013). All except one of these sections showed the banks to have been of 'dig

and dump' construction with a single ditch, although one (fig 2, T3; fig 3) had ditches on either side. In this latter example the sides of the yellow sandy core (308/310) were vertical and on either side were contexts (312 and 314), triangular in section, of fine grey sand with

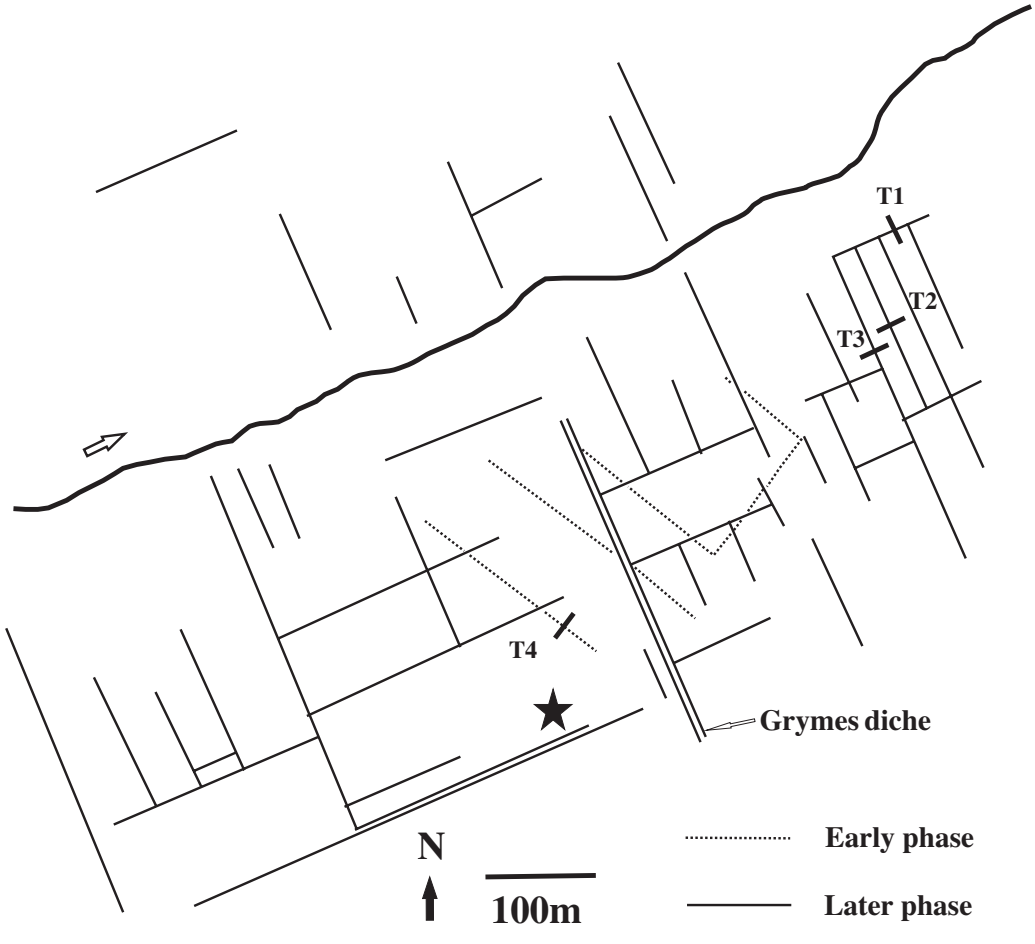

Fig 2 Whitmoor Common, Worplesdon. Analytical survey of earthworks. The star marks the site of a barrow and the position of excavation trenches are given.

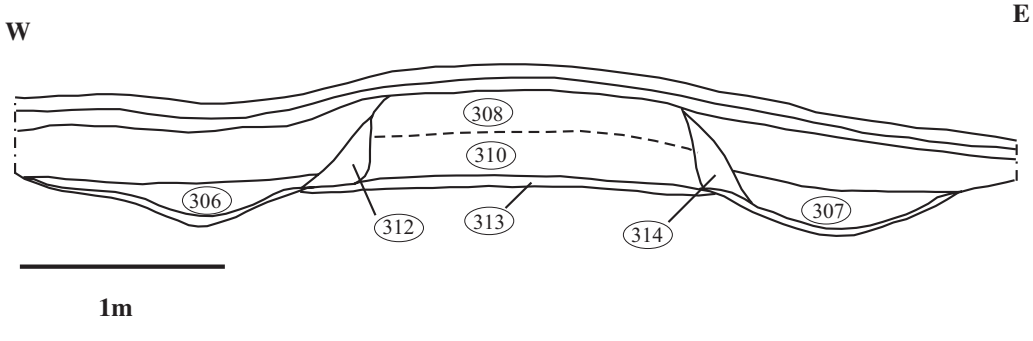

Fig 3 Whitmoor Common,Worplesdon. South-facing section of the bank excavated in trench 3.

Table 1 Utilised flint recovered during excavation of trench 3 (identified by the late Pat Nicolaysen)

Context	Tool type	Number	Comments
307	borer	1	on very thick flake, with rough retouch on sides to produce blunt point
	scraper	1	side, keeled
	blades	2	
	secondary flakes	7	
308	end-scraper	2	
	scraper/borer	1	left-hand use
	blade butt	1	
	secondary flake	3	
	core	1	exhausted
310	scraper	1	round on flat flake
	scraper	1	end and part side, on thick flake
	scraper	1	side, on blade segment
	core	1	blade
	axe trimming flake	1	
	blade butt	1	small notch on one side

no inclusions. Although no supporting stakeholes were seen this suggests that the bank had been revetted, possibly with wattle supports. In each case, beneath the core of the bank was a dark layer (2A horizon), which appeared to be a buried soil overlying a pale elluvial (2Ea) horizon. Samples of the buried soil were collected for radiocarbon dating and pollen analysis.

The dates for the palaeosol beneath banks of both phases of the field system fell between the 16th and 12th centuries BC (English 2013, 29). While they provide a *terminus post quem* rather than a construction date for the field systems, given the lack of worm and bacterial action in the acid podzol, a prehistoric, probably Middle Bronze Age, genesis seems likely.

Pollen analysis – undertaken by Jon Dodson (then of Brunel University later of the University of Western Australia) – indicated that both phases of the field systems had been constructed in an environment of mixed deciduous woodland with a hazel under-storey, but with large open areas where the vegetation was dominated by a mixture of grassland species. Pollen from *Hordeum* (barley) indicated arable farming and broken ground that would have supported the ruderal weeds *Rumex* (dock) and Lactuceae (dandelion-like plants) and areas of shorter, possibly grazed, turf were indicated by the presence of *Plantago lanceolata* (ribwort plantain), *Potentilla* type (possibly tormentil or cinquefoil) and Asteroideae (daisy). Tree species present included *Tilia* (lime), which requires a base-rich soil (Keith-Lucas 1994), indicating partial survival of a fertile brown earth, but some deterioration towards the present podzol is shown by high percentages (over 20% in most samples) of *Calluna* (heathers) and *Erica* (heaths) together with *Pteridium* (bracken) (*ibid*, table 3.1).

A small number of worked flints were recovered from trench 3 (table 1) and suggest earlier use of the common, possibly during the Neolithic period or the Early Bronze Age.

Discussion

Despite the belief that the degradation of brown earths to the present podzols has an anthropogenic origin, and the not infrequent finding of signs of agriculture on land surfaces beneath Bronze Age barrows, few prehistoric field systems have been located on sandy heathland in southern Britain. On Bagshot Beds in Dorset (there known as Poole Formation) a ditched field system at the Wytch Farm Oilfield has been tentatively dated

to the Early–Middle Bronze Age (Cox & Hearne 1991, 27–45) and on Bracklesham Beds near Nursling, 6km north-west of Southampton, a Middle Bronze Age example has been excavated (Gardiner 1994). Small areas of field system, not securely dated but probably either late prehistoric or Romano-British in origin, have been located on Barton and Becton Sands in the New Forest (Smith 1999), and on Yately Common (Hampshire) fragmentary remains of a possible coaxial system of prehistoric date have been surveyed (White 2002).

In Surrey, fragments of what may be prehistoric boundaries have been noted on Smarts Heath and Horsell Common (Needham 1987, 131) and on Prey Heath (Stuart Needham, pers comm) (all near Woking). Evidence from pollen analysis of deposits in Ockley Bog on Thursley Common, a raised bog overlying Lower Greensand, indicated cultivation (Moore & Wilmott 1976), although such evidence was notably absent from the land surface beneath, and turves within, a barrow close by (Graham *et al* 2004). Recent location of a possible field system underlying the hillfort earthworks at Hascombe (Hooker & English 2009), where post-Deverel-Rimbury pottery has also been recognised (Seager Thomas 2010) may start to balance the apparent bias towards sands derived from superficial Eocene and Pleistocene deposits rather than those from greensands of the Cretaceous period.

Evidence of 'Celtic' field systems on sandy heathlands is more prolific on the Continent, with examples found in Denmark, Holland and northern Germany (Bradley 1978). In a number of areas including Vassen in Holland (Brongers 1976, 59) and Store Vildermose in Jutland (Nielsen 1971) field systems were constructed on land that had already been cultivated and where the process of podzolisation was advanced. In a detailed case study from Pleistocene sands in the Noordseveld of Zeijen in the Drenthe in Holland (Spek *et al* 2003) five developmental periods were identified for a single field within a system in use from the Late Bronze Age to the Roman period. Here, attempts to retain fertility included importation of material from elsewhere (*plaggen* soils) and use of glacial till subsoil from abandoned plots before desertion and rapid podzolisation in the 2nd century AD. This long history of human effort attempting to attenuate the deleterious effects of cultivation on a vulnerable soil contrasts with the situation observed in Dorset, where the field system is considered to have been in use for 'as little as a few years' (Cox & Hearne 1991, 226) before a reduction in fertility forced the arable fields to be turned over to rough grazing.

In Surrey, prehistoric activity on the Bagshot Table has been considered part of an expansion of settlement onto previously uncultivated, less favourable soils during the period 1600–1000 BC (late Early Bronze Age and Middle Bronze Age), a finding based on the relative lack of earlier evidence and the preponderance of Middle Bronze Age metalwork finds, and of barrows producing Deverel-Rimbury-style pottery (Needham 1987).

Across different soil types field systems are relatively rare in Surrey, particularly when compared with the coastal plain and South Downs of Sussex (Yates 2007). However, in the Thames Valley the locations of numerous Late Bronze Age systems have been shown to be grouped around high-status settlements (Yates 1999; 2001). Of considerable interest is the recent recognition of the use of heavier soils – London Clay north of Guildford (Lambert 2012) and Weald Clay near Gatwick Airport (Wells 2004); this may suggest migration from exhausted sandy areas. A more complete consideration of the distribution of field systems in south-east England is in preparation (English forthcoming).

On Whitmoor Common it is not possible to say how long each of the field systems was in use, or to estimate the period of time between their origins. Some arable activity appears to have taken place prior to the construction of the visible field systems, evidenced by recovery of barley pollen from beneath a bank from the putative earliest phase, and grassland grazing is also indicated. The dating, longevity and degree of permanence of this activity remains uncertain but the land would have been known and understood as a patchwork of significant locales and links between them, a changing patchwork that was probably already many centuries old when the first field system came to be constructed. By this time the presence of pollen from *Pteridium*, *Calluna* and *Erica* sp suggests the brown earth cover had already started to deteriorate; elsewhere on Bagshot Series-derived heathland in Surrey, at Ashley Farm,

Windlesham, the first appearance of *Calluna* has been dated by radiocarbon to 1610–1430 cal BC (at 2σ) (Jon Groves, pers comm). It is inconceivable that this vegetational change was not observed at the time, and unlikely that its implications for crop yield were not appreciated, yet the expenditure of effort involved in creating the field system was deemed necessary, a situation paralleled by Continental findings (Neilsen 1971).

Insufficient evidence survives above ground of the putative first phase of the field system to comment on its form but the morphology of the later portion, together with its possible dating to the Early to Middle Bronze Age, suggests an identification as of coaxial or terrain oblivious type. The change in alignment between the two phases suggests that although at least some of the banks of the earlier phase were visible, the later phase was constructed without regard to these remains. On Dartmoor a number of systems were constructed with their main axes perpendicular to rivers, including that on Shovel Down, where the main reaves lie at right angles to the North Teign (Johnston 2005), and here the later phase bears the same relationship to the stream crossing Whitmoor Common.

What is clear from the survival of sand banks from the earlier phase within the later fields is that few if any episodes of ploughing can have been undertaken. Whether the enclosures were used primarily for grazing, presumably with fences or hedges on top of the banks, or – despite the effort expended in its construction – the field system was rapidly abandoned, is uncertain. Increasing Late Bronze Age utilisation of London (Lambert 2012) and Weald (Wells 2004) Clays suggests a move from exhausted sandy soils to the more intractable, but fertile, clays.

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